

Network Communication Diagnostic Trouble Codes

Network DTCs (U-prefix codes) are often a result of intermittent concerns such as damaged wiring or low battery voltage occurrences. Additionally, vehicle repair procedures (such as module reprogramming or diagnostics with modules disconnected) often set network DTCs. Replacing a module to resolve a network DTC is unlikely to resolve the concern. To prevent recurrence of intermittent network concerns, inspect all network wiring, especially in-line and module connectors. Test the vehicle battery to make sure the vehicle voltage will be stable.

Recommended practice: Clear the DTC and retest. If the DTC repeats, test the vehicle communication network.

DTC Nomenclature (SAE J2012 and ISO 14229)

Many modules use 5-character DTCs followed by a 2-character failure-type code. The failure-type (sometimes called "fault byte") codes provide information about specific fault conditions such as opens or shorts to ground. Continuous memory DTCs have an additional 2-character DTC status code suffix to assist in determining DTC history.

Integrated Diagnostic System Scan Tool Usage

If The Integrated Diagnostic System Scan Tool Does Not Communicate With The Vehicle Communication Module

1. Check the Vehicle Communication Module connection and power from the DLC.
2. Check the communication between the scan tool and the Vehicle Communication Module.
3. Follow scan tool instructions to retry.

If The Integrated Diagnostic System Scan Tool Does Not Communicate With The Vehicle

The IDS scan tool first attempts to communicate with the PCM. After establishing communication with the PCM, the scan tool then attempts to communicate with all other modules on the vehicle.

1. Verify the scan tool operation with a known good vehicle.
2. Verify the ignition is ON.
3. If an IDS session cannot be established with the vehicle, (IDS may state "No communication can be established with the PCM"):
 - Choose "NO" when the scan tool prompts to retry communication.
 - Enter a PCM engineering part number, tear tag, or calibration number to identify the vehicle and start a session. These identifying numbers may be found:
 - The PCM engineering part number and the 4-character tear tag are printed on the PCM label.
 - (PTS website users only) The PCM engineering part number can be determined from OASIS using the VIN. Choose "HVBoM" from the OASIS tab menu and search Powertrain engine modules for the PCM engineering part number (If the first character is a "P" in the part number, enter only the characters following the "P" into IDS).
 - Establish a session based on the PCM information (above).
4. Using the tool box menu, run the network test.
 - Determine if all modules on the network are unresponsive or if only the PCM does not communicate.
 - **Recommended practice:** Refer to section 418-00 Module Communications Network, Diagnosis and Testing, to diagnose the network outage or no response from the PCM.

Measuring Automotive Circuits

Wiring Pin (Terminal) Fit And The Use Of Rotunda Flex Probes

- To avoid wiring pin (terminal) damage, Rotunda Flex Probes NUD105-R025D or Terminal Probe Kit 29-011A must be used to connect test equipment or jumper wires to pins (terminals).
- Male to female pin (terminal) fit is critical for correct connection and durability.
 - Pin (terminal) fit may be checked by using the mating pin (terminal) to test for normal separation force (a damaged pin or terminal will have very low separation force from the mating pin or terminal)
 - Correctly checking the separation force of small pins (terminals) may require removal of the connector terminal guide/retainer if it adds drag to the pin (terminal) insertion or removal
- Replace damaged connectors or pins (terminals)

Checking Power-Providing Circuits

- Measuring a power wire with the intended load disconnected using a Digital Multimeter (DMM) will only find open circuits (open fuse or wire).
- **Recommended practice:** Circuits carrying approximately 200-1000 mA* may be loaded with a 250-350 mA test light. Measure circuit voltage with a Digital Multimeter (DMM) while the test light is connected and illuminated. A reduction in the voltage present during test-light-loading indicates excessive circuit resistance.