Classification:	Reference:	Date:
EL10-018	ITB10-029	May 7, 2010

CAN COMMUNICATION CODES – DIAGNOSTIC TIPS & GUIDELINES

APPLIED VEHICLES: All 2005–2010 Infiniti vehicles

SERVICE INFORMATION

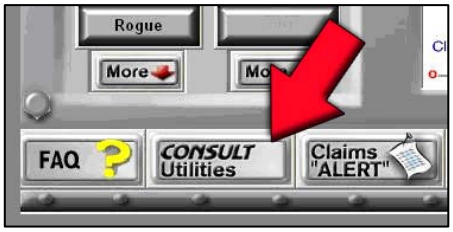
Related to communication codes U1000, U1001, U1002, U1010:

- 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 (C-III).

- Open ASIST first and then open C-III using the Consult Utilities icon. This step will help identify the CAN type on many vehicles using the SIS function.



- 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).

- The V-CAN diagram screen is a snap shot only. It must be refreshed after any changes.

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.

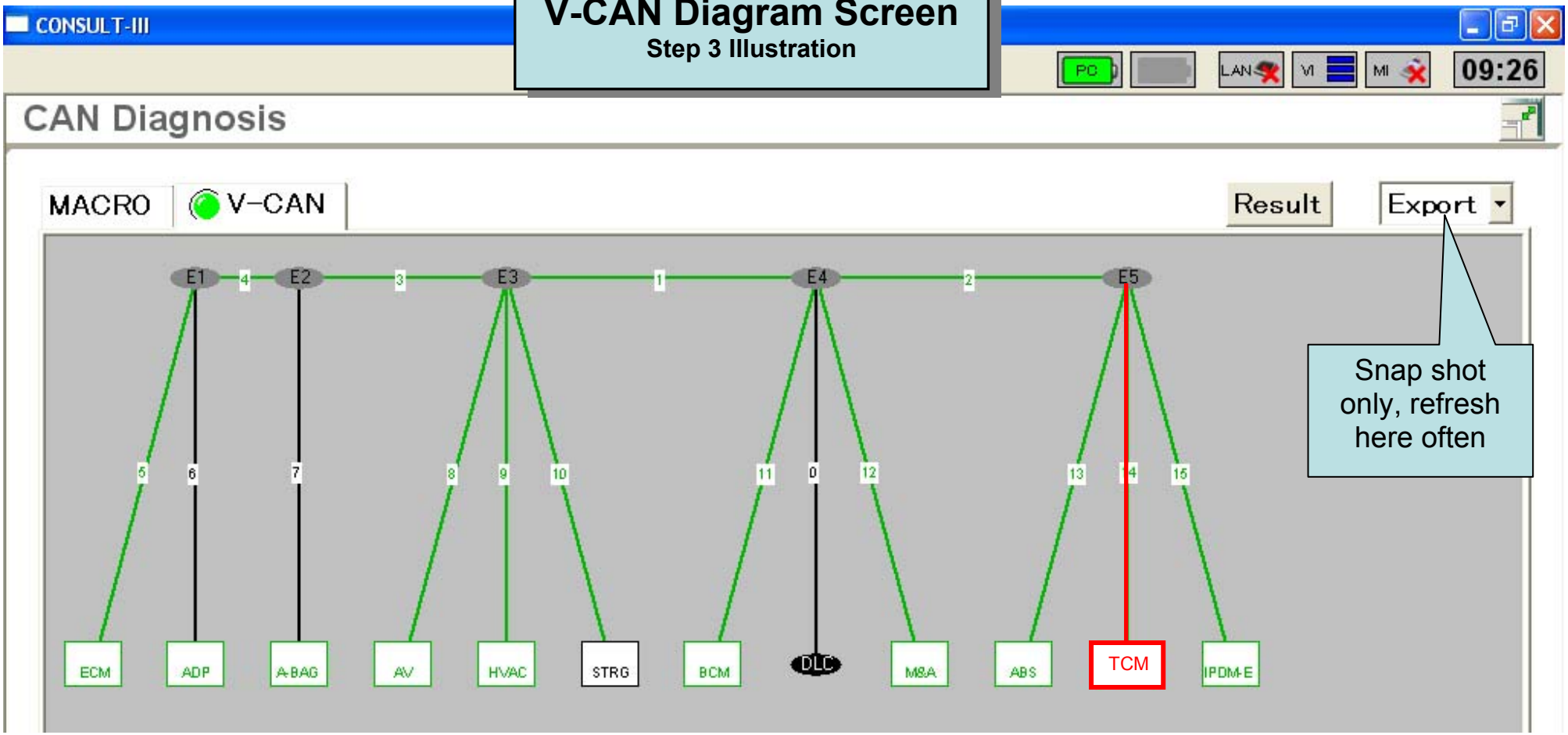
Tips if a control module is the suspected root cause:

- 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.

