

Classification:	Reference:	Date:
EL10-018a	ITB10-029a	June 24, 2014

CAN COMMUNICATION CODES – DIAGNOSTIC TIPS & GUIDELINES

This bulletin has been amended to include information on the use of DLC Breakout Box tool J-51513. Please discard previous version.

APPLIED VEHICLES: All 2005–2015 Infiniti vehicles

SERVICE INFORMATION

Related to communication codes **U1000, U1001, U1002, U1010:**

- **Always** diagnose the communication codes first.
- When a module reports a U1000 code, it is typically operating normally; however, there is a communication error external to that module on the CAN network.
- U1000 indicates an error. V-CAN diagram or CAN Diag Support Monitor provides data to determine the location of the error.

Step 1

Complete the CAN diagnosis with CONSULT-III plus (C-III plus).

- Ensure the correct CAN type is selected. Selecting the incorrect CAN type will lead to mis-diagnosis.

Step 2

View the V-CAN screen (shown on page 3) or print all CAN Diag Support Monitors (shown on page 4).

Step 3

Read the V-CAN diagram using the key provided **OR** reference the appropriate Electronic Service Manual (ESM) to analyze the CAN Diag Support Monitor data. Determine the incident according to the display.

Step 4

If V-CAN diagnosis is not available or inconclusive, refer to the basic CAN diagnostic guidelines shown on pages 5-12. These represent electrical values of the CAN system measured at the Data Link Connector or connectors at non-termination units.

To properly perform these basic checks:

- The battery should be disconnected for resistance checks.
- The ignition should be off.

Tips if a control module is the suspected root cause:

- Improper module configuration or incorrect part numbers may set CAN DTCs.
- Low battery voltage may set CAN DTCs.
- **Always** confirm the power, ground, and CAN resistance at a suspect module before replacing the module. Resistance should be close to 60 ohms at the module (measured with the battery disconnected). The resistance at terminating modules should be close to 120 ohms. Examples of terminating modules include IPDM, ECM, or BCM. Reference the appropriate ESM to determine the terminating modules.

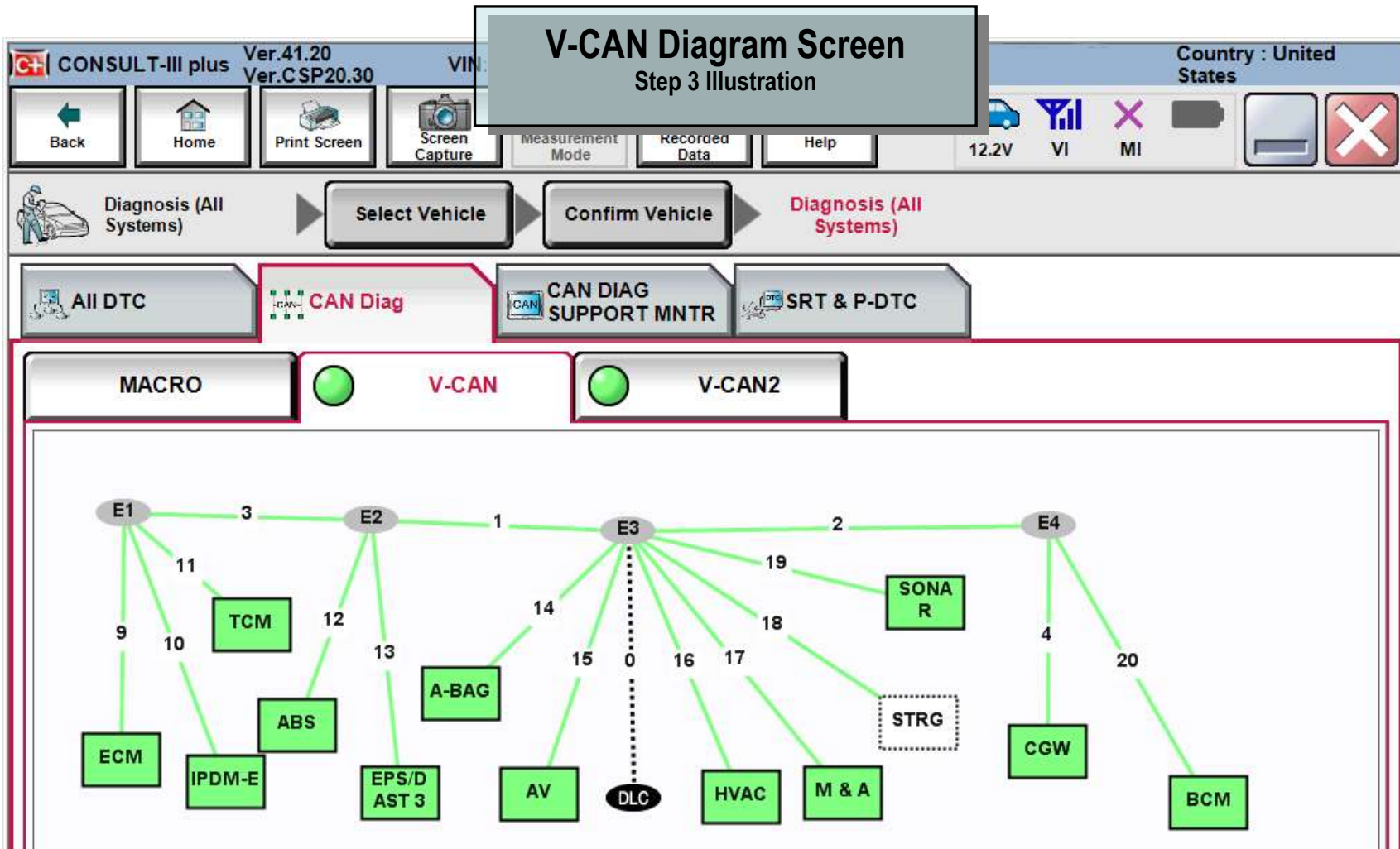
DEFINITION OF CAN CODES

U1000 is related to missing CAN communications on the network.

U1001 is for Engine Control Module (ECM) and is related to missing CAN communications on the network.

U1002 is related to missing CAN communications on the network but has a tighter spec than U1000.

U1010 - Module has internal errors.



Red = Current Communication Error

Orange = Past or Intermittent Communication Error

Black = Not diagnosed

Green = Normal Operation

Pink = Module error

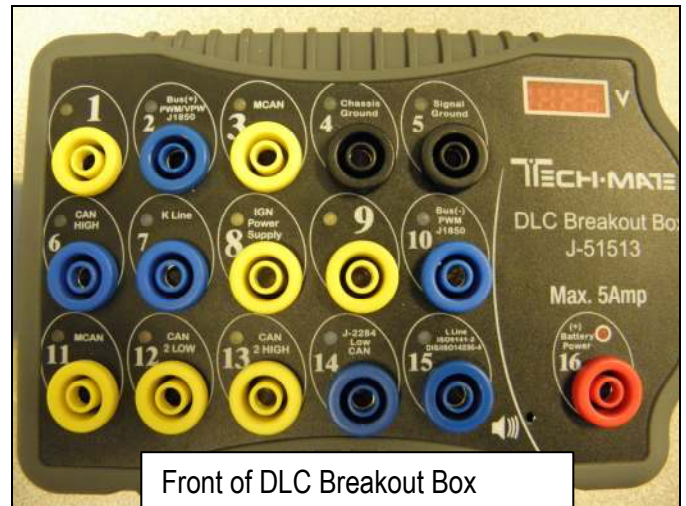
Note: If module is highlighted in pink when other modules or segments are highlighted in red or orange, perform diagnosis on other modules, erase DTCs, and run Auto CAN diagnosis with CONSULT-III again. If module is still highlighted in pink, replace module.

DLC Breakout Box J-51513

When performing any pin testing of the CAN systems at the DLC (Data Link Connector), "DLC Breakout Box" J-51513 should be used.

