

2-3 SHIFT SOLENOID "B" CIRCUIT FAULT

The PCM continually monitors voltage on each circuit connected to the "quad driver" module looking for either low or high voltage depending on the commanded state of the devices connected to it. Diagnostic Trouble Code 81 will set if there is a fault detected on the 2-3 shift solenoid "B" circuit. For example, if 2-3 shift solenoid "B" is commanded "ON" by the PCM, then voltage on that circuit should drop when the solenoid is earthed, if the voltage remains high for at least 2 seconds after the "ON" command is given, then Diagnostic Trouble Code 81 will be set. The opposite is also true if 2-3 shift solenoid "B" is "OFF" then the voltage on the circuit should remain high, if voltage drops for more than 2 seconds, then Diagnostic Trouble Code 81 will be set.

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

2. This test checks the PCM's ability to provide a earth for control of 2-3 shift solenoid "B".
3. This procedure checks 2-3 shift solenoid "B" and the transmission internal wiring harness for shorts.
4. This test checks for power to the 2-3 shift solenoid "B" from the ignition through the Fuse F12.
5. This test verifies that circuit 1223 is not shorted to earth.
6. The final test verifies that circuit 1223 is not open.

Diagnostic Aids:

Check all connections especially those at the transmission pass-thru connector. 2-3 shift solenoid "B" resistance should measure 20-40 ohms minimum when measured at 20 degrees C.

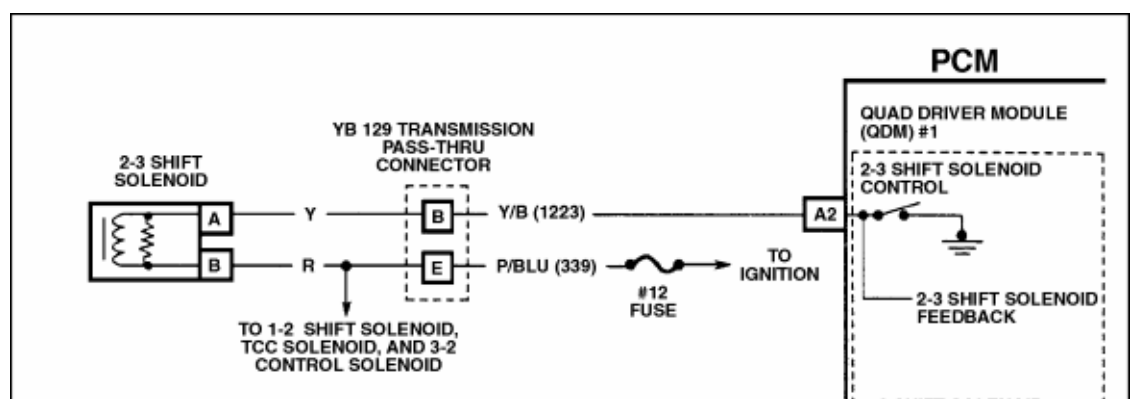
2-3 shift solenoid "B" current flow should not exceed 0.75 amps.

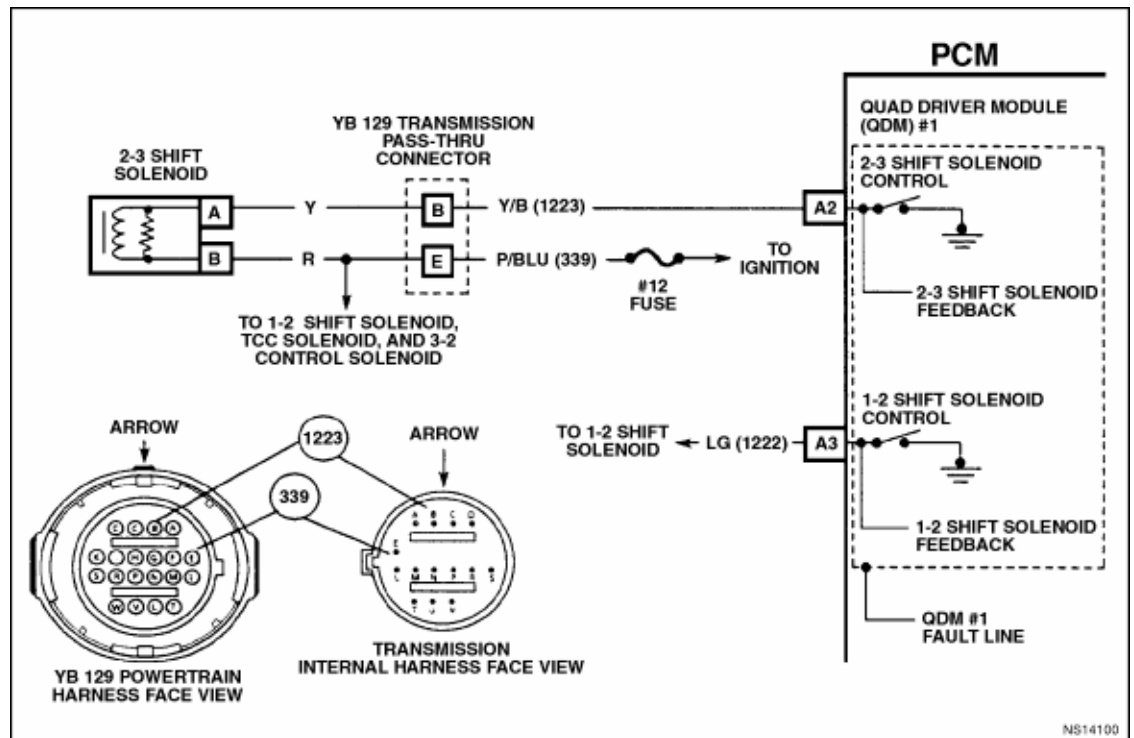
The shift solenoid should energise at a voltage of 7.5 volts or more (measured across the terminals). The shift solenoid should de-energise when voltage is one volt or less.