V-CAN Diagram Screen

Step 3 Illustration



Red = Current Communication Error

Orange = Past or Intermittent Communication Error

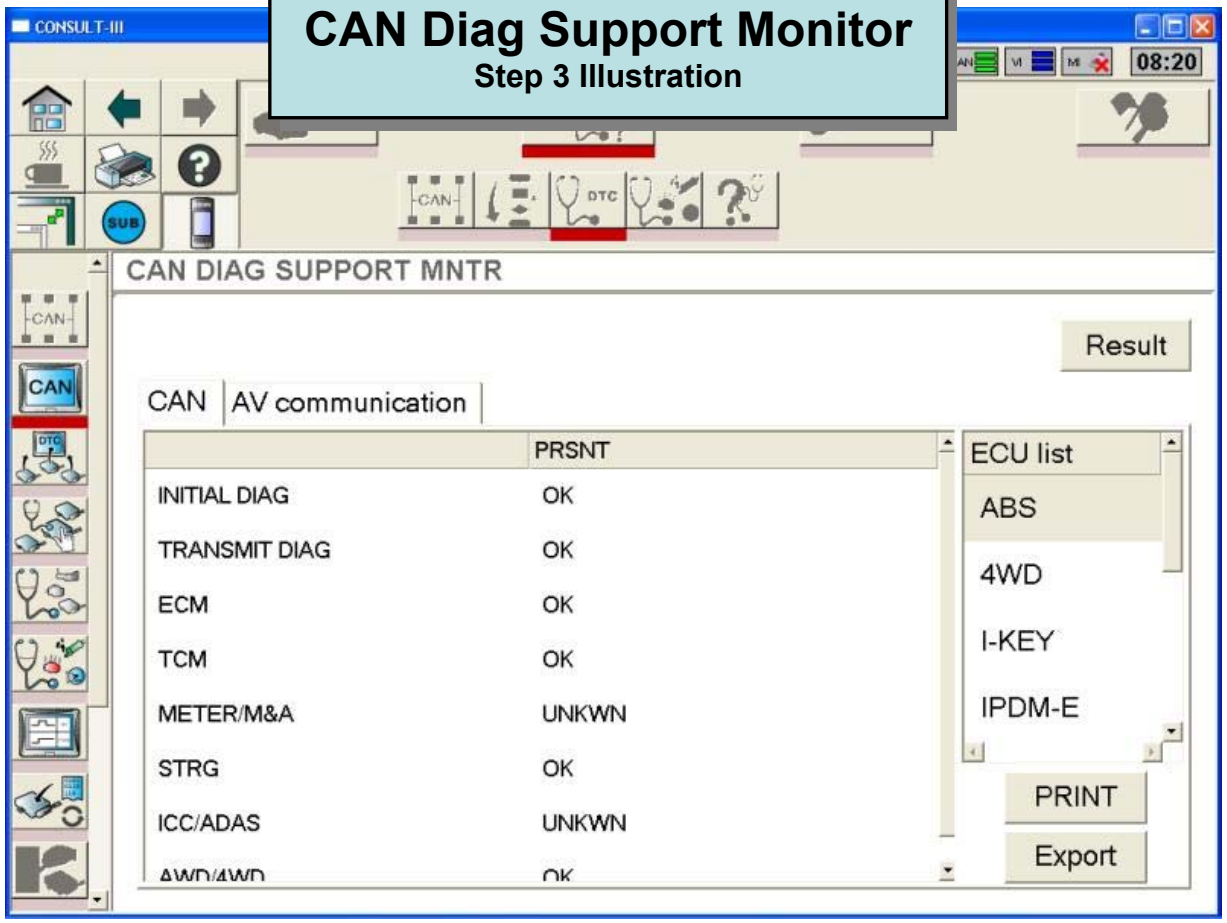
Black = Not diagnosed

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.

CAN Diag Support Monitor
Step 3 Illustration



NOTE:
These prints are needed for ESM CAN Diagnosis or if the V-CAN diagram diagnosis is not available.

Saved Date	
System	
P/#	

Vehicle Info
Vehicle Name : ARMADA
Market : NAM Model Year : 2008
Area : North America
Country : U.S.A.

Customer	
Print Date	2009/06/17 09:50:04
Worker	

CAN DIAG SUPPORT MNTR

CAN1	CAN2
CAN H max=4.4V	
CAN H min=2.2V	
CAN L max=3.6V	
CAN L min=0.8V	
Battery(V)13.4V	

CAN

ECU list

ABS, 4WD, I-KEY, IPDM-E, AV, HVAC, TCM, M & A, ECM

ABS

	PRSNT	PAST
INITIAL DIAG	OK	
TRANSMIT DIAG	OK	
ECM	OK	
TCM	OK	
METER/M&A	UNKWN	
STRG	OK	
ICC	UNKWN	
AWD/4WD		

4WD

	PRSNT	PAST
TRANSMIT DIAG	OK	OK
ECM	OK	OK
VDC/TCS/ABS	OK	OK
TCM	OK	OK
STRG	OK	OK

I-KEY

	PRSNT	PAST
TRANSMIT DIAG	OK	OK
ECM	OK	OK
METER/M&A	OK	OK
BCM/SEC	UNKWN	0

IPDM-E

	PRSNT	PAST
TRANSMIT DIAG	OK	OK
ECM	OK	OK
BCM/SEC	UNKWN	0

Print Example

AV

	PRSNT	PAST
TRANSMIT DIAG	OK	OK
ECM	OK	OK
METER/M&A	OK	OK
BCM/SEC	UNKWN	0
HVAC	OK	OK
STRG	-	-
IPDM E/R	OK	OK
TIRE P	UNKWN	0
TCU	OK	OK

HVAC

	PRSNT	PAST
TRANSMIT DIAG	OK	OK
ECM	OK	OK
TCM	-	-
BCM/SEC	UNKWN	0
VDC/TCS/ABS	OK	OK
IPDM E/R	-	-
DISPLAY	OK	OK
I-KEY	-	-
EPS	-	-
AWD/4WD	-	-
e4WD	-	-
ICC	-	-
LANE CAMERA	-	-
TIRE P	-	-

TCM

	PRSNT	PAST
INITIAL DIAG	OK	
TRANSMIT DIAG	OK	
ECM	OK	
VDC/TCS/ABS	OK	
METER/M&A	OK	
ICC/4WD	UNKWN	
AWD/4WD	OK	

M & A

	PRSNT	PAST
TRANSMIT DIAG	OK	OK
ECM	OK	OK
TCM	OK	OK
BCM/SEC	UNKWN	0
VDC/TCS/ABS	OK	OK
IPDM E/R	OK	OK
DISPLAY		
I-KEY	OK	OK
EPS	-	-
AWD/4WD		-
e4WD		-
ICC		-
LANE CAMERA		-
TIRE P		-

