

2014 Jeep Patriot Limited2014 AUTOMATIC TRANSMISSION Transmission Control Module (TCM) - Electrical Diagnostics, 6F24 - Compass
& Patriot**2014 AUTOMATIC TRANSMISSION****Transmission Control Module (TCM) - Electrical Diagnostics, 6F24 - Compass & Patriot****DIAGNOSTIC CODE INDEX****DIAGNOSTIC CODE INDEX**

DTC	Description
<u>P0607-00</u>	ECU INTERNAL PERFORMANCE
<u>P0705-00</u>	TRANSMISSION RANGE SENSOR A CIRCUIT (PRNDL INPUT)
<u>P0706-00</u>	TRANSMISSION RANGE SENSOR PERFORMANCE
<u>P0711-00</u>	TRANSMISSION FLUID TEMPERATURE SENSOR A CIRCUIT RANGE-PERFORMANCE
<u>P0712-00</u>	TRANSMISSION FLUID TEMPERATURE SENSOR A CIRCUIT LOW
<u>P0713-00</u>	TRANSMISSION FLUID TEMPERATURE SENSOR A CIRCUIT HIGH
<u>P0715-00</u>	INPUT-TURBINE SHAFT SPEED SENSOR A CIRCUIT
<u>P0716-00</u>	INPUT SHAFT SPEED SENSOR 1 PERFORMANCE
<u>P0720-00</u>	OUTPUT SHAFT SPEED SENSOR CIRCUIT
<u>P0721-00</u>	OUTPUT SHAFT SPEED SENSOR CIRCUIT PERFORMANCE
<u>P0729-00</u>	GEAR 6 SHIFT INCORRECT RATIO
<u>P0731-00</u>	GEAR 1 SHIFT INCORRECT RATIO
<u>P0732-00</u>	GEAR 2 SHIFT INCORRECT RATIO
<u>P0733-00</u>	GEAR 3 SHIFT INCORRECT RATIO
<u>P0734-00</u>	GEAR 4 SHIFT INCORRECT RATIO
<u>P0735-00</u>	GEAR 5 SHIFT INCORRECT RATIO
<u>P0741-00</u>	TORQUE CONVERTER CLUTCH CIRCUIT PERFORMANCE-STUCK OFF
<u>P0750-00</u>	SHIFT SOLENOID 1 CONTROL CIRCUIT-OPEN
<u>P0755-00</u>	SHIFT SOLENOID 2 CONTROL CIRCUIT - OPEN
<u>P077C-00</u>	OUTPUT SHAFT SPEED SENSOR CIRCUIT LOW
<u>P077D-00</u>	OUTPUT SHAFT SPEED SENSOR CIRCUIT HIGH
<u>P07BF-00</u>	INPUT-TURBINE SHAFT SPEED SENSOR 1 CIRCUIT LOW

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<u>P07C0-00</u>	INPUT-TURBINE SHAFT SPEED SENSOR 1 CIRCUIT HIGH
<u>P0885-00</u>	TCM POWER CONTROL CIRCUIT
<u>P0951-00</u>	AUTOSTICK CONTROL CIRCUIT PERFORMANCE
<u>P0960-00</u>	PRESSURE CONTROL SOLENOID 1 CONTROL CIRCUIT OPEN
<u>P0961-00</u>	PRESSURE CONTROL SOLENOID 1 CONTROL CIRCUIT PERFORMANCE
<u>P0962-00</u>	PRESSURE CONTROL SOLENOID 1 CONTROL CIRCUIT LOW
<u>P0963-00</u>	PRESSURE CONTROL SOLENOID 1 CONTROL CIRCUIT HIGH
<u>P0973-00</u>	SHIFT SOLENOID 1 CONTROL CIRCUIT LOW
<u>P0974-00</u>	SHIFT SOLENOID 1 CONTROL CIRCUIT HIGH
<u>P0976-00</u>	SHIFT SOLENOID 2 CONTROL CIRCUIT LOW
<u>P0977-00</u>	SHIFT SOLENOID 2 CONTROL CIRCUIT HIGH
<u>P0978-00</u>	SHIFT SOLENOID 3 CONTROL CIRCUIT RANGE- PERFORMANCE
<u>P0979-00</u>	SHIFT SOLENOID 3 CONTROL CIRCUIT LOW
<u>P097C-00</u>	SHIFT SOLENOID 3 CONTROL CIRCUIT OPEN
<u>P097D-00</u>	SHIFT SOLENOID 4 CONTROL CIRCUIT OPEN
<u>P097E-00</u>	SHIFT SOLENOID 5 CONTROL CIRCUIT OPEN
<u>P097F-00</u>	SHIFT SOLENOID 6 CONTROL CIRCUIT-OPEN
<u>P0980-00</u>	SHIFT SOLENOID 3 CONTROL CIRCUIT HIGH
<u>P0981-00</u>	SHIFT SOLENOID 4 CONTROL CIRCUIT RANGE- PERFORMANCE
<u>P0982-00</u>	SHIFT SOLENOID 4 CONTROL CIRCUIT LOW
<u>P0983-00</u>	SHIFT SOLENOID 4 CONTROL CIRCUIT HIGH
<u>P0984-00</u>	SHIFT SOLENOID 5 CONTROL CIRCUIT RANGE- PERFORMANCE
<u>P0985-00</u>	SHIFT SOLENOID 5 CONTROL CIRCUIT LOW
<u>P0986-00</u>	SHIFT SOLENOID 5 CONTROL CIRCUIT HIGH
<u>P0997-00</u>	SHIFT SOLENOID 6 CONTROL CIRCUIT RANGE- PERFORMANCE
<u>P0998-00</u>	SHIFT SOLENOID 6 CONTROL CIRCUIT LOW

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<u>P0999-00</u>	SHIFT SOLENOID 6 CONTROL CIRCUIT HIGH
<u>P1715-00</u>	RESTRICTED MANUAL VALVE IN T3 RANGE
<u>P2761-00</u>	TORQUE CONVERTER CLUTCH PRESSURE CONTROL SOLENOID CONTROL CIRCUIT-OPEN
<u>P2762-00</u>	TORQUE CONVERTER CLUTCH PRESSURE CONTROL SOLENOID CONTROL CIRCUIT RANGE- PERFORMANCE
<u>P2763-00</u>	TORQUE CONVERTER CLUTCH PRESSURE CONTROL SOLENOID CONTROL CIRCUIT HIGH
<u>P2764-00</u>	TORQUE CONVERTER CLUTCH PRESSURE CONTROL SOLENOID CONTROL CIRCUIT LOW
<u>U0001-00</u>	CAN C BUS
<u>U0100-00</u>	LOST COMMUNICATION WITH ECM-PCM
<u>U0121-00</u>	LOST COMMUNICATION WITH ANTILOCK BRAKE SYSTEM (ABS) CONTROL MODULE
<u>U0141-00</u>	LOST COMMUNICATION WITH IPM FCM-TIPM
<u>U0401-00</u>	IMPLAUSIBLE DATA RECEIVED FROM ECM-PCM

DIAGNOSIS AND TESTING**P0607-00-ECU INTERNAL PERFORMANCE**

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

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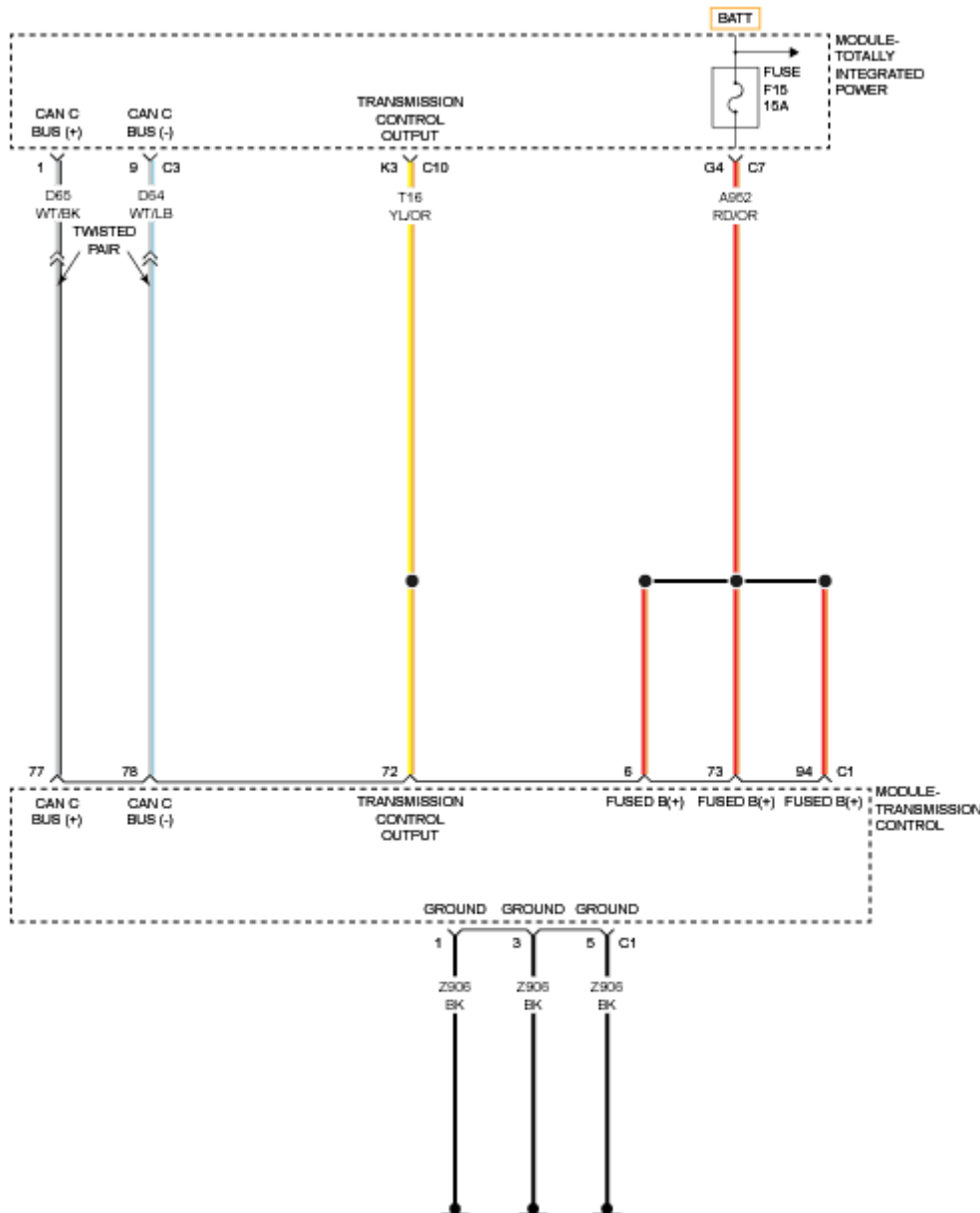


Fig. 1: Transmission Control Module Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the integrity of the calibration data in the TCM. This is accomplished by calculating the checksum of all the calibration data after the TCM is powered up. The malfunction condition is detected if the calculated checksum of the calibration data is not equal to the stored checksum located in the Non-Volatile Random Access Memory (NVRAM).

WHEN MONITORED

TCM is powered up.

SET CONDITION

The fault is detected if the calculated checksum of the calibration data is not equal to the stored checksum located in the Non-Volatile Random Access Memory (NVRAM).

POSSIBLE CAUSES

Possible Causes
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST**TRANSMISSION CONTROL MODULE (TCM)****Repair**

- Using the schematics as a guide, check the Transmission Control Module (TCM) terminals for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

P0705-00-TRANSMISSION RANGE SENSOR A CIRCUIT (PRNDL INPUT)

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

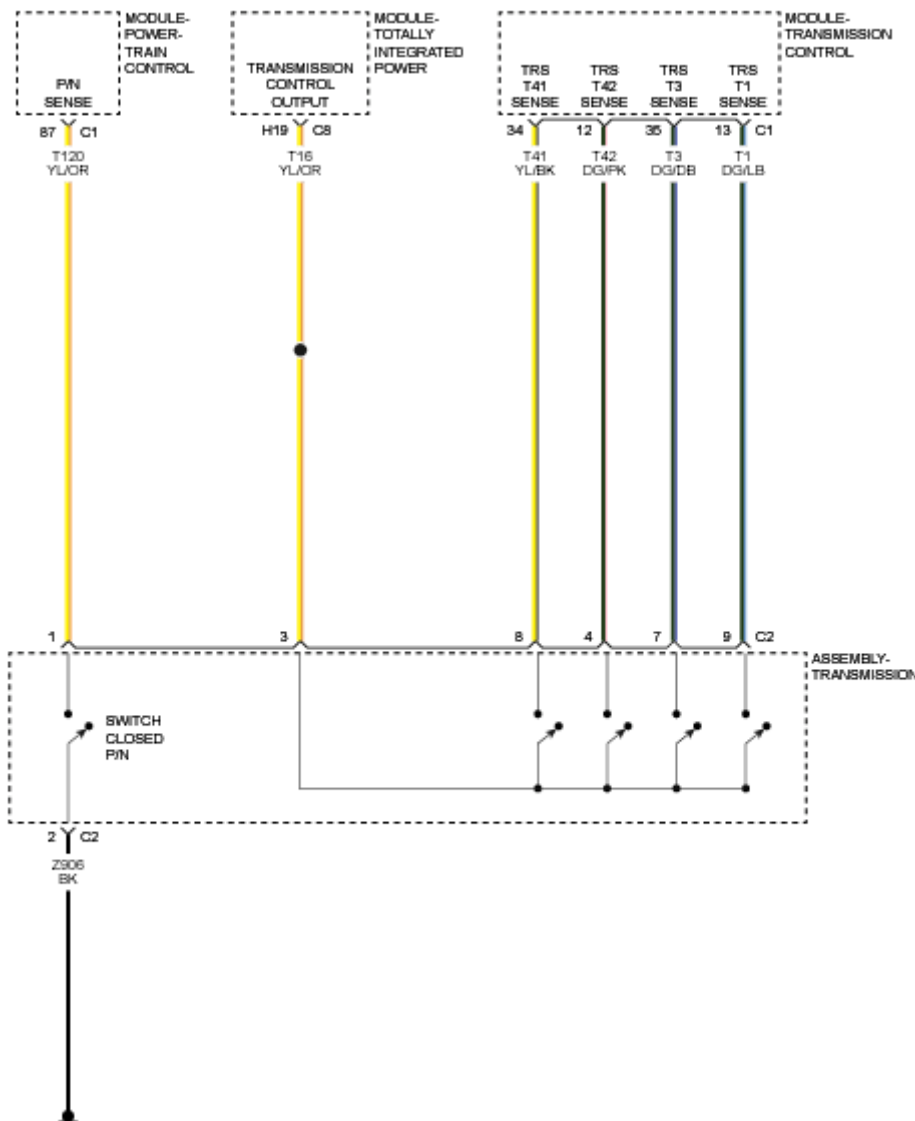


Fig. 2: Transmission Range Sensor Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical and rationality performance of the transmission range sensor (TRS) circuit. The range sensor circuit is connected to the TCM by four independent circuits which distinguish between the possible shifter positions (park, reverse, neutral, and drive). The shifter position is determined based upon a 4-bit pattern (S1, S2, S3, and S4).

WHEN MONITORED

TCM is in power on state and initialization is complete.

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Battery voltage is greater than 9 volts.

No CAN bus DTCs are set.

Engine On signal received via CAN.

SET CONDITION

The fault is detected if the 4-bit pattern is an invalid combination for 4 seconds.

POSSIBLE CAUSES

Possible Causes
(T1, T3, T41, OR T42) TRS SENSE CIRCUIT OPEN
(T1, T3, T41, OR T42) TRS SENSE CIRCUIT SHORTED TO GROUND
(T1, T3, T41, OR T42) TRS SENSE CIRCUIT SHORTED TO VOLTAGE
TRANSMISSION RANGE SENSOR (TRS)
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST

1. VERIFY DTC IS CURRENT

TRS SWITCH STATES

TRS Position	S4 (T1)	S3 (T3)	S2 (T42)	S1 (T41)
P	OPEN	OPEN	OPEN	CLOSED
R	OPEN	OPEN	CLOSED	OPEN
N	OPEN	CLOSED	OPEN	OPEN
D	CLOSED	OPEN	OPEN	OPEN

With the scan tool, and observing the table above, shift the gear shift through all positions.

Did all positions match the table above?

Yes

- Go To 6

No

- Go To 2

2. TRANSMISSION RANGE SENSOR (TRS)

1. Disconnect the TRS harness connector.
2. With the scan tool, observe the TRS switch states.

Did all switch states display open?

Yes

- Replace the Transmission Range Sensor in accordance with the Service Information.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 3.

3. TRS SENSE CIRCUIT OPEN

1. Turn the ignition off to the lock position.
2. Disconnect the PCM harness connector.
3. Measure the resistance of the identified S1, S2, S3, or S4 (T41, T41, T3, OR T1) TRS Sense circuit from the TRS harness connector to the appropriate terminal of the PCM harness connector.

Is the resistance above 5.0 ohms?

Yes

- Repair the identified S1, S2, S3, or S4 (T41, T41, T3, OR T1) TRS Sense circuit for an open.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 4

4. TRS SENSE CIRCUIT SHORT TO GROUND

1. Measure the resistance between ground and the identified S1, S2, S3, or S4 (T41, T41, T3, OR T1) TRS Sense circuit.

Is the resistance below 100k ohms?

Yes

- Repair the identified S1, S2, S3, or S4 (T41, T41, T3, OR T1) TRS Sense circuit for a short to ground.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 5

5. TRS SENSE CIRCUIT SHORT TO OTHER CIRCUITS

1. Measure the resistance between the identified S1, S2, S3, or S4 (T41, T41, T3, OR T1) TRS Sense circuit and all other circuits in the Transmission Solenoid/TRS Assembly harness connector.

Is the resistance below 100k ohms between the identified S1, S2, S3, or S4 (T41, T41, T3, OR T1) TRS Sense circuit and any other circuit(s) in the Transmission Solenoid/TRS Assembly harness connector?

Yes

- Repair the identified S1, S2, S3, or S4 (T41, T41, T3, OR T1) TRS Sense circuit for a short to other circuit(s).
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Using the schematics as a guide, check the Transmission Control Module (TCM) terminals for corrosion, damage or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace the TCM in accordance with the

Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .

- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

6. CHECK THE WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wiring and connectors while checking for shorted and open circuits.
4. With the scan tool, check the Event Data to help identify the conditions in which the DTC set.

Were any problems found?

Yes

- Repair as necessary.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test Complete.

P0706-00-TRANSMISSION RANGE SENSOR PERFORMANCE

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

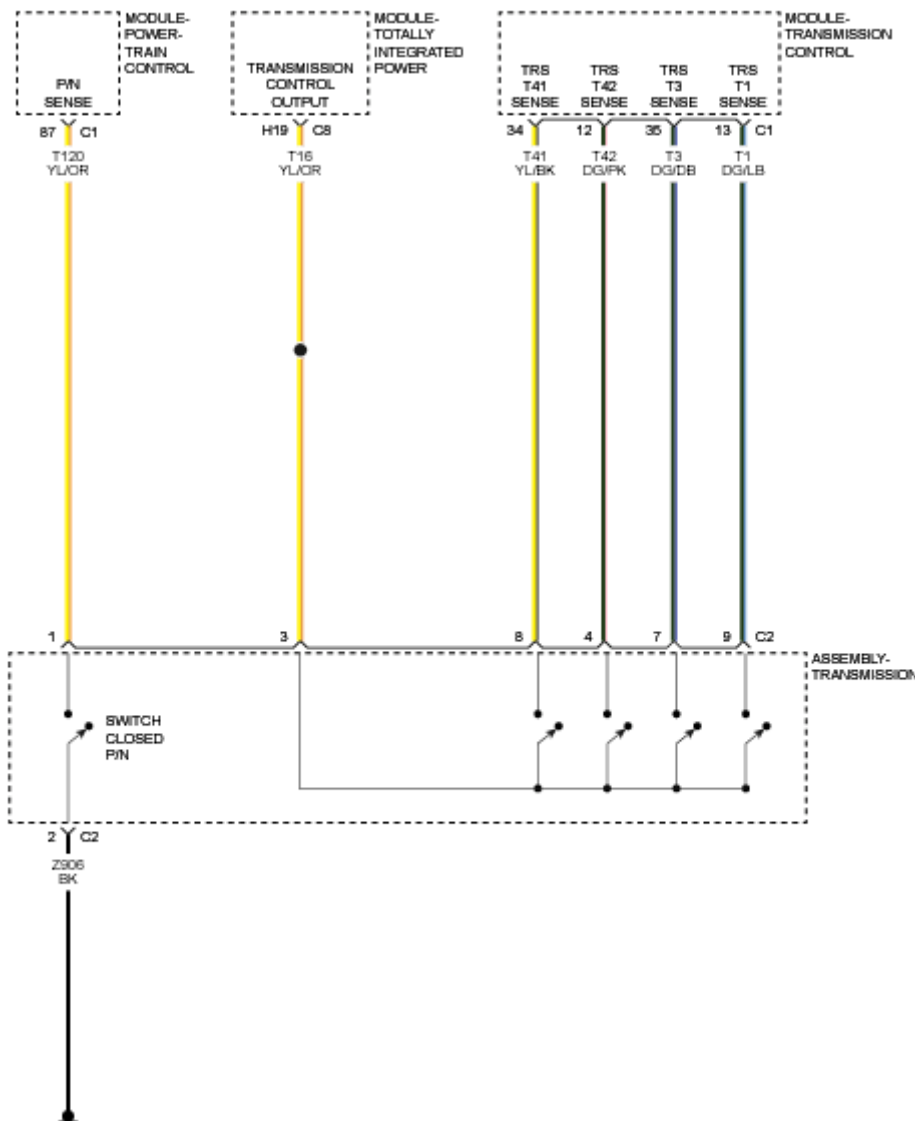


Fig. 3: Transmission Range Sensor Circuit Diagram
 Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical and rationality performance of the transmission range sensor (TRS) circuit. The range sensor circuit is connected to the TCM by four independent circuits which distinguish between the possible shifter positions (park, reverse, neutral, and drive). The shifter position is determined based upon a 4-bit pattern (S1, S2, S3, and S4).

WHEN MONITORED

TCM is in power on state and initialization is complete.

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Battery voltage is greater than 9 volts.

Engine speed is greater than 1500 RPM.

No CAN bus DTCs set.

Engine On signal received via CAN.

SET CONDITION

Check 1

The fault is detected if the 4-bit pattern remains in an intermediate position (PR, RN, and ND) for 10 seconds.

POSSIBLE CAUSES

Possible Causes
(T1, T3, T41, OR T42) TRS SENSE CIRCUIT OPEN
(T1, T3, T41, OR T42) TRS SENSE CIRCUIT SHORTED TO GROUND
(T1, T3, T41, OR T42) TRS SENSE CIRCUIT SHORTED TO VOLTAGE
TRANSMISSION RANGE SENSOR (TRS)
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST

1. VERIFY DTC IS CURRENT

TRS SWITCH STATES

TRS Position	S4 (T1)	S3 (T3)	S2 (T42)	S1 (T41)
P	OPEN	OPEN	OPEN	CLOSED
R	OPEN	OPEN	CLOSED	OPEN
N	OPEN	CLOSED	OPEN	OPEN
D	CLOSED	OPEN	OPEN	OPEN

With the scan tool, and observing the table above, shift the gear shift

through all positions.

Did all positions match the table above?

Yes

- Go To 6

No

- Go To 2

2. TRANSMISSION RANGE SENSOR (TRS)

1. Disconnect the TRS harness connector.
2. With the scan tool, observe the TRS switch states.

Did all switch states display open?

Yes

- Replace the Transmission Range Sensor in accordance with the Service Information.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 3.

3. TRS SENSE CIRCUIT OPEN

1. Turn the ignition off to the lock position.
2. Disconnect the PCM harness connector.
3. Measure the resistance of the identified S1, S2, S3, or S4 (T41, T41, T3, OR T1) TRS Sense circuit from the TRS harness connector to the appropriate terminal of the PCM harness connector.

Is the resistance above 5.0 ohms?

Yes

- Repair the identified S1, S2, S3, or S4 (T41, T41, T3, OR T1) TRS

Sense circuit for an open.

- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 4

4. TRS SENSE CIRCUIT SHORT TO GROUND

1. Measure the resistance between ground and the identified S1, S2, S3, or S4 (T41, T41, T3, OR T1) TRS Sense circuit.

Is the resistance below 100k ohms?

Yes

- Repair the identified S1, S2, S3, or S4 (T41, T41, T3, OR T1) TRS Sense circuit for a short to ground.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 5

5. TRS SENSE CIRCUIT SHORT TO OTHER CIRCUITS

1. Measure the resistance between the identified S1, S2, S3, or S4 (T41, T41, T3, OR T1) TRS Sense circuit and all other circuits in the Transmission Solenoid/TRS Assembly harness connector.

Is the resistance below 100k ohms between the identified S1, S2, S3, or S4 (T41, T41, T3, OR T1) TRS Sense circuit and any other circuit(s) in the Transmission Solenoid/TRS Assembly harness connector?

Yes

- Repair the identified S1, S2, S3, or S4 (T41, T41, T3, OR T1) TRS Sense circuit for a short to other circuit(s).
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Using the schematics as a guide, check the Transmission Control Module (TCM) terminals for corrosion, damage or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

6. CHECK THE WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wiring and connectors while checking for shorted and open circuits.
4. With the scan tool, check the Event Data to help identify the conditions in which the DTC set.

Were any problems found?

Yes

- Repair as necessary.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test Complete.

P0711-00-TRANSMISSION FLUID TEMPERATURE SENSOR A CIRCUIT RANGE-PERFORMANCE

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

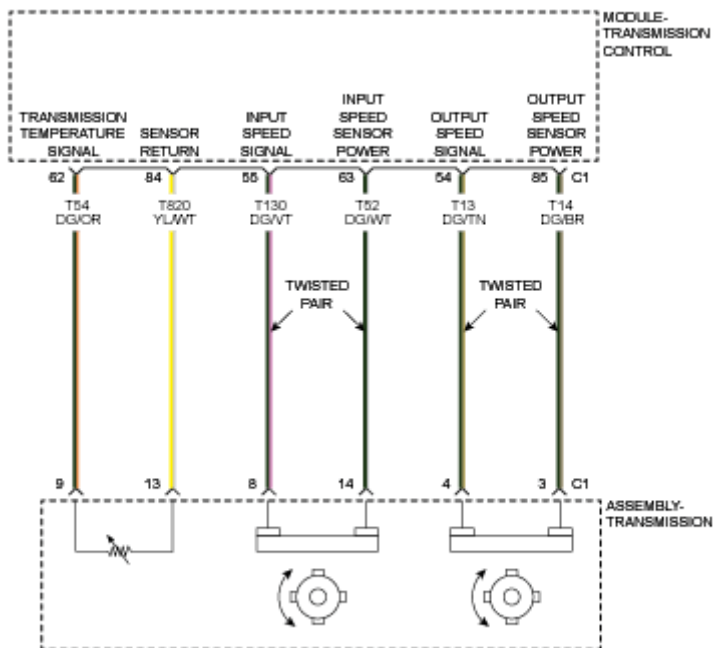


Fig. 4: Transmission Fluid Temperature & Speed Sensors Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the rationality of the transmission fluid temperature (TFT) sensor signal. The TFT sensor is an analog device for which the TCM performs A/D conversion every 80 msec. The TFT sensor circuit diagram is shown above. The malfunction conditions detected in range by this diagnostic include TFT sensor signal stuck too low, stuck low and stuck high.

WHEN MONITORED

Conditions for TFT sensor stuck too low:

System voltage greater than 9.0 Volts.

Engine RPM greater than 400 RPM.

Shift lever in Drive.

No transmission fluid temperature sensor DTCs set.

Transmission fluid temperature is less than -10° C (14° F)

Conditions for TFT sensor stuck low:

System voltage greater than 9.0 Volts.

Shift lever in Drive.

Engine RPM greater than 1, 500 RPM.

No other temperature sensor or sensor ground DTCs present.

Transmission fluid temperature is more than or equal to -10° C (14° F).

All the above conditions are present for more than 0.8 seconds.

No CAN DTCs present.

No Engine RPM errors present.

Conditions for TFT sensor stuck high:

System voltage greater than 9.0 Volts.

Engine RPM greater than or equal to 400 RPM for more than 5 seconds.

Transmission fluid temperature at ignition off is greater than 60° C (140° F).

Engine coolant temperature at ignition off is greater than 74° C (164° F).

Engine coolant temperature decrease from previous ignition off to current ignition on is greater than 40° C (104° F).

SET CONDITION

Conditions for TFT sensor stuck too low:

Transmission fluid temperature is less than -10° C (14° F) for more than 300 seconds.

Conditions for TFT sensor stuck low:

Transmission fluid temperature is less than 20° C (68° F) for more than 800 seconds.

Conditions for TFT sensor stuck high:

The difference between transmission fluid temperature at ignition off and ignition on is less than 2° C (4° F).

POSSIBLE CAUSES

Possible Causes
TRANSMISSION TEMPERATURE SENSOR
TRANSMISSION CONTROL MODULE

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST**1. CHECK FOR PCM DTCS**

1. Using the scan tool, read PCM DTCS.

Are there any Engine Temperature Sensor DTCS present?

Yes

- Refer to the **2.0L & 2.4L - DIAGNOSTIC CODE INDEX** and perform the appropriate diagnostic procedure.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 2

2. CHECK TO SEE IF THE DIAGNOSTIC TROUBLE CODE (DTC) IS ACTIVE

1. Using the scan tool, read Transmission DTCS.

Is the status Active or is the Starts Since Set counter 2 or less for this DTC?

Yes

- Go To 3

No

- Go To 7

3. IDENTIFY THE SETTING CONDITION

NOTE: The vehicle must be completely cooled for a minimum period of 8 hours for the following test procedure.

1. With the scan tool monitor the Transmission Temperature while test driving the vehicle.

NOTE: It may take up to 10 minutes of continuous driving to accurately test the Transmission Temperature Sensor.

Did the Transmission Temperature stay the same or increase a very limited amount?

Yes

- Go To 6

No

- Go To 4

4. CHECK THE TRANSMISSION TEMPERATURE SENSOR

Did the TCM set a one trip DTC during the previous test drive?

Yes

- Go To 5

No

- Go To 7

5. COMPARE TRANSMISSION TEMPERATURE TO OTHER

TEMPERATURES

1. With the scan tool compare the Transmission Temperature to other Temperature sensors such as Engine Coolant, Intake, Oil Temperature.

Is the Transmission Temperature within 40° C (104° F) of the other temperatures?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) terminals for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. Check for any Service Bulletins for possible causes that may apply. If no problems are found, replace the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL**.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Replace the Transmission Temperature Sensor in accordance with the Service Information.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

6. CHECK THE (T54) TRANSMISSION TEMPERATURE SENSOR

Temperature Sensor Resistive Values Chart	
Transmission Temperature	Resistive Value Compared to Temperature (± 10%)
20° C (68° F)	2.5k to 6.5k Ohms
80° C (176° F)	0.3k to 0.9k Ohms

1. Start the engine and allow to obtain normal operating temperature (approximately 10 min. of engine run time).
2. Turn the ignition off to the lock position.
3. Disconnect the TCM C1 harness connector.
4. Measure the resistance between the (T54) Transmission Temperature

Sensor Signal circuit and the (T820) Sensor Ground circuit in the TCM C1 harness connector.

Is the resistance within the desired range listed on the above chart?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) terminals for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. Check for any Service Bulletins for possible causes that may apply. If no problems are found, replace the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL**.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Replace the Transmission Temperature Sensor in accordance with the Service Information.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

7. CHECK THE WIRING AND CONNECTORS

1. The conditions necessary to set this DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.

Were there any problems found?

Yes

- Repair as necessary.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Test Complete.

P0712-00-TRANSMISSION FLUID TEMPERATURE SENSOR A CIRCUIT LOW

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

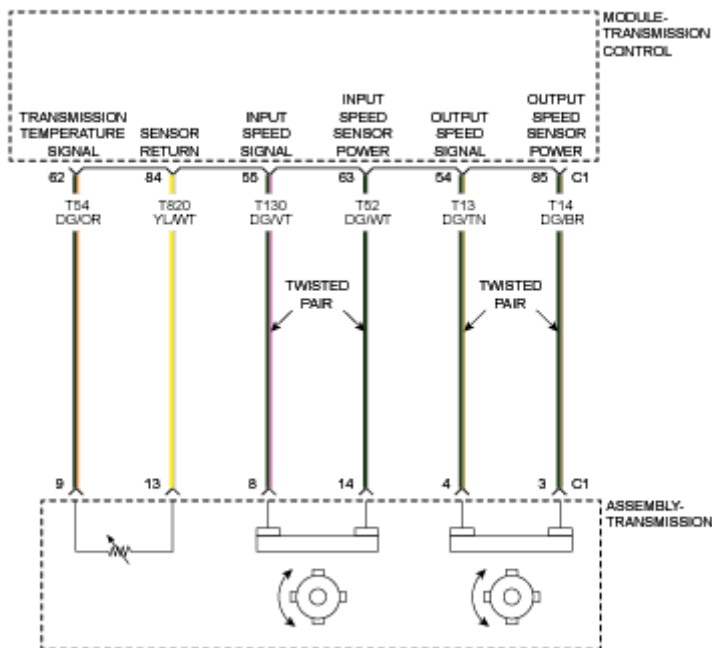


Fig. 5: Transmission Fluid Temperature & Speed Sensors Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of the transmission fluid temperature (TFT) sensor circuit. The TFT sensor is an analog device for which the TCM performs A/D conversion every 80 msec. The malfunction conditions detected by this diagnostic include shorted to battery, short to ground, and open circuit failures. If the TFT sensor circuit is out of range high (shorted to battery or open circuit) or out of range low (shorted to ground), a fault is detected.

WHEN MONITORED

System voltage greater than 9.0 Volts.

Engine RPM greater than 400 RPM.

No other transmission temperature sensor DTCs.

SET CONDITION

Transmission fluid temperature voltage is less than 0.096 volts for more than 5 seconds.

POSSIBLE CAUSES**Possible Causes**

(T54) TRANSMISSION TEMPERATURE SENSOR SIGNAL CIRCUIT
SHORT TO GROUND

(T54) TRANSMISSION TEMPERATURE SENSOR SIGNAL CIRCUIT
SHORT TO (T820) SENSOR GROUND CIRCUIT

TRANSMISSION TEMPERATURE SENSOR
TRANSMISSION CONTROL MODULE

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST**1. CHECK IF DTC IS CURRENT**

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 5

2. CHECK THE (T54) TRANSMISSION TEMPERATURE SENSOR SIGNAL CIRCUIT FOR A SHORT TO GROUND

1. Turn the ignition off to the lock position.
2. Disconnect the TCM C1 harness connector.
3. Disconnect the Transmission harness connector.
4. Measure the resistance between ground and the (T54) Transmission Temperature Sensor Signal circuit.