- Plug the DLC Breakout Box into the vehicle DLC connector and perform all voltage, resistance and continuity testing directly from the provided "pin-outs" shown in Figure 1 below.
- Do Not connect the C-III plus to this tool. Although it does have a port to do so, the tool currently does not support this function.
- Do Not jumper the "Battery Power" pin-out to either of the ground pin-outs.

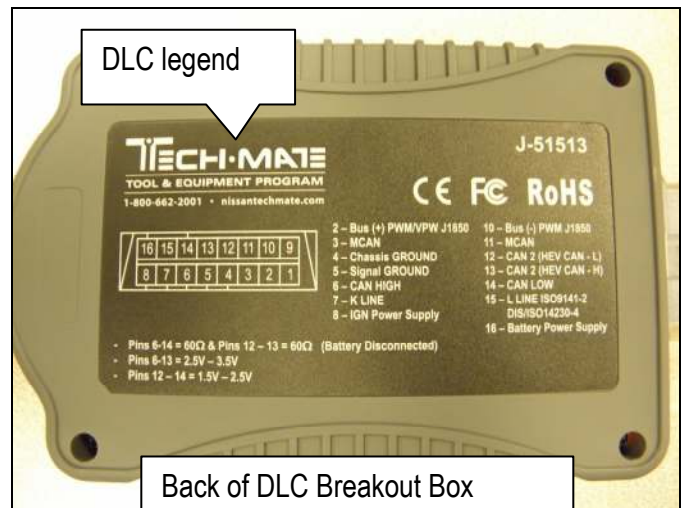
Damage will occur.



Front of DLC Breakout Box

Figure 1

- All pin-out locations are marked in accordance with their associated DLC connections and will allow convenient pin testing of the DLC connector.
- Figure 2 shows the back of the DLC Breakout Box, and has a legend of the DLC pins.

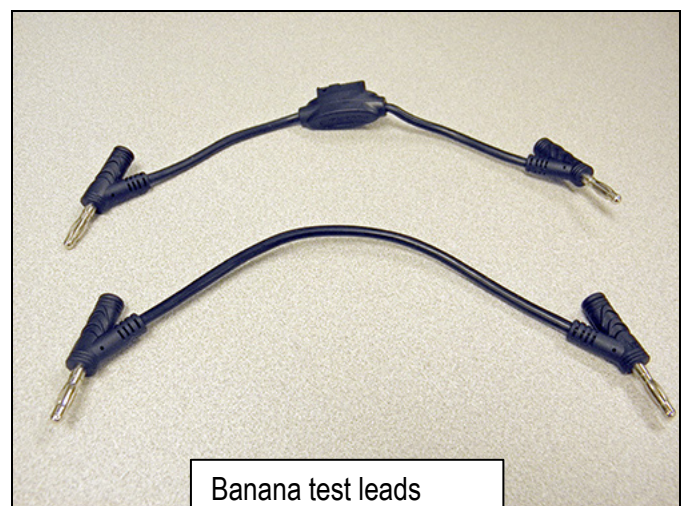


Back of DLC Breakout Box

Figure 2

- Figure 3 show Banana leads that are supplied with the DLC Breakout Box and are used to connect to a DVOM.

NOTE: 48" Banana Leads (J-35616-20W) are available and are sold separately.

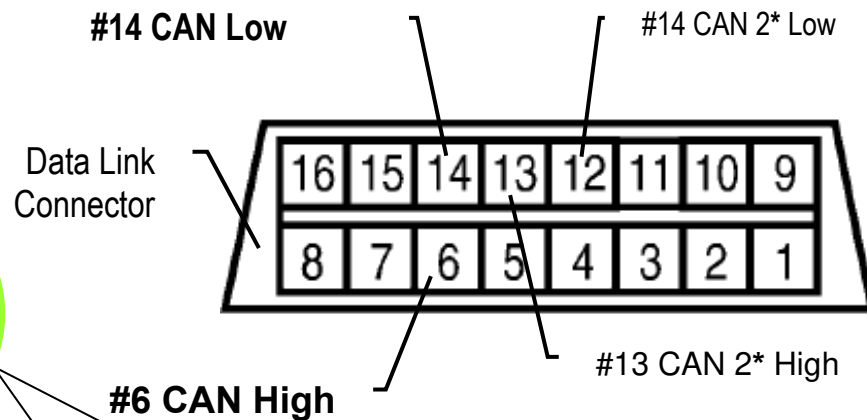
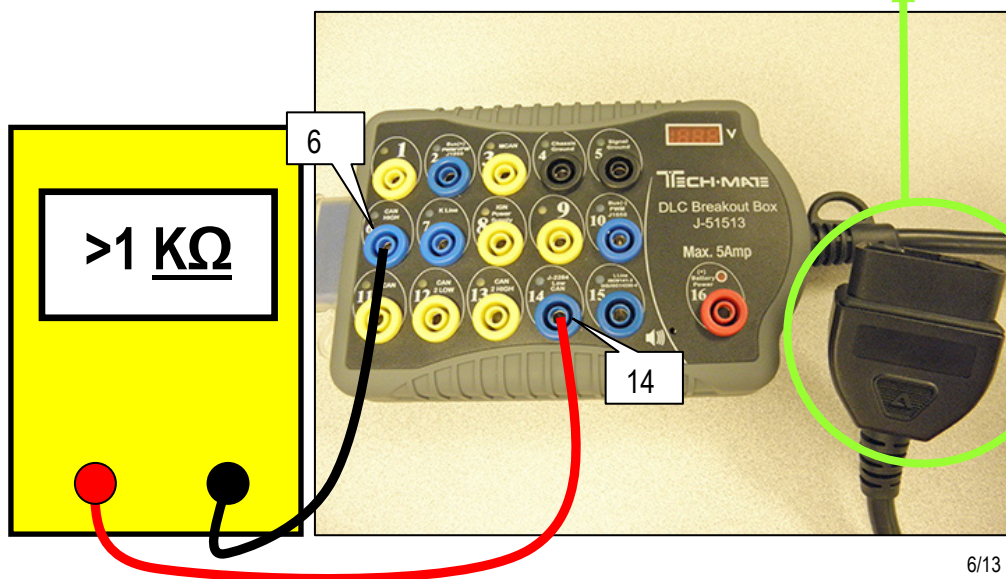
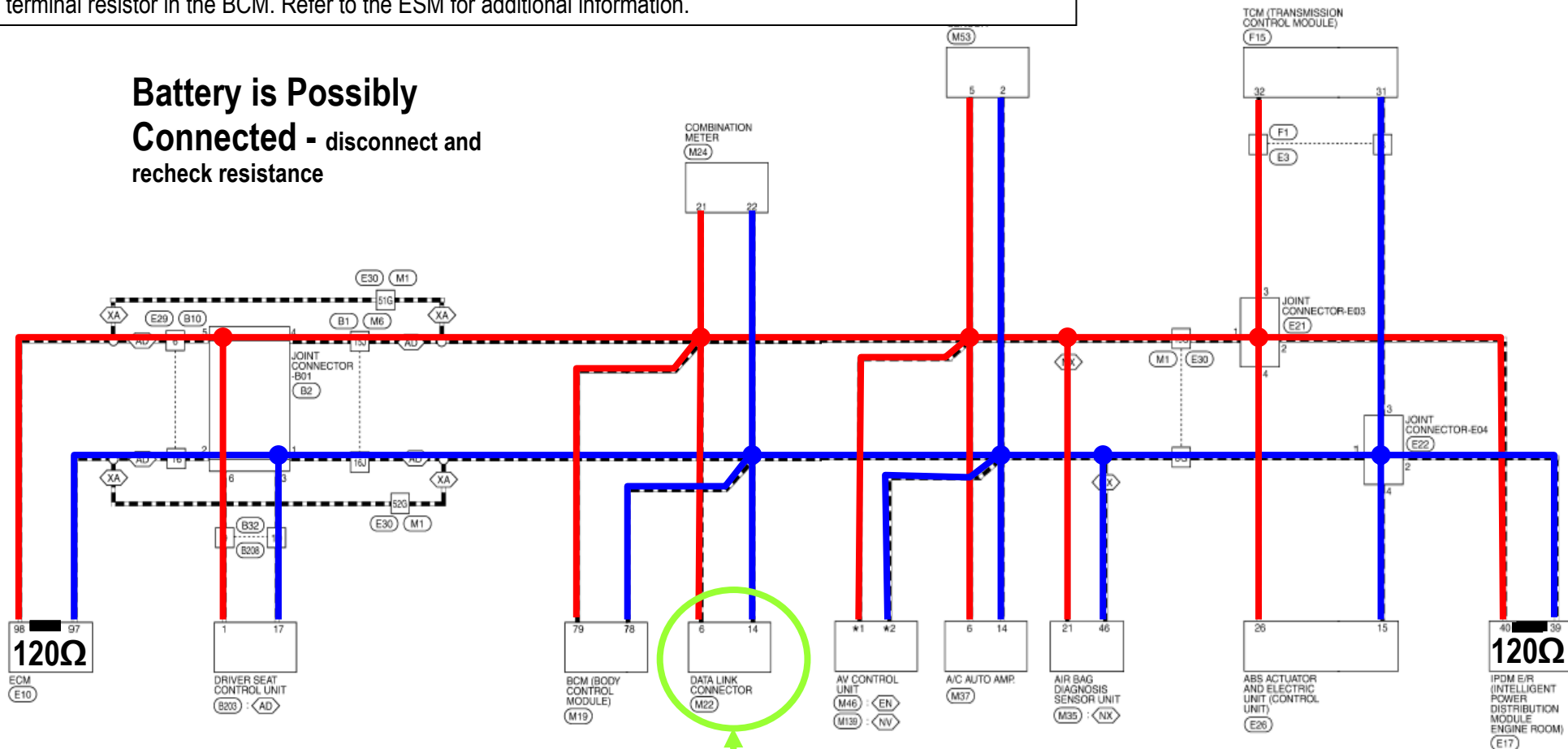


