

DTC 67 V8 PCM (1 of 2)

TORQUE CONVERTER CLUTCH "ON-OFF" solenoid or qdm 2 CIRCUIT FAULT

Circuit Description:

The Torque Converter Clutch (TCC) "ON-OFF" solenoid is a normally open exhaust valve. The PCM activates the solenoid by earthing circuit 422 with an internal quad-driver. When the solenoid is energised it blocks the fluid from exhausting the TCC circuit and the TCC is applied.

The PCM continually monitors voltage on the TCC circuit connected to the "quad driver" for either low or high voltage depending on the commanded state of the torque converter clutch. Diagnostic Trouble Code (DTC) 67 will set if there is a fault detected on the TCC solenoid circuit. For example, if the TCC were "OFF," but voltage on the TCC circuit drops as if the solenoid were applied, then DTC 67 will be set. If the TCC were "ON" but voltage on the TCC circuit remains high (about 12 volts), as if TCC solenoid were not applied, then DTC 67 will be set.

Test Description: Number(s) below refer to step number(s) on the diagnostic chart.

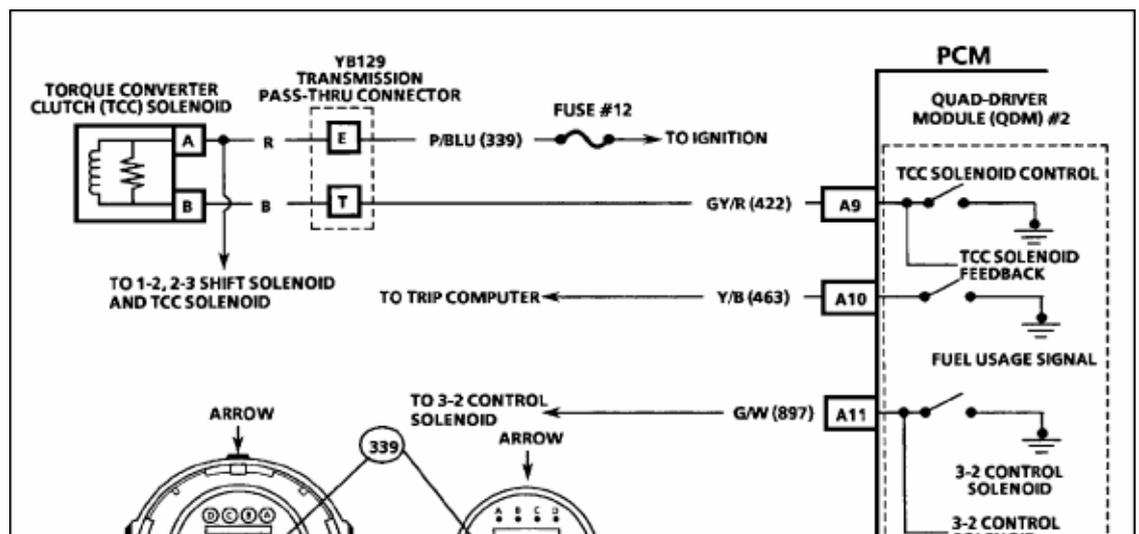
- Diagnostic Trouble Code 67 will set if:
 - TCC signal circuit 422 is open or shorted to earth for 2 seconds.
 - This test checks to identify if the TCC circuit is currently open or shorted to earth.
- This test checks for a short to voltage on circuit 422.
- This test checks for resistance in the TCC solenoid and internal transmission harness.
- This test checks for power to the Torque Converter Clutch (TCC) solenoid.
- This test verifies that circuit 422 is not shorted to earth.
- This test verifies that circuit 422 is not open.