Is the resistance above 100k Ohms?

Yes

- Go To 3

No

- Repair the (T54) Transmission Temperature Sensor Signal circuit for a short to ground.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

3. CHECK THE (T54) TRANSMISSION TEMPERATURE SENSOR SIGNAL CIRCUIT FOR A SHORT TO (T820) SENSOR GROUND CIRCUIT

1. Measure the resistance between the (T54) Transmission Temperature Sensor Signal circuit and (T820) Sensor Ground circuit in the Transmission harness connector.

Is the resistance above 100k Ohms?

Yes

- Go To 4

No

- Repair the (T54) Transmission Temperature Sensor Signal circuit for a short to the (T820) Sensor Ground circuit.

- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

4. CHECK THE TRANSMISSION TEMPERATURE SENSOR

Temperature Sensor Resistive Values Chart	
Transmission Temperature	Resistive Value Compared to Temperature ($\pm 10\%$)
20° C (68° F)	2.5k to 6.5k Ohms
80° C (176° F)	0.3k to 0.9k Ohms

1. Turn the ignition off to the lock position.
2. Reconnect the Transmission harness connector.
3. Measure the resistance of the Transmission Temperature Sensor between the (T54) Transmission Temperature Signal circuit and the (T820) Sensor Ground circuit in the TCM C1 harness connector.
4. Using the chart at the chart above, compare the Temperature Sensor temperature to the correlating resistance value.

Is the resistance within the specified range when the sensor is at the given temperature?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information.

No

- Remove the Transmission Oil Pan and inspect the internal Transmission harness, pins, terminals, and connectors for corrosion, damage, or terminal push out. If no problems are found, replace the Transmission Temperature Sensor in accordance with the Service Information.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

5. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test Complete.

P0713-00-TRANSMISSION FLUID TEMPERATURE SENSOR A CIRCUIT HIGH

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

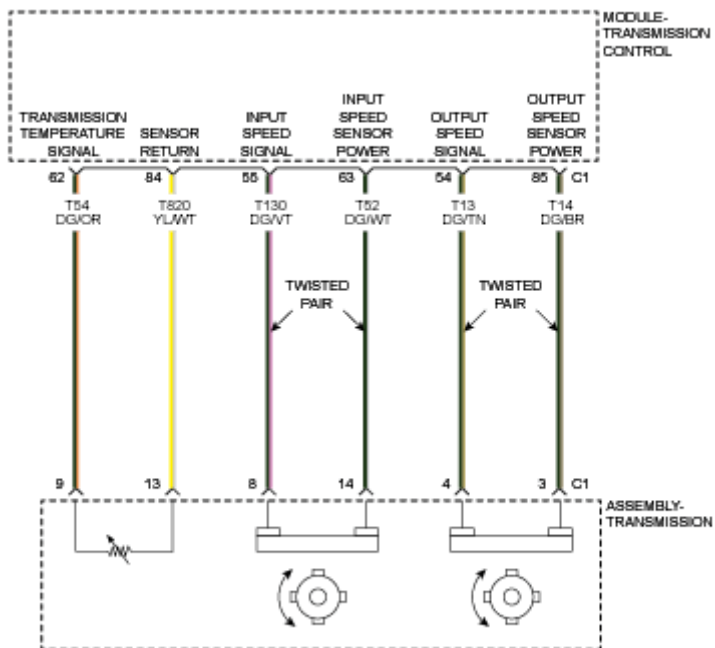


Fig. 6: Transmission Fluid Temperature & Speed Sensors Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of the transmission fluid temperature (TFT) sensor circuit. The TFT sensor is an analog device for which the TCM performs A/D conversion every 80 msec. The malfunction conditions detected by this diagnostic include shorted to battery, short to ground, and open circuit failures. If the TFT sensor circuit is out of range high (shorted to battery or open circuit) or out of range low (shorted to ground), a fault is detected.

WHEN MONITORED

System voltage greater than 9.0 Volts.

Engine RPM greater than 400 RPM.

No other transmission temperature sensor DTCs.

SET CONDITION

Transmission fluid temperature voltage is greater than 3.26 volts for more than 5 seconds.

POSSIBLE CAUSES**Possible Causes**

(T54) TRANSMISSION TEMPERATURE SENSOR SIGNAL CIRCUIT
SHORT TO VOLTAGE

(T54) TRANSMISSION TEMPERATURE SENSOR SIGNAL CIRCUIT
OPEN

(T820) SENSOR GROUND CIRCUIT OPEN
TRANSMISSION TEMPERATURE SENSOR
TRANSMISSION CONTROL MODULE

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST**1. CHECK IF DTC IS CURRENT**

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 6

2. CHECK THE (T54) TRANSMISSION TEMPERATURE SENSOR SIGNAL CIRCUIT FOR A SHORT TO VOLTAGE

1. Turn the ignition off to the lock position.
2. Disconnect the TCM C1 harness connectors.

3. Disconnect the Transmission harness connector.
4. Ignition on, engine not running.
5. Measure the voltage of the (T54) Transmission Temperature Sensor Signal circuit in the TCM C1 harness connector.

Is the voltage above 0.5 of a volt?

Yes

- Repair the (T54) Transmission Temperature Sensor Signal circuit for a short to voltage.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 3

3. CHECK THE (T54) TRANSMISSION TEMPERATURE SENSOR SIGNAL CIRCUIT FOR AN OPEN

1. Measure the resistance of the (T54) Transmission Temperature Sensor Signal circuit between the TCM C1 harness connector and the Transmission harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 4

No

- Repair the (T54) Transmission Temperature Sensor Signal circuit for an open.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK THE (T820) SENSOR GROUND CIRCUIT FOR AN OPEN

1. Measure the resistance of the (T820) Sensor Ground circuit between the TCM C1 harness connector and the Transmission harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 5

No

- Repair the (T820) Sensor Ground circuit for an open.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

5. CHECK THE TRANSMISSION TEMPERATURE SENSOR

Temperature Sensor Resistive Values Chart	
Transmission Temperature	Resistive Value Compared to Temperature ($\pm 10\%$)
20° C (68° F)	2.5k to 6.5k Ohms
80° C (176° F)	0.3k to 0.9k Ohms

1. Turn the ignition off to the lock position.
2. Reconnect the Transmission Solenoid harness connector.
3. Measure the resistance of the Transmission Temperature Sensor between the (T54) Transmission Temperature Signal circuit and the (T820) Sensor Ground circuit in the TCM C1 harness connector.
4. Using the chart at the chart above, compare the Temperature Sensor temperature to the correlating resistance value.

Is the resistance within the specified range when the sensor is at the given temperature?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .

- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Remove the Transmission Oil Pan and inspect the internal Transmission harness, pins, terminals, and connectors for corrosion, damage, or terminal push out. If no problems are found, replace the Transmission Temperature Sensor in accordance with the Service Information.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

6. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test Complete.

P0715-00-INPUT-TURBINE SHAFT SPEED SENSOR A CIRCUIT

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

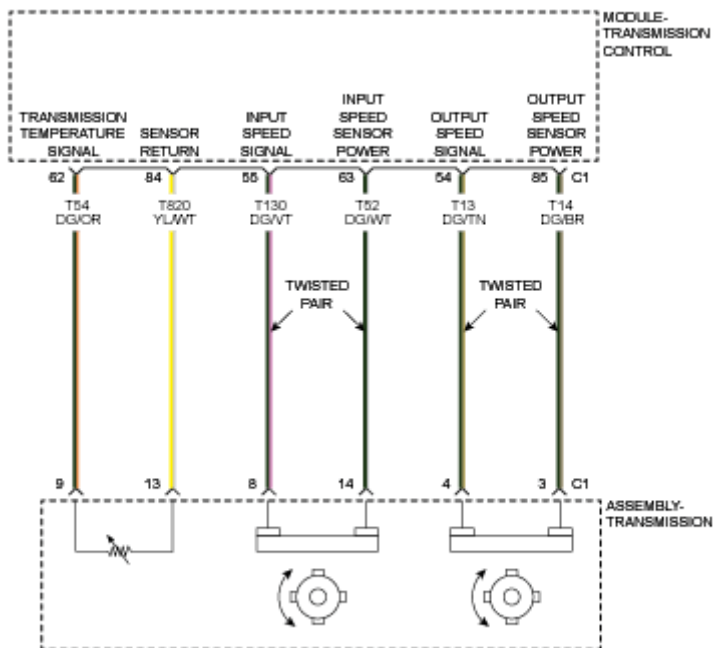


Fig. 7: Transmission Fluid Temperature & Speed Sensors Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of the input speed sensor circuit. The sensor is located in front of the target wheel which is connected to the transmission input shaft, and measures the rotation of the target wheel. The input speed sensor is a Hall Effect sensor with a pulse train output frequency range of 50 ~ 8000 RPM. The normal operating output voltage range of the input speed sensor is in the range of 0.8 to 1.5 V. The malfunction conditions detected by this diagnostic include short to battery, short to ground, and open circuit failures. These malfunctions are determined based upon the A/D conversion value.

WHEN MONITORED

Battery supply voltage is greater than 9 volts.

No input speed sensor circuit failures (electrical or rationality).

SET CONDITION

The failure is detected if the measured voltage of the input speed sensor circuit is between 0.1 of a volt and less than 0.2 of a volt for 2 seconds.

POSSIBLE CAUSES**Possible Causes**

(T130) INPUT SPEED SIGNAL CIRCUIT OPEN
(T52) SPEED SENSOR POWER CIRCUIT OPEN
(T130) INPUT SPEED SIGNAL CIRCUIT SHORTED TO GROUND
(T52) SPEED SENSOR POWER CIRCUIT SHORTED TO GROUND
(T130) INPUT SPEED SENSOR SIGNAL CIRCUIT FOR A SHORT TO
ANOTHER CIRCUIT
INPUT SPEED SENSOR
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST**1. CHECK IF THE DTC IS CURRENT**

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.

NOTE: **It may be necessary to road test the vehicle to duplicate the original set conditions.**

5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 9

2. CHECK THE (T52) POWER SUPPLY CIRCUIT

1. Turn the ignition off to the lock position.
2. Disconnect the Transmission harness connector.
3. Ignition on, engine not running.
4. Measure the voltage of the (T52) Power Supply circuit on the appropriate terminal of the Transmission harness connector.

Is the voltage 7.61 volts (± 0.65 of a volt)?

Yes

- Go To 5

No

- Go To 3

3. CHECK THE (T52) POWER SUPPLY CIRCUIT FOR AN OPEN

1. Turn the ignition off to the lock position.
2. Disconnect the TCM C1 harness connector.
3. Measure the resistance of the (T52) Power Supply circuit between the TCM C1 harness connector and the Transmission harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 4

No

- Repair the (T52) Power Supply circuit for an open.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK THE (T52) POWER SUPPLY CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance between ground and the (T52) Power Supply Signal circuit.

Is the resistance below 100k Ohms?

Yes

- Repair the (T52) Power Supply circuit for a short to ground.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

5. CHECK THE (T130) INPUT SPEED SENSOR SIGNAL CIRCUIT FOR AN OPEN

1. Disconnect the TCM C1 harness connector.
2. Measure the resistance of the (T130) Input Speed Sensor Signal circuit between the TCM C1 harness connector and the Transmission harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 6

No

- Repair the (T130) Input Speed Sensor Signal circuit for an open.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

6. CHECK THE (T130) INPUT SPEED SENSOR SIGNAL CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance between ground and the (T130) Input Speed

Sensor Signal circuit.

Is the resistance below 100k Ohms?

Yes

- Repair the (T130) Input Speed Sensor Signal circuit for a short to ground.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 7

7. CHECK THE (T130) INPUT SPEED SENSOR SIGNAL CIRCUIT FOR A SHORT TO ANOTHER CIRCUIT

1. Measure the resistance between the (T130) Input Speed Sensor Signal circuit and all other circuits in the TCM C1 harness connector.

Is the resistance below 100k Ohms between the (T130) Input Speed Sensor Signal circuit and any other circuit(s) in the TCM C1 harness connector?

Yes

- Repair the (T130) Input Speed Sensor Signal circuit for a short to another circuit(s).
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 8

8. REPLACE THE INPUT SPEED SENSOR

1. Turn the ignition off to the lock position.
2. Remove the transmission side cover and inspect the internal harness.
3. Replace the Input Speed Sensor in accordance with the service information.
4. Inspect the internal tone ring for damaged or missing teeth.

5. Reconnect all connectors.
6. Clear DTCs and road test the vehicle under the conditions in which the original DTC set.

Did the Input Speed Sensor DTC reset?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test complete.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

9. CHECK THE WIRING AND CONNECTORS

1. The conditions necessary to set this DTC are not present at this time.
2. Use the Freeze Frame Data to help duplicate the conditions in which the DTC originally set. Pay particular attention to the DTC set conditions, such as, VSS, MAP, ECT, and Load
3. Using the schematics as a guide, visually inspect the related wiring harness. Look for any chafed, pierced, pinched, or partially broken wires.
4. Visually inspect the related wiring harness connectors. Look for broken, bent, pushed out, or corroded terminals.
5. Wiggle the wiring and connectors while checking for any possible open or shorted circuits.
6. Check for any Service Information Tune-ups or Technical Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Test Complete.

P0716-00-INPUT SHAFT SPEED SENSOR 1 PERFORMANCE

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

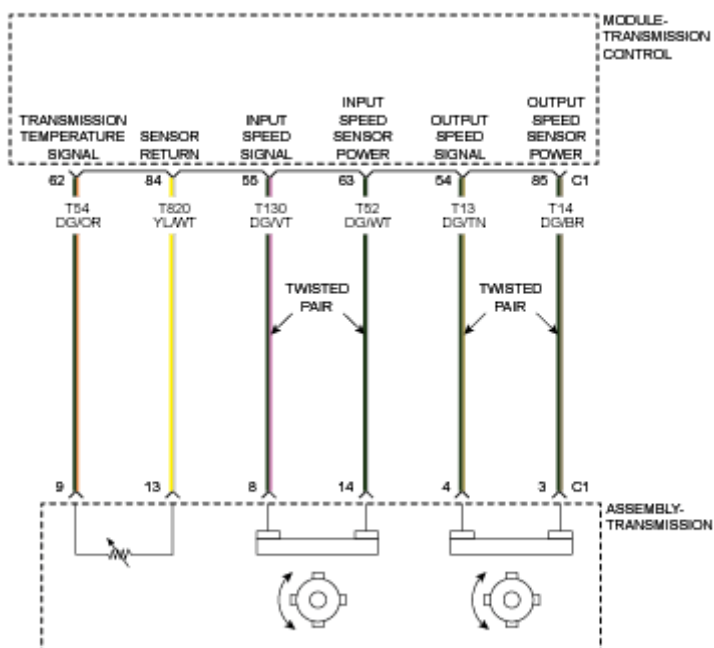


Fig. 8: Transmission Fluid Temperature & Speed Sensors Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the rationality of the transmission input speed sensor signal. The transmission input speed should be synchronized with the transmission output speed. The malfunction condition is detected if the

measured input speed sensor signal is stuck below a low speed threshold or present above an out of range high speed threshold.

WHEN MONITORED

Battery supply voltage is greater than or equal to 9 volts.

Driving Conditions for stuck failure:

No input speed sensor errors.

No CAN related errors.

No engine RPM signal errors.

No output speed related errors.

No Transmission Range Switch (TRS) errors.

Input speed is equal to 0 RPM.

Engine speed is greater than or 650 RPM.

Time since gear shift is greater than or equal to 1 second.

Shift lever position is in park/neutral or shift lever position is in drive and the output speed sensor signal is greater than or equal to 100 RPM.

SET CONDITION**Input Speed Sensor stuck failure:**

The failure is detected if the measured input speed sensor signal is stuck below 0 RPM for 2 seconds.

Input Speed Sensor out of range high failure:

The failure is detected if the measured input speed sensor signal is greater than or equal to 8000 RPM for 2 seconds.

POSSIBLE CAUSES

Possible Causes

(T130) INPUT SPEED SENSOR SIGNAL CIRCUIT OPEN
(T52) INPUT SPEED SENSOR POWER CIRCUIT OPEN
(T130) INPUT SPEED SENSOR SIGNAL CIRCUIT SHORTED TO GROUND
(T130) INPUT SPEED SENSOR SIGNAL CIRCUIT SHORTED TO VOLTAGE
(T52) INPUT SPEED SENSOR POWER CIRCUIT SHORTED TO VOLTAGE
INPUT SPEED SENSOR
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST

1. CHECK IF THE DTC IS CURRENT

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.

NOTE: **It may be necessary to road test the vehicle to duplicate the original set conditions.**

5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 9

2. CHECK THE (T52) INPUT SPEED SENSOR POWER SUPPLY CIRCUIT

1. Turn the ignition off to the lock position.
2. Disconnect the Transmission harness connector.
3. Ignition on, engine not running.
4. Measure the voltage of the (T52) Input Speed Sensor Power Supply circuit on the appropriate terminal of the Transmission harness connector.

Is the voltage 7.61 volts (± 0.65 of a volt)?

Yes

- Go To 5

No

- Go To 3

3. CHECK THE (T52) INPUT SPEED SENSOR POWER SUPPLY CIRCUIT FOR AN OPEN

1. Turn the ignition off to the lock position.
2. Disconnect the TCM C1 harness connector.
3. Measure the resistance of the (T52) Input Speed Sensor Power Supply circuit between the TCM C1 harness connector and the Transmission harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 4

No

- Repair the (T52) Input Speed Sensor Power Supply circuit for an open.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK THE (T52) INPUT SPEED SENSOR POWER SUPPLY CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance between ground and the (T52) Input Speed Sensor Power Supply Signal circuit.

Is the resistance below 100k Ohms?

Yes

- Repair the (T52) Input Speed Sensor Power Supply circuit for a short to ground.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

5. CHECK THE (T130) INPUT SPEED SENSOR SIGNAL CIRCUIT FOR AN OPEN

1. Disconnect the TCM C1 harness connector.
2. Measure the resistance of the (T130) Input Speed Sensor Signal circuit between the TCM C1 harness connector and the Transmission harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 6

No

- Repair the (T130) Input Speed Sensor Signal circuit for an open.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

6. CHECK THE (T130) INPUT SPEED SENSOR SIGNAL CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance between ground and the (T130) Input Speed Sensor Signal circuit.

Is the resistance below 100k Ohms?

Yes

- Repair the (T130) Input Speed Sensor Signal circuit for a short to ground.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 7

7. CHECK THE (T130) INPUT SPEED SENSOR SIGNAL CIRCUIT FOR A SHORT TO ANOTHER CIRCUIT

1. Measure the resistance between the (T130) Input Speed Sensor Signal circuit and all other circuits in the TCM C1 harness connector.

Is the resistance below 100k Ohms between the (T130) Input Speed Sensor Signal circuit and any other circuit(s) in the TCM C1 harness connector?

Yes

- Repair the (T130) Input Speed Sensor Signal circuit for a short to another circuit(s).
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 8

8. REPLACE THE INPUT SPEED SENSOR

1. Turn the ignition off to the lock position.
2. Remove the transmission side cover and inspect the internal harness.
3. Replace the Input Speed Sensor in accordance with the service information.
4. Inspect the internal tone ring for damaged or missing teeth.
5. Reconnect all connectors.
6. Clear DTCs and road test the vehicle under the conditions in which the original DTC set.

Did the Input Speed Sensor DTC reset?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test complete.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

9. CHECK THE WIRING AND CONNECTORS

1. The conditions necessary to set this DTC are not present at this time.
2. Use the Freeze Frame Data to help duplicate the conditions in which the DTC originally set. Pay particular attention to the DTC set conditions, such as, VSS, MAP, ECT, and Load
3. Using the schematics as a guide, visually inspect the related wiring harness. Look for any chafed, pierced, pinched, or partially broken wires.

4. Visually inspect the related wiring harness connectors. Look for broken, bent, pushed out, or corroded terminals.
5. Wiggle the wiring and connectors while checking for any possible open or shorted circuits.
6. Check for any Service Information Tune-ups or Technical Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Test Complete.

P0720-00-OUTPUT SHAFT SPEED SENSOR CIRCUIT

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

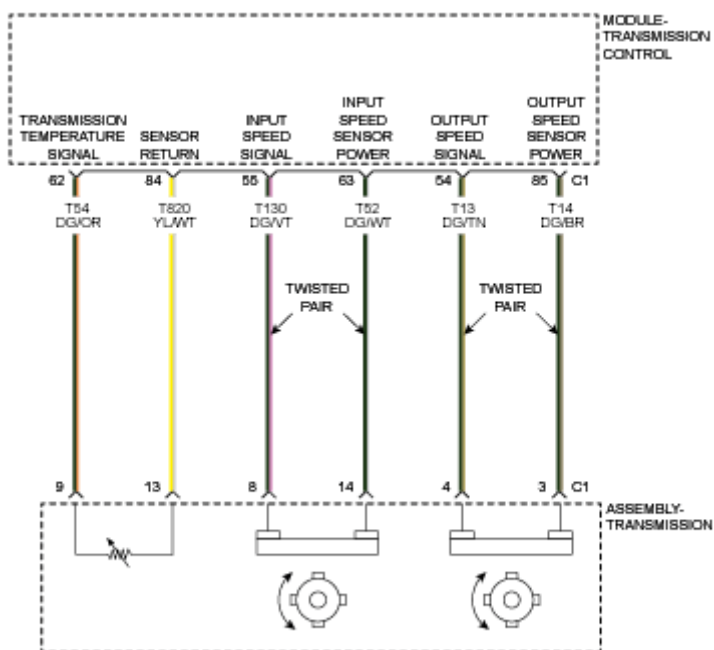


Fig. 9: Transmission Fluid Temperature & Speed Sensors Circuit Diagram **Courtesy of CHRYSLER GROUP, LLC**

THEORY OF OPERATION

This is where you put the Theory of Operation.

WHEN MONITORED

Battery supply voltage is greater than 9 volts.

No output speed sensor circuit failures (electrical or rationality).

SET CONDITION

The failure is detected if the measured voltage of the output speed sensor circuit is between 0.1 of a volt and less than 0.2 of a volt for 2 seconds.

POSSIBLE CAUSES

Possible Causes
(T13) OUTPUT SPEED SIGNAL CIRCUIT OPEN
(T14) OUTPUT SPEED SENSOR POWER CIRCUIT OPEN
(T13) OUTPUT SPEED SIGNAL CIRCUIT SHORTED TO GROUND
(T14) OUTPUT SPEED SENSOR POWER CIRCUIT SHORTED TO GROUND
(T13) OUTPUT SPEED SENSOR SIGNAL CIRCUIT FOR A SHORT TO ANOTHER CIRCUIT
OUTPUT SPEED SENSOR
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST

1. CHECK IF THE DTC IS CURRENT

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.

4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.

NOTE: It may be necessary to road test the vehicle to duplicate the original set conditions.

5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 9

2. CHECK THE (T14) OUTPUT SPEED SENSOR POWER SUPPLY CIRCUIT

1. Turn the ignition off to the lock position.
2. Disconnect the Transmission harness connector.
3. Ignition on, engine not running.
4. Measure the voltage of the (T14) Output Speed Sensor Power Supply circuit on the appropriate terminal of the Transmission harness connector.

Is the voltage 7.61 volts (± 0.65 of a volt)?

Yes

- Go To 5

No

- Go To 3

3. CHECK THE (T14) OUTPUT SPEED SENSOR POWER SUPPLY CIRCUIT FOR AN OPEN

1. Turn the ignition off to the lock position.

2. Disconnect the TCM C1 harness connector.
3. Measure the resistance of the (T14) Output Speed Sensor Power circuit between the TCM C1 harness connector and the Transmission harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 4

No

- Repair the (T14) Output Speed Sensor Power Supply circuit for an open.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK THE (T14) OUTPUT SPEED SENSOR POWER SUPPLY CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance between ground and the (T14) Output Speed Sensor Power Supply Signal circuit.

Is the resistance below 100k Ohms?

Yes

- Repair the (T14) Output Speed Sensor Power Supply circuit for a short to ground.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .

- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

5. CHECK THE (T13) OUTPUT SPEED SENSOR SIGNAL CIRCUIT FOR AN OPEN

1. Disconnect the TCM C1 harness connector.
2. Measure the resistance of the (T13) Output Speed Sensor Signal circuit between the TCM C1 harness connector and the Transmission harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 6

No

- Repair the (T13) Output Speed Sensor Signal circuit for an open.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

6. CHECK THE (T13) OUTPUT SPEED SENSOR SIGNAL CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance between ground and the (T13) Output Speed Sensor Signal circuit.

Is the resistance below 100k Ohms?

Yes

- Repair the (T13) Output Speed Sensor Signal circuit for a short to ground.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 7

7. CHECK THE (T13) OUTPUT SPEED SENSOR SIGNAL CIRCUIT FOR A SHORT TO ANOTHER CIRCUIT

1. Measure the resistance between the (T13) Output Speed Sensor Signal circuit and all other circuits in the TCM C1 harness connector.

Is the resistance below 100k Ohms between the (T13) Output Speed Sensor Signal circuit and any other circuit(s) in the TCM C1 harness connector?

Yes

- Repair the (T13) Output Speed Sensor Signal circuit for a short to another circuit(s).
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 8

8. REPLACE THE OUTPUT SPEED SENSOR

1. Turn the ignition off to the lock position.
2. Remove the transmission side cover and inspect the internal harness.
3. Replace the Output Speed Sensor in accordance with the service information.
4. Inspect the internal tone ring for damaged or missing teeth.
5. Reconnect all connectors.
6. Clear DTCs and road test the vehicle under the conditions in which the original DTC set.

Did the Output Speed Sensor DTC reset?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform the TRANSMISSION VERIFICATION TEST. Refer to

6F24 TRANSMISSION VERIFICATION TEST .

No

- Test complete.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST .**

9. CHECK THE WIRING AND CONNECTORS

1. The conditions necessary to set this DTC are not present at this time.
2. Use the Freeze Frame Data to help duplicate the conditions in which the DTC originally set. Pay particular attention to the DTC set conditions, such as, VSS, MAP, ECT, and Load
3. Using the schematics as a guide, visually inspect the related wiring harness. Look for any chafed, pierced, pinched, or partially broken wires.
4. Visually inspect the related wiring harness connectors. Look for broken, bent, pushed out, or corroded terminals.
5. Wiggle the wiring and connectors while checking for any possible open or shorted circuits.
6. Check for any Service Information Tune-ups or Technical Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST .**

No

- Test Complete.

P0721-00-OUTPUT SHAFT SPEED SENSOR CIRCUIT PERFORMANCE

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

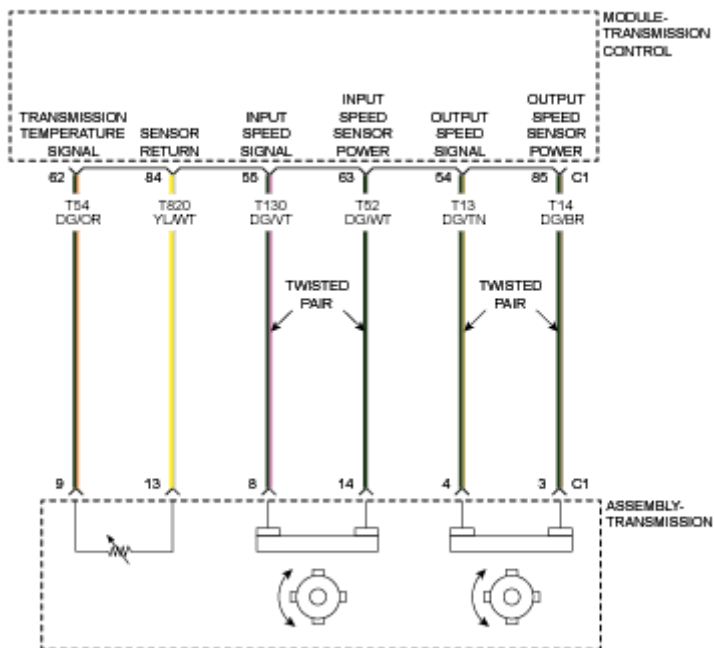


Fig. 10: Transmission Fluid Temperature & Speed Sensors Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

This is where you put the Theory of Operation.

WHEN MONITORED

Battery supply voltage is greater than or equal to 9 volts.

Driving Conditions for stuck failure:

Input speed is equal to 0 RPM.

Engine speed is greater than 400 RPM.

Shift lever position is in Drive.

Vehicle speed received from the BSM is greater than or equal to 50 km/h (31 mph).

SET CONDITION

The failure is detected if the ratio of the calculated vehicle speed based on the measured output speed sensor signal and the vehicle speed received from the

Brake System Module (BSM) via CAN is greater than or equal to 1.5 or less than or equal to 0.5 for 5 seconds.

POSSIBLE CAUSES**Possible Causes**

(T13) OUTPUT SPEED SENSOR SIGNAL CIRCUIT OPEN
(T14) OUTPUT SPEED SENSOR POWER CIRCUIT OPEN
(T13) OUTPUT SPEED SENSOR SIGNAL CIRCUIT SHORTED TO GROUND
(T13) OUTPUT SPEED SENSOR SIGNAL CIRCUIT SHORTED TO VOLTAGE
(T14) OUTPUT SPEED SENSOR POWER CIRCUIT SHORTED TO VOLTAGE
OUTPUT SPEED SENSOR
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST**1. CHECK IF THE DTC IS CURRENT**

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.

NOTE: It may be necessary to road test the vehicle to duplicate the original set conditions.

5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 9

2. CHECK THE (T14) OUTPUT SPEED SENSOR POWER SUPPLY CIRCUIT

1. Turn the ignition off to the lock position.
2. Disconnect the Transmission harness connector.
3. Ignition on, engine not running.
4. Measure the voltage of the (T14) Output Speed Sensor Power Supply circuit on the appropriate terminal of the Transmission harness connector.

Is the voltage 7.61 volts (± 0.65 of a volt)?

Yes

- Go To 5

No

- Go To 3

3. CHECK THE (T14) OUTPUT SPEED SENSOR POWER SUPPLY CIRCUIT FOR AN OPEN

1. Turn the ignition off to the lock position.
2. Disconnect the TCM C1 harness connector.
3. Measure the resistance of the (T14) Output Speed Sensor Power Supply circuit between the TCM C1 harness connector and the Transmission harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 4

No

- Repair the (T14) Output Speed Sensor Power Supply circuit for an open.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK THE (T14) OUTPUT SPEED SENSOR POWER SUPPLY CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance between ground and the (T14) Output Speed Sensor Power Supply Signal circuit.

Is the resistance below 100k Ohms?

Yes

- Repair the (T14) Output Speed Sensor Power Supply circuit for a short to ground.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

5. CHECK THE (T13) OUTPUT SPEED SENSOR SIGNAL CIRCUIT FOR AN OPEN

1. Disconnect the TCM C1 harness connector.
2. Measure the resistance of the (T13) Output Speed Sensor Signal circuit between the TCM C1 harness connector and the Transmission harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 6

No

- Repair the (T13) Output Speed Sensor Signal circuit for an open.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

6. CHECK THE (T13) OUTPUT SPEED SENSOR SIGNAL CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance between ground and the (T13) Output Speed Sensor Signal circuit.

Is the resistance below 100k Ohms?

Yes

- Repair the (T13) Output Speed Sensor Signal circuit for a short to ground.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 7

7. CHECK THE (T13) OUTPUT SPEED SENSOR SIGNAL CIRCUIT FOR A SHORT TO ANOTHER CIRCUIT

1. Measure the resistance between the (T13) Output Speed Sensor Signal circuit and all other circuits in the TCM C1 harness connector.

Is the resistance below 100k Ohms between the (T13) Output Speed Sensor Signal circuit and any other circuit(s) in the TCM C1 harness connector?

Yes

- Repair the (T13) Output Speed Sensor Signal circuit for a short to another circuit(s).
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 8

8. REPLACE THE OUTPUT SPEED SENSOR

1. Turn the ignition off to the lock position.
2. Remove the transmission side cover and inspect the internal harness.
3. Replace the Output Speed Sensor in accordance with the service information.
4. Inspect the internal tone ring for damaged or missing teeth.
5. Reconnect all connectors.
6. Clear DTCs and road test the vehicle under the conditions in which the original DTC set.

Did the Output Speed Sensor DTC reset?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL**.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Test complete.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

9. CHECK THE WIRING AND CONNECTORS

1. The conditions necessary to set this DTC are not present at this time.
2. Use the Freeze Frame Data to help duplicate the conditions in which the DTC originally set. Pay particular attention to the DTC set conditions, such as, VSS, MAP, ECT, and Load
3. Using the schematics as a guide, visually inspect the related wiring

harness. Look for any chafed, pierced, pinched, or partially broken wires.

4. Visually inspect the related wiring harness connectors. Look for broken, bent, pushed out, or corroded terminals.
5. Wiggle the wiring and connectors while checking for any possible open or shorted circuits.
6. Check for any Service Information Tune-ups or Technical Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test Complete.

P0729-00-GEAR 6 SHIFT INCORRECT RATIO

For a complete wiring diagram, **refer to appropriate SYSTEM WIRING DIAGRAMS article** .

THEORY OF OPERATION

The purpose of this diagnostic is to check the rationality between the input speed sensor and the output speed sensor. Transmission input speed should be synchronized with output speed. The calculated input speed is determined by multiplying the output speed sensor signal and the gear ratio for each gear. The malfunction conditions which can cause a difference between the calculated and measured input speeds include input speed sensor failures, output speed sensor failures, solenoid failures, hydraulic system failures, gear failures, and clutch failures.

WHEN MONITORED

Engine speed is greater than or equal to 400 RPM.

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Transmission fluid temperature is greater than or equal to -10 °C (14 °F)

Input speed is greater than or equal to 0 RPM.

Time passed from gear shift is greater than or equal to 1 second.

Solenoid supply voltage is greater than or equal to 9 volts.

Driving Conditions:

Output speed is greater than or equal to 200 RPM.

Sixth gear is engaged.

SET CONDITION

The failure is detected if the difference between the measured input speed and the calculated input speed is greater than or equal to 200 RPM for 1 second time or for 4 occurrences.

POSSIBLE CAUSES

Possible Causes

INTERNAL TRANSMISSION PROBLEM
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST

CHECK FOR INTERNAL TRANSMISSION PROBLEM

NOTE: Transmission gear ratio errors can be caused by intermittent speed sensor(s) errors. If there are any speed sensor DTCs set, perform the speed sensor diagnostic test before diagnosing any gear ratio error DTC. Review the event data and the When Monitored and Set Conditions for the DTC and attempt to duplicate the condition the DTC set.