Banana test leads

Figure 3

NOTE: Diagram shown with terminal resistor in IPDM. The vehicle that you are working on may have the terminal resistor in the BCM. Refer to the ESM for additional information.

**Battery is Possibly
Connected - disconnect and
recheck resistance**

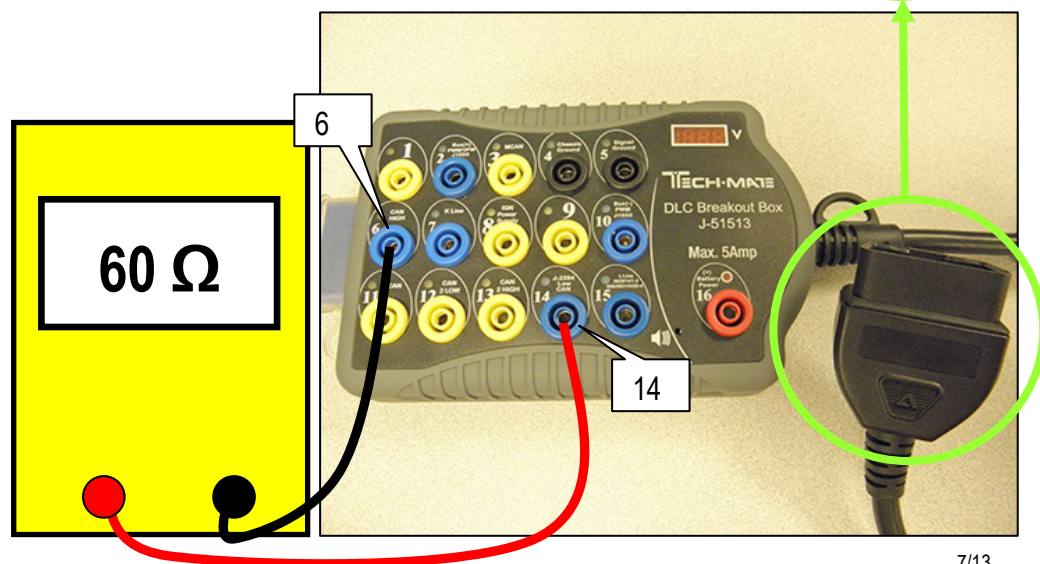
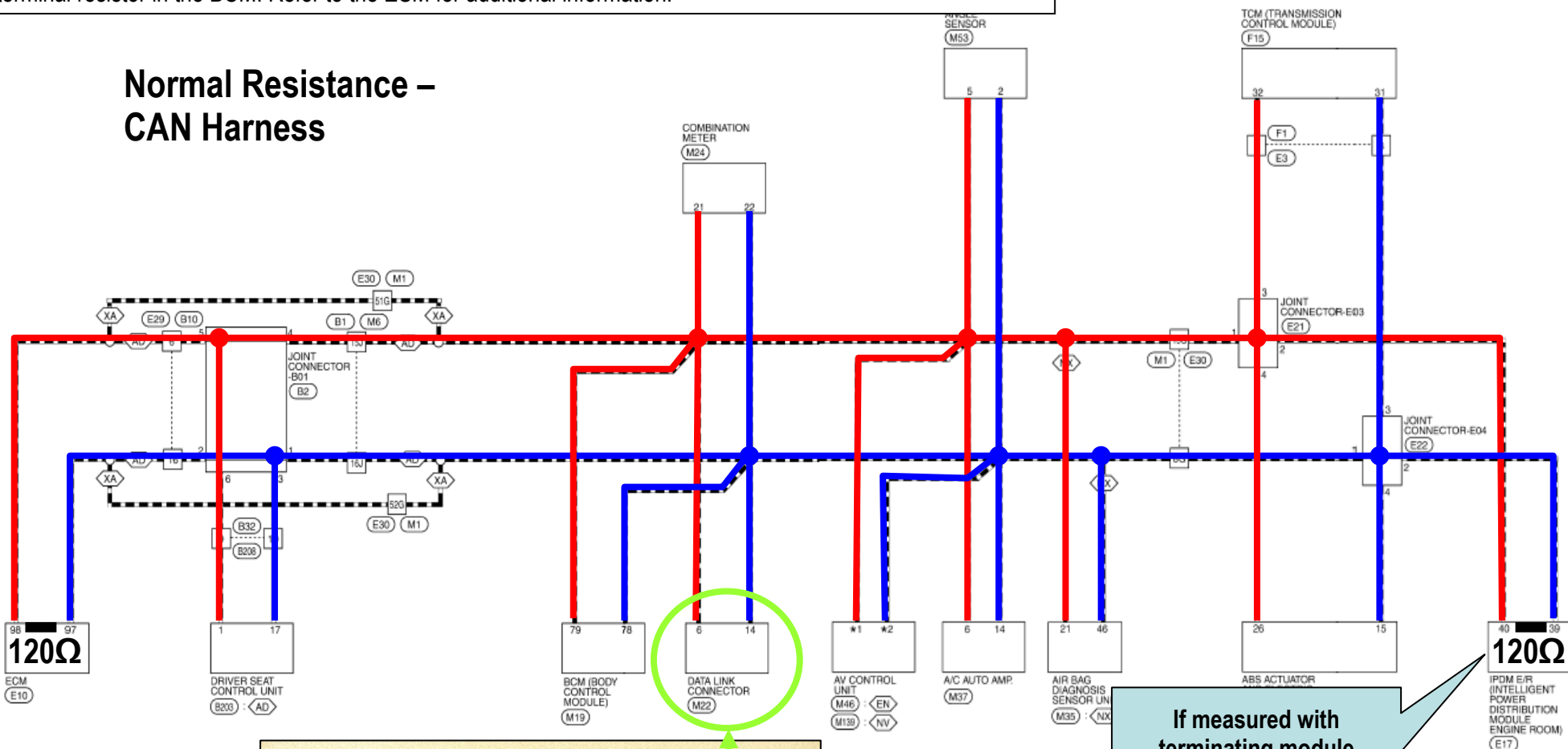


Plug "DLC Breakout Box" J-51513 into DLC

* Certain models are equipped with 2 CAN systems

NOTE: Diagram shown with terminal resistor in IPDM. The vehicle that you are working on may have the terminal resistor in the BCM. Refer to the ESM for additional information.

