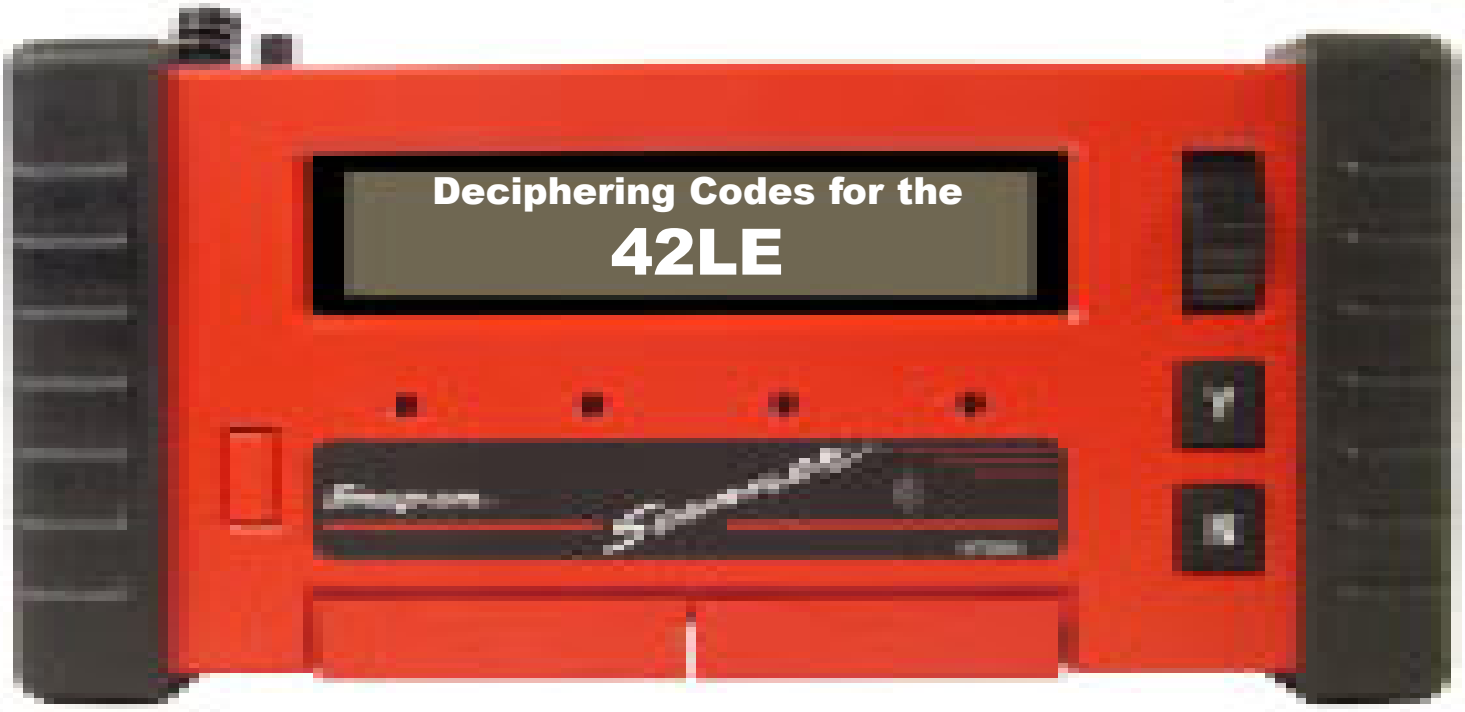
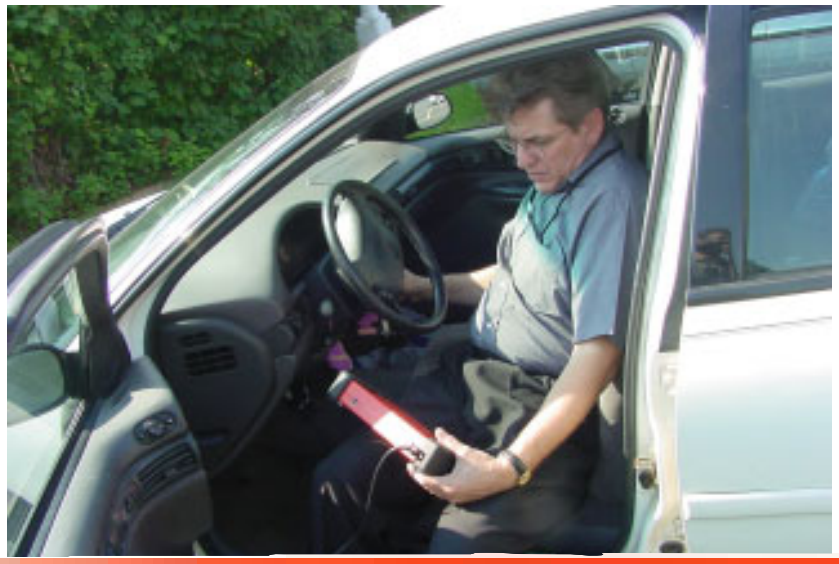


Contents



42LE CODE: 21 / P1781
OD Pressure Switch Sense Circuit

41LE Code 21 / P1781
Overdrive (OD) Pressure Switch Sense Circuit

Theory of Operation

The transmission control system uses three pressure switches to monitor the fluid pressure in the L-R, 2-4, and OD clutch circuits. The pressure switches are continuously monitored by the Transmission Control Module (TCM) for the correct states in each gear as shown in **figure 1**.

Normal Pressure Switch States			
Gear	**L-R**	**2-4**	**OD**
Park	Closed	Open	Open
Reverse	Open	Open	Open
Neutral	Closed	Open	Open
First	Closed	Open	Open
Second	Open	Closed	Open
Third	Open	Open	Closed
Fourth	Open	Closed	Closed

Figure 1—Normal pressure switch states.

Conditions for Setting the Trouble Code

The code will set any time the engine is running and the following conditions exist:
- Engine speed must be greater than 500 RPM
- A shift must not be in progress
- No loss of prime test in progress
- A pressure switch mismatch is detected
- The code sets within 4 seconds

Action taken when code sets

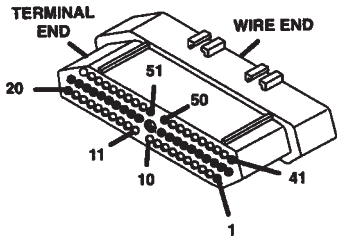
93-95
- Limp-In: YES

96-up
- Normal operation will be experienced if no other fault codes are present. The TCM will ignore the code
- If code 21 is accompanied by code 28 (PRNDL signal), Limp-In will occur
- Illuminates the malfunction indicator lamp on **96-up** vehicles

Possible Causes

- Wiring or connector problems in the OD pressure switch circuit
- Defective solenoid pack
- Defective TCM
- Shifter mispositioned between OD and N
- Internal transmission cross leaks
- Plugged transmission filter (internal transmission or torque converter failure)

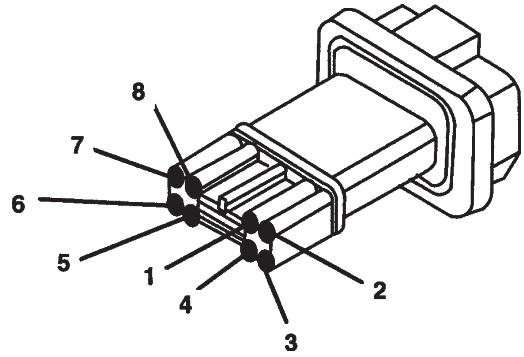
NOTE For complete connector and wire color tables, see Appendix B.



Transmission Control Module 1993-2001

CAV	COLOR	FUNCTION
9	BK/LG* OR/BK**	OD PRESSURE SWITCH SENSE

Figure 2— Transmission control module and cavity 9 information.



Solenoid Pack Connector 1993-2001

CAV	COLOR	FUNCTION
1	BK/LG* OR/BK**	OD PRESSURE SWITCH SENSE

Figure 3— Solenoid pack connector and cavity information.

***1993-1997**
**** 1998 - 2001**

Wiring Diagram

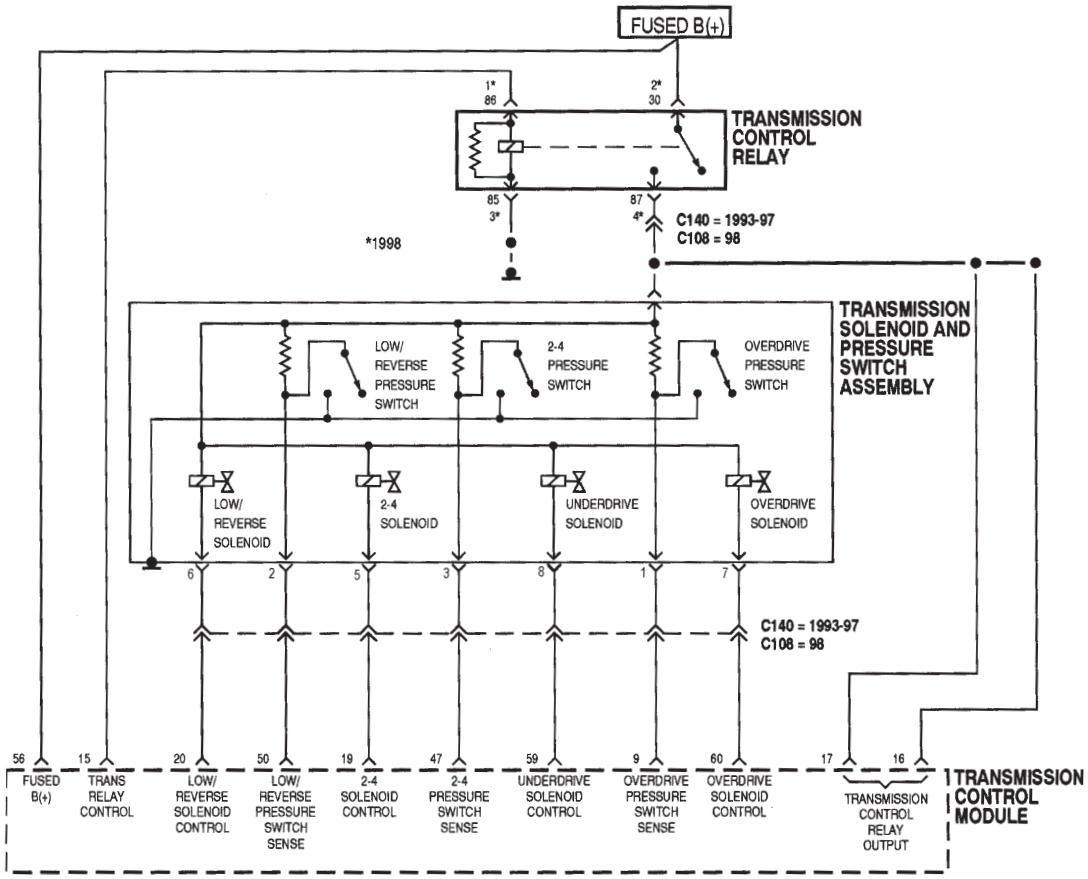


Figure 4—Wiring diagram.

NOTE For complete connector and wire color tables, see Appendix B.

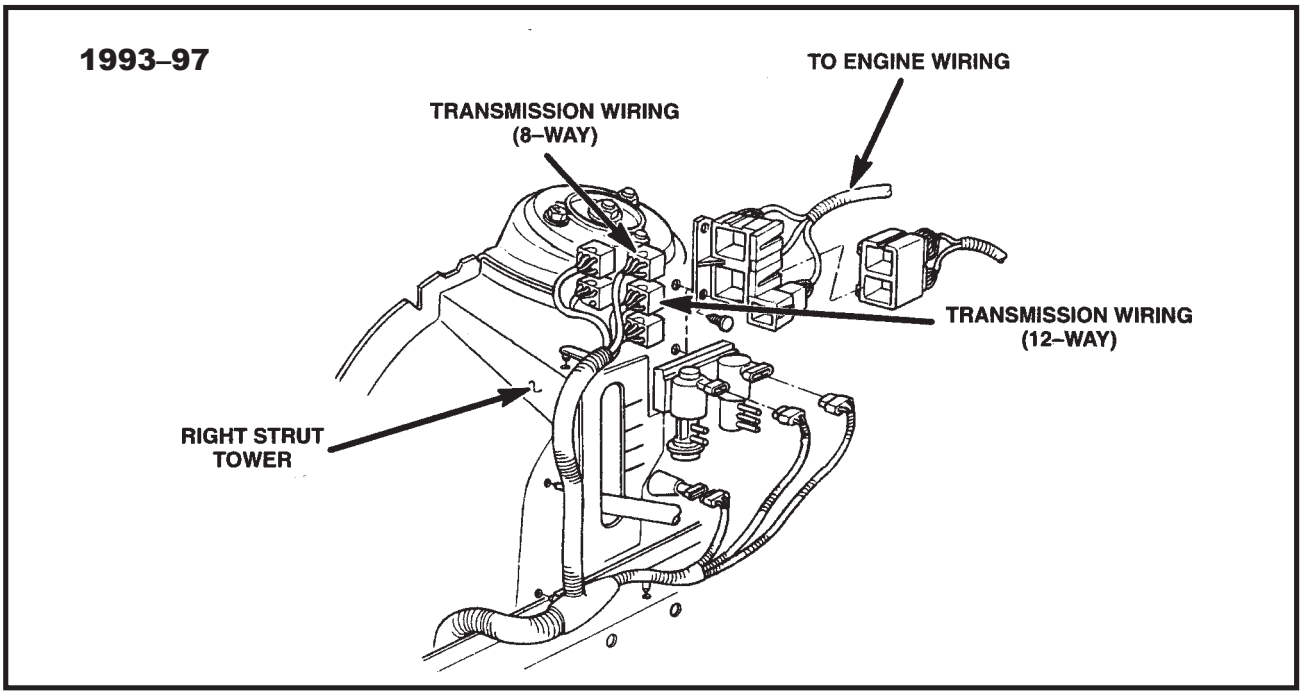


Figure 5—8-way in-line connector location.

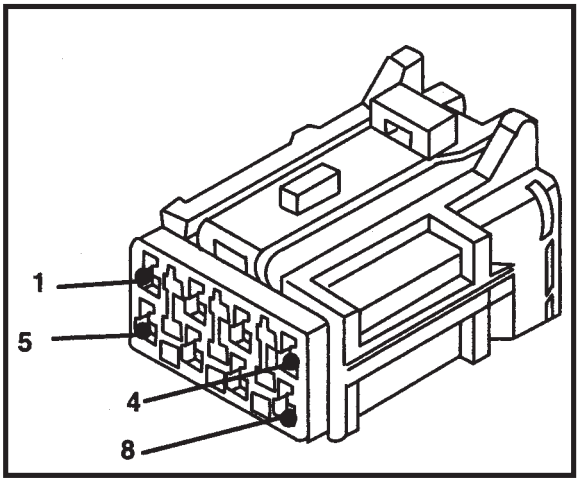


Figure 6— 8-way in-line connector, harness side.

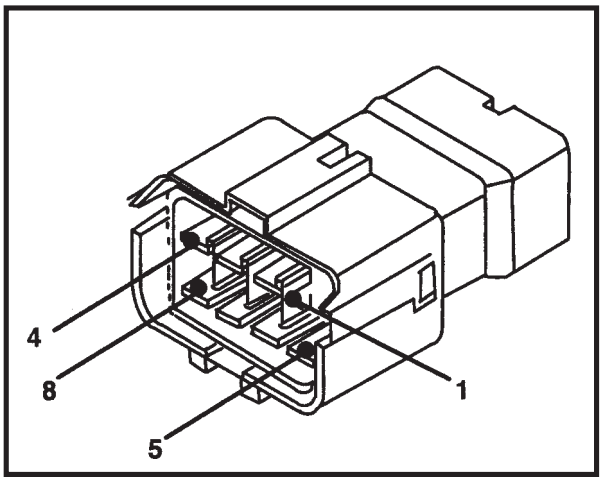


Figure 7— 8-way in-line connector, transmission side.

In-Line 8-Way Connector
1993-97
(applies to both the harness side and the transmission side)

CAV	COLOR	FUNCTION
6	BK/LG	OD PRESSURE SWITCH SENSE

Figure 8—8-way connector cavity 6 information.

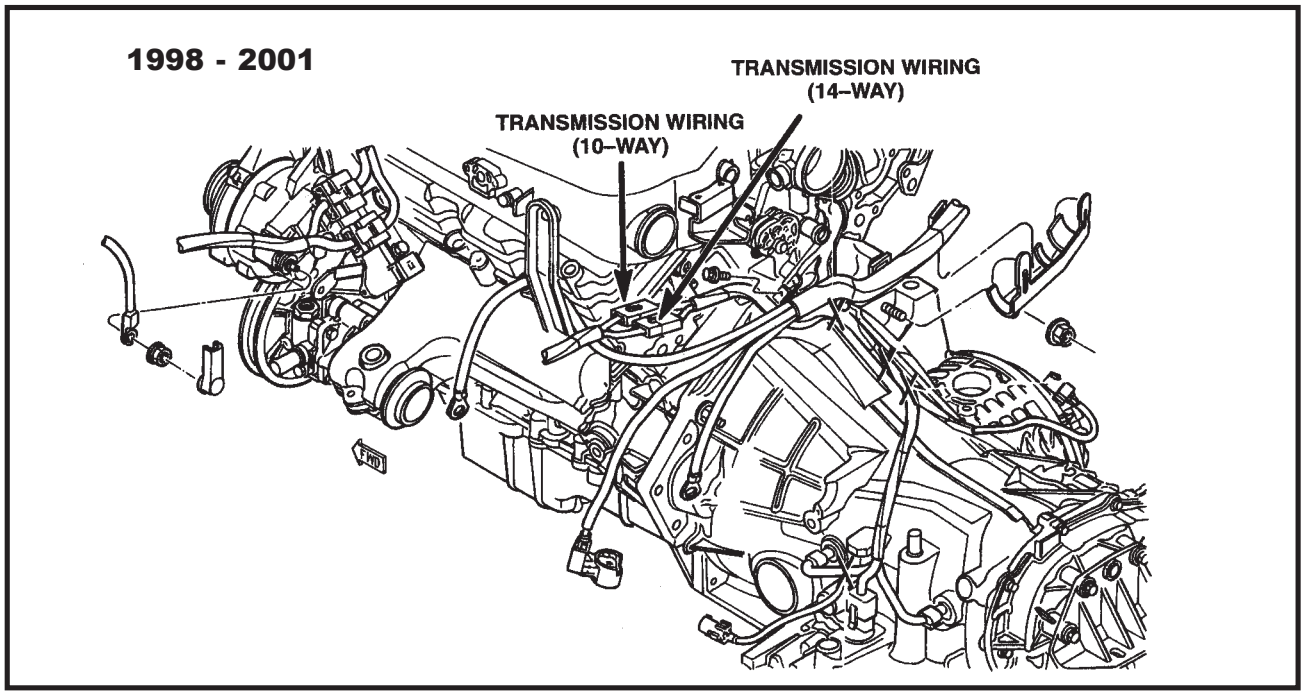


Figure 9—10-way in-line connector location.

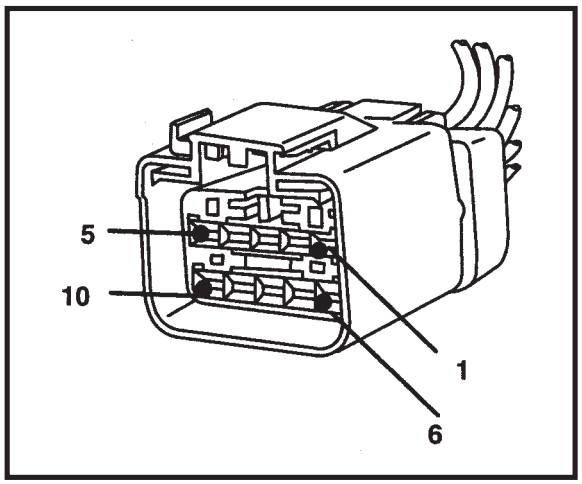


Figure 10—10-way in-line connector, harness side.

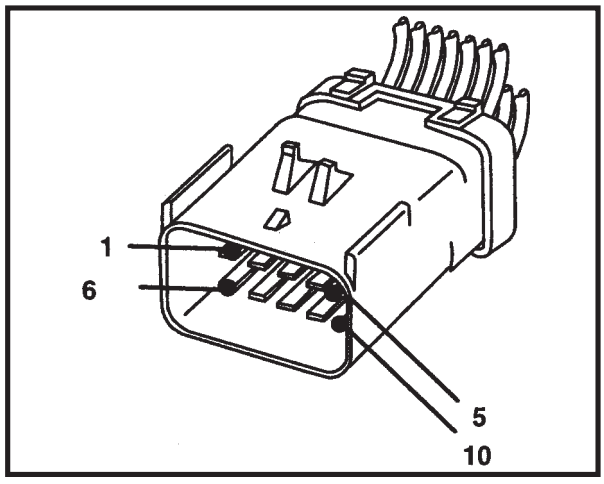


Figure 11—10-way in-line connector, transmission side.

In-Line 10-Way Connector
1998 - 2001
(applies to both the harness side and the transmission side)

CAV	COLOR	FUNCTION
1	OR/BK	OD PRESSURE SWITCH SENSE

Figure 12—10-way connector cavity 1 information.

Diagnosis

Step 1

Hook up the Snap-On scanner and check for trouble codes. Are codes 35 or 43 (code 35 indicates loss of prime, code 43 indicates an OD solenoid circuit error—both can be found later in this section) also present?
If yes, proceed with diagnostics for these codes first.
If not, go to step 2.

Step 2

Erase trouble codes and road test the vehicle.
Does code 21 return?
If yes, go to step 3.
If the code does not return the problem is intermittent or hydraulic. Try shaking the wiring and connectors to duplicate the condition.
If the code still does not return connect a 0 to 300 PSI gauge to the OD pressure port and road test vehicle **(see figure 13)**.
Does the gauge ever show more than 5 PSI when the pressure switch should be open according to the chart in **figure 1**?
If yes, a hydraulic cross leak can be closing the switch when it should be open.

Step 3

Disconnect the small 8- or 10-way in-line connector **(see figures 5 & 9)**. Inspect the connector for corroded, damaged or pushed out terminals.
Measure the resistance between the OD pressure switch sense circuit and ground at the harness side of the in-line connector **(see figures 6, 8, 10, & 12)**.
Is the resistance above 400 ohms?
If yes, go to step 5.
If no, go to step 4.

Step 4

With the ignition key off, disconnect the TCM connector. Inspect the TCM and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the OD pressure switch sense circuit and ground at the harness side of the small 8- or 10-way in-line connector **(see figures 6, 8, 10, & 12)**.
Is the resistance below 5 ohms?
If yes, repair the OD pressure switch sense circuit for a short to ground between the TCM connector and the small in-line connector.
If no, replace the TCM.

Step 5

With the ignition key off, disconnect the TCM connector. Inspect the TCM and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the OD pressure switch sense circuit and all other circuits at the harness side of the small 8- or 10-way in-line connector **(see figures 6, 8, 10, & 12)**.
Are all the resistances above 5 ohms?
If yes, go to step 6.
If no, repair the OD pressure switch sense circuit for a short to the circuit that measured less than 5.0 ohms.

Step 6

Measure the resistance of the OD pressure switch sense circuit between the TCM connector and the harness side of the small 8- or 10-way in-line connector **(see figures 2, 6, 8, 10, & 12)**.
Is the resistance below 5 ohms?
If yes, go to step 7.
If no, repair the open OD pressure switch sense circuit between the TCM connector and the transmission small in-line connector.

Step7

Measure the resistance between the OD pressure switch sense circuit and ground at the transmission side of the small 8- or 10-way in-line connector **(see figures 7, 8, 11, & 12)**.
Is the resistance below 5 ohms?
If yes, go to step 8.
If no, go to step 9.

Step 8

Disconnect the solenoid pack connector. Inspect the solenoid pack and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the OD pressure switch sense circuit and ground at the transmission side of the small in-line connector **(see figures 7, 8, 11, & 12)**.
Is the resistance below 5 ohms?
If yes, repair the OD pressure switch sense circuit for a short to ground between the solenoid pack connector and the small in-line connector.
If no, replace solenoid pack.

STEP 9

Measure the resistance between the OD pressure switch sense circuit and all other circuits at the transmission side of the small 8- or 10-way in-line connector **(see figures 7, 8, 11, & 12)**.
Are all the resistances above 5 ohms?
If yes, go to step 11.
If no, go to step 10.

STEP 10

Disconnect the solenoid pack connector. Inspect the solenoid pack and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the OD pressure switch sense circuit and the circuit that measured less than 5 ohms **(see figure 3)**.
Is the resistance below 5 ohms?
If yes, repair the OD pressure switch sense circuit for a short to the circuit that measured less than 5 ohms.
If no, replace the solenoid pack.

STEP 11

Disconnect the solenoid pack connector. Inspect the solenoid pack and connector for corroded, damaged or pushed out terminals.
Measure the resistance of the OD pressure switch sense circuit between the solenoid pack connector and the transmission side of the small 8- or 10-way in-line connector **(see figures 3, 7, 8, 11, & 12)**.
Is the resistance below 5 ohms?
If yes, go to step 12.
If no, repair the open OD pressure switch sense circuit between the solenoid pack connector and the transmission small in-line connector.

STEP 12

Reconnect the TCM connector.
Turn the ignition key on.
With the Snap-On scanner, read the OD pressure switch status and record the test result.
With a jumper wire, tap 12 volts to the OD pressure switch sense circuit at the harness side of the small in-line connector **(see figures 6, 8, 10, & 12)**.
Does the switch state toggle between closed and open?
If yes, go to step 13.
If no, replace the TCM.

STEP 13

Reconnect the TCM connector.
Reconnect the solenoid pack connector.
Reconnect the small in-line connector.
Connect a 0 to 300 PSI gauge to the OD pressure port **(see figure 13)**.
Raise all 4 wheels off the ground and properly support the vehicle.
With the Snap-On scanner, go to the FUNCTIONAL TESTS menu and select ATM test. This test will allow you to turn the shift solenoids on with the scanner.
Start the engine and step on the brake so the wheels won't turn during the test.
Put the shift lever in the OD position.
With the scanner, actuate the OD solenoid. Read the pressure gauge.

NOTE It may be necessary to raise the engine speed to 1400 RPM during the test.

Does the pressure fluctuate from less than 5 PSI to 75–95 PSI?
If yes, replace the solenoid pack (OD pressure switch failure).
If no, go to step 14.

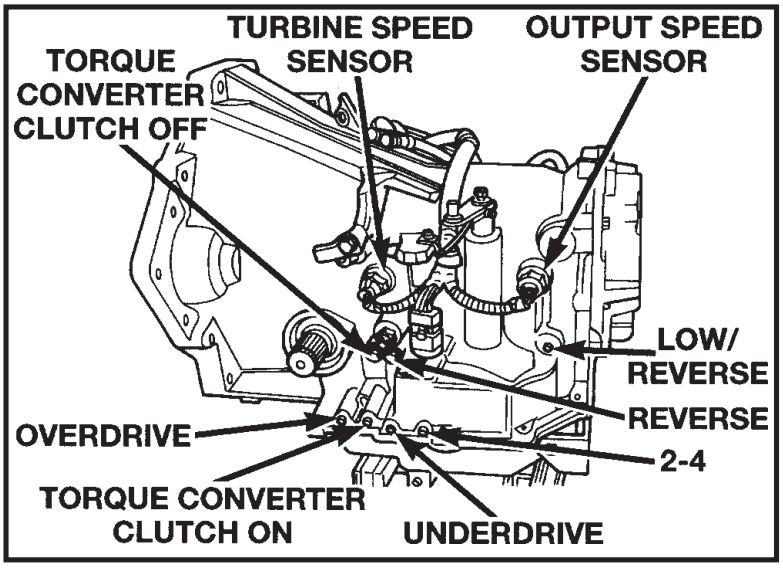


Figure 13—OD pressure port.

STEP 14

Does the pressure rise above 5 PSI?
If yes, go to step 15.
If no, replace the solenoid pack (OD solenoid failure).

Step 15

Does the pressure ever fall less than 5 PSI?
If yes, go to step 17.
If no, go to step 16.

Step 16

Check the valve body for flatness and proper bolt torque.
Was the valve body flat and properly torqued?
If yes, replace the solenoid pack and go to step 18.
If no, go to step 18.

Step 17

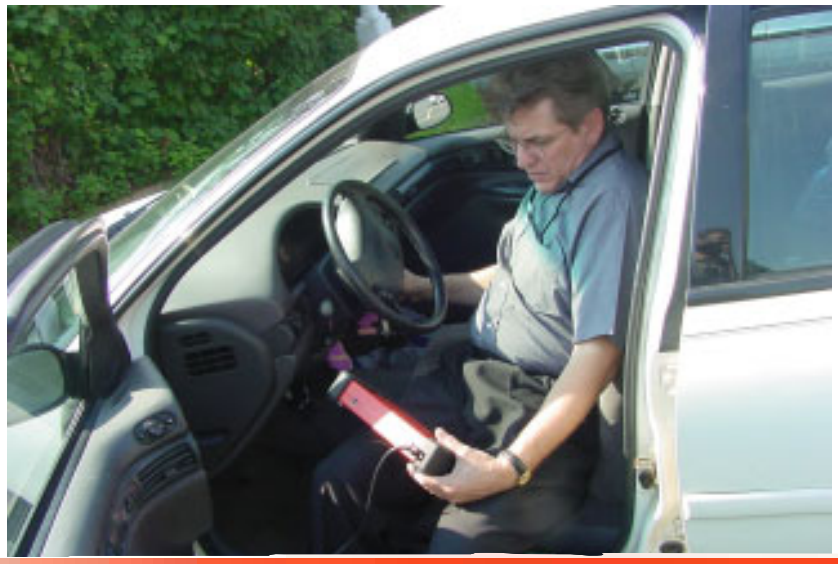
Does the pressure ever reach 75 PSI?
If yes, the conditions to set the code are not present at this time.
If no, replace the solenoid pack assembly and go to step 18.

Step 18

With the Snap-On scanner, actuate the OD solenoid.
Does the pressure fluctuate from 0 to 75 PSI?

NOTE It may be necessary to raise the engine speed to 1400 RPM during the test.

If yes, unhook the gauges and road test the vehicle to verify the condition is corrected.
If no, there is internal seal leakage, rebuild the transmission as necessary.



42LE CODE: 22 / P1782
2-4 Pressure Switch Sense Circuit

42LE Code 22 / P1782
Two-Four (2-4) Pressure Switch Sense Circuit

Theory of Operation

The transmission control system uses three pressure switches to monitor the fluid pressure in the L-R, 2-4, and OD clutch circuits. The pressure switches are continuously monitored by the Transmission Control Module (TCM) for the correct states in each gear as shown in **figure 14**.

Normal Pressure Switch States			
Gear	**L-R**	**2-4**	**OD**
Park	Closed	Open	Open
Reverse	Open	Open	Open
Neutral	Closed	Open	Open
First	Closed	Open	Open
Second	Open	Closed	Open
Third	Open	Open	Closed
Fourth	Open	Closed	Closed

Figure 14—Normal pressure switch states.

Conditions for Setting the Trouble Code

The code will set any time the engine is running and the following conditions exist:
- The transaxle is in gear
- A pressure switch mismatch is detected

Action Taken When Code Sets

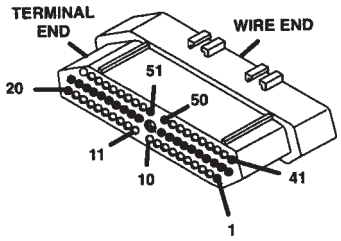
93-95
- Limp-In: YES

96-up
- If the TCM sees the pressure switch closed in Park (P) or Neutral (N), the code will immediately set and normal operation will be allowed for that given key start. If the problem occurs for three successive key starts, Limp-In will occur.
- If the TCM sees the 2-4 pressure switch closed in 1st or 3rd gear but not in P or N the TCM will substitute 2nd and 4th gear depending on throttle angle and vehicle speed. A short period of time after gear substitution the transmission will return to normal operation. If the TCM has to do four gear substitutions in one key start, Limp-In will occur
- If the TCM sees the 2-4 pressure switch open in 2nd and 4th gear it will set code 22 and continue with normal operation
- If code 22 is accompanied by code 28 (PRNDL signal) Limp-In will occur
- Illuminates the malfunction indicator lamp on **96-up** vehicles

Possible Causes

- Wiring or connector problems in the 2-4 pressure switch circuit
- Defective solenoid pack
- Defective TCM
- Worn pressure regulator valve causing high line pressure resulting in cross leaks
- Internal transmission cross leaks
- Plugged transmission filter (internal transmission or torque converter failure)

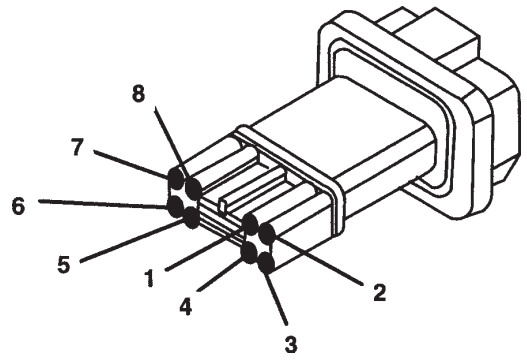
NOTE For complete connector and wire color tables, see Appendix B.



Transmission Control Module 1993-2001

CAV	COLOR	FUNCTION
47	YL/BK	2-4 PRESSURE SWITCH SENSE

Figure 15— Transmission control module and cavity 47 information.



Solenoid Pack Connector 1993-2001

CAV	COLOR	FUNCTION
3	YL/BK	2-4 PRESSURE SWITCH SENSE

Figure 16— Solenoid pack connector and cavity information.

Wiring Diagram

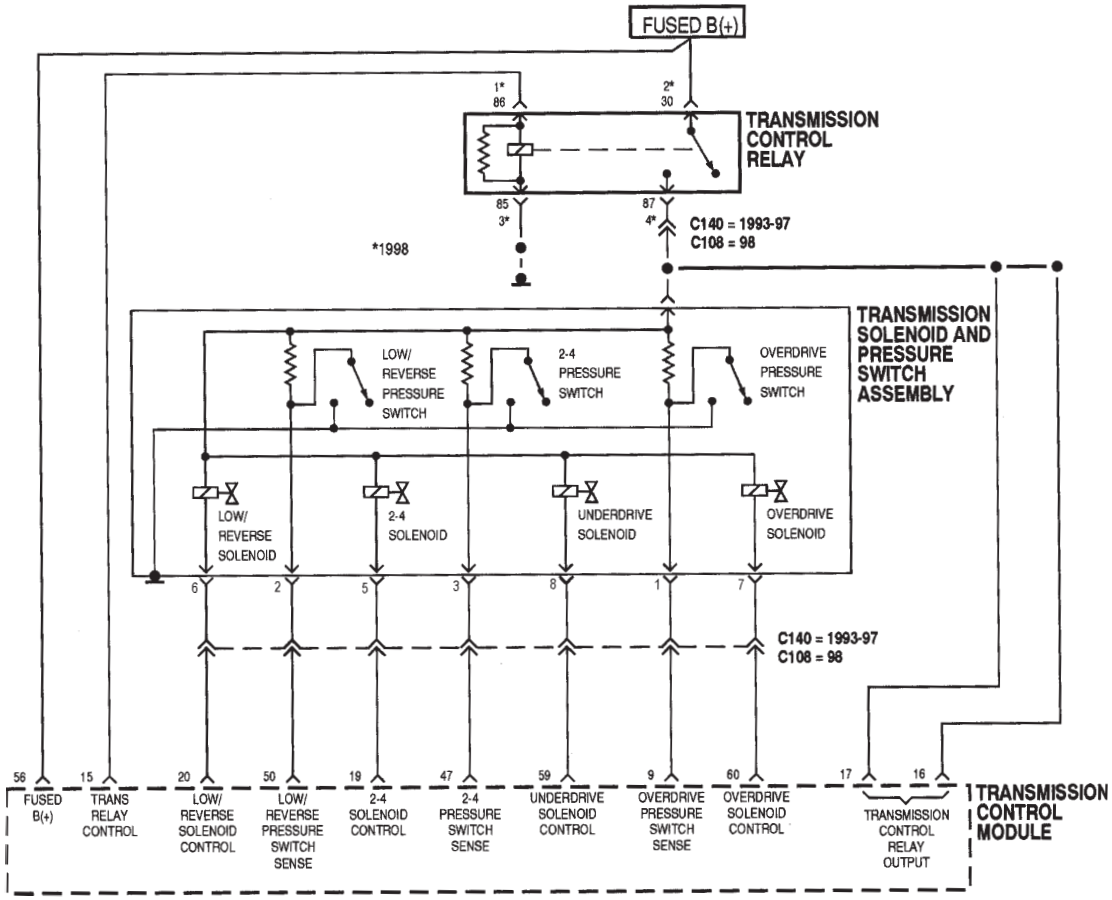


Figure 17—Wiring diagram.