1. Determine if there are any Transmission mechanical problems present.
2. Remove the Transmission Oil Pan and inspect for excessive debris or a plugged Transmission Oil Filter.
3. Inspect valve body for foreign material.

Is there any Transmission mechanical problems present?

Yes

- Repair as necessary in accordance with the Service Information.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

P0731-00-GEAR 1 SHIFT INCORRECT RATIO

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

THEORY OF OPERATION

The purpose of this diagnostic is to check the rationality between the input speed sensor and the output speed sensor. Transmission input speed should be synchronized with output speed. The calculated input speed is determined by multiplying the output speed sensor signal and the gear ratio for each gear. The malfunction conditions which can cause a difference between the calculated and measured input speeds include input speed sensor failures, output speed sensor failures, solenoid failures, hydraulic system failures, gear failures, and clutch failures.

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WHEN MONITORED

Engine speed is greater than or equal to 400 RPM.

Transmission fluid temperature is greater than or equal to -10 °C (14 °F)

Input speed is greater than or equal to 0 RPM.

Time passed from gear shift is greater than or equal to 1 second.

Solenoid supply voltage is greater than or equal to 9 volts.

Driving Conditions:

Output speed is greater than or equal to 150 RPM.

First gear is engaged.

SET CONDITION

If the measured input speed is 200 RPM greater than or equal to the calculated input speed.

POSSIBLE CAUSES

Possible Causes
INTERNAL TRANSMISSION PROBLEM
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST

CHECK FOR INTERNAL TRANSMISSION PROBLEM

NOTE: Transmission gear ratio errors can be caused by intermittent speed sensor(s) errors. If there are any speed sensor DTCs set, perform the speed sensor diagnostic test before diagnosing any gear ratio error DTC. Review the event data and the When Monitored and Set

Conditions for the DTC and attempt to duplicate the condition the DTC set.

1. Determine if there are any Transmission mechanical problems present.
2. Remove the Transmission Oil Pan and inspect for excessive debris or a plugged Transmission Oil Filter.
3. Inspect valve body for foreign material.

Is there any Transmission mechanical problems present?

Yes

- Repair as necessary in accordance with the Service Information.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

P0732-00-GEAR 2 SHIFT INCORRECT RATIO

For a complete wiring diagram, **refer to appropriate SYSTEM WIRING DIAGRAMS article** .

THEORY OF OPERATION

The purpose of this diagnostic is to check the rationality between the input speed sensor and the output speed sensor. Transmission input speed should be synchronized with output speed. The calculated input speed is determined by multiplying the output speed sensor signal and the gear ratio for each gear. The malfunction conditions which can cause a difference between the calculated and measured input speeds include input speed sensor failures, output speed sensor

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failures, solenoid failures, hydraulic system failures, gear failures, and clutch failures.

WHEN MONITORED

Engine speed is greater than or equal to 400 RPM.

Transmission fluid temperature is greater than or equal to -10 °C (14 °F)

Input speed is greater than or equal to 0 RPM.

Time passed from gear shift is greater than or equal to 1 second.

Solenoid supply voltage is greater than or equal to 9 volts.

Driving Conditions:

Output speed is greater than or equal to 200 RPM.

Second gear is engaged.

SET CONDITION

The failure is detected if the difference between the measured input speed and the calculated input speed is greater than or equal to 200 RPM for 1 second time or for 4 occurrences.

POSSIBLE CAUSES

Possible Causes
INTERNAL TRANSMISSION PROBLEM
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST

CHECK FOR INTERNAL TRANSMISSION PROBLEM

NOTE: Transmission gear ratio errors can be caused by

intermittent speed sensor(s) errors. If there are any speed sensor DTCs set, perform the speed sensor diagnostic test before diagnosing any gear ratio error DTC. Review the event data and the When Monitored and Set Conditions for the DTC and attempt to duplicate the condition the DTC set.

1. Determine if there are any Transmission mechanical problems present.
2. Remove the Transmission Oil Pan and inspect for excessive debris or a plugged Transmission Oil Filter.
3. Inspect valve body for foreign material.

Is there any Transmission mechanical problems present?

Yes

- Repair as necessary in accordance with the Service Information.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

P0733-00-GEAR 3 SHIFT INCORRECT RATIO

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

THEORY OF OPERATION

The purpose of this diagnostic is to check the rationality between the input speed sensor and the output speed sensor. Transmission input speed should be

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synchronized with output speed. The calculated input speed is determined by multiplying the output speed sensor signal and the gear ratio for each gear. The malfunction conditions which can cause a difference between the calculated and measured input speeds include input speed sensor failures, output speed sensor failures, solenoid failures, hydraulic system failures, gear failures, and clutch failures.

WHEN MONITORED

Engine speed is greater than or equal to 400 RPM.

Transmission fluid temperature is greater than or equal to -10 °C (14 °F)

Input speed is greater than or equal to 0 RPM.

Time passed from gear shift is greater than or equal to 1 second.

Solenoid supply voltage is greater than or equal to 9 volts.

Driving Conditions:

Output speed is greater than or equal to 200 RPM.

Third gear is engaged.

SET CONDITION

The failure is detected if the difference between the measured input speed and the calculated input speed is greater than or equal to 200 RPM for 1 second time or for 4 occurrences.

POSSIBLE CAUSES

Possible Causes

INTERNAL TRANSMISSION PROBLEM
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST

CHECK FOR INTERNAL TRANSMISSION PROBLEM

NOTE: Transmission gear ratio errors can be caused by intermittent speed sensor(s) errors. If there are any speed sensor DTCs set, perform the speed sensor diagnostic test before diagnosing any gear ratio error DTC. Review the event data and the When Monitored and Set Conditions for the DTC and attempt to duplicate the condition the DTC set.

1. Determine if there are any Transmission mechanical problems present.
2. Remove the Transmission Oil Pan and inspect for excessive debris or a plugged Transmission Oil Filter.
3. Inspect valve body for foreign material.

Is there any Transmission mechanical problems present?

Yes

- Repair as necessary in accordance with the Service Information.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

P0734-00-GEAR 4 SHIFT INCORRECT RATIO

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

THEORY OF OPERATION

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The purpose of this diagnostic is to check the rationality between the input speed sensor and the output speed sensor. Transmission input speed should be synchronized with output speed. The calculated input speed is determined by multiplying the output speed sensor signal and the gear ratio for each gear. The malfunction conditions which can cause a difference between the calculated and measured input speeds include input speed sensor failures, output speed sensor failures, solenoid failures, hydraulic system failures, gear failures, and clutch failures.

WHEN MONITORED

Engine speed is greater than or equal to 400 RPM.

Transmission fluid temperature is greater than or equal to -10 °C (14 °F)

Input speed is greater than or equal to 0 RPM.

Time passed from gear shift is greater than or equal to 1 second.

Solenoid supply voltage is greater than or equal to 9 volts.

Driving Conditions:

Output speed is greater than or equal to 200 RPM.

Fourth gear is engaged.

SET CONDITION

The failure is detected if the difference between the measured input speed and the calculated input speed is greater than or equal to 200 RPM for 1 second time or for 4 occurrences.

POSSIBLE CAUSES

Possible Causes

INTERNAL TRANSMISSION PROBLEM
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST**CHECK FOR INTERNAL TRANSMISSION PROBLEM**

NOTE: Transmission gear ratio errors can be caused by intermittent speed sensor(s) errors. If there are any speed sensor DTCs set, perform the speed sensor diagnostic test before diagnosing any gear ratio error DTC. Review the event data and the When Monitored and Set Conditions for the DTC and attempt to duplicate the condition the DTC set.

1. Determine if there are any Transmission mechanical problems present.
2. Remove the Transmission Oil Pan and inspect for excessive debris or a plugged Transmission Oil Filter.
3. Inspect valve body for foreign material.

Is there any Transmission mechanical problems present?

Yes

- Repair as necessary in accordance with the Service Information.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

P0735-00-GEAR 5 SHIFT INCORRECT RATIO

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

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THEORY OF OPERATION

The purpose of this diagnostic is to check the rationality between the input speed sensor and the output speed sensor. Transmission input speed should be synchronized with output speed. The calculated input speed is determined by multiplying the output speed sensor signal and the gear ratio for each gear. The malfunction conditions which can cause a difference between the calculated and measured input speeds include input speed sensor failures, output speed sensor failures, solenoid failures, hydraulic system failures, gear failures, and clutch failures.

WHEN MONITORED

Engine speed is greater than or equal to 400 RPM.

Transmission fluid temperature is greater than or equal to -10 °C (14 °F)

Input speed is greater than or equal to 0 RPM.

Time passed from gear shift is greater than or equal to 1 second.

Solenoid supply voltage is greater than or equal to 9 volts.

Driving Conditions:

Output speed is greater than or equal to 200 RPM.

Fifth gear is engaged.

SET CONDITION

The failure is detected if the difference between the measured input speed and the calculated input speed is greater than or equal to 200 RPM for 1 second time or for 4 occurrences.

POSSIBLE CAUSES

Possible Causes
INTERNAL TRANSMISSION PROBLEM TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before

proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST**CHECK FOR INTERNAL TRANSMISSION PROBLEM**

NOTE: Transmission gear ratio errors can be caused by intermittent speed sensor(s) errors. If there are any speed sensor DTCs set, perform the speed sensor diagnostic test before diagnosing any gear ratio error DTC. Review the event data and the When Monitored and Set Conditions for the DTC and attempt to duplicate the condition the DTC set.

1. Determine if there are any Transmission mechanical problems present.
2. Remove the Transmission Oil Pan and inspect for excessive debris or a plugged Transmission Oil Filter.
3. Inspect valve body for foreign material.

Is there any Transmission mechanical problems present?

Yes

- Repair as necessary in accordance with the Service Information.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

P0741-00-TORQUE CONVERTER CLUTCH CIRCUIT PERFORMANCE-STUCK OFF

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

THEORY OF OPERATION

The purpose of this diagnostic is to check the mechanical performance of the torque converter clutch (TCC). The TCC is a mechanical torque transfer device controlled by transmission fluid pressure to increase fuel economy through reducing frictional losses of the torque converter. The malfunction condition is detected if the torque converter clutch is stuck off. This failure may be caused by conditions including transmission fluid contamination or TCC mechanical failure.

WHEN MONITORED

No pressure control solenoid "A" failures (electrical or functionality).

No transmission range sensor failures (electrical or rationality).

No input speed sensor circuit failures (electrical or rationality).

Engine speed signal via CAN is not SNA (Signal Not Available).

Accelerator pedal position signal via CAN is not SNA (Signal Not Available).

TCM operates torque converter clutch lock up control.

Target slip is less than 10 RPM.

Line pressure is greater than 400 kPa (58 psi).

SET CONDITION

The failure is detected if the control duty cycle of the torque converter clutch is greater than 98 percent and the clutch slip amount is greater than 100 RPM for 4 seconds.

POSSIBLE CAUSES

Possible Causes
TCC HYDRAULIC CONTROL CIRCUIT LOCKUP CONTROL VALVE STICKING IN ITS BORE

TORQUE CONVERTER
TCC SOLENOID
INTERNAL TRANSMISSION
VALVE BODY
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST

1. CHECK FOR RELATED DTCS

1. Ignition on, engine off.
2. Using the scan tool, check DTCs.

Are there any Speed Sensor and/or TCC DTCs present?

Yes

- Refer to **DIAGNOSTIC CODE INDEX** and perform the appropriate diagnostic procedure.

No

- Go To 2

2. CHECK THE TORQUE CONVERTER CLUTCH PERFORMANCE

1. Operate the vehicle until the transmission sump temperature is to greater than 65° C (150° F).
2. Using the shifter lever, select third gear.
3. Accelerate the vehicle to third gear and hold.
4. With the scan tool, verify the TCC status is reading "SLIP".
5. Monitor TCC Desired Slip and TCC Actual Slip.
6. Operate the vehicle at 49 kp/h (30 mph) while maintaining third gear.
7. Lightly depress the accelerator and hold the throttle position steady between 40 and 50%.
8. Slowly accelerate vehicle using steady throttle without causing TCC

Status to read "OPEN".

NOTE: If at any time during the above test the TCC Status changes from SLIP to OPEN, or the vehicle downshifts to a lower gear, the test is invalid and must be performed again.

9. Compare TCC Actual Slip and TCC Desired Slip during steady throttle acceleration with TCC Status continually reading "SLIP".

Does TCC Actual Slip exceed TCC Desired Slip by more than 60 RPM while accelerating at a steady throttle and staying in SLIP mode?

Yes

- Inspect transmission fluid for water contamination.
- Inspect internal transmission. Pay particular attention to the components related to the TCC such as possible missing Input Shaft Seal Ring, Lockup Control Valve sticking in its bore, and/or a leaking TCC Solenoid.
- If no internal transmission issues found, replace the Torque Converter.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 3

3. TRANSMISSION CONTROL MODULE (TCM)

1. Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. Check for Service Bulletins for any possible causes that may apply. If no problems are found, replace and program the TCM in accordance with the Service Information.
2. Perform TCC slip test to verify repair.

NOTE: To set P0741 fault, TCM must encounter three

events where the TCM cannot control TCC Actual Slip to TCC Desired Slip in a single key cycle.

Does the DTC reset?

Yes

- Inspect transmission fluid for water contamination.
- Inspect internal transmission. Pay particular attention to the components related to the TCC such as possible missing Input Shaft Seal Ring, Lockup Control Valve sticking in its bore, and/or a leaking TCC Solenoid.
- If no internal transmission issues are found, replace the Torque Converter in accordance with the Service Information.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test complete.

P0750-00-SHIFT SOLENOID 1 CONTROL CIRCUIT - OPEN

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

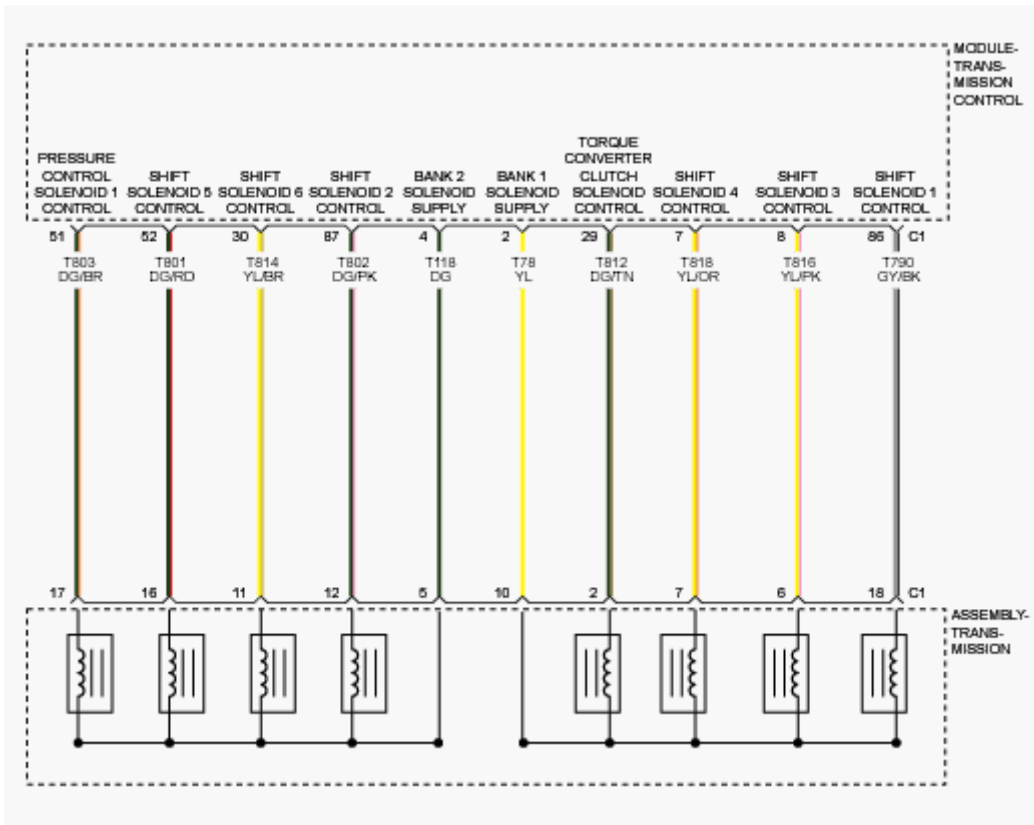


Fig. 11: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of the on/off shift solenoid A (1) and B (2) circuits. Shift solenoid A (1) engages the Low, Reverse clutch when activated or the Over drive clutch when deactivated. Shift solenoid B (2) engages the 3rd, 5th, Reverse clutch when activated. The electrical failures that are detected include short to battery, short to ground, and open circuit. The power stage driver, which is located in the TCM, detects these electrical malfunctions.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

Solenoid is commanded off (pulse width modulation duty cycle is 0%).

SET CONDITION

The failure is detected if measured voltage for solenoid output is between 1.3 volts and 4.7 volts for 0.32 of a second.

POSSIBLE CAUSES**Possible Causes**

BANK 1 SOLENOID POWER SUPPLY CIRCUIT OPEN
(T790) SHIFT SOLENOID A (1) CONTROL CIRCUIT OPEN
SHIFT SOLENOID A (1)
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST**1. CHECK IF DTC IS CURRENT**

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 5

2. CHECK THE (T78) BANK 1 SOLENOID POWER CIRCUIT FOR AN

OPEN

1. Turn the ignition off to the lock position.
2. Disconnect the Transmission C1 harness connectors.
3. Disconnect the TCM C1 harness connector.
4. Measure the resistance of the (T78) Bank 1 Solenoid Control circuit between the Transmission C1 harness connector and the TCM C1 harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 3

No

- Repair the (T78) Bank 1 Solenoid Control circuit for an open.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

3. CHECK THE (T790) SHIFT SOLENOID A (1) CONTROL CIRCUIT FOR AN OPEN

1. Measure the resistance of the (T790) Shift Solenoid A (1) Control circuit between the Transmission C1 harness connector and the TCM C1 harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 4

No

- Repair the (T790) Shift Solenoid A (1) Control circuit for an open.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK THE SHIFT SOLENOID A (1)

1. Turn the ignition off to the lock position.

2. Measure the resistance of the Shift Solenoid A (1) between the appropriate terminals at the Transmission C1 harness connector.

Is the resistance of the Shift Solenoid A (1) between 10 and 11 Ohms at 20° C (68° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL**.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Shift Solenoid A (1) in accordance with the Service Information.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

5. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24**

TRANSMISSION VERIFICATION TEST .

No

- Test Complete.

P0755-00-SHIFT SOLENOID 2 CONTROL CIRCUIT - OPEN

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

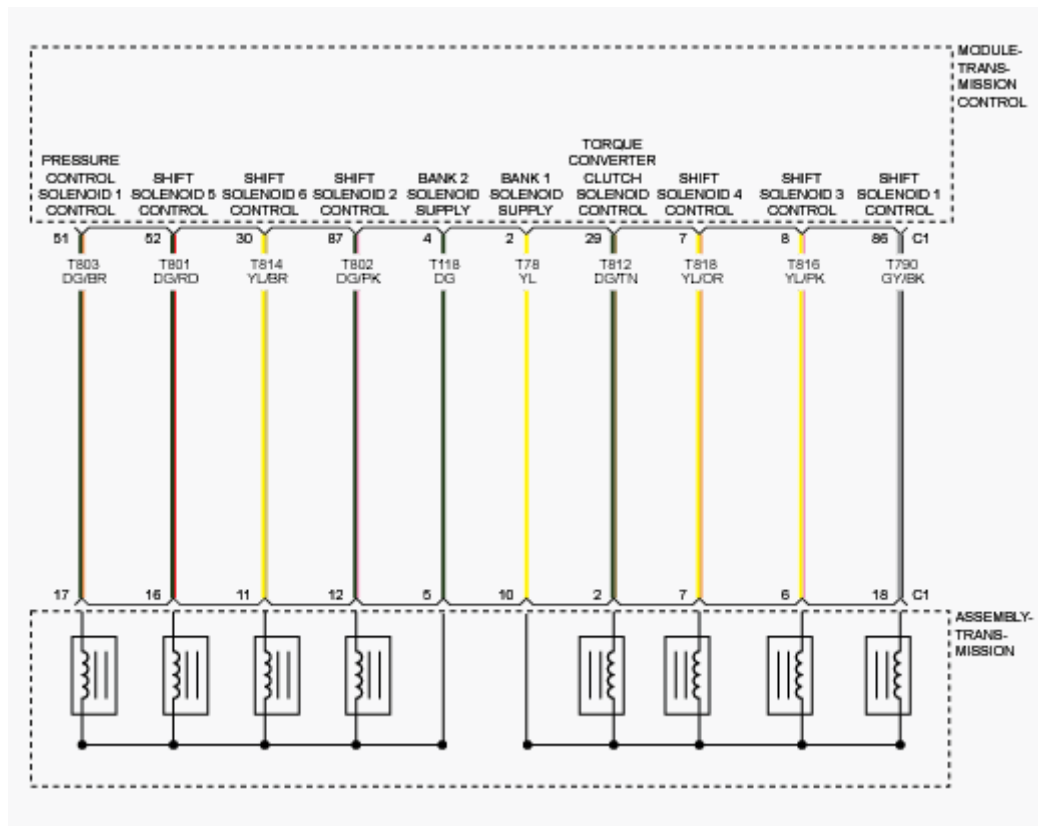


Fig. 12: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of the on/off shift solenoid A (1) and B (2) circuits. Shift solenoid A (1) engages the Low, Reverse clutch when activated or the Over drive clutch when deactivated. Shift solenoid B (2) engages the 3rd, 5th, Reverse clutch when activated. The electrical failures that are detected include short to battery, short to ground, and open circuit. The power stage driver, which is located in the TCM, detects these

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electrical malfunctions.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

Solenoid is commanded off (pulse width modulation duty cycle is 0%).

SET CONDITION

The failure is detected if measured voltage for solenoid output is between 1.3 volts and 4.7 volts.

POSSIBLE CAUSES

Possible Causes

BANK 2 SOLENOID POWER SUPPLY CIRCUIT OPEN
(T802) SHIFT SOLENOID B (2) CONTROL CIRCUIT OPEN
SHIFT SOLENOID B (2)
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST

1. CHECK IF DTC IS CURRENT

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 5

2. CHECK THE (T118) BANK 2 SOLENOID POWER CIRCUIT FOR AN OPEN

1. Turn the ignition off to the lock position.
2. Disconnect the Transmission C1 harness connectors.
3. Disconnect the TCM C1 harness connector.
4. Measure the resistance of the (T118) Bank 2 Solenoid Control circuit between the Transmission C1 harness connector and the TCM C1 harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 3

No

- Repair the (T118) Bank 2 Solenoid B (2) Control circuit for an open.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

3. CHECK THE (T802) SHIFT SOLENOID B (2) CONTROL CIRCUIT FOR AN OPEN

1. Measure the resistance of the (T802) Shift Solenoid B (2) Control circuit between the Transmission C1 harness connector and the TCM C1 harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 4

No

- Repair the (T802) Shift Solenoid B (2) Control circuit for an open.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK THE SHIFT SOLENOID B (2)

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Shift Solenoid B (2) between the appropriate terminals at the Transmission C1 harness connector.

Is the resistance of the Shift Solenoid B (2) between 10 and 11 Ohms at 20° C (68° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Shift Solenoid B (2) in accordance with the Service Information.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

5. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.

3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Test Complete.

P077C-00-OUTPUT SHAFT SPEED SENSOR CIRCUIT LOW

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

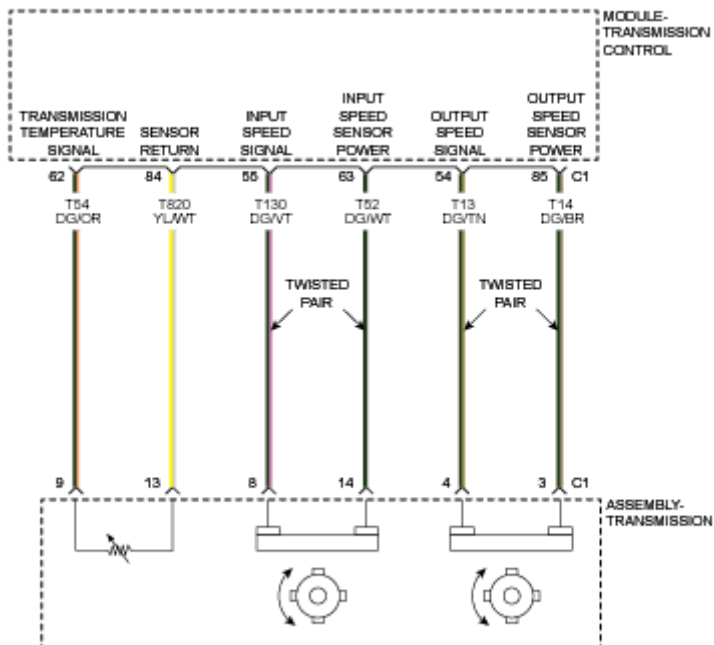


Fig. 13: Transmission Fluid Temperature & Speed Sensors Circuit Diagram
 Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

This is where you put the Theory of Operation.

WHEN MONITORED

Battery supply voltage is greater than 9 volts.

No output speed sensor circuit failures (electrical or rationality).

SET CONDITION

The failure is detected if the measured voltage of the output speed sensor circuit is less than 0.1 of a volt for 2 seconds.

POSSIBLE CAUSES**Possible Causes**

(T13) OUTPUT SPEED SIGNAL CIRCUIT OPEN
(T14) OUTPUT SPEED SENSOR POWER CIRCUIT OPEN
(T13) OUTPUT SPEED SIGNAL CIRCUIT SHORTED TO GROUND
(T14) OUTPUT SPEED SENSOR POWER CIRCUIT SHORTED TO GROUND
OUTPUT SPEED SENSOR
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST**1. CHECK IF THE DTC IS CURRENT**

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.

NOTE: It may be necessary to road test the vehicle to duplicate the original set conditions.

5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 9

2. CHECK THE (T14) OUTPUT SPEED SENSOR POWER SUPPLY CIRCUIT

1. Turn the ignition off to the lock position.
2. Disconnect the Transmission harness connector.
3. Ignition on, engine not running.
4. Measure the voltage of the (T14) Output Speed Sensor Power Supply circuit on the appropriate terminal of the Transmission harness connector.

Is the voltage 7.61 volts (± 0.65 of a volt)?

Yes

- Go To 5

No

- Go To 3

3. CHECK THE (T14) OUTPUT SPEED SENSOR POWER SUPPLY CIRCUIT FOR AN OPEN

1. Turn the ignition off to the lock position.
2. Disconnect the TCM C1 harness connector.
3. Measure the resistance of the (T14) Output Speed Sensor Power circuit between the TCM C1 harness connector and the Transmission harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 4

No

- Repair the (T14) Output Speed Sensor Power Supply circuit for an open.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK THE (T14) OUTPUT SPEED SENSOR POWER SUPPLY CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance between ground and the (T14) Output Speed Sensor Power Supply Signal circuit.

Is the resistance below 100k Ohms?

Yes

- Repair the (T14) Output Speed Sensor Power Supply circuit for a short to ground.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

5. CHECK THE (T13) OUTPUT SPEED SENSOR SIGNAL CIRCUIT FOR AN OPEN

1. Disconnect the TCM C1 harness connector.
2. Measure the resistance of the (T13) Output Speed Sensor Signal circuit

between the TCM C1 harness connector and the Transmission harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 6

No

- Repair the (T13) Output Speed Sensor Signal circuit for an open.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

6. CHECK THE (T13) OUTPUT SPEED SENSOR SIGNAL CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance between ground and the (T13) Output Speed Sensor Signal circuit.

Is the resistance below 100k Ohms?

Yes

- Repair the (T13) Output Speed Sensor Signal circuit for a short to ground.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 7

7. CHECK THE (T13) OUTPUT SPEED SENSOR SIGNAL CIRCUIT FOR A SHORT TO ANOTHER CIRCUIT

1. Measure the resistance between the (T13) Output Speed Sensor Signal circuit and all other circuits in the TCM C1 harness connector.

Is the resistance below 100k Ohms between the (T13) Output Speed Sensor Signal circuit and any other circuit(s) in the TCM C1 harness connector?

Yes

- Repair the (T13) Output Speed Sensor Signal circuit for a short to another circuit(s).
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 8

8. REPLACE THE OUTPUT SPEED SENSOR

1. Turn the ignition off to the lock position.
2. Remove the transmission side cover and inspect the internal harness.
3. Replace the Output Speed Sensor in accordance with the service information.
4. Inspect the internal tone ring for damaged or missing teeth.
5. Reconnect all connectors.
6. Clear DTCs and road test the vehicle under the conditions in which the original DTC set.

Did the Output Speed Sensor DTC reset?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test complete.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

9. CHECK THE WIRING AND CONNECTORS

1. The conditions necessary to set this DTC are not present at this time.
2. Use the Freeze Frame Data to help duplicate the conditions in which the DTC originally set. Pay particular attention to the DTC set conditions, such as, VSS, MAP, ECT, and Load
3. Using the schematics as a guide, visually inspect the related wiring harness. Look for any chafed, pierced, pinched, or partially broken wires.
4. Visually inspect the related wiring harness connectors. Look for broken, bent, pushed out, or corroded terminals.
5. Wiggle the wiring and connectors while checking for any possible open or shorted circuits.
6. Check for any Service Information Tune-ups or Technical Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test Complete.

P077D-00-OUTPUT SHAFT SPEED SENSOR CIRCUIT HIGH

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

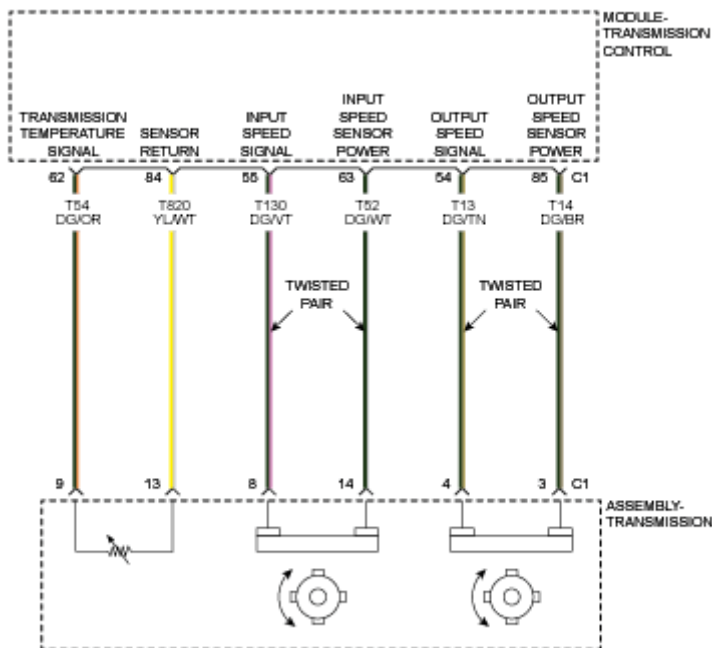


Fig. 14: Transmission Fluid Temperature & Speed Sensors Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

This is where you put the Theory of Operation.

WHEN MONITORED

Battery supply voltage is greater than 9 volts.

No output speed sensor circuit failures (electrical or rationality).

SET CONDITION

The failure is detected if the measured voltage of the output speed sensor circuit is greater than 3 volts for 2 seconds.

POSSIBLE CAUSES

Possible Causes

(T13) OUTPUT SPEED SIGNAL CIRCUIT SHORTED TO VOLTAGE
 (T14) OUTPUT SPEED SENSOR POWER CIRCUIT SHORTED TO VOLTAGE
 OUTPUT SPEED SENSOR

TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST

1. CHECK IF THE DTC IS CURRENT

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.

NOTE: It may be necessary to road test the vehicle to duplicate the original set conditions.

5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 6

2. CHECK THE (T14) OUTPUT SPEED SENSOR POWER SUPPLY CIRCUIT

1. Turn the ignition off to the lock position.
2. Disconnect the Transmission harness connector.
3. Ignition on, engine not running.
4. Measure the voltage of the (T14) Output Speed Sensor Power Supply circuit on the appropriate terminal of the Transmission harness connector.

Is the voltage 7.61 volts (± 0.65 of a volt)?

Yes

- Go To 4

No

- Go To 3

3. CHECK THE (T14) OUTPUT SPEED SENSOR POWER SUPPLY CIRCUIT FOR A SHORT TO VOLTAGE

1. Turn the ignition off to the lock position.
2. Disconnect the TCM C1 harness connector.
3. Turn the ignition to the run position.
4. Measure the voltage of the (T14) Output Speed Sensor Power Supply circuit between the TCM C1 harness connector and the Transmission harness connector.

Is the voltage above 0.5 of a volt?

Yes

- Go To 4

No

- Repair the (T14) Output Speed Sensor Power Supply circuit for a short to voltage.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK THE (T13) OUTPUT SPEED SIGNAL CIRCUIT FOR A SHORT TO VOLTAGE

1. Measure the voltage of the (T13) Output Speed signal circuit between the TCM C1 harness connector and the Transmission harness connector.

Is the voltage above 0.5 of a volt?

Yes

- Repair the (T13) Output Speed signal circuit for a short to voltage.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Go To 5

5. REPLACE THE OUTPUT SPEED SENSOR

1. Turn the ignition off to the lock position.
2. Remove the transmission side cover and inspect the internal harness.
3. Replace the Output Speed Sensor in accordance with the service information.
4. Inspect the internal tone ring for damaged or missing teeth.
5. Reconnect all connectors.
6. Clear DTCs and road test the vehicle under the conditions in which the original DTC set.

Did the Output Speed Sensor DTC reset?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL**.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Test complete.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

6. CHECK THE WIRING AND CONNECTORS

1. The conditions necessary to set this DTC are not present at this time.

2. Use the Freeze Frame Data to help duplicate the conditions in which the DTC originally set. Pay particular attention to the DTC set conditions, such as, VSS, MAP, ECT, and Load
3. Using the schematics as a guide, visually inspect the related wiring harness. Look for any chafed, pierced, pinched, or partially broken wires.
4. Visually inspect the related wiring harness connectors. Look for broken, bent, pushed out, or corroded terminals.
5. Wiggle the wiring and connectors while checking for any possible open or shorted circuits.
6. Check for any Service Information Tune-ups or Technical Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test Complete.