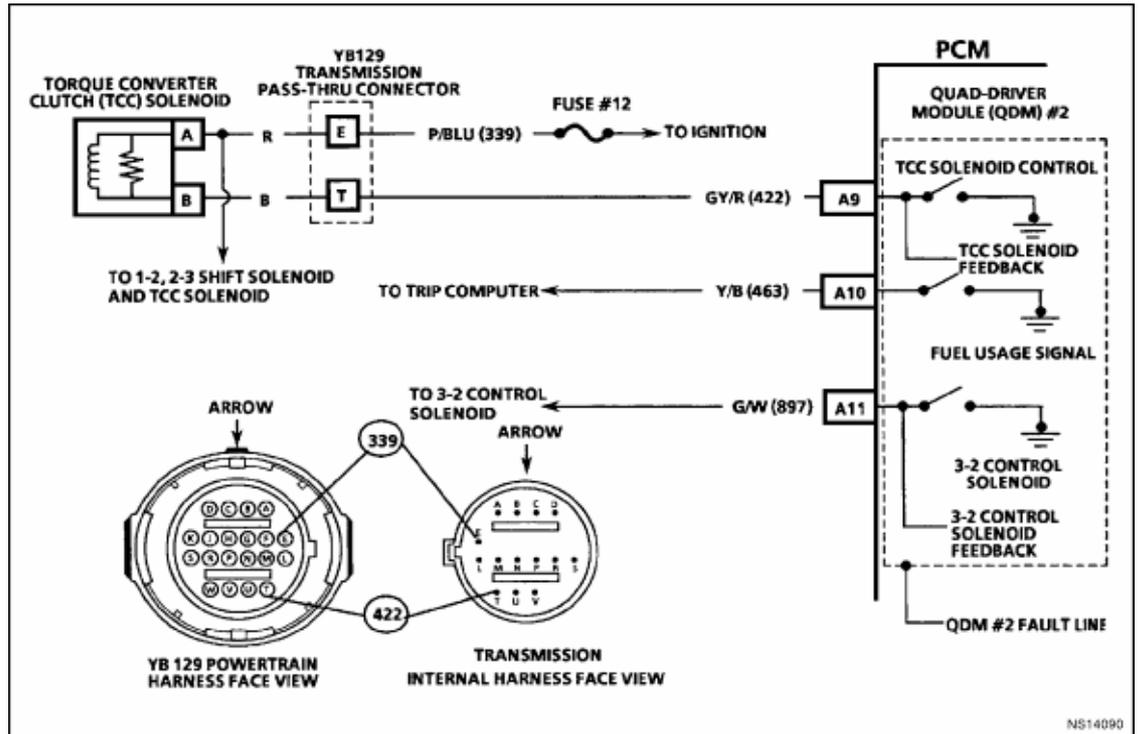
Diagnostic Aids:

Be sure to check all connections especially those at the transmission pass-thru connector.

TCC solenoid resistance should be 20-40 ohms minimum when measured at 20 degrees C. Maximum solenoid current flow should not exceed 1.5 amps.

DTC 67 will only find an electrical fault with the torque converter clutch. DTC 69 will diagnosis mechanical faults with the torque converter clutch. Some slight TCC slip is normal. When diagnostic trouble Code 67 is set, the transmission will have no TCC and no 4th gear, if in the hot mode.