NOTE For complete connector and wire color tables, see Appendix B.

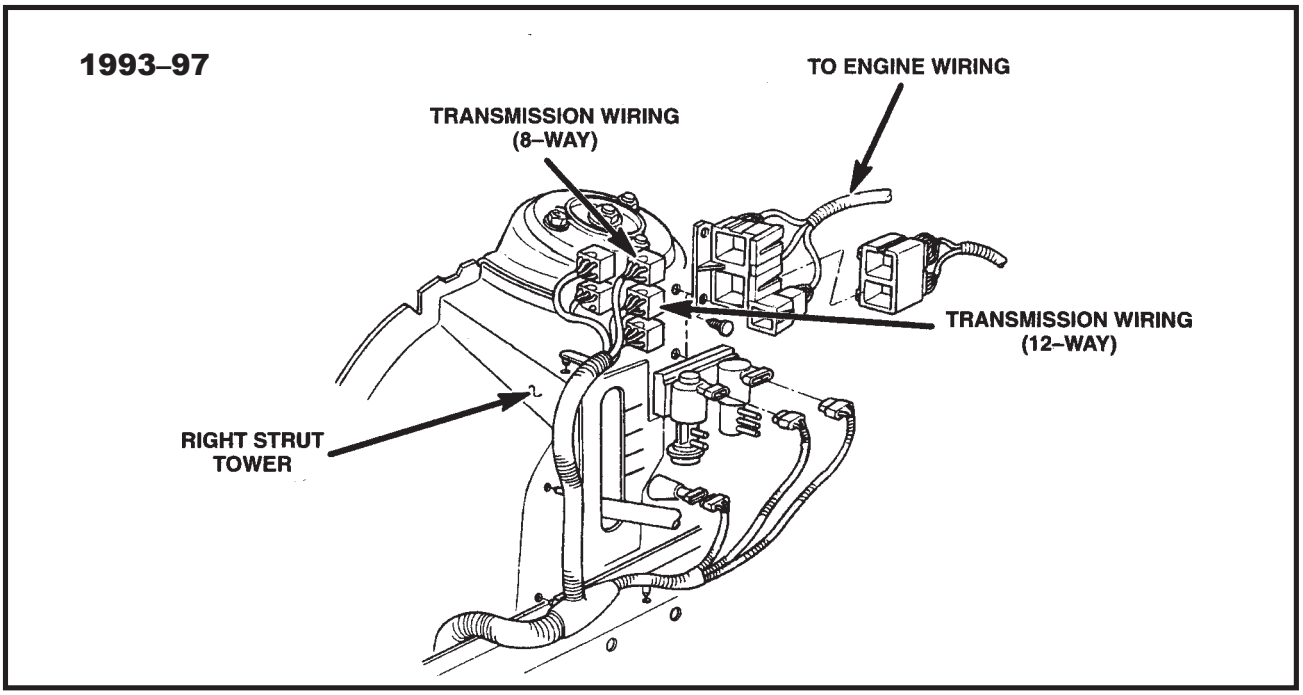


Figure 18—8-way in-line connector location.

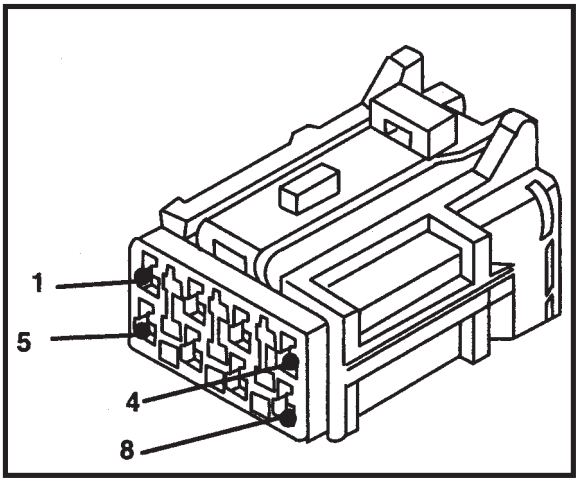


Figure 19— 8-way in-line connector, harness side.

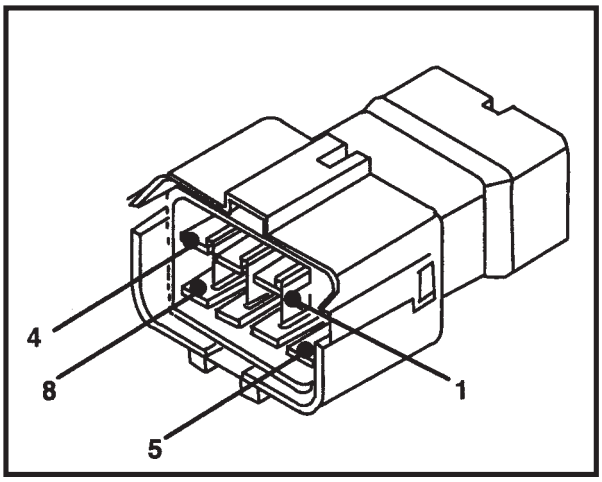


Figure 20— 8-way in-line connector, transmission side.

In-Line 8-Way Connector
1993-97
(applies to both the harness side and the transmission side)

CAV	COLOR	FUNCTION
5	YL/BK	2-4 PRESSURE SWITCH SENSE

Figure 21—8-way connector cavity 5 information.

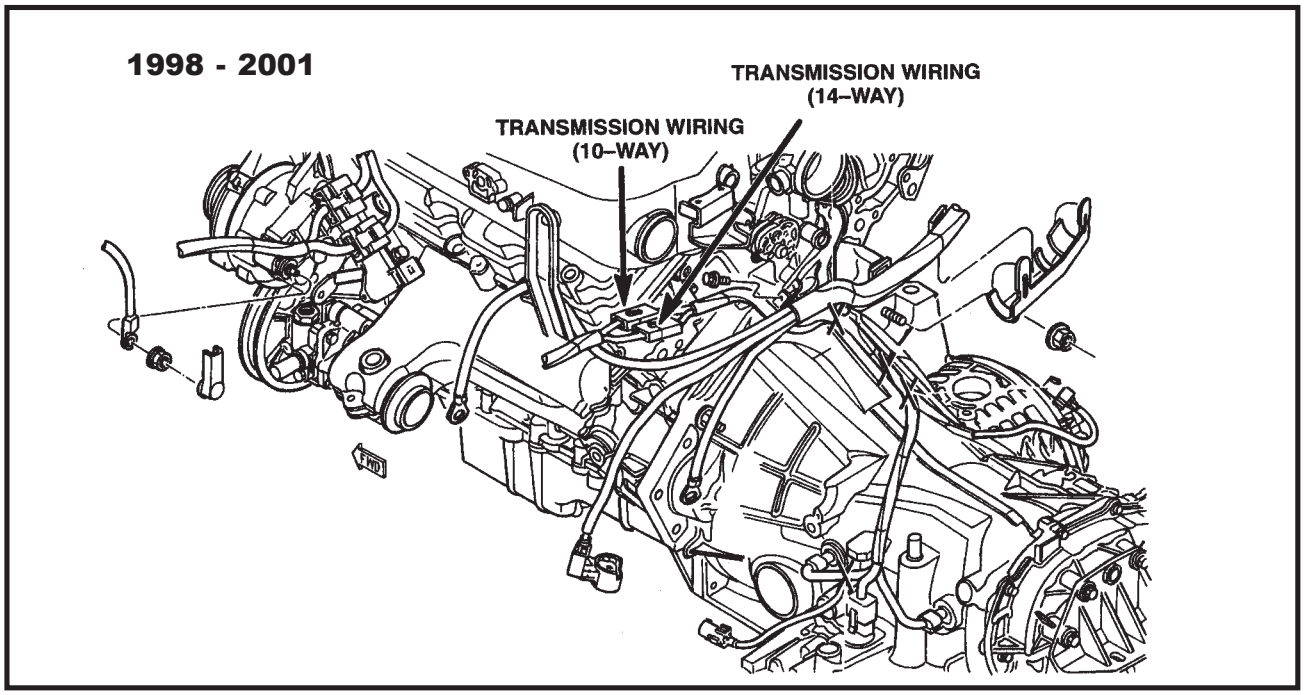


Figure 22—10-way in-line connector location.

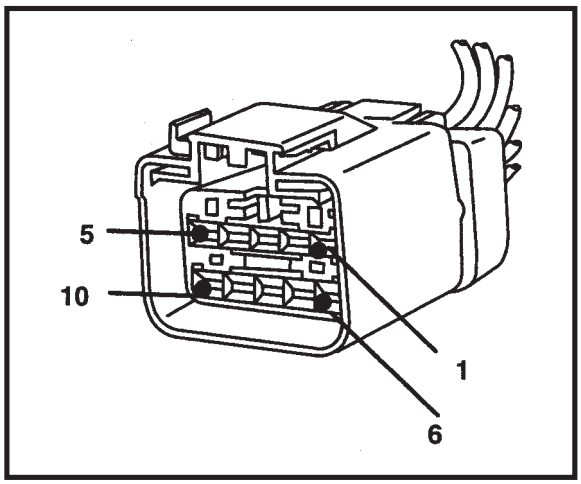


Figure 23—10-way in-line connector, harness side.

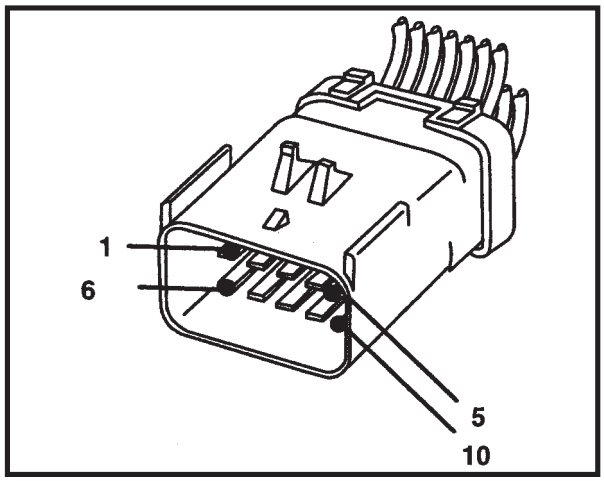


Figure 24—10-way in-line connector, transmission side.

In-Line 10-Way Connector
1998 - 2001
(applies to both the harness side and the transmission side)

CAV	COLOR	FUNCTION
7	YL/BK	2-4 PRESSURE SWITCH SENSE

Figure 25—10-way connector cavity 7 information.

Diagnosis

Step 1

Hook up the Snap-On scanner and check for trouble codes.
Is code 35 also present (code 35 indicates loss of prime and can be found later in this section)?
If yes, proceed with diagnostics for code 35 first.
If not, go to step 2.

Step 2

Erase the trouble codes and road test the vehicle.
Does code 22 return?
If yes, go to step 3.
If the code does not return the problem is intermittent or hydraulic. Try shaking the wiring and connectors to duplicate the condition.
If the code still does not return, connect a 0 to 300 PSI gauge to the 2-4 pressure port and road test vehicle **(see figure 26)**.
Does the gauge ever show more than 5 PSI when the pressure switch should be open according to the chart in **figure 14**?
If yes, a hydraulic cross leak can be closing the switch when it should be open.

Step 3

Disconnect the small 8- or 10-way in-line connector **(see figures 18 & 22)**. Inspect the connector for corroded, damaged or pushed out terminals.
Measure the resistance between the 2-4 pressure switch sense circuit and ground at the harness side of the in-line connector **(see figures 19, 21, 23, & 25)**.
Is the resistance above 400 ohms?
If yes, go to step 5.
If no, go to step 4.

Step 4

With the ignition key off, disconnect the TCM connector. Inspect the TCM and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the 2-4 pressure switch sense circuit and ground at the harness side of the small 8- or 10-way in-line connector **(see figures 19, 21, 23, & 25)**.
Is the resistance below 5 ohms?
If yes, repair the 2-4 pressure switch sense circuit for a short to ground between the TCM connector and the small in-line connector.
If no, replace the TCM.

Step 5

With the ignition key off, disconnect the TCM connector. Inspect the TCM and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the 2-4 pressure switch sense circuit and all other circuits at the harness side of the small 8- or 10-way in-line connector **(see figures 19, 21, 23, & 25)**.
Are all the resistances above 5 ohms?
If yes, go to step 6.
If no, repair the 2-4 pressure switch sense circuit for a short to the circuit that measured less than 5.0 ohms.

Step 6

Measure the resistance of the 2-4 pressure switch sense circuit between the TCM connector and the harness side of the small 8- or 10-way in-line connector **(see figures 15, 19, 21, 23, & 25)**.
Is the resistance below 5 ohms?
If yes, go to step 7.
If no, repair the open 2-4 pressure switch sense circuit between the TCM connector and the transmission small in-line connector.

Step7

Measure the resistance between the 2-4 pressure switch sense circuit and ground at the transmission side of the small 8- or 10-way in-line connector **(see figures 20, 21, 24, & 25)**.
Is the resistance below 5 ohms?
If yes, go to step 8.
If no, go to step 9.

Step 8

Disconnect the solenoid pack connector. Inspect the solenoid pack and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the 2-4 pressure switch sense circuit and ground at the transmission side of the small in-line connector **(see figures 20, 21, 24, & 25)**.
Is the resistance below 5 ohms?
If yes, repair the 2-4 pressure switch sense circuit for a short to ground between the solenoid pack connector and the small in-line connector.
If no, replace solenoid pack.

STEP 9

Measure the resistance between the 2-4 pressure switch sense circuit and all other circuits in the transmission side of the small 8- or 10-way in-line connector **(see figures 20, 21, 24, & 25)**.
Are all the resistances above 5 ohms?
If yes, go to step 11.
If no, go to step 10.

STEP 10

Disconnect the solenoid pack. Inspect the solenoid pack and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the 2-4 pressure switch sense circuit and the circuit that measured less than 5 ohms **(see figure 16)**.
Is the resistance below 5 ohms?
If yes, repair the 2-4 pressure switch sense circuit for a short to the circuit that measured less than 5 ohms.
If no, replace the solenoid pack.

STEP 11

Disconnect the solenoid pack connector. Inspect the solenoid pack and connector for corroded, damaged or pushed out terminals.
Measure the resistance of the 2-4 pressure switch sense circuit between the solenoid pack connector and the transmission side of the small 8- or 10-way in-line connector **(see figures 16, 20, 21, 24, & 25)**.
Is the resistance below 5 ohms?
If yes, go to step 12.
If no, repair the open 2-4 pressure switch sense circuit between the solenoid pack connector and the transmission small in-line connector.

STEP 12

Reconnect the TCM connector.
Turn the ignition key on.
With the Snap-On scanner, read the 2-4 pressure switch status and record the test result.
With a jumper wire, tap 12 volts to the 2-4 pressure switch sense circuit at the harness side of the small in-line connector **(see figures 19, 21, 23, & 25)**.
Does the switch state toggle between closed and open?
If yes, go to step 13.
If no, replace the TCM.

STEP 13

Reconnect the TCM connector.
Reconnect the solenoid pack connector.
Reconnect the small in-line connector.
Connect a 0 to 300 PSI gauge to the 2-4 pressure port **(see figure 26)**.
Raise all 4 wheels off the ground and properly support the vehicle.
With the Snap-On scanner, go to the FUNCTIONAL TESTS menu and select ATM test. This test will allow you to turn the shift solenoids on with the scanner.
Start the engine and step on the brake so the wheels won't turn during the test.
Put the shift lever in the OD position.
With the scanner, actuate the 2-4 solenoid. Read the pressure gauge.

NOTE It may be necessary to raise the engine speed to 1400 RPM during the test.

Does the pressure fluctuate from less than 5 PSI to 75-95 PSI?
If yes, replace the solenoid pack (2-4 pressure switch failure).
If no, go to step 14.

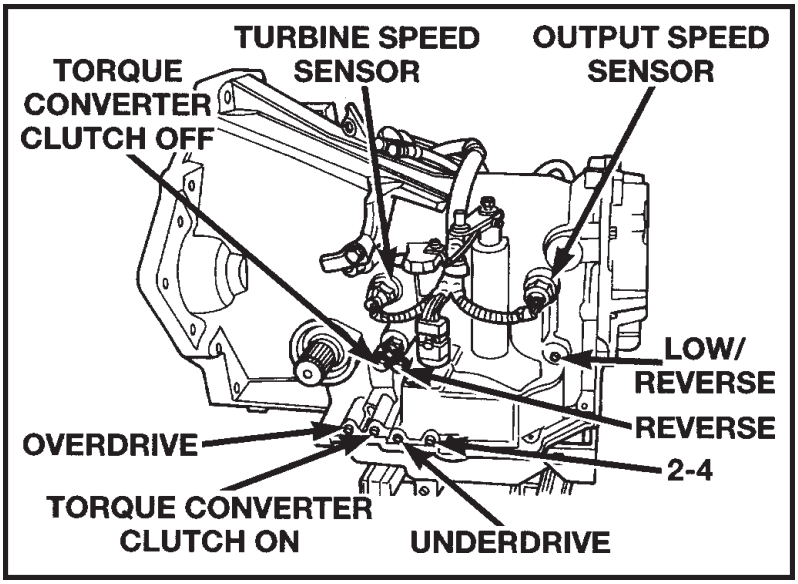


Figure 26—2-4 pressure port.

STEP 14

Does the pressure rise above 5 PSI?
If yes, go to step 15.
If no, replace the solenoid pack (2-4 solenoid failure).

Step 15

Does the pressure ever fall below 5 PSI?
If yes, go to step 17.
If no, go to step 16.

Step 16

Check the valve body for flatness and proper bolt torque.
Was the valve body flat and properly torqued?
If yes, replace the solenoid pack and go to step 18.
If no, go to step 18.

Step 17

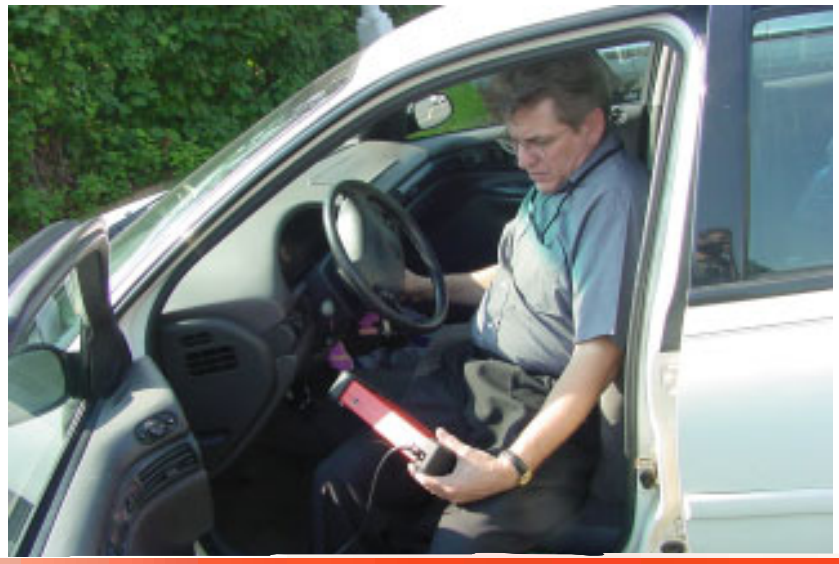
Does the pressure ever reach 75 PSI?
If yes, the conditions to set the code are not present at this time.
If no, replace the solenoid pack assembly and go to step 18.

Step 18

With the Snap-On scanner, actuate the 2-4 solenoid.
Does the pressure fluctuate from 0 to 75 PSI?

NOTE It may be necessary to raise the engine speed to 1400 RPM during the test.

If yes, unhook the gauges and road test the vehicle to verify the condition is corrected.
If no, there is internal seal leakage, rebuild transmission as necessary.




42LE CODE: 24 / P1784
L-R Pressure Switch
Sense Circuit

42LE Code 24 / P1784
Low/Reverse (L-R) Pressure Switch Sense Circuit

Theory of Operation

The transmission control system uses three pressure switches to monitor the fluid pressure in the L-R, 2-4, and OD clutch circuits. The pressure switches are continuously monitored by the Transmission Control Module (TCM) for the correct states in each gear as shown in **figure 27**.

Normal Pressure Switch States			
Gear	**L-R**	**2-4**	**OD**
Park	Closed	Open	Open
Reverse	Open	Open	Open
Neutral	Closed	Open	Open
First	Closed	Open	Open
Second	Open	Closed	Open
Third	Open	Open	Closed
Fourth	Open	Closed	Closed

Figure 27—Normal pressure switch states.

Conditions for Setting the Trouble Code

The code will set any time the engine is running and the following conditions exist:
- The transaxle is in gear
- A pressure switch mismatch is detected

Action Taken When Code Sets

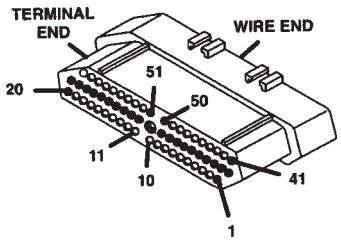
93-95
- Limp-In: YES

96-up
- Limp-In: NO (unless accompanied by code 28 (PRNDL signal)
- Illuminates the malfunction indicator lamp on 96-up vehicles
- 1st gear and Torque Converter Clutch (TCC) will be inhibited. The vehicle will start in 2nd gear and shift normally through the gears without allowing TCC
- If during the same key start the pressure switch mismatch clears, the transaxle will return to normal operation

Possible Causes

- Wiring or connector problems in the L-R pressure switch circuit
- Defective solenoid pack
- Defective TCM
- Low transaxle fluid level
- Valve body: solenoid switch valve stuck, loose bolts
- Plugged transmission filter (internal transmission or torque converter failure)

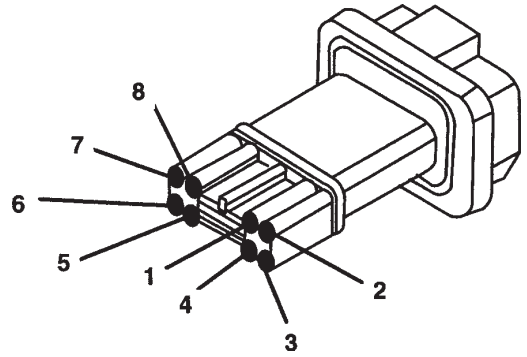
NOTE For complete connector and wire color tables, see Appendix B.



Transmission Control Module 1993-2001

CAV	COLOR	FUNCTION
50	DG	L-R PRESSURE SWITCH SENSE

Figure 28— Transmission control module and cavity 50 information.



Solenoid Pack Connector 1993-2001

CAV	COLOR	FUNCTION
2	DG	L-R PRESSURE SWITCH SENSE

Figure 29— Solenoid pack connector and cavity information.

Wiring Diagram

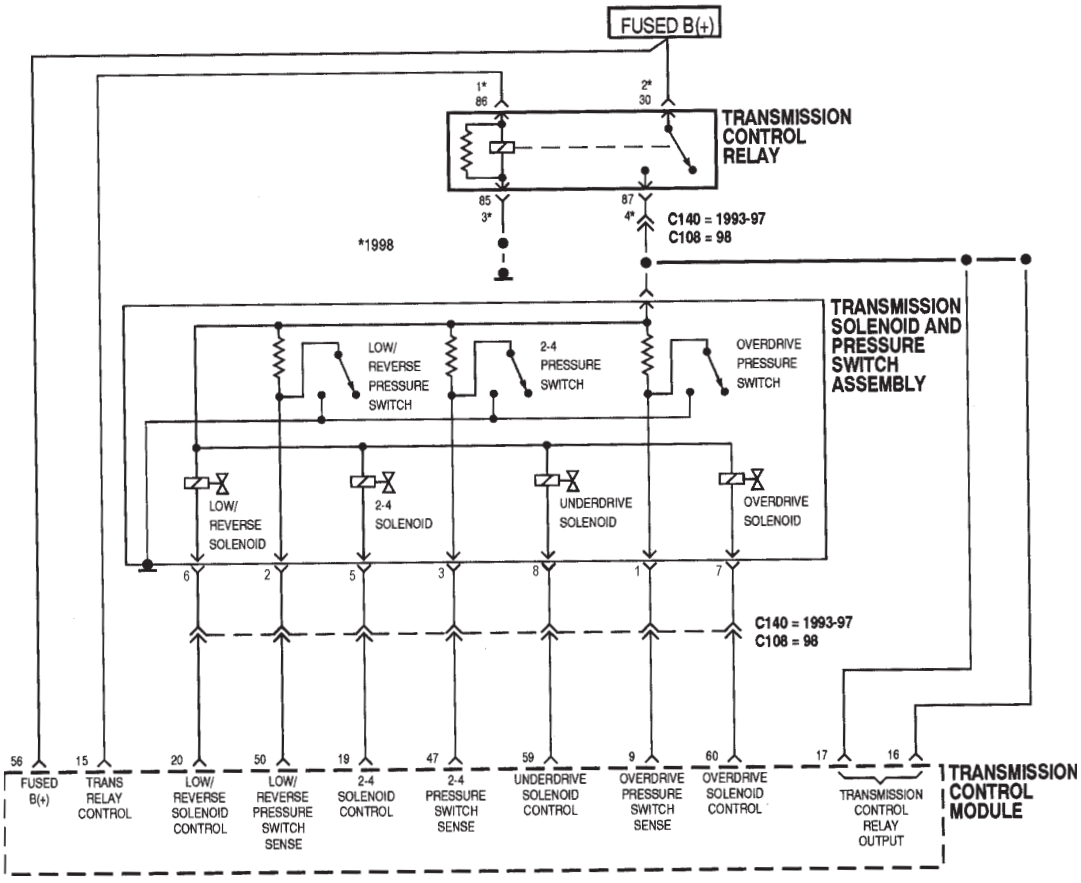


Figure 30—Wiring diagram.

NOTE For complete connector and wire color tables, see Appendix B.

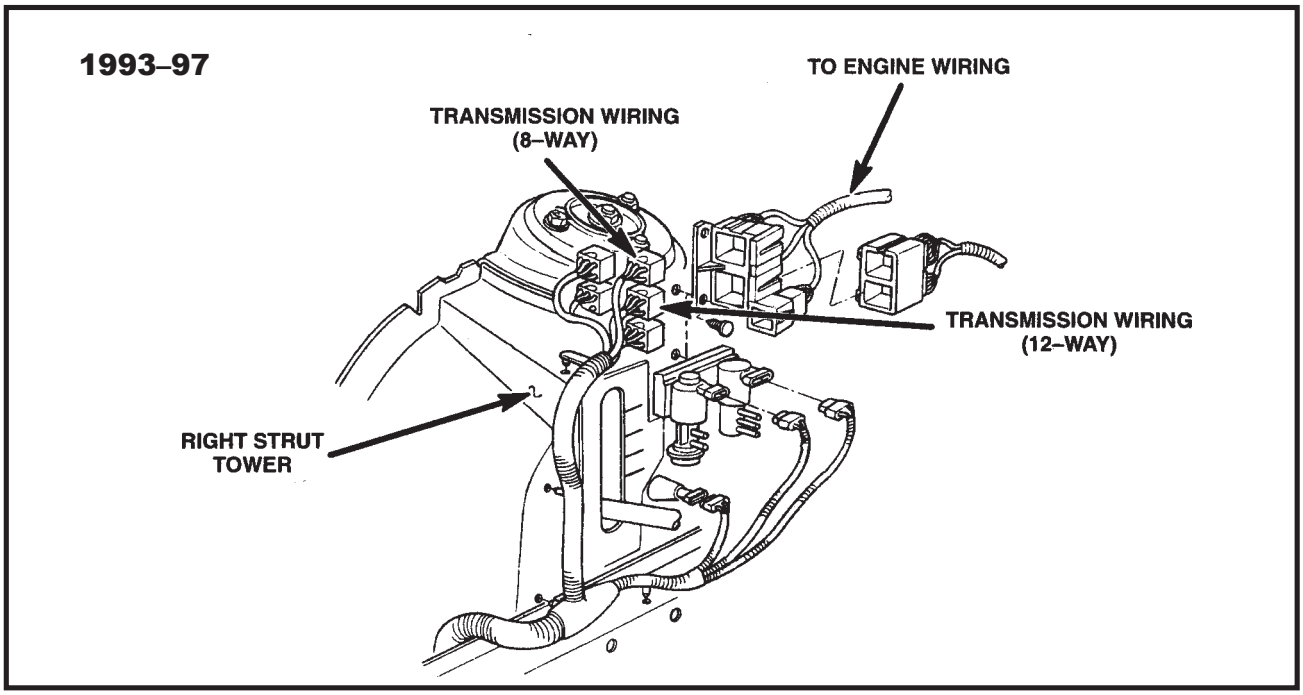


Figure 31—8-way in-line connector location.

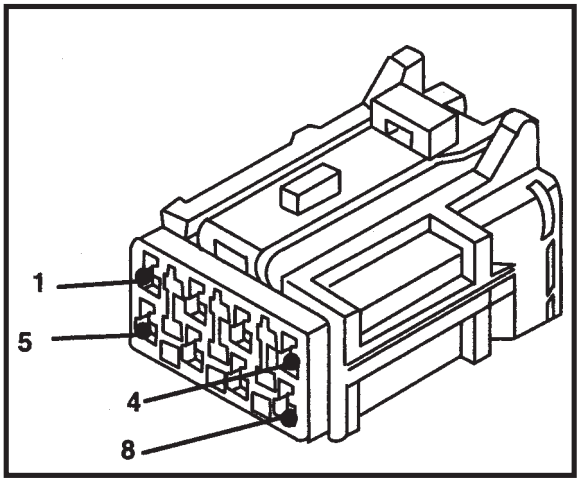


Figure 32— 8-way in-line connector, harness side.

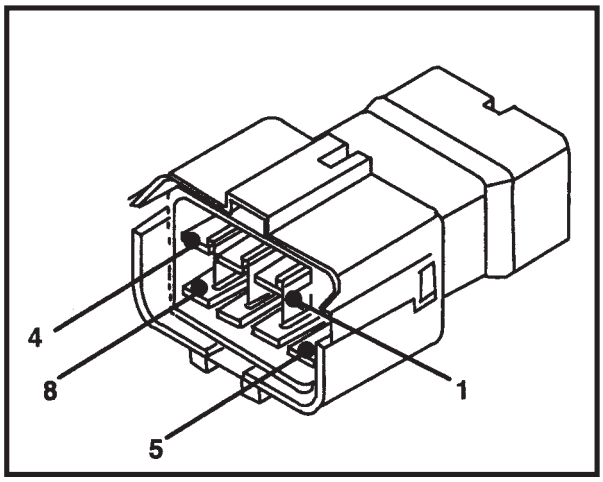


Figure 33— 8-way in-line connector, transmission side.

In-Line 8-Way Connector
1993-97
(applies to both the harness side and the transmission side)

CAV	COLOR	FUNCTION
4	DG	L-R PRESSURE SWITCH SENSE

Figure 34—8-way connector cavity 6 information.

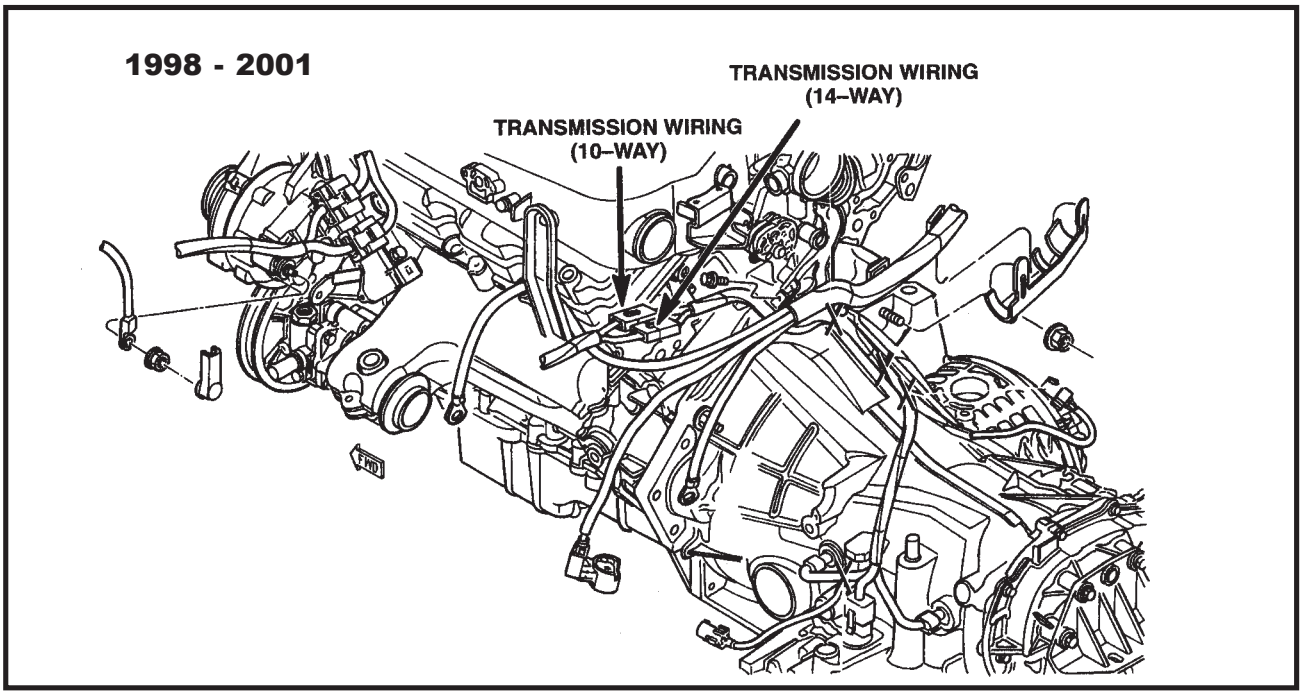


Figure 35—10-way in-line connector location.

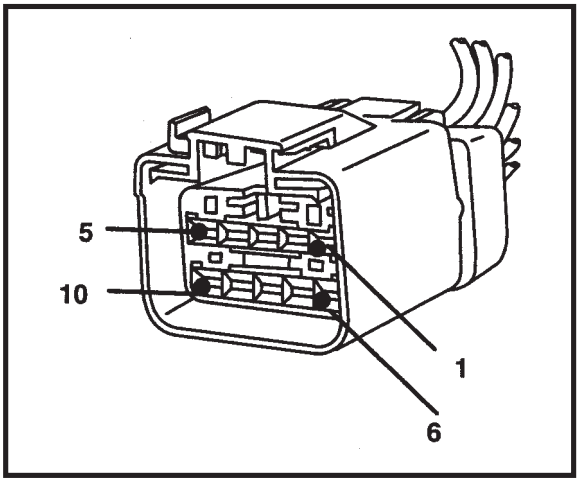


Figure 36—10-way in-line connector, harness side.

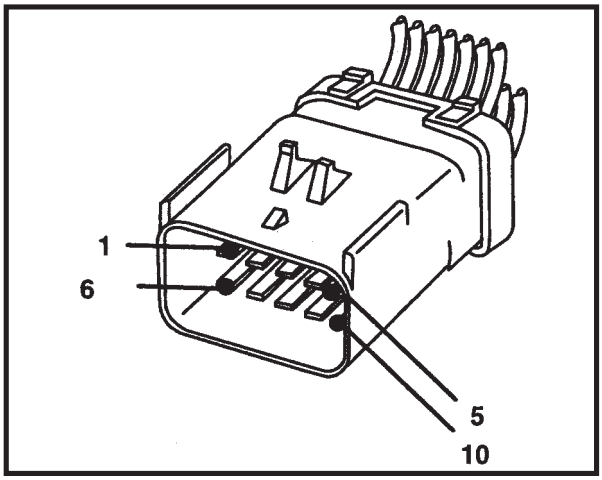


Figure 37—10-way in-line connector, transmission side.

In-Line 10-Way Connector
1998 - 2001
(applies to both the harness side and the transmission side)

CAV	COLOR	FUNCTION
6	DG	L-R PRESSURE SWITCH SENSE

Figure 38—10-way connector cavity 6 information.

Diagnosis

Step 1

Hook up the Snap-On scanner and check for trouble codes.
Is code 35 also present (code 35 indicates loss of prime and can be found later in this section)?
If yes, proceed with diagnostics for code 35 first.
If not, go to step 2.

Step 2

Erase the trouble codes and road test the vehicle.
Does code 24 return?
If yes, go to step 3.
If the code does not return the problem is intermittent or hydraulic. Try shaking the wiring and connectors to duplicate the condition.
If the code still does not return, connect a 0 to 300 PSI gauge to the L-R pressure port and road test vehicle **(see figure 39)**.
Does the gauge ever show more than 5 PSI when the pressure switch should be open according to the chart in **figure 27**?
If yes, a hydraulic cross leak can be closing the switch when it should be open.