P07BF-00-INPUT-TURBINE SHAFT SPEED SENSOR 1 CIRCUIT LOW

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

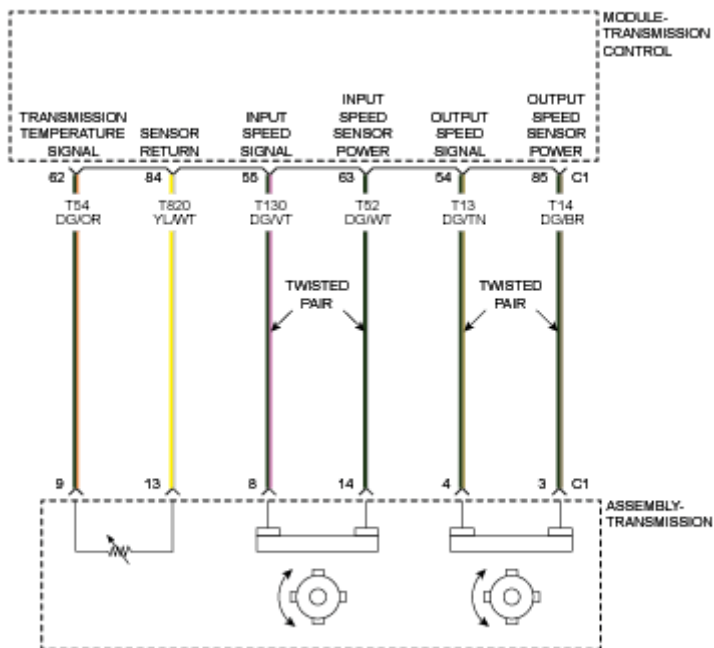


Fig. 15: Transmission Fluid Temperature & Speed Sensors Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of the input speed sensor circuit. The sensor is located in front of the target wheel which is connected to the transmission input shaft, and measures the rotation of the target wheel. The input speed sensor is a Hall Effect sensor with a pulse train output frequency range of 50 ~ 8000 RPM. The normal operating output voltage range of the input speed sensor is in the range of 0.8 to 1.5 V. The malfunction conditions detected by this diagnostic include short to battery, short to ground, and open circuit failures. These malfunctions are determined based upon the A/D conversion value.

WHEN MONITORED

Battery supply voltage is greater than 9 volts.

No input speed sensor circuit failures (electrical or rationality).

SET CONDITION

The failure is detected if the measured voltage of the input speed sensor circuit is less than 0.1 of a volt for 2 seconds.

POSSIBLE CAUSES**Possible Causes**

(T130) INPUT SPEED SIGNAL CIRCUIT OPEN
(T52) INPUT SPEED SENSOR POWER CIRCUIT OPEN
(T130) INPUT SPEED SIGNAL CIRCUIT SHORTED TO GROUND
(T52) INPUT SPEED SENSOR POWER CIRCUIT SHORTED TO GROUND
INPUT SPEED SENSOR
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST**1. CHECK IF THE DTC IS CURRENT**

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.

NOTE: It may be necessary to road test the vehicle to duplicate the original set conditions.

5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 9

2. CHECK THE (T52) POWER SUPPLY CIRCUIT

1. Turn the ignition off to the lock position.
2. Disconnect the Transmission harness connector.
3. Ignition on, engine not running.
4. Measure the voltage of the (T52) Power Supply circuit on the appropriate terminal of the Transmission harness connector.

Is the voltage 7.61 volts (± 0.65 of a volt)?

Yes

- Go To 5

No

- Go To 3

3. CHECK THE (T52) POWER SUPPLY CIRCUIT FOR AN OPEN

1. Turn the ignition off to the lock position.
2. Disconnect the TCM C1 harness connector.
3. Measure the resistance of the (T52) Power Supply circuit between the TCM C1 harness connector and the Transmission harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 4

No

- Repair the (T52) Power Supply circuit for an open.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK THE (T52) POWER SUPPLY CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance between ground and the (T52) Power Supply Signal circuit.

Is the resistance below 100k Ohms?

Yes

- Repair the (T52) Power Supply circuit for a short to ground.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

5. CHECK THE (T130) INPUT SPEED SENSOR SIGNAL CIRCUIT FOR AN OPEN

1. Disconnect the TCM C1 harness connector.
2. Measure the resistance of the (T130) Input Speed Sensor Signal circuit between the TCM C1 harness connector and the Transmission harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 6

No

- Repair the (T130) Input Speed Sensor Signal circuit for an open.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

6. CHECK THE (T130) INPUT SPEED SENSOR SIGNAL CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance between ground and the (T130) Input Speed

Sensor Signal circuit.

Is the resistance below 100k Ohms?

Yes

- Repair the (T130) Input Speed Sensor Signal circuit for a short to ground.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 7

7. CHECK THE (T130) INPUT SPEED SENSOR SIGNAL CIRCUIT FOR A SHORT TO ANOTHER CIRCUIT

1. Measure the resistance between the (T130) Input Speed Sensor Signal circuit and all other circuits in the TCM C1 harness connector.

Is the resistance below 100k Ohms between the (T130) Input Speed Sensor Signal circuit and any other circuit(s) in the TCM C1 harness connector?

Yes

- Repair the (T130) Input Speed Sensor Signal circuit for a short to another circuit(s).
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 8

8. REPLACE THE INPUT SPEED SENSOR

1. Turn the ignition off to the lock position.
2. Remove the transmission side cover and inspect the internal harness.
3. Replace the Input Speed Sensor in accordance with the service information.
4. Inspect the internal tone ring for damaged or missing teeth.

5. Reconnect all connectors.
6. Clear DTCs and road test the vehicle under the conditions in which the original DTC set.

Did the Input Speed Sensor DTC reset?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test complete.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

9. CHECK THE WIRING AND CONNECTORS

1. The conditions necessary to set this DTC are not present at this time.
2. Use the Freeze Frame Data to help duplicate the conditions in which the DTC originally set. Pay particular attention to the DTC set conditions, such as, VSS, MAP, ECT, and Load
3. Using the schematics as a guide, visually inspect the related wiring harness. Look for any chafed, pierced, pinched, or partially broken wires.
4. Visually inspect the related wiring harness connectors. Look for broken, bent, pushed out, or corroded terminals.
5. Wiggle the wiring and connectors while checking for any possible open or shorted circuits.
6. Check for any Service Information Tune-ups or Technical Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Test Complete.

P07C0-00-INPUT-TURBINE SHAFT SPEED SENSOR 1 CIRCUIT HIGH

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

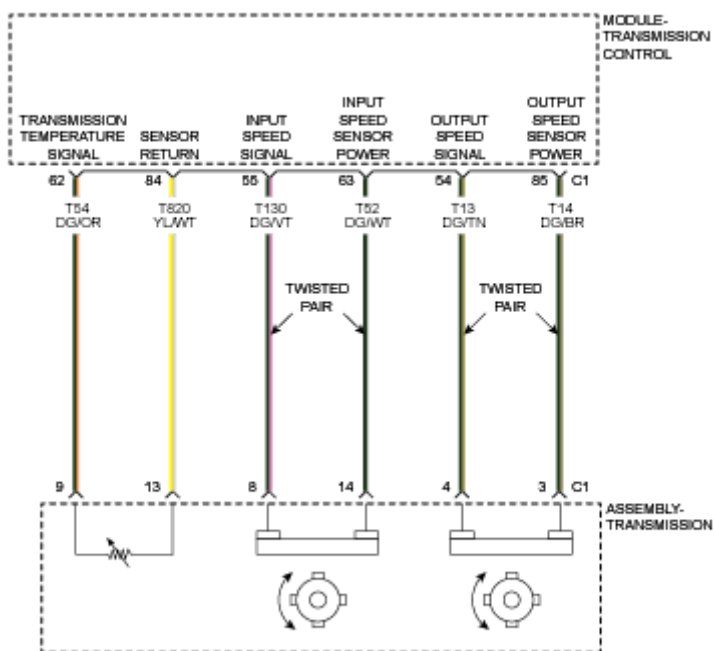


Fig. 16: Transmission Fluid Temperature & Speed Sensors Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of the input speed sensor circuit. The sensor is located in front of the target wheel which is connected to the transmission input shaft, and measures the rotation of the target

wheel. The input speed sensor is a Hall Effect sensor with a pulse train output frequency range of 50 ~ 8000 RPM. The normal operating output voltage range of the input speed sensor is in the range of 0.8 to 1.5 V. The malfunction conditions detected by this diagnostic include short to battery, short to ground, and open circuit failures. These malfunctions are determined based upon the A/D conversion value.

WHEN MONITORED

Battery supply voltage is greater than 9 volts.

No input speed sensor circuit failures (electrical or rationality).

SET CONDITION

The failure is detected if the measured voltage of the input speed sensor circuit is greater than 3 volts for 2 seconds.

POSSIBLE CAUSES**Possible Causes**

(T130) INPUT SPEED SIGNAL CIRCUIT SHORTED TO VOLTAGE
(T52) INPUT SPEED SENSOR POWER CIRCUIT SHORTED TO VOLTAGE
INPUT SPEED SENSOR
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST**1. CHECK IF THE DTC IS CURRENT**

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.

NOTE: It may be necessary to road test the vehicle to duplicate the original set conditions.

5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 6

2. CHECK THE (T52) INPUT SPEED SENSOR POWER SUPPLY CIRCUIT

- 1.
2. Turn the ignition off to the lock position.
3. Disconnect the Transmission harness connector.
4. Ignition on, engine not running.
5. Measure the voltage of the (T52) Input Speed Sensor Power Supply circuit on the appropriate terminal of the Transmission harness connector.

Is the voltage 7.61 volts (± 0.65 of a volt)?

Yes

- Go To 4

No

- Go To 3

3. CHECK THE (T52) INPUT SPEED SENSOR POWER SUPPLY CIRCUIT FOR A SHORT TO VOLTAGE

1. Turn the ignition off to the lock position.
2. Disconnect the TCM C1 harness connector.
3. Turn the ignition to the run position.

4. Measure the voltage of the (T52) Input Speed Sensor Power Supply circuit between the TCM C1 harness connector and the Transmission harness connector.

Is the voltage above 0.5 of a volt?

Yes

- Go To 4

No

- Repair the (T52) Input Speed Sensor Power Supply circuit for a short to voltage.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK THE (T130) INPUT SPEED SIGNAL CIRCUIT FOR A SHORT TO VOLTAGE

1. Measure the voltage of the (T130) Input Speed signal circuit between the TCM C1 harness connector and the Transmission harness connector.

Is the voltage above 0.5 of a volt?

Yes

- Repair the (T130) Input Speed signal circuit for a short to voltage.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 5

5. REPLACE THE INPUT SPEED SENSOR

1. Turn the ignition off to the lock position.
2. Remove the transmission side cover and inspect the internal harness.
3. Replace the Input Speed Sensor in accordance with the service information.

4. Inspect the internal tone ring for damaged or missing teeth.
5. Reconnect all connectors.
6. Clear DTCs and road test the vehicle under the conditions in which the original DTC set.

Did the Input Speed Sensor DTC reset?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL**.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Test complete.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

6. CHECK THE WIRING AND CONNECTORS

1. The conditions necessary to set this DTC are not present at this time.
2. Use the Freeze Frame Data to help duplicate the conditions in which the DTC originally set. Pay particular attention to the DTC set conditions, such as, VSS, MAP, ECT, and Load
3. Using the schematics as a guide, visually inspect the related wiring harness. Look for any chafed, pierced, pinched, or partially broken wires.
4. Visually inspect the related wiring harness connectors. Look for broken, bent, pushed out, or corroded terminals.
5. Wiggle the wiring and connectors while checking for any possible open or shorted circuits.
6. Check for any Service Information Tune-ups or Technical Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test Complete.

P0885-00-TCM POWER CONTROL CIRCUIT

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

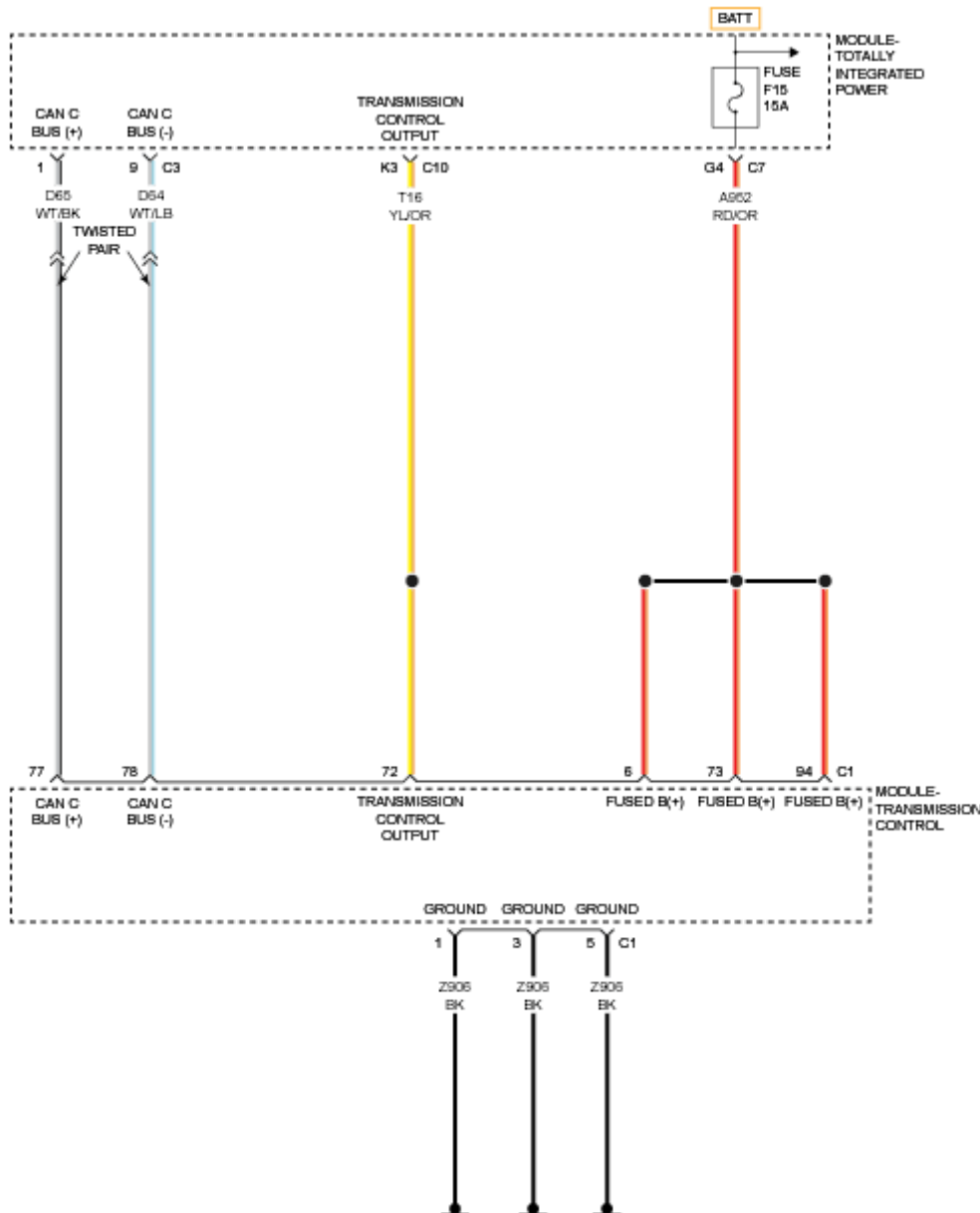


Fig. 17: Transmission Control Module Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic procedure is to check the electrical performance of the power source which supplies the solenoid power circuit. The malfunction conditions detected by this diagnostic include out of range high and out of range low failures. The TCM measures the power source using a common input internal to the controller.

There are two solenoid power circuits (High Side Driver 1 and High Side Driver

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2) within the TCM supplying battery voltage to two banks of four solenoids each. The diagnostic checks that the voltage supplied to these two solenoid power circuits is in the normal operating range.

WHEN MONITORED

Battery voltage is greater than or equal to 9 volts and less than or equal to 22 volts.

Time since high side driver commanded on is greater than or equal to 0.3 of a second.

SET CONDITION

The failure is detected if the internally measured voltage of the power source in the TCM is less than 7 volts or greater than 24.5 volts for 0.2 of a second.

POSSIBLE CAUSES

Possible Causes
TCM POWER INPUT CIRCUITS
TCM GROUND CIRCUITS
CIRCUIT T78 SHORTED TO GROUND
CIRCUIT T118 SHORTED TO GROUND
VEHICLE CHARGING SYSTEM
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE.

DIAGNOSTIC TEST

1. CHECK IF DTC IS CURRENT

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.

5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 9

2. CHECK FOR ENGINE CHARGING SYSTEM DTCS

1. With the scan tool, read Engine DTCs.

Are any Engine Charging System DTCs present?

Yes

- Repair any Charging System DTCs before proceeding. After repairing the Charging System, perform the Transmission Verification test to verify the transmission and or controller was not damaged. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 3

3. CHECK FOR SOLENOID SUPPLY CIRCUIT DTCS

1. Refer to recorded Transmission DTCs.

Were DTCs P0962 and or P0979 Set?

Yes

- Perform the appropriate diagnostic procedure. Refer to **DIAGNOSTIC CODE INDEX** .
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go to 4.

4. CHECK SYSTEM VOLTAGE

1. Start the engine.
2. With the scan tool, under transmission, check system voltage.

Is the transmission system voltage above 9.0 volts?

Yes

- Go To 5

No

- Go To 7

5. CHECK IF VOLTAGE IS GREATER THAN 16.9 VOLTS

1. Start the engine and raise the engine speed to 2000 RPM.
2. With the scan tool, monitor the Transmission system voltage for at least 60 seconds.

Does the Transmission system voltage read above 16.9 volts for any period of time?

Yes

- Repair the charging system for an over charging condition. and repair any Charging System symptoms before proceeding. Refer to **DIAGNOSIS AND TESTING** . After repairing the Charging System, perform the Transmission Verification test to verify the transmission and or controller was not damaged.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 6

6. VERIFY IF VEHICLE WAS JUMP STARTED WITH 24-VOLT SYSTEM

1. Verify if the vehicle was jump started by another vehicle using a 24-

volt charging system.

Was the vehicle jump started by another vehicle using a 24-volt charging system?

Yes

- This is the cause of the DTC. Erase the DTC and return the vehicle to the customer.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 9

7. CHECK THE TCM POWER INPUT CIRCUITS

1. Turn the ignition off to the lock position.
2. Disconnect the TCM C1 harness connector.
3. Ignition ON, Engine Not Running.
4. Using a 12-volt test light connected to ground, check the TCM Power Input circuits at the Transmission Control Module (TCM) C1 harness connector.

NOTE: **The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.**

Does the test light illuminate brightly?

Yes

- Go To 8

No

- Repair the TCM Power Input circuits for an open or high resistance.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

8. CHECK THE TCM GROUND CIRCUITS

1. Ignition ON, Engine Not Running.
2. Using a 12-volt test light connected to B(+), check the ground circuits at the Transmission Control Module (TCM) C1 harness connector.

NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.

Does the test light illuminate brightly?

Yes

- Replace and program the TCM in accordance with the service information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL**.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Repair the TCM grounds circuits for an open or high resistance.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

9. INTERMITTENT WIRING AND CONNECTORS

1. The conditions necessary to set this DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.

Were there any problems found?

Yes

- Repair as necessary.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Test Complete.

P0951-00-AUTOSTICK CONTROL CIRCUIT PERFORMANCE

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

THEORY OF OPERATION

This DTC checks if the shifter is in P, R or N while the Autostick is commanding either an upshift or downshift of the transmission for calibrated amount of time or if the Autostick circuit is commanding both an upshift and downshift of the transmission at the same time for calibrated amount of time.

WHEN MONITORED

TCM is in power on state and initialization is complete.

Battery voltage is more than or equal to 9 volts.

Engine speed is more than or equal to 400 RPM.

SET CONDITION

Autostick is commanding either an upshift or downshift of the transmission in P, R or N. Or, the Autostick circuit is commanding both an upshift and downshift of the transmission at the same time.

POSSIBLE CAUSES

Possible Causes
SHIFT LEVER ASSEMBLY

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE.

DIAGNOSTIC TEST

1. CHECK IF DTC IS CURRENT

1. With the scan tool, read TCM DTCs.

2. Record the Environmental Data and any DTCs.
3. With the scan tool, erase DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. With the scan tool, read TCM DTCs.

Did the DTC reset?

Yes

- Using the schematics as a guide, check the Electric Shift Module (ESM) terminals and connectors for corrosion, damage or pushed out terminals. Pay particular attention to the power and ground circuits. If no problems are found, replace the ESM and perform programming procedures in accordance with the Service Information.
- Perform the Transmission Verification Test. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go to 2.

2. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform the Transmission Verification Test. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test complete.

P0960-00-PRESSURE CONTROL SOLENOID 1 CONTROL CIRCUIT OPEN

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

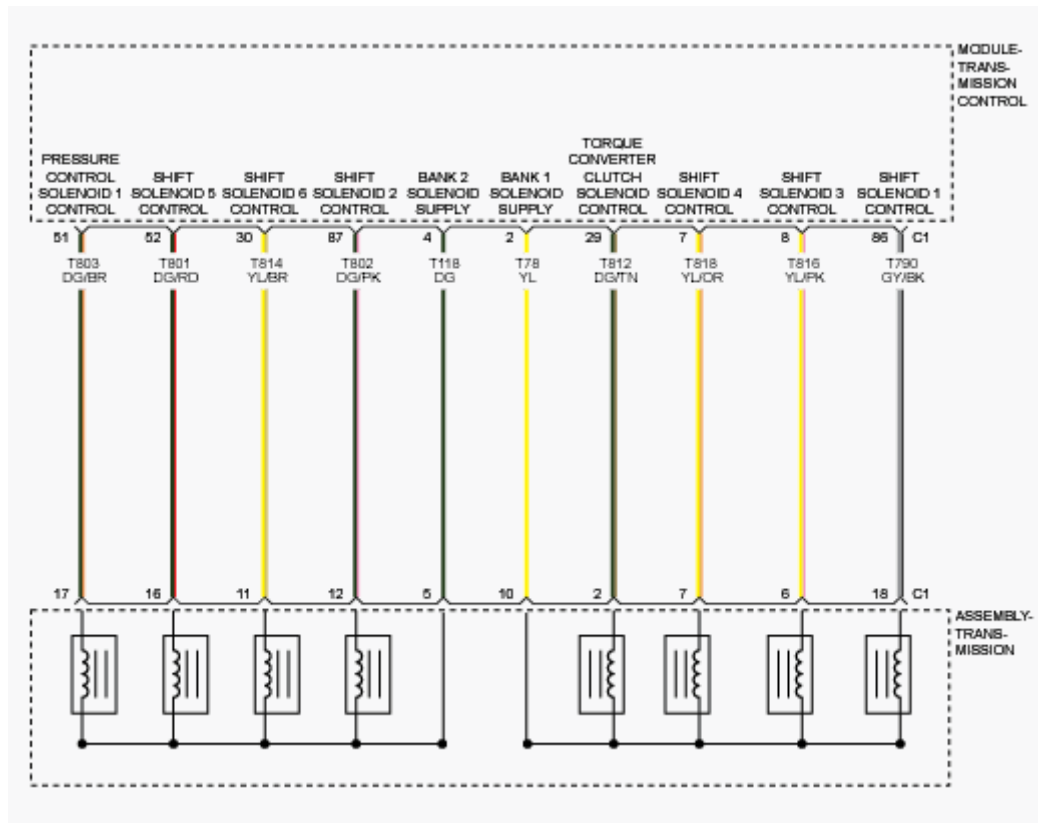


Fig. 18: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of each of the six variable force solenoid circuits. The six variable force solenoids include a shift solenoid C which controls the 3rd, 5th, Reverse clutch, shift solenoid D which controls the Over Drive clutch, shift solenoid E which controls the Under Drive brake, shift solenoid F which controls the 2nd, 6th brake, pressure control solenoid A which controls the hydraulic line pressure, and torque converter clutch pressure control solenoid which controls the torque converter lock up clutch. The electrical failures that are detected include short to battery, short to

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ground, and open circuit. The power stage driver, which is located in the TCM, detects these electrical malfunctions.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

Solenoid is commanded off (pulse width modulation duty cycle is 0%).

SET CONDITION

The failure is detected if measured voltage for solenoid output is between 1.3 volts and 4.7 volts for 0.32 of a second.

POSSIBLE CAUSES

Possible Causes

(T118) BANK 2 SOLENOID POWER SUPPLY CIRCUIT OPEN
(T803) PRESSURE CONTROL SOLENOID A (1) CONTROL CIRCUIT OPEN
PRESSURE CONTROL SOLENOID A (1)
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST

1. CHECK IF DTC IS CURRENT

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the

conditions that set the DTC.

5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 5

2. CHECK THE (T118) BANK 2 SOLENOID POWER CIRCUIT FOR AN OPEN

1. Turn the ignition off to the lock position.
2. Disconnect the Transmission C1 harness connectors.
3. Disconnect the TCM C1 harness connector.
4. Measure the resistance of the (T118) Bank 2 Solenoid Power circuit between the Transmission C1 harness connector and the TCM C1 harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 3

No

- Repair the (T118) Bank 2 Solenoid Power circuit for an open.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

3. CHECK THE (T803) PRESSURE CONTROL SOLENOID A (1) CONTROL CIRCUIT FOR AN OPEN

1. Measure the resistance of the (T803) Pressure Control Solenoid A (1) Control circuit between the Transmission C1 harness connector and the TCM C1 harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 4

No

- Repair the (T803) Pressure Control Solenoid A (1) Control circuit for an open.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

4. CHECK THE PRESSURE CONTROL SOLENOID A (1)

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Pressure Control Solenoid A (1) between the appropriate terminals at the Transmission C1 harness connector.

Is the resistance of the Pressure Control Solenoid A (1) 5.1 Ohms (± 0.3 Ohm) at 25° C (77° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Pressure Control Solenoid A (1) in accordance with the Service Information.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

5. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.

2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Test Complete.

P0961-00-PRESSURE CONTROL SOLENOID 1 CONTROL CIRCUIT PERFORMANCE

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

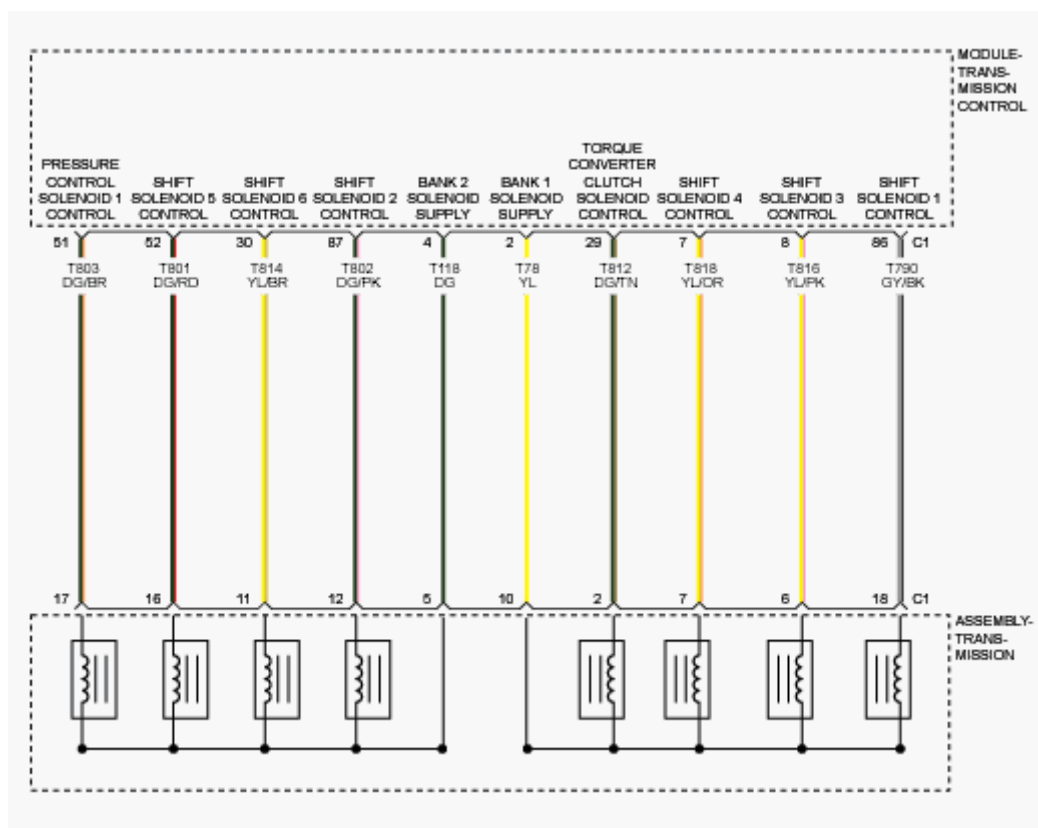


Fig. 19: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC**THEORY OF OPERATION**

The purpose of this diagnostic is to check the functionality of each of the six variable force solenoid circuits. The six variable force solenoids include a shift solenoid C which controls the 3rd, 5th, Reverse clutch, shift solenoid D which controls the Over Drive clutch, shift solenoid E which controls the Under Drive brake, shift solenoid F which controls the 2nd, 6th brake, pressure control solenoid A which controls the hydraulic line pressure, and torque converter clutch pressure control solenoid which controls the torque converter lock up clutch. The malfunction condition is detected if the measured solenoid feedback current does not correlate to the TCM commanded solenoid current. This failure may be caused by conditions such as internal circuit corrosion or manufacturing defects.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 volts and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

No variable force solenoid circuit failures.

Solenoid control duty cycle is 0%.

SET CONDITION

The failure is detected if the measured solenoid feedback current is greater than 50 mA but less than or equal to 550 mA of the commanded solenoid current for 320 ms.

POSSIBLE CAUSES

Possible Causes
CIRCUIT(S) HIGH RESISTANCE
(T803) PRESSURE CONTROL SOLENOID A (1) CONTROL CIRCUIT

**SHORTED TO GROUND
PRESSURE CONTROL SOLENOID A (1)
TRANSMISSION CONTROL MODULE (TCM)**

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE.

DIAGNOSTIC TEST

1. CHECK IF DTC IS CURRENT

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 6

2. CHECK THE PRESSURE CONTROL SOLENOID A (1) CIRCUITS FOR HIGH RESISTANCE

1. Turn the ignition off to the lock position.
2. Disconnect the Transmission C1 harness connectors.
3. Disconnect the TCM C1 harness connector.
4. Using the schematics as a guide, inspect the Transmission C1 and TCM C1 harness connectors, pins and terminals for the Pressure Control Solenoid A (1) circuits for corrosion, damage, or terminal push out.

Were any problems found?

Yes

- Repair as necessary.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 3

3. CHECK THE (T118) BANK 2 SOLENOID POWER CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance of the (T118) Bank 2 Solenoid Power circuit between ground and the Transmission C1 harness connector.

Is the resistance above 100k ohms?

Yes

- Go To 4

No

- Repair the (T118) Bank 2 Solenoid Power circuit for a short to ground.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK THE (T803) PRESSURE CONTROL SOLENOID A (1) CONTROL CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance of the (T803) Pressure Control Solenoid A (1) Control circuit between ground and the Transmission C1 harness connector.

Is the resistance above 100k ohms?

Yes

- Go To 5

No

- Repair the (T803) Pressure Control Solenoid A (1) Control circuit for a short to ground.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

5. CHECK THE PRESSURE CONTROL SOLENOID A (1)

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Pressure Control Solenoid A (1) between the appropriate terminals of the Transmission C1 harness connector.

Is the resistance of the Pressure Control Solenoid A (1) 5.1 Ohms (± 0.3 Ohm) at 25° C (77° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Pressure Control Solenoid A (1) in accordance with the Service Information.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

6. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Test Complete.

P0962-00-PRESSURE CONTROL SOLENOID 1 CONTROL CIRCUIT LOW

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

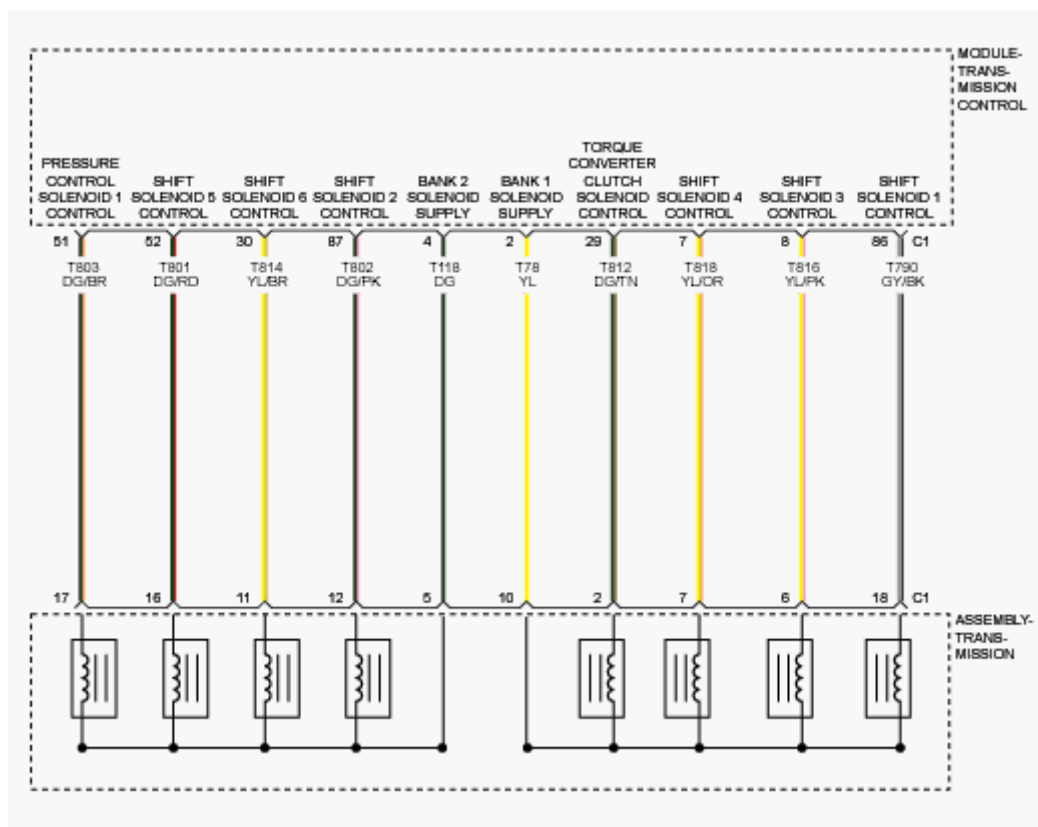


Fig. 20: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of each of

the six variable force solenoid circuits. The six variable force solenoids include a shift solenoid C which controls the 3rd, 5th, Reverse clutch, shift solenoid D which controls the Over Drive clutch, shift solenoid E which controls the Under Drive brake, shift solenoid F which controls the 2nd, 6th brake, pressure control solenoid A which controls the hydraulic line pressure, and torque converter clutch pressure control solenoid which controls the torque converter lock up clutch. The electrical failures that are detected include short to battery, short to ground, and open circuit. The power stage driver, which is located in the TCM, detects these electrical malfunctions.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

Solenoid is commanded off (pulse width modulation duty cycle is 0%).

