Scan Tool Does Not Communicate with High Speed GMLAN Device

Modules connected to the high speed GMLAN serial data circuits monitor for serial data communications on the high speed GMLAN network during normal vehicle operation. Operating information and commands are exchanged among the modules. When a module detects a bus-off condition a DTC U0001 or U2100 will be set. These DTCs can be retrieved as history only.

Diagnostic Aids

The high speed GMLAN serial data bus uses two 120 ohms terminating resistors that are in parallel with the high speed GMLAN (+) and (-) circuits. One of the resistors is connected at the body control module (BCM) and the other is at the engine control module (ECM). When testing for a short between high speed GMLAN (+) and (-) a reading of 60 ohms is normal. If the high speed GMLAN serial data is open testing the resistance between high speed GMLAN (+) and (-) will read about 120 ohms.

The engine will not start when there is a total malfunction of the high speed GMLAN serial data circuits while the engine is not running. The following conditions may cause a total loss of high speed GMLAN data communication:

• A short between high speed GMLAN (+) and high speed GMLAN (-) circuits

• Any of the high speed GMLAN serial data circuits shorted to ground or voltage

• A module internal malfunction that causes a short to voltage or ground on the high speed GMLAN circuits

• Any of the high speed GMLAN serial data circuits open

Test Description

The numbers below refer to the step numbers on the diagnostic table.

2. A partial malfunction in the high speed GMLAN serial data circuits uses a different procedure from a total malfunction of the high speed GMLAN data circuits. The following modules communicate on the high speed GMLAN serial data circuits:

- Body control module (BCM)

- Communication interface module (OnStar®)

- Electronic brake control module (EBCM)

- Electronic suspension control (ESC) Module

- Engine control module (ECM)

- Transmission control module (TCM)

8. Data link connector terminals 6 and 14 provide the connection to the GMLAN serial data high circuit and the GMLAN serial data low circuit respectively.

15. If only one of the high speed GMLAN circuits is open all communication on the high speed bus will be disrupted.

19. The communication malfunction may have prevented diagnosis of the customer complaint.

Step	Action	Yes	No
	Schematic Reference: Data Communication Schematics *Connector End View Reference:* Master Electrical Component List		
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle
2	**Important:** Make sure the CANdi module works fine. When functioning properly, CANdi's LED flashes. In the event of a problem, the LED will be constantly illuminated. 1. Turn ON the ignition, with the engine OFF. 2. Perform the Vehicle DTC Information function on the scan tool, under Computer/Integrating Systems. Does the scan tool communicate with any module on the GMLAN serial data circuits?	Go to Step 3	Go to Step 6
3	Did you record any DTCs in the range of U2105 to U2177?	Go to DTC U0100-U0299 or U2105-U2199	Go to Step 4
4	Did you record any DTCs in the range of U0100 to U0299?	Go to DTC U0100-U0299 or U2105-U2199	Go to Step 5

5	**Important:** Turn ON the ignition, with the engine OFF, when testing for a short to voltage. Use the DMM MIN/MAX function to capture intermittent conditions.
	
	1. Disconnect the scan tool from the data link connector (DLC).
	2. Test the high speed GMLAN serial data circuits for:
	
	   • An intermittent short to ground
	   • An intermittent short to voltage
	   • An intermittent short between them
	   • An intermittent open on any of the circuits
	
	Refer to the following:
	
	• Testing for Intermittent Conditions and Poor Connections
	• Circuit Testing
	• Connector Repairs
	• GMLAN Wiring Repairs
	
	Did you find and correct the condition?
		Go to Step 21	Go to Diagnostic Aids

6	1. Disconnect the body control module (BCM).
	2. Test the following circuits of the BCM for an open or short to ground:
	
	   • The battery positive voltage input circuits
	   • The battery positive voltage output circuits
	   • The ignition mode switch input circuits
	   • The switched battery positive voltage circuits
	
	Refer to Circuit Testing and Wiring Repairs .
	