Step 3

Disconnect the small 8- or 10-way in-line connector **(see figures 31 & 35)**. Inspect the connector for corroded, damaged or pushed out terminals.
Measure the resistance between the L-R pressure switch sense circuit and ground at the harness side of the in-line connector **(see figures 32, 34, 36, & 38)**.
Is the resistance above 400 ohms?
If yes, go to step 5.
If no, go to step 4.

Step 4

With the ignition key off, disconnect the TCM connector. Inspect the TCM and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the L-R pressure switch sense circuit and ground at the harness side of the small 8- or 10-way in-line connector **(see figures 32, 34, 36, & 38)**.
Is the resistance below 5 ohms?
If yes, repair the L-R pressure switch sense circuit for a short to ground between the TCM connector and the small in-line connector.
If no, replace the TCM.

Step 5

With the ignition key off, disconnect the TCM connector. Inspect the TCM and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the L-R pressure switch sense circuit and all other circuits at the harness side of the small 8- or 10-way in-line connector **(see figures 32, 34, 36, & 38)**.
Are all the resistances above 5 ohms?
If yes, go to step 6.
If no, repair the L-R pressure switch sense circuit for a short to the circuit that measured less than 5.0 ohms.

Step 6

Measure the resistance of the L-R pressure switch sense circuit between the TCM connector and the harness side of the small 8- or 10-way in-line connector **(see figures 28, 32, 34, 36, & 38)**.
Is the resistance below 5 ohms?
If yes, go to step 7.
If no, repair the open L-R pressure switch sense circuit between the TCM connector and the transmission small in-line connector.

Step7

Measure the resistance between the L-R pressure switch sense circuit and ground at the transmission side of the small 8- or 10-way in-line connector **(see figures 33, 34, 37, & 38)**.
Is the resistance below 5 ohms?
If yes, go to step 8.
If no, go to step 9.

Step 8

Disconnect the solenoid pack connector. Inspect the solenoid pack and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the L-R pressure switch sense circuit and ground at the transmission side of the small in-line connector **(see figures 33, 34, 37, & 38)**.
Is the resistance below 5 ohms?
If yes, repair the L-R pressure switch sense circuit for a short to ground between the solenoid pack connector and the small in-line connector.
If no, replace solenoid pack.

STEP 9

Measure the resistance between the L-R pressure switch sense circuit and all other circuits on the transmission side of the small 8- or 10-way in-line connector **(see figures 33, 34, 37, & 38)**.
Are all the resistances above 5 ohms?
If yes, go to step 11.
If no, go to step 10.

STEP 10

Disconnect the solenoid pack connector. Inspect the solenoid pack and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the L-R pressure switch sense circuit and the circuit that measured less than 5 ohms **(see figure 29)**.
Is the resistance below 5 ohms?
If yes, repair the L-R pressure switch sense circuit for a short to the circuit that measured less than 5 ohms.
If no, replace the solenoid pack.

STEP 11

Disconnect the solenoid pack connector. Inspect the solenoid pack and connector for corroded, damaged or pushed out terminals.
Measure the resistance of the L-R pressure switch sense circuit between the solenoid pack connector and the transmission side of the small 8- or 10-way in-line connector **(see figures 29, 33, 34, 37, & 38)**.
Is the resistance below 5 ohms?
If yes, go to step 12.
If no, repair the open L-R pressure switch sense circuit between the solenoid pack connector and the transmission small in-line connector.

STEP 12

Reconnect the TCM connector.
Turn the ignition key on.
With the Snap-On scanner, read the L-R pressure switch status and record the test result.
With a jumper wire, tap 12 volts to the L-R pressure switch sense circuit at the harness side of the small in-line connector **(see figures 32, 34, 36, & 38)**.
Does the switch state toggle between closed and open?
If yes, go to step 13.
If no, replace the TCM.

STEP 13

Reconnect the TCM connector.
Reconnect the solenoid pack connector.
Reconnect the small in-line connector.
Connect a 0 to 300 PSI gauge to the L-R pressure port **(see figure 39)**.
Raise all 4 wheels off the ground and properly support the vehicle.
With the Snap-On scanner, go to the FUNCTIONAL TESTS menu and select ATM test. This test will allow you to turn the shift solenoids on with the scanner.
Start the engine and step on the brake so the wheels won't turn during the test.
Put the shift lever in the OD position.
With the scanner, actuate the L-R solenoid. Read the pressure gauge.

NOTE It may be necessary to raise the engine speed to 1400 RPM during the test.

Does the pressure fluctuate from less than 5 PSI to 75-95 PSI?
If yes, replace the solenoid pack (L-R pressure switch failure).
If no, go to step 14.

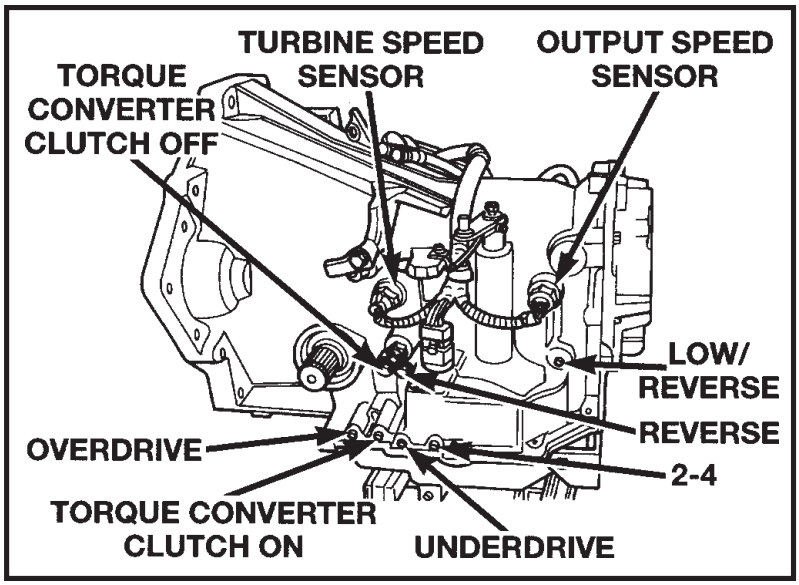


Figure 39—L-R pressure port.

STEP 14

Does the pressure rise above 5 PSI?
If yes, go to step 15.
If no, replace the solenoid pack (L-R solenoid failure).

Step 15

Does the pressure ever fall below 5 PSI?
If yes, go to step 17.
If no, go to step 16.

Step 16

Check the valve body for flatness and proper bolt torque.
Was the valve body flat and properly torqued?
If yes, replace the solenoid pack and go to step 18.
If no, go to step 18.

Step 17

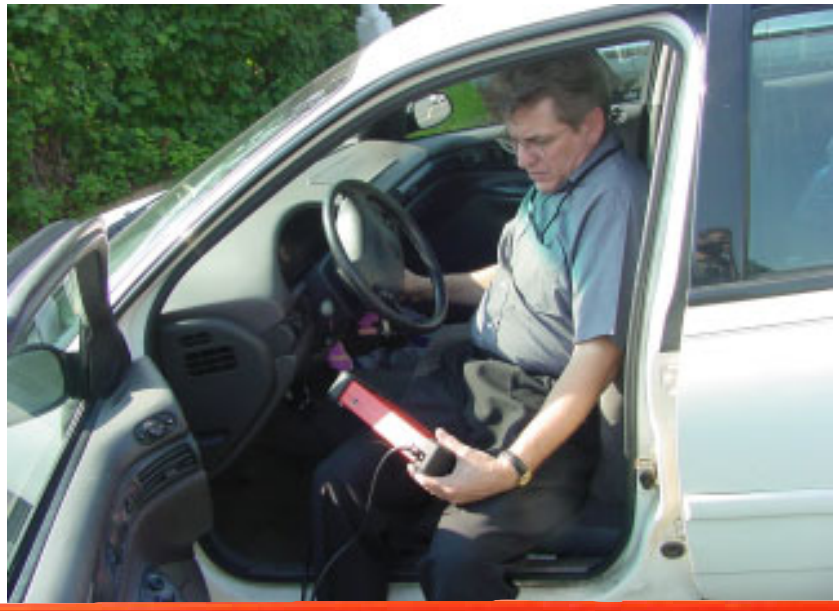
Does the pressure ever reach 75 PSI?
If yes, the conditions to set the code are not present at this time.
If no, replace the solenoid pack assembly and go to step 18.

Step 18

With the Snap-On scanner, actuate the L-R solenoid.
Does the pressure fluctuate from 0 to 75 PSI?

NOTE It may be necessary to raise the engine speed to 1400 RPM during the test.

If yes, unhook the gauges and road test the vehicle to verify the condition is corrected.
If no, there is internal seal leakage, rebuild transmission as necessary.




42LE CODE: 31 / P1787
OD Hydraulic Pressure Switch
Y
N
Snap-on
Scanner
MT2500

42LE Code 31 / P1787
OD Hydraulic Pressure Switch

Theory of Operation

The 42LE transaxle electronic control system contains three pressure switches. They are the Low/Reverse (LR), Overdrive (OD) and 2-4 (24). The switches, which are located in the solenoid block, are used to confirm solenoid operation. They can also indicate to the Transaxle Control Module (TCM) a hydraulic problem in the clutch apply circuits. The switches do this by sensing when there is hydraulic pressure present. They are normally open and close when clutch apply pressure reaches approximately 23 PSI.

Circuit Description

There are three current limiting resistors also located in the solenoid block. One in each or the pressure switch sense circuits. Battery voltage is supplied to the solenoid block by the Transmission Control Relay. Voltage flows through the resistors and back to the TCM. When any of the pressure switches are open battery voltage will be sensed by the TCM on the corresponding sense circuit. Because the pressure switches are on the ground side of the current limiting resistor when the switch closes the voltage on the corresponding sense circuit will drop to zero.

Conditions for Setting the Trouble Code

The TCM periodically tests the OD and 24 pressure switches when they are off. It does this by momentarily turning on the corresponding clutch hydraulic circuit to see if the switch closes. If the switch does not close the first time it is tested again. If the switch fails the second test the code is set.

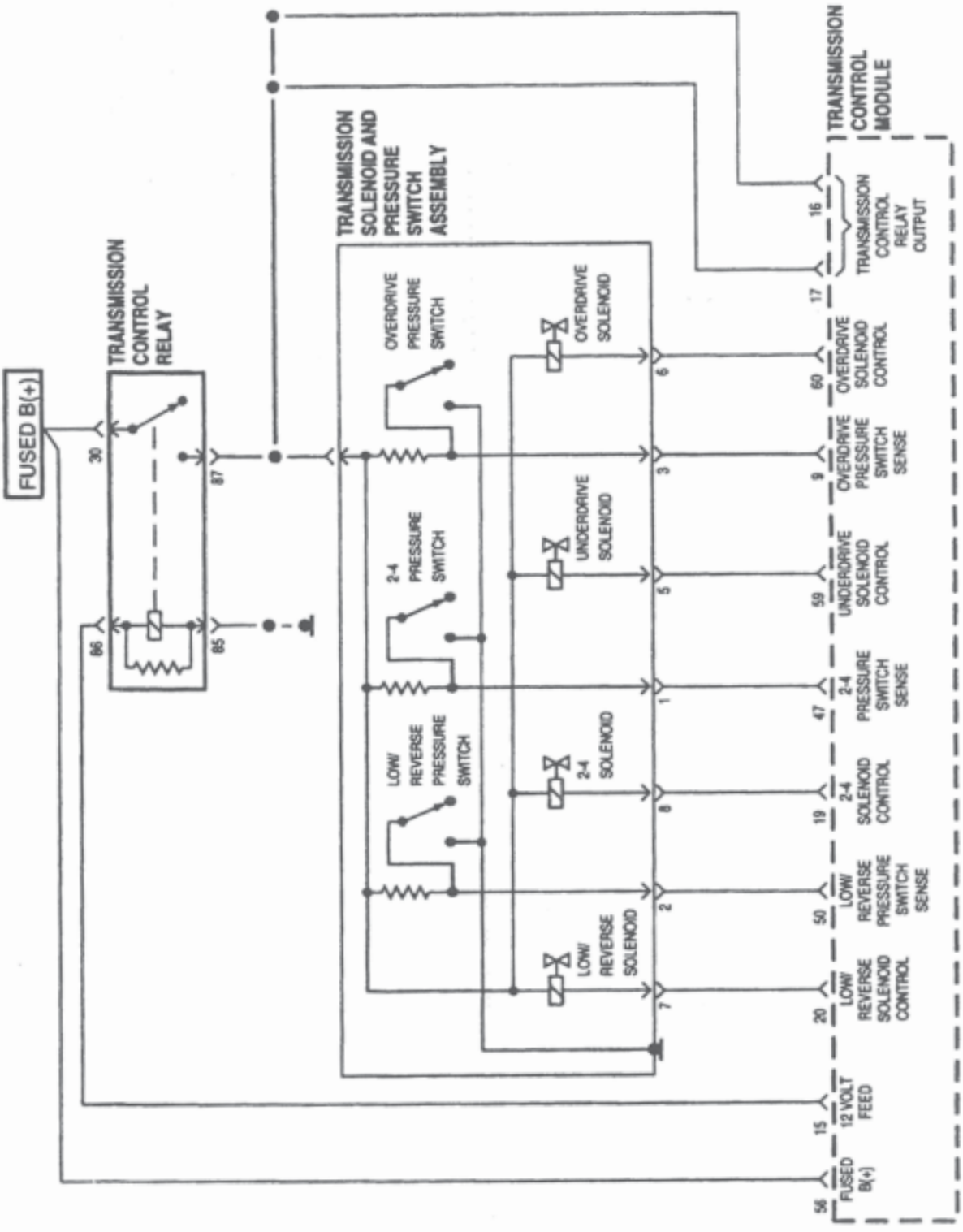
Action taken when Code Sets

- Limp-In Yes

Possible Causes

- Pressure switch sense circuit shorted to battery voltage
- Defective solenoid block
- High/low transaxle fluid level
- Internal transaxle problem

Wiring Diagram



PRNODDL	Switch State			
Display	(C1)	(C2)	(C3)	(C4)
Park	Closed	Closed	Closed	Open
Reverse	Open	Closed	Open	Open
Neutral	Closed	Closed	Open	Closed
OD	Open	Open	Open	Closed
Drive	Open	Open	Closed	Open
Low	Open	Closed	Closed	Closed

FIGURE 1: PRNODDL Switch states

Diagnosis

STEP 1

With the ignition key off connect your scan tool. Turn the ignition key on and slowly move the manual selector through each selector position. Observe the PRNODDL and switch state data parameters. Does the scan data match **FIGURE 1** shown on page 30? If yes, go to step 2. If no, repair the manual lever position sensor problem and rerun diagnostics.

STEP 2

With the ignition key off connect a 0-300 PSI pressure gauge to the OD pressure port **(See Figure 2 below)**. Also connect your scan tool. Raise the drive wheels off the ground and properly support the vehicle. Start the engine and apply the brakes so that the drive wheels will not turn during the test. This test will be stopped if the drive wheels are allowed to rotate. Place the selector in the OD position. Do not raise the engine RPM above 1000 RPM. On your scan tool go to the transmission functional tests menu and select the OD solenoid test. In this mode the TCM will toggle the OD solenoid ON and OFF approximately every three seconds. Does the reading on the pressure gauge change from less than 5 PSI to 75-95 PSI every three seconds?

If yes, go to step 3.

If no, replace the solenoid block (Defective OD solenoid).

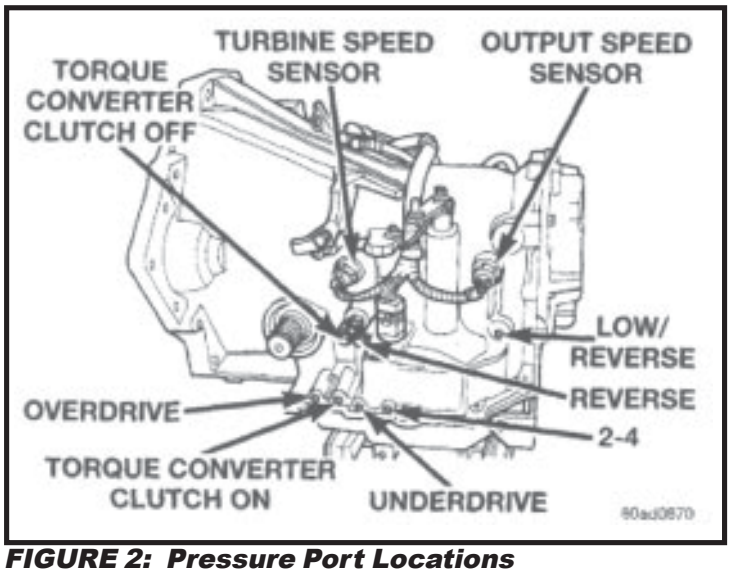


FIGURE 2: Pressure Port Locations

STEP 3

With the ignition key off connect a 0-300 PSI pressure gauge to the OD pressure port. Also connect your scan tool. Raise the drive wheels off the ground and properly support the vehicle. Start the engine and apply the brakes so that the drive wheels will not turn during this test. The test will be stopped if the drive wheels are allowed to rotate. Place the selector in the OD position. Do not raise the engine RPM above1000 RPM. On your scan tool go to the transmission functional tests menu and select the OD solenoid test. In this mode the TCM will toggle the OD solenoid on and off approximately every three seconds. Observe the OD Pressure Switch data parameter.

Does the OD pressure switch parameter toggle between Open and Closed while the OD solenoid is cycling?

If yes, the conditions to set the code are not present at this time. Check wiring for a possible intermittent short to power on OD switch sense circuit wiring. Make sure the transaxle fluid level is full. Also check for possible hydraulic pressure loss when vehicle gets warm.

If no, go to step 4.

STEP 4

With the ignition key off disconnect the solenoid block harness connector. Measure the resistance between the Transmission Control Relay Output Circuit Cavity 4 and the OD Pressure Switch Sense Circuit Cavity 3 of the solenoid block harness connector **(See Figure 3 below)**.

Is the resistance below 5 ohms?

If yes, repair the short between the Transmission Control Relay Output and OD Pressure Switch Sense Circuits.

If no, replace the solenoid block (Defective OD Pressure Switch).

Cav	Color and Application	Function
3	See Appendix	OD Pressure Switch
4	See Appendix	Transmission Control Relay Output

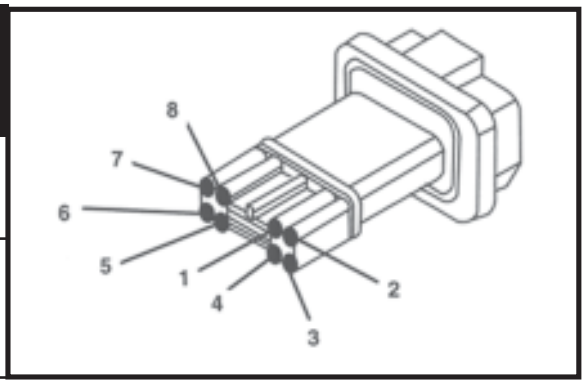


FIGURE 3: Transmission solenoid connector cavity information.


42LE CODE: 32 / P1788
24 Hydraulic Pressure Switch
Y
N
Snap-on
Scanner
MT2500

New-01/2007

42LE/AE Code 32 / P1788
24 Hydraulic Pressure Switch

Theory of Operation

The 42LE transaxle electronic control system contains three pressure switches. They are the Low/Reverse (LR), Overdrive (OD) and 2-4 (24). The switches, which are located in the solenoid block, are used to confirm solenoid operation. They can also indicate to the Transaxle Control Module (TCM) a hydraulic problem in the clutch apply circuits. The switches do this by sensing when there is hydraulic pressure present. They are normally open and close when clutch apply pressure reaches approximately 23 PSI.

Circuit Description

There are three current limiting resistors also located in the solenoid block. One in each or the pressure switch sense circuits. Battery voltage is supplied to the solenoid block by the Transmission Control Relay. Voltage flows through the resistors and back to the TCM. When any of the pressure switches are open battery voltage will be sensed by the TCM on the corresponding sense circuit. Because the pressure switches are on the ground side of the current limiting resistor when the switch closes the voltage on the corresponding sense circuit will drop to zero.

Conditions for Setting the Trouble Code

The TCM periodically tests the OD and 24 pressure switches when they are off. It does this by momentarily turning on the corresponding clutch hydraulic circuit to see if the switch closes. If the switch does not close the first time it is tested again. If the switch fails the second test the code is set.

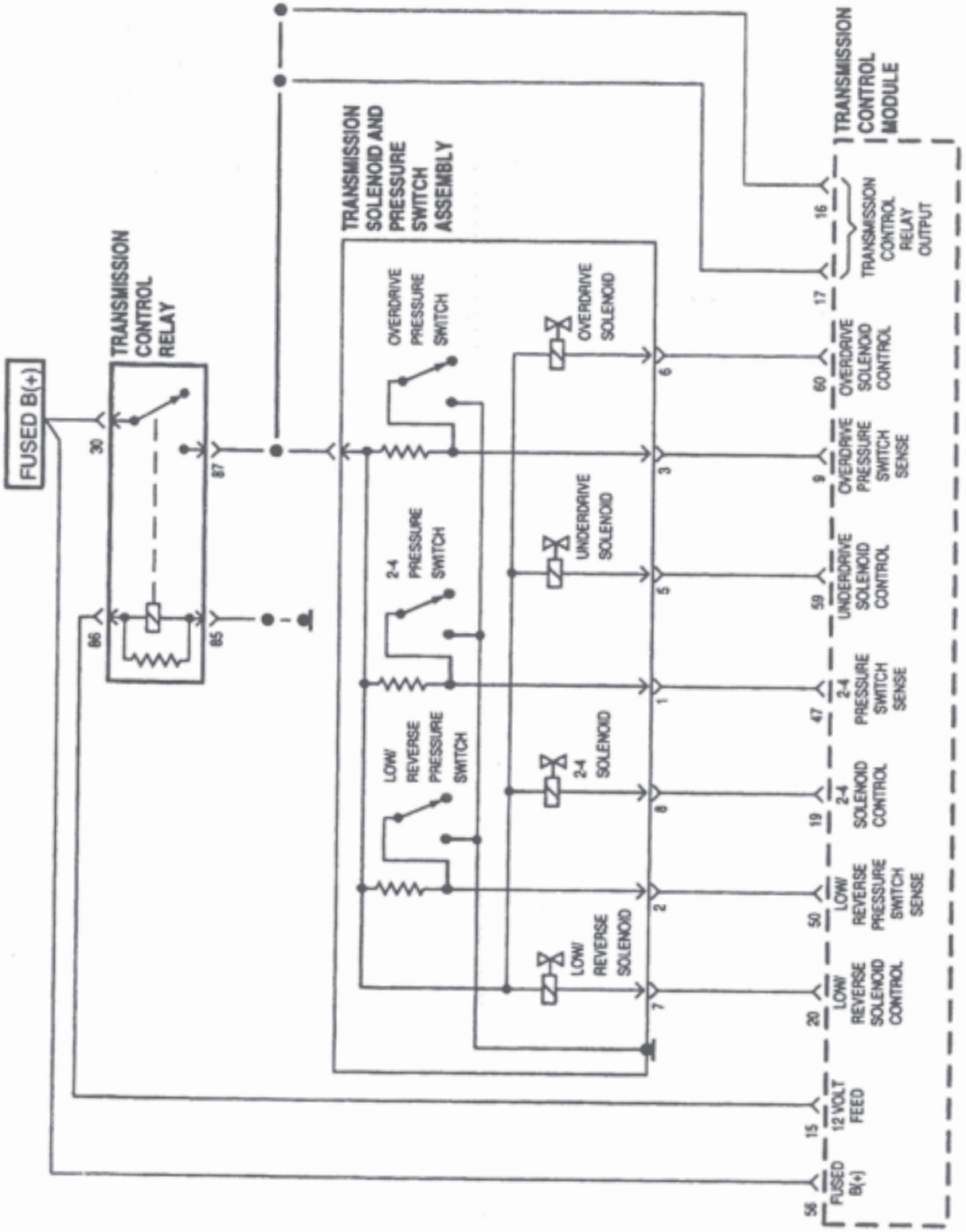
Action Taken When Code Sets

- Limp-In Yes

Possible Causes

- Pressue switch sense circuit shorted to battery voltage
- Defective solenoid block
- High/Low transaxle fluid level
- Internal transaxle problem

Wiring Diagram



PRNODDL	Switch State			
Display	(C1)	(C2)	(C3)	(C4)
Park	Closed	Closed	Closed	Open
Reverse	Open	Closed	Open	Open
Neutral	Closed	Closed	Open	Closed
OD	Open	Open	Open	Closed
Drive	Open	Open	Closed	Open
Low	Open	Closed	Closed	Closed

FIGURE 1: PRNODDL Switch states

Diagnosis

STEP 1

With the ignition key off connect your scan tool. Turn the ignition key on and slowly move the manual selector through each selector position. Observe the PRNODDL and switch state data parameters.
Does the scan data match **FIGURE 1** shown on page 35.
If yes, go to step 2.
If no, repair the manual lever position sensor problem and rerun diagnostics.

STEP 2

With the ignition key off connect a 0-300 PSI pressure gauge to the 24 pressure port **(See Figure 2 below)**. Also connect your scan tool. Raise the drive wheels off the ground and properly support the vehicle. Start the engine and apply the brakes so that the drive wheels will not turn during this test. The test will be stopped if the drive wheels are allowed to rotate. Place the selector in the OD position. Do not raise the engine RPM above 1000 RPM. On your scan tool go to the transmission functional tests menu and select the 24 solenoid test. In this mode the TCM will toggle the 24 solenoid ON and OFF approximately every three seconds.
Does the reading on the pressure gauge change from less than 5 PSI to 75-95 PSI every three seconds?
If yes, go to step 3.
If no, replace the solenoid block (Defective 24 solenoid).

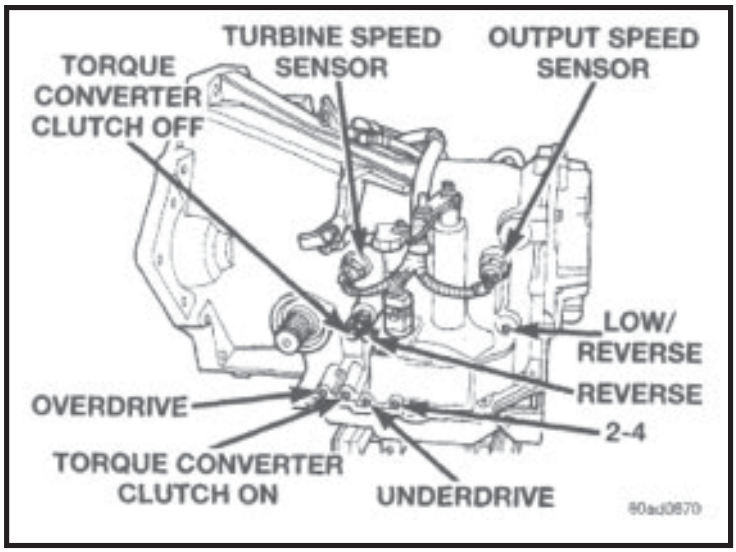


FIGURE 2: Pressure Port Locations

STEP 3

With the ignition key off connect a 0-300 PSI pressure gauge to the 24 pressure port. Also connect your scan tool. Raise the drive wheels off the ground and properly support the vehicle. Start the engine and apply the brakes so that the drive wheels will not turn during this test. The test will be stopped if the drive wheels are allowed to rotate. Place the selector in the OD position. Do not raise the engine RPM above 1000 RPM. On your scan tool go to the transmission functional tests menu and select the 24 solenoid test. In this mode the TCM will toggle the OD solenoid on and off approximately every three seconds. Observe the 24 Pressure Switch data parameter.

Does the 24 pressure switch parameter toggle between Open and Closed while the 24 solenoid is cycling?

If yes, the conditions to set the code are not present at this time. Check wiring for a possible intermittent short to power on 24 Switch Sense Circuit wiring. Make sure the transaxle fluid level is full. Also check for possible hydraulic pressure loss when vehicle gets warm.

If no, go to step 4.

STEP 4

With the ignition key off disconnect the solenoid block harness connector. Measure the resistance between the Transmission Control Relay Output Circuit Cavity 4 and the 24 Pressure Switch Sense Circuit Cavity 1 of the solenoid block harness connector **(See Figure 3 below)**. Is the resistance below 5 ohms?

If yes, repair the short between the Transmission Control Relay Output and 24 Pressure Switch Sense Circuits.

If no, replace the solenoid block (Defective 24 Pressure Switch).

Cav	Color and Application	Function
1	See Appendix	2-4 Pressure Switch Sense
4	See Appendix	Transmission Control Relay Output

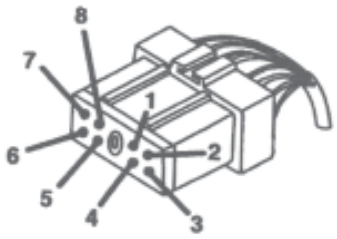
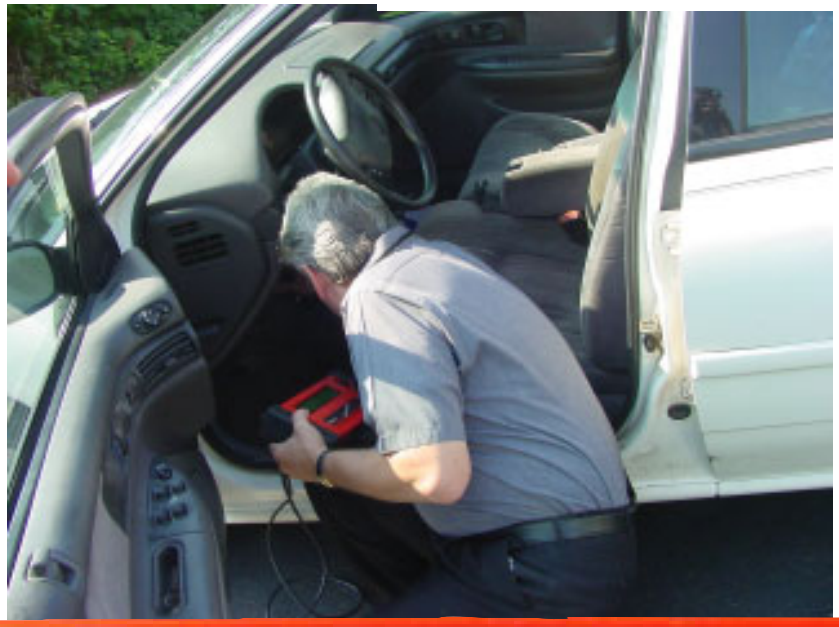


FIGURE 3: Transmission solenoid connector cavity information.




42LE CODE: 33 / P1789
OD/24 Hydraulic Pressure Switch
Y
N
Snap-on
Scanner
MT2500

New-01/2007

42LE Code 33 / P1789
OD/24 Hydraulic Pressure Switch

Theory of Operation

The 42LE transaxle electronic control system contains three pressure switches. They are the Low/Reverse (LR), Overdrive (OD) and 2-4 (24). The switches, which are located in the solenoid block, are used to confirm solenoid operation. They can also indicate to the Transaxle Control Module (TCM) a hydraulic problem in the clutch apply circuits. The switches do this by sensing when there is hydraulic pressure present. They are normally open and close when clutch apply pressure reaches approximately 23 PSI.

Circuit Description

There are three current limiting resistors also located in the solenoid block. One in each or the pressure switch sense circuits. Battery voltage is supplied to the solenoid block by the Transmission Control Relay. Voltage flows through the resistors and back to the TCM. When any of the pressure switches are open battery voltage will be sensed by the TCM on the corresponding sense circuit. Because the pressure switches are on the ground side of the current limiting resistor when the switch closes the voltage on the corresponding sense circuit will drop to zero.

Conditions for Setting the Trouble Code

The TCM periodically tests the OD and 24 pressure switches when they are off. It does this by momentarily turning on the corresponding clutch hydraulic circuit to see if the switch closes. If the switch does not close the first time it is tested again. If the switch fails the second test the code is set.

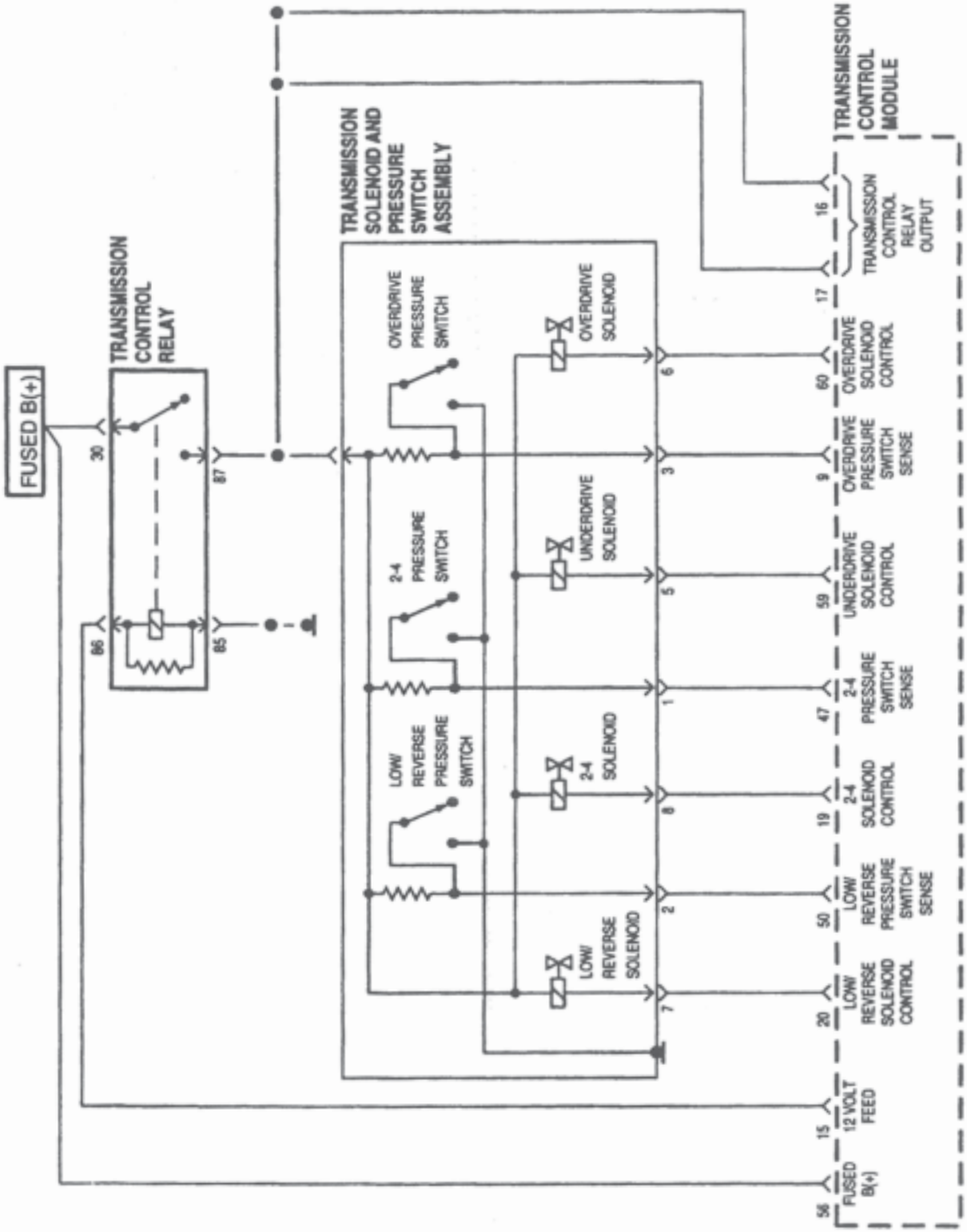
Action Taken When Code Sets

- Limp-In Yes

Possible Causes

- Pressue switch sense circuit shorted to battery voltage
- Defective solenoid block
- High/Low transaxle fluid level
- Internal transaxle problem

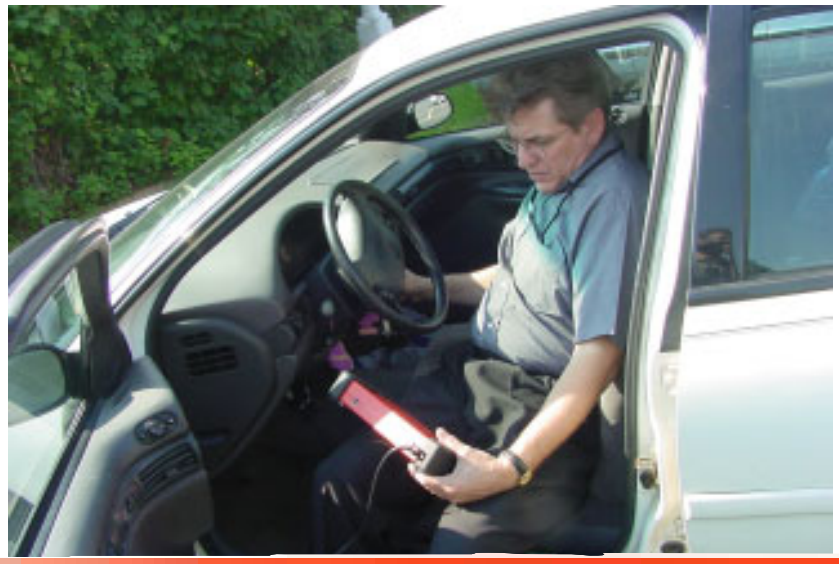
Wiring Diagram



Diagnosis

STEP 1

Follow diagnosis steps for Codes 31 and 32.