SET CONDITION

The failure is detected if the measured voltage for solenoid output is less than or equal to 1.3 volts for 0.32 of a second.

POSSIBLE CAUSES**Possible Causes**

(T803) PRESSURE CONTROL SOLENOID A (1) CONTROL CIRCUIT
SHORT TO GROUND
PRESSURE CONTROL SOLENOID A (1)
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST

1. CHECK IF DTC IS CURRENT

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 4

2. CHECK THE (T803) PRESSURE CONTROL SOLENOID A (1) CONTROL CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance of the (T803) Pressure Control Solenoid A (1) Control circuit between ground and the Transmission C1 harness connector.

Is the resistance above 100k ohms?

Yes

- Go To 3

No

- Repair the (T803) Pressure Control Solenoid A (1) Control circuit for a short to ground.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

3. CHECK THE PRESSURE CONTROL SOLENOID A (1)

1. Turn the ignition off to the lock position.

2. Measure the resistance of the Pressure Control Solenoid A (1) between the appropriate terminals of the Transmission C1 harness connector.

Is the resistance of the Pressure Control Solenoid A (1) 5.1 Ohms (± 0.3 Ohm) at 25° C (77° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL**.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Pressure Control Solenoid A (1) in accordance with the Service Information.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

4. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to

6F24 TRANSMISSION VERIFICATION TEST .

No

- Test Complete.

P0963-00-PRESSURE CONTROL SOLENOID 1 CONTROL CIRCUIT HIGH

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

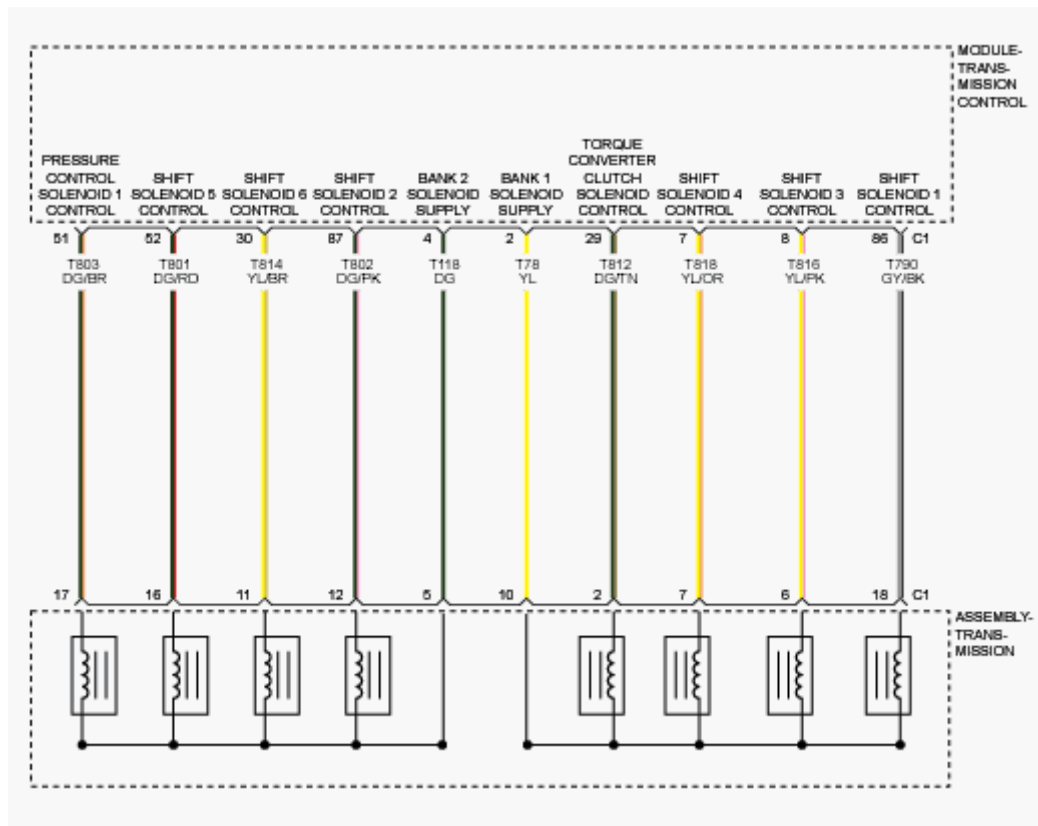


Fig. 21: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of each of the six variable force solenoid circuits. The six variable force solenoids include a shift solenoid C which controls the 3rd, 5th, Reverse clutch, shift solenoid D which controls the Over Drive clutch, shift solenoid E which controls the Under Drive brake, shift solenoid F which controls the 2nd, 6th brake, pressure control solenoid A which controls the hydraulic line pressure, and torque converter

clutch pressure control solenoid which controls the torque converter lock up clutch. The electrical failures that are detected include short to battery, short to ground, and open circuit. The power stage driver, which is located in the TCM, detects these electrical malfunctions.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

Solenoid is commanded on (pulse width modulation duty cycle is greater than 10%).

SET CONDITION

The failure is detected if the measured voltage for solenoid output is greater than or equal to 0.575 of a volt for 0.32 of a second.

POSSIBLE CAUSES**Possible Causes**

(T803) PRESSURE CONTROL SOLENOID A (1) CONTROL CIRCUIT
SHORTED TO VOLTAGE
PRESSURE CONTROL SOLENOID A (1)
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST**1. CHECK IF DTC IS CURRENT**

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.

4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 4

2. CHECK THE (T803) PRESSURE CONTROL SOLENOID A (1) CONTROL CIRCUIT FOR A SHORT TO VOLTAGE

1. Measure the voltage of the (T803) Pressure Control Solenoid A (1) Control circuit between ground and the Transmission C1 harness connector.

Is the voltage above 0.5 of a volt?

Yes

- Repair the (T803) Pressure Control Solenoid A (1) Control circuit for a short to voltage.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 3

3. CHECK THE PRESSURE CONTROL SOLENOID A (1)

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Pressure Control Solenoid A (1) between the appropriate terminals of the Transmission C1 harness connector.

Is the resistance of the Pressure Control Solenoid A (1) 5.1 Ohms (± 0.3 Ohm) at 25° C (77° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL**.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Pressure Control Solenoid A (1) in accordance with the Service Information.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

4. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Test Complete.

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

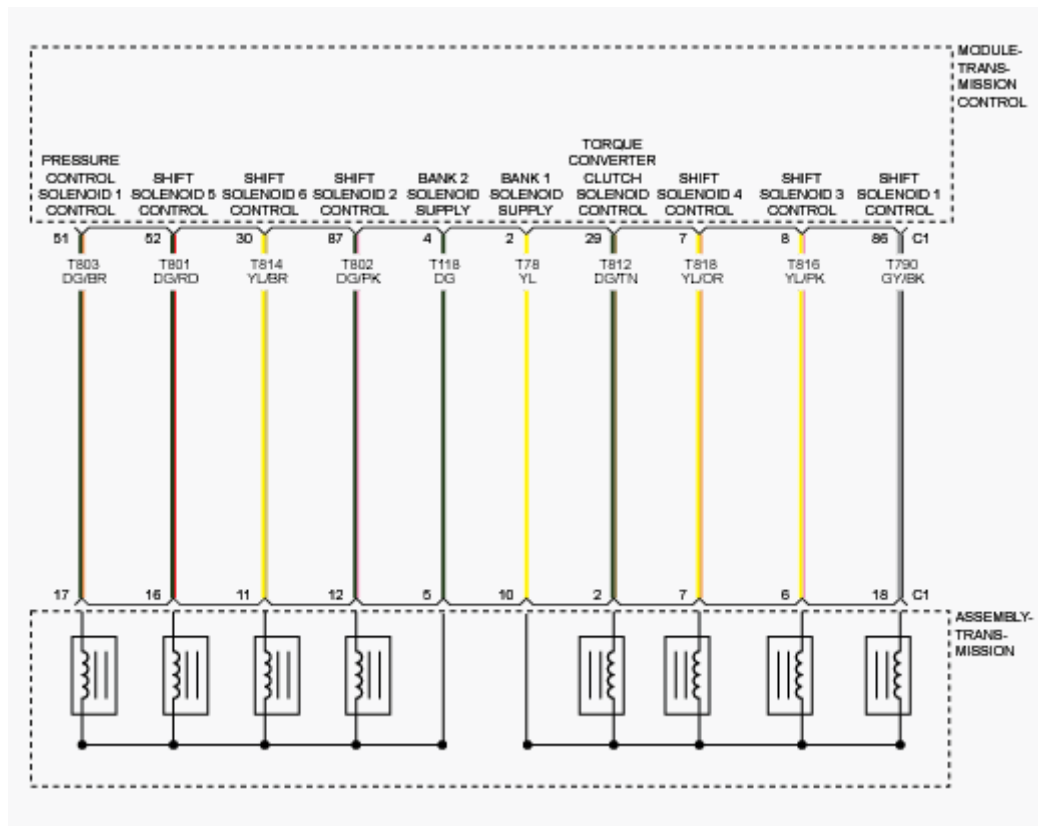


Fig. 22: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of the on/off shift solenoid A (1) and B (2) circuits. Shift solenoid A (1) engages the Low, Reverse clutch when activated or the Over drive clutch when deactivated. Shift solenoid B (2) engages the 3rd, 5th, Reverse clutch when activated. The electrical failures that are detected include short to battery, short to ground, and open circuit. The power stage driver, which is located in the TCM, detects these electrical malfunctions.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

Solenoid is commanded off (pulse width modulation duty cycle is 0%).

SET CONDITION

The failure is detected if the measured voltage for solenoid output is less than or equal to 1.3 volts for 0.32 of a second.

POSSIBLE CAUSES**Possible Causes**

(T790) SHIFT SOLENOID A (1) CONTROL CIRCUIT SHORT TO GROUND

SHIFT SOLENOID A (1)

TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST**1. CHECK IF DTC IS CURRENT**

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 4

2. CHECK THE (T790) SHIFT SOLENOID A (1) CONTROL CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance of the (T790) Shift Solenoid A (1) Control circuit between ground and the Transmission C1 harness connector.

Is the resistance above 100k ohms?

Yes

- Go To 3

No

- Repair the (T790) Shift Solenoid A (1) Control circuit for a short to ground.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

3. CHECK THE SHIFT SOLENOID A (1)

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Shift Solenoid A (1) between the appropriate terminals of the Transmission C1 harness connector.

Is the resistance of the Shift Solenoid A (1) between 10 and 11 Ohms at 20° C (68° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Shift Solenoid A (1) in accordance with the Service Information.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test Complete.

P0974-00-SHIFT SOLENOID 1 CONTROL CIRCUIT HIGH

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

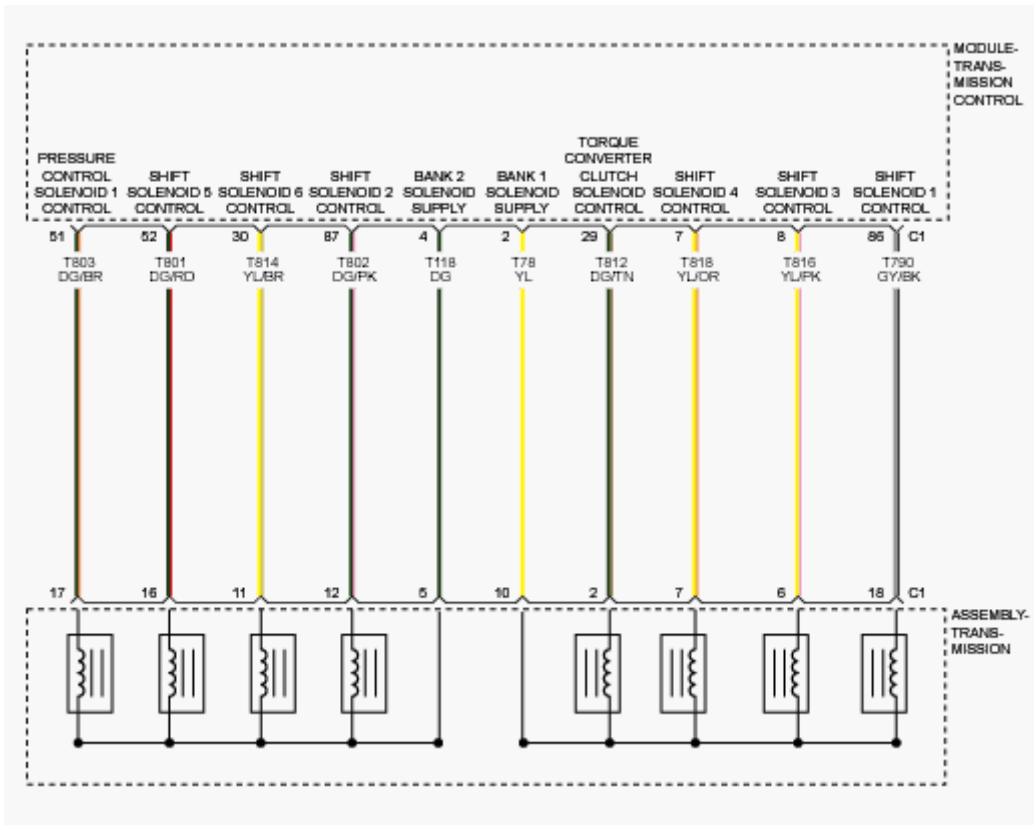


Fig. 23: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of the on/off shift solenoid A (1) and B (2) circuits. Shift solenoid A (1) engages the Low, Reverse clutch when activated or the Over drive clutch when deactivated. Shift solenoid B (2) engages the 3rd, 5th, Reverse clutch when activated. The electrical failures that are detected include short to battery, short to ground, and open circuit. The power stage driver, which is located in the TCM, detects these electrical malfunctions.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

Solenoid is commanded on (pulse width modulation duty cycle is greater than 10%).

SET CONDITION

The failure is detected if the measured voltage for solenoid output is greater than or equal to 0.575 of a volt for 0.32 of a second.

POSSIBLE CAUSES**Possible Causes**

(T790) SHIFT SOLENOID A (1) CONTROL CIRCUIT SHORTED TO VOLTAGE

SHIFT SOLENOID A (1)

TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST**1. CHECK IF DTC IS CURRENT**

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 4

2. CHECK THE (T790) SHIFT SOLENOID A (1) CONTROL CIRCUIT FOR A SHORT TO VOLTAGE

1. Measure the voltage of the (T790) Shift Solenoid A (1) Control circuit between ground and the Transmission C1 harness connector.

Is the voltage above 0.5 of a volt?

Yes

- Repair the (T790) Shift Solenoid A (1) Control circuit for a short to voltage.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 3

3. CHECK THE SHIFT SOLENOID A (1)

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Shift Solenoid A (1) between the appropriate terminals of the Transmission C1 harness connector.

Is the resistance of the Shift Solenoid A (1) between 10 and 11 Ohms at 20° C (68° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Remove the transmission side cover and inspect the internal lead

frame. If there are no problems found with the lead frame, replace the Shift Solenoid A (1) in accordance with the Service Information.

- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test Complete.

P0976-00-SHIFT SOLENOID 2 CONTROL CIRCUIT LOW

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

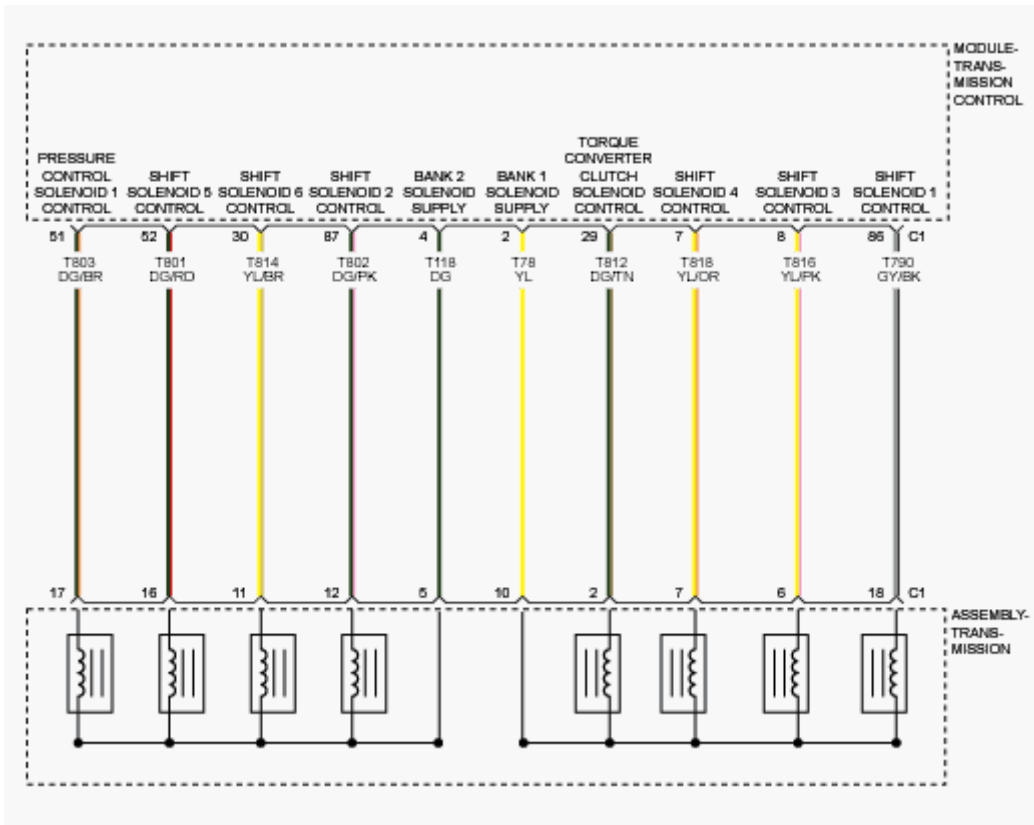


Fig. 24: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of the on/off shift solenoid A (1) and B (2) circuits. Shift solenoid A (1) engages the Low, Reverse clutch when activated or the Over drive clutch when deactivated. Shift solenoid B (2) engages the 3rd, 5th, Reverse clutch when activated. The electrical failures that are detected include short to battery, short to ground, and open circuit. The power stage driver, which is located in the TCM, detects these electrical malfunctions.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

Solenoid is commanded off (pulse width modulation duty cycle is 0%).

SET CONDITION

The failure is detected if the measured voltage for solenoid output is less than or equal to 1.3 volts for 0.32 of a second.

POSSIBLE CAUSES**Possible Causes**

(T802) SHIFT SOLENOID B (2) CONTROL CIRCUIT SHORT TO GROUND
SHIFT SOLENOID B (2)
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST**1. CHECK IF DTC IS CURRENT**

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 4

2. CHECK THE (T802) SHIFT SOLENOID B (2) CONTROL CIRCUIT

FOR A SHORT TO GROUND

1. Measure the resistance of the (T802) Shift Solenoid B (2) Control circuit between ground and the Transmission C1 harness connector.

Is the resistance above 100k ohms?

Yes

- Go To 3

No

- Repair the (T802) Shift Solenoid B (2) Control circuit for a short to ground.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

3. CHECK THE SHIFT SOLENOID B (2)

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Shift Solenoid B (2) between the appropriate terminals of the Transmission C1 harness connector.

Is the resistance of the Shift Solenoid B (2) between 10 and 11 Ohms at 20° C (68° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace

the Shift Solenoid B (2) in accordance with the Service Information.

- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test Complete.

P0977-00-SHIFT SOLENOID 2 CONTROL CIRCUIT HIGH

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

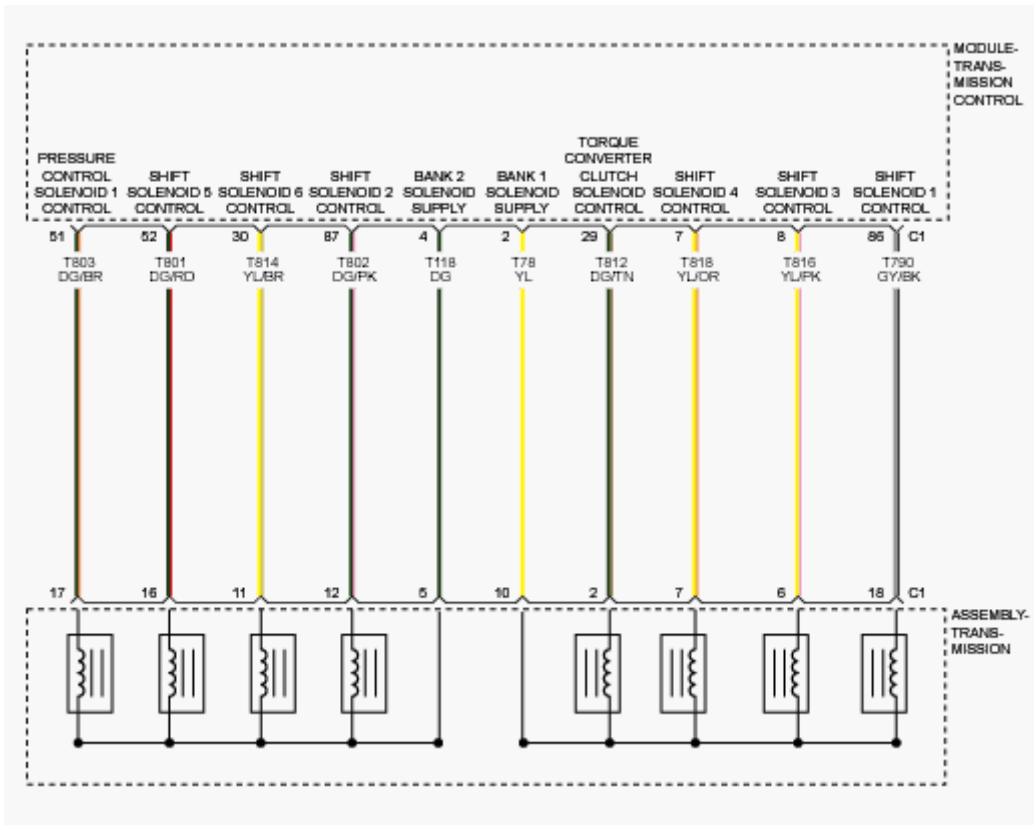


Fig. 25: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of the on/off shift solenoid A (1) and B (2) circuits. Shift solenoid A (1) engages the Low, Reverse clutch when activated or the Over drive clutch when deactivated. Shift solenoid B (2) engages the 3rd, 5th, Reverse clutch when activated. The electrical failures that are detected include short to battery, short to ground, and open circuit. The power stage driver, which is located in the TCM, detects these electrical malfunctions.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

Solenoid is commanded on (pulse width modulation duty cycle is greater than 10%).

SET CONDITION

The failure is detected if the measured voltage for solenoid output is greater than or equal to 0.575 of a volt for 0.32 of a second.

POSSIBLE CAUSES**Possible Causes**

(T802) SHIFT SOLENOID B (2) CONTROL CIRCUIT SHORTED TO VOLTAGE

SHIFT SOLENOID B (2)

TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST**1. CHECK IF DTC IS CURRENT**

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 4

2. CHECK THE (T802) SHIFT SOLENOID B (2) CONTROL CIRCUIT FOR A SHORT TO VOLTAGE

1. Measure the voltage of the (T802) Shift Solenoid B (2) Control circuit between ground and the Transmission C1 harness connector.

Is the voltage above 0.5 of a volt?

Yes

- Repair the (T802) Shift Solenoid B (2) Control circuit for a short to voltage.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 3

3. CHECK THE SHIFT SOLENOID B (2)

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Shift Solenoid B (2) between the appropriate terminals of the Transmission C1 harness connector.

Is the resistance of the Shift Solenoid B (2) between 10 and 11 Ohms at 20° C (68° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Remove the transmission side cover and inspect the internal lead

frame. If there are no problems found with the lead frame, replace the Shift Solenoid B (2) in accordance with the Service Information.

- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test Complete.

P0978-00-SHIFT SOLENOID 3 CONTROL CIRCUIT RANGE-PERFORMANCE

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

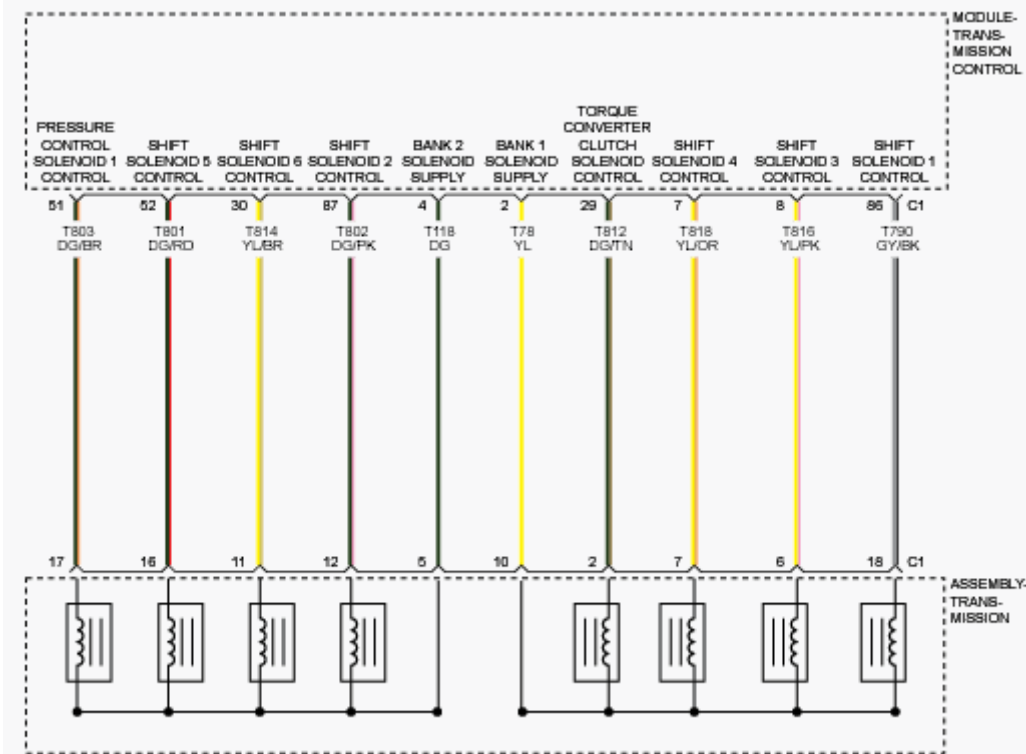


Fig. 26: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the functionality of each of the six variable force solenoid circuits. The six variable force solenoids include a shift solenoid C which controls the 3rd, 5th, Reverse clutch, shift solenoid D which controls the Over Drive clutch, shift solenoid E which controls the Under Drive brake, shift solenoid F which controls the 2nd, 6th brake, pressure control solenoid A which controls the hydraulic line pressure, and torque converter clutch pressure control solenoid which controls the torque converter lock up clutch. The malfunction condition is detected if the measured solenoid feedback current does not correlate to the TCM commanded solenoid current. This failure may be caused by conditions such as internal circuit corrosion or manufacturing defects.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 volts and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

No variable force solenoid circuit failures.

Solenoid control duty cycle is 0%.

SET CONDITION

The failure is detected if the measured solenoid feedback current is greater than 50 mA but less than or equal to 550 mA of the commanded solenoid current for 320 ms.

POSSIBLE CAUSES**Possible Causes**

CIRCUIT(S) HIGH RESISTANCE
(T816) SHIFT SOLENOID C (3) CONTROL CIRCUIT SHORTED TO GROUND
SHIFT SOLENOID C (3)
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE.

DIAGNOSTIC TEST**1. CHECK IF DTC IS CURRENT**

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 5

2. CHECK THE SHIFT SOLENOID C (3) CIRCUITS FOR HIGH RESISTANCE

1. Turn the ignition off to the lock position.
2. Disconnect the Transmission C1 harness connectors.
3. Disconnect the TCM C1 harness connector.
4. Using the schematics as a guide, inspect the Transmission C1 and TCM C1 harness connectors, pins and terminals for the Shift Solenoid C (3) circuits for corrosion, damage, or terminal push out.

Were any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 3

3. CHECK THE (T816) SHIFT SOLENOID C (3) CONTROL CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance of the (T816) Shift Solenoid C (3) Control circuit between ground and the Transmission C1 harness connector.

Is the resistance above 100k ohms?

Yes

- Go To 4

No

- Repair the (T816) Shift Solenoid C (3) Control circuit for a short to ground.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK THE SHIFT SOLENOID C (3)

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Shift Solenoid C (3) between the appropriate terminals of the Transmission C1 harness connector.

Is the resistance of the Shift Solenoid C (3) 5.1 Ohms (± 0.3 Ohm) at 25° C (77° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Shift Solenoid C (3) in accordance with the Service Information.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

5. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Test Complete.

P0979-00-SHIFT SOLENOID 3 CONTROL CIRCUIT LOW

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

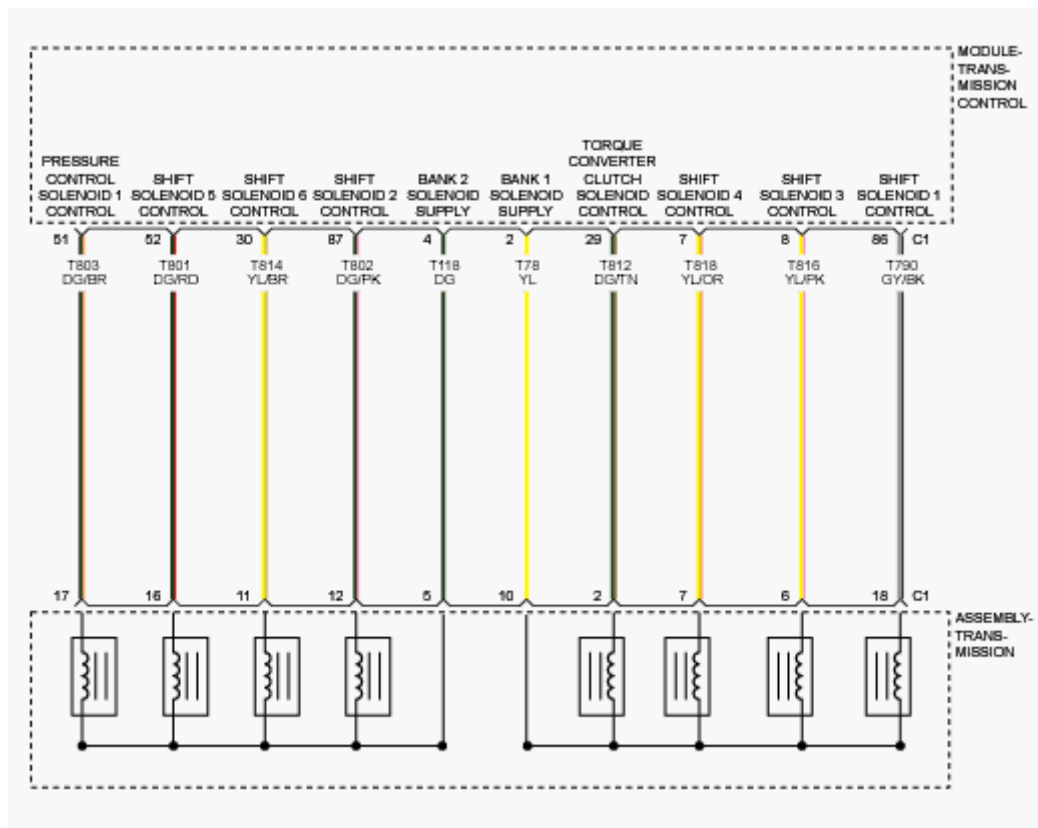


Fig. 27: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of each of

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2014 AUTOMATIC TRANSMISSION Transmission Control Module (TCM) - Electrical Diagnostics, 6F24 - Compass & Patriot

the six variable force solenoid circuits. The six variable force solenoids include a shift solenoid C which controls the 3rd, 5th, Reverse clutch, shift solenoid D which controls the Over Drive clutch, shift solenoid E which controls the Under Drive brake, shift solenoid F which controls the 2nd, 6th brake, pressure control solenoid A which controls the hydraulic line pressure, and torque converter clutch pressure control solenoid which controls the torque converter lock up clutch. The electrical failures that are detected include short to battery, short to ground, and open circuit. The power stage driver, which is located in the TCM, detects these electrical malfunctions.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

Solenoid is commanded off (pulse width modulation duty cycle is 0%).

SET CONDITION

The failure is detected if the measured voltage for solenoid output is less than or equal to 1.3 volts for 0.32 of a second.

POSSIBLE CAUSES

Possible Causes

(T816) SHIFT SOLENOID C (3) CONTROL CIRCUIT SHORT TO GROUND
SHIFT SOLENOID C (3)
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST

1. CHECK IF DTC IS CURRENT

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 4

2. CHECK THE (T816) SHIFT SOLENOID C (3) CONTROL CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance of the (T816) Shift Solenoid C (3) Control circuit between ground and the Transmission C1 harness connector.

Is the resistance above 100k ohms?

Yes

- Go To 3

No

- Repair the (T816) Shift Solenoid C (3) Control circuit for a short to ground.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

3. CHECK THE SHIFT SOLENOID C (3)

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Shift Solenoid C (3) between the

appropriate terminals of the Transmission C1 harness connector.

Is the resistance of the Shift Solenoid C (3) 5.1 Ohms (± 0.3 Ohm) at 25° C (77° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL**.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Shift Solenoid C (3) in accordance with the Service Information.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

4. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Test Complete.