ECM

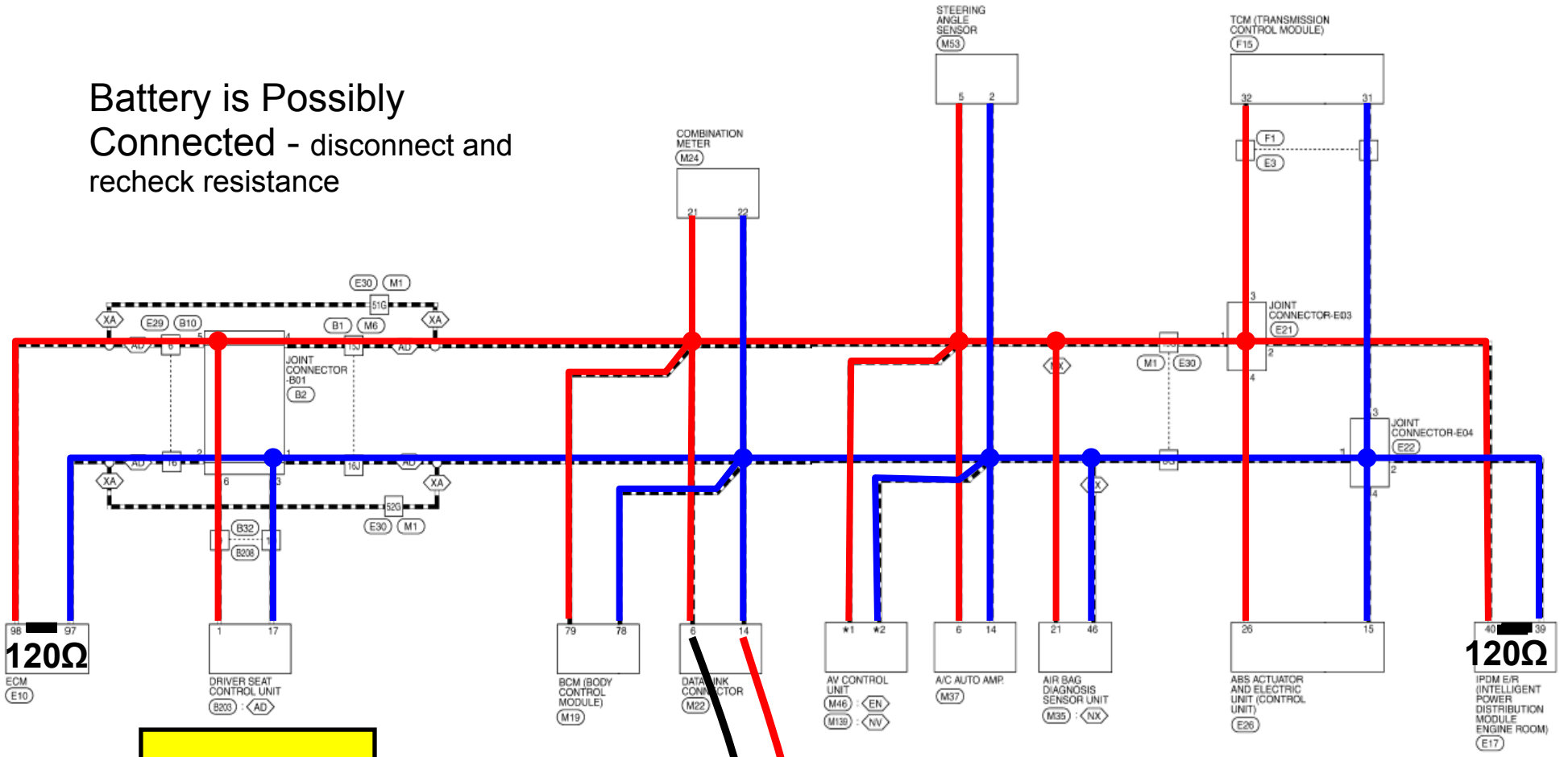
	PRSNT	PAST
TRANSMIT DIAG	OK	OK
VDC/TCS/ABS	OK	OK
METER/M&A	OK	OK
BCM/SEC	UNKWN	0
ICC		-
HVAC		-
TCM	OK	OK
MULTI AV		-
EPS		-
IPDM E/R	OK	OK
e4WD		-
AWD/4WD	OK	OK