42LE CODE: 35 / P1791
Loss of Prime

42LE Code 35 / P1791
Loss of Prime

Theory of Operation

The loss of prime test is used to prevent transmission defaults, which can be caused by lack of pump prime.

If the transmission begins to slip in any forward gear, and the pressure switch or switches that should be closed for a given gear are open, a loss of prime test begins. The Transmission Control Module (TCM) will turn on all available elements to see if pump prime exists. The code is set if none of the pressure switches respond. The code is set if none of the pressure switches respond. The TCM will continue to run the loss of prime test until pump pressure returns.

Conditions for Setting the Trouble Code

If the transmission is slipping in any forward gear and the pressure switches are not indicating pressure, a loss of prime test is performed.

Action Taken When Code Sets

- Limp-In: NO
- Vehicle will not move or transmission slips
- Normal operation will continue if pump prime returns

Possible Causes

- Low transmission fluid level
- PRNDL indicates a valid OD code in the hydraulic reverse position
- Transmission fluid filter clogged or damaged
- Transmission fluid filter improperly installed
- Transmission oil pump defective (excessive clearance)

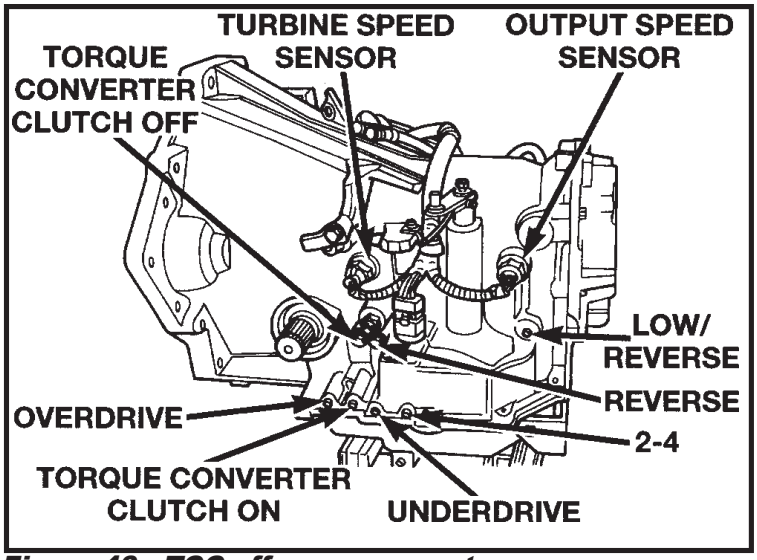


Figure 40—TCC off pressure port.

Diagnosis

Step 1

Connect the Snap-On scanner and read and record all trouble codes.
Start the engine, and while slowly moving the shift lever through all gear positions, watch the PRNODDL parameter on scan data.
Does the gear selector position on the scanner match the gear selected?
If yes, go to step 2.
If no, repair the PRNODDL circuit problem.

Step 2

The following are possible causes for loss of prime. Check and repair as necessary:

- Check for valid shifter codes in all positions **(see step 1)**
- Check the fluid level. Fill if necessary
- Check the transmission cooler lines and fittings for leaks and/or restrictions
- Remove the transmission oil pan. Check for filter damage and improper installation

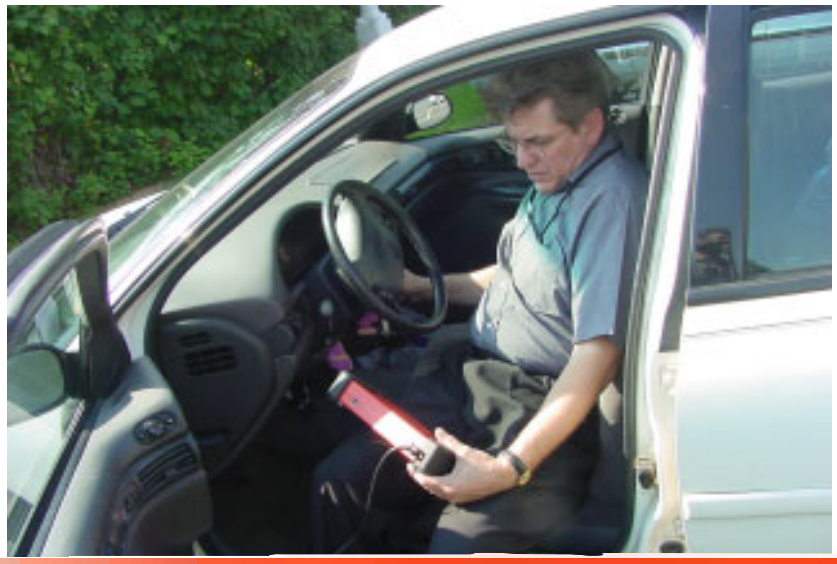
Is the filter plugged and/or is the pan filled with excessive debris?
If yes, check for an internal transmission problem.
If no, go to step 3.

Step 3

Do all of the items in step 2 check out OK?
If yes, go to step 4.
If no, repair as necessary.

Step 4

Install the pan and refill with oil.
Connect a 0 to 300 PSI gauge to the TCC OFF pressure port **(see figure 40)**.
Allow vehicle to set overnight.
The following day, while observing the gauge, start the vehicle and back up 15 to 20 feet.
While still observing the gauge, shift to OD.
Does the pressure drop to 0 PSI and does a “no drive” condition exist?
If yes, replace the front pump.
If no, the conditions to set the code are not present at this time.



42LE CODE: 37 / P1775
Solenoid Switch Valve Stuck in TCC Position

42LE Code 37 / P1775
Solenoid Switch Valve Stuck in the Torque Converter Clutch (TCC) Position

Theory of Operation

The Solenoid Switch Valve (SSV) controls the direction of the transmission fluid when the L-R/TCC solenoid is energized. The SSV will be in the downshifted position in 1st gear, thus directing the fluid to the L-R clutch circuit. In 2nd, 3rd and 4th it will be in the upshifted position, directing the fluid into the TCC.

When shifting into 1st gear, a special hydraulic sequence is performed to ensure the movement into the downshifted position. The L-R pressure switch is monitored to confirm the SSV movement. If the movement is not confirmed (the L-R pressure switch does not close), 2nd gear is substituted for 1st.

Conditions for Setting the Code

This code is set if three unsuccessful attempts are made to get into first gear in one given key start. It is monitored any time an attempt to shift into 1st gear is made.

Action Taken When Code Sets

- Limp-In: NO
- Transmission will have no 1st gear (2nd gear will be substituted), and no EMCC operation
- **96-up** may illuminate the malfunction indicator lamp

Possible Causes

- PRNDL indicates a valid OD code in the hydraulic reverse position
- Valve body: solenoid valve stuck in the TCC position
- High idle speed
- Solenoid malfunction (L-R pressure switch will not close)
- L-R Pressure Switch Sense circuit shorted to battery

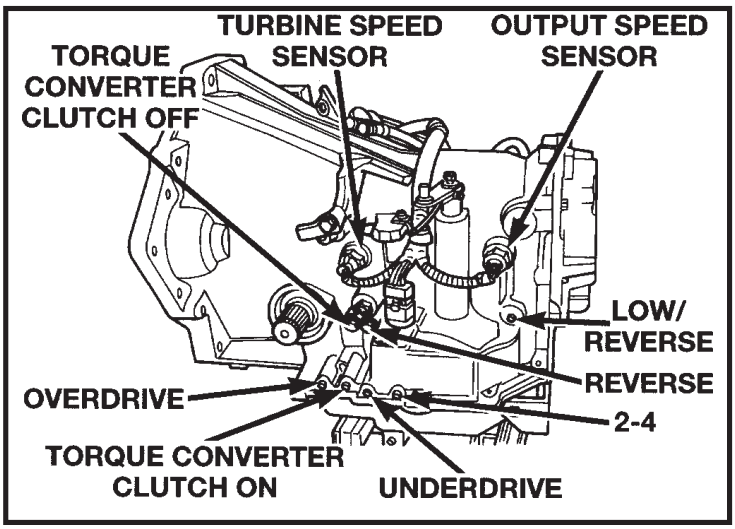
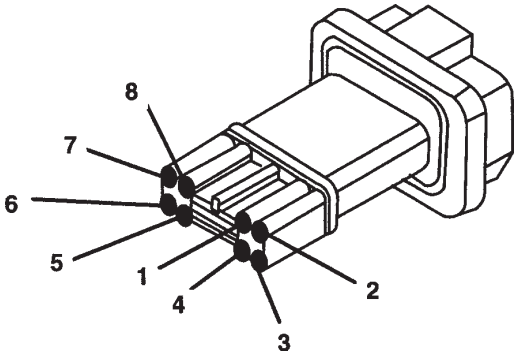


Figure 41—L-R pressure port location.

NOTE For complete connector and wire color tables, see Appendix B.

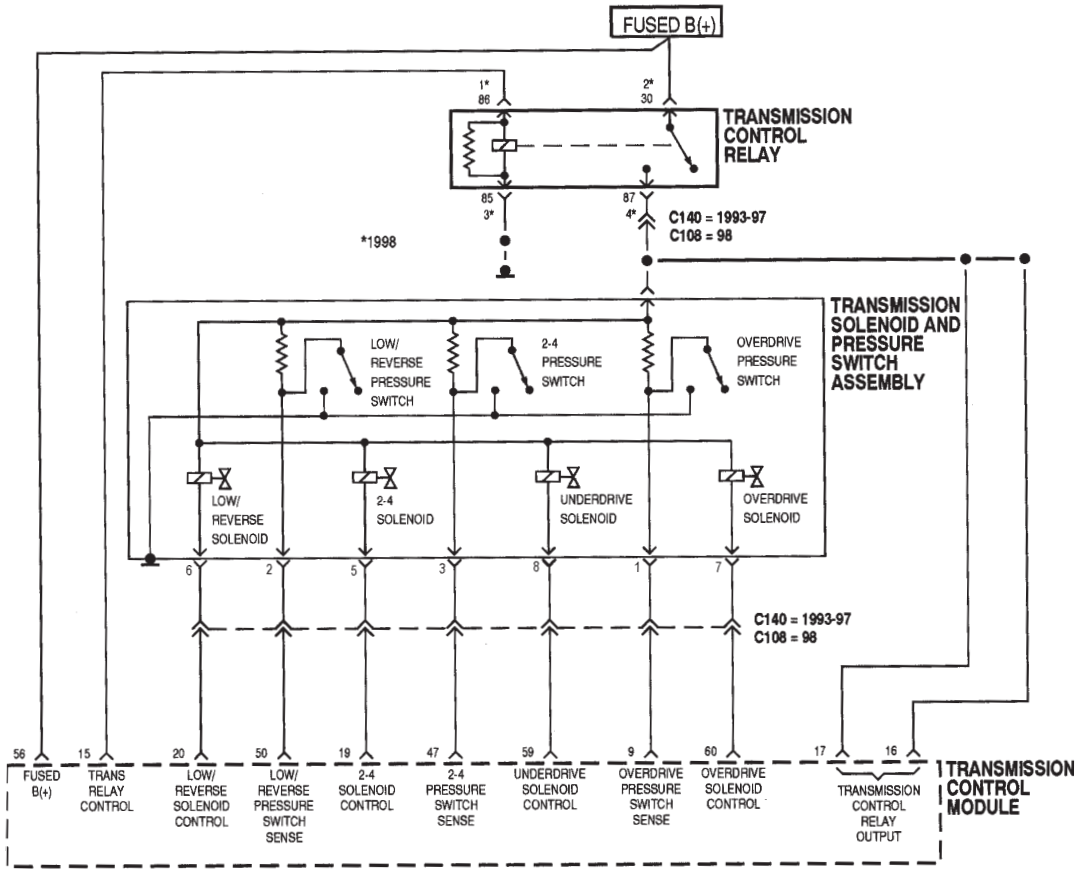


Solenoid Pack Connector
1993-2001

CAV	COLOR	FUNCTION
2	DG	L-R PRESSURE SWITCH SENSE
4	RD	TRANMSISSION CONTROL RELAY OUTPUT (SWITCHED B (+))

Figure 42— Solenoid pack connector and cavity information.

Wiring Diagram



Figur e 43—Wiring diagram.

NOTE For complete connector and wire color tables, see Appendix B.

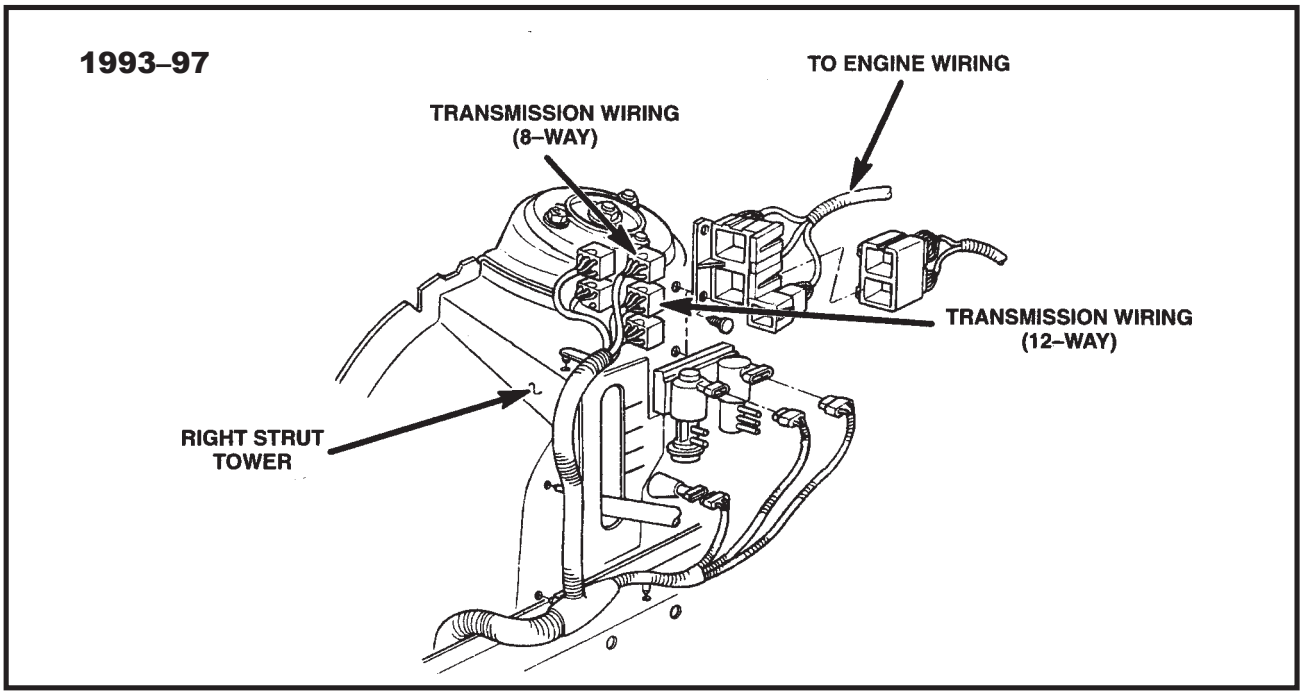


Figure 44—8-way in-line connector location.

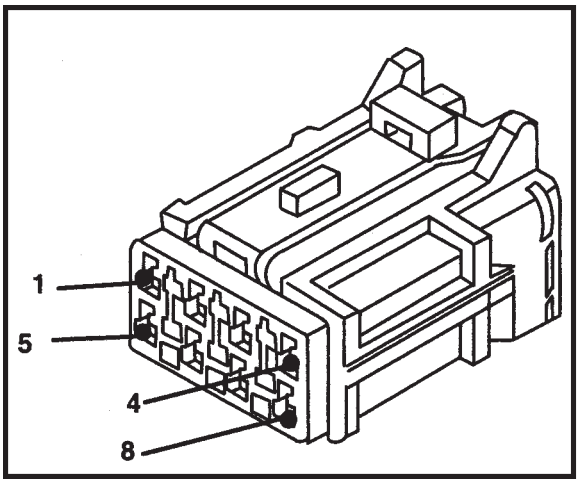


Figure 45— 8-way in-line connector, harness side.

In-Line 8-Way Connector
1993-97
(applies to both the harness side and the transmission side)

CAV	COLOR	FUNCTION
4	DG	L-R PRESSURE SWITCH SENSE
7	RD	CONTROL RELAY OUTPUT

Figure 46—8-way connector cavity 4 & 7 information.

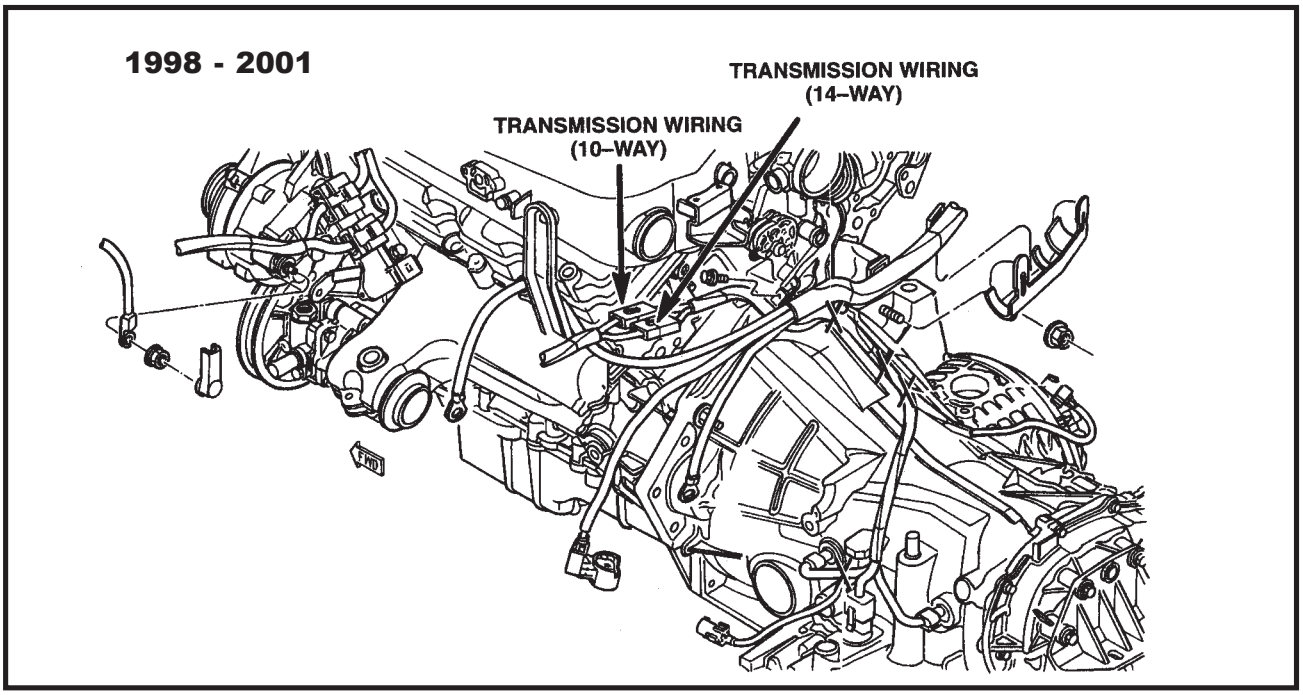


Figure 47—10-way in-line connector location.

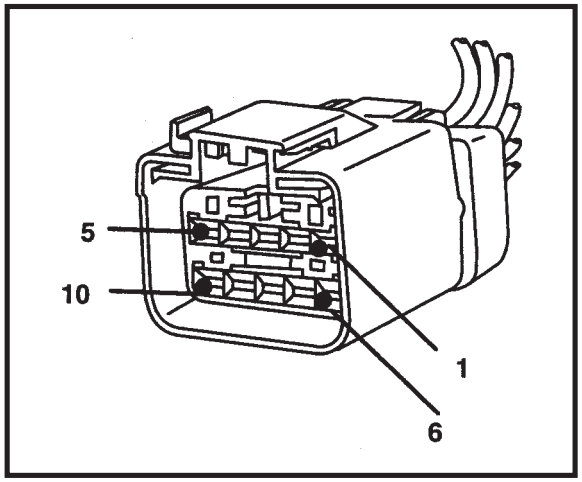


Figure 48—10-way in-line connector, harness side.

In-Line 10-Way Connector
1998 - 2001
(applies to both the harness side and the transmission side)

CAV	COLOR	FUNCTION
6	DG	L-R PRESSURE SWITCH SENSE
10	RD	CONTROL RELAY OUTPUT

Figure 49—10-way connector cavity 6 information.

Diagnosis

Step 1

Connect the Snap-On scanner and read and record all trouble codes.
Start the engine and, while slowly moving the shift lever through all gear positions, watch the PRNODDL parameter on scan data.
Does the gear selector position on the scanner match the gear selected?
If yes, go to step 2.
If no, repair the PRNODDL circuit problem.

Step 2

With the engine still running, note the engine idle speed.
Is the idle above 1100 RPM?
If yes, repair the high engine idle.
If no, go to step 3.

Step 3

Install a 0 to 300 PSI pressure gauge to the L-R pressure port **(see figure 41)**.
Start the engine in Park.
Is the pressure above 20 PSI?
If yes, go to step 6.
If no, go to step 4.

Step 4

Place the gear selector in the Reverse position.
Does Reverse engage?
If yes, go to step 7.
If no, go to step 5.

Step 5

Are any other trouble codes present?
If yes, perform appropriate tests for other trouble codes.
If no, perform test for code 35 (this code indicates a loss of prime and is found earlier in this section).

Step 6

Using the Snap-On scanner, read the L-R pressure switch state (with the engine running in Park).
Does the L-R pressure switch state read open?
If yes, go to step 8.
If no, performs tests for any other trouble codes if applicable.
Perform test for code 35 if no other codes are present.

Step 7

Remove the transmission valve body.
Check solenoid switch valve for proper operation.
Does it move back and forth freely?
If yes, replace the solenoid pack.
If no, repair the valve body.

Step 8

With the key off, disconnect the transmission small 8- or 10-way in-line connector **(see figures 44 & 47)**. Inspect the connectors for corroded, damage or pushed out terminals.
Measure the resistance between the transmission control relay output circuit and the L-R pressure switch sense circuit at the harness side of the small 8- or 10-way in-line connector **(see figures 45, 46, 48, & 49)**.
Is the resistance below 5 ohms?
If yes, repair the transmission control relay output circuit shorted to the L-R pressure switch sense circuit between the small in-line connector and the TCM connector.
If no, go to step 9.

Step 9

With the key off, disconnect the solenoid pack connector. Inspect the solenoid block and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the transmission control relay output circuit and the L-R pressure switch sense circuit at the solenoid pack connector **(see figure 42)**.
Is the resistance below 5 ohms?
If yes, repair the transmission control relay output circuit shorted to the L-R pressure switch circuit.
If no, go to step 10.

Step 10

Replace the solenoid pack.
Start the engine in Park.
Using the Snap-On scanner, read the L-R pressure switch state.
Does the L-R pressure switch read closed?
If yes, the test is complete.
If no, replace the TCM.


42LE CODE: 41 / P0750
L-R Solenoid
Circuit Error

42 LE Code 41 / P0750
L-R Solenoid Circuit Error

Theory of Operation

Four solenoids are used to control the transmission clutches. The continuity of the solenoid circuits is periodically tested during operation. Each solenoid is turned off or on depending on its present state. An inductive voltage spike should be detected by the TCM during this test. If no spike is detected the circuit is tested again. In addition to periodic testing the solenoid circuits are tested if a speed ratio or pressure switch error occurs.

Conditions for Setting the Trouble Code

The solenoid circuits are tested any time the ignition key is turned to the “on” or “run” position, and every ten seconds after that. The circuits will also be tested when a speed ratio or pressure switch error is detected. The code will set when:

- During normal operation the TCM does not sense an inductive voltage spike after testing the circuit three times
- A speed ratio error or pressure switch mismatch occurs and the TCM does not sense an inductive voltage spike after testing the circuit once

Action Taken When Code Sets

- Limp-In: YES
- On 93–95 model year vehicles, if the code sets above 45 MPH the transmission goes into neutral. Below 45 MPH the transmission goes into limp-in mode
- On 96 and up model year vehicles, if code sets above 22 MPH the transmission goes into neutral. Below 22 MPH the transmission goes into limp-in mode.
- Illuminates the malfunction indicator lamp on 96–up vehicles

Possible Causes

- Open or shorted solenoid circuit between TCM and solenoid pack
- Open ground circuit
- TCM connector problem
- 8-way connector problem
- Defective solenoid pack
- Defective TCM

Wiring Diagram

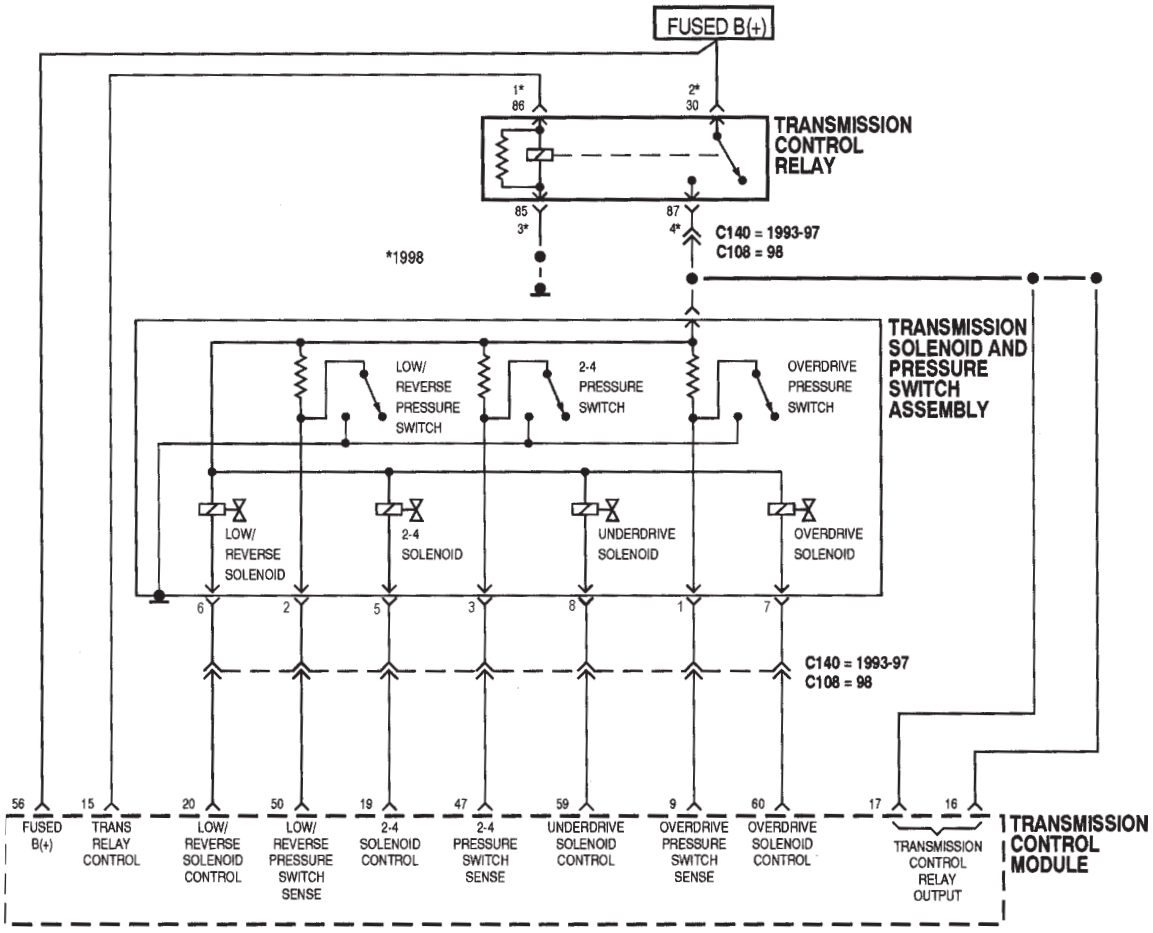
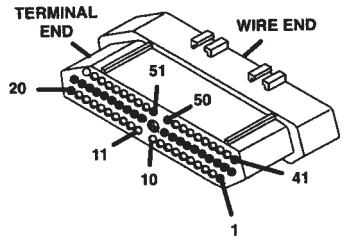


Figure 50—Wiring diagram.

NOTE For complete connector and wire color tables, see Appendix B.

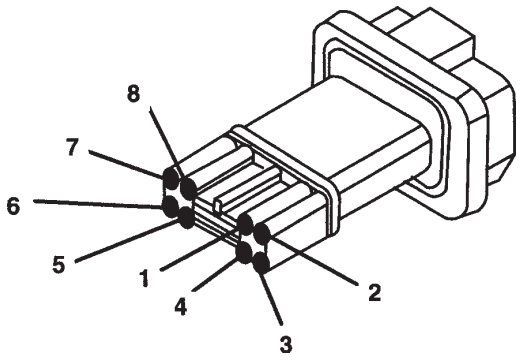


Transmission Control Module 1993-2001

CAV	COLOR	FUNCTION
16	RD	TRANSMISSION CONTROL RELAY OUTPUT
17	RD	TRANSMISSION CONTROL RELAY OUTPUT
20	LB	L-R SOLENOID CONTROL
53	BK/YL* BK**	GROUND
57	BK/RD	GROUND

*1996-97 - 2000-01
**1998-99

Figure 51— Transmission control module and cavities 16, 17, 20, 53, & 57 information.



Solenoid Pack Connector 1993-2001

CAV	COLOR	FUNCTION
4	RD	TRANSMISSION CONTROL RELAY OUTPUT (SWITCHED B (+))
6	LB	L-R SOLENOID CONTROL

Figure 52— Solenoid pack connector and cavity information.

Transmission Control Relay 1993-2001

CAV	COLOR	FUNCTION
85 3*	BK	GROUND
86 1*	LG	TRANSMISSION RELAY CONTROL
87 4*	RD	TRANSMISSION CONTROL RELAY OUTPUT
30 2*	RD/WT RD/LB	FUSED B (+)

*1998-2001

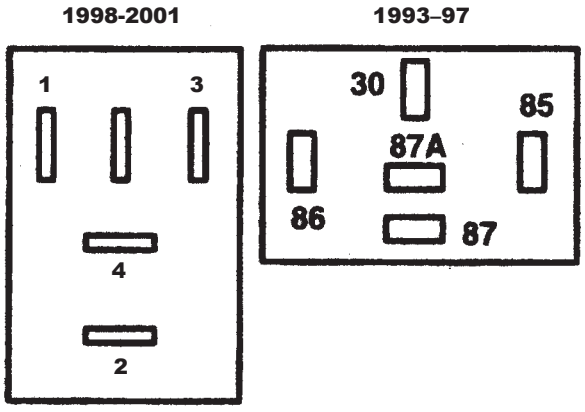


Figure 53—Transmission control relay and cavity information.

NOTE For complete connector and wire color tables, see Appendix B.

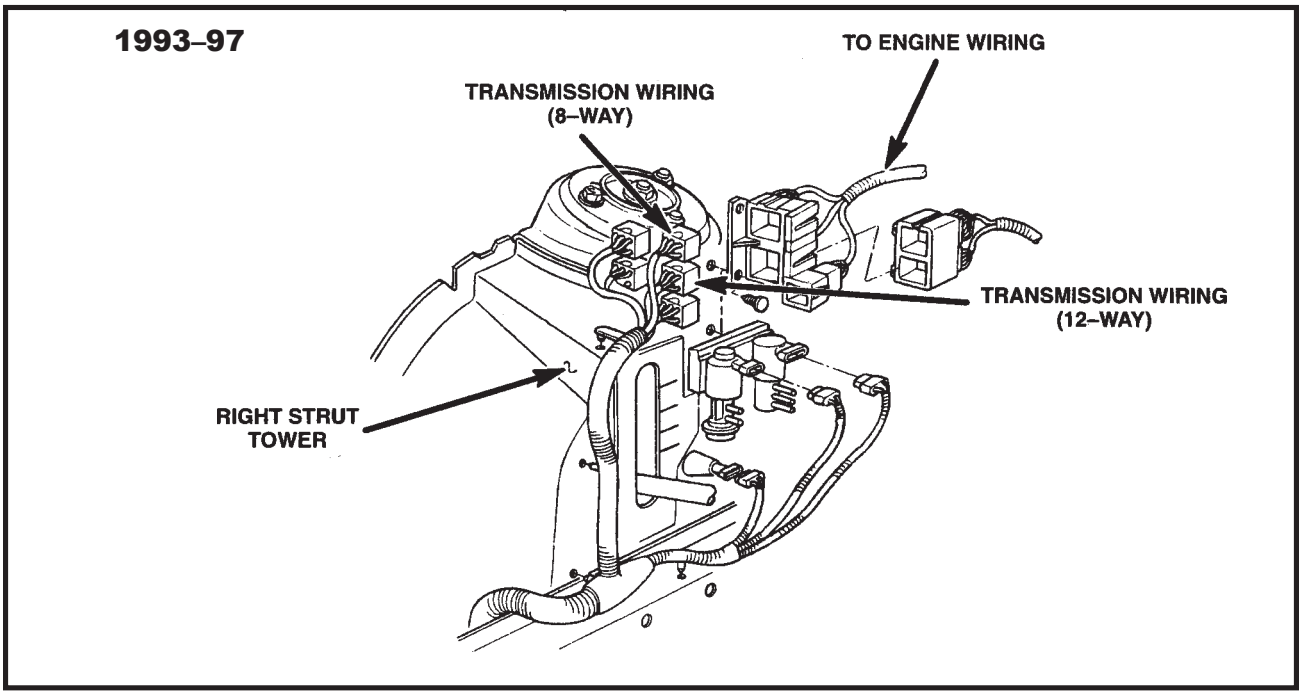


Figure 54—8-way in-line connector location.

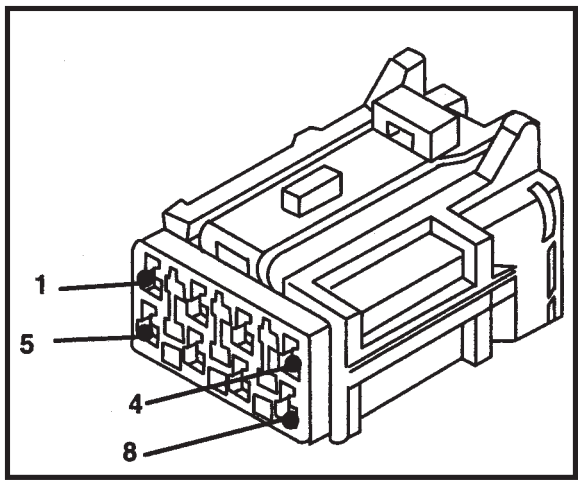


Figure 55— 8-way in-line connector, harness side.

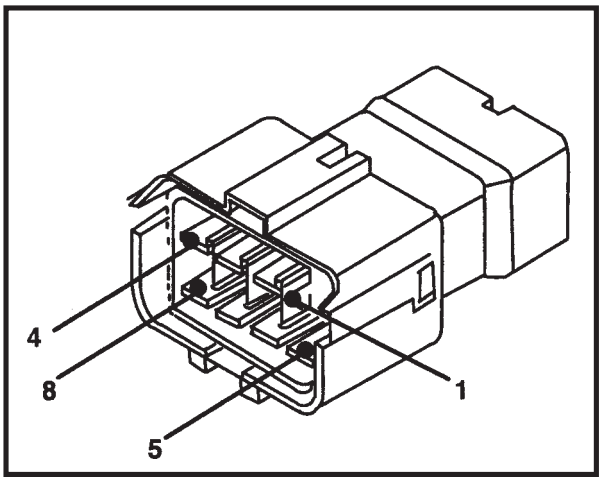


Figure 56— 8-way in-line connector, transmission side.

In-Line 8-Way Connector
1993-97

CAV	COLOR	FUNCTION
7	RD	TRANSMISSION CONTROL RELAY OUTPUT
8	LB	L-R SOLENOID CONTROL

Figure 57—8-way connector cavities 7 & 8 information.

