HVAC PRE-DIAGNOSTIC TROUBLESHOOTING PROCEDURE

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The Pre-Diagnostic Troubleshooting Procedure is intended to provide the technician with a common starting point for all DTC troubleshooting procedures. The DTC troubleshooting procedures assume that the following steps have been performed and therefore are not always repeated. Failure to follow the steps in this procedure can lead to misdiagnosis.

If any repairs are performed, perform the appropriate VERIFICATION TEST.

NOTE: Do not perform repairs not related to the customer complaint.

1. With the scan tool, **read DTCs and record on the repair order**.
2. With the scan tool, **run a Vehicle Scan Report and a ECU Configuration Report** and save the files for future use.
3. **Check the vehicle repair history** for any recent repairs that may be related to the customer complaint.
4. If possibly related to the customer complaint, **verify the vehicle build configuration** with the OEM Vehicle Build Configuration on TechCONNECT. Properly configure the vehicle if necessary.
5. If possibly related to the customer complaint, **verify all Electronic Control Units (ECU)s have the same Original Vehicle Identification Number (VIN)**. If a mismatch is found, this could indicate the source of the problem. Typically, this condition will cause multiple communication DTCs to set however, this is not always the case.
6. With the scan tool, **check all ECUs for available software updates** that are related to the customer complaint.
   - Read Service Bulletins to determine if the software update is applicable to the customer complaint.
     - Update the (ECU)s if necessary.
7. Use the Search function in TechCONNECT to **read any related information under SERVICE ACTIONS/TIPS**.
   - Perform any Service Bulletins or other procedures that may apply.
   - **NOTE:** If viewing Service Information in the new **Service Library**, refer to the section called **Service Bulletin Recalls** in the Vehicle Dashboard. Star Online cases are also located there.
8. **Check for aftermarket electrical accessories**. Be certain they are installed properly and do not interfere with any related power, ground, signal, or communication circuits. Be certain aftermarket wiring harnesses are routed away from vehicle wiring harness to avoid electromagnetic interference (EMI) where applicable.
   NOTE: A low battery State Of Charge (SOC) or a charging system that is not operating properly can cause many symptoms and DTCs to set.
9. If possibly related to the customer complaint, **check the vehicle charging system and battery for proper operation**. Refer to the appropriate Service Information.
10. **Check other ECUs for DTCs** that could cause this DTC to set.
11. If multiple DTCs are set in one ECU, and no detectable pattern is evident (i.e. the DTCs are not related to just one or two components or subsystems), **check the applicable ECU ground circuit(s) for proper continuity**. As a general rule, **diagnose the DTCs in the following order** unless instructed otherwise by the specific DTC procedure:
    a. ECU Configuration DTCs
    b. ECU Voltage DTCs
    c. ECU Internal Error DTCs

d. Communication DTCs (See below)
e. Circuit Fault DTCs (Low voltage, High Voltage, Open Circuit, Short Circuit, Low Current, High Current, etc.,)
f. Performance / Rationality DTCs
g. Implausible or Invalid Data
h. Missing Message
i. Other

12. If multiple communication DTCs are set, **diagnose the DTCs in the following order** unless instructed otherwise by the specific DTC procedure:
    a. CAN Bus Off
    b. CAN Bus Off Performance
    c. Lost Communication
    d. Other

NOTE: **IMPORTANT: Some Control Modules simply pass information from one Control Module to the other. In some cases, a U-code DTC may be set that implicates the "pass-through" module that sent the information. For example, if an Engine Coolant Temperature (ECT) Sensor DTC is set in the Powertrain Control Module (PCM), the HVAC module may set an "Implausible Data from BCM" DTC because the BCM is the module that normally passes that information from the PCM to the HVAC module. However, the BCM may not set any DTCs related to the faulted ECT Sensor because the BCM does not use the ECT information. In this case, the PCM ECT DTC should be diagnosed before the Implausible Data DTC. If you suspect a scenario like this, diagnose the non U-code DTC(s) before diagnosing any Implausible Data, Implausible Signal, Invalid Data, or Missing Message DTCs.**