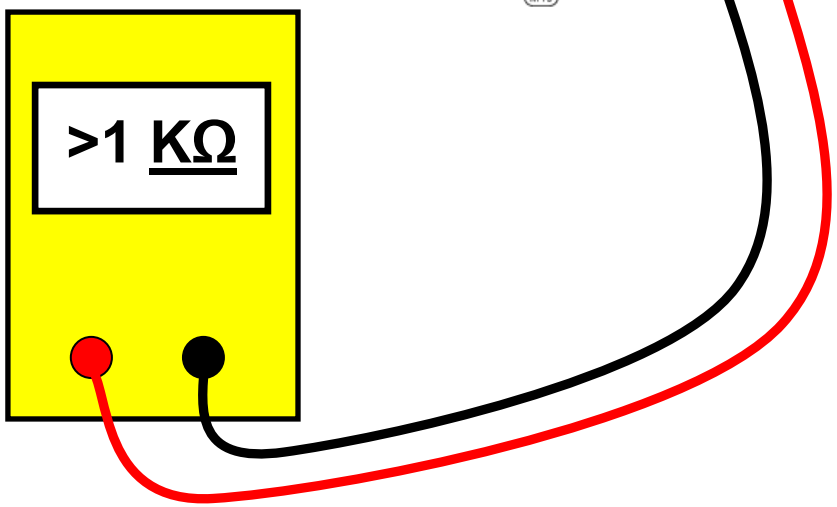
AV communication

ECU list

AV&NAVI CAN, AUDIO

Battery is Possibly Connected - disconnect and recheck resistance

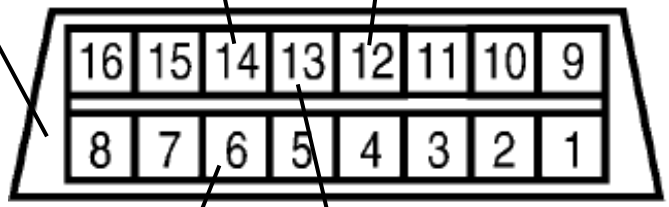




#14 CAN Low

#14 CAN 2* Low

Data Link Connector

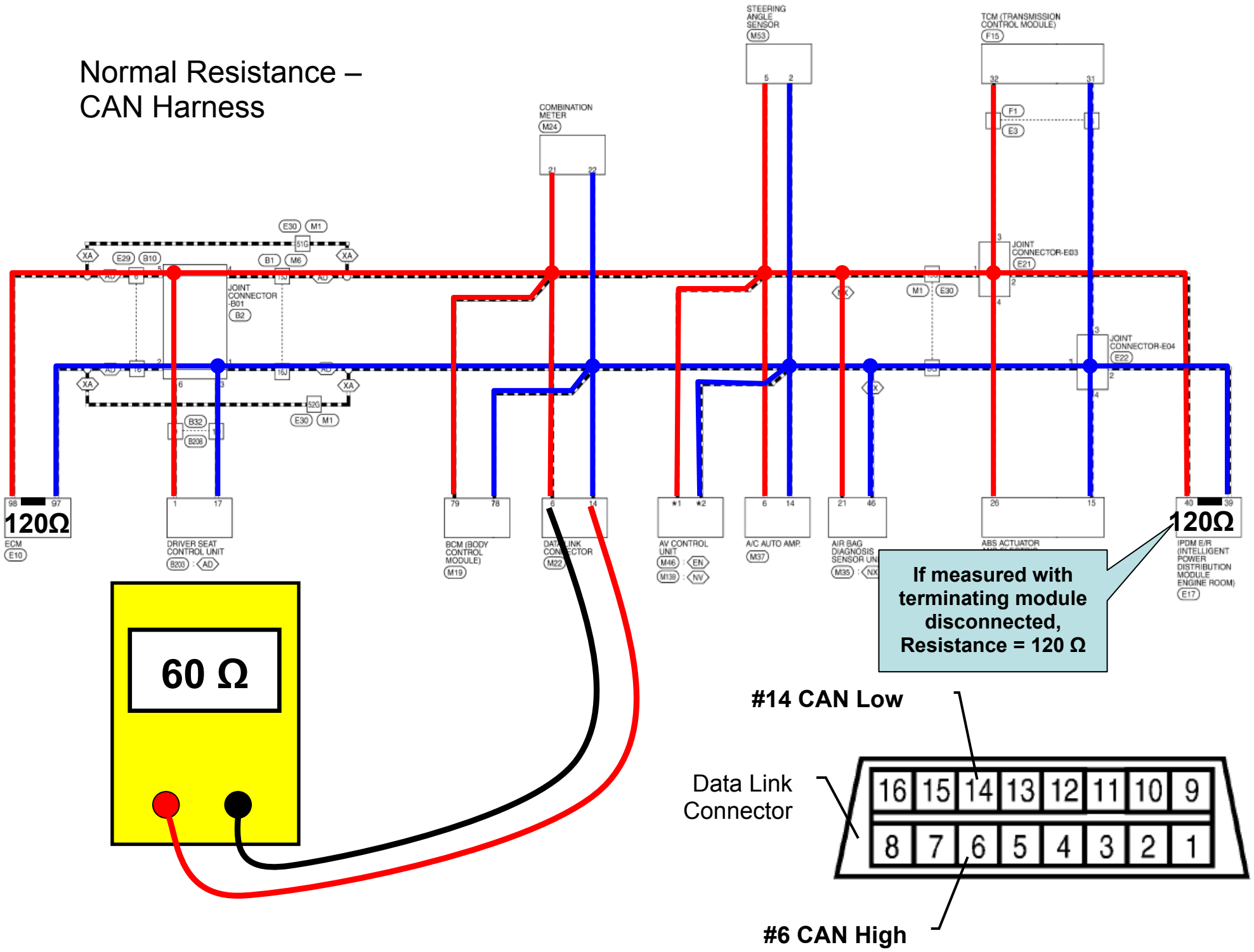


#13 CAN 2* High

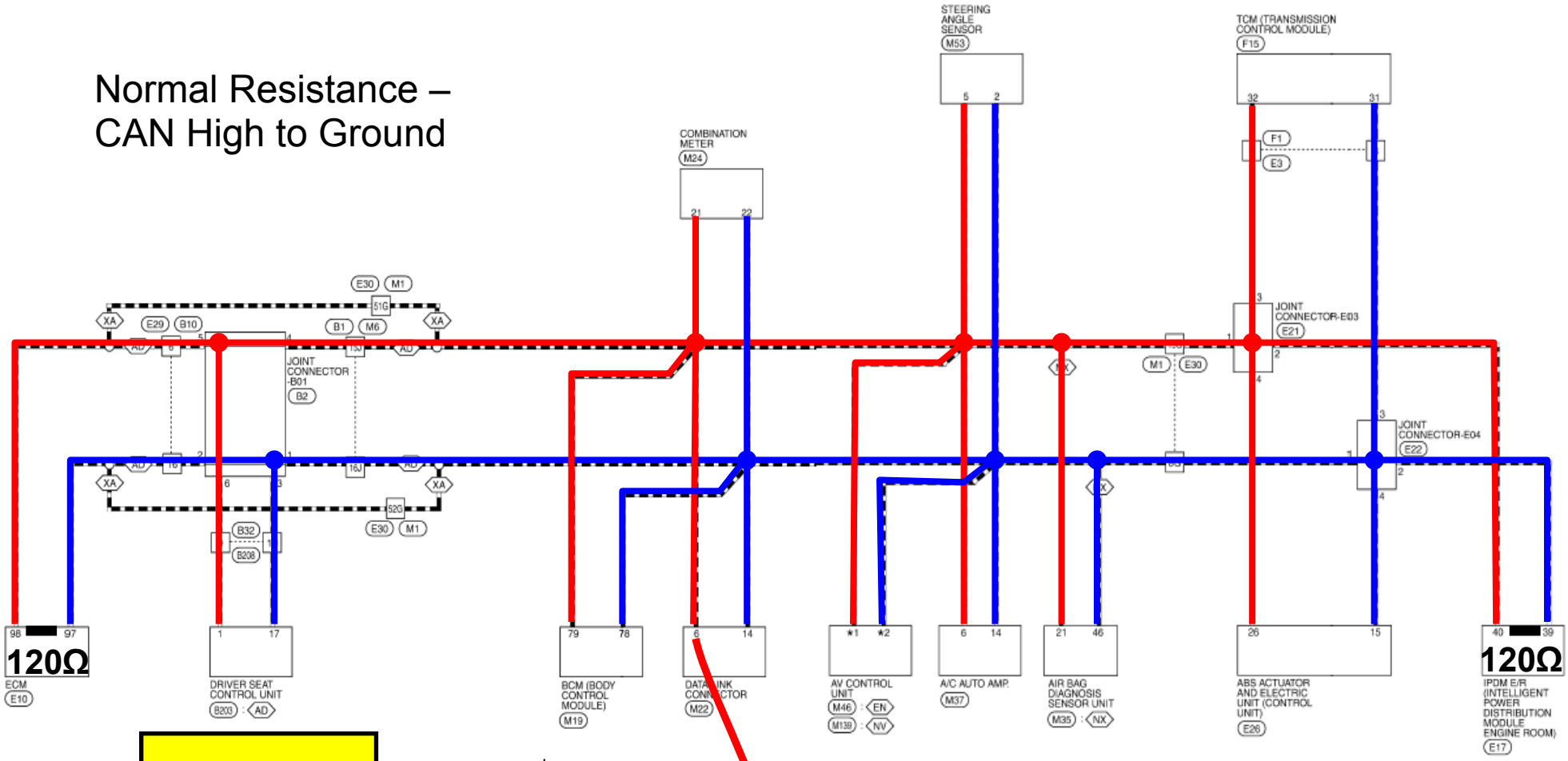
#6 CAN High

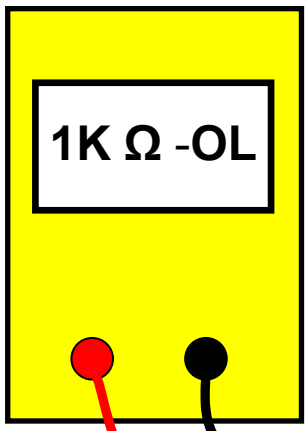
* Certain models are equipped with 2 CAN systems

Normal Resistance – CAN Harness



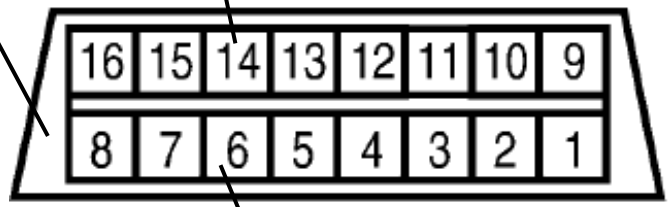
Normal Resistance – CAN High to Ground





#14 CAN Low

Data Link Connector

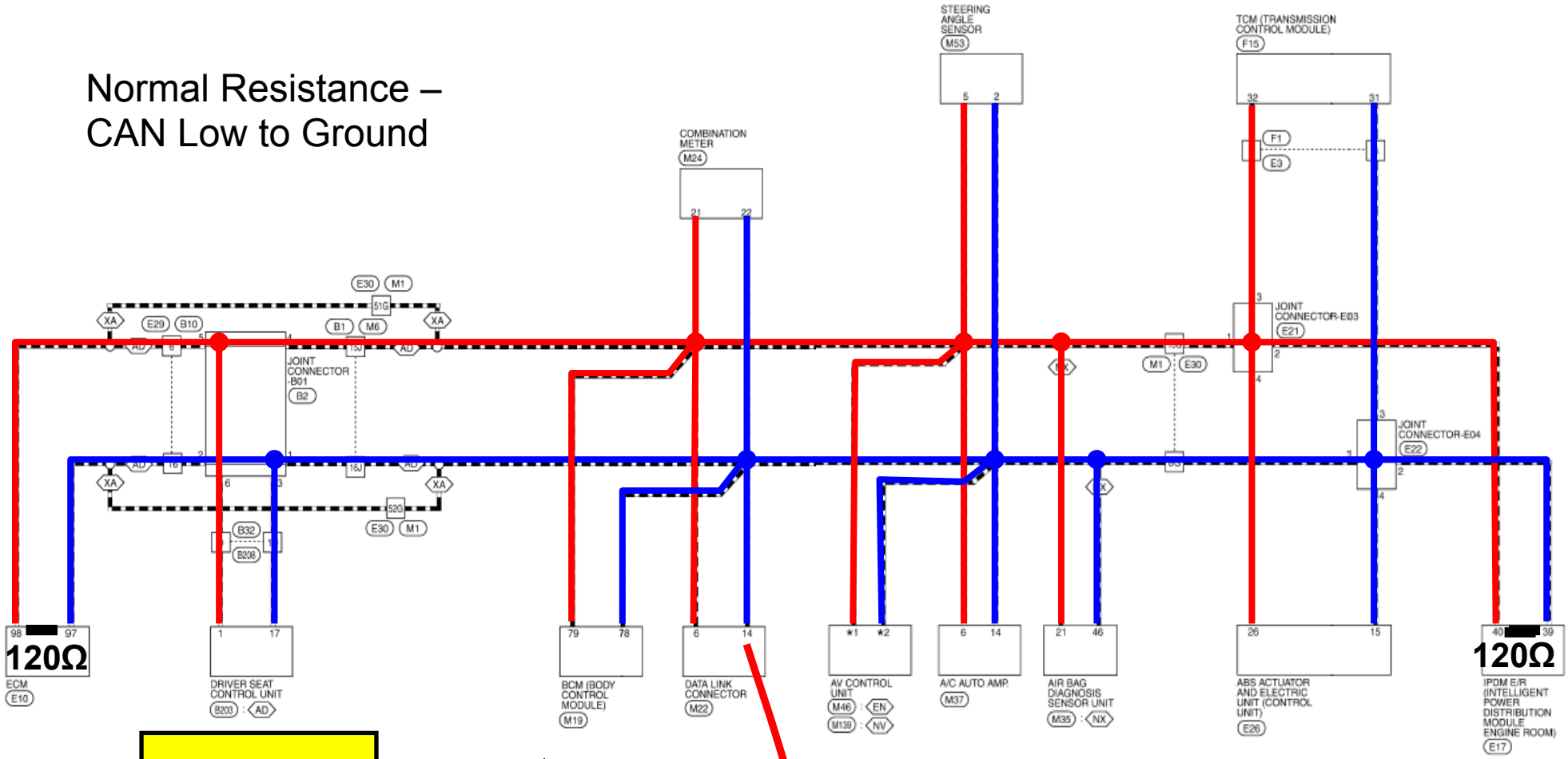


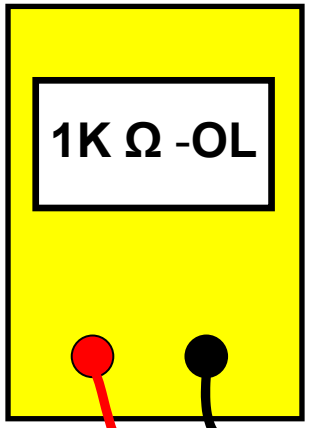
#6 CAN High

Notes:

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

Normal Resistance – CAN Low to Ground





#14 CAN Low

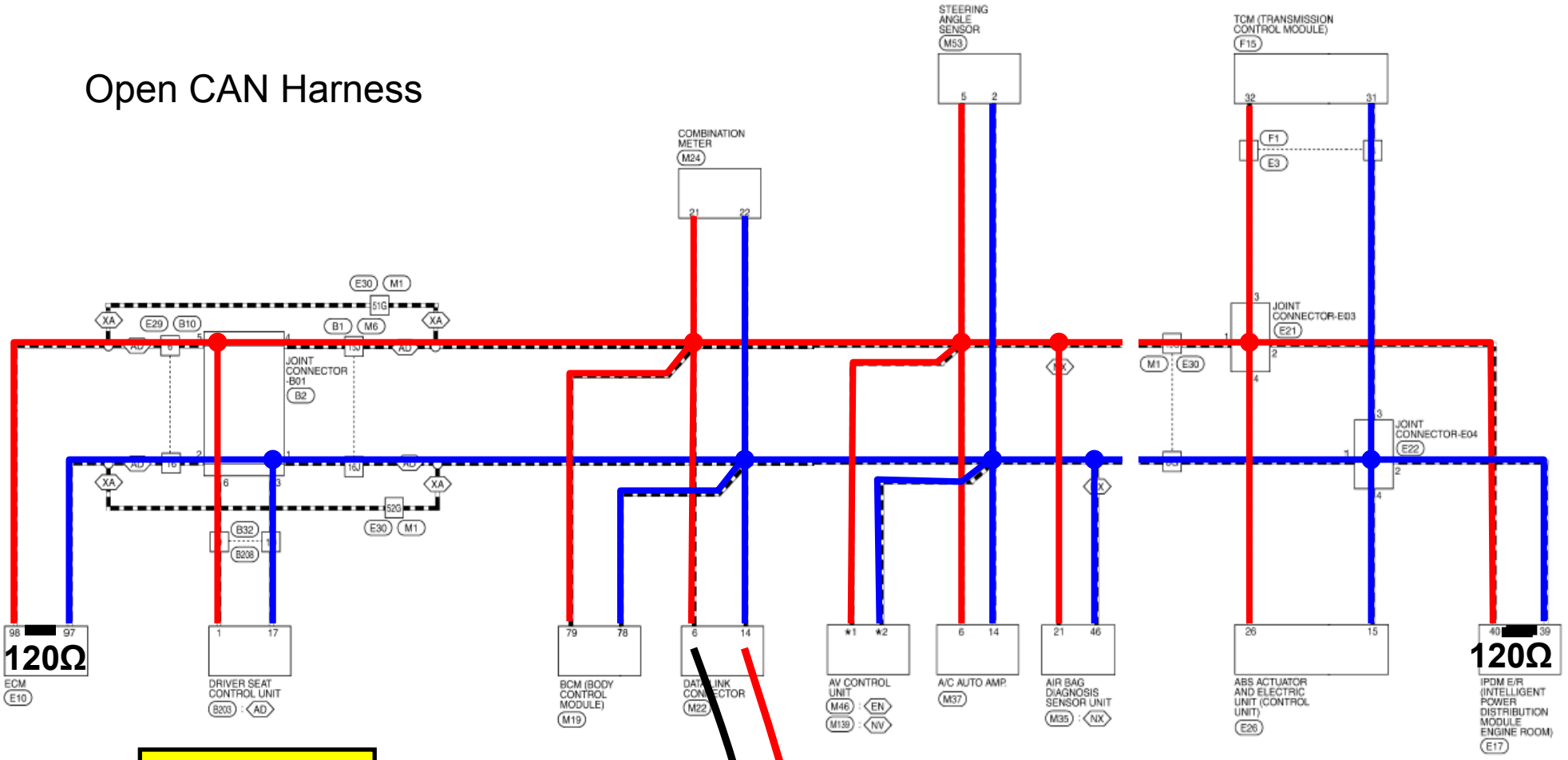
Data Link Connector

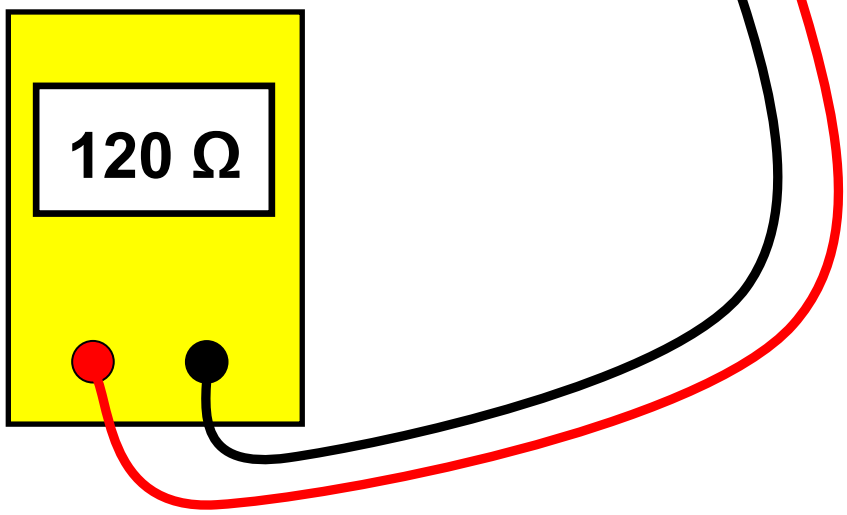
#6 CAN High

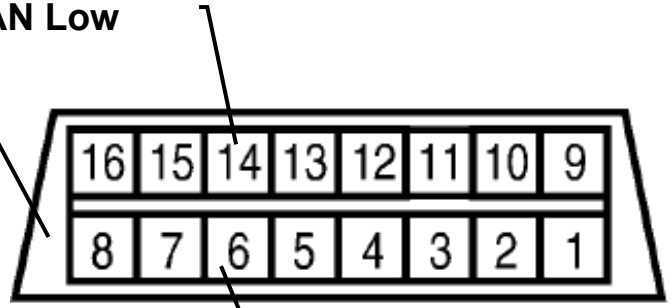
Notes:

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

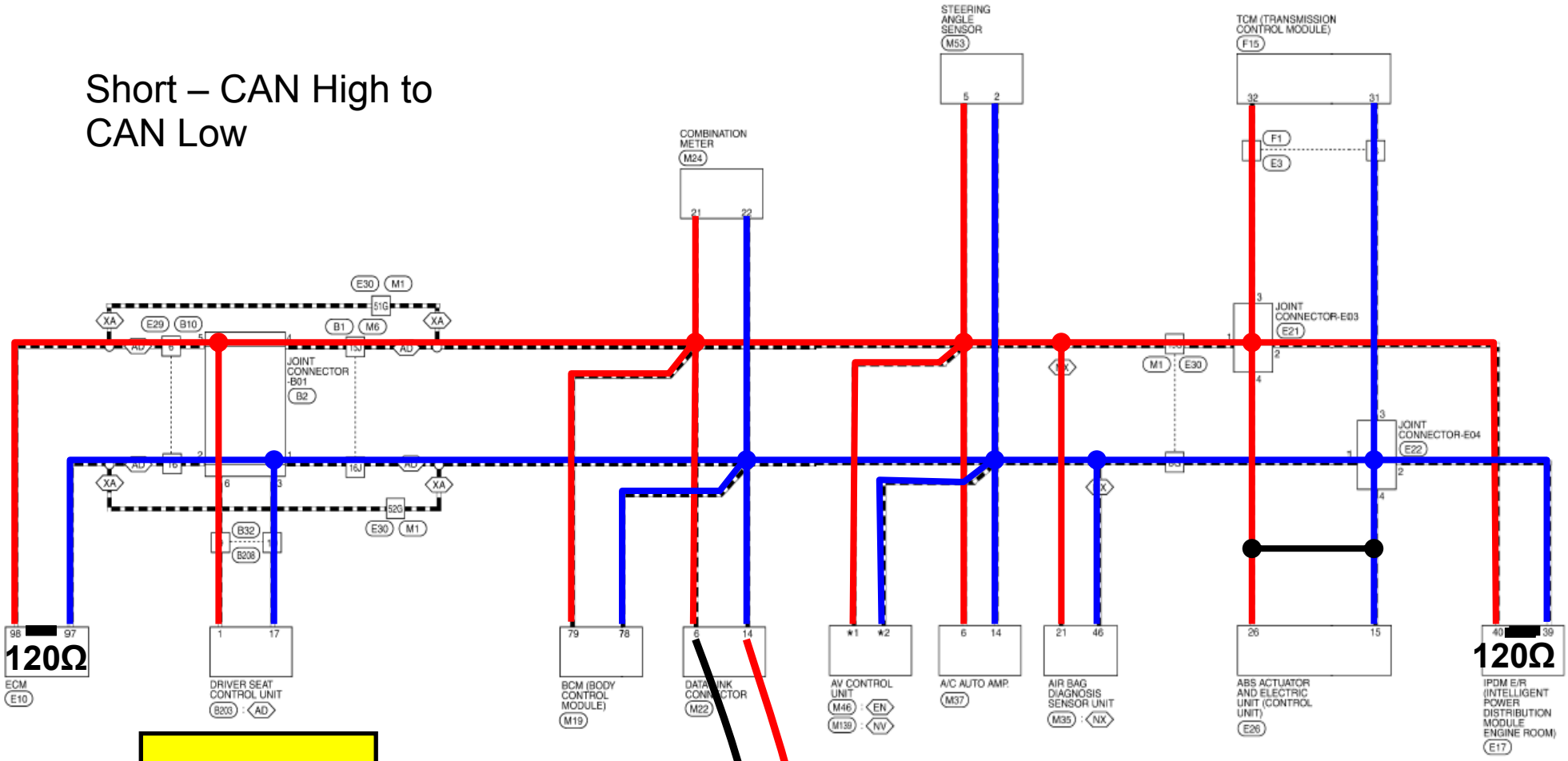
Open CAN Harness

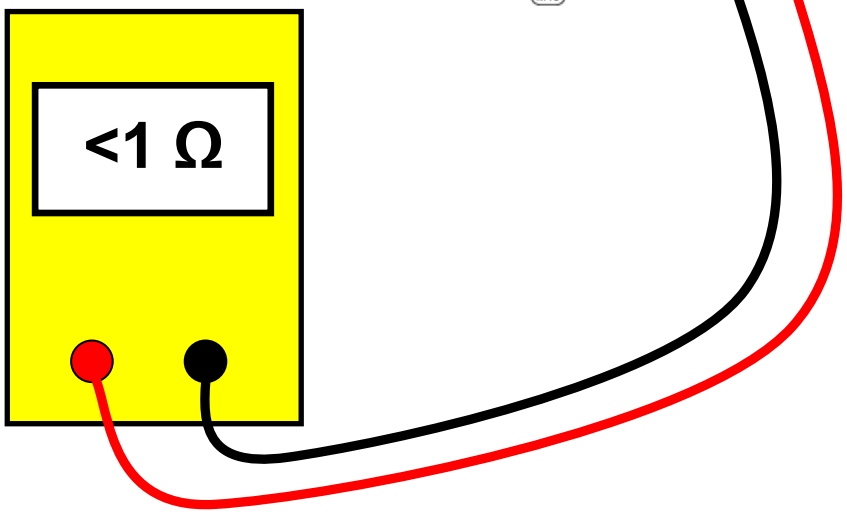






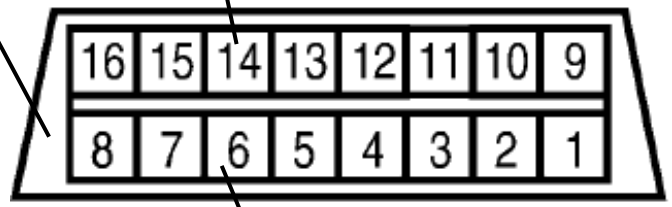
Short – CAN High to CAN Low





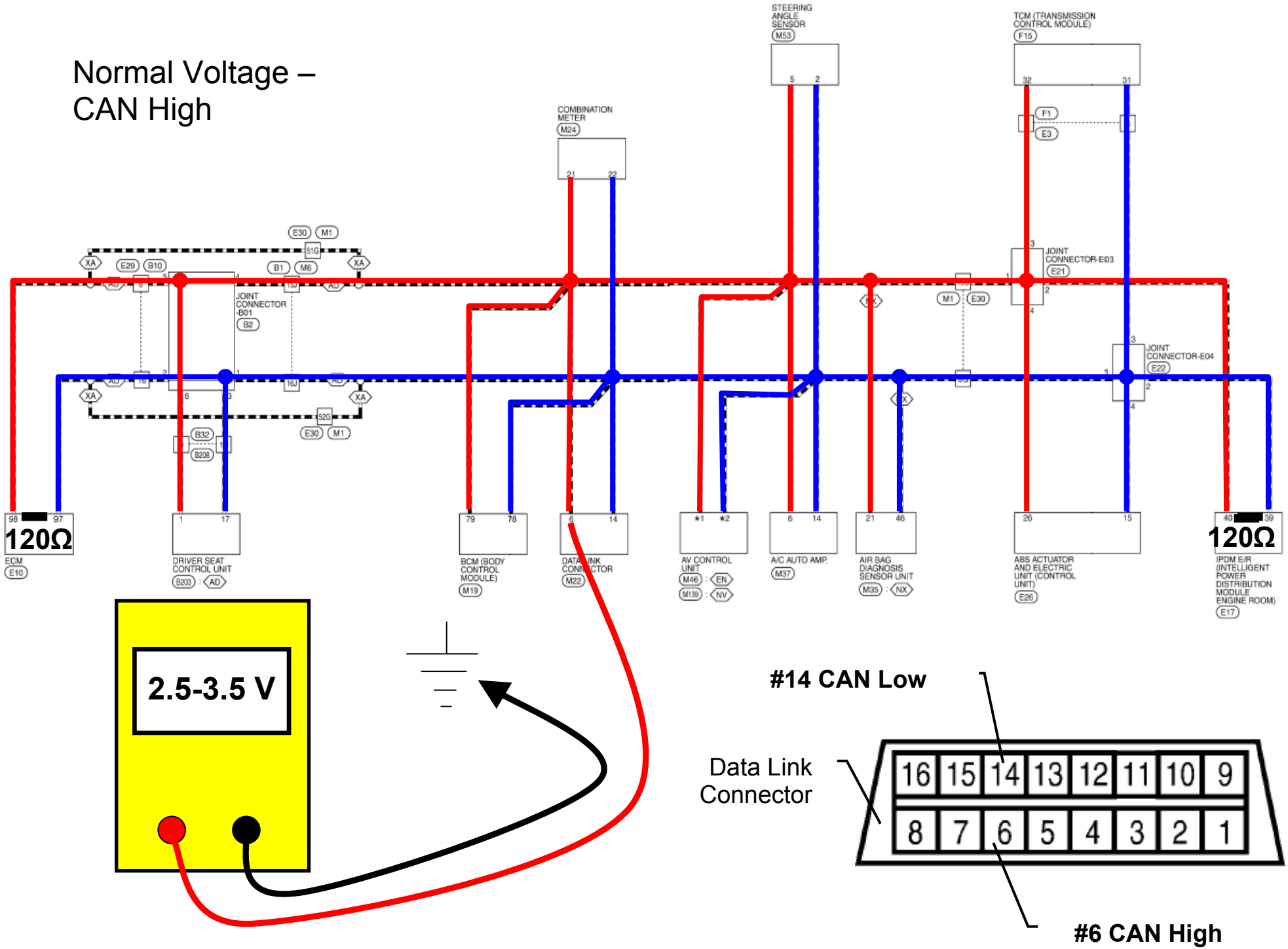
#14 CAN Low

Data Link Connector

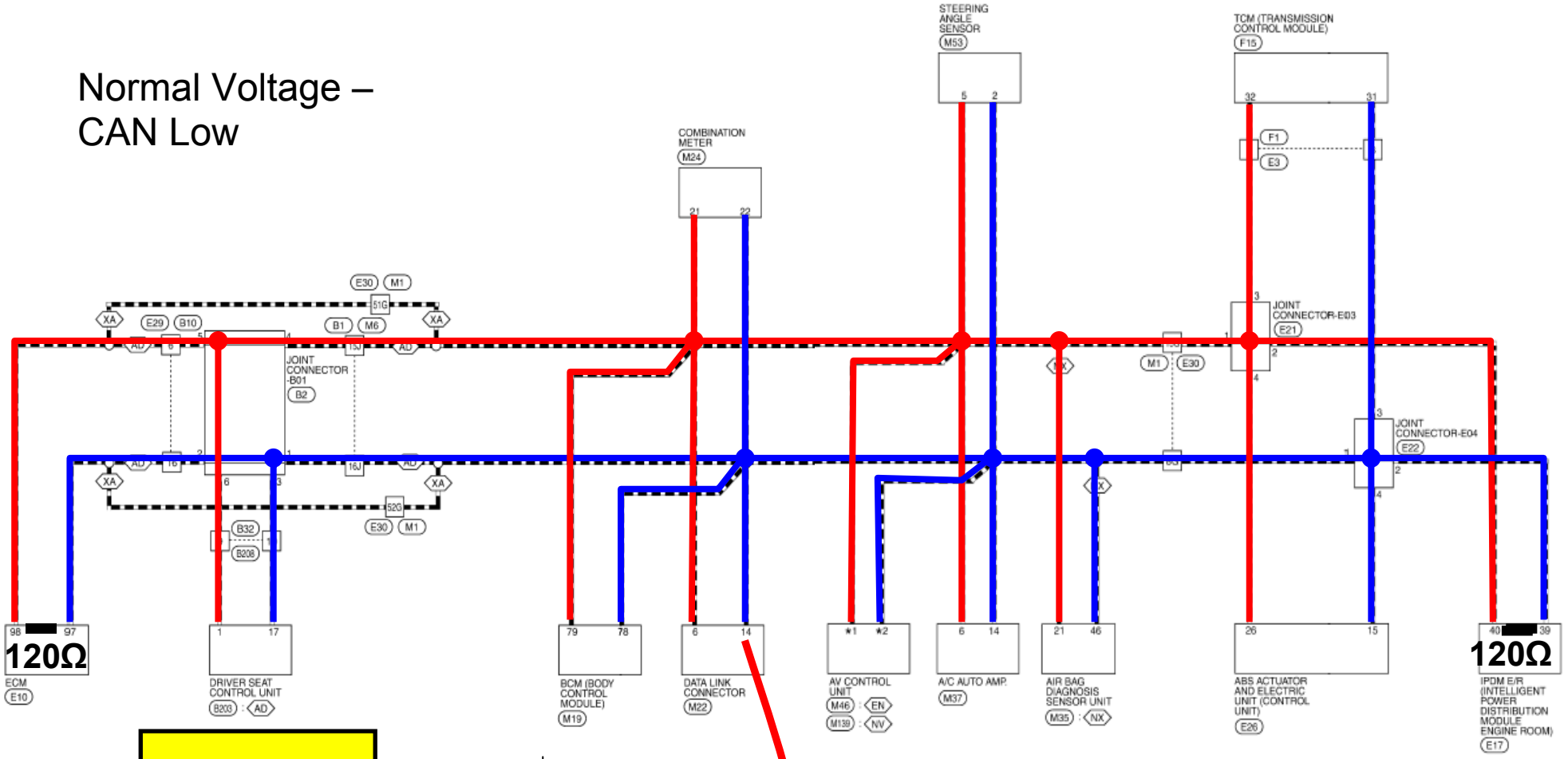


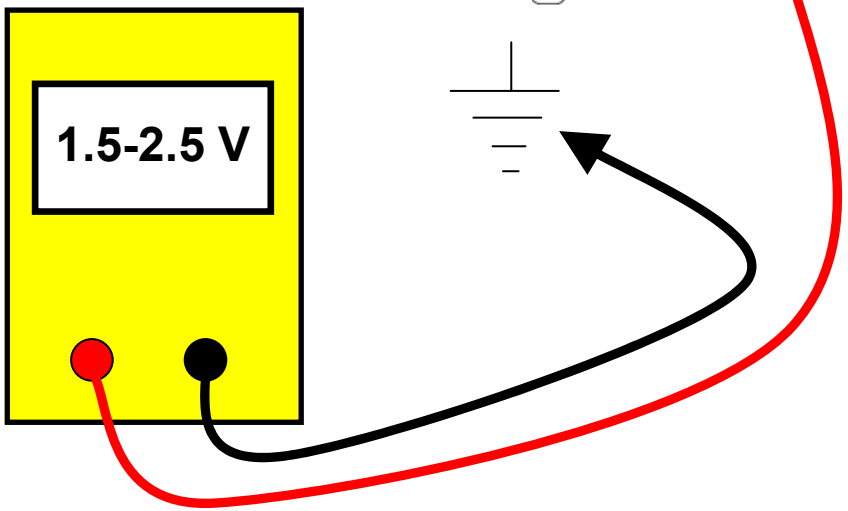
#6 CAN High

Normal Voltage – CAN High



Normal Voltage – CAN Low





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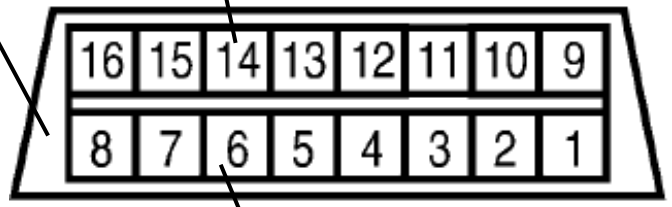
Data Link Connector



#6 CAN High