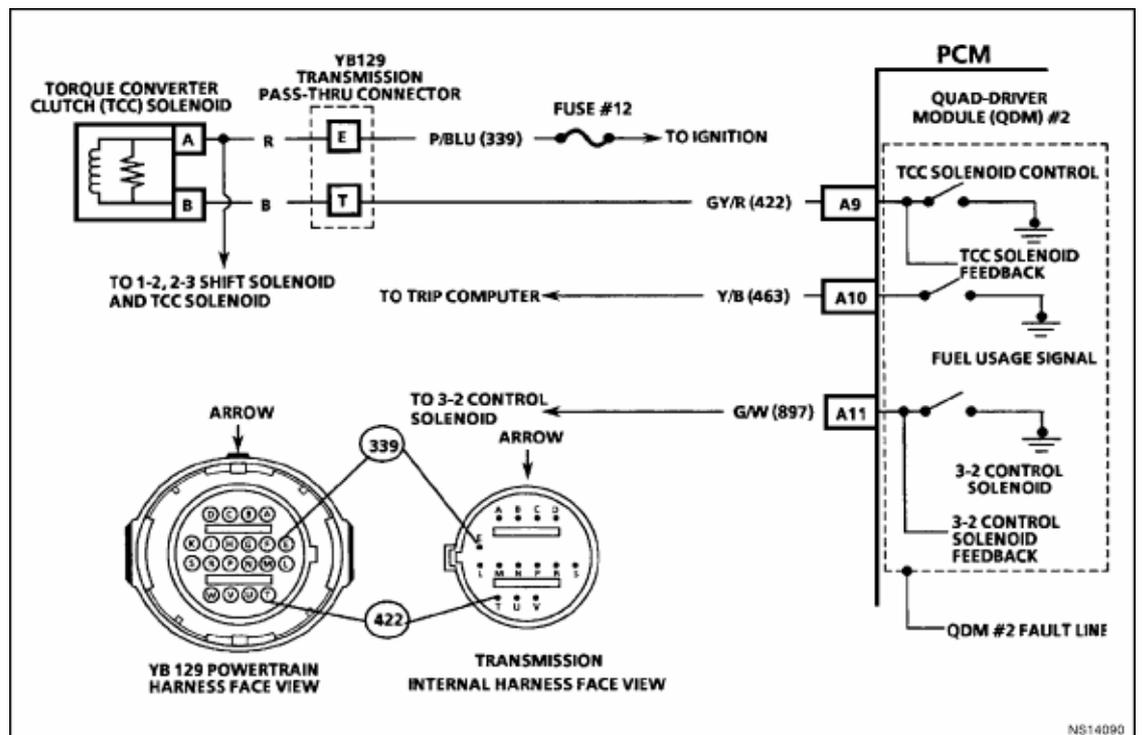


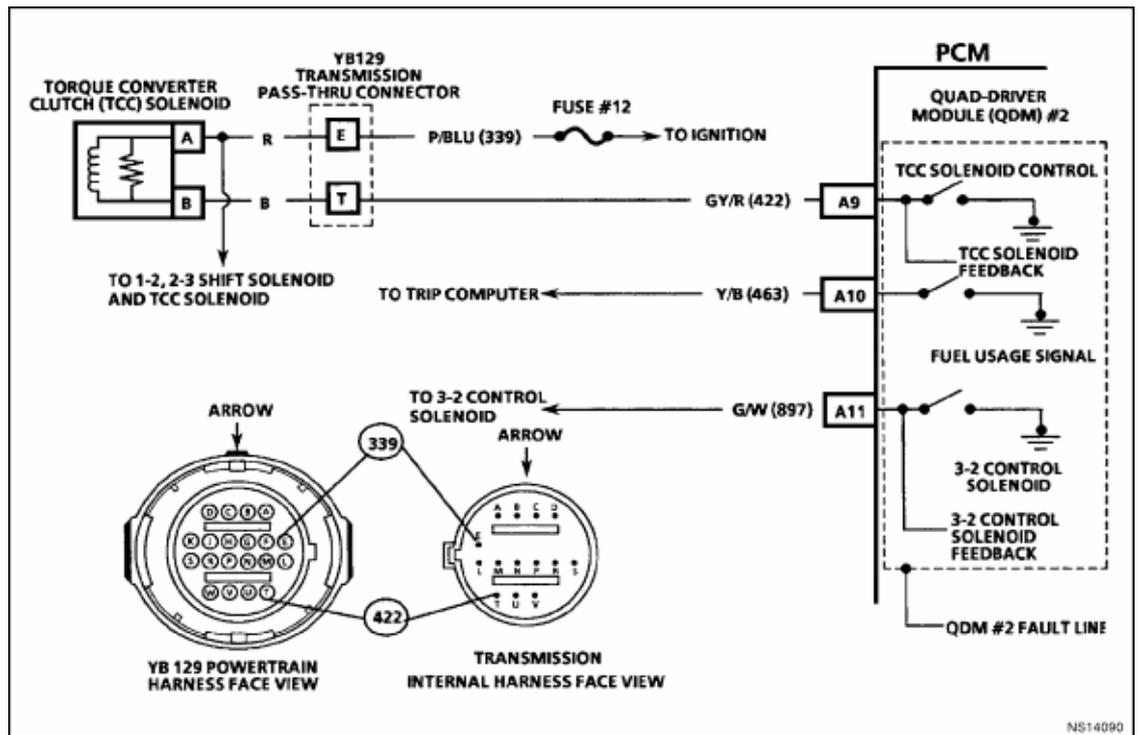
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| STEP | ACTION | VALUE | YES | NO |
|------|---|---------------|--|--|
| 1. | Was the "On-Board Diagnostic" (OBD) System Check performed? | | Go to Step 2 | Go to OBD System Check |
| 2. | 1. Ignition "ON". 2. Record then clear DTCs. 3. Ignition "OFF" for 10 seconds. 4. Ignition "ON". 5. Using Tech 1 "Scan" tool, select "F2: TRANSMISSION", then "FO: DATA LIST", then "FO: ALL", then select "TCC FDBK". 6. Does TCC FDBK display "OPEN"? | | Go to Step 3 | Go to Step 4 |
| 3. | 1. Ignition "ON", engine idling. 2. Make sure ECT is above 51 C. 3. Make sure TFT is above 20 C. 4. Place transmission in drive range "D" and accelerate vehicle to 80 km/h and maintain this speed for 10 seconds. 5. Does the "TCC FDBK" display "EARTHED"? | | DTC 67 is intermittent, if no additional DTCs were stored. Refer to "Diagnostic Aids" on facing page. | Short to voltage in circuit 422 |
| 4. | 1. Ignition "OFF". 2. Raise vehicle. | 20 to 40 ohms | Go to Step 5 | If more than specified value, |