P097C-00-SHIFT SOLENOID 3 CONTROL CIRCUIT OPEN

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

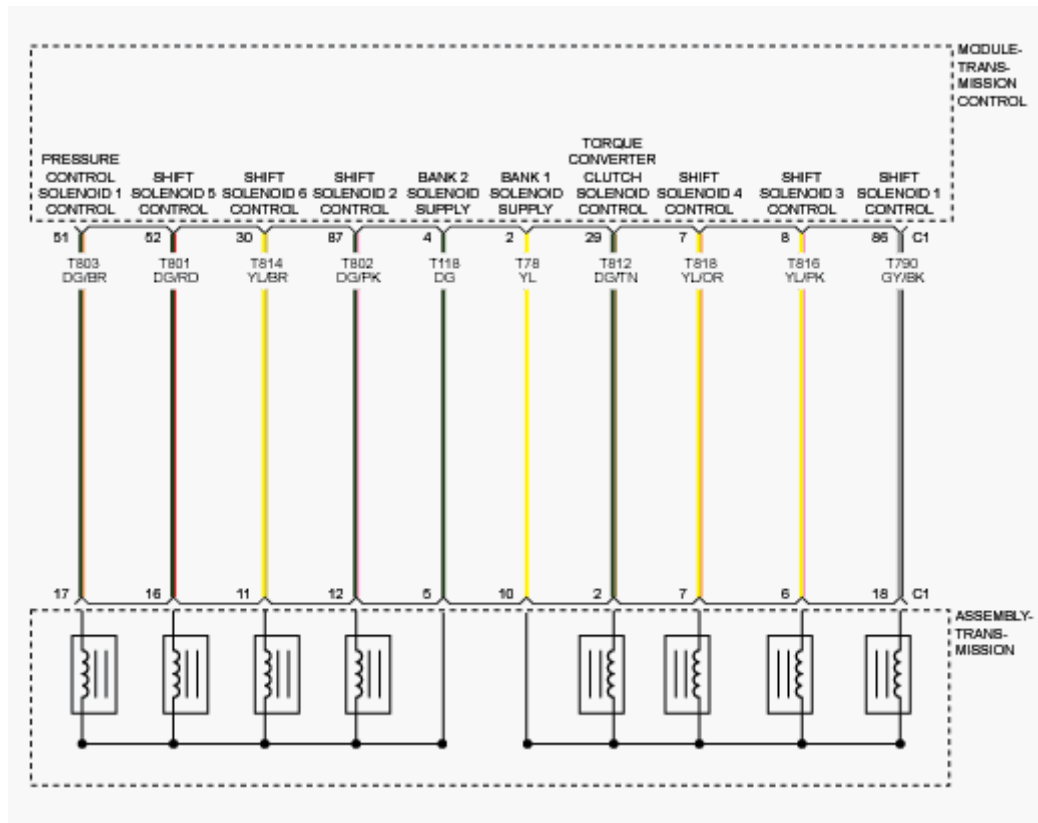


Fig. 28: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of each of the six variable force solenoid circuits. The six variable force solenoids include a shift solenoid C which controls the 3rd, 5th, Reverse clutch, shift solenoid D which controls the Over Drive clutch, shift solenoid E which controls the Under Drive brake, shift solenoid F which controls the 2nd, 6th brake, pressure control solenoid A which controls the hydraulic line pressure, and torque converter clutch pressure control solenoid which controls the torque converter lock up clutch. The electrical failures that are detected include short to battery, short to

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ground, and open circuit. The power stage driver, which is located in the TCM, detects these electrical malfunctions.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

Solenoid is commanded off (pulse width modulation duty cycle is 0%).

SET CONDITION

The failure is detected if measured voltage for solenoid output is between 1.3 volts and 4.7 volts for 0.32 of a second.

POSSIBLE CAUSES

Possible Causes

(T78) BANK 1 SOLENOID POWER SUPPLY CIRCUIT OPEN
(T816) SHIFT SOLENOID C (3) CONTROL CIRCUIT OPEN
SHIFT SOLENOID C (3)
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST

1. CHECK IF DTC IS CURRENT

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.

5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 5

2. CHECK THE (T78) BANK 1 SOLENOID POWER CIRCUIT FOR AN OPEN

1. Turn the ignition off to the lock position.
2. Disconnect the Transmission C1 harness connectors.
3. Disconnect the TCM C1 harness connector.
4. Measure the resistance of the (T78) Bank 1 Solenoid Power circuit between the Transmission C1 harness connector and the TCM C1 harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 3

No

- Repair the (T78) Bank 1 Solenoid Power circuit for an open.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

3. CHECK THE (T816) SHIFT SOLENOID C (3) CONTROL CIRCUIT FOR AN OPEN

1. Measure the resistance of the (T816) Shift Solenoid C (3) Control circuit between the Transmission C1 harness connector and the TCM C1 harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 4

No

- Repair the (T816) Shift Solenoid C (3) Control circuit for an open.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK THE SHIFT SOLENOID C (3)

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Shift Solenoid C (3) between the appropriate terminals at the Transmission C1 harness connector.

Is the resistance of the Shift Solenoid C (3) 5.1 Ohms (± 0.3 Ohm) at 25° C (77° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Shift Solenoid C (3) in accordance with the Service Information.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

5. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.

2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Test Complete.

P097D-00-SHIFT SOLENOID 4 CONTROL CIRCUIT OPEN

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

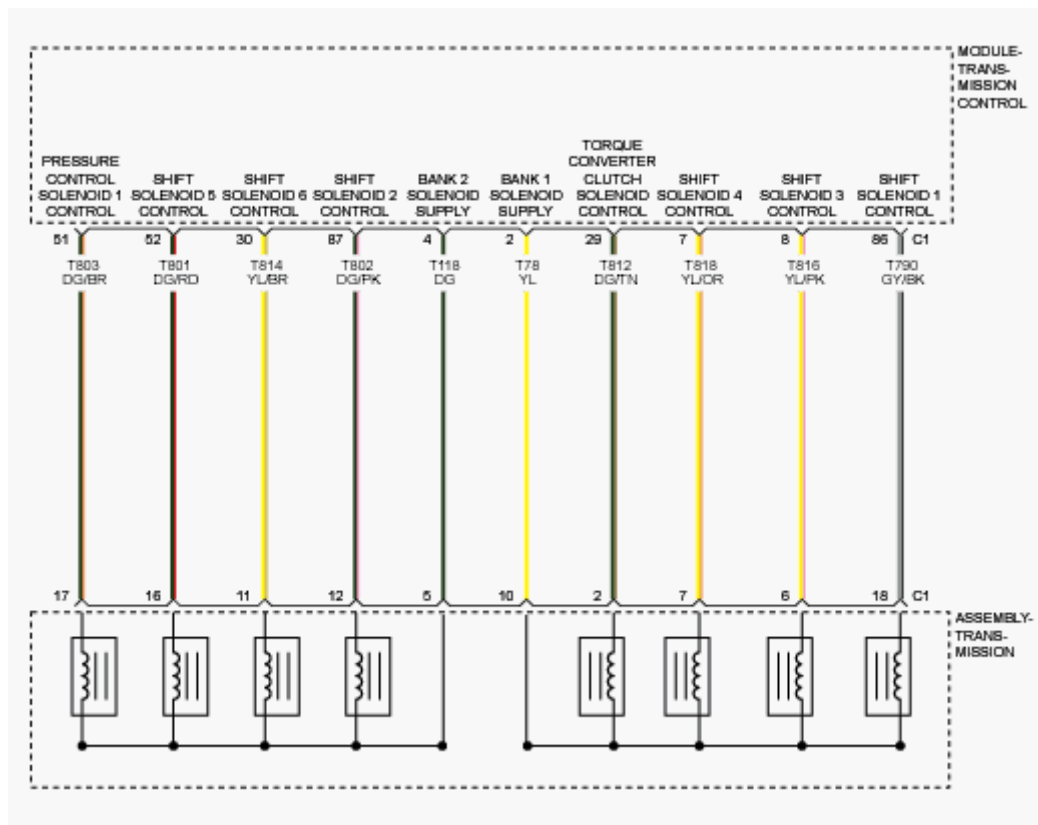


Fig. 29: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC**THEORY OF OPERATION**

The purpose of this diagnostic is to check the electrical performance of each of the six variable force solenoid circuits. The six variable force solenoids include a shift solenoid C which controls the 3rd, 5th, Reverse clutch, shift solenoid D which controls the Over Drive clutch, shift solenoid E which controls the Under Drive brake, shift solenoid F which controls the 2nd, 6th brake, pressure control solenoid A which controls the hydraulic line pressure, and torque converter clutch pressure control solenoid which controls the torque converter lock up clutch. The electrical failures that are detected include short to battery, short to ground, and open circuit. The power stage driver, which is located in the TCM, detects these electrical malfunctions.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

Solenoid is commanded off (pulse width modulation duty cycle is 0%).

SET CONDITION

The failure is detected if measured voltage for solenoid output is between 1.3 volts and 4.7 volts for 0.32 of a second.

POSSIBLE CAUSES**Possible Causes**

(T78) BANK 1 SOLENOID POWER SUPPLY CIRCUIT OPEN
(T818) SHIFT SOLENOID D (4) CONTROL CIRCUIT OPEN
SHIFT SOLENOID D (4)
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST

1. CHECK IF DTC IS CURRENT

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 5

2. CHECK THE (T78) BANK 1 SOLENOID POWER CIRCUIT FOR AN OPEN

1. Turn the ignition off to the lock position.
2. Disconnect the Transmission C1 harness connectors.
3. Disconnect the TCM C1 harness connector.
4. Measure the resistance of the (T78) Bank 1 Solenoid Power circuit between the Transmission C1 harness connector and the TCM C1 harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 3

No

- Repair the (T78) Bank 1 Solenoid Power circuit for an open.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

3. CHECK THE (T818) SHIFT SOLENOID D (4) CONTROL CIRCUIT FOR AN OPEN

1. Measure the resistance of the (T818) Shift Solenoid D (4) Control circuit between the Transmission C1 harness connector and the TCM C1 harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 4

No

- Repair the (T818) Shift Solenoid D (4) Control circuit for an open.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK THE SHIFT SOLENOID D (4)

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Shift Solenoid D (4) between the appropriate terminals at the Transmission C1 harness connector.

Is the resistance of the Shift Solenoid D (4) 5.1 Ohms (± 0.3 Ohm) at 25° C (77° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24**

TRANSMISSION VERIFICATION TEST .

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Shift Solenoid D (4) in accordance with the Service Information.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST .**

5. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST .**

No

- Test Complete.

P097E-00-SHIFT SOLENOID 5 CONTROL CIRCUIT OPEN

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

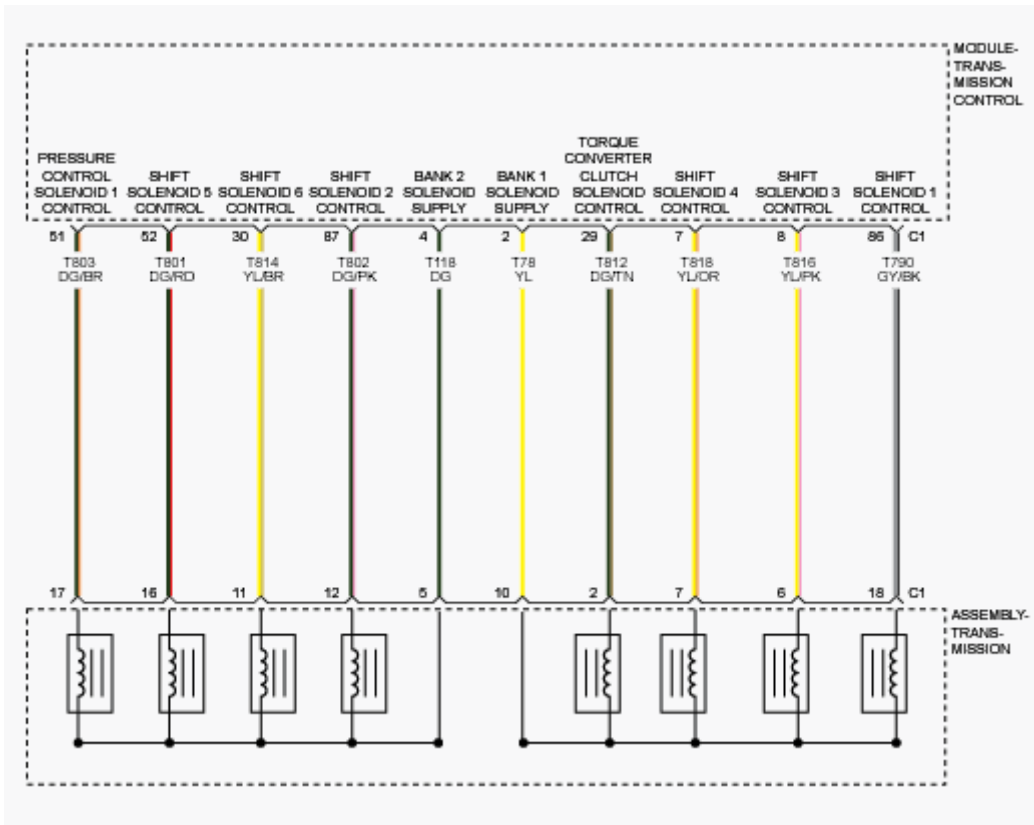


Fig. 30: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of each of the six variable force solenoid circuits. The six variable force solenoids include a shift solenoid C which controls the 3rd, 5th, Reverse clutch, shift solenoid D which controls the Over Drive clutch, shift solenoid E which controls the Under Drive brake, shift solenoid F which controls the 2nd, 6th brake, pressure control solenoid A which controls the hydraulic line pressure, and torque converter clutch pressure control solenoid which controls the torque converter lock up clutch. The electrical failures that are detected include short to battery, short to ground, and open circuit. The power stage driver, which is located in the TCM, detects these electrical malfunctions.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

Solenoid is commanded off (pulse width modulation duty cycle is 0%).

SET CONDITION

The failure is detected if measured voltage for solenoid output is between 1.3 volts and 4.7 volts for 0.32 of a second.

POSSIBLE CAUSES

Possible Causes
BANK 2 SOLENOID POWER SUPPLY CIRCUIT OPEN (T801) SHIFT SOLENOID E (5) CONTROL CIRCUIT OPEN SHIFT SOLENOID E (5) TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST**1. CHECK IF DTC IS CURRENT**

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 5

2. CHECK THE (T118) BANK 2 SOLENOID POWER CIRCUIT FOR AN OPEN

1. Turn the ignition off to the lock position.
2. Disconnect the Transmission C1 harness connectors.
3. Disconnect the TCM C1 harness connector.
4. Measure the resistance of the (T118) Bank 2 Solenoid Power circuit between the Transmission C1 harness connector and the TCM C1 harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 3

No

- Repair the (T118) Bank 2 Solenoid Power circuit for an open.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

3. CHECK THE (T801) SHIFT SOLENOID E (5) CONTROL CIRCUIT FOR AN OPEN

1. Measure the resistance of the (T801) Shift Solenoid E (5) Control circuit between the Transmission C1 harness connector and the TCM C1 harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 4

No

- Repair the (T801) Shift Solenoid E (5) Control circuit for an open.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24**

TRANSMISSION VERIFICATION TEST .**4. CHECK THE SHIFT SOLENOID E (5)**

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Shift Solenoid E (5) between the appropriate terminals at the Transmission C1 harness connector.

Is the resistance of the Shift Solenoid E (5) 5.1 Ohms (± 0.3 Ohm) at 25° C (77° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Shift Solenoid E (5) in accordance with the Service Information.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

5. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Test Complete.

P097F-00-SHIFT SOLENOID 6 CONTROL CIRCUIT-OPEN

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

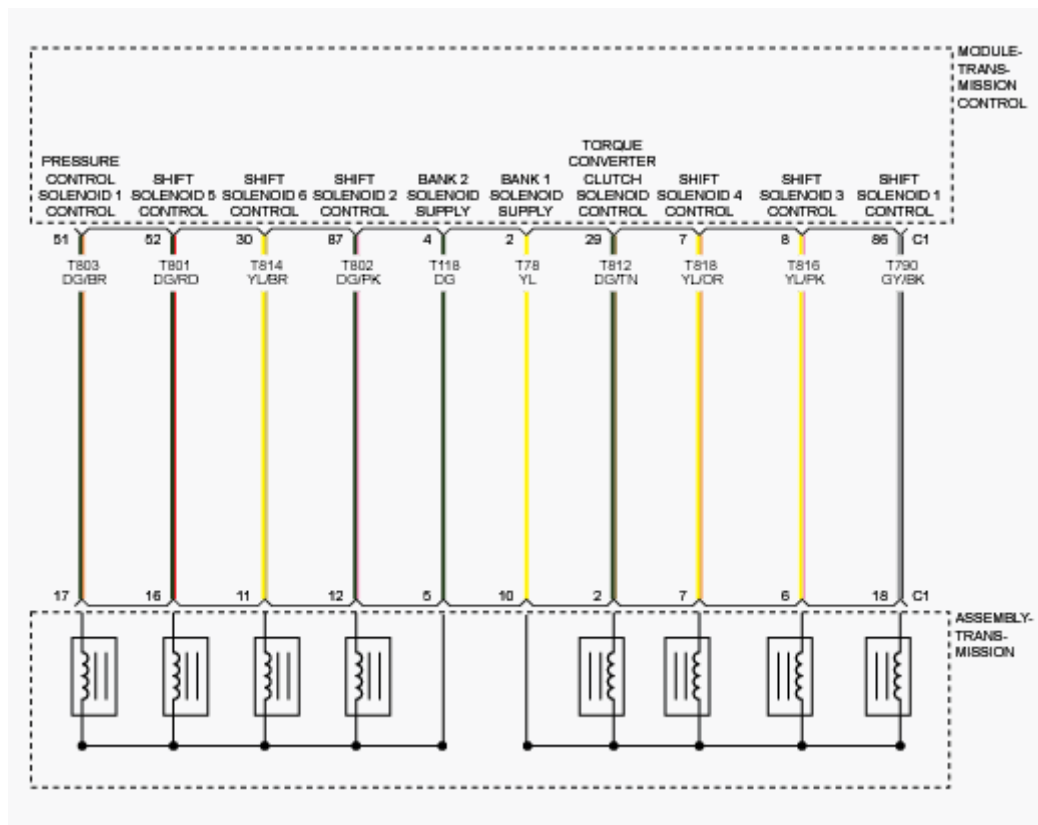


Fig. 31: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of each of the six variable force solenoid circuits. The six variable force solenoids include a shift solenoid C which controls the 3rd, 5th, Reverse clutch, shift solenoid D which controls the Over Drive clutch, shift solenoid E which controls the Under

Drive brake, shift solenoid F which controls the 2nd, 6th brake, pressure control solenoid A which controls the hydraulic line pressure, and torque converter clutch pressure control solenoid which controls the torque converter lock up clutch. The electrical failures that are detected include short to battery, short to ground, and open circuit. The power stage driver, which is located in the TCM, detects these electrical malfunctions.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

Solenoid is commanded off (pulse width modulation duty cycle is 0%).

SET CONDITION

The failure is detected if measured voltage for solenoid output is between 1.3 volts and 4.7 volts for 0.32 of a second.

POSSIBLE CAUSES

Possible Causes
BANK 2 SOLENOID POWER SUPPLY CIRCUIT OPEN (T814) SHIFT SOLENOID F (6) CONTROL CIRCUIT OPEN SHIFT SOLENOID F (6) TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST**1. CHECK IF DTC IS CURRENT**

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.

3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 5

2. CHECK THE (T118) BANK 2 SOLENOID POWER CIRCUIT FOR AN OPEN

1. Turn the ignition off to the lock position.
2. Disconnect the Transmission C1 harness connectors.
3. Disconnect the TCM C1 harness connector.
4. Measure the resistance of the (T118) Bank 2 Solenoid Power circuit between the Transmission C1 harness connector and the TCM C1 harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 3

No

- Repair the (T118) Bank 2 Solenoid Power circuit for an open.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

3. CHECK THE (T814) SHIFT SOLENOID F (6) CONTROL CIRCUIT FOR AN OPEN

1. Measure the resistance of the (T814) Shift Solenoid F (6) Control

circuit between the Transmission C1 harness connector and the TCM C1 harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 4

No

- Repair the (T814) Shift Solenoid F (6) Control circuit for an open.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK THE SHIFT SOLENOID F (6)

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Shift Solenoid F (6) between the appropriate terminals at the Transmission C1 harness connector.

Is the resistance of the Shift Solenoid F (6) 5.1 Ohms (± 0.3 Ohm) at 25° C (77° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Shift Solenoid F (6) in accordance with the Service Information.

- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

5. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test Complete.

P0980-00-SHIFT SOLENOID 3 CONTROL CIRCUIT HIGH

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

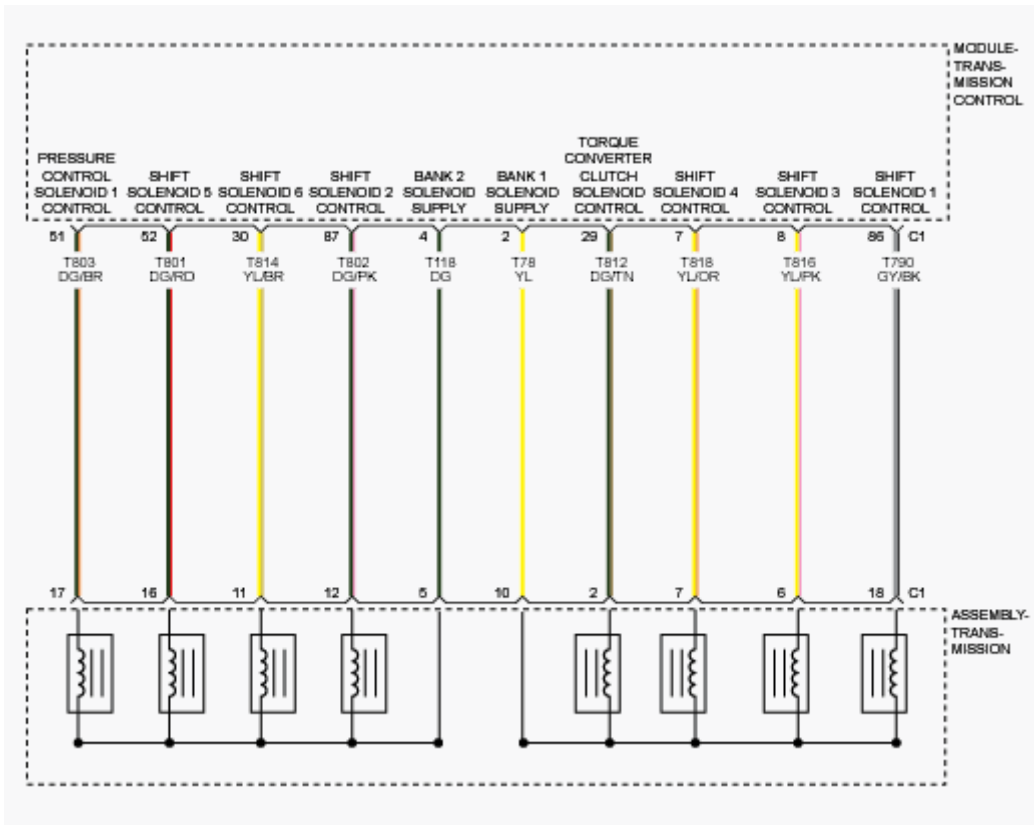


Fig. 32: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of each of the six variable force solenoid circuits. The six variable force solenoids include a shift solenoid C which controls the 3rd, 5th, Reverse clutch, shift solenoid D which controls the Over Drive clutch, shift solenoid E which controls the Under Drive brake, shift solenoid F which controls the 2nd, 6th brake, pressure control solenoid A which controls the hydraulic line pressure, and torque converter clutch pressure control solenoid which controls the torque converter lock up clutch. The electrical failures that are detected include short to battery, short to ground, and open circuit. The power stage driver, which is located in the TCM, detects these electrical malfunctions.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

Solenoid is commanded on (pulse width modulation duty cycle is greater than 10%).

SET CONDITION

The failure is detected if the measured voltage for solenoid output is greater than or equal to 0.575 of a volt for 0.32 of a second.

POSSIBLE CAUSES

Possible Causes
(T816) SHIFT SOLENOID C (3) CONTROL CIRCUIT SHORTED TO VOLTAGE
SHIFT SOLENOID C (3)
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST

1. CHECK IF DTC IS CURRENT

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 4

2. CHECK THE (T816) SHIFT SOLENOID C (3) CONTROL CIRCUIT FOR A SHORT TO VOLTAGE

1. Measure the voltage of the (T816) Shift Solenoid C (3) Control circuit between ground and the Transmission C1 harness connector.

Is the voltage above 0.5 of a volt?

Yes

- Repair the (T816) Shift Solenoid C (3) Control circuit for a short to voltage.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 3

3. CHECK THE SHIFT SOLENOID C (3)

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Shift Solenoid C (3) between the appropriate terminals of the Transmission C1 harness connector.

Is the resistance of the Shift Solenoid C (3) 5.1 Ohms (± 0.3 Ohm) at 25° C (77° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Shift Solenoid C (3) in accordance with the Service Information.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test Complete.

P0981-00-SHIFT SOLENOID 4 CONTROL CIRCUIT RANGE-PERFORMANCE

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

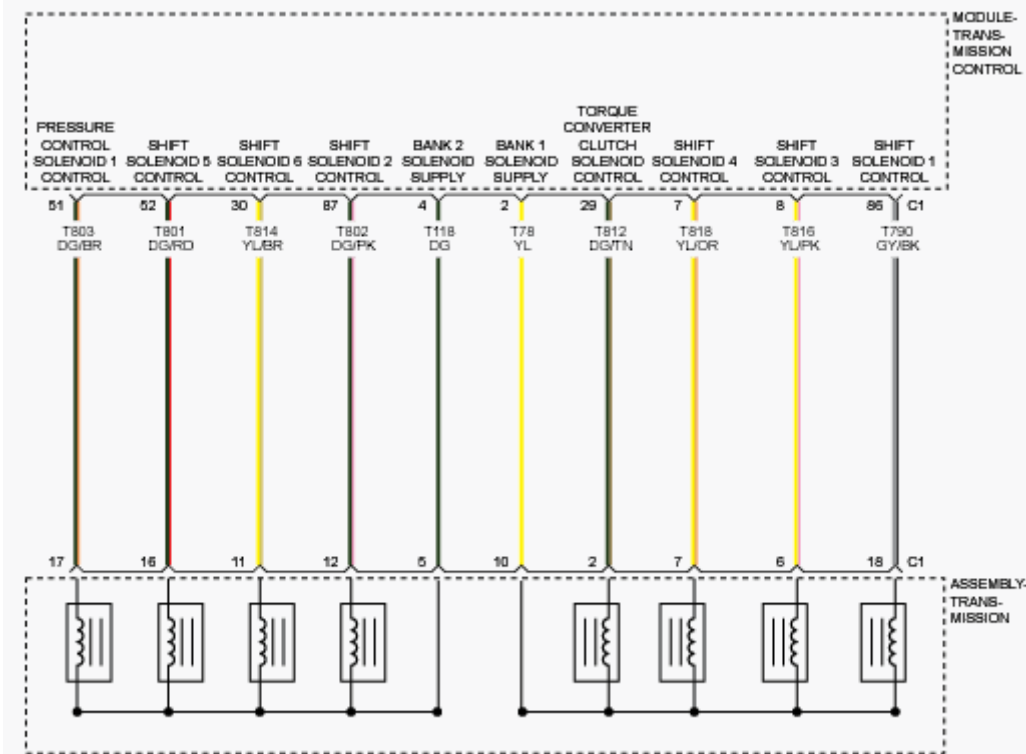


Fig. 33: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the functionality of each of the six variable force solenoid circuits. The six variable force solenoids include a shift solenoid C which controls the 3rd, 5th, Reverse clutch, shift solenoid D which controls the Over Drive clutch, shift solenoid E which controls the Under Drive brake, shift solenoid F which controls the 2nd, 6th brake, pressure control solenoid A which controls the hydraulic line pressure, and torque converter clutch pressure control solenoid which controls the torque converter lock up clutch. The malfunction condition is detected if the measured solenoid feedback current does not correlate to the TCM commanded solenoid current. This failure may be caused by conditions such as internal circuit corrosion or manufacturing defects.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 volts and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

No variable force solenoid circuit failures.

Solenoid control duty cycle is 0%.

SET CONDITION

The failure is detected if the measured solenoid feedback current is greater than 50 mA but less than or equal to 550 mA of the commanded solenoid current for 320 ms.

POSSIBLE CAUSES

Possible Causes
CIRCUIT(S) HIGH RESISTANCE (T818) SHIFT SOLENOID D (4) CONTROL CIRCUIT SHORTED TO GROUND SHIFT SOLENOID D (4) TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE.

DIAGNOSTIC TEST

1. CHECK IF DTC IS CURRENT

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 5

2. CHECK THE SHIFT SOLENOID D (4) CIRCUITS FOR HIGH RESISTANCE

1. Turn the ignition off to the lock position.
2. Disconnect the Transmission C1 harness connectors.
3. Disconnect the TCM C1 harness connector.
4. Using the schematics as a guide, inspect the Transmission C1 and TCM C1 harness connectors, pins and terminals for the Shift Solenoid D (4) circuits for corrosion, damage, or terminal push out.

Were any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Go To 3

3. CHECK THE (T818) SHIFT SOLENOID D (4) CONTROL CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance of the (T818) Shift Solenoid D (4) Control circuit between ground and the Transmission C1 harness connector.

Is the resistance above 100k ohms?

Yes

- Go To 4

No

- Repair the (T818) Shift Solenoid D (4) Control circuit for a short to ground.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK THE SHIFT SOLENOID D (4)

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Shift Solenoid D (4) between the appropriate terminals of the Transmission C1 harness connector.

Is the resistance of the Shift Solenoid D (4) 5.1 Ohms (± 0.3 Ohm) at 25° C (77° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Shift Solenoid D (4) in accordance with the Service Information.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

5. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Test Complete.

P0982-00-SHIFT SOLENOID 4 CONTROL CIRCUIT LOW

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

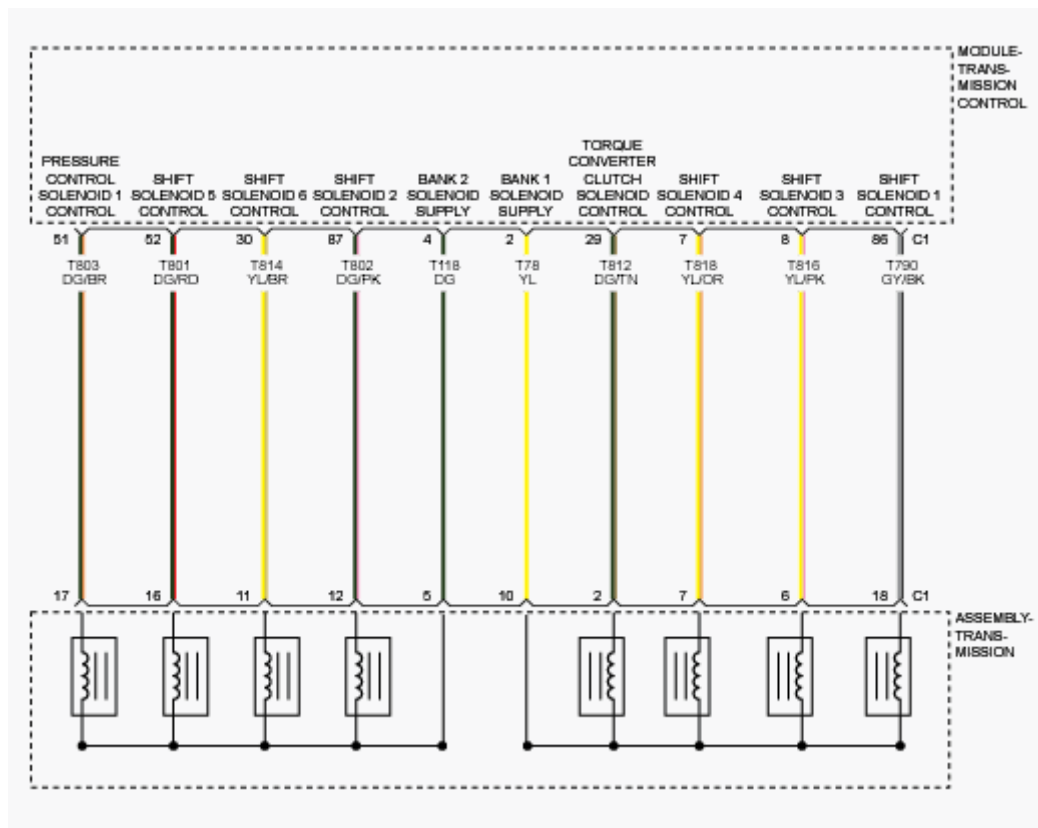


Fig. 34: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of each of

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the six variable force solenoid circuits. The six variable force solenoids include a shift solenoid C which controls the 3rd, 5th, Reverse clutch, shift solenoid D which controls the Over Drive clutch, shift solenoid E which controls the Under Drive brake, shift solenoid F which controls the 2nd, 6th brake, pressure control solenoid A which controls the hydraulic line pressure, and torque converter clutch pressure control solenoid which controls the torque converter lock up clutch. The electrical failures that are detected include short to battery, short to ground, and open circuit. The power stage driver, which is located in the TCM, detects these electrical malfunctions.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

Solenoid is commanded off (pulse width modulation duty cycle is 0%).

SET CONDITION

The failure is detected if the measured voltage for solenoid output is less than or equal to 1.3 volts for 0.32 of a second.

POSSIBLE CAUSES

Possible Causes

(T818) SHIFT SOLENOID D (4) CONTROL CIRCUIT SHORT TO GROUND
SHIFT SOLENOID D (4)
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST

1. CHECK IF DTC IS CURRENT

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 4

2. CHECK THE (T818) SHIFT SOLENOID D (4) CONTROL CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance of the (T818) Shift Solenoid D (4) Control circuit between ground and the Transmission C1 harness connector.

Is the resistance above 100k ohms?

Yes

- Go To 3

No

- Repair the (T818) Shift Solenoid D (4) Control circuit for a short to ground.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

3. CHECK THE SHIFT SOLENOID D (4)

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Shift Solenoid D (4) between the

appropriate terminals of the Transmission C1 harness connector.

Is the resistance of the Shift Solenoid D (4) 5.1 Ohms (± 0.3 Ohm) at 25° C (77° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Shift Solenoid D (4) in accordance with the Service Information.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test Complete.