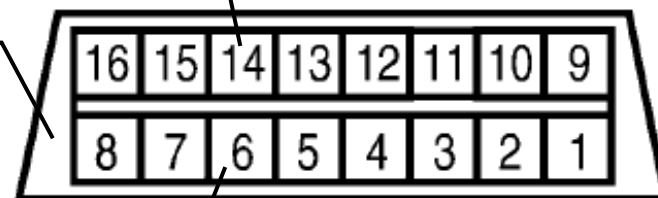
Normal Resistance – CAN Harness



If measured with terminating module disconnected, Resistance = 120 Ω

#14 CAN Low

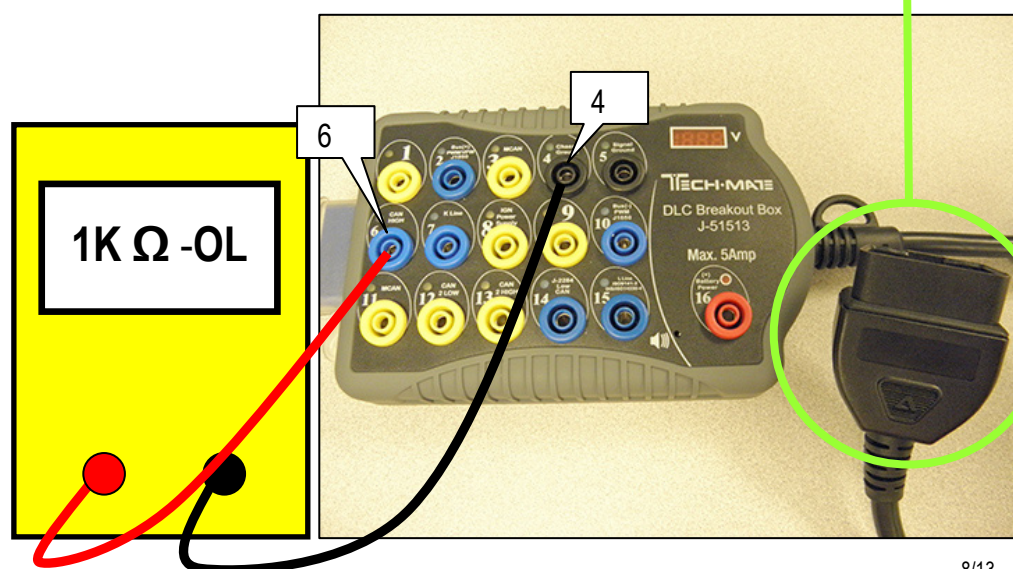
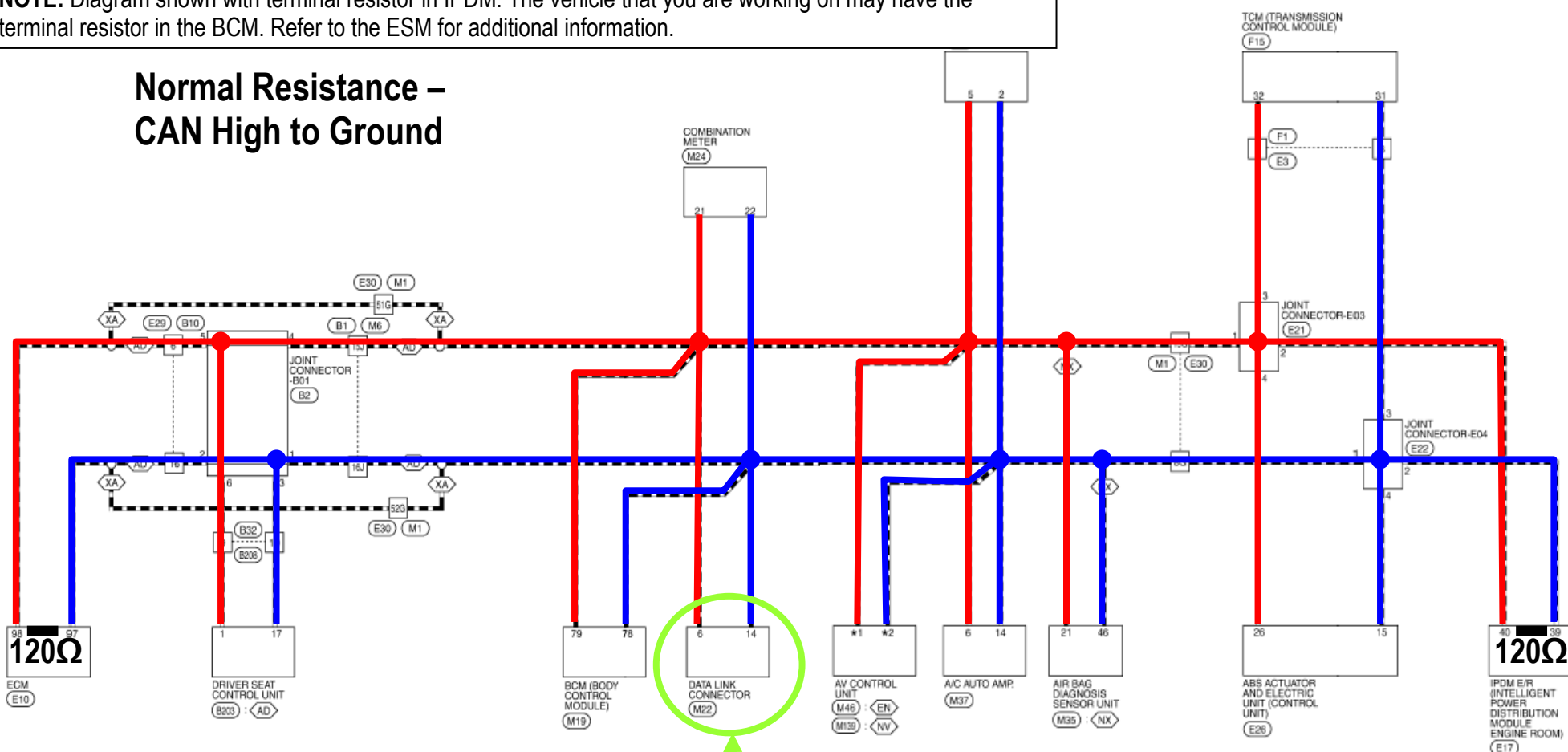
Data Link Connector



#6 CAN High

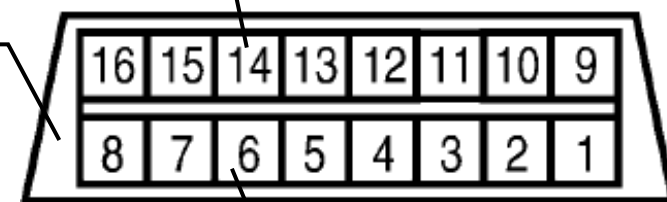
NOTE: Diagram shown with terminal resistor in IPDM. The vehicle that you are working on may have the terminal resistor in the BCM. Refer to the ESM for additional information.