- | | | | |
|-----|--|---------------|---|
| | 3. Disconnect transmission Pass-Thru connector. | | Go to Step 10 |
| | 4. Connect jumper harness J 39775 to transmission only. | | ----- If less than specified value, Go to Step 13 |
| | 5. Using ohmmeter measure resistance across harness terminals "E" and "T" at the free end of jumper harness. | | |
| | 6. Is ohmmeter reading within specified value? | | |
| 5. | 1. Disconnect jumper harness J 39775 . from transmission, and connect other end into powertrain harness. | Go to Step 6 | Go to Step 15 |
| | 2. Ignition "ON". | | |
| | 3. Using DVM check for battery voltage at terminal "E" of the powertrain wiring harness. | | |
| | 4. Is battery voltage present? | | |
| 6. | 1. Ignition "ON". | Go to Step 7 | Go to Step 16 |
| | 2. With test light connected to +12 volts, probe powertrain wiring harness terminal "T". | | |
| | 3. Is test light "OFF"? | | |
| 7. | 1. Ignition "ON". | Go to Step 8 | Go to Step 17 |
| | 2. Reconnect transmission Pass-Thru connector. | | |
| | 3. Backprobe PCM connector terminal for circuit 422 with a test light connected to earth. | | |
| | 4. Is test light "ON"? | | |
| 8. | 1. Check for poor connection at PCM. | Verify Repair | Go to Step 9 |
| | 2. Is a poor connection found? | | |
| 9. | 1. Replace PCM. | Verify Repair | |
| | 2. Is action complete? | | |
| 10. | 1. Check for faulty connection. | Verify Repair | Go to Step 11 |
| | 2. Is a faulty connection found? | | |
| 11. | 1. Check for a open in transmission internal wiring harness. | Verify Repair | Go to Step 12 |
| | 2. Is an open found ? | | |
| 12. | Replace faulty TCC solenoid. | Verify Repair | |
| | Is action complete ? | | |
| 13. | 1. Check transmission internal wiring harness for short to earth. | Verify Repair | Go to Step 14 |
| | 2. Is a short to earth found ? | | |





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Test Description: Number(s) below refer to step number(s) on the diagnostic chart.

2. Diagnostic Trouble Code 67 will set if:
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 - This test checks to identify if the TCC circuit is currently open or shorted to earth.
3. This test checks for a short to voltage on circuit 422.

4. This test checks for resistance in the TCC solenoid and internal transmission harness.
5. This test checks for power to the Torque Converter Clutch (TCC) solenoid.
6. This test verifies that circuit 422 is not shorted to earth.
7. This test verifies that circuit 422 is not open.

Diagnostic Aids:

Be sure to check all connections especially those at the transmission pass-thru connector.

TCC solenoid resistance should be 20-40 ohms minimum when measured at 20 degrees C. Maximum solenoid current flow should not exceed 1.5 amps.

DTC 67 will only find an electrical fault with the torque converter clutch. DTC 69 will diagnosis mechanical faults with the torque converter clutch. Some slight TCC slip is normal. When diagnostic trouble Code 67 is set, the transmission will have no TCC and no 4th gear, if in the hot mode.

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| STEP | ACTION | VALUE | YES | NO |
|------|---|-------|---------------|---------------|
| 14. | Replace TCC solenoid. Is action complete? | | Verify Repair | |
| 15. | Repair faulty transmission fuse F12 or shorted to earth in circuit 339. Is action complete ? | | Verify Repair | |
| 16. | 1. Check for short to earth on circuit 422. 2. Is circuit 422 shorted to earth ? | | Verify Repair | Go to Step 9 |
| 17. | 1. Check for poor connection at transmission pass-thru connector. 2. Is fault found ? | | Verify Repair | Go to Step 18 |
| 18. | Repair open in circuit 422 Is action complete ? | | Verify Repair | |