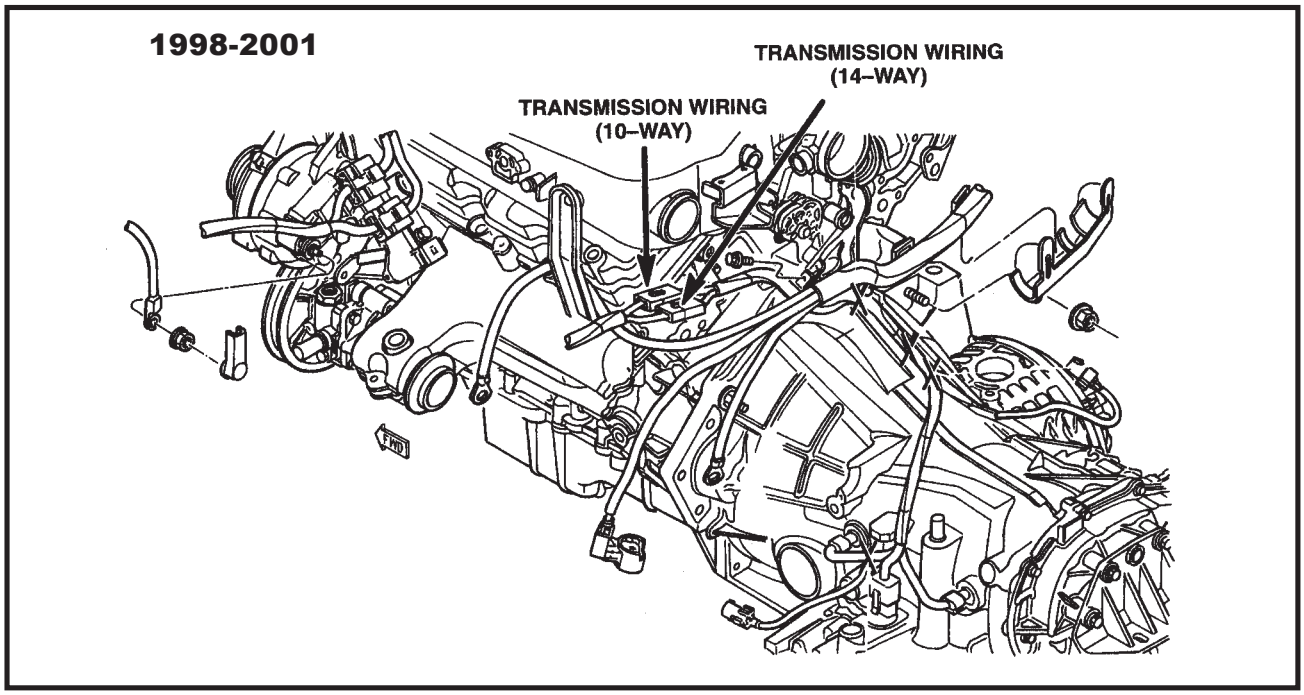


Figure 58—10-way in-line connector location.

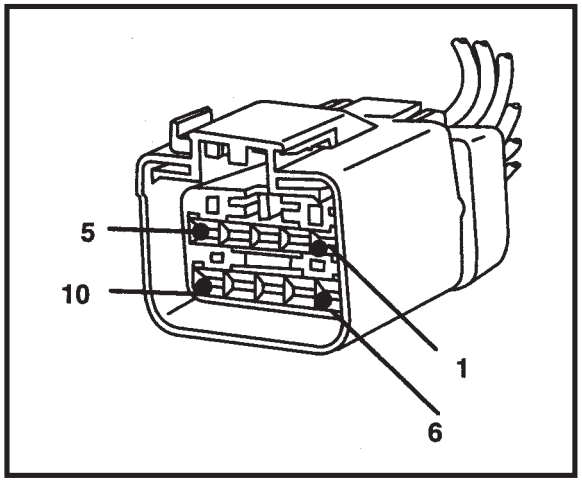


Figure 59— 10-way in-line connector, harness side.

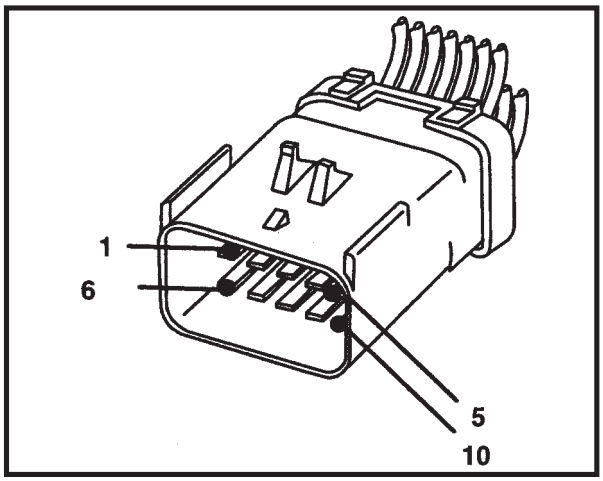


Figure 60— 10-way in-line connector, transmission side.

In-Line 10-Way Connector
1998-2001
(applies to both the harness side and the transmission side)

CAV	COLOR	FUNCTION
9	LB	L-R SOLENOID CONTROL
10	RD	TRANSMISSION CONTROL RELAY OUTPUT

Figure 61—10-way connector cavities 9 & 10 information.

Diagnosis

Step 1

With the Snap-On scanner clear codes and road test the vehicle to see if the code returns.
If the code does not return the problem is intermittent. Try shaking the wiring and connectors to duplicate the condition.
If the code does return, and you have a Kwik-Test Plus, go to step 2.
If you do not have a Kwik-Test Plus, go to step 3.

Step 2

Following the instructions in the Kwik-Test Plus manual, test the L-R solenoid current, voltage and resistance.
Does the solenoid check OK?
If yes, reconnect solenoid block and go to step 3.
If no, replace the solenoid pack.

Step 3

With key off, disconnect the TCM connector. Inspect the TCM and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the L-R solenoid control circuit cavity 20 and ground **(see figure 51 for connector and wire colors)**.
Is the resistance below 5 ohms?
If yes, go to step 8.
If no, go to step 4.

Step 4

Disconnect the transmission control relay. Inspect the relay and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the transmission control relay output circuit at the relay connector **(see figure 53)**, and the L-R solenoid control circuit at the TCM connector cavity 20 **(see figure 51)**.
Is the resistance between 1.0 and 5.0 ohms?
If yes, go to step 5.
If no, go to step 7.

Step 5

Measure the resistance between the ground circuit at the TCM harness connector cavity 57 and ground **(see figure 51)**.
Is the resistance below 5 ohms?
If yes, go to step 6.
If no, repair the open ground circuit to the TCM.

STEP 6

Measure the resistance between the ground circuit at cavity 53 of the TCM connector and ground **(see figure 51)**.
Is the resistance below 5 ohms?
If yes, replace the TCM.
If no, repair the open ground circuit to the TCM.

STEP 7

From step 4, is the resistance below 1 ohm?
If yes, go to step 10.
If no, go to step 12.

STEP 8

Disconnect the transmission small 8- or 10-way in-line connector **(see figures 54 & 58 for location of connectors)**.
Inspect the connector for corroded, damaged or pushed out terminals.
Measure the resistance between the L-R solenoid control circuit cavity 20 of the TCM connector and ground **(see figure 51)**.
Is the resistance below 5 ohms?
If yes, repair the short to ground in the L-R solenoid circuit between the TCM connector and the small in-line connector.
If no, go to step 9.

STEP 9

Disconnect the solenoid pack connector. Inspect the solenoid pack and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the L-R solenoid control circuit and ground at the transmission side of the small 8- or 10-way in-line connector **(see figures 56, 57, 60, & 61)**.
Is the resistance below 5 ohms?
If yes, repair the short to ground in the L-R solenoid control circuit between the solenoid pack connector and the small in-line connector.
If no, replace the solenoid pack.

STEP 10

Disconnect the transmission small 8- or 10-way in-line connector **(see figures 54 & 58)**.
Inspect the connector for corroded damaged or pushed out terminals.
Measure the resistance between the transmission control relay output circuit and the L-R solenoid control circuit at the TCM connector **(see figure 51)**.
Is the resistance below 1 ohm?
If yes, repair the transmission control relay output circuit for a short in the L-R solenoid control circuit between the TCM connector and the small in-line connector.
If no, go to step 11.

Step 11

Disconnect the solenoid pack connector. Inspect the solenoid pack and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the L-R solenoid control circuit and the transmission relay output circuit at the solenoid pack harness connector **(see figure 52 for connector and wire color)**.
Is the resistance below 5 ohms?
If yes, repair the solenoid control circuit for a short to the transmission control relay output circuit between the solenoid pack connector and the small in-line connector.
If no, replace the solenoid pack.

Step 12

Disconnect the transmission small 8- or 10-way in-line connector **(see figures 54 & 58)**. Inspect the connector for corroded, damaged or pushed out terminals.
Measure the resistance of the L-R solenoid control circuit between the TCM connector cavity 20 and the harness side of the small 8- or 10-way in-line connector **(see figures 51, 55, 57, 59, & 61)**.
Is the resistance below 5 ohms?
If yes, go to step 13.
If no, repair the open L-R solenoid control circuit between the TCM connector and the small in-line connector.

Step 13

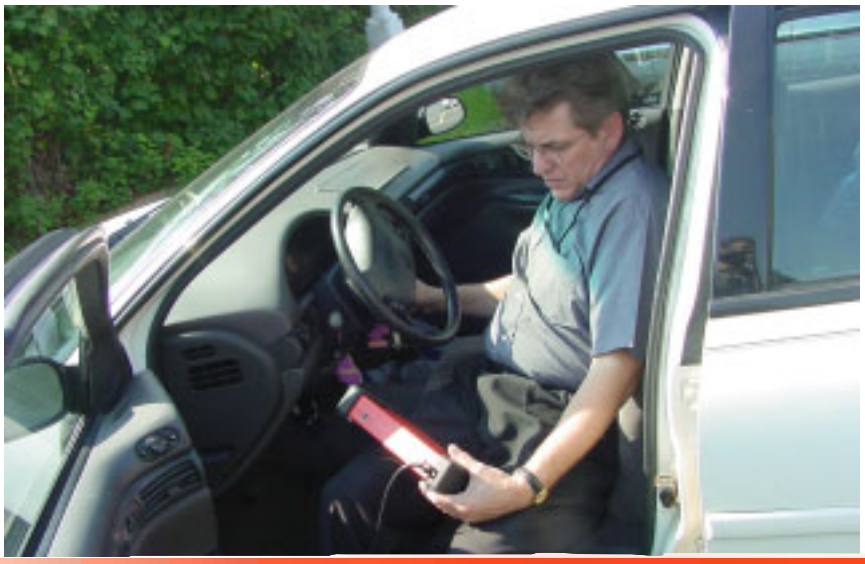
Measure the resistance of the transmission control relay output circuit from the harness side of the small 8- or 10-way in-line connector **(see figures 55, 57, 59, 61)** to the transmission control relay connector **(see figure 53)**.
Is the resistance below 5 ohms?
If yes, go to step 14.
If no, repair the open transmission control relay output (switched B+) circuit between the transmission control relay and the small in-line connector.

STEP 14

Disconnect the solenoid pack connector. Inspect the solenoid pack and connector for corroded, damaged or pushed out terminals.
Measure the resistance of the L-R solenoid control circuit from the solenoid pack connector to the transmission side of the small in-line 8- or 10-way connector **(see figures 56, 57, 60, & 61)**.
Is the resistance below 5 ohms?
If yes, go to step 15.
If no, repair the open L-R solenoid control circuit between the solenoid pack connector and the small in-line connector.

STEP 15

Measure the resistance of the transmission control relay output circuit between the solenoid pack connector and the transmission side of the small 8- or 10-way in-line connector **(see figures 56, 57, 60, & 61)**.
Is the resistance below 5 ohms?
If yes, replace the solenoid pack.
If no, repair the open transmission control relay output circuit between the solenoid pack connector and the small in-line connector.



42LE CODE: 42 / P0755

2-4 Solenoid Circuit Error

42 LE Code 42 / P0755
2-4 Solenoid Circuit Error

Theory of Operation

Four solenoids are used to control the transmission clutches. The continuity of the solenoid circuits is periodically tested during operation. Each solenoid is turned off or on depending on its present state. An inductive voltage spike should be detected by the TCM during this test. If no spike is detected the circuit is tested again. In addition to periodic testing the solenoid circuits are tested if a speed ratio or pressure switch error occurs.

Conditions for Setting the Trouble Code

The solenoid circuits are tested any time the ignition key is turned to the on or run position and every ten seconds after that. The circuits will also be tested when a speed ratio or pressure switch error is detected. The code will set when:

- During normal operation the TCM does not sense an inductive voltage spike after testing the circuit three times.
- A speed ratio error or pressure switch mismatch occurs and the TCM does not sense an inductive voltage spike after testing the circuit once.

Action Taken When Code Sets

- Limp-In: YES
- On 93-95 model year vehicles if code sets above 45 MPH the transmission goes to neutral. Below 45 MPH the transmission goes into limp-in mode
- On 96 and up model year vehicles if code sets above 22 MPH the transmission goes to neutral. Below 22 MPH the transmission goes into limp-in mode
- Illuminates the malfunction indicator lamp on 96-up vehicles.

Possible Causes

- Open or shorted solenoid circuit between TCM and solenoid pack.
- Open ground circuit
- TCM connector problem
- 8- or 10-way connector problem
- Defective solenoid pack
- Defective TCM

Wiring Diagram

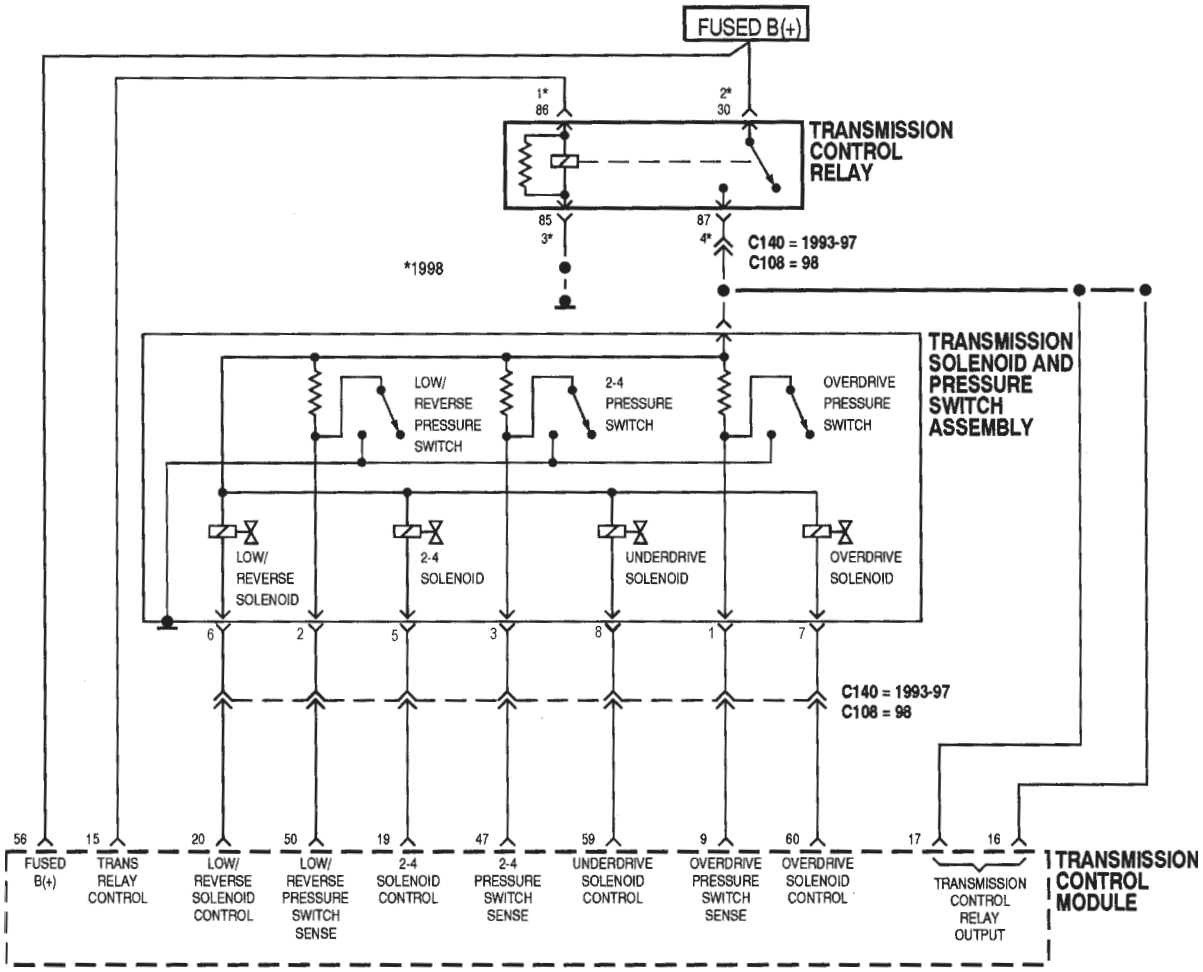
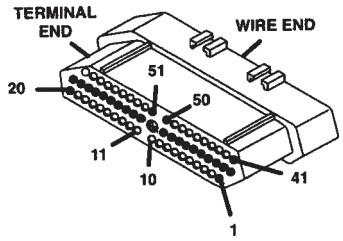


Figure 62—Wiring diagram.

NOTE For complete connector and wire color tables, see Appendix B.

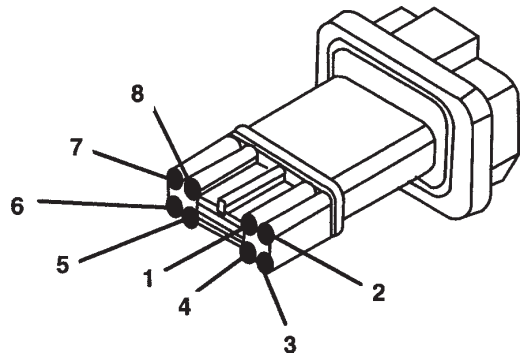


Transmission Control Module 1993-2001

CAV	COLOR	FUNCTION
16	RD	TRANSMISSION CONTROL RELAY OUTPUT
17	RD	TRANSMISSION CONTROL RELAY OUTPUT
19	WT	2-4 SOLENOID CONTROL
53	BK/YL* BK**	GROUND
57	BK/RD	GROUND

*1996-97 & 2000-01
**1998-99

Figure 63— Transmission control module and cavities 16, 17, 19, 53 & 57 information.



Solenoid Pack Connector 1993-2001

CAV	COLOR	FUNCTION
4	RD	TRANMSISSION CONTROL RELAY OUTPUT (SWITCHED B (+))
5	WT	2-4 SOLENOID CONTROL

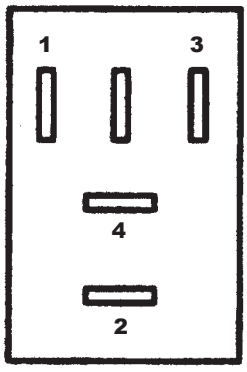
Figure 64— Solenoid pack connector and cavity information.

Transmission Control Relay 1993-2001

CAV	COLOR	FUNCTION
85 3*	BK	GROUND
86 1*	LG	TRANSMISSION RELAY CONTROL
87 4*	RD	TRANSMISSION CONTROL RELAY OUTPUT
30 2*	RD/WT RD/LB	FUSED B (+)

*1998-2001

1998-2001



1993–97

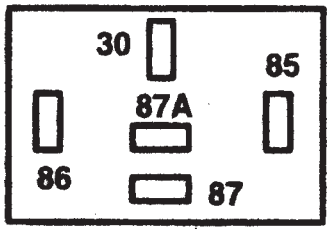


Figure 65— Transmission control relay and cavity information.

NOTE For complete connector and wire color tables, see Appendix B.

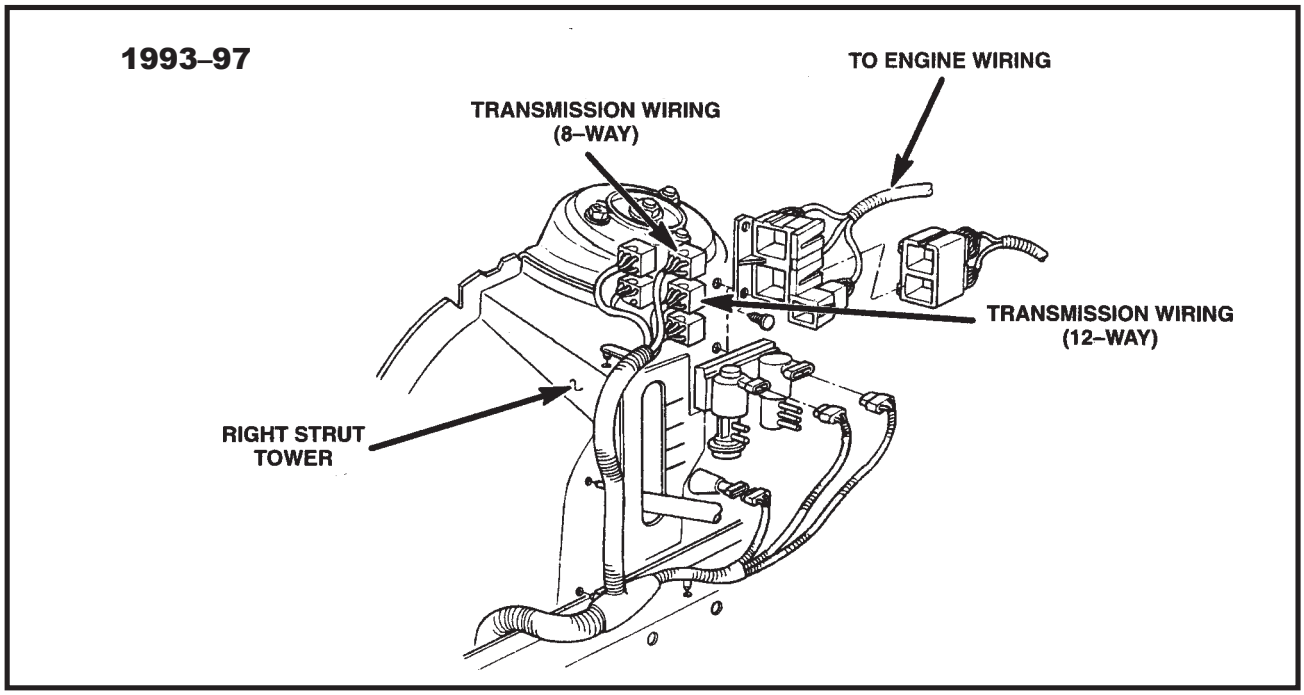


Figure 66—8-way in-line connector location.

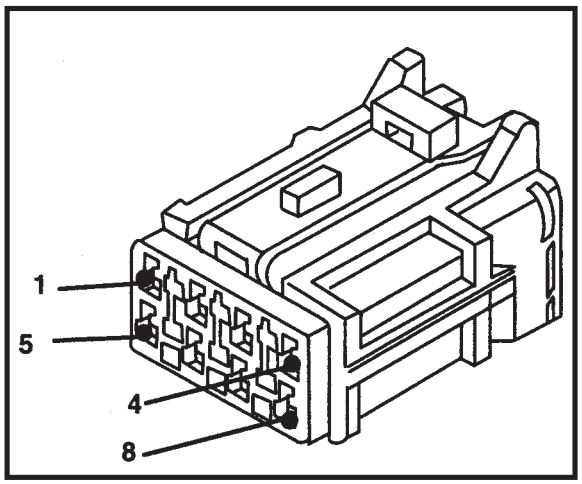


Figure 67— 8-way in-line connector, harness side.

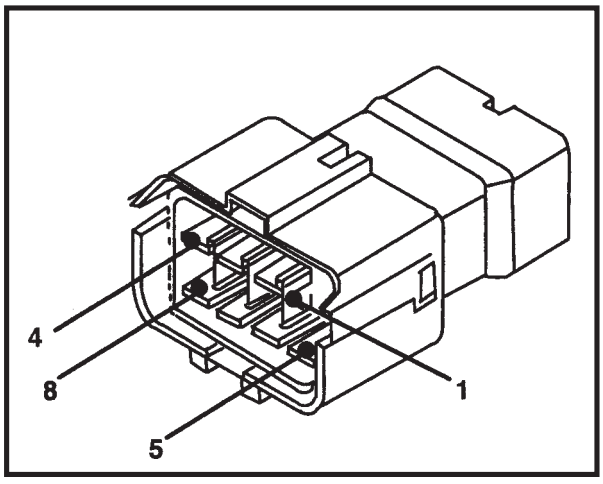


Figure 68— 8-way in-line connector, transmission side.

In-Line 8-Way Connector
1993-97
(applies to both the harness side and the transmission side)

CAV	COLOR	FUNCTION
2	WT	2-4 SOLENOID CONTROL
7	RD	TRANSMISSION CONTROL RELAY OUTPUT

Figure 69—8-way connector cavities 2 & 8 information.

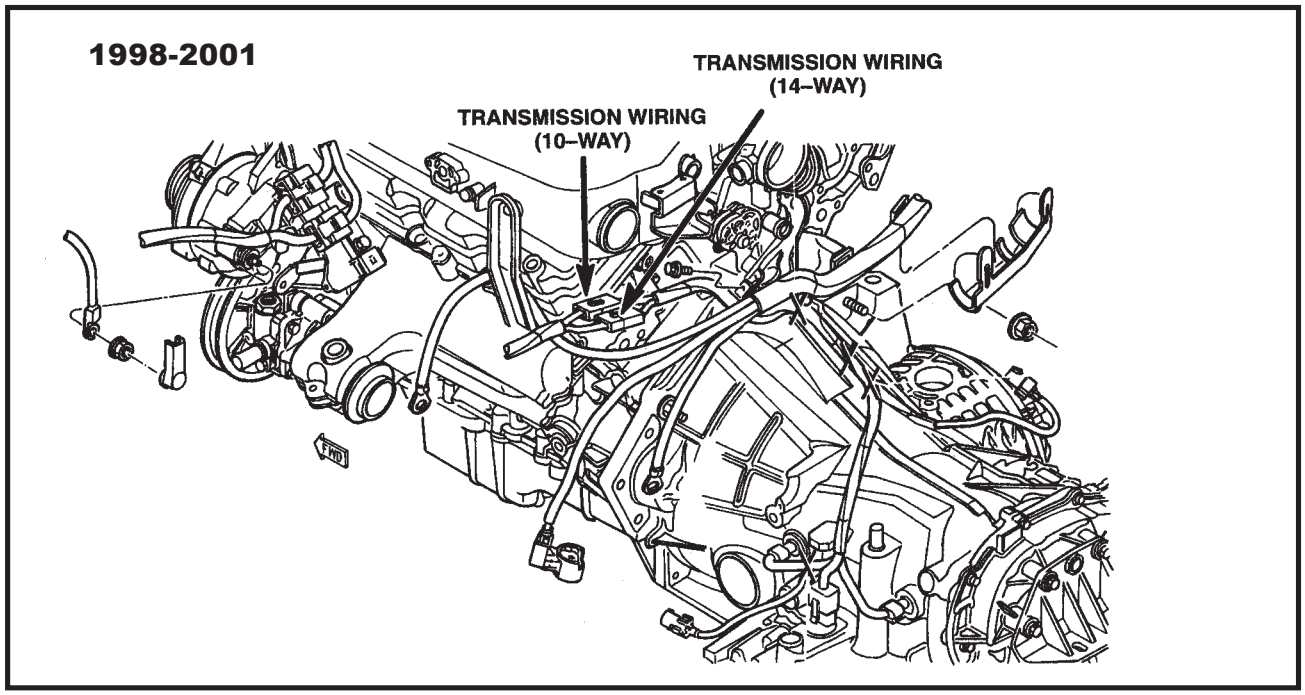


Figure 70—10-way in-line connector location.

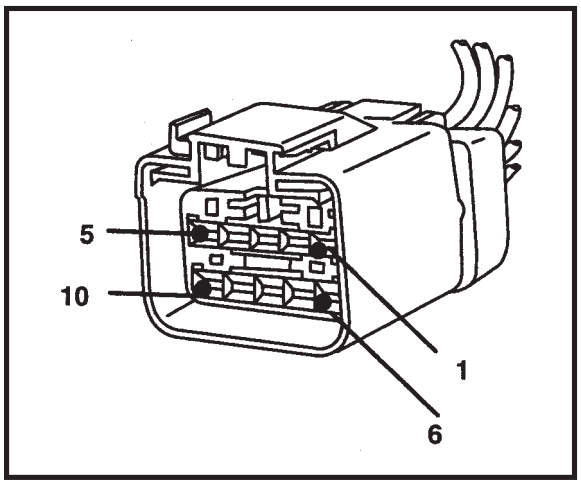


Figure 71—10-way in-line connector, harness side.

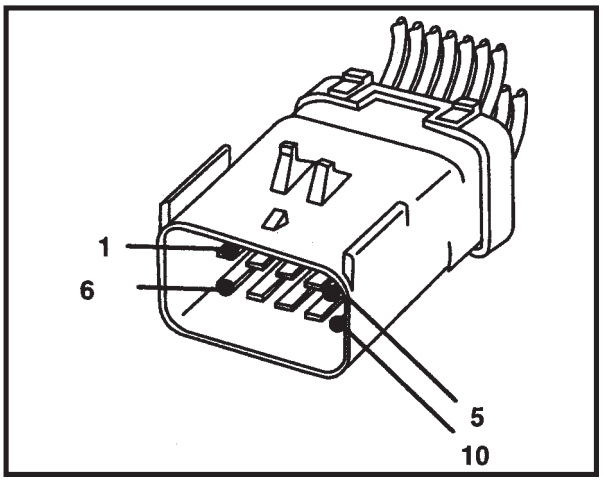


Figure 72—10-way in-line connector, transmission side.

In-Line 10-Way Connector
1998-2001
(applies to both the harness side and the transmission side)

CAV	COLOR	FUNCTION
2	WT	2-4 SOLENOID CONTROL
10	RD	TRANSMISSION CONTROL RELAY OUTPUT

Figure 73—10-way connector cavities 2 & 10 information.

Diagnosis

Step 1

With the Snap-On scanner, clear the codes and road test the vehicle to see if the code returns.
If the code does not return the problem is intermittent. Try shaking the wiring and connectors to duplicate the condition.
If the code does return, and you have a Kwik-Test Plus, go to step 2.
If you do not have a Kwik-Test Plus, go to step 3.

Step 2

Following the instructions in the Kwik-Test Plus manual, test the 2-4 solenoid current, voltage and resistance.
Does the solenoid check OK?
If yes, reconnect block solenoid and go to step 3.
If no, replace the solenoid pack.

Step 3

With key off, disconnect the TCM connector. Inspect the TCM and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the 2-4 solenoid control circuit cavity 19 and ground **(see figure 63 for connector and wire colors)**.
Is the resistance below 5 ohms?
If yes, go to step 8.
If no, go to step 4.

Step 4

Disconnect the transmission control relay. Inspect the relay and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the transmission control relay output circuit at the relay connector **(see figure 65)**, and the 2-4 solenoid control circuit at the TCM connector cavity 19 **(see figure 63)**.
Is the resistance between 1.0 and 5.0 ohms?
If yes, go to step 5.
If no, go to step 7.

STEP 5

Measure the resistance between the ground circuit at the TCM harness connector cavity 57 and ground **(see figure 63)**.
Is the resistance below 5 ohms?
If yes, go to step 6.
If no, repair the open ground circuit to the TCM.

STEP 6

Measure the resistance between the ground circuit at cavity 53 of the TCM connector and ground **(see figure 63)**.
Is the resistance below 5 ohms?
If yes, replace the TCM.
If no, repair the open ground circuit to the TCM.

STEP 7

From step 4, is the resistance below 1 ohm?
If yes, go to step 10.
If no, go to step 12.

STEP 8

Disconnect the transmission small 8- or 10-way in-line connector **(see figures 66 & 70)**. Inspect the connector for corroded, damaged or pushed out terminals.
Measure the resistance between the 2-4 solenoid control circuit cavity 19 of the TCM connector and ground **(see figure 63)**.
Is the resistance below 5 ohms?
If yes, repair the 2-4 solenoid circuit for a short to ground between the TCM connector and the small in-line connector.
If no, go to step 9.

STEP 9

Disconnect the solenoid pack connector. Inspect the solenoid pack and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the 2-4 solenoid control circuit and ground at the transmission side of the small 8- or 10-way in-line connector **(see figures 68, 69, 72, & 73)**.
Is the resistance below 5 ohms?
If yes repair the 2-4 solenoid control circuit for a short to ground between the solenoid pack connector and the small in-line connector.
If no, replace the solenoid pack.

Step 10

Disconnect the transmission small 8- or 10-way in-line connector **(see figures 66 & 70)**.
Inspect the connector for corroded damaged or pushed out terminals.
Measure the resistance between the transmission control relay output circuit and the 2-4 solenoid control circuit at the TCM connector **(see figure 63)**.
Is the resistance below 1 ohm?
If yes, repair the transmission control relay output circuit for a short to the 2-4 solenoid control circuit between the TCM connector and the small in-line connector.
If no, go to step 11.

Step 11

Disconnect the solenoid pack connector. Inspect the solenoid pack and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the 2-4 solenoid control circuit and the transmission relay output circuit at the solenoid pack harness connector **(see figure 64)**.
Is the resistance below 5 ohms?
If yes, repair the solenoid control circuit for a short to the transmission control relay output circuit between the solenoid pack connector and the small in-line connector.
If no, replace the solenoid pack.

Step 12

Disconnect the transmission small 8- or 10-way in-line connector **(see figures 66 & 70)**.
Inspect the connector for corroded, damaged or pushed out terminals.
Measure the resistance of the 2-4 solenoid control circuit between the TCM connector cavity 19 and the harness side of the small 8- or 10-way in-line connector **(see figures 63, 67, 69, 71, & 73)**.
Is the resistance below 5 ohms?
If yes, go to step 13.
If no, repair the open L-R solenoid control circuit between the TCM connector and the small in-line connector.

Step 13

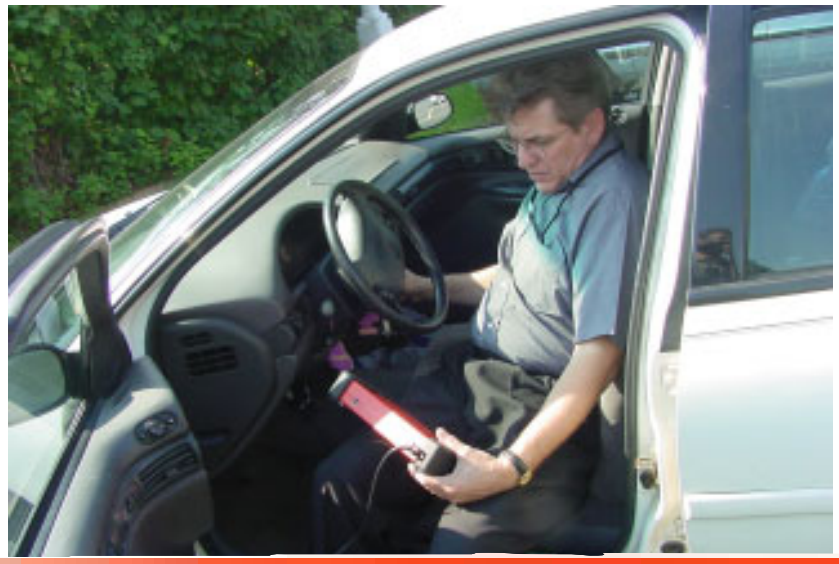
Measure the resistance of the transmission control relay output circuit from the harness side of the small 8- or 10-way in-line connector **(see figures 67, 69, 71, & 73)** to the transmission control relay connector **(see figure 65)**.
Is the resistance below 5 ohms?
If yes, go to step 14.
If no, repair the open transmission control relay output (switched B+) circuit between the transmission control relay and the small in-line connector.

STEP 14

Disconnect the solenoid pack connector. Inspect the solenoid pack and connector for corroded, damaged or pushed out terminals.
Measure the resistance of the 2-4 solenoid control circuit from the solenoid pack connector to the transmission side of the small in-line 8- or 10-way connector **(see figures 64, 68, 69, 72, & 73)**.
Is the resistance below 5 ohms?
If yes, go to step 15.
If no, repair the open 2-4 solenoid control circuit between the solenoid pack connector and the small in-line connector.

STEP 15

Measure the resistance of the transmission control relay output circuit between the solenoid pack connector and the transmission side of the small 8- or 10-way in-line connector **(see figures 64, 68, 69, 72, & 73)**.
Is the resistance below 5 ohms?
If yes, replace the solenoid pack.
If no repair the open transmission control relay output circuit between the solenoid pack connector and the small in-line connector.