Normal Resistance – CAN High to Ground



#14 CAN Low

Data Link
Connector



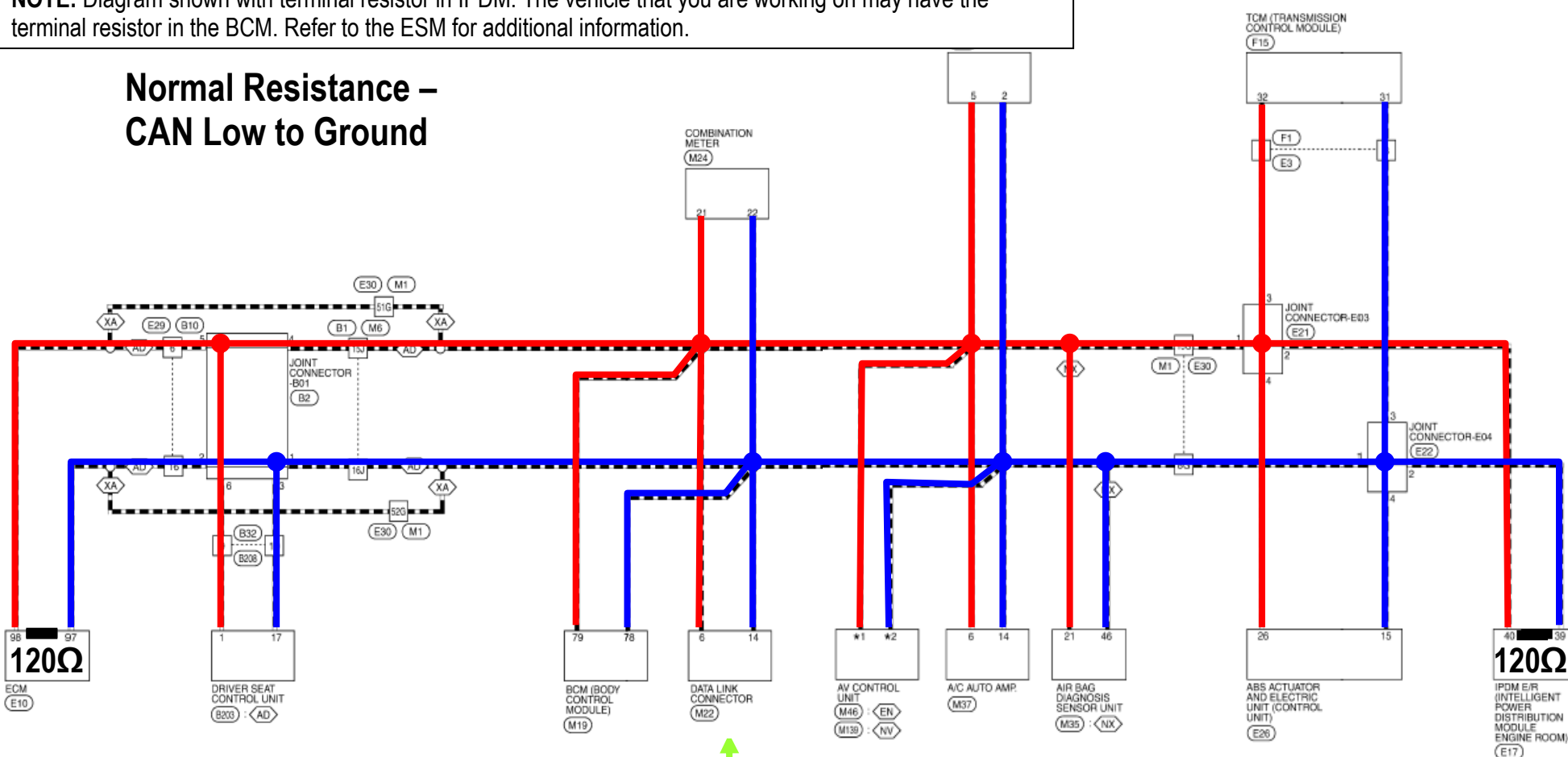
#6 CAN High

Notes:

- OL= Open Circuit
- Expect OL if battery negative cable is connected
- Expect 1.0K Ω – 1.2K Ω if battery negative cable is disconnected

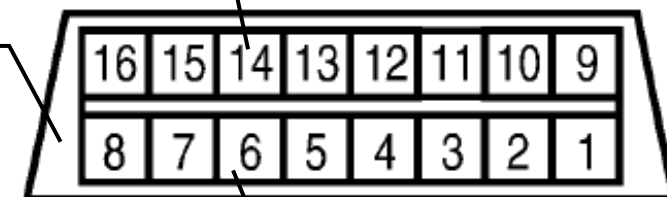
NOTE: Diagram shown with terminal resistor in IPDM. The vehicle that you are working on may have the terminal resistor in the BCM. Refer to the ESM for additional information.

Normal Resistance – CAN Low to Ground



#14 CAN Low

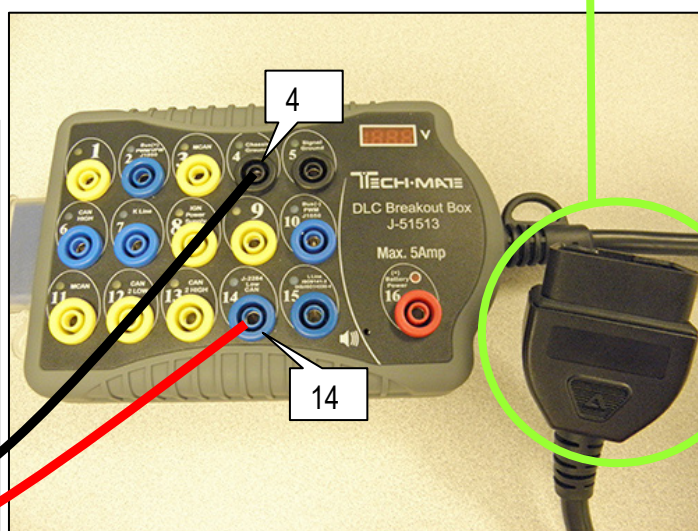
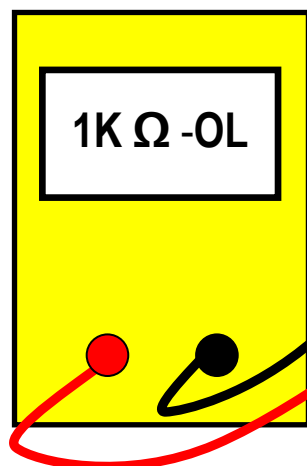
Data Link Connector



