

MID 039 - CID 0668 - FMI 02

Conditions Which Generate This Code:

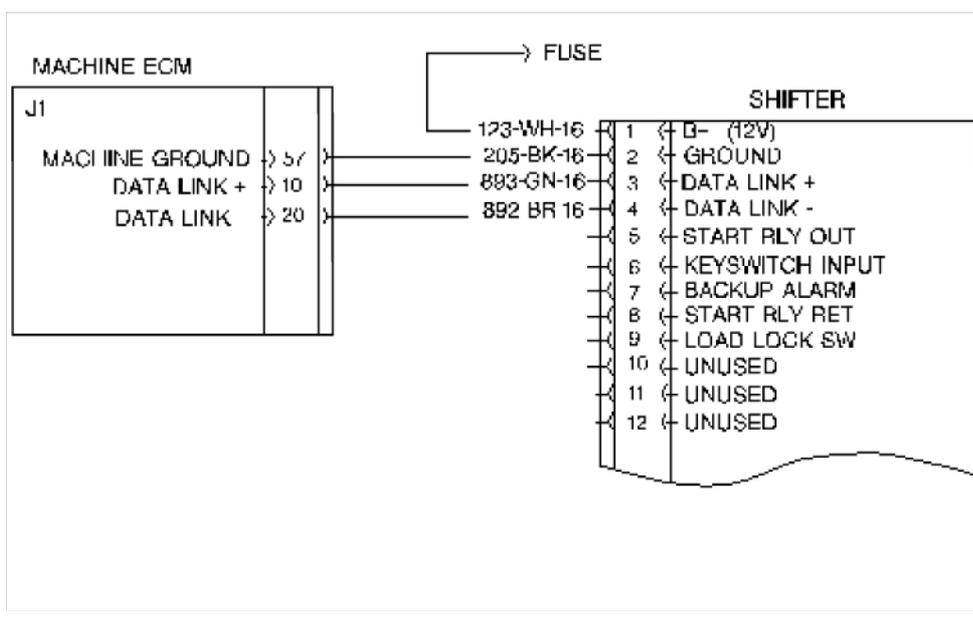


Illustration 1

g00904841

This failure results in events that are logged against an ECM that can not be explained. The Machine ECM cannot communicate with the control for the shift lever. The input for the shift lever is invalid. The ECM appears to work intermittently.

Test Step 1. INSPECT THE HARNESS CONNECTIONS.

- A. Turn the disconnect switch to the OFF position.
- B. Inspect all harness connections that are related to the CAT data link. Make sure that the connectors are clean and tight.
- C. Check the connectors for proper mating.
- D. Check the wires at the connector.
- E. Check each wire for nicks or signs of abrasion in the insulation.
- F. Check for moisture at the connector.
- G. Check the connectors for dirty contacts or corroded contacts.
- H. Check each pin and each socket of the machine harness connectors.

Expected Result:

The machine harness connectors are tight and free of corrosion.

Results:

- **OK** - The machine harness connectors are tight and free of corrosion. Proceed to test step 2.
- **NOT OK** - The machine harness connectors are in need of repair.

Repair: Repair the machine harness or replace the machine harness.

Stop.

Test Step 2. CHECK FOR SHORTS TO GROUND.

- A. The disconnect switch remains in the OFF position.
- B. Disconnect the machine harness from all electronic control modules that use the CATdata link.
- C. At the machine harness for the shift lever, measure the resistance between frame ground and connector contacts 3 (wire 893-GN) and 4 (wire 892-BR) of the CAT data link circuit.

Expected Result:

The resistance is greater than 5000 ohms.

Results:

- **OK** - The resistance is greater than 5000 ohms. The harness circuit resistance is correct. Proceed to test step 3.
- **NOT OK** - The resistance is less than 5000 ohms. The machine harness has failed.

Repair: There is a short between frame ground and the CAT data link circuit in the machine harness. Repair the machine harness or replace the machine harness.

Stop.

Test Step 3. CHECK FOR A SHORT TO THE +BATTERY CIRCUIT.

- A. The disconnect switch remains in the OFF position.
- B. All related electronic control modules remain disconnected from the machine harness.
- C. At the machine harness connector for the shift lever, perform the checks that are listed here:
 - Measure the resistance between the connector contact 1 (wire 123-WH) and connector contact 3 (wire 893-GN).
 - Measure the resistance between connector contact 1 (wire 123-WH) and connector contact 4 (wire 892-BR).

Expected Result:

The resistance is greater than 5000 ohms.

Results:

- **OK** - The harness circuit resistance is correct. Proceed to test step 4.
- **NOT OK** - The resistance is less than 5000 ohms. The machine harness has failed.

Repair: There is a short between the +battery circuit and the CAT data link circuit in the machine harness. Repair the machine harness or replace the machine harness.

Stop.

Test Step 4. CHECK FOR A OPEN HARNESS.

- A. The disconnect switch remains in the OFF position.
- B. All related electronic control modules remain disconnected from the machine harness.
- C. Check the continuity of the CAT data link circuit in the machine harness:
 - Measure the resistance between connector contact J1-10 (wire 893-GN) of the machine ECM and connector contact 3 (wire 893-GN) of the shift lever.
 - Measure the resistance between connector contact J1-20 (wire 892-BR) of the machine ECM and connector contact 4 (wire 892-BR) of the shift lever.

Expected Result:

The resistance measures less than 5 ohms.

Results:

- **OK** - The resistance is less than 5 ohms. The CAT data link circuit in the machine harness is correct. Proceed to test step 5.
- **NOT OK** - The resistance is greater than 5 Ohms. The machine harness has failed.

Repair: The CAT data link circuit is open in the machine harness. Repair the machine harness or replace the machine harness.

Stop.

Test Step 5. CHECK FOR ADDITIONAL DIAGNOSTIC CODES FOR THE OTHER ELECTRONIC CONTROL MODULES.

- A. Reconnect all the electronic control modules that use the CAT data link.
- B. Turn the disconnect switch and the key start switch to the ON position.
- C. After each of the electronic control modules has been reconnected, check the Event List for diagnostic codes that are logged against the electronic control module.

Expected Result:

Diagnostic codes are not present for the other electronic control modules (ECM) in the event list.

Results:

- **OK** - Diagnostic codes are not present for the other electronic control modules (ECM) in the event list.

Repair: The engine ECM has failed. It is unlikely that the ECM has failed. Exit this procedure. Perform this procedure again. If the failure is not found, replace the ECM.

Stop.

- **NOT OK** - Diagnostic codes are present for the other electronic control modules (ECM) in the event list.

Repair: The machine ECM may have failed. It is unlikely that the ECM has failed. Exit this procedure. Perform this procedure again. If the failure is not found, replace the ECM. See the Testing and Adjusting, "Electronic Control Module (ECM) - Replace".

Stop.