42LE CODE: 43 / P0760
OD Solenoid Circuit Error

42LE Code 43 / P0760
Overdrive (OD) Solenoid Circuit Error

Theory of Operation

Four solenoids are used to control the transmission clutches. The continuity of the solenoid circuits is periodically tested during operation. Each solenoid is turned off or on depending on its present state. An inductive voltage spike should be detected by the Transmission Control Module (TCM) during this test. If no spike is detected the circuit is tested again. In addition to periodic testing the solenoid circuits are tested if a speed ratio or pressure switch error occurs.

Conditions for Setting the Trouble Code

The solenoid circuits are tested any time the ignition key is turned to the on or run position and every ten seconds after that. The circuits will also be tested when a speed ratio or pressure switch error is detected. The code will set when:

- During normal operation the TCM does not sense an inductive voltage spike after testing the circuit three times
- A speed ratio error or pressure switch mismatch occurs and the TCM does not sense an inductive voltage spike after testing the circuit once

Action Taken When Code Sets

- Limp-In: YES
- On **93-95** model year vehicles if code sets above 45 MPH the transmission goes to neutral. Below 45 MPH the transmission goes into limp-in mode
- On **96-up** model year vehicles if code sets above 22 MPH the transmission goes to neutral. Below 22 MPH the transmission goes into limp-in mode
- Illuminates the malfunction indicator lamp on **96-up** vehicles

Possible Causes

- Open or shorted solenoid circuit between TCM and solenoid pack
- Open ground circuit
- TCM connector problem
- 8- or 10-way connector problem
- Defective solenoid pack
- Defective TCM

Wiring Diagram

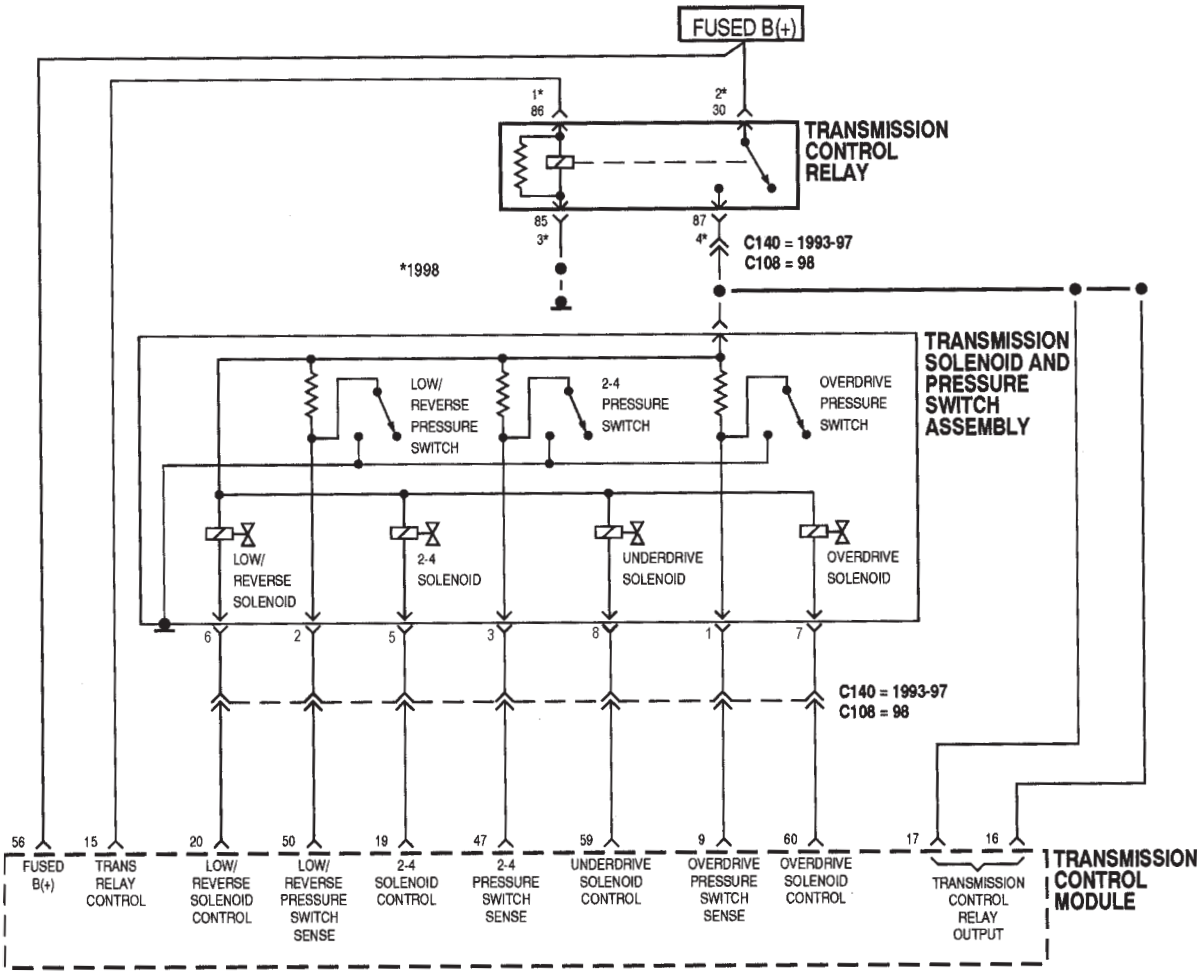
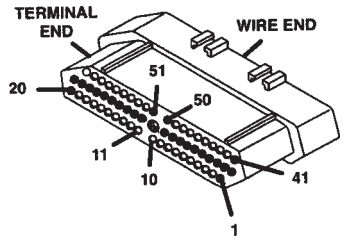


Figure 74—Wiring diagram.

NOTE For complete connector and wire color tables, see Appendix B.

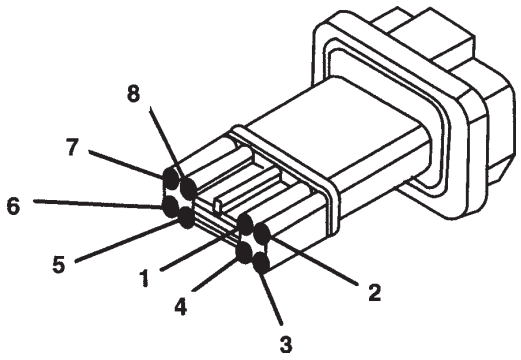


Transmission Control Module 1993-2001

CAV	COLOR	FUNCTION
16	RD	TRANSMISSION CONTROL RELAY OUTPUT
17	RD	TRANSMISSION CONTROL RELAY OUTPUT
53	BK/YL* BK**	GROUND
57	BK/RD	GROUND
60	BR	OD SOLENOID CONTROL

*1996-97 & 2000-01
**1998 - 99

Figure 75— Transmission control module and cavities 16, 17, 53, 57 & 60 information.



Solenoid Pack Connector 1993-2001

CAV	COLOR	FUNCTION
4	RD	TRANMSISSION CONTROL RELAY OUTPUT (SWITCHED B (+))
7	BR	OD SOLENOID CONTROL

Figure 76— Solenoid pack connector and cavity information.

Transmission Control Relay 1993-2001

CAV	COLOR	FUNCTION
85 3*	BK	GROUND
86 1*	LG	TRANSMISSION RELAY CONTROL
87 4*	RD	TRANSMISSION CONTROL RELAY OUTPUT
30 2*	RD/WT RD/LB	FUSED B (+)

*1998 -2001

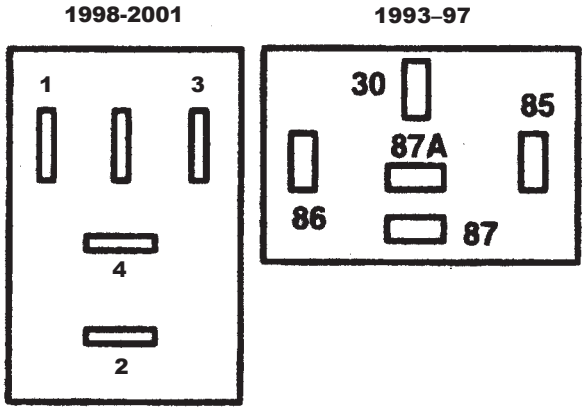


Figure 77— Transmission control relay and cavity information.

NOTE For complete connector and wire color tables, see Appendix B.

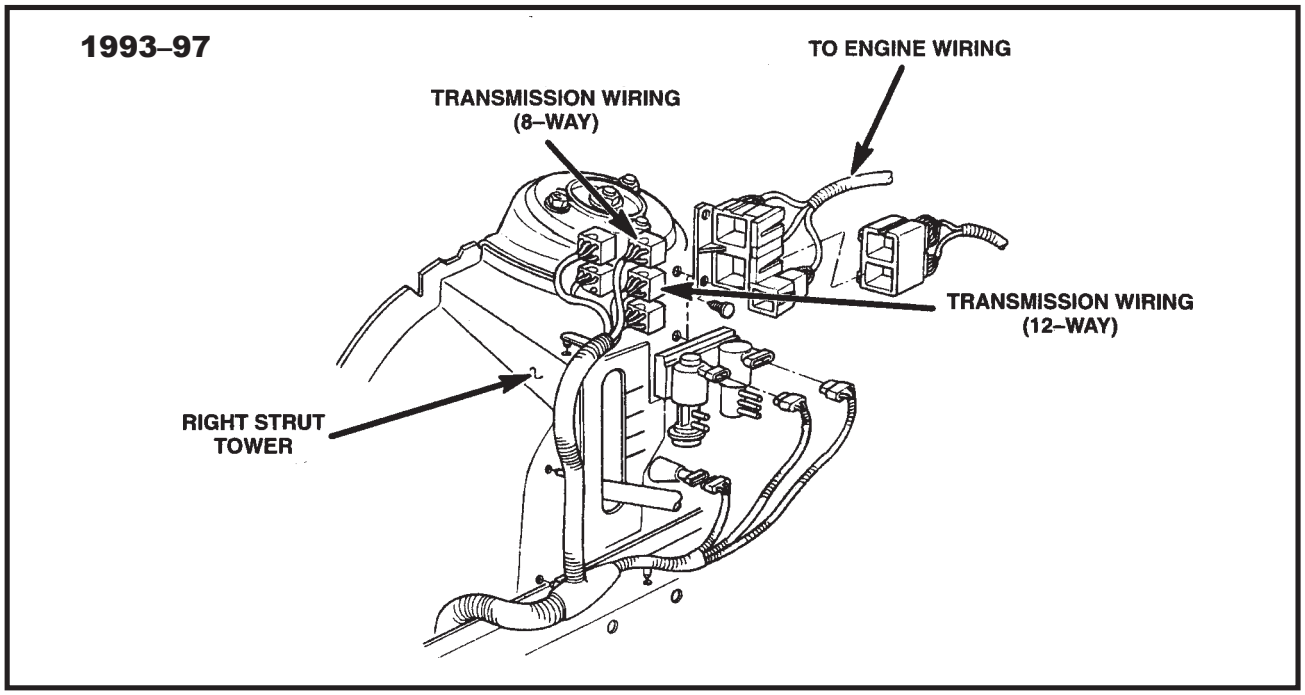


Figure 78—8-way in-line connector location.

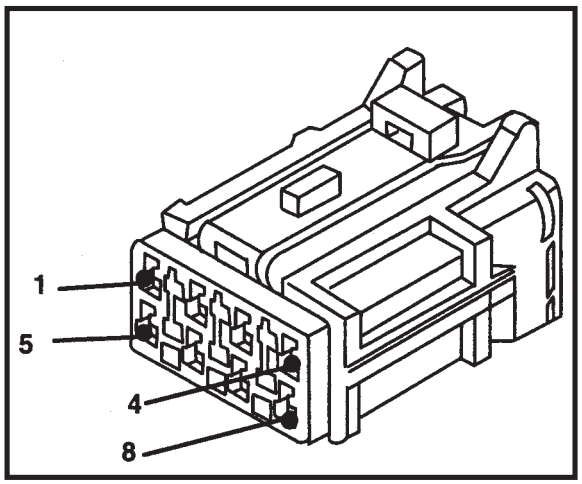


Figure 79— 8-way in-line connector, harness side.

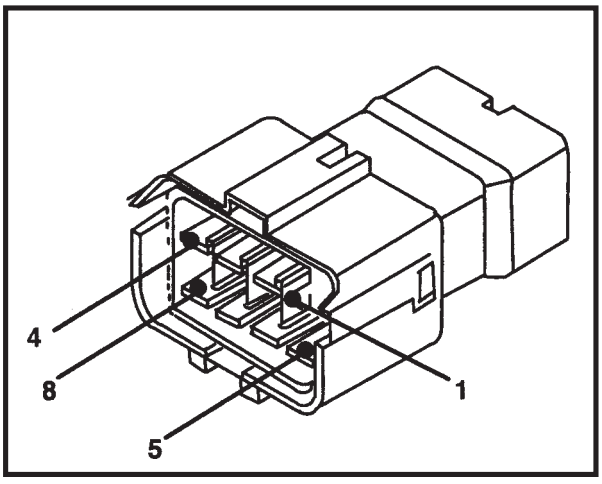


Figure 80— 8-way in-line connector, transmission side.

In-Line 8-Way Connector
1993-97
(applies to both the harness side and the transmission side)

CAV	COLOR	FUNCTION
1	BR	OD SOLENOID CONTROL
7	RD	TRANSMISSION CONTROL RELAY OUTPUT

Figure 81—8-way connector cavities 1 & 7 information.

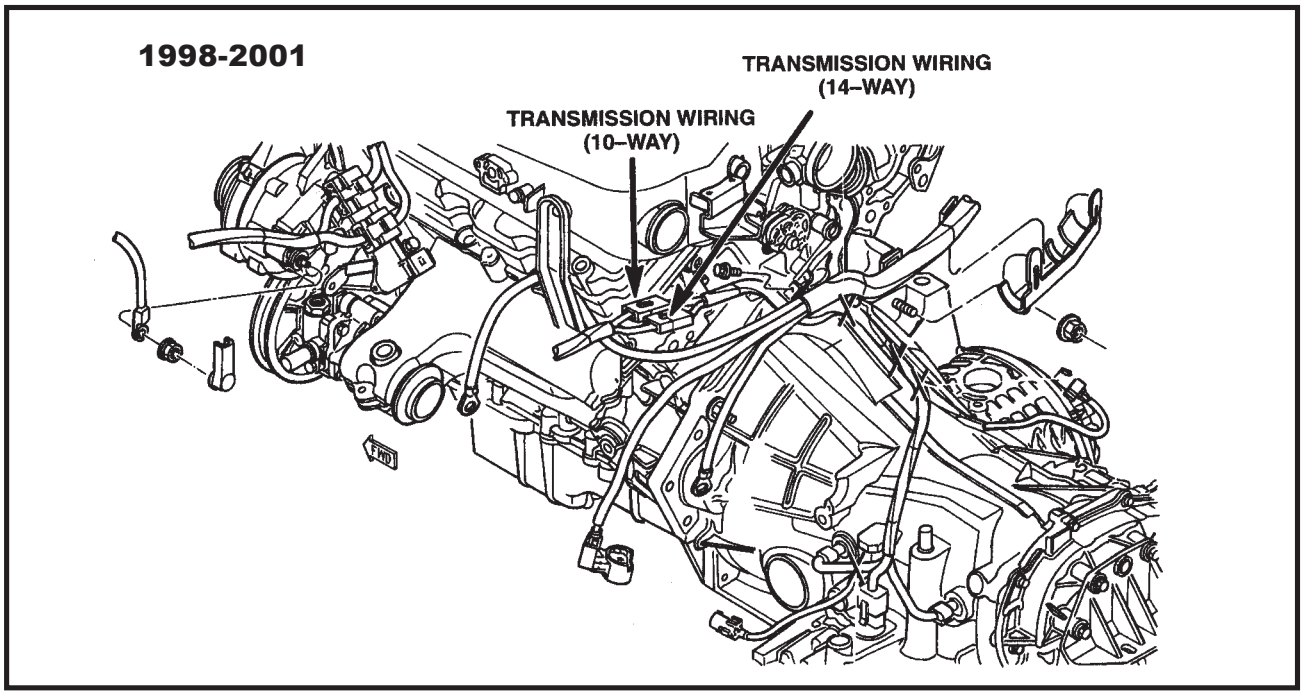


Figure 82—10-way in-line connector location.

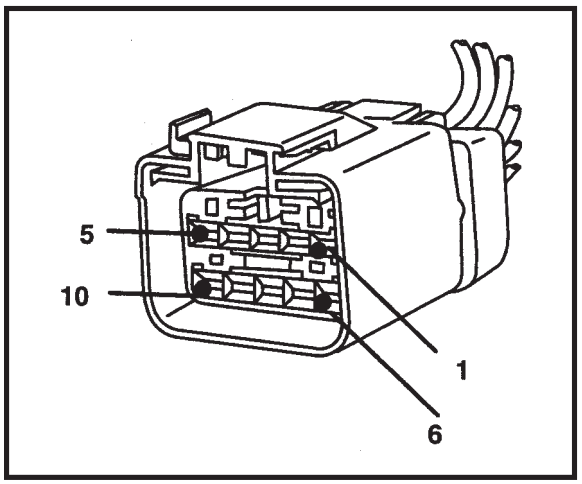


Figure 83—10-way in-line connector, harness side.

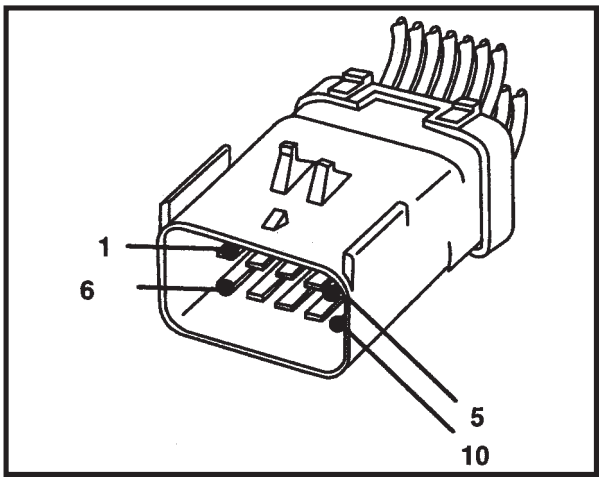


Figure 84—10-way in-line connector, transmission side.

In-Line 10-Way Connector
1998-2001
(applies to both the harness side and the transmission side)

CAV	COLOR	FUNCTION
4	BR	OD SOLENOID CONTROL
10	RD	TRANSMISSION CONTROL RELAY OUTPUT

Figure 85—10-way connector cavities 4 & 10 information.

Diagnosis

Step 1

With the Snap-On scanner, clear the codes and road test the vehicle to see if the code returns.
If the code does not return the problem is intermittent. Try shaking the wiring and connectors to duplicate the condition.
If the code returns, and you have a Kwik-Test Plus, go to step 2.
If you do not have a Kwik-Test Plus, go to step 3.

Step 2

Following the instructions in the Kwik-Test Plus manual, test the OD solenoid current, voltage and resistance.
Does the solenoid check OK?
If yes, reconnect solenoid block and go to step 3.
If no, replace the solenoid pack.

Step 3

With key off, disconnect the TCM connector. Inspect the TCM and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the OD solenoid control circuit cavity 60 and ground **(see figure 75 for connector and wire colors)**.
Is the resistance below 5 ohms?
If yes, go to step 8.
If no, go to step 4.

Step 4

Disconnect the transmission control relay. Inspect the relay and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the transmission control relay output circuit at the relay connector **(see figure 77)**, and the OD solenoid control circuit at the TCM connector cavity 60 **(see figure 75)**.
Is the resistance between 1.0 and 5.0 ohms?
If yes, go to step 5.
If no, go to step 7.

STEP 5

Measure the resistance between the ground circuit at the TCM harness connector cavity 57 and ground **(see figure 75)**.
Is the resistance below 5 ohms?
If yes, go to step 6.
If no, repair the open ground circuit to the TCM.

STEP 6

Measure the resistance between the ground circuit at cavity 53 of the TCM connector and ground **(see figure 75)**.
Is the resistance below 5 ohms?
If yes, replace the TCM.
If no, repair the open ground circuit to the TCM.

STEP 7

From step 4, is the resistance below 1 ohm?
If yes, go to step 10.
If no, go to step 12.

STEP 8

Disconnect the transmission small 8- or 10-way in-line connector **(see figures 78 & 82)**. Inspect the connector for corroded, damaged or pushed out terminals.
Measure the resistance between the OD solenoid control circuit cavity 60 of the TCM connector and ground **(see figure 75)**.
Is the resistance below 5 ohms?
If yes, repair the OD solenoid circuit for a short to ground between the TCM connector and the small in-line connector.
If no, go to step 9.

STEP 9

Disconnect the solenoid pack connector. Inspect the solenoid pack and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the OD solenoid control circuit and ground at the transmission side of the small 8- or 10-way in-line connector **(see figures 80, 81, 84, & 85)**.
Is the resistance below 5 ohms?
If yes, repair the OD solenoid control circuit for a short to ground between the solenoid pack connector and the small in-line connector.
If no replace the solenoid pack.

Step 10

Disconnect the transmission small 8- or 10-way in-line connector **(see figures 78 & 82)**.
Inspect the connector for corroded damaged or pushed out terminals.
Measure the resistance between the transmission control relay output circuit and the OD solenoid control circuit at the TCM connector **(see figure 75)**.
Is the resistance below 1 ohm?
If yes, repair the transmission control relay output circuit for a short to the OD solenoid control circuit between the TCM connector and the small in-line connector.
If no, go to step 11.

Step 11

Disconnect the solenoid pack connector. Inspect the solenoid pack and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the OD solenoid control circuit and the transmission relay output circuit at the solenoid pack harness connector **(see figure 76 for connector and wire colors)**.
Is the resistance below 5 ohms?
If yes, repair the solenoid control circuit for a short to the transmission control relay output circuit between the solenoid pack connector and the small in-line connector.
If no, replace the solenoid pack.

Step 12

Disconnect the transmission small 8- or 10-way in-line connector **(see figures 78 & 82)**.
Inspect the connector for corroded, damaged or pushed out terminals.
Measure the resistance of the OD solenoid control circuit between the TCM connector cavity 60 and the harness side of the small 8- or 10-way in-line connector **(see figures 75, 79, 81, 83, & 85)**.
Is the resistance below 5 ohms?
If yes, go to step 13.
If no, repair the open OD solenoid control circuit between the TCM connector and the small in-line connector.

Step 13

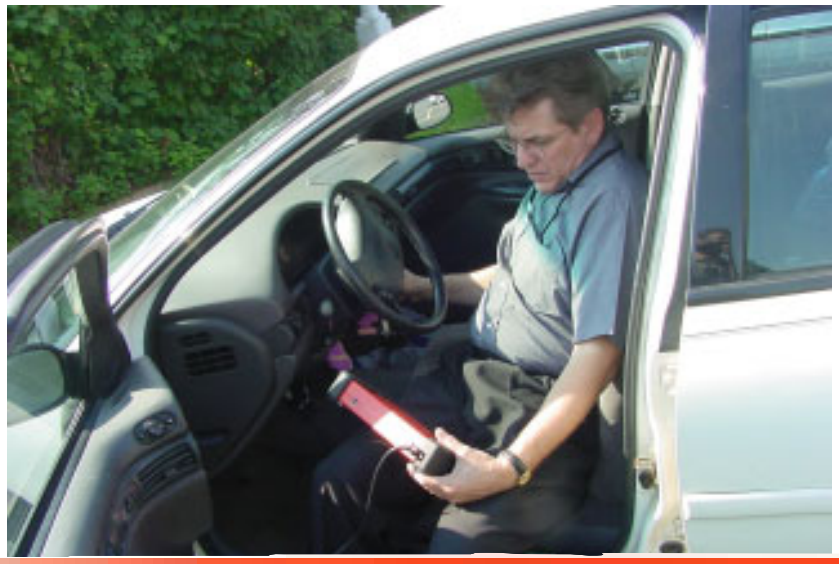
Measure the resistance of the transmission control relay output circuit from the harness side of the small 8- or 10-way in-line connector **(see figures 79, 81, 83, & 85)** to the transmission control relay connector **(see figure 77)**.
Is the resistance below 5 ohms?
If yes, go to step 14.
If no, repair the open transmission control relay output (switched B+) circuit between the transmission control relay and the small in-line connector.

STEP 14

Disconnect the solenoid pack connector. Inspect the solenoid pack and connector for corroded, damaged or pushed out terminals.
Measure the resistance of the OD solenoid control circuit from the solenoid pack connector to the transmission side of the small in-line 8- or 10-way connector **(see figures 76, 80, 81, 84, & 85)**.
Is the resistance below 5 ohms?
If yes, go to step 15.
If no, repair the open OD solenoid control circuit between the solenoid pack connector and the small in-line connector.

STEP 15

Measure the resistance of the transmission control relay output circuit between the solenoid pack connector and the transmission side of the small 8- or 10-way in-line connector **(see figures 76, 80, 81, 84, & 85)**.
Is the resistance below 5 ohms?
If yes, replace the solenoid pack.
If no, repair the open transmission control relay output circuit between the solenoid pack connector and the small in-line connector.




42LE CODE: 44 / P0765
UD Solenoid Circuit Error

42 LE Code 44 / P0765
Underdrive (UD) Solenoid Circuit Error

Theory of Operation

Four solenoids are used to control the transmission clutches. The continuity of the solenoid circuits is periodically tested during operation. Each solenoid is turned off or on depending on its present state. An inductive voltage spike should be detected by the Transmission Control Module (TCM) during this test. If no spike is detected the circuit is tested again. In addition to periodic testing the solenoid circuits are tested if a speed ratio or pressure switch error occurs.

Conditions for Setting the Trouble Code

The solenoid circuits are tested any time the ignition key is turned to the on or run position and every ten seconds after that. The circuits will also be tested when a speed ratio or pressure switch error is detected. The code will set when:

- During normal operation the TCM does not sense an inductive voltage spike after testing the circuit three times
- A speed ratio error or pressure switch mismatch occurs and the TCM does not sense an inductive voltage spike after testing the circuit once

Action Taken When Code Sets

- Limp-In: YES
- On **93-95** model year vehicles if code sets above 45 MPH the transmission goes to neutral. Below 45 MPH the transmission goes into limp-in mode
- On **96-up** model year vehicles if code sets above 22 MPH the transmission goes to neutral. Below 22 MPH the transmission goes into limp-in mode
- Illuminates the malfunction indicator lamp on **96-up** vehicles

Possible Causes

- Open or shorted solenoid circuit between TCM and solenoid pack
- Open ground circuit
- TCM connector problem
- 8- or 10- way connector problem
- Defective solenoid pack
- Defective TCM

Wiring Diagram

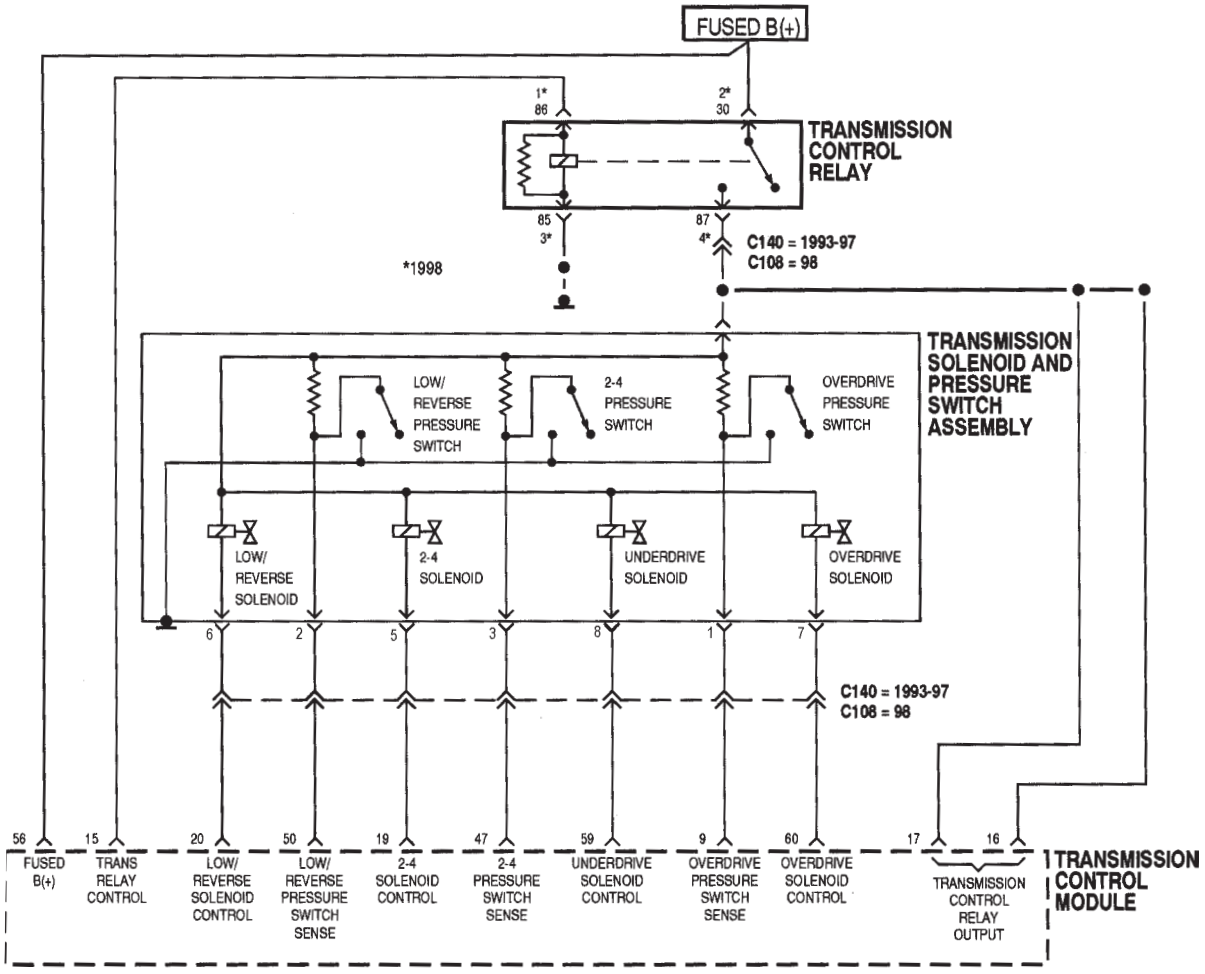
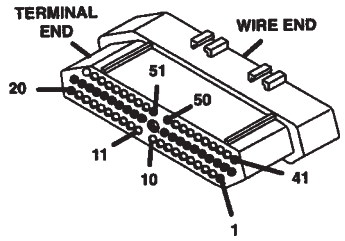


Figure 86—Wiring diagram.

NOTE For complete connector and wire color tables, see Appendix B.

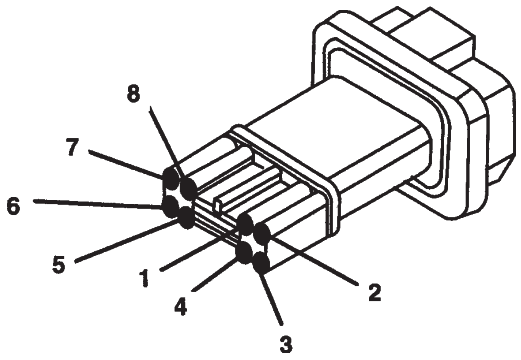


Transmission Control Module 1993-2001

CAV	COLOR	FUNCTION
16	RD	TRANSMISSION CONTROL RELAY OUTPUT
17	RD	TRANSMISSION CONTROL RELAY OUTPUT
53	BK/YL* BK**	GROUND
57	BK/RD	GROUND
59	PK	UD SOLENOID CONTROL

*1996-97 & 2000-01
**1998-99

Figure 87— Transmission control module and cavities 16, 17, 53, 57 & 59 information.



Solenoid Pack Connector 1993-2001

CAV	COLOR	FUNCTION
4	RD	TRANMSISSION CONTROL RELAY OUTPUT (SWITCHED B (+))
8	PK	UD SOLENOID CONTROL

Figure 88— Solenoid pack connector and cavity information.

Transmission Control Relay 1993-2001

CAV	COLOR	FUNCTION
85 3*	BK	GROUND
86 1*	LG	TRANSMISSION RELAY CONTROL
87 4*	RD	TRANSMISSION CONTROL RELAY OUTPUT
30 2*	RD/WT RD/LB	FUSED B (+)

*1998 -2001

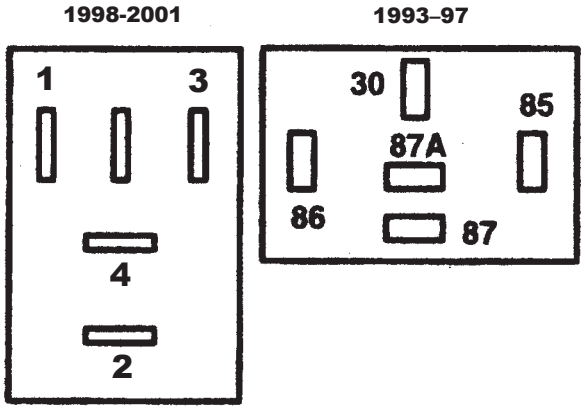


Figure 89— Transmission control relay and cavity information.

NOTE For complete connector and wire color tables, see Appendix B.

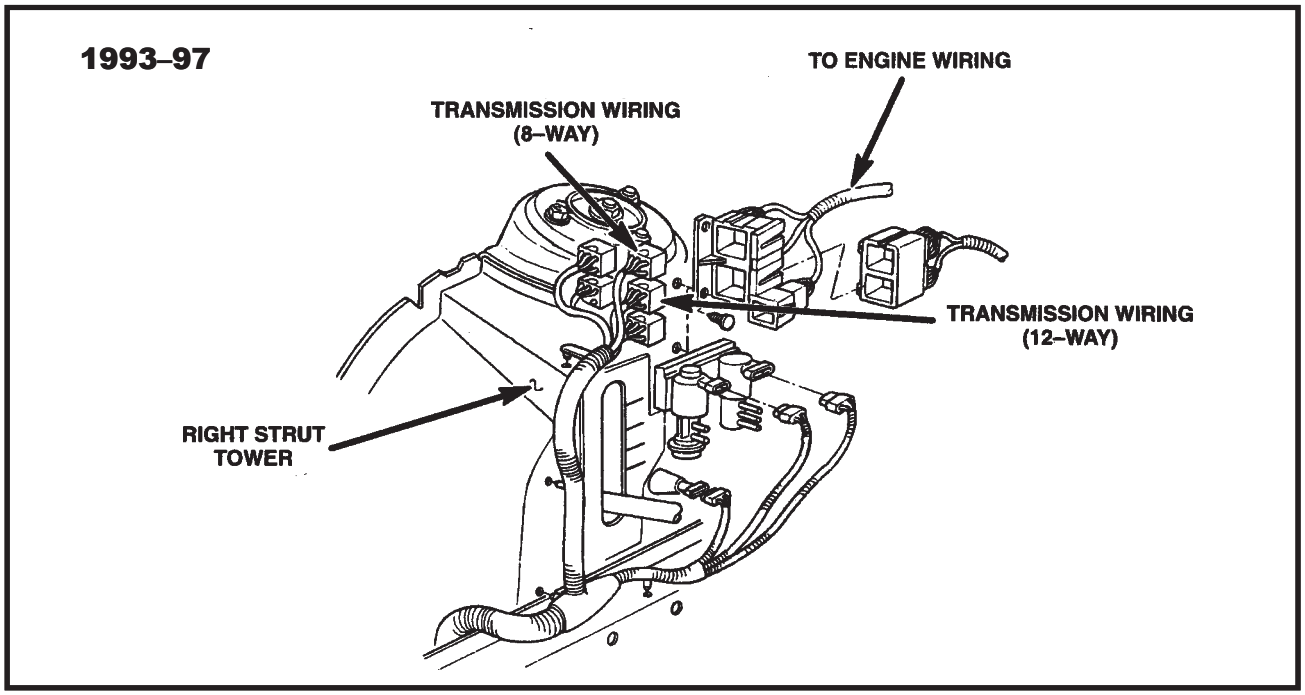


Figure 90—8-way in-line connector location.