	Did you find and correct the condition?
		Go to Step 18	Go to Step 7

7	Test the ground circuits of the BCM for an open. Refer to Circuit Testing and Wiring Repairs . Did you find and correct the condition?	Go to Step 18	Go to Step 8
8	Inspect for poor connections at the DLC terminals 6	Go to Step 18	Go to Step 9

	and 14. Refer to [Testing for Intermittent Conditions and Poor Connections](#) and [Connector Repairs](#) . Did you find and correct the condition?		
9	Test the high speed GMLAN serial data circuits between the BCM and DLC for: • Short to ground • Short to battery • Short between them • Open Refer to the following: • [Circuit Testing](#) • [GMLAN Wiring Repairs](#) Did you find and correct the condition?	Go to [Step 18](#)	Go to [Step 10](#)
10	1. Reconnect the BCM. 2. Disconnect the farthest module from the DLC that is connected to high speed GMLAN serial data circuits. Refer to [Data Link References](#) . 3. Turn ON the ignition, with the engine OFF. 4. Attempt to communicate with the BCM. Does the scan tool communicate with the BCM?	Go to [Step 15](#)	Go to [Step 11](#)
11	1. Turn OFF the ignition. 2. Disconnect the farthest module from the DLC that is still connected to high speed GMLAN serial data circuits. Refer to [Data Link References](#) . 3. Turn ON the ignition, with the engine OFF. 4. Attempt to communicate with the BCM. Does the scan tool communicate with the BCM?	Go to [Step 12](#)	Go to [Step 13](#)
12	Test the high speed GMLAN serial data circuits between the last two disconnected modules for: • Short to ground • Short to battery • Short between them	Go to [Step 18](#)	Go to [Step 15](#)

	• Open Refer to the following: • Circuit Testing • GMLAN Wiring Repairs Did you find and correct the condition?		
13	Is the BCM the last module still connected to high speed GMLAN data circuits?	Go to Step 14	Go to Step 11

14	1. Turn OFF the ignition.
	2. Disconnect the BCM.
	3. Test the high speed GMLAN serial data circuits between BCM and the previous disconnected module for:
	
	  • Short to ground
	
	  • Short to battery
	
	  • Short between them
	
	  • An open
	
	Refer to the following:
	
	• Circuit Testing
	• GMLAN Wiring Repairs
	
	Did you find and correct the condition?
		Go to Step 18	Go to Step 16

15	Test each of the high speed GMLAN circuits of the last disconnected module to the next module closer to DLC for an open. Refer to the following: • Circuit Testing • GMLAN Wiring Repairs Did you find and correct the condition?	Go to Step 18	Go to Step 16
16	Inspect for poor connections at the high speed GMLAN serial data circuits of the suspected module. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs .	Go to Step 18	Go to Step 17

	Did you find and correct the condition?		
17	Replace the suspected module. Refer to Control Module References for replacement, setup and programming. Did you complete the replacement?	Go to Step 18	--
18	1. Reconnect all of the disconnected modules. 2. Install a scan tool. 3. Turn ON the ignition, with the engine OFF. 4. Wait for 10 seconds. The scan tool may require a power up reset before communication will occur due to a short on the high speed GMLAN serial data circuits. Turn OFF or disconnect the scan tool prior to performing this test. 5. Select the Display DTCs function for each module. 6. Record all of the displayed DTCs and the DTC status. Did you record any DTCs which begin with a "U" and with a current status?	Go to Diagnostic Trouble Code (DTC) List - Vehicle	Go to Step 19
19	Did you record any DTCs which do not begin with a "U"?	Go to Diagnostic Trouble Code (DTC) List - Vehicle	Go to Step 20
20	Did you diagnose all of the DTCs?	Go to Step 21	Go to Step 18
21	Use the scan tool in order to clear the DTCs. Did you complete the action?	System OK	--