P0983-00-SHIFT SOLENOID 4 CONTROL CIRCUIT HIGH

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

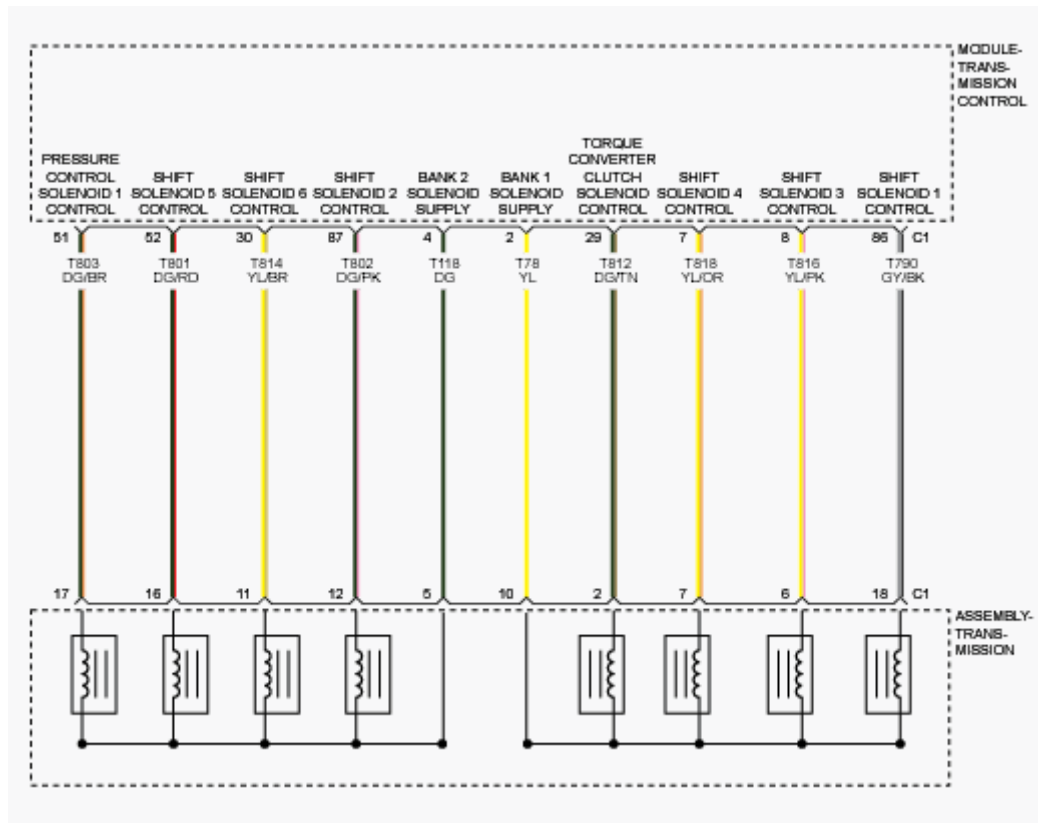


Fig. 35: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of each of the six variable force solenoid circuits. The six variable force solenoids include a shift solenoid C which controls the 3rd, 5th, Reverse clutch, shift solenoid D which controls the Over Drive clutch, shift solenoid E which controls the Under Drive brake, shift solenoid F which controls the 2nd, 6th brake, pressure control solenoid A which controls the hydraulic line pressure, and torque converter clutch pressure control solenoid which controls the torque converter lock up clutch. The electrical failures that are detected include short to battery, short to

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ground, and open circuit. The power stage driver, which is located in the TCM, detects these electrical malfunctions.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

Solenoid is commanded on (pulse width modulation duty cycle is greater than 10%).

SET CONDITION

The failure is detected if the measured voltage for solenoid output is greater than or equal to 0.575 of a volt for 0.32 of a second.

POSSIBLE CAUSES

Possible Causes

(T818) SHIFT SOLENOID D (4) CONTROL CIRCUIT SHORTED TO VOLTAGE

SHIFT SOLENOID D (4)

TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST

1. CHECK IF DTC IS CURRENT

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the

conditions that set the DTC.

5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 4

2. CHECK THE (T818) SHIFT SOLENOID D (4) CONTROL CIRCUIT FOR A SHORT TO VOLTAGE

1. Measure the voltage of the (T818) Shift Solenoid D (4) Control circuit between ground and the Transmission C1 harness connector.

Is the voltage above 0.5 of a volt?

Yes

- Repair the (T818) Shift Solenoid D (4) Control circuit for a short to voltage.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 3

3. CHECK THE SHIFT SOLENOID D (4)

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Shift Solenoid D (4) between the appropriate terminals of the Transmission C1 harness connector.

Is the resistance of the Shift Solenoid D (4) 5.1 Ohms (± 0.3 Ohm) at 25° C (77° F)?

Yes

- Using the schematics as a guide, check the Transmission Control

Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .

- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Shift Solenoid D (4) in accordance with the Service Information.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test Complete.

P0984-00-SHIFT SOLENOID 5 CONTROL CIRCUIT RANGE-PERFORMANCE

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

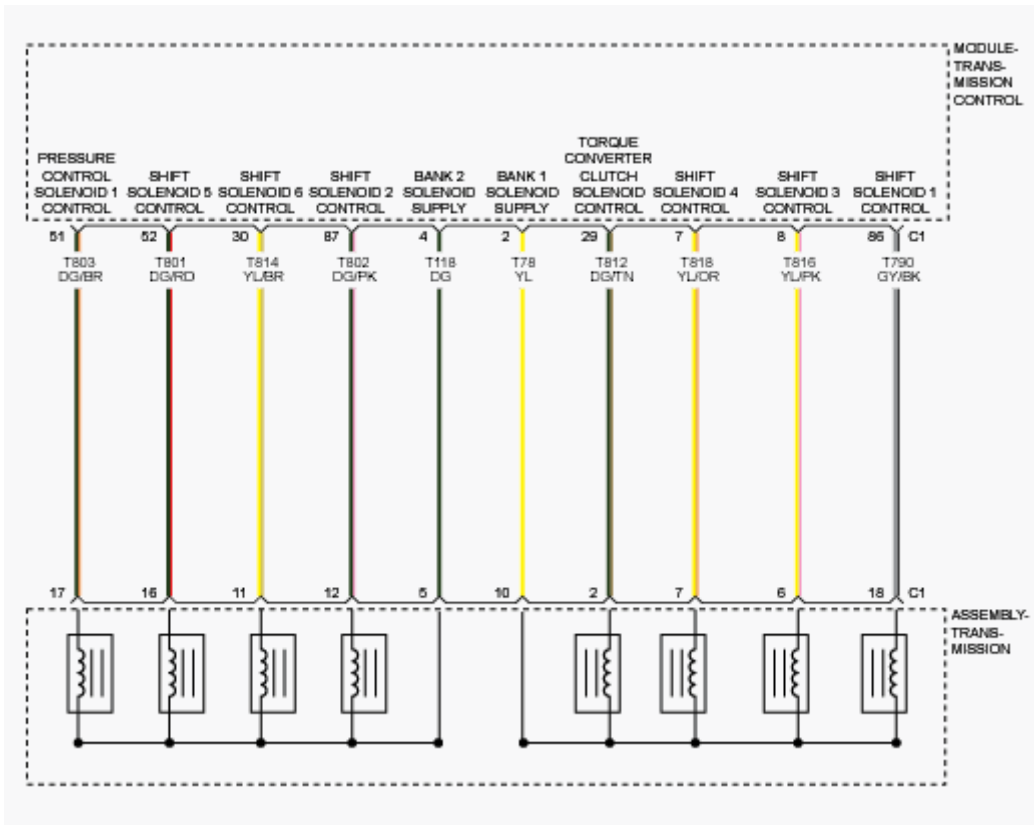


Fig. 36: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the functionality of each of the six variable force solenoid circuits. The six variable force solenoids include a shift solenoid C which controls the 3rd, 5th, Reverse clutch, shift solenoid D which controls the Over Drive clutch, shift solenoid E which controls the Under Drive brake, shift solenoid F which controls the 2nd, 6th brake, pressure control solenoid A which controls the hydraulic line pressure, and torque converter clutch pressure control solenoid which controls the torque converter lock up clutch. The malfunction condition is detected if the measured solenoid feedback current does not correlate to the TCM commanded solenoid current. This failure may be caused by conditions such as internal circuit corrosion or manufacturing defects.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 volts and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

No variable force solenoid circuit failures.

Solenoid control duty cycle is 0%.

SET CONDITION

The failure is detected if the measured solenoid feedback current is greater than 50 mA but less than or equal to 550 mA of the commanded solenoid current for 320 ms.

POSSIBLE CAUSES

Possible Causes
BANK 2 SOLENOID POWER CIRCUIT SHORTED TO GROUND (T801) SHIFT SOLENOID E (5) CONTROL CIRCUIT SHORTED TO GROUND SHIFT SOLENOID E (5) TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE.

DIAGNOSTIC TEST

1. CHECK IF DTC IS CURRENT

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 6

2. CHECK THE SHIFT SOLENOID E (5) CIRCUITS FOR HIGH RESISTANCE

1. Turn the ignition off to the lock position.
2. Disconnect the Transmission C1 harness connectors.
3. Disconnect the TCM C1 harness connector.
4. Using the schematics as a guide, inspect the Transmission C1 and TCM C1 harness connectors, pins and terminals for the Shift Solenoid E (5) circuits for corrosion, damage, or terminal push out.

Were any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 3

3. CHECK THE (T118) BANK 2 SOLENOID POWER CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance of the (T118) Bank 2 Solenoid Power circuit between ground and the Transmission C1 harness connector.

Is the resistance above 100k ohms?

Yes

- Go To 4

No

- Repair the (T118) Bank 2 Solenoid Power circuit for a short to ground.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK THE (T801) SHIFT SOLENOID E (5) CONTROL CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance of the (T801) Shift Solenoid E (5) Control circuit between ground and the Transmission C1 harness connector.

Is the resistance above 100k ohms?

Yes

- Go To 5

No

- Repair the (T801) Shift Solenoid E (5) Control circuit for a short to ground.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

5. CHECK THE SHIFT SOLENOID E (5)

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Shift Solenoid E (5) between the appropriate terminals of the Transmission C1 harness connector.

Is the resistance of the Shift Solenoid E (5) 5.1 Ohms (± 0.3 Ohm) at 25° C (77° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24**

TRANSMISSION VERIFICATION TEST .

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Shift Solenoid E (5) in accordance with the Service Information.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24**
TRANSMISSION VERIFICATION TEST .

6. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24**
TRANSMISSION VERIFICATION TEST .

No

- Test Complete.

P0985-00-SHIFT SOLENOID 5 CONTROL CIRCUIT LOW

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

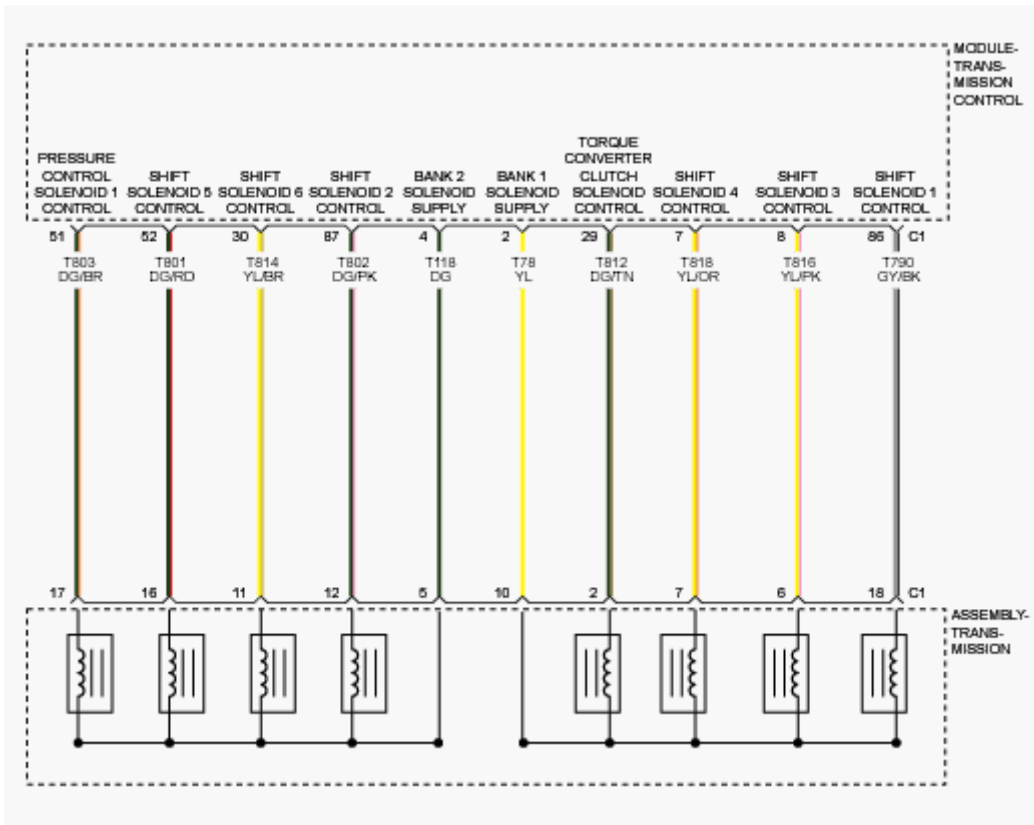


Fig. 37: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of each of the six variable force solenoid circuits. The six variable force solenoids include a shift solenoid C which controls the 3rd, 5th, Reverse clutch, shift solenoid D which controls the Over Drive clutch, shift solenoid E which controls the Under Drive brake, shift solenoid F which controls the 2nd, 6th brake, pressure control solenoid A which controls the hydraulic line pressure, and torque converter clutch pressure control solenoid which controls the torque converter lock up clutch. The electrical failures that are detected include short to battery, short to ground, and open circuit. The power stage driver, which is located in the TCM, detects these electrical malfunctions.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

Solenoid is commanded off (pulse width modulation duty cycle is 0%).

SET CONDITION

The failure is detected if the measured voltage for solenoid output is less than or equal to 1.3 volts for 0.32 of a second.

POSSIBLE CAUSES

Possible Causes
(T801) SHIFT SOLENOID E (5) CONTROL CIRCUIT SHORT TO GROUND SHIFT SOLENOID E (5) TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST**1. CHECK IF DTC IS CURRENT**

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 4

2. CHECK THE (T801) SHIFT SOLENOID E (5) CONTROL CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance of the (T801) Shift Solenoid E (5) Control circuit between ground and the Transmission C1 harness connector.

Is the resistance above 100k ohms?

Yes

- Go To 3

No

- Repair the (T801) Shift Solenoid E (5) Control circuit for a short to ground.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

3. CHECK THE SHIFT SOLENOID E (5)

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Shift Solenoid E (5) between the appropriate terminals of the Transmission C1 harness connector.

Is the resistance of the Shift Solenoid E (5) 5.1 Ohms (± 0.3 Ohm) at 25° C (77° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Shift Solenoid E (5) in accordance with the Service Information.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test Complete.

P0986-00-SHIFT SOLENOID 5 CONTROL CIRCUIT HIGH

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

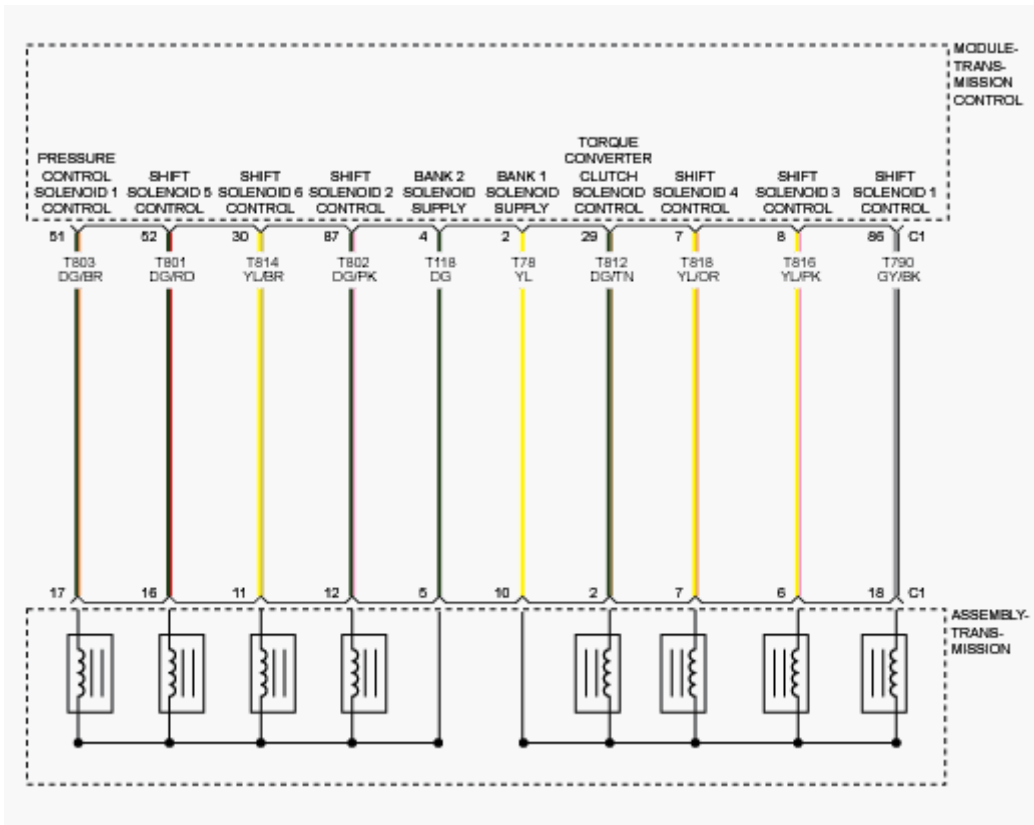


Fig. 38: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of each of the six variable force solenoid circuits. The six variable force solenoids include a shift solenoid C which controls the 3rd, 5th, Reverse clutch, shift solenoid D which controls the Over Drive clutch, shift solenoid E which controls the Under Drive brake, shift solenoid F which controls the 2nd, 6th brake, pressure control solenoid A which controls the hydraulic line pressure, and torque converter clutch pressure control solenoid which controls the torque converter lock up clutch. The electrical failures that are detected include short to battery, short to ground, and open circuit. The power stage driver, which is located in the TCM, detects these electrical malfunctions.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

Solenoid is commanded on (pulse width modulation duty cycle is greater than 10%).

SET CONDITION

The failure is detected if the measured voltage for solenoid output is greater than or equal to 0.575 of a volt for 0.32 of a second.

POSSIBLE CAUSES

Possible Causes
(T801) SHIFT SOLENOID E (5) CONTROL CIRCUIT SHORTED TO VOLTAGE
SHIFT SOLENOID E (5)
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST

1. CHECK IF DTC IS CURRENT

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 4

2. CHECK THE (T801) SHIFT SOLENOID E (5) CONTROL CIRCUIT FOR A SHORT TO VOLTAGE

1. Measure the voltage of the (T801) Shift Solenoid E (5) Control circuit between ground and the Transmission C1 harness connector.

Is the voltage above 0.5 of a volt?

Yes

- Repair the (T801) Shift Solenoid E (5) Control circuit for a short to voltage.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 3

3. CHECK THE SHIFT SOLENOID E (5)

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Shift Solenoid E (5) between the appropriate terminals of the Transmission C1 harness connector.

Is the resistance of the Shift Solenoid E (5) 5.1 Ohms (± 0.3 Ohm) at 25° C (77° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Shift Solenoid E (5) in accordance with the Service Information.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test Complete.

P0997-00-SHIFT SOLENOID 6 CONTROL CIRCUIT RANGE-PERFORMANCE

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

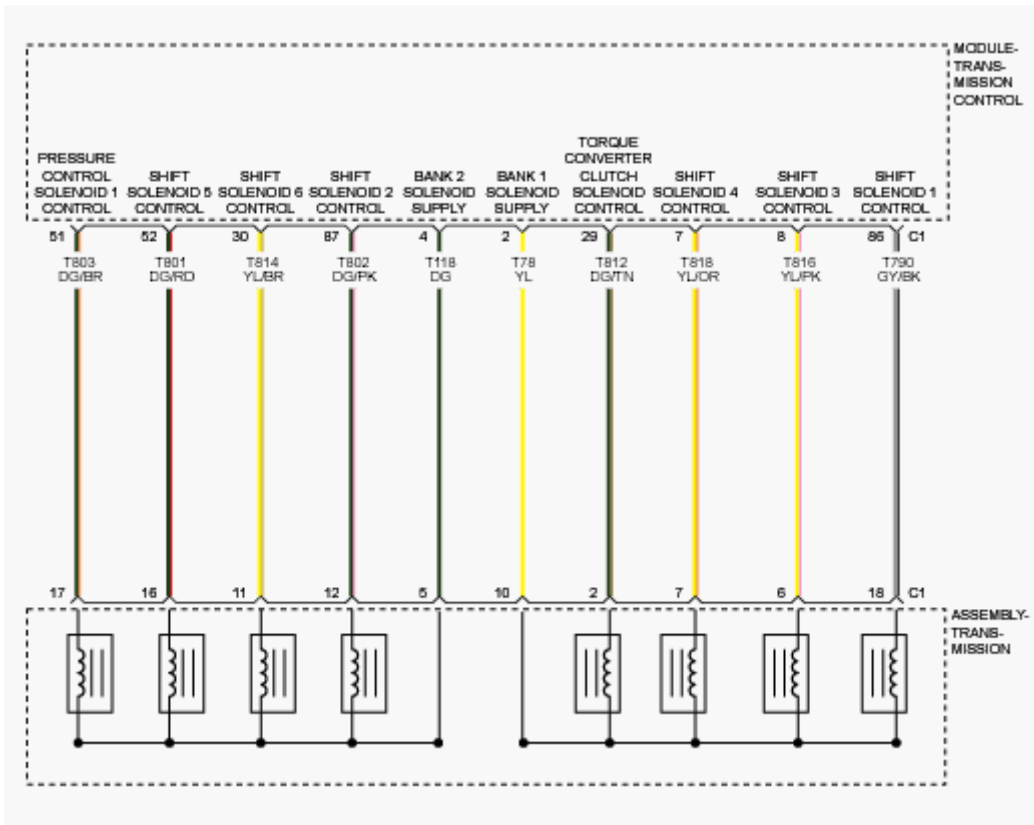


Fig. 39: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the functionality of each of the six variable force solenoid circuits. The six variable force solenoids include a shift solenoid C which controls the 3rd, 5th, Reverse clutch, shift solenoid D which controls the Over Drive clutch, shift solenoid E which controls the Under Drive brake, shift solenoid F which controls the 2nd, 6th brake, pressure control solenoid A which controls the hydraulic line pressure, and torque converter clutch pressure control solenoid which controls the torque converter lock up clutch. The malfunction condition is detected if the measured solenoid feedback current does not correlate to the TCM commanded solenoid current. This failure may be caused by conditions such as internal circuit corrosion or manufacturing defects.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 volts and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

No variable force solenoid circuit failures.

Solenoid control duty cycle is 0%.

SET CONDITION

The failure is detected if the measured solenoid feedback current is greater than 50 mA but less than or equal to 550 mA of the commanded solenoid current for 320 ms.

POSSIBLE CAUSES**Possible Causes**

(T814) SHIFT SOLENOID F (6) CONTROL CIRCUIT SHORTED TO GROUND

SHIFT SOLENOID F (6)

TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE.

DIAGNOSTIC TEST**1. CHECK IF DTC IS CURRENT**

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 5

2. CHECK THE SHIFT SOLENOID F (6) CIRCUITS FOR HIGH RESISTANCE

1. Turn the ignition off to the lock position.
2. Disconnect the Transmission C1 harness connectors.
3. Disconnect the TCM C1 harness connector.
4. Using the schematics as a guide, inspect the Transmission C1 and TCM C1 harness connectors, pins and terminals for the Shift Solenoid F (6) circuits for corrosion, damage, or terminal push out.

Were any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 3

3. CHECK THE (T814) SHIFT SOLENOID F (6) CONTROL CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance of the (T814) Shift Solenoid F (6) Control circuit between ground and the Transmission C1 harness connector.

Is the resistance above 100k ohms?

Yes

- Go To 4

No

- Repair the (T814) Shift Solenoid F (6) Control circuit for a short to

ground.

- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK THE SHIFT SOLENOID F (6)

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Shift Solenoid F (6) between the appropriate terminals of the Transmission C1 harness connector.

Is the resistance of the Shift Solenoid F (6) 5.1 Ohms (± 0.3 Ohm) at 25° C (77° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Shift Solenoid F (6) in accordance with the Service Information.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

5. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Test Complete.

P0998-00-SHIFT SOLENOID 6 CONTROL CIRCUIT LOW

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

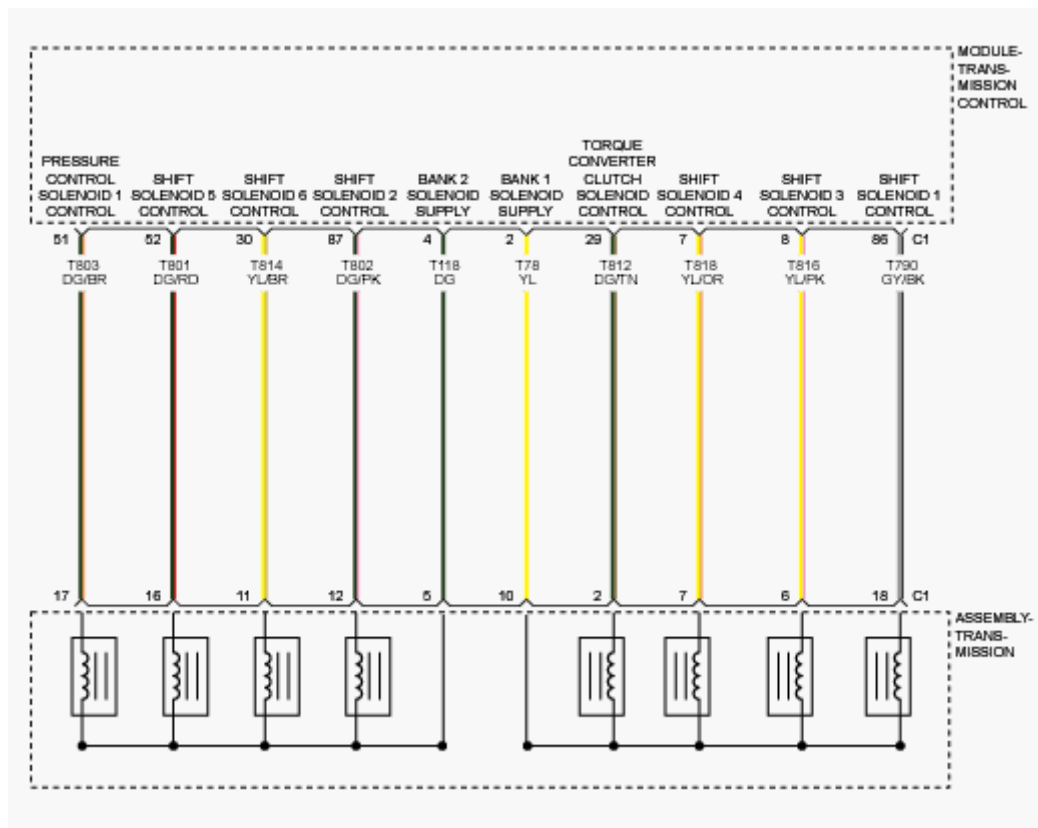


Fig. 40: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of each of

the six variable force solenoid circuits. The six variable force solenoids include a shift solenoid C which controls the 3rd, 5th, Reverse clutch, shift solenoid D which controls the Over Drive clutch, shift solenoid E which controls the Under Drive brake, shift solenoid F which controls the 2nd, 6th brake, pressure control solenoid A which controls the hydraulic line pressure, and torque converter clutch pressure control solenoid which controls the torque converter lock up clutch. The electrical failures that are detected include short to battery, short to ground, and open circuit. The power stage driver, which is located in the TCM, detects these electrical malfunctions.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

Solenoid is commanded off (pulse width modulation duty cycle is 0%).

SET CONDITION

The failure is detected if the measured voltage for solenoid output is less than or equal to 1.3 volts for 0.32 of a second.

POSSIBLE CAUSES**Possible Causes**

(T814) SHIFT SOLENOID F (6) CONTROL CIRCUIT SHORT TO GROUND
SHIFT SOLENOID F (6)
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST

1. CHECK IF DTC IS CURRENT

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 4

2. CHECK THE (T814) SHIFT SOLENOID F (6) CONTROL CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance of the (T814) Shift Solenoid F (6) Control circuit between ground and the Transmission C1 harness connector.

Is the resistance above 100k ohms?

Yes

- Go To 3

No

- Repair the (T814) Shift Solenoid F (6) Control circuit for a short to ground.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

3. CHECK THE SHIFT SOLENOID F (6)

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Shift Solenoid F (6) between the

appropriate terminals of the Transmission C1 harness connector.

Is the resistance of the Shift Solenoid F (6) 5.1 Ohms (± 0.3 Ohm) at 25° C (77° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL**.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Shift Solenoid F (6) in accordance with the Service Information.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

4. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Test Complete.

P0999-00-SHIFT SOLENOID 6 CONTROL CIRCUIT HIGH

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

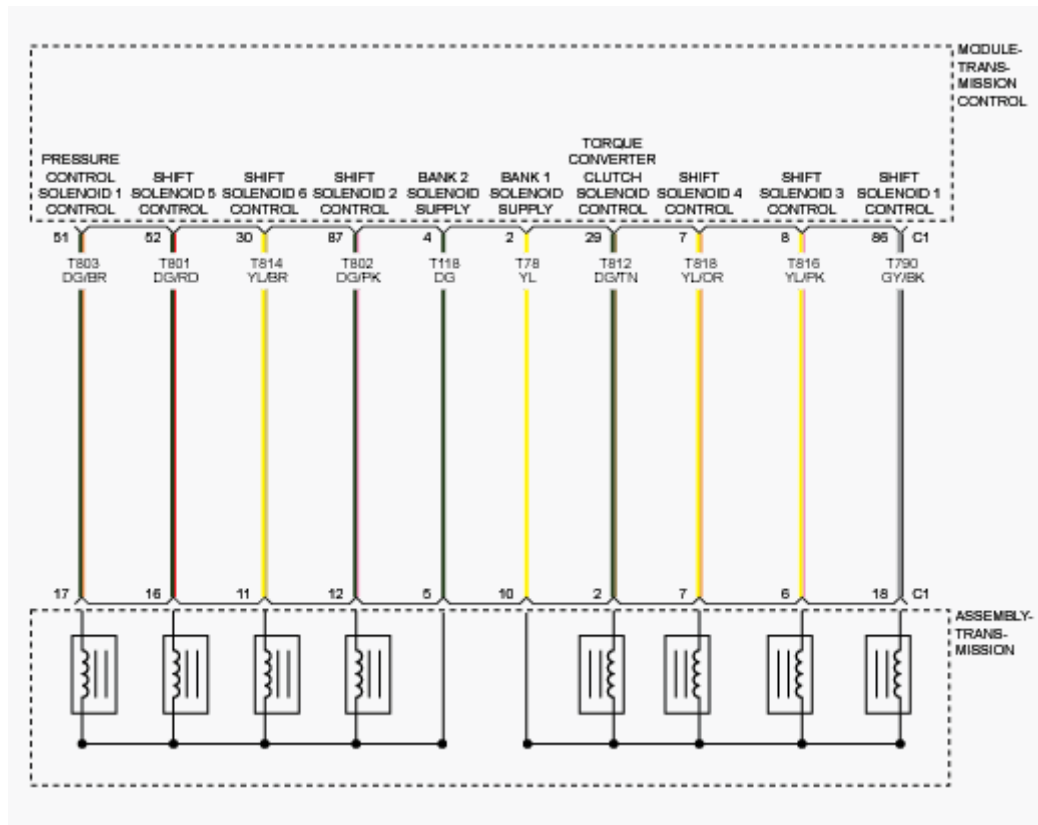


Fig. 41: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of each of the six variable force solenoid circuits. The six variable force solenoids include a shift solenoid C which controls the 3rd, 5th, Reverse clutch, shift solenoid D which controls the Over Drive clutch, shift solenoid E which controls the Under Drive brake, shift solenoid F which controls the 2nd, 6th brake, pressure control solenoid A which controls the hydraulic line pressure, and torque converter clutch pressure control solenoid which controls the torque converter lock up clutch. The electrical failures that are detected include short to battery, short to

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ground, and open circuit. The power stage driver, which is located in the TCM, detects these electrical malfunctions.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

Solenoid is commanded on (pulse width modulation duty cycle is greater than 10%).

SET CONDITION

The failure is detected if the measured voltage for solenoid output is greater than or equal to 0.575 of a volt for 0.32 of a second.

POSSIBLE CAUSES

Possible Causes

(T814) SHIFT SOLENOID F (6) CONTROL CIRCUIT SHORTED TO VOLTAGE

SHIFT SOLENOID F (6)

TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST

1. CHECK IF DTC IS CURRENT

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the

conditions that set the DTC.

5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 4

2. CHECK THE (T814) SHIFT SOLENOID F (6) CONTROL CIRCUIT FOR A SHORT TO VOLTAGE

1. Measure the voltage of the (T814) Shift Solenoid F (6) Control circuit between ground and the Transmission C1 harness connector.

Is the voltage above 0.5 of a volt?

Yes

- Repair the (T814) Shift Solenoid F (6) Control circuit for a short to voltage.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 3

3. CHECK THE SHIFT SOLENOID F (6)

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Shift Solenoid F (6) between the appropriate terminals of the Transmission C1 harness connector.

Is the resistance of the Shift Solenoid F (6) 5.1 Ohms (± 0.3 Ohm) at 25° C (77° F)?

Yes

- Using the schematics as a guide, check the Transmission Control

Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .

- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Shift Solenoid F (6) in accordance with the Service Information.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test Complete.

P1715-00-RESTRICTED MANUAL VALVE IN T3 RANGE

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

THEORY OF OPERATION

The purpose of this diagnose is to check the mechanical alignment of the linkage between the shifter and transmission range sensor. One distinct failure condition is detected by this diagnostic based upon clutch slip which is determined by comparing turbine speed to output speed.

WHEN MONITORED

Ignition voltage is above a calibrated value.

Power signal diagnostic is enabled and reports a normal state.

Shift is not in progress.

Time passed from gear shift is greater than or equal to a calibrated threshold.

Turbine (Input) speed sensor error is not detected.

Output speed sensor error is not detected.

Transmission fluid temperature sensor error is not detected.

No Engine speed error detected.

No EMS CAN error detected.

No BCM CAN error detected.

No CAN bus off error detected.

Engine speed is greater than or equal to threshold.

Turbine speed is greater than or equal to threshold.

Output speed is greater than or equal to threshold.

Not in neutral control state.

Transmission fluid temperature is greater than or equal to threshold.

Engine is running.

SET CONDITION

The failure is detected if the clutch slip is greater than or equal to a calibrated threshold for a calibrated amount time when manual shift valve is in an intermediate position due to misalignment between shift lever and transmission.

POSSIBLE CAUSES**Possible Causes**

Shifter linkage is out of adjustment.

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST**1. CHECK IF DTC IS CURRENT**

1. With the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. With the scan tool, erase DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. With the scan tool, read TCM DTCs.

Did the DTC reset?

Yes

- Adjust the shifter cable in accordance with the Service Information.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to 6F24 TRANSMISSION VERIFICATION TEST .

No

- Go to 2.

2. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.

2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform the Transmission Verification Test. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test complete.