When Diagnostic Trouble Code 81 is set, the transmission will have no TCC, high line pressure and second or third gear only depending upon when the fault occurred.

If both solenoids lose power, third gear only will result, unless manual 2nd gear is selected.

| GEAR | 1-2 SHIFT SOLENOID | 2-3 SHIFT SOLENOID |
|---------------------------|-------------------------------|-------------------------------|
| PARK, REVERSE, NEUTRAL | "ON" | "ON" |
| FIRST | "ON" | "ON" |
| SECOND | "OFF" | "ON" |
| THIRD | "OFF" | "OFF" |
| FOURTH | "ON" | "OFF" |





DTC 81 V8 PCM

2-3 SHIFT SOLENOID "B" CIRCUIT FAULT

| STEP | ACTION | VALUE | YES | NO |
|------|--|------------|--|--|
| 1. | Was the "On-Board Diagnostic" (OBD) System Check performed? | | Go to Step 2 | Go to OBD System Check in this Section |
| 2. | 1. Install Tech 1 "Scan" tool. 2. Record then clear DTCs. 3. Ignition "ON," Engine "OFF." 4. Using Tech 1 "Scan" tool select: F2 TRANSMISSION F4 MISC TEST F1 SHIFT SOL B 5. Enable shift sol B "ON" and "OFF" three times, by pressing the UP and DOWN arrow keys, and listen to the rear of transmission oil pan for a clicking sound. 6. Does solenoid "click" when commanded from "OFF" to "ON"? | | DTC 81 is intermittent. If no additional DTC's were stored, refer to "Diagnostic Aids" on facing page. | Go to Step 3 |
| 3. | 1. Ignition "OFF". 2. Raise vehicle. 3. Disconnect transmission pass-thru connector. 4. Connect jumper harness to transmission 5. Using an ohmmeter, measure resistance across terminals "B" and "E" at the free end of jumper | 20-40 ohms | Go to Step 4 | Go to Step 9 |

| | | | | |
|-----|--|-----------------|---------------|---------------|
| | harness. | | | |
| | 6. Is the resistance between the specified value? | | | |
| 4. | 1. Disconnect jumper harness from transmission and connect the other end into the Powertrain harness. 2. Ignition "ON". 3. Check voltage at terminal "E" of Powertrain harness. 4. Is voltage equal to specified value? | Battery voltage | Go to Step 5 | Go to Step 13 |
| 5. | 1. With a test light connected to 12 volts, probe powertrain wiring harness terminal "B". 2. Is test light "ON"? | | Go to Step 15 | Go to Step 6 |
| 6. | 1. Ignition "OFF". 2. Reconnect Powertrain wiring harness to transmission. 3. Backprobe PCM connector circuit 1223 with a test light connected to +12 volts. 3. Ignition "ON". 4. Enable shift sol B "ON" with Tech 1 "Scan" tool. 5. Is test light "ON"? | | Go to Step 16 | Go to Step 7 |
| 7. | 1. Check for faulty PCM connection. 2. Was fault found ? | | Verify Repair | Go to Step 8 |
| 8. | 1. Replace faulty PCM. 2. Is repair complete? | | Verify Repair | |
| 9. | Is the resistance measured less than the specified value? | 20 ohms | Go to Step 10 | Go to Step 12 |
| 10. | Check for short to earth in transmission internal harness. Was a fault found? | | Verify Repair | Go to Step 11 |
| 11. | 1. Replace faulty 2-3 shift solenoid "B". 2. Is repair complete | | Verify Repair | |
| 12. | 1. Check for faulty connection or open in transmission internal harness 2. Was a fault found? | | Verify Repair | Go to Step 11 |
| 13. | 1. Check for short to earth in circuit 339 and/or replace faulty fuse F12. 2. Was a fault found? | | Verify Repair | Go to Step 14 |
| 14. | 1. Repair open in circuit 339. 2. Is repair complete? | | Verify Repair | |
| 15. | 1. Check for short to earth on circuit 1223. 2. Was a fault found? | | Verify Repair | Go to Step 8 |
| 16. | 1. Repair faulty connection or open in circuit 1223 2. Is repair complete? | | Verify Repair | |