Dorman Training Center Presents

"Communication Breakdown"

ADV330 | 2026

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Your Instructor For This Seminar

- **Experience and my education are both varied. The theoretical foundation includes Automotive Technology, Business Administration and Engineering. On the other hand, my experience is concentrated mostly in the automotive repair field in a variety of capacities. A three year stint also included working as an Engineering Technician. Furthermore, I would classify my self as being first and foremost a teacher, more specifically a Teacher of Automotive