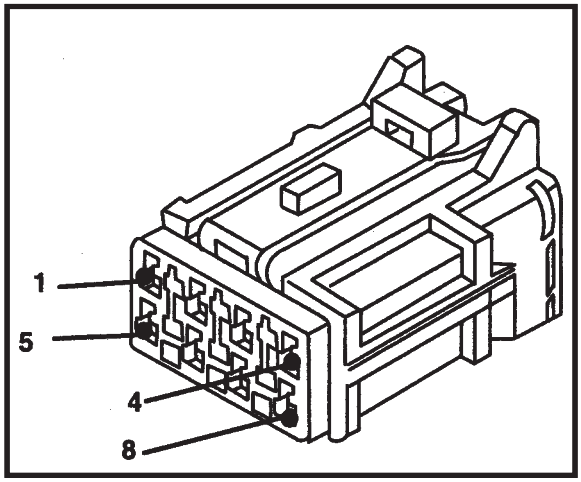


Figure 91— 8-way in-line connector, harness side.

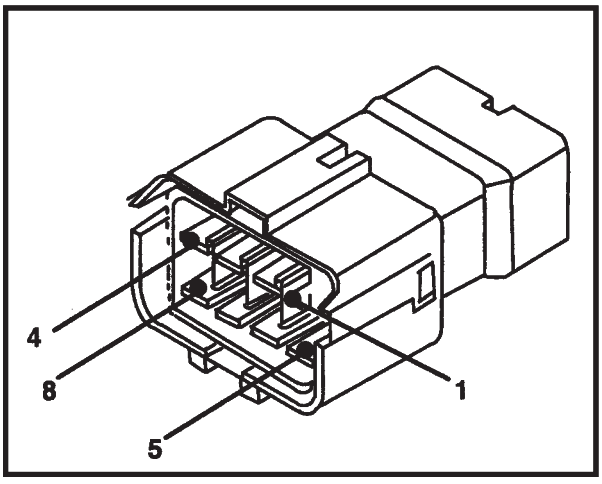


Figure 92— 8-way in-line connector, transmission side.

In-Line 8-Way Connector
1993-97
(applies to both the harness side and the transmission side)

CAV	COLOR	FUNCTION
3	PK	UD SOLENOID CONTROL
7	RD	TRANSMISSION CONTROL RELAY OUTPUT

Figure 93—8-way connector cavities 3 & 7 information.

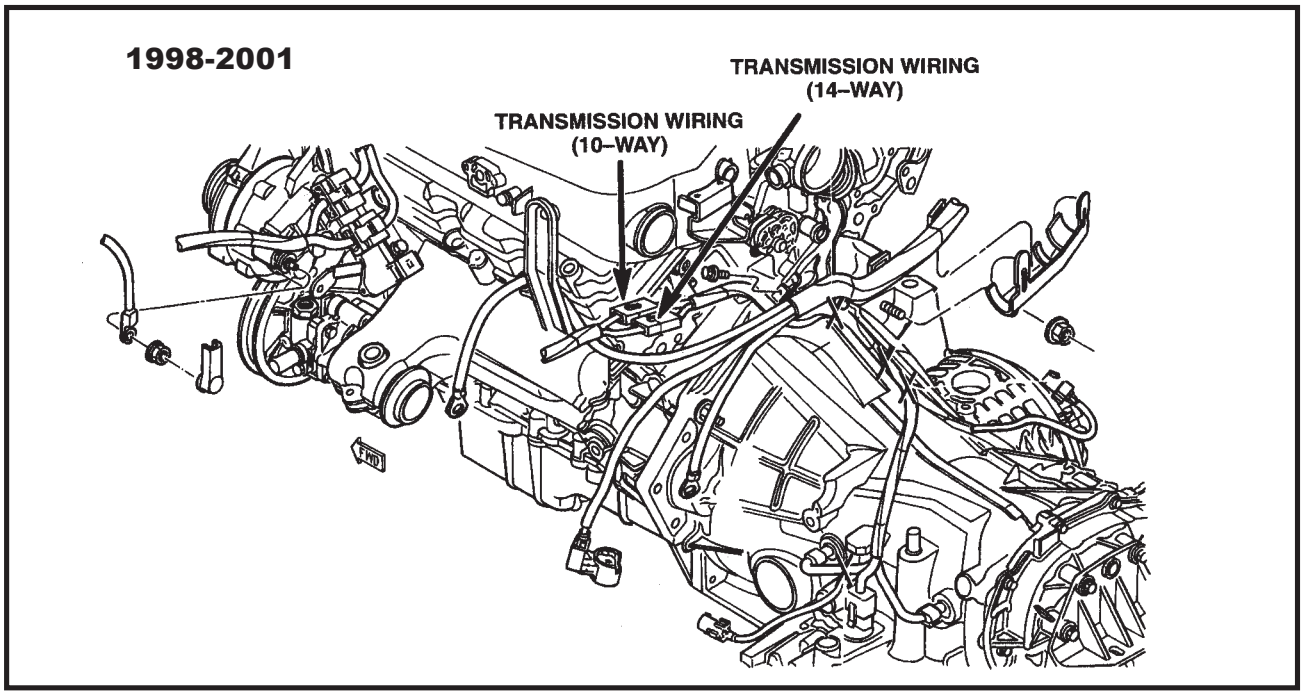


Figure 94—10-way in-line connector location.

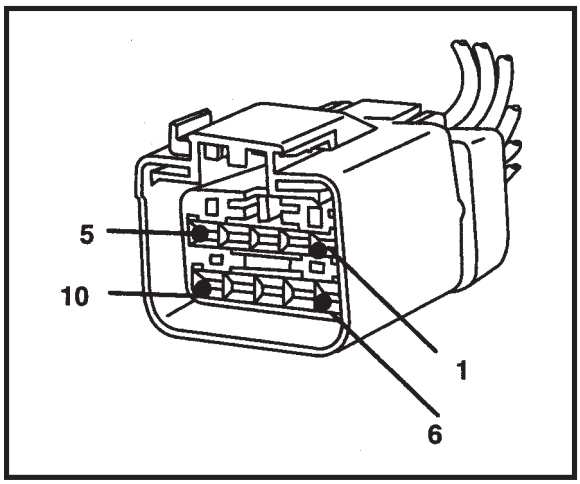


Figure 95—10-way in-line connector, harness side.

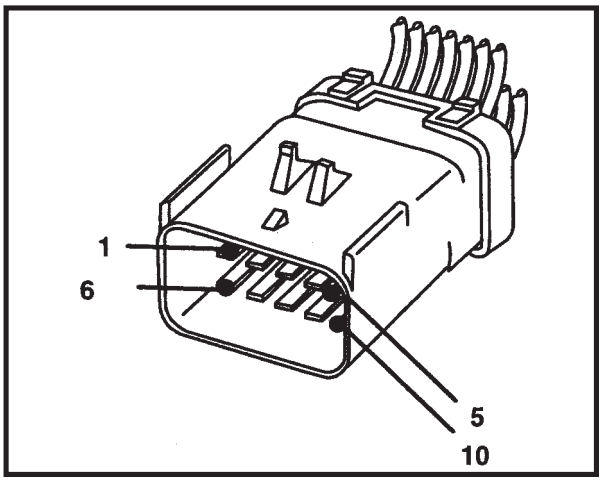


Figure 96—10-way in-line connector, transmission side.

In-Line 10-Way Connector
1998-2001
(applies to both the harness side and the transmission side)

CAV	COLOR	FUNCTION
5	PK	UD SOLENOID CONTROL
10	RD	TRANSMISSION CONTROL RELAY OUTPUT

Figure 97—10-way connector cavities 4 & 10 information.

Diagnosis

Step 1

With the Snap-On scanner clear the codes and road test the vehicle to see if the code returns.
If code does not return the problem is intermittent. Try shaking the wiring and connectors to duplicate the condition.
If the code returns, and you have a Kwik-Test Plus, go to step 2.
If you do not have a Kwik-Test Plus, go to step 3.

Step 2

Following the instructions in the Kwik-Test Plus manual, test the UD solenoid current, voltage and resistance.
Does the solenoid check OK?
If yes, reconnect solenoid block and go to step 3.
If no, replace the solenoid pack.

Step 3

With key off, disconnect the TCM connector. Inspect the TCM and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the UD solenoid control circuit cavity 59 and ground **(see figure 87 for connector and wire color)**.
Is the resistance below 5 ohms?
If yes, go to step 8.
If no, go to step 4.

Step 4

Disconnect the transmission control relay. Inspect the relay and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the transmission control relay output circuit at the relay connector **(see figure 89 for connector and wire color)**, and the UD solenoid control circuit at the TCM connector cavity 59 **(see figure 87)**.
Is the resistance between 1.0 and 5.0 ohms?
If yes, go to step 5.
If no, go to step 7.

STEP 5

Measure the resistance between the ground circuit at the TCM harness connector cavity 57 and ground **(see figure 87)**.
Is the resistance below 5 ohms?
If yes, go to step 6.
If no, repair the open ground circuit to the TCM.

STEP 6

Measure the resistance between the ground circuit at cavity 53 of the TCM connector and ground **(see figure 87)**.
Is the resistance below 5 ohms?
If yes, replace the TCM.
If no, repair the open ground circuit to the TCM.

STEP 7

From step 4, is the resistance below 1 ohm?
If yes, go to step 10.
If no, go to step 12.

STEP 8

Disconnect the transmission small 8- or 10-way in-line connector **(see figures 90 & 94)**. Inspect the connector for corroded, damaged or pushed out terminals.
Measure the resistance between the UD solenoid control circuit cavity 59 of the TCM connector to ground **(see figure 87)**.
Is the resistance below 5 ohms?
If yes, go to repair the UD solenoid circuit for a short to ground between the TCM connector and the small in-line connector.
If no, go to step 9.

STEP 9

Disconnect the solenoid pack connector. Inspect the solenoid pack and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the UD solenoid control circuit and ground at the transmission side of the small 8- or 10-way in-line connector **(see figures 92, 93, 96, & 97)**.
Is the resistance below 5 ohms?
If yes, repair the UD solenoid control circuit for a short to ground between the solenoid pack connector and the small in-line connector. If no replace the solenoid pack.

Step 10

Disconnect the transmission small 8- or 10-way in-line connector **(see figures 90 & 94)**. Inspect the connector for corroded damaged or pushed out terminals.
Measure the resistance between the transmission control relay output circuit and the UD solenoid control circuit at the TCM connector **(see figure 87)**.
Is the resistance below 1 ohm?
If yes, repair the transmission control relay output circuit for a short to the UD solenoid control circuit between the TCM connector and the small in-line connector.
If no, go to step 11.

Step 11

Disconnect the solenoid pack connector. Inspect the solenoid pack and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the UD solenoid control circuit and the transmission relay output circuit at the solenoid pack harness connector **(see figure 88 for connector and wire color)**.
Is the resistance below 5 ohms?
If yes, repair the solenoid control circuit for a short to the transmission control relay output circuit between the solenoid pack connector and the small in-line connector.
If no, replace the solenoid pack.

Step 12

Disconnect the transmission small 8- or 10-way in-line connector **(see figures 90 & 94)**. Inspect the connector for corroded, damaged or pushed out terminals.
Measure the resistance of the UD solenoid control circuit between the TCM connector cavity 59 and the harness side of the small 8- or 10-way in-line connector **(see figures 87, 91, 93, 95, & 97)**.
Is the resistance below 5 ohms?
If yes, go to step 13.
If no, repair the open UD solenoid control circuit between the TCM connector and the small in-line connector.

Step 13

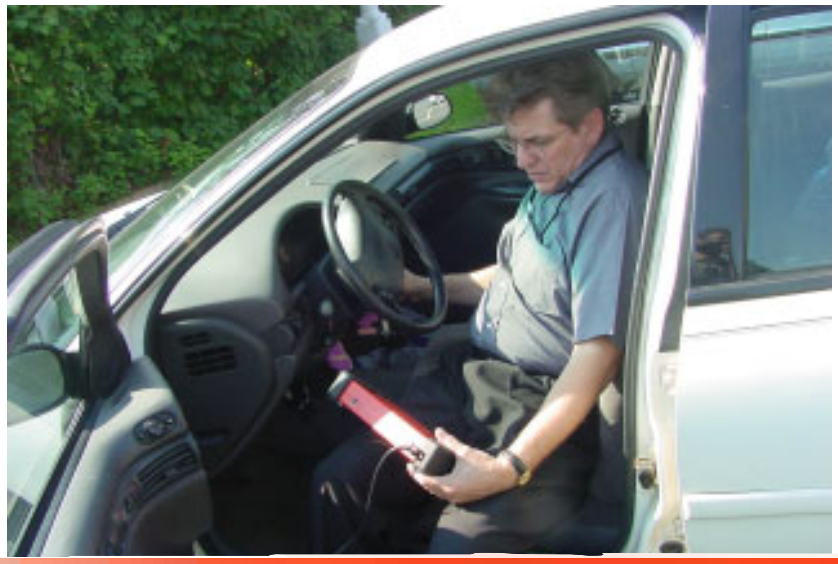
Measure the resistance of the transmission control relay output circuit from the harness side of the small 8- or 10-way in-line connector **(see figures 91, 93, 95, & 97)** to the transmission control relay connector **(see figure 89)**.
Is the resistance below 5 ohms?
If yes, go to step 14.
If no, repair the open transmission control relay output (switched B+) circuit between the transmission control relay and the small in-line connector.

STEP 14

Disconnect the solenoid pack connector. Inspect the solenoid pack and connector for corroded, damaged or pushed out terminals.
Measure the resistance of the UD solenoid control circuit from the solenoid pack connector to the transmission side of the small in-line 8- or 10-way connector **(see figures 88, 92, 93, 96, & 97)**.
Is the resistance below 5 ohms?
If yes, go to step 15.
If no, repair the open UD solenoid control circuit between the solenoid pack connector and the small in-line connector.

STEP 15

Measure the resistance of the transmission control relay output circuit between the solenoid pack connector and the transmission side of the small 8- or 10-way in-line connector **(see figures 88, 92, 93, 96, & 97)**.
Is the resistance below 5 ohms?
If yes, replace the solenoid pack.
If no, repair the open transmission control relay output circuit between the solenoid pack connector and the small in-line connector.




42LE CODE: 74 / P1799
Calculated Oil Temperature
in Use

42LE Code 74 / P1799
Calculated Oil Temperature in Use

Theory of Operation

Starting with 1996 model year vehicles, the Transmission Control Module (TCM) uses a transmission oil temperature sensor (located in the transmission range sensor) to monitor the transmission fluid temperature. This temperature is used to determine which shift schedule the TCM is to use. If the sensor circuit fails to operate properly the TCM will use the calculated oil temperature routine used in prior model year TCM's.

Conditions for Setting the Trouble Code

The code will set if any of the following conditions exist for three consecutive key starts:
- The sensor voltage is out of range (below 0.07 volts or greater than 4.94 volts)
- If a continuous erratic sensor voltage is sensed
- The sensor temperature stays below 80 degrees F for an extended period of time

Action Taken When Code Sets

- Limp-In: NO
- Prior to setting the code, the transmission may operate in the wrong shift schedule for existing conditions (slightly early or late shifts, delayed Torque Converter Clutch (TCC)
- After code sets the TCM will use "calculated oil temperature" and normal operation will resume

Possible Causes

- Wiring or connector problems in the transmission temperature sensor signal circuit
- Defective temperature sensor (part of the transmission range sensor)
- Defective TCM

Wiring Diagram

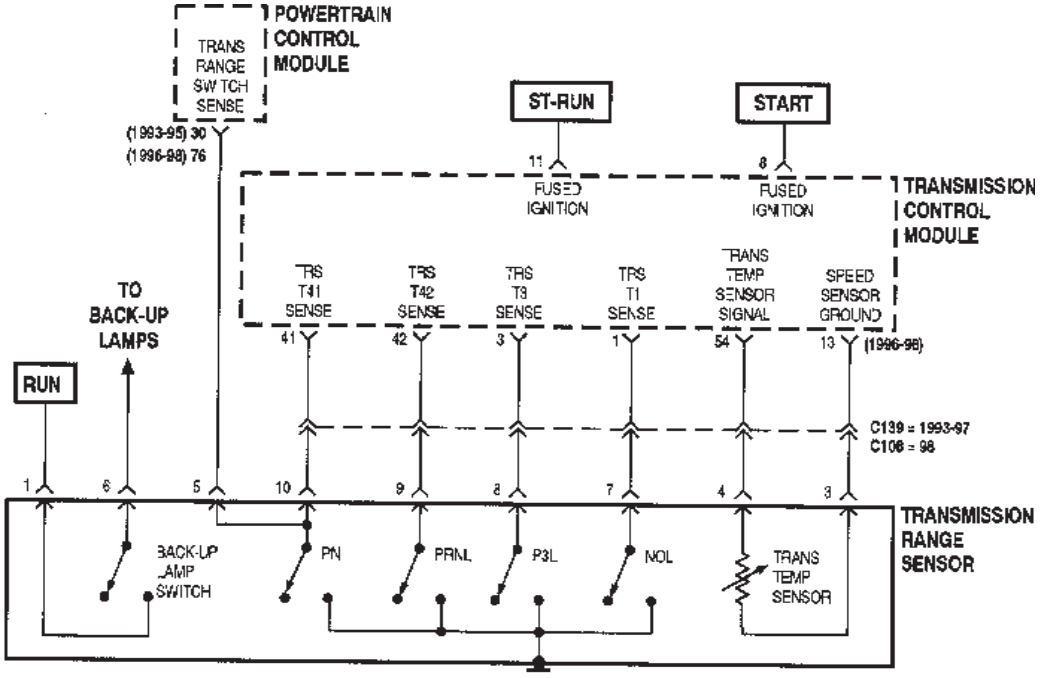
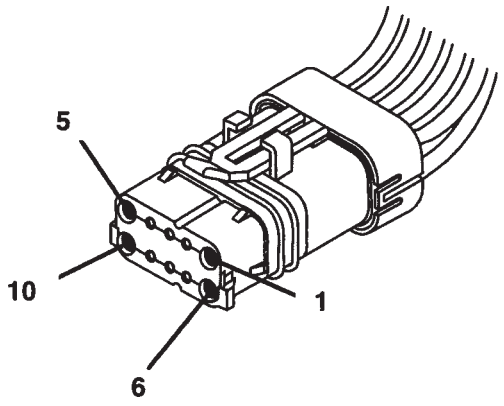


Figure 98—Wiring diagram.

NOTE For complete connector and wire color tables, see Appendix B.



Transmission Range Sensor 1993-2001

CAV	COLOR	FUNCTION
3	DB/BK	SPEED SENSOR GROUND
4	VT* VT/PK**	TRANSMISSION TEMPERATURE SENSOR SIGNAL

*1996-97
**1998-2001

Figure 99— Transmission range sensor and cavities 3 & 4 information.

Transmission Control Module 1993-2001

CAV	COLOR	FUNCTION
13	DB/BK	SPEED SENSOR GROUND
54	VT* VT/PK**	TRANSMISSION TEMPERATURE SIGNAL

*1996-97
**1998-2001

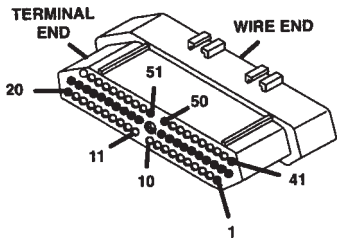


Figure 100— Transmission control module and cavities 13 & 54 information.

Transmission Control Relay 1993-2001

CAV	COLOR	FUNCTION
85 3*	BK	GROUND
86 1*	LG	TRANSMISSION RELAY CONTROL
87 4*	RD	TRANSMISSION CONTROL RELAY OUTPUT
30 2*	RD/WT RD/LB	FUSED B (+)

*1998 -2001

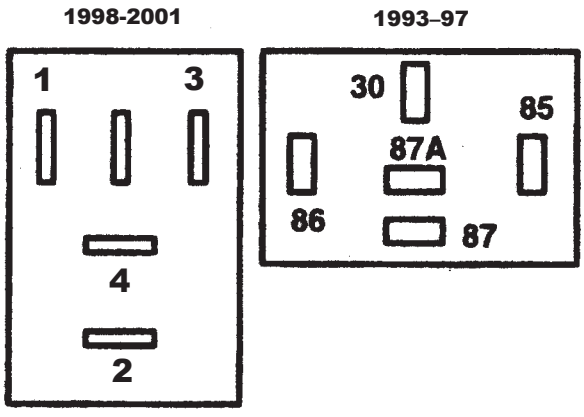


Figure 101— Transmission control relay and cavity information.

NOTE For complete connector and wire color tables, see Appendix B.

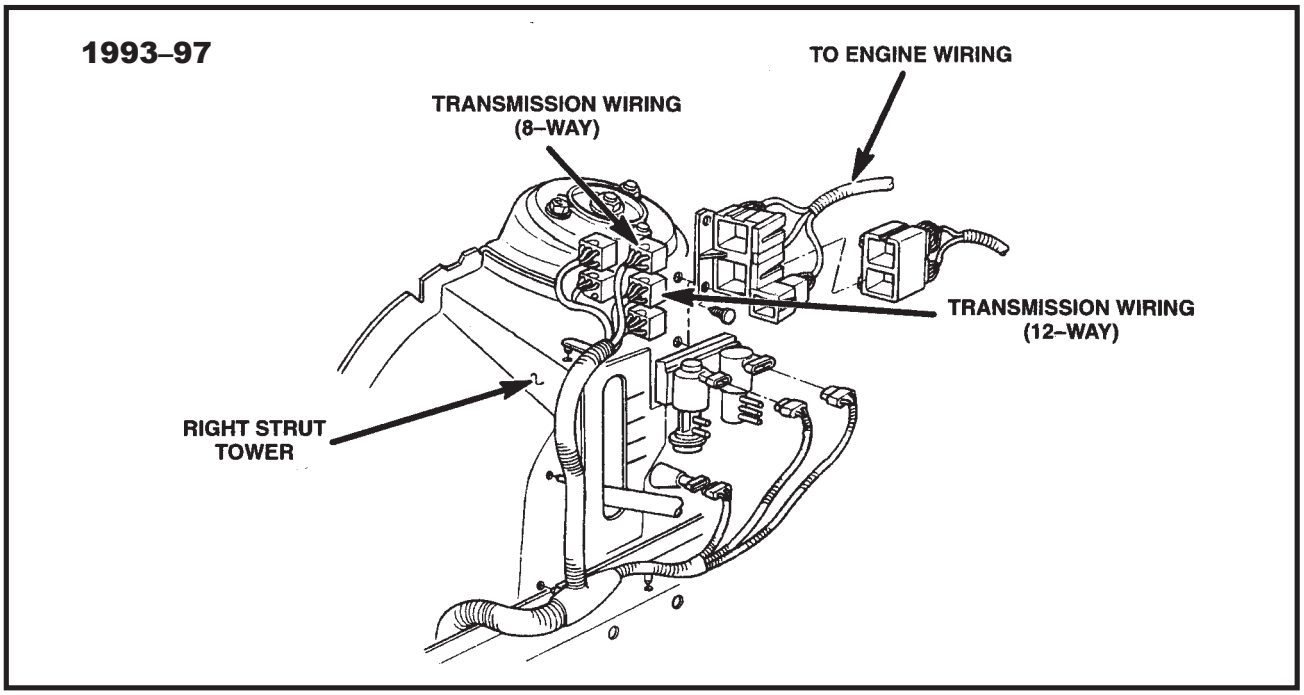


Figure 102—12-way in-line connector location.

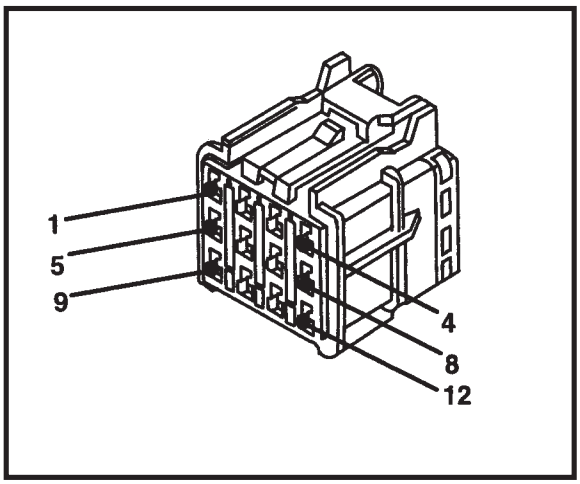


Figure 103— 12-way in-line connector, harness side.

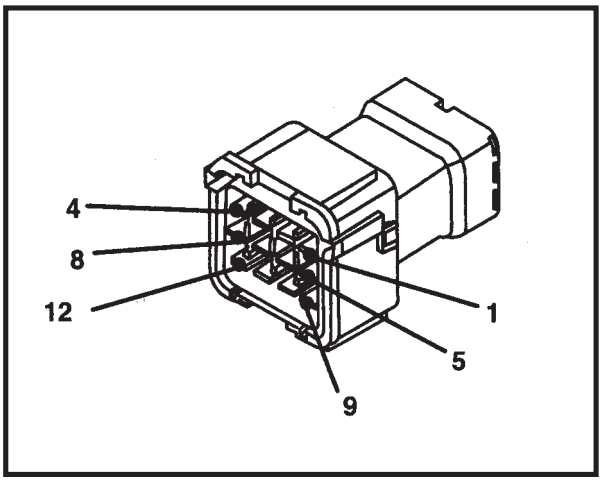


Figure 104— 12-way in-line connector, transmission side.

In-Line 12-Way Connector
(Harness Side)
1993-97

CAV	COLOR	FUNCTION
8	VT*	TRANSMISSION TEMPERATURE SENSOR SIGNAL

*1996-97

Figure 105—12-way connector cavity 8 information.

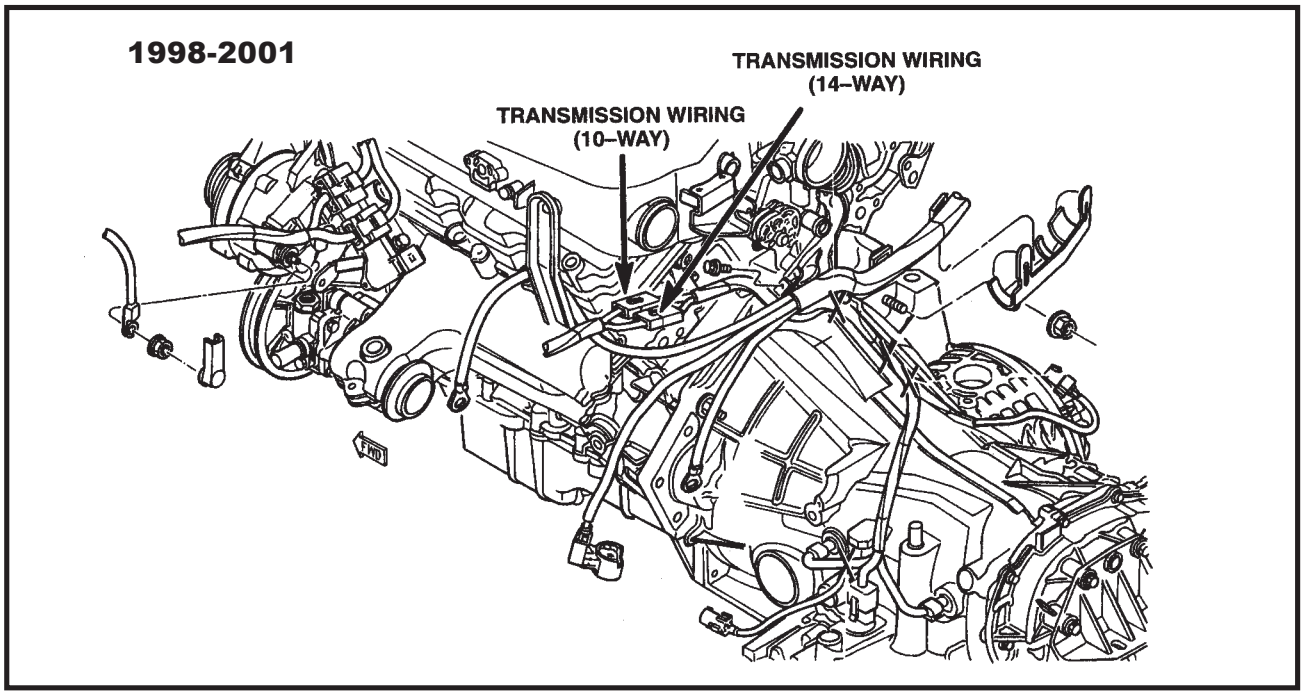


Figure 106—14-way in-line connector location.

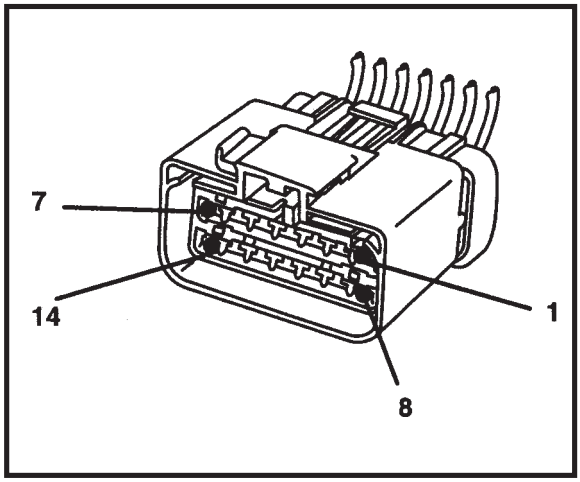


Figure 107—14-way in-line connector, harness side.

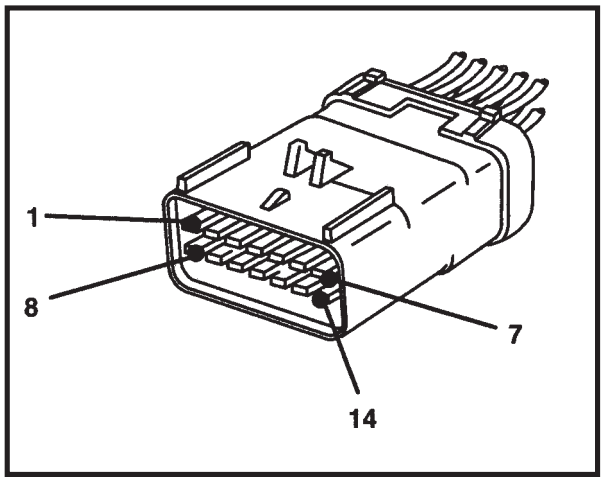


Figure 108—14-way in-line connector,

In-Line 14-Way Connector
(Harness Side)
1998-2001

CAV	COLOR	FUNCTION
8	VT/PK	TRANSMISSION TEMPERATURE SENSOR SIGNAL

Figure 109—14-way connector cavity 8 information.

Diagnosis

Step 1

With Snap-On scanner, see if codes 51-54 / P0731-P0734 or 56-58 / P0715, P0720, & P1794 are also stored in the TCM memory.
If any of the above codes are present, perform the appropriate tests for these codes first.
Codes 51-54 are transmission slippage codes. These codes can be triggered by erratic readings from the turbine and output speed sensors.
Codes 56-58 are speed sensor codes. The input and output speed sensors share a common ground circuit with the transmission oil temperature sensor. A problem in either of the speed sensor circuits can affect the transmission temperature sensor circuit.

Step 2

With the Snap-On scanner, clear the codes and road test the vehicle to see if the codes return. Remember, the TCM will have to see the problem for at least three consecutive key starts for the code to set.
If the code does not return the problem is intermittent. Try shaking the wiring and connectors to duplicate the condition.
If the code does return, proceed to step 3.

Step 3

Start the engine.
With the Snap-On scanner, read the transmission temperature volts parameter on scan data.
Is the voltage above 4.94 volts?
If yes, go to step 4.
If no, go to step 15.

Step 4

Disconnect the transmission large 12- or 14-way in-line connector **(see figures 102 & 106 for connector location)**. Inspect the connectors for corroded, damaged or pushed out terminals.
With the ignition key on, measure the transmission temperature signal circuit voltage at the harness side of the large in-line connector **(see figures 103, 105, 107, & 109)**.
Is the voltage above 4.5 volts?
If yes, go to step 7.
If no, go to step 5.

STEP 5

With the key off, disconnect the TCM connector. Inspect the TCM and connector for corroded, damaged or pushed out terminals.
Measure the resistance of the transmission temperature signal circuit between the TCM connector **(see figure 100 for connector and wire color)** and the harness side of the large 12- or 14-way in-line connector **(see figures 103, 105, 107, & 109)**.
Is the resistance below 5 ohms?
If yes, go to step 6.
If no, repair the open in the transmission temperature signal circuit between the TCM connector and the large in-line connector.

STEP 6

Disconnect the Transmission Range Sensor (TRS) connector. Inspect the TRS and connector for corroded, damaged or pushed out terminals.
Measure the resistance of the transmission temperature signal circuit between the TRS connector **(see figure 99 for connector and wire color)** and the transmission side of the large 12- or 14-way in-line connector **(see figures 104, 105, 108, & 109)**.
Is the resistance below 5 ohms?
If yes, replace the TCM.
If no, repair the open transmission temperature signal circuit between the TRS connector and the large in-line connector.

STEP 7

Is the voltage above 5.5 volts?
If yes, go to step 8.
If no, go to step 10.

STEP 8

Reconnect the 12- or 14-way in-line connector.
With the key off, disconnect the TCM connector. Inspect the TCM and connector for corroded, damaged or pushed out terminals.
Disconnect the transmission control relay.
Connect a jumper wire between the fused B (+) and transmission relay output circuits in the transmission relay connector **(see figure 101)**.
Turn the key on.
Measure the voltage at the transmission temperature signal circuit at the TRS connector **(see figure 99)**.
Is the voltage above 5.5 volts?
If yes, go to step 9.
If no, replace the TCM.

Step 9

Disconnect the large 12- or 14-way in-line connector. Inspect the connector for corroded, damaged or pushed out terminals.

NOTE The jumper wire is still connected from the previous step.

Measure the voltage of the transmission temperature signal circuit at the harness side of the large 12- or 14-way in-line connector **(see figures 103, 105, 107, & 109)**.
Is the voltage above 5.5 volts?
If yes, repair the transmission temperature signal circuit for a short to voltage between the large in-line connector and the TCM connector.
If no, repair the transmission temperature circuit for a short to voltage between the large in-line connector and the TRS connector.

Step 10

Reconnect the large 12- or 14-way in-line connector.
Measure the voltage at the speed sensor ground circuit in the TRS connector **(see figure 99)**.
Is the voltage above 1.0 volts?
If yes, go to step 14.
If no, go to step 11.

Step 11

Connect a jumper wire from the transmission temperature signal circuit to the speed sensor ground circuit in the TRS connector **(see figure 99)**.
Disconnect the input and output speed sensors.
With the Snap-On scanner, read the transmission temperature volts parameter on scan data.
Is the voltage less than 0.5 volts?
If yes, replace the TRS.
If no, go to step 12.

Step 12

Disconnect the jumper from the speed sensor ground circuit and connect it to ground.
Is the voltage on scan data less than 0.5 volts?
If yes, repair open speed sensor ground circuit.
If no, go to step 13.

Step 13

With the ignition key off, disconnect the large in-line connector and the TCM connector. Inspect the TCM and connector for corroded, damaged or pushed out terminals.
Measure the resistance of the speed sensor ground circuit between the TCM connector and the harness side of the large 12- or 14-way in-line connector **(see figures 103, 105, 107, & 109)**.
Is the resistance below 5 ohms?
If yes, repair open speed sensor ground circuit between the large in-line connector and the TRS connector.
If no, repair open speed sensor ground circuit between the TCM and the large in-line connector.

Step 14

With the ignition key off, disconnect the transmission control relay and TCM connectors. Inspect the TCM, transmission control relay and connectors for corroded damaged or pushed out terminals.
Connect a jumper wire between the fused B (+) and relay output circuits in the transmission relay connector **(see figure 101)**.
Turn the ignition key on.
Measure the voltage at the speed sensor ground circuit in the TRS connector **(see figure 99)**.
Is the voltage above 1.0 volt?
If yes, repair the speed sensor ground circuit shorted to voltage.
If no, reconnect all connectors and check the input/output speed sensor circuit for a short to voltage.

Step 15

Is the voltage below 0.07 volts?
If yes, go to step 16.
If no, go to step 20.

Step 16

With the ignition key off, disconnect the transmission range switch connector. Inspect the TRS and connector for corroded, damaged or pushed out terminals.
With the ignition key on, measure the voltage at the TRS connector temperature signal circuit cavity **(see figure 99)**.
Is the transmission temperature signal voltage above 4.5 volts?
If yes, replace the TRS.
If no, go to step 17.

Step 17

With the ignition key off, disconnect the TCM harness connector. Inspect the TCM and connector for corroded, damaged or pushed out terminals.
Measure the resistance between the transmission temperature signal circuit **(see figure 100)** and ground.
Is the resistance below 5 ohms?
If yes, go to step 18.
If no, replace the TCM.

Step 18

Disconnect the transmission large 12- or 14-way in-line connector **(see figures 102 & 106**.
Measure the resistance between the transmission temperature sensor signal circuit and ground at the TCM connector **(see figure 100)**.
Is the resistance below 5 ohms?
If yes, repair the transmission temperature signal circuit for a short to ground between the TCM connector and the large in-line connector.
If no, repair the transmission temperature signal circuit for a short to ground between the large in-line connector and the TRS connector.