#6 CAN High

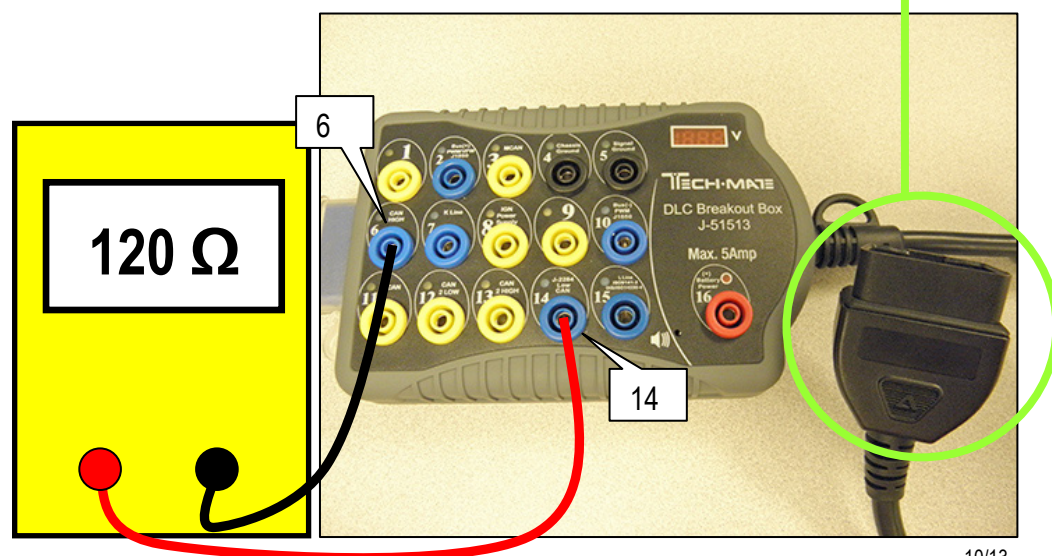
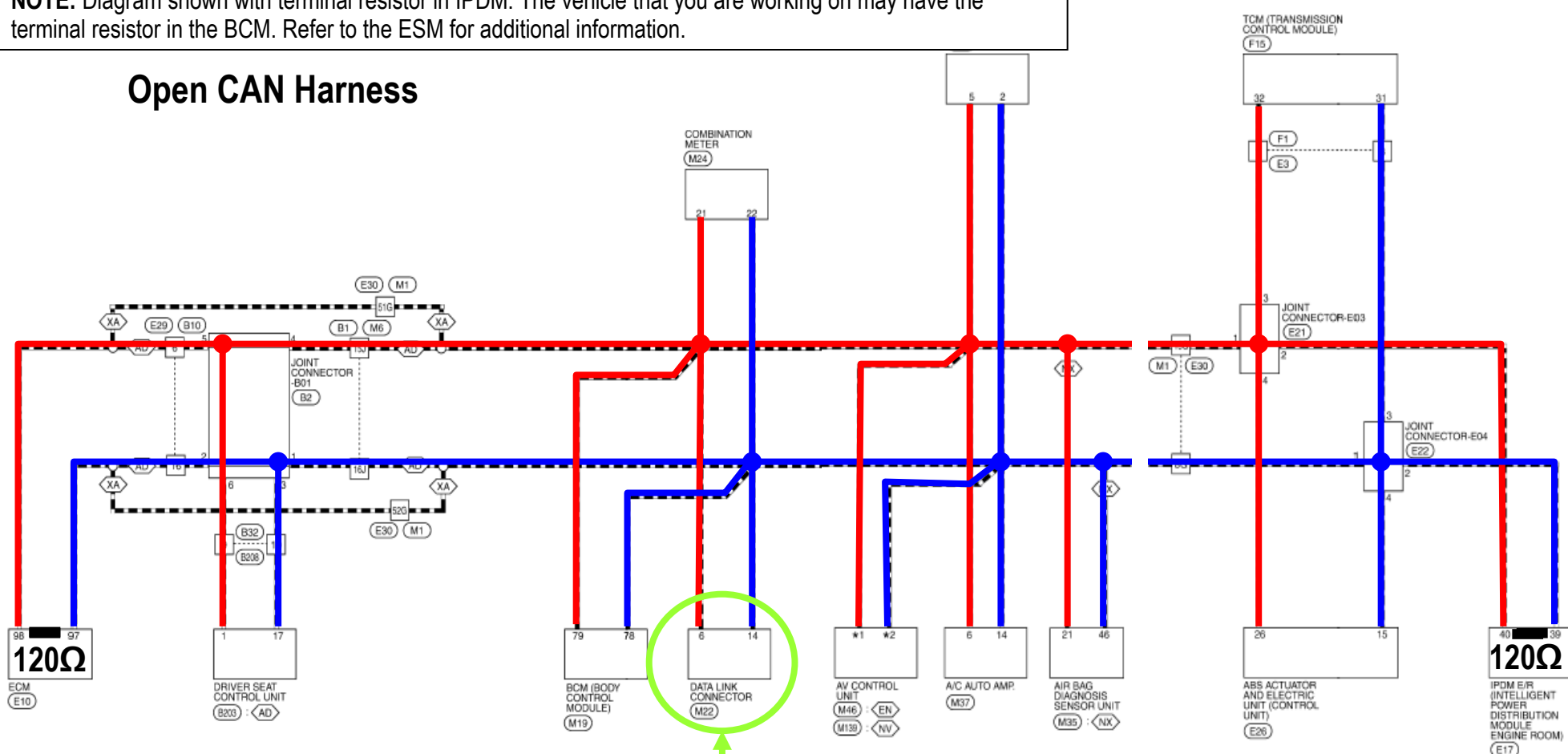
Notes:

- OL= Open Circuit
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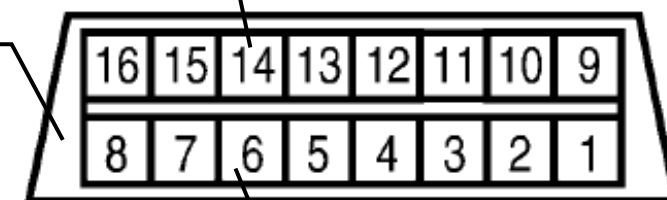
NOTE: Diagram shown with terminal resistor in IPDM. The vehicle that you are working on may have the terminal resistor in the BCM. Refer to the ESM for additional information.

Open CAN Harness



#14 CAN Low

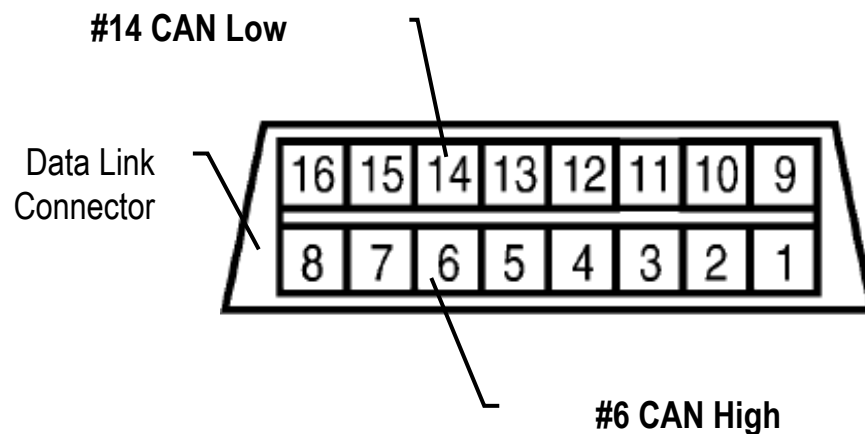
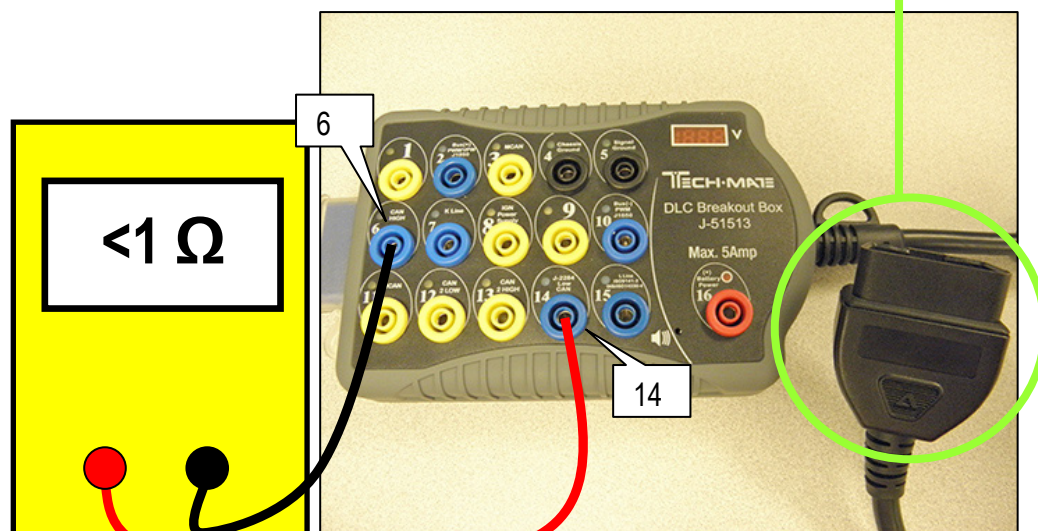
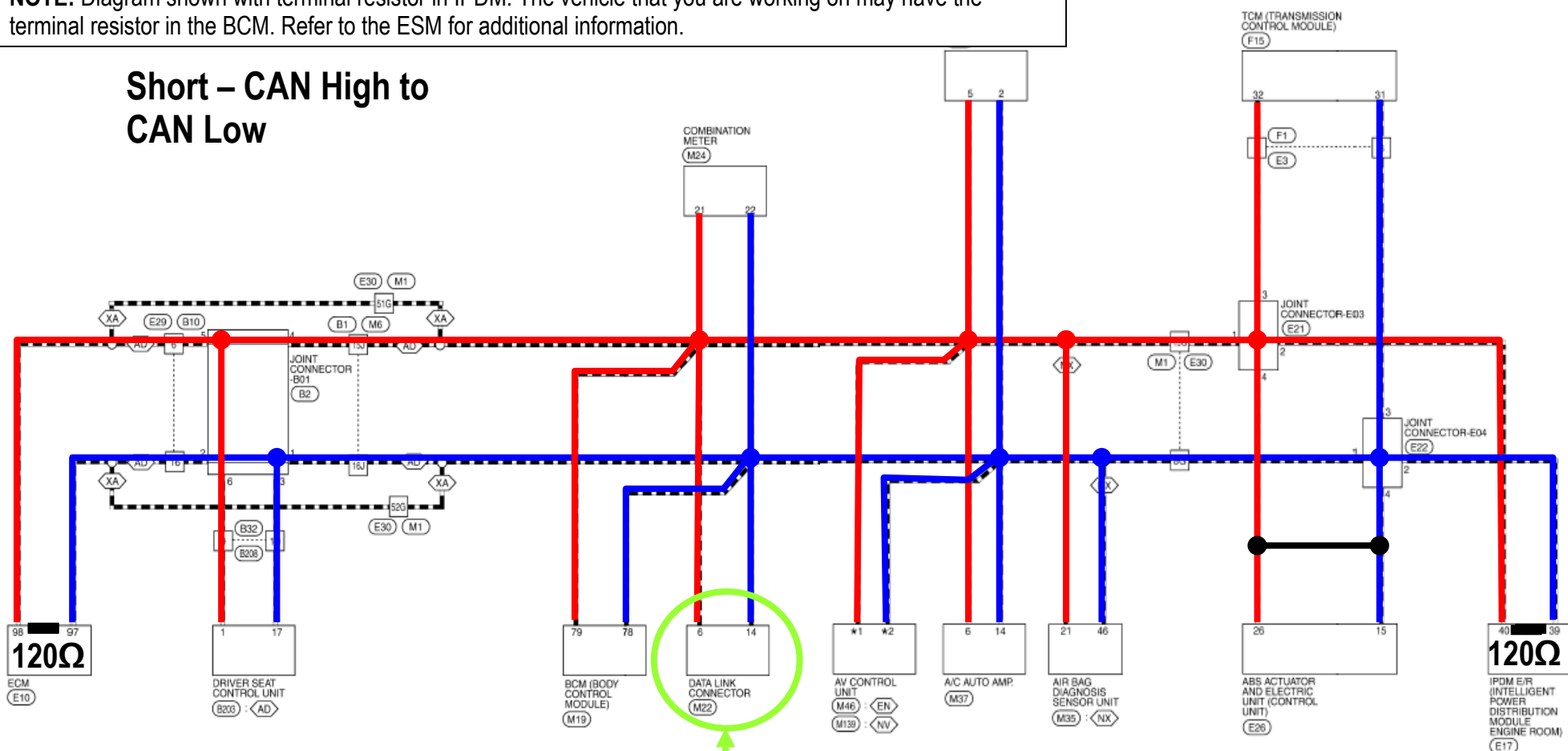
Data Link Connector