P2761-00-TORQUE CONVERTER CLUTCH PRESSURE CONTROL SOLENOID CONTROL CIRCUIT-OPEN

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

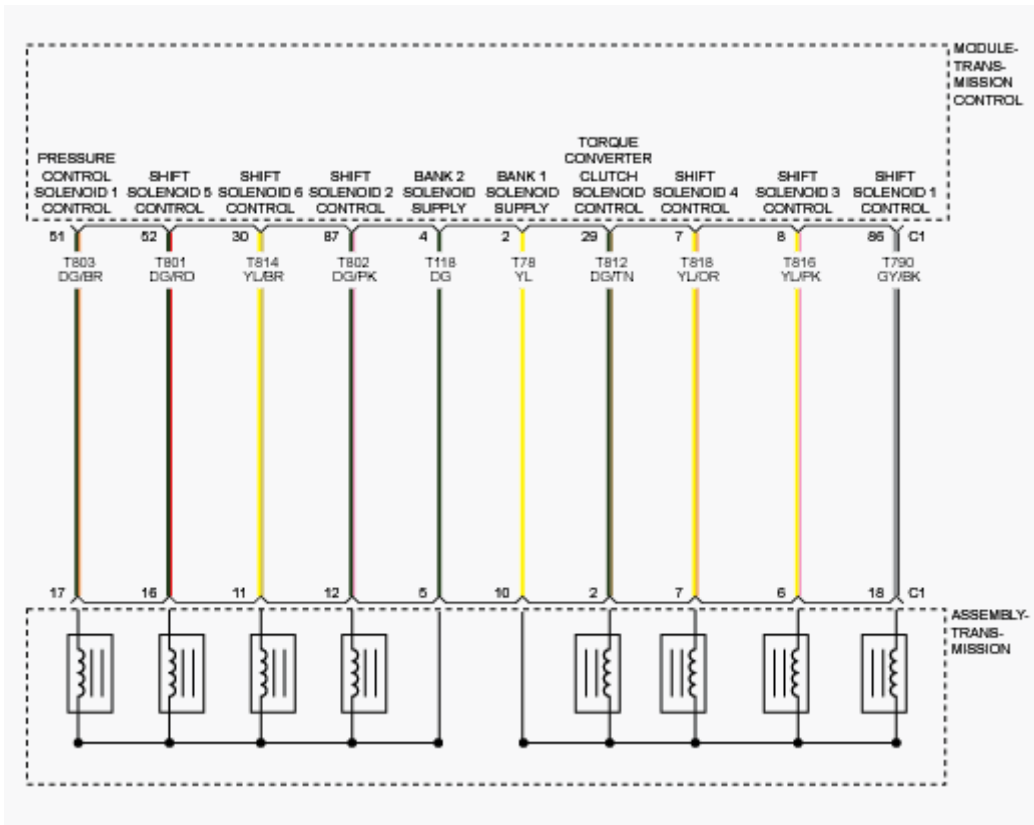


Fig. 42: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of each of the six variable force solenoid circuits. The six variable force solenoids include a shift solenoid C which controls the 3rd, 5th, Reverse clutch, shift solenoid D which controls the Over Drive clutch, shift solenoid E which controls the Under Drive brake, shift solenoid F which controls the 2nd, 6th brake, pressure control solenoid A which controls the hydraulic line pressure, and torque converter clutch pressure control solenoid which controls the torque converter lock up clutch. The electrical failures that are detected include short to battery, short to ground, and open circuit. The power stage driver, which is located in the TCM, detects these electrical malfunctions.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

Solenoid is commanded off (pulse width modulation duty cycle is 0%).

SET CONDITION

The failure is detected if measured voltage for solenoid output is between 1.3 volts and 4.7 volts for 0.32 of a second.

POSSIBLE CAUSES**Possible Causes**

(T78) BANK 1 SOLENOID POWER SUPPLY CIRCUIT OPEN
(T812) TORQUE CONVERTER CLUTCH PRESSURE CONTROL
SOLENOID CONTROL CIRCUIT OPEN
TORQUE CONVERTER CLUTCH PRESSURE CONTROL SOLENOID
TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST**1. CHECK IF DTC IS CURRENT**

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 5

2. CHECK THE (T78) BANK 1 SOLENOID POWER CIRCUIT FOR AN OPEN

1. Turn the ignition off to the lock position.
2. Disconnect the Transmission C1 harness connectors.
3. Disconnect the TCM C1 harness connector.
4. Measure the resistance of the (T78) Bank 1 Solenoid Power circuit between the Transmission C1 harness connector and the TCM C1 harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 3

No

- Repair the (T78) Bank 1 Solenoid Power circuit for an open.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

3. CHECK THE (T812) TORQUE CONVERTER CLUTCH PRESSURE CONTROL SOLENOID CONTROL CIRCUIT FOR AN OPEN

1. Measure the resistance of the (T812) Torque Converter Clutch Pressure Control Solenoid Control circuit between the Transmission C1 harness connector and the TCM C1 harness connector.

Is the resistance below 5.0 Ohms?

Yes

- Go To 4

No

- Repair the (T812) Torque Converter Clutch Pressure Control Solenoid Control circuit for an open.

- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

4. CHECK THE TORQUE CONVERTER CLUTCH PRESSURE CONTROL SOLENOID A (1)

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Torque Converter Clutch Pressure Control Solenoid between the appropriate terminals at the Transmission C1 harness connector.

Is the resistance of the Torque Converter Clutch Pressure Control Solenoid 5.1 Ohms (± 0.3 Ohm) at 25° C (77° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL**.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Torque Converter Clutch Pressure Control Solenoid in accordance with the Service Information.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

5. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test Complete.

P2762-00-TORQUE CONVERTER CLUTCH PRESSURE CONTROL SOLENOID CONTROL CIRCUIT RANGE-PERFORMANCE

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

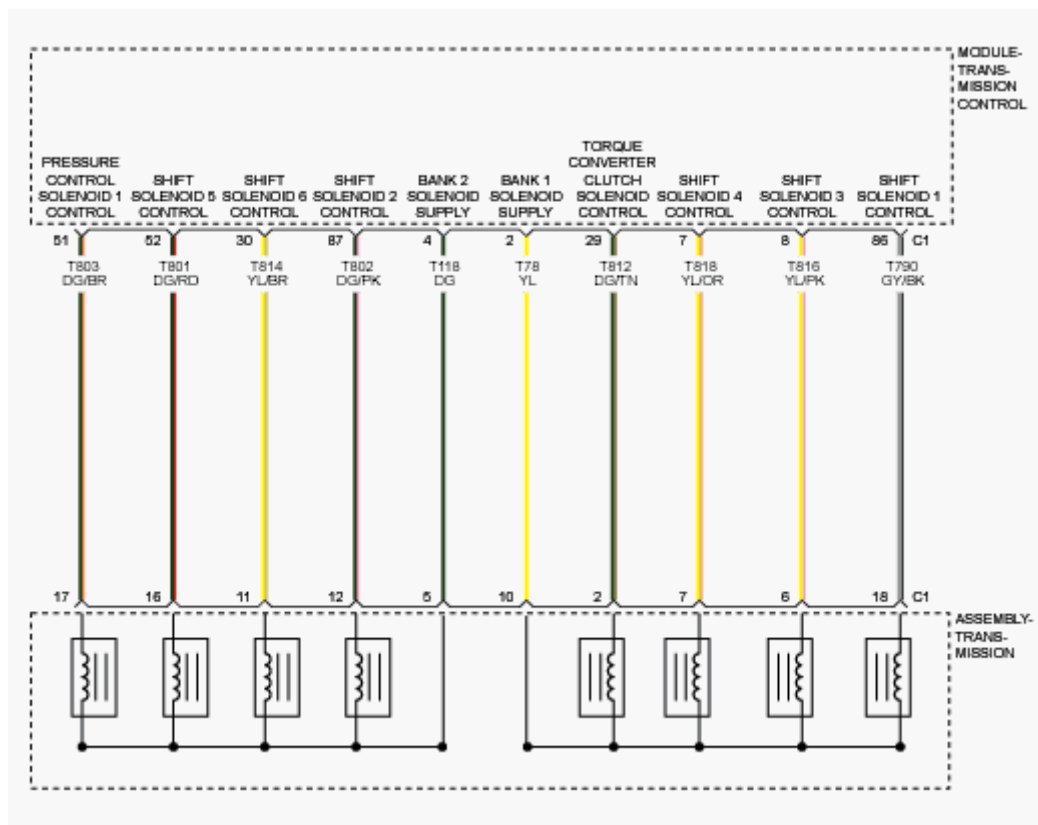


Fig. 43: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

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2014 AUTOMATIC TRANSMISSION Transmission Control Module (TCM) - Electrical Diagnostics, 6F24 - Compass & Patriot

The purpose of this diagnostic is to check the functionality of each of the six variable force solenoid circuits. The six variable force solenoids include a shift solenoid C which controls the 3rd, 5th, Reverse clutch, shift solenoid D which controls the Over Drive clutch, shift solenoid E which controls the Under Drive brake, shift solenoid F which controls the 2nd, 6th brake, pressure control solenoid A which controls the hydraulic line pressure, and torque converter clutch pressure control solenoid which controls the torque converter lock up clutch. The malfunction condition is detected if the measured solenoid feedback current does not correlate to the TCM commanded solenoid current. This failure may be caused by conditions such as internal circuit corrosion or manufacturing defects.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 volts and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

No variable force solenoid circuit failures.

Solenoid control duty cycle is 0%.

SET CONDITION

The failure is detected if the measured solenoid feedback current is greater than 50 mA but less than or equal to 550 mA of the commanded solenoid current for 320 ms.

POSSIBLE CAUSES

Possible Causes

CIRCUIT(S) HIGH RESISTANCE

(T78) BANK 1 SOLENOID POWER CIRCUIT SHORTED TO GROUND

(T812) TORQUE CONVERTER CLUTCH PRESSURE CONTROL

SOLENOID CONTROL CIRCUIT SHORTED TO GROUND

TORQUE CONVERTER CLUTCH PRESSURE CONTROL SOLENOID

TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE.

DIAGNOSTIC TEST

1. CHECK IF DTC IS CURRENT

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 6

2. CHECK THE TORQUE CONVERTER CLUTCH PRESSURE CONTROL SOLENOID CIRCUITS FOR HIGH RESISTANCE

1. Turn the ignition off to the lock position.
2. Disconnect the Transmission C1 harness connectors.
3. Disconnect the TCM C1 harness connector.
4. Using the schematics as a guide, inspect the Transmission C1 and TCM C1 harness connectors, pins and terminals for the Torque Converter Clutch Pressure Control Solenoid circuits for corrosion, damage, or terminal push out.

Were any problems found?

Yes

- Repair as necessary.

- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 3

3. CHECK THE (T78) BANK 1 SOLENOID POWER CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance of the (T78) Bank 1 Solenoid Power circuit between ground and the Transmission C1 harness connector.

Is the resistance above 100k ohms?

Yes

- Go To 4

No

- Repair the (T78) Bank 1 Solenoid Power circuit for a short to ground.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK THE (T812) TORQUE CONVERTER CLUTCH PRESSURE CONTROL SOLENOID CONTROL CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance of the (T812) Torque Converter Clutch Pressure Control Solenoid Control circuit between ground and the Transmission C1 harness connector.

Is the resistance above 100k ohms?

Yes

- Go To 5

No

- Repair the (T812) Torque Converter Clutch Pressure Control Solenoid Control circuit for a short to ground.

- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

5. CHECK THE TORQUE CONVERTER CLUTCH PRESSURE CONTROL SOLENOID

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Torque Converter Clutch Pressure Control Solenoid between the appropriate terminals of the Transmission C1 harness connector.

Is the resistance of the Torque Converter Clutch Pressure Control Solenoid 5.1 Ohms (± 0.3 Ohm) at 25° C (77° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Torque Converter Clutch Pressure Control Solenoid in accordance with the Service Information.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

6. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test Complete.

P2763-00-TORQUE CONVERTER CLUTCH PRESSURE CONTROL SOLENOID CONTROL CIRCUIT HIGH

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

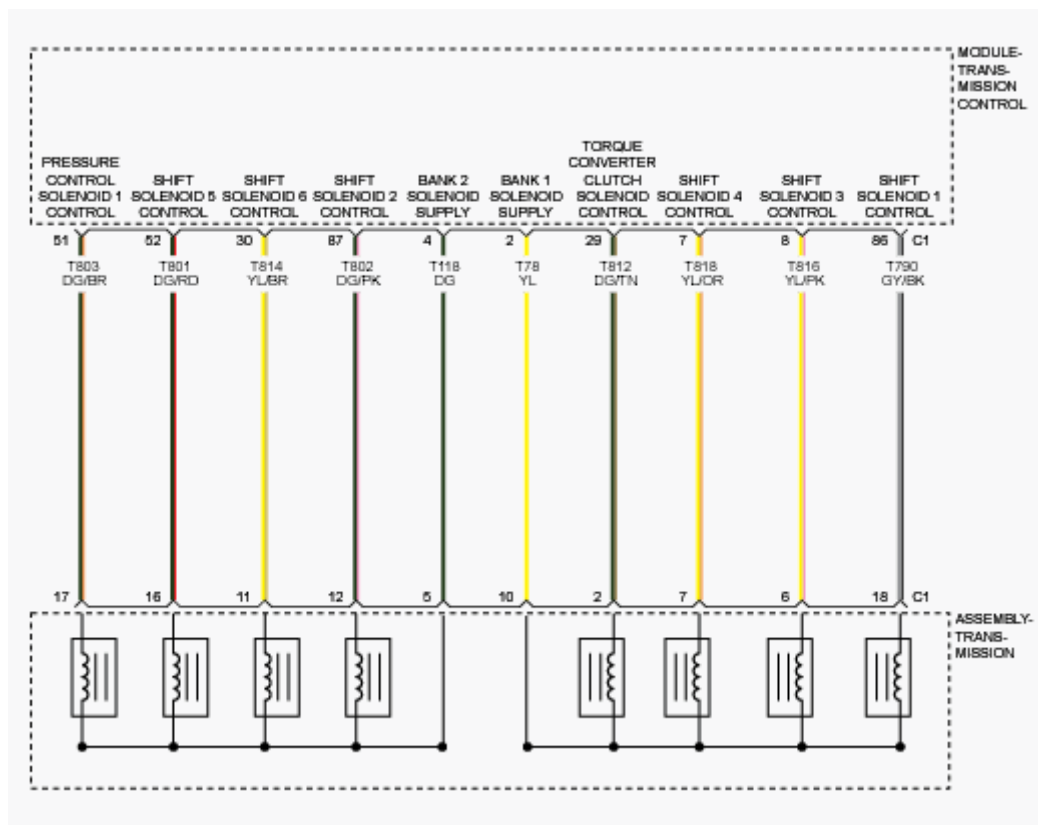


Fig. 44: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

2014 Jeep Patriot Limited

2014 AUTOMATIC TRANSMISSION Transmission Control Module (TCM) - Electrical Diagnostics, 6F24 - Compass & Patriot

The purpose of this diagnostic is to check the electrical performance of each of the six variable force solenoid circuits. The six variable force solenoids include a shift solenoid C which controls the 3rd, 5th, Reverse clutch, shift solenoid D which controls the Over Drive clutch, shift solenoid E which controls the Under Drive brake, shift solenoid F which controls the 2nd, 6th brake, pressure control solenoid A which controls the hydraulic line pressure, and torque converter clutch pressure control solenoid which controls the torque converter lock up clutch. The electrical failures that are detected include short to battery, short to ground, and open circuit. The power stage driver, which is located in the TCM, detects these electrical malfunctions.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

Solenoid is commanded on (pulse width modulation duty cycle is greater than 10%).

SET CONDITION

The failure is detected if the measured voltage for solenoid output is greater than or equal to 0.575 of a volt for 0.32 of a second.

POSSIBLE CAUSES

Possible Causes

(T78) BANK 1 SOLENOID POWER SUPPLY CIRCUIT SHORTED TO VOLTAGE

(T812) TORQUE CONVERTER CLUTCH PRESSURE CONTROL SOLENOID CONTROL CIRCUIT SHORTED TO VOLTAGE

TORQUE CONVERTER CLUTCH PRESSURE CONTROL SOLENOID TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before

proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST

1. CHECK IF DTC IS CURRENT

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 5

2. CHECK THE (T78) BANK 1 SOLENOID POWER CIRCUIT FOR A SHORT TO VOLTAGE

1. Turn the ignition off to the lock position.
2. Disconnect the Transmission C1 harness connectors.
3. Disconnect the TCM C1 harness connector.
4. Turn the ignition on.
5. Measure the voltage of the (T78) Bank 1 Solenoid Power circuit between ground and the Transmission C1 harness connector.

Is the voltage above 0.5 of a volt?

Yes

- Repair the (T78) Bank 1 Solenoid Power circuit for a short to voltage.

- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 3

3. CHECK THE (T812) TORQUE CONVERTER CLUTCH PRESSURE CONTROL SOLENOID CONTROL CIRCUIT FOR A SHORT TO VOLTAGE

1. Measure the voltage of the (T812) Torque Converter Clutch Pressure Control Solenoid Control circuit between ground and the Transmission C1 harness connector.

Is the voltage above 0.5 of a volt?

Yes

- Repair the (T812) Torque Converter Clutch Pressure Control Solenoid Control circuit for a short to voltage.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 4

4. CHECK THE TORQUE CONVERTER CLUTCH PRESSURE CONTROL SOLENOID A (1)

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Torque Converter Clutch Pressure Control Solenoid between the appropriate terminals of the Transmission C1 harness connector.

Is the resistance of the Torque Converter Clutch Pressure Control Solenoid 5.1 Ohms (± 0.3 Ohm) at 25° C (77° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion,

damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .

- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Torque Converter Clutch Pressure Control Solenoid in accordance with the Service Information.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

5. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.
3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test Complete.

P2764-00-TORQUE CONVERTER CLUTCH PRESSURE CONTROL SOLENOID CONTROL CIRCUIT LOW

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

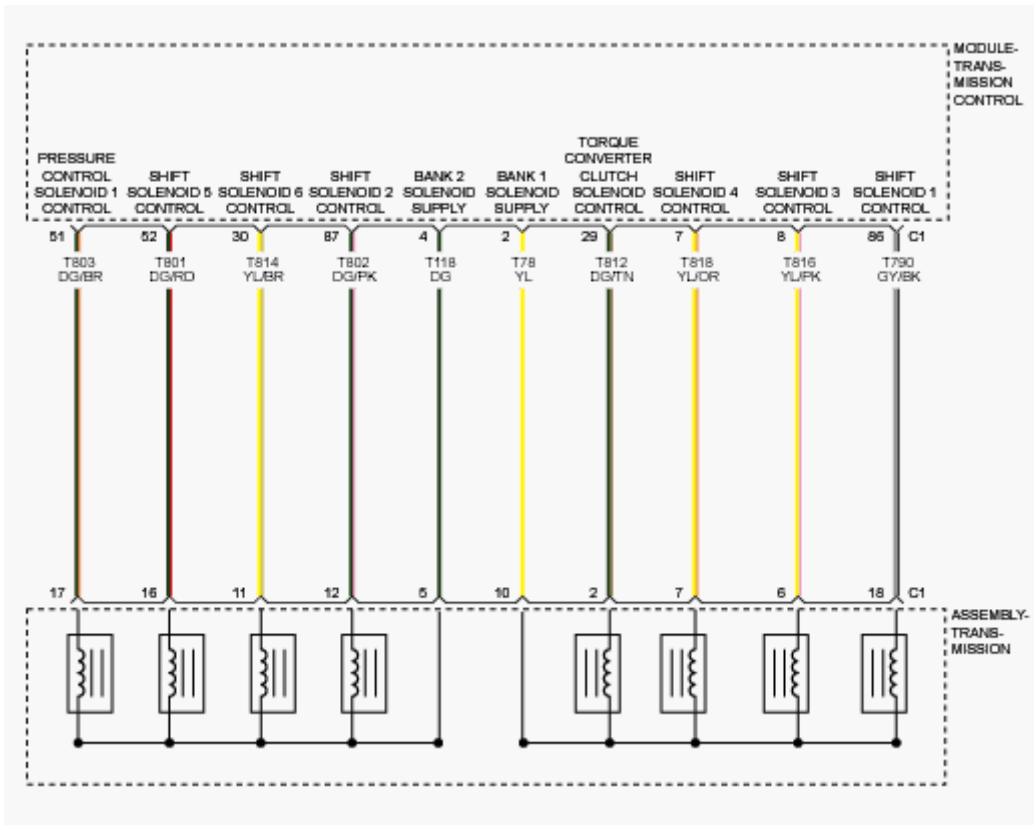


Fig. 45: Transmission Solenoids Circuit Diagram
Courtesy of CHRYSLER GROUP, LLC

THEORY OF OPERATION

The purpose of this diagnostic is to check the electrical performance of each of the six variable force solenoid circuits. The six variable force solenoids include a shift solenoid C which controls the 3rd, 5th, Reverse clutch, shift solenoid D which controls the Over Drive clutch, shift solenoid E which controls the Under Drive brake, shift solenoid F which controls the 2nd, 6th brake, pressure control solenoid A which controls the hydraulic line pressure, and torque converter clutch pressure control solenoid which controls the torque converter lock up clutch. The electrical failures that are detected include short to battery, short to ground, and open circuit. The power stage driver, which is located in the TCM, detects these electrical malfunctions.

WHEN MONITORED

Limp in condition is not present.

Time since last gear shift is greater than or equal to 300 ms.

TCM supply voltage for solenoid is between 9 and 16 volts.

Time since high side driver commanded on is greater than or equal to 300 ms.

Solenoid is commanded off (pulse width modulation duty cycle is 0%).

SET CONDITION

The failure is detected if the measured voltage for solenoid output is less than or equal to 1.3 volts for 0.32 of a second.

POSSIBLE CAUSES**Possible Causes**

(T78) BANK 1 SOLENOID POWER SUPPLY CIRCUIT SHORT TO GROUND

(T812) TORQUE CONVERTER CLUTCH PRESSURE CONTROL SOLENOID CONTROL CIRCUIT SHORT TO GROUND

TORQUE CONVERTER CLUTCH PRESSURE CONTROL SOLENOID TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST**1. CHECK IF DTC IS CURRENT**

1. Using the scan tool, read TCM DTCs.
2. Record the Environmental Data and any DTCs.
3. Clear DTCs.
4. Using the recorded Environmental Data, along with the When Monitored and Set Conditions above, operate the vehicle in the conditions that set the DTC.
5. Read TCM DTCs.

Did the DTC reset?

Yes

- Go To 2

No

- Go To 5

2. CHECK THE (T78) BANK 1 SOLENOID POWER CIRCUIT FOR A SHORT TO GROUND

1. Turn the ignition off to the lock position.
2. Disconnect the Transmission C1 harness connectors.
3. Disconnect the TCM C1 harness connector.
4. Measure the resistance of the (T78) Bank 1 Solenoid Power circuit between ground and the Transmission C1 harness connector.

Is the resistance above 100k ohms?

Yes

- Go To 3

No

- Repair the (T78) Bank 1 Solenoid Power circuit for a short to ground.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

3. CHECK THE (T812) TORQUE CONVERTER CLUTCH PRESSURE CONTROL SOLENOID CONTROL CIRCUIT FOR A SHORT TO GROUND

1. Measure the resistance of the (T812) Torque Converter Clutch Pressure Control Solenoid Control circuit between ground and the Transmission C1 harness connector.

Is the resistance above 100k ohms?

Yes

- Go To 4

No

- Repair the (T812) Torque Converter Clutch Pressure Control Solenoid Control circuit for a short to ground.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

4. CHECK THE TORQUE CONVERTER CLUTCH PRESSURE CONTROL SOLENOID A (1)

1. Turn the ignition off to the lock position.
2. Measure the resistance of the Torque Converter Clutch Pressure Control Solenoid between the appropriate terminals of the Transmission C1 harness connector.

Is the resistance of the Torque Converter Clutch Pressure Control Solenoid 5.1 Ohms (± 0.3 Ohm) at 25° C (77° F)?

Yes

- Using the schematics as a guide, check the Transmission Control Module (TCM) pins, terminals, and connectors for corrosion, damage, or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance with the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL** .
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Remove the transmission side cover and inspect the internal lead frame. If there are no problems found with the lead frame, replace the Torque Converter Clutch Pressure Control Solenoid in accordance with the Service Information.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

5. CHECK WIRING AND CONNECTORS

1. The conditions necessary to set the DTC are not present at this time.
2. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit.

3. Wiggle the wires while checking for shorted and open circuits.
4. Check for any Service Bulletins that may apply.

Were there any problems found?

Yes

- Repair as necessary.
- Perform TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Test Complete.

U0001-00-CAN C BUS

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

WHEN MONITORED

Continuously when the ignition is on and battery voltage between 10 and 16 volts.

SET CONDITION

The controller detects an open, short to ground or a short to voltage on the CAN C Bus circuit.

POSSIBLE CAUSES

Possible Causes
CAN C BUS CIRCUITS OPEN OR SHORTED
DTCS RELATED TO BATTERY VOLTAGE, IGNITION, OR VIN MESSAGES
TOTALLY INTEGRATED POWER MODULE (TIPM) POWER AND GROUND
TOTALLY INTEGRATED POWER MODULE (TIPM)
MODULE THAT SET THIS DTC

DIAGNOSTIC TEST**VERIFY THE DTC IS ACTIVE**

NOTE: For vehicle communication problems, use the scan tool to refer to the **Network Review Screen**. The screen depicts a high level view of the vehicle network. Fault and problem areas appear in red. Selecting any of the network components allows access to the source of the problem.

1. Turn the ignition on.
2. With the scan tool, read active DTCs.

Is the DTC active at this time?

Yes

- Refer to the **TOTALLY INTEGRATED POWER MODULE (TIPM) - DIAGNOSTIC CODE INDEX** and perform the U0002-CAN C Bus Off Performance diagnostic procedure.

No

- Refer to **DIAGNOSIS AND TESTING** and perform the Stored Lost Communication DTCs diagnostic procedure.

U0100-00-LOST COMMUNICATION WITH ECM-PCM

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

WHEN MONITORED

Ignition run time is greater than one second.

Battery voltage between 9 and 16 volts.

Engine run time greater than three seconds.

SET CONDITION

Bus messages not received from the Powertrain Control Module (ECM/PCM) for

approximately two to five seconds.

POSSIBLE CAUSES**Possible Causes**

CAN BUS CIRCUITS OPEN OR SHORTED
DTCS RELATED TO BATTERY VOLTAGE, IGNITION, OR VIN
MESSAGES
POWERTRAIN CONTROL MODULE POWER AND GROUND
TIPM NOT CONFIGURED CORRECTLY
POWERTRAIN CONTROL MODULE (ECM/PCM)
MODULE THAT SET THIS DTC

DIAGNOSTIC TEST**VERIFY THE DTC IS ACTIVE**

NOTE: **Make sure the IOD fuse is installed and the battery is fully charged before proceeding.**

1. Turn the ignition on.
2. With the scan tool, read the active DTCs.

Is the DTC active at this time?

Yes

- Perform the U0100-87-Lost Communication with ECM/PCM diagnostic procedure. Refer to the **TOTALLY INTEGRATED POWER MODULE (TIPM) - DIAGNOSTIC CODE INDEX** .

No

- Perform the Stored Lost Communication DTCs diagnostic procedure. Refer to **DIAGNOSIS AND TESTING** .

U0121-00-LOST COMMUNICATION WITH ANTILOCK BRAKE SYSTEM (ABS) CONTROL MODULE

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

THEORY OF OPERATION

The Controller Area Network (CAN) is a high speed serial communication line for multiplex communication between multiple controllers that reside on the network. The Transmission Control Module monitors the transmit and receive message from the CAN BUS.

WHEN MONITORED

Ignition on in the run position with a system voltage between 9.0 and 16.0 volts.

IOD fuse is installed or vehicle odometer is over 80 kilometers (50 miles).

No CAN C BUS DTCs present.

SET CONDITION

A loss of CAN Bus communication between the TCM and ABS for the period of 2.0 seconds.

Refer to DTC Based Diagnostics and perform the appropriate diagnostic procedure. Refer to the **TOTALLY INTEGRATED POWER MODULE (TIPM) - DIAGNOSTIC CODE INDEX** .

U0141-00-LOST COMMUNICATION WITH IPM FCM-TIPM

For a complete wiring diagram, **refer to appropriate SYSTEM WIRING DIAGRAMS article** .

THEORY OF OPERATION

The Controller Area Network (CAN) is a high speed serial communication line for multiplex communication between multiple controllers that reside on the network. The Transmission Control Module monitors the transmit and receive message from the CAN BUS.

WHEN MONITORED

Ignition on in the run position with a system voltage between 9.0 and 16.0 volts.

IOD fuse is installed or vehicle odometer is over 80 kilometers (50 miles).

No CAN C Bus DTCs present.

SET CONDITION

A loss of CAN Bus communication between the TCM and FCM/TIPM for the period of 2.0 seconds.

Refer to DTC Based Diagnostics and perform the appropriate diagnostic procedure. Refer to the **TOTALLY INTEGRATED POWER MODULE (TIPM) - DIAGNOSTIC CODE INDEX**.

U0401-00-IMPLAUSIBLE DATA RECEIVED FROM ECM-PCM

For a complete wiring diagram, refer to appropriate **SYSTEM WIRING DIAGRAMS** article .

THEORY OF OPERATION

This diagnostic checks the validity of the two CAN messages sent by the Powertrain Controller Module (PCM) containing information about the engine torque. The diagnostic checks the validity by performing a CRC and message counter check to be sure the CAN messages are continuously updated by the PCM and they contain valid values.

WHEN MONITORED

Ignition key is ON.

The Bus OFF failure is not present, the TCM receives messages on the CAN network, the CAN communication between the TCM and PCM is not lost, there are no dual port RAM faults and the CAN message was read at least once.

SET CONDITION

A signal toggle bit and a signal parity bit are sent by the PCM within the CAN message. In order to be sure the message content is continuously updated, the value of the toggle bit changes from 0 to 1 and vice versa every two messages. In order to be sure that the message content is valid, the parity bit value is set so the sum of specific signal bits of the message content, plus the toggle bit, plus the parity bit is an even number. If the toggle bit value does not change for a calibrated amount of time or the signal parity is not verified for a calibrated amount of time then DTC U0401 is set.

POSSIBLE CAUSES

Possible Causes

PCM - INTERNAL ERROR

TRANSMISSION CONTROL MODULE (TCM)

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. Refer to 6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE .

DIAGNOSTIC TEST**1. CHECK FOR BCM CAN BUS DTCS**

1. With the scan tool, read BCM DTCs.

Are any BCM CAN BUS DTC's present?

Yes

- Refer to the **TOTALLY INTEGRATED POWER MODULE (TIPM) - DIAGNOSTIC CODE INDEX** and perform the appropriate diagnostic procedure. Perform the diagnostic procedure for DTC U0001-CAN C BUS first if it is present.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Go To 2

2. CHECK IF ENGINE DTC'S ARE PRESENT

1. With the scan tool, read engine DTCs.

Are any engine DTC's present?

Yes

- Refer to the **2.0L & 2.4L - DIAGNOSTIC CODE INDEX** and perform the appropriate diagnostic procedure.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Using the schematics as a guide, check the Transmission Control Module (TCM) terminals for corrosion, damage or terminal push out. Pay particular attention to all power and ground circuits. If no problems are found, replace and program the TCM in accordance to the Service Information. Refer to **MODULE, TRANSMISSION CONTROL, REMOVAL**.
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST**.

STANDARD PROCEDURE

6F24 PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE

1. Many transmission symptoms can be caused by a low fluid level. If the fluid level is low, locate and repair any leaks and fill the transmission to the proper fluid level in accordance with the Service Information.
2. Testing should only be performed with the battery fully charged to avoid false diagnosis.
3. With the scan tool, read Powertrain (PCM) DTCs. If Engine DTCs are present, refer to the **2.0L & 2.4L - DIAGNOSTIC CODE INDEX** and perform to the appropriate diagnostic procedure(s) before proceeding. .
4. With the scan tool, read Transmission (TCM) DTCs. Record all Stored, Active, and Pending DTC information. Diagnose any Pending DTC as a matured DTC.
5. Refer to the WHEN MONITORED and SET CONDITIONS for this DTC. DTCs can set at ignition on, at start up, driving under specific conditions, or after controller diagnostic monitors have run.
6. Perform any applicable Service Bulletins for controller software update information. Some conditions can be corrected by upgrading the Powertrain (PCM) or Transmission (TCM) controller software.
7. Check for any Service Information Updates or Service Bulletins for any possible causes that may apply.

Were there any repairs made that fixed the vehicle?

Yes

- Testing complete.

- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

No

- Perform the appropriate diagnostic procedure.

6F24 TCM PROGRAMMING PROCEDURE

PROGRAMMING THE TRANSMISSION CONTROL MODULE (TCM)

NOTE: While performing the TCM programming procedure, the vehicle battery must be maintained between 10 and 16 volts. Ambient temperature must be between 0° C (32° F) 60° C (140° F). Vehicle must be in Park with brake pedal depressed.

1. Using the scan tool and Dealer Connect, download the appropriate TCM flash file to the scan tool.
2. Ignition on, engine not running.
3. Vehicle in park with the brake pedal depressed.
4. Following the menu on the scan tool, program the TCM.
5. Clear any stored DTCs.
6. Road test the vehicle above 40 m.p.h. for at least two minutes.
7. With the scan tool, select View DTCs in the TCM.

Are there any DTCs present?

Yes

- Perform the appropriate diagnostic procedure(s).

No

- Test Complete
- Perform the TRANSMISSION VERIFICATION TEST. Refer to **6F24 TRANSMISSION VERIFICATION TEST** .

6F24 TRANSMISSION VERIFICATION TEST

1. Perform the following after completion of a diagnostic repair:
 1. Reconnect any disconnected components.
 2. Connect the scan tool to the Data Link Connector (DLC).
 3. With the scan tool, erase all Transmission and Engine DTCs.
 4. If the transmission or valve body has been replaced, a Clear Learned Values procedure must be performed with the scan tool.
 5. With the scan tool, display Transmission Temperature. Start and run the engine until the Transmission Temperature is HOT.
 6. Check the Transmission fluid level and adjust if necessary. Refer to **STANDARD PROCEDURES** for the Fluid Fill procedure.
 7. Road test the vehicle allowing the vehicle to shift through all gears.
 8. Check for DTCs during and after the road test.

Were there any Diagnostic Trouble Codes (DTCs) set during the road test?

Yes

- Refer to **DIAGNOSTIC CODE INDEX** and perform the appropriate diagnostic procedure.

No

- Repair is complete.