Step 19

With the Snap-On scanner, monitor and record the transmission temperature voltage in all gear positions.
Is the voltage always between 0.07 and 4.94 volts?
If yes, go to step 20.
If no, replace the TRS.

Step 20

With the Snap-On scanner, monitor the transmission temperature signal voltage while wiggling the wires between the TCM and TRS.
Is the transmission temperature voltage always between 0.07 and 4.94 volts?
If yes, go to step 21.
If no, repair the intermittent open or short in the TRS to TCM harness.

STEP 21

Measure and record the temperature of the transmission fluid with a thermometer or equivalent tool.
Start the engine and with the Snap-On scanner, monitor and record the transmission temperature voltage.
Compare the voltage and the measured temperature with the graph in **figure 110**.
The measured value should fall on one of the lines of the graph.
Is the transmission temperature voltage correct for the current actual fluid temperature?
If yes, go to step 22.
If no, replace the TRS.

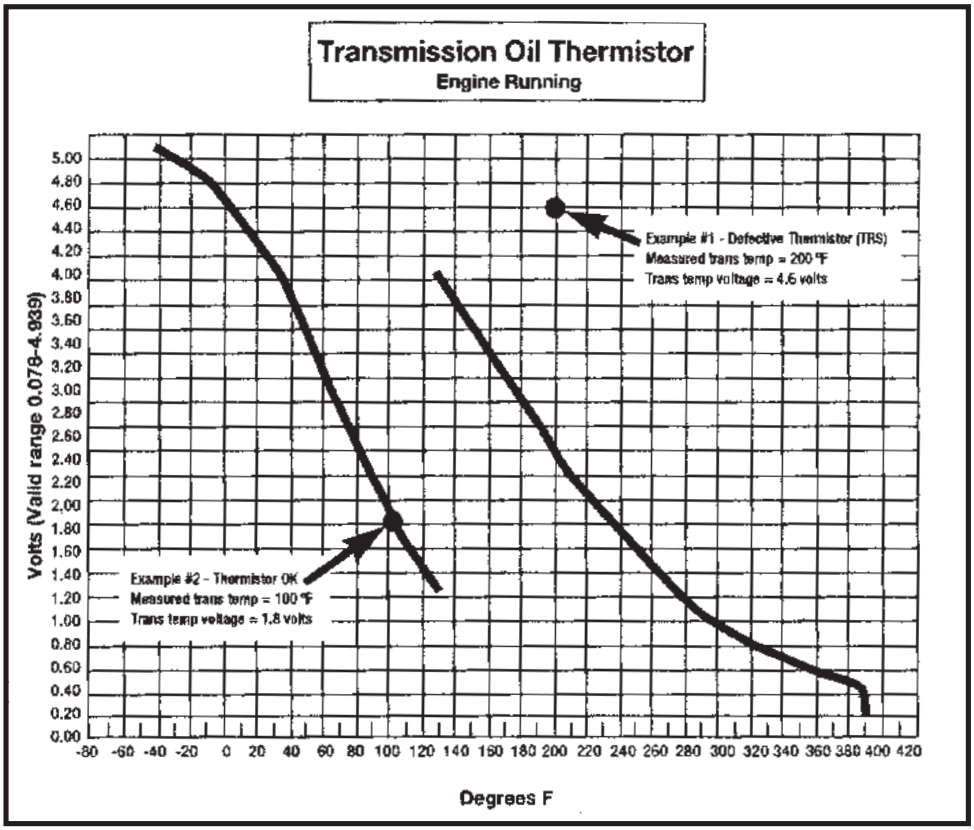


Figure 110—Transmission oil thermistor graph.

STEP 22

With the ignition key off, disconnect the TCM. Inspect the TCM and connector for corroded, damaged or pushed out terminals.
With the transmission above 32 degrees F, measure the resistance between the transmission temperature signal circuit cavity 54 and the sensor ground circuit cavity 13 at the TCM connector **(see figure 100)**.
Is the resistance between 150 ohms and 100,000 (100 K ohms)?
If yes, the conditions required for setting the code are not present at this is time.
If no, go to step 23.

STEP 23

Disconnect the transmission range switch connector and inspect the TRS and connector for corroded damaged or pushed out terminals.
Are the TRS and connector free of damage and corrosion?
If yes, replace the TRS.
If no, clean and repair the TRS and connector as necessary.

APPENDIX B
42LE

Color Abbreviation Key

BK = Black

BL = Blue

BR = Brown

DB = Dark Blue

DG = Dark Green

GR = Green

GY = Gray

LB = Light Blue

LG = Light Green

OR = Orange

PK = Pink

PL = Purple

RD = Red

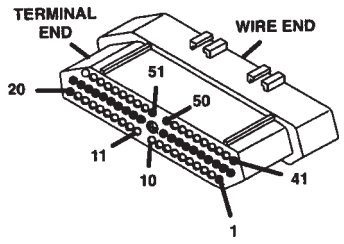
TN = Tan

VT = Violet

WT = White

YL = Yellow

NOTE If two colors are listed, the first color is the dominant color. The second color represents the stripe within the first color. In the following example, “LG/BK” (LG = light green, BK = black), “LG” is the dominant or main wire color, and “BK” is the stripe that runs the length of the same wire.

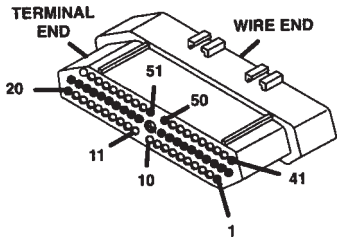


Transmission Control Module 1993-98

CAV	COLOR	FUNCTION
1	LG/BK	TRS T1 SENSE
3	VT	TRS T3 SENSE
4	WT/BK	CCD BUS (-) (97 and prior)
5	LG* LG/RD**	AUTOSTICK UPSHIFT SWITCH SENSE
6	LB/DB WT/RD**	CRANKSHAFT POSITION SENSOR SIGNAL (EATX RPM SIGNAL) (1998 ONLY)
7	PK* DB**	SCI TRANSMIT
8	YL	IGNITION SWITCH OUTPUT (START)
9	BK/LG OR/BK**	OD PRESSURE SWITCH SENSE
10	YL/DG	TORQUE MANAGEMENT REQUEST
11	RD/WT	IGNITION SWITCH OUTPUT (START/RUN)
12	OR/DB	THROTTLE POSITION SENSOR SIGNAL
13	DB/BK	SPEED SENSOR GROUND
14	LG/WT	OUTPUT SPEED SENSOR SIGNAL
15	LG	TRANSMISSION RELAY CONTROL
16	RD	TRANSMISSION CONTROL RELAY OUTPUT
17	RD	TRANSMISSION CONTROL RELAY OUTPUT

*1996-97
**1998

Table B-1—Transmission control module 1993-98



Transmission Control Module 1993-98 (continued)

CAV	COLOR	FUNCTION
19	WT	2-4 SOLENOID CONTROL
20	LB	L-R SOLENOID CONTROL
41	BR/YL BK/PK**	TRS T41 SENSE
42	VT/WT	TRS T42 SENSE
43	VT/BR YL/VT**	CCD BUS (+) PCI BUS
44	YL/RD* YL**	AUTOSTICK DOWNSHIFT SWITCH SENSE
46	PK/LB* PK/BK**	SCI RECEIVE
47	YL/BK	2-4 PRESSURE SWITCH SENSE
50	DG	L-R PRESSURE SWITCH SENSE
51	BK/LB	SENSOR GROUND
52	RD/BK	INPUT SPEED SENSOR SIGNAL
53	BK/YL* BK**	GROUND
54	VT* VT/PK**	TRANSMISSION TEMPERATURE SIGNAL
56	RD/WT* RD/LB**	FUSED B (+)
57	BK/RD	GROUND
58	WT/OR	VSS SIGNAL
59	PK	UD SOLENOID CONTROL
60	BR	OD SOLENOID CONTROL

*1996-97
**1998

Table B-2—Transmission control module 1993-98 continued.

Solenoid Pack Connector 1993-2001

CAV	COLOR	FUNCTION
1	OR/BK	OD PRESSURE SWITCH SENSE
2	DG	L-R PRESSURE SWITCH SENSE
3	YL/BK	2-4 PRESSURE SWITCH SENSE
4	RD	TRANMSISSION CONTROL RELAY OUTPUT (SWITCHED B (+)
5	WT	2-4 SOLENOID CONTROL
6	LB	L-R SOLENOID CONTROL
7	BR	OD SOLENOID CONTROL
8	PK	UD SOLENOID CONTROL

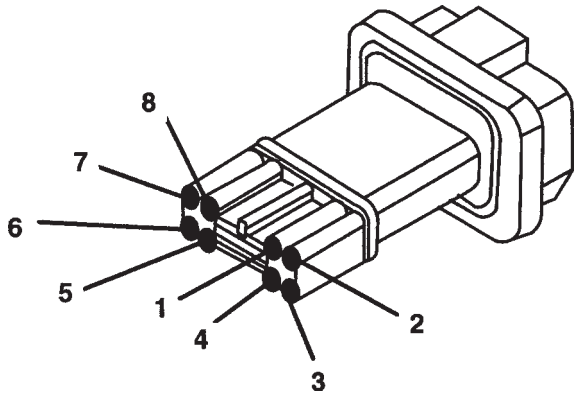
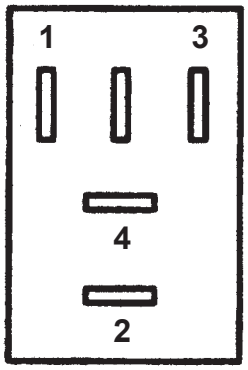
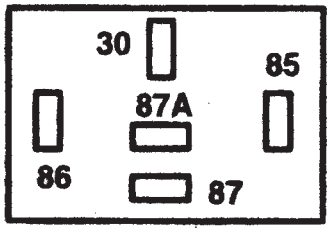


Table B-3—Solenoid pack connector 1993-98

1998-2001



1993-97

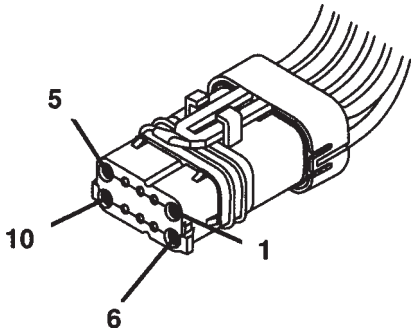


Transmission Control Relay 1993-2001

CAV	COLOR	FUNCTION
85 3*	BK	GROUND
86 1*	LG	TRANSMISSION RELAY CONTROL
87 4*	RD	TRANSMISSION CONTROL RELAY OUTPUT
30 2*	RD/WT RD/LB	FUSED B (+)

*1998-2001

Table B-4—Transmission control relay 1993-2001

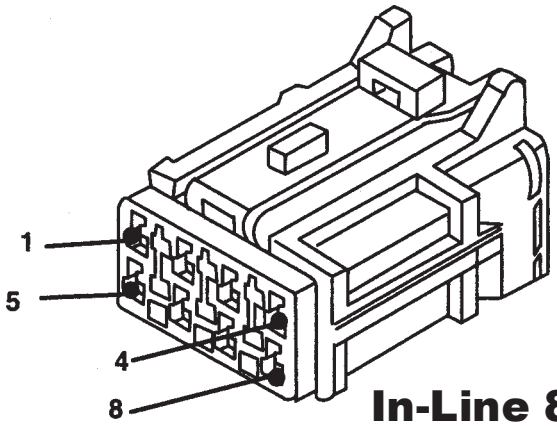


Transmission Range Sensor
1993-2001

CAV	COLOR	FUNCTION
1	WT	FUSED IGNITION SWITCH OUTPUT
3	DB/BK	SPEED SENSOR GROUND
4	VT* VT/PK**	TRANSMISSION TEMPERATURE SENSOR SIGNAL
5	BK/LG* BK/WT**	PARK/NEUTRAL POSITION SWITCH SENSE
6	VT/BK	REVERSE LAMP SENSE
7	LG/BK	TRS T1 SENSE
8	VT	TRS T3 SENSE
9	VT/WT	TRS T42 SENSE
10	BR/YL* BK/PK**	TRS T41 SENSE

*1996-97
**1998-2001

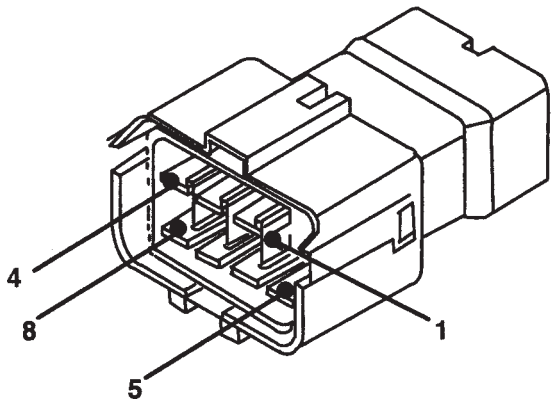
Table B-5—Transmission range sensor 1993-2001.



In-Line 8-Way Connector (Harness Side) 1993-97

CAV	COLOR	FUNCTION
1	BR	OD SOLENOID CONTROL
2	WT	2-4 SOLENOID CONTROL
3	PK	UD SOLENOID CONTROL
4	DG	L-R PRESSURE SWITCH SENSE
5	YL/BK	2-4 PRESSURE SWITCH SENSE
6	OR/BK	OD PRESSURE SWITCH SENSE
7	RD	TRANSMISSION CONTROL RELAY OUTPUT
8	LB	L-R SOLENOID CONTROL

Table B-6—In-line 8-way connector 1993-97 , harness side.



In-Line 8-Way Connector (Transmission Side) 1993-97

CAV	COLOR	FUNCTION
1	BR	OD SOLENOID CONTROL
2	WT	2-4 SOLENOID CONTROL
3	PK	UD SOLENOID CONTROL
4	DG	L-R PRESSURE SWITCH SENSE
5	YL/BK	2-4 PRESSURE SWITCH SENSE
6	OR/BK	OD PRESSURE SWITCH SENSE
7	RD	TRANSMISSION CONTROL RELAY OUTPUT
8	LB	L-R SOLENOID CONTROL

Table B-7—In-line 8-way connector 1993-97 , transmission side.

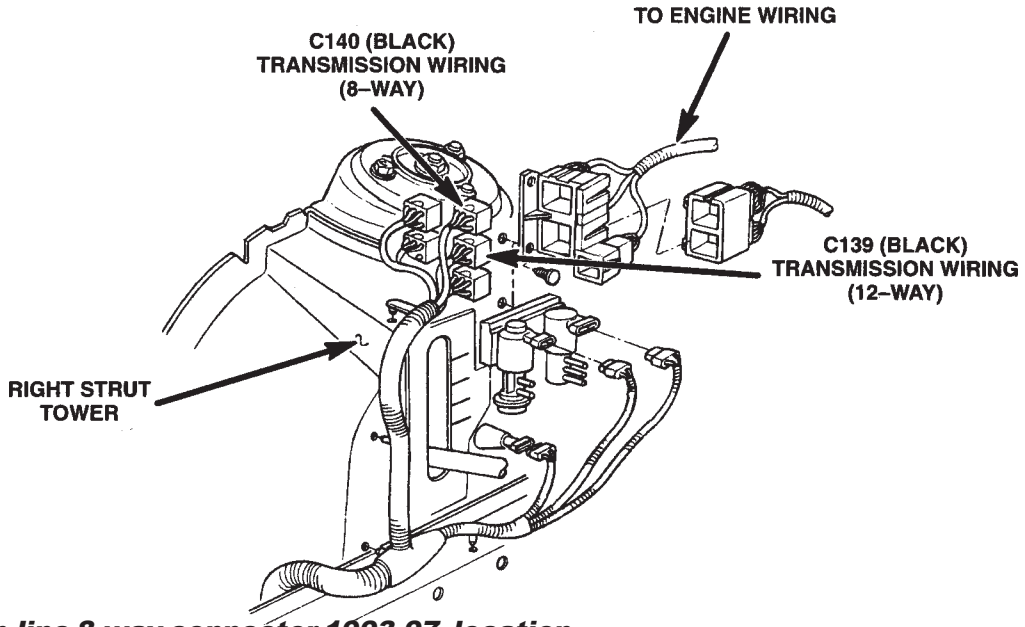
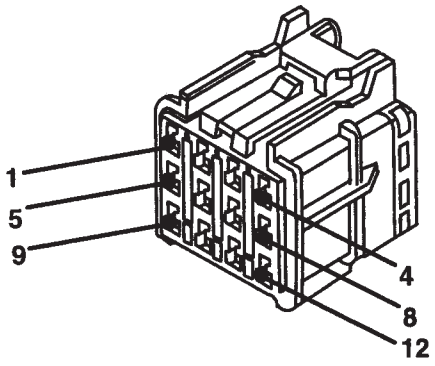


Table B-8—In-line 8-way connector 1993-97 location.

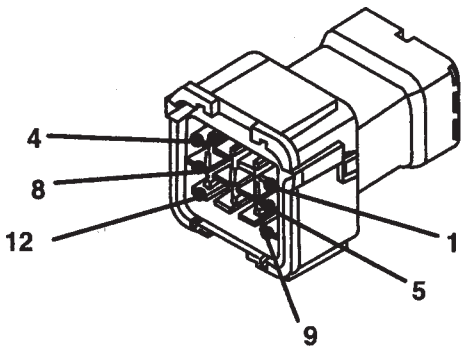


In-Line 12-Way Connector (Harness Side) 1993-97

CAV	COLOR	FUNCTION
1	RD/BK	INPUT SPEED SENSOR SIGNAL
2	DB/BK	SPEED SENSOR GROUND
3	LG/WT	OUTPUT SPEED SENSOR SIGNAL
4	BR/YL	TRS-T41 SENSE
5	VT/WT	TRS-T42 SENSE
6	VT	TRS-T3 SENSE
7	LG/BK	TRS-T1 SENSE
8	VT*	TRANSMISSION TEMPERATURE SENSOR SIGNAL
9	DG/OR*	AUTOMATIC SHUTDOWN RELAY
10	VT/BK	REVERSE LAMP SENSE
11	WT	FUSED IGNITION SWITCH OUPUT
12	BK/LG	FUSED IGNITION SWITCH OUTPUT

*1996-97

Table B-8—In-line 12-way connector 1993-97 , harness side.

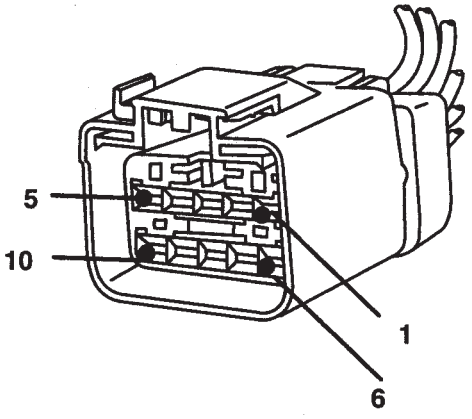


In-Line 12-Way Connector (Transmission Side) 1993-97

CAV	COLOR	FUNCTION
1	RD/BK	INPUT SPEED SENSOR SIGNAL
2	DB/BK	SPEED SENSOR GROUND
3	LG/WT	OUTPUT SPEED SENSOR SIGNAL
4	BR/YL	TRS-T41 SENSE
5	VT/WT	TRS-T42 SENSE
6	VT	TRS-T3 SENSE
7	LG/BK	TRS T1 SENSE
8	VT*	TRANSMISSION TEMPERATURE SENSOR SIGNAL
9	DG/OR*	AUTOMATIC SHUTDOWN RELAY
10	VT/BK	REVERSE LAMP SENSE
11	WT	FUSED IGNITION SWITCH OUPUT
12	BK/LG	FUSED IGNITION SWITCH OUTPUT

*1996-97

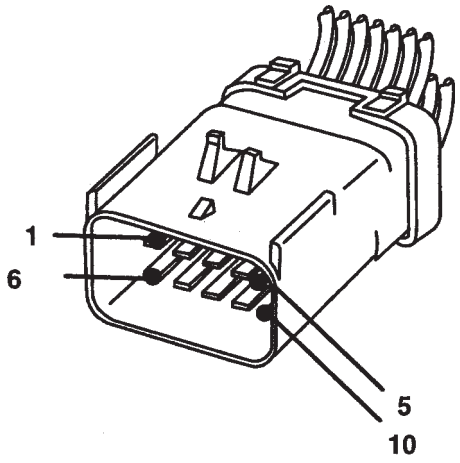
Table B-9—In-line 12-way connector 1993-97 , transmission side.



In-Line 10-Way Connector (Harness Side) 1998-2001

CAV	COLOR	FUNCTION
1	OR/BK	OD PRESSURE SWITCH SENSE
2	WT	2-4 SOLENOID CONTROL
3	BK	GROUND
4	BR	OD SOLENOID CONTROL
5	PK	UD SOLENOID CONTROL
6	DG	L-R PRESSURE SWITCH SENSE
7	YL/BK	2-4 PRESSURE SWITCH SENSE
8	OR/DG	ASD RELAY
9	LB	L-R SOLENOID CONTROL
10	RD	TRANSMISSION CONTROL RELAY OUTPUT

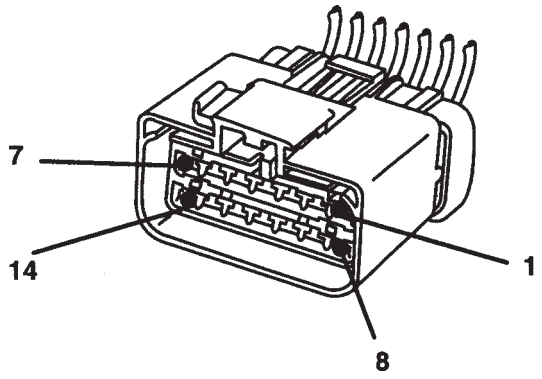
Table B-10—In-line 10-way connector 1998-2001, harness side.



In-Line 10-Way Connector (Transmission Side) 1998-2001

CAV	COLOR	FUNCTION
1	OR/BK	OD PRESSURE SWITCH SENSE
2	WT	2-4 SOLENOID CONTROL
3	BK	GROUND
4	BR	OD SOLENOID CONTROL
5	PK	UD SOLENOID CONTROL
6	DG	L-R PRESSURE SWITCH SENSE
7	YL/BK	2-4 PRESSURE SWITCH SENSE
8	OR/DG	ASD RELAY
9	LB	L-R SOLENOID CONTROL
10	RD	TRANSMISSION CONTROL RELAY OUTPUT

Table B-10—In-line 10-way connector 1998-2001, transmission side.

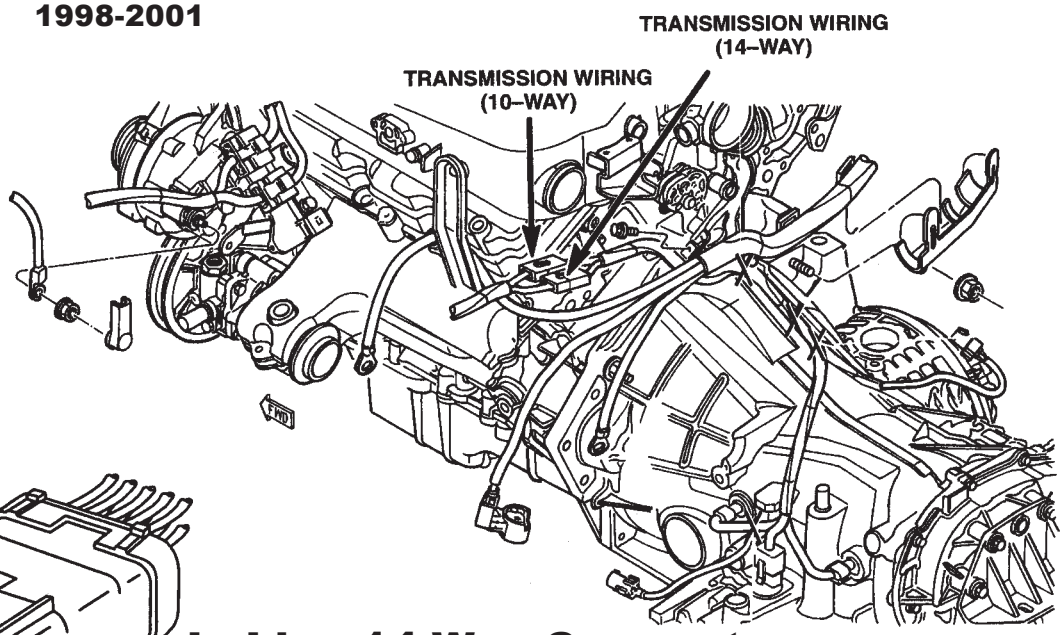


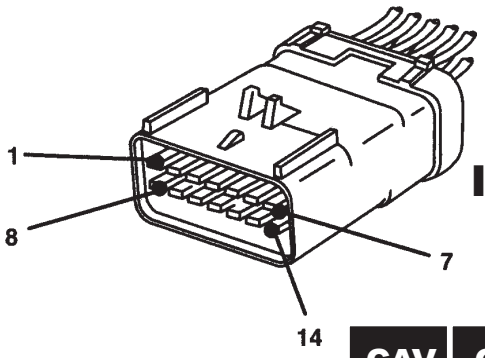
In-Line 14-Way Connector (Harness Side) 1998-2001

CAV	COLOR	FUNCTION
1	BK/PK	PARK/NEUTRAL POSITION SWITCH SENSE
2	VT/BK	REVERSE LAMP SENSE
3	WT	FUSED IGNITION SWITCH OUTPUT
4	LG/BK	TRS-T1 SENSE
5	VT	TRS-T3 SENSE
6	VT/WT	TRS-T42 SENSE
7	BK/PK	TRS-T41 SENSE
8	VT/PK	TRANSMISSION TEMPERATURE SENSOR SIGNAL
9	DB/BK	SPEED SENSOR GROUND
10	BK/LB	SENSOR GROUND
11	PK/WT	LEFT DOWNSTREAM O_2 SENSOR
12	TN/WT	RIGHT DOWNSTREAM O_2 SENSOR
13	RD/BK	INPUT SPEED SENSOR SIGNAL
14	LG/WT	OUTPUT SPEED SENSOR SIGNAL

Table B-11—In-line 14-way connector 1998-2001, harness side.

1998-2001

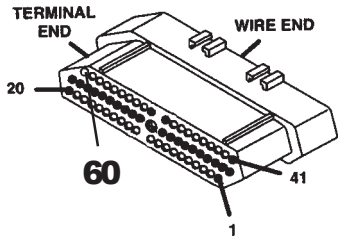




In-Line 14-Way Connector (Transmission Side) 1998-2001

CAV	COLOR	FUNCTION
1	BK/PK	PARK/NEUTRAL POSITION SWITCH SENSE
2	VT/BK	REVERSE LAMP SENSE
3	WT	FUSED IGNITION SWITCH OUTPUT
4	LG/BK	TRS-T1 SENSE
5	VT	TRS-T3 SENSE
6	VT/WT	TRS-T42 SENSE
7	BK/PK	TRS-T41 SENSE
8	VT/PK	TRANSMISSION TEMPERATURE SENSOR SIGNAL
9	DB/BK	SPEED SENSOR GROUND
10	BK/LB	SENSOR GROUND
11	PK/WT	LEFT DOWNSTREAM O_2 SENSOR
12	TN/WT	RIGHT DOWNSTREAM O_2 SENSOR
13	RD/BK	INPUT SPEED SENSOR SIGNAL
14	LG/WT	OUTPUT SPEED SENSOR SIGNAL

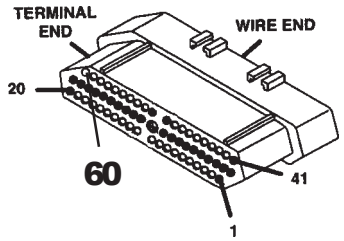
Table B-12—In-line 14-way connector 1998 -2001, transmission side.



Transmission Control Module 1999 Chrysler 300M, LHS 3.5L

CAV	COLOR	FUNCTION
1	LG/BK	TRS T1 SENSE
3	VT	TRS T3 SENSE
5	LG/RD	AUTOSTICK UPSHIFT SWITCH SENSE
6	WT/RD	EATX RPM SIGNAL
7	DB	SCI TRANSMIT
8	YL	IGNITION SWITCH OUTPUT (START)
9	OR/BK	OD PRESSURE SWITCH SENSE
10	YL/DG	TORQUE MANAGEMENT REQUEST SENSE
11	RD/WT	IGNITION SWITCH OUTPUT (START/RUN)
12	OR/DB	THROTTLE POSITION SENSOR SIGNAL
13	DB/BK	SPEED SENSOR GROUND
14	LG/WT	OUTPUT SPEED SENSOR SIGNAL
15	LG	TRANSMISSION RELAY CONTROL
16	RD	TRANSMISSION CONTROL RELAY OUTPUT
17	RD	TRANSMISSION CONTROL RELAY OUTPUT
19	WT	2-4 SOLENOID CONTROL
20	LB	L-R SOLENOID CONTROL
41	BK/PK	TRS T41 SENSE
42	VT/WT	TRS T42 SENSE
43	YL/VT	PCI BUS
44	YL	AUTOSTICK DOWNSHIFT SWITCH
46	PK/BK	SCI RECEIVE
47	YL/BK	2-4 PRESSURE SWITCH SENSE
50	DG	L-R PRESSURE SWITCH SENSE
51	BK/LB	SENSOR GROUND
52	RD/BK	INPUT SPEED SENSOR SIGNAL
53	BK	GROUND
54	VT/PK	TRANSMISSION TEMPERATURE SENSOR SIGNAL
56	RD/LB	FUSED B (-)
57	BK/RD	GROUND
58	WT/OR	VSS SIGNAL
59	PK	UD SOLENOID CONTROL
60	BR	OD SOLENOID CONTROL

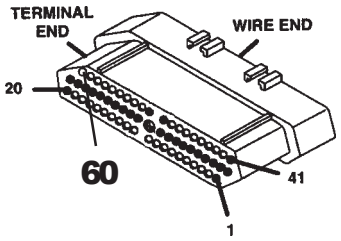
Table B-13—1999 Chrysler 300M, LHS, 3.5L



Transmission Control Module 1999 Intrepid 2.7L and 3.2L

CAV	COLOR	FUNCTION
1	LG/BK	TRS T1 SENSE
3	VT	TRS T3 SENSE
5	LG/RD	AUTOSTICK UPSHIFT SWITCH SENSE
6	WT/RD	EATX RPM SIGNAL
7	DB	SCI TRANSMIT
8	YL	IGNITION SWITCH OUTPUT (START)
9	OR/BK	OD PRESSURE SWITCH SENSE
10	YL/DG	TORQUE MANAGEMENT REQUEST SENSE
11	RD/WT	IGNITION SWITCH OUTPUT (START/RUN)
12	OR/DB	THROTTLE POSITION SENSOR SIGNAL
13	DB/BK	SPEED SENSOR GROUND
14	LG/WT	OUTPUT SPEED SENSOR SIGNAL
15	LG	TRANSMISSION RELAY CONTROL
16	RD	TRANSMISSION CONTROL RELAY OUTPUT
17	RD	TRANSMISSION CONTROL RELAY OUTPUT
19	WT	2-4 SOLENOID CONTROL
20	LB	L-R SOLENOID CONTROL
41	BK/PK	TRS T41 SENSE
42	VT/WT	TRS T42 SENSE
43	YL/VT	PCI BUS
44	YL	AUTOSTICK DOWNSHIFT SWITCH
46	PK/BK	SCI RECEIVE
47	YL/BK	2-4 PRESSURE SWITCH SENSE
50	DG	L-R PRESSURE SWITCH SENSE
51	BK/LB	SENSOR GROUND
52	RD/BK	INPUT SPEED SENSOR SIGNAL
53	BK	GROUND
54	VT/PK	TRANSMISSION TEMPERATURE SENSOR SIGNAL
56	RD/LB	FUSED B (-)
57	BK/RD	GROUND
58	WT/OR	VSS SIGNAL
59	PK	UD SOLENOID CONTROL
60	BR	OD SOLENOID CONTROL

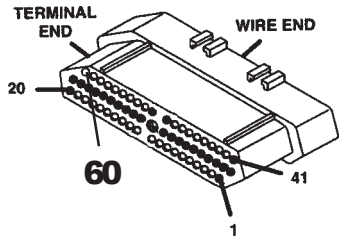
Table B-14—1999 Intrepid 2.7L and 3.2L



Transmission Control Module 2000-2001 Chrysler LHS/300 3.5L

CAV	COLOR	FUNCTION
1	LG/BK	TRS T1 SENSE
3	VT	TRS T3 SENSE
5	LG/RD	AUTOSTICK UPSHIFT SWITCH SENSE
6	WT/RD	EATX RPM SIGNAL
7	PK/TN	SCI TRANSMIT
8	YL	FUSED IGNITION SWITCH OUTPUT (START)
9	OR/BK	OD PRESSURE SWITCH SENSE
10	YL/DG	TORQUE MANAGEMENT REQUEST SENSE
11	RD/WT	FUSED IGNITION SWITCH OUTPUT (START/RUN/OFF)
12	OR/DB	THROTTLE POSITION SENSOR SIGNAL
13	DB/BK	SPEED SENSOR GROUND
14	LG/WT	OUTPUT SPEED SENSOR SIGNAL
15	LG	TRANSMISSION CONTROL RELAY CONTROL
16	RD	TRANSMISSION CONTROL RELAY OUTPUT
17	RD	TRANSMISSION CONTROL RELAY OUTPUT
19	WT	2-4 SOLENOID CONTROL
20	LB	LOW/REVERSE SOLENOID CONTROL
41	BR/YL	TRS T41 SENSE
42	VT/WT	TRS T42 SENSE
43	VT/YL	PCI BUS
44	YL/LB	AUTOSTICK DOWNSHIFT SWITCH SENSE
46	PK/LB	SCI RECEIVE
47	YL/BK	2-4 PRESSURE SWITCH SENSE
50	DG	LOW/REVERSE PRESSURE SWITCH SENSE
51	BK/LB	SENSOR GROUND
52	RD/BK	INPUT SPEED SENSOR SIGNAL
53	BK/YL	GROUND
54	VT/PK	TRANSMISSION TEMPERATURE SENSOR SIGNAL
56	RD/LB	FUSED B (+)
57	BK/RD	GROUND
58	WT/OR	VSS SIGNAL
59	PK	UD SOLENOID CONTROL
60	BR	OD SOLENOID CONTROL

Table B-15—2000-2001 Chrysler LHS/300 3.5L



Transmission Control Module 2000-2001 Intrepid 2.7/3.2/3.5L

CAV	COLOR	FUNCTION
1	LG/BK	TRS T1 SENSE
3	VT	TRS T3 SENSE
5	LG/RD	AUTOSTICK UPSHIFT SWITCH SENSE
6	WT/RD	EATX RPM SIGNAL
7	PK/TN	SCI TRANSMIT
8	YL	FUSED IGNITION SWITCH OUTPUT (START)
9	OR/BK	OD PRESSURE SWITCH SENSE
10	YL/DG	TORQUE MANAGEMENT REQUEST SENSE
11	RD/WT	FUSED IGNITION SWITCH OUTPUT (START/RUN/OFF)
12	OR/DB	THROTTLE POSITION SENSOR SIGNAL
13	DB/BK	SPEED SENSOR GROUND
14	LG/WT	OUTPUT SPEED SENSOR SIGNAL
15	LG	TRANSMISSION CONTROL RELAY CONTROL
16	RD	TRANSMISSION CONTROL RELAY OUTPUT
17	RD	TRANSMISSION CONTROL RELAY OUTPUT
19	WT	2-4 SOLENOID CONTROL
20	LB	LOW/REVERSE SOLENOID CONTROL
41	BR/YL	TRS T41 SENSE
42	VT/WT	TRS T42 SENSE
43	VT/YL	PCI BUS
44	YL/LB	AUTOSTICK DOWNSHIFT SWITCH SENSE
46	PK/LB	SCI RECEIVE
47	YL/BK	2-4 PRESSURE SWITCH SENSE
50	DG	LOW/REVERSE PRESSURE SWITCH SENSE
51	BK/LB	SENSOR GROUND
52	RD/BK	INPUT SPEED SENSOR SIGNAL
53	BK/YL	GROUND
54	VT/PK	TRANSMISSION TEMPERATURE SENSOR SIGNAL
56	RD/LB	FUSED B (+)
57	BK/RD	GROUND
58	WT/OR	VSS SIGNAL
59	PK	UD SOLENOID CONTROL
60	BR	OD SOLENOID CONTROL

Table B-16—2000-2001 Intrepid 2.7/3.2/3.5L