#6 CAN High

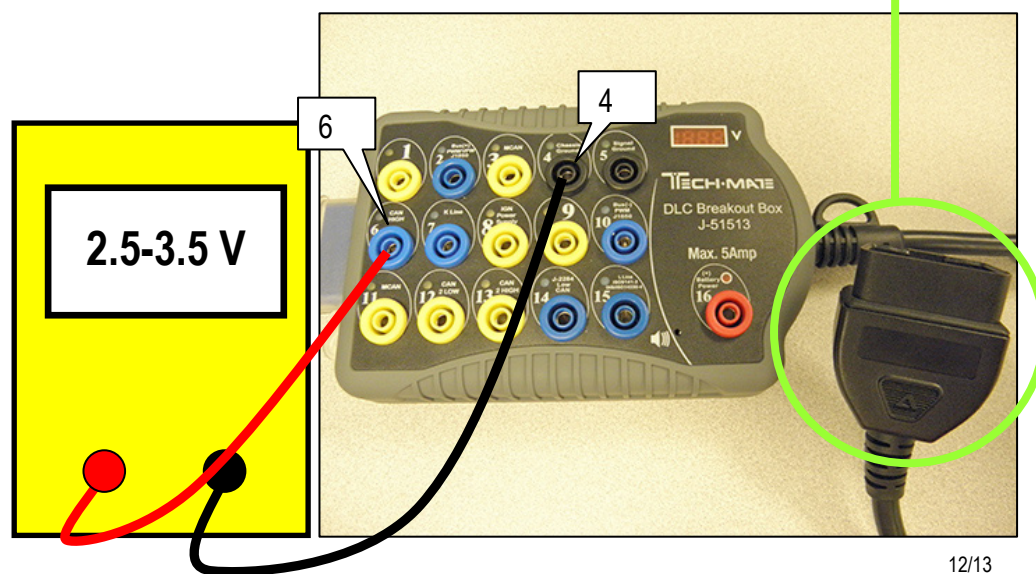
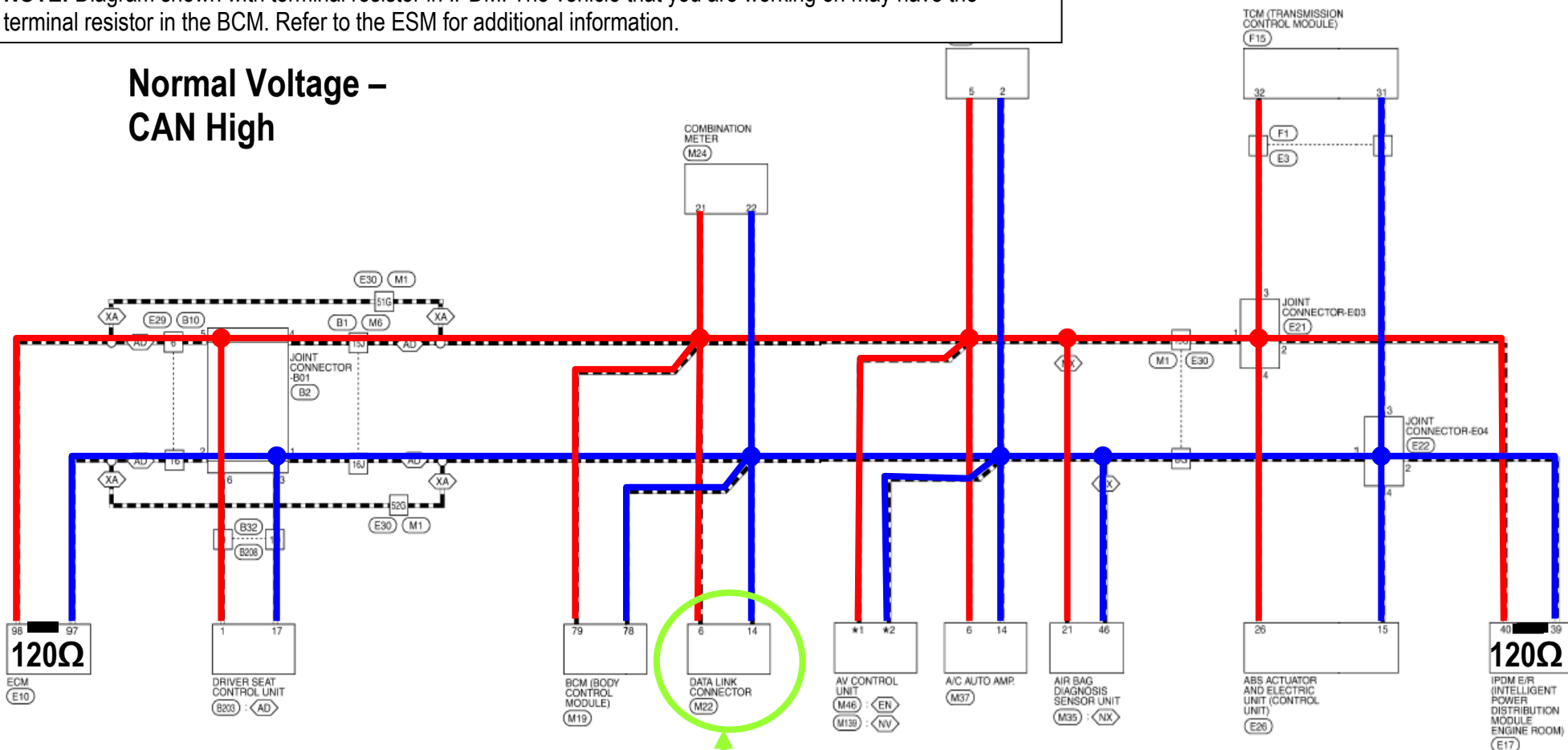
NOTE: Diagram shown with terminal resistor in IPDM. The vehicle that you are working on may have the terminal resistor in the BCM. Refer to the ESM for additional information.

Short – CAN High to CAN Low



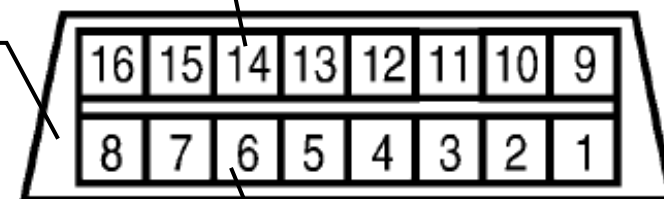
NOTE: Diagram shown with terminal resistor in IPDM. The vehicle that you are working on may have the terminal resistor in the BCM. Refer to the ESM for additional information.

Normal Voltage – CAN High



#14 CAN Low

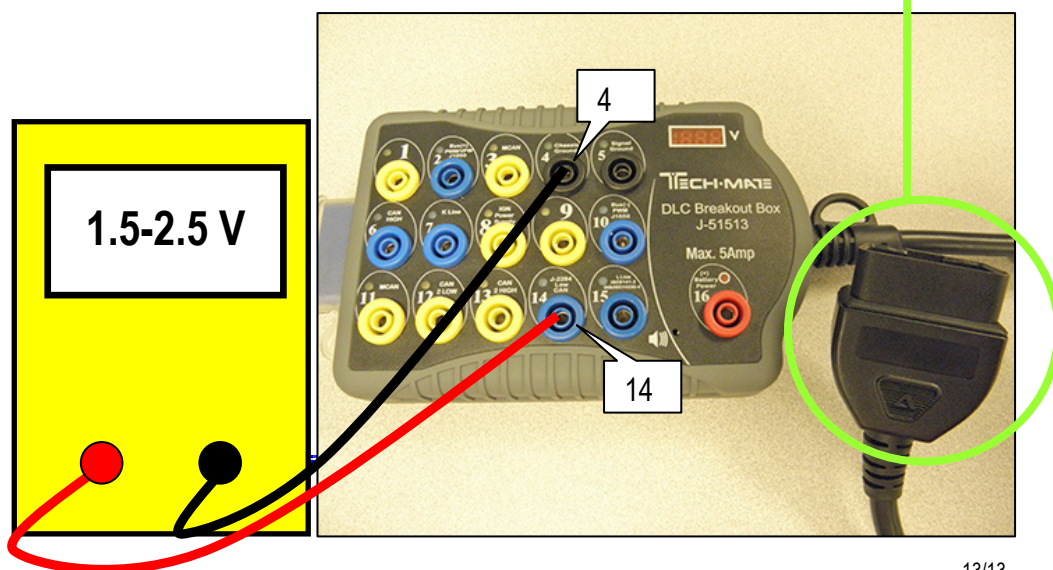
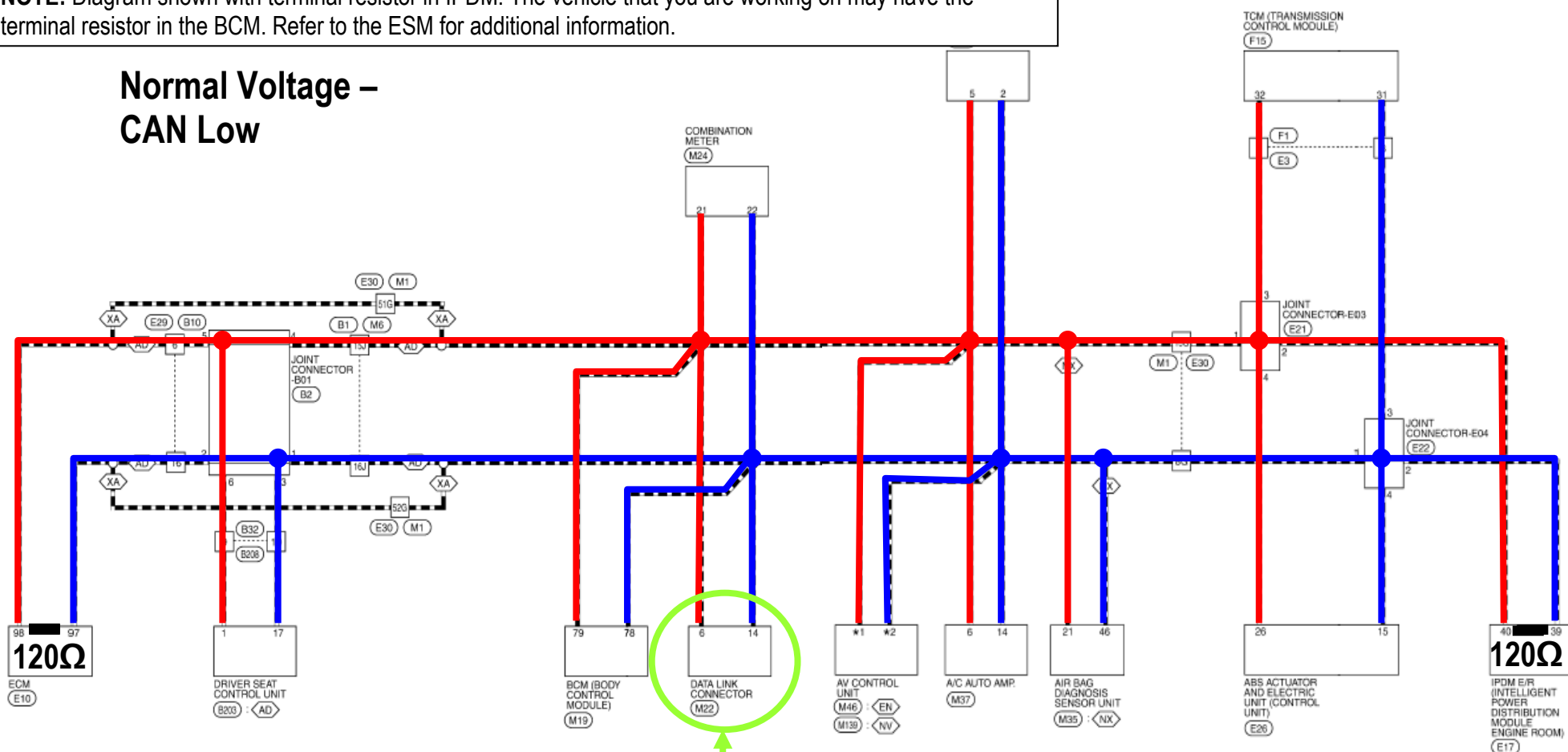
Data Link
Connector



#6 CAN High

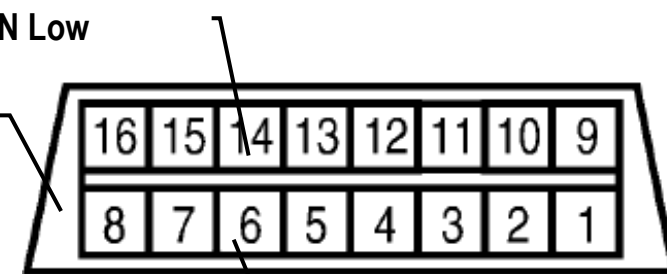
NOTE: Diagram shown with terminal resistor in IPDM. The vehicle that you are working on may have the terminal resistor in the BCM. Refer to the ESM for additional information.

Normal Voltage – CAN Low



#14 CAN Low

Data Link
Connector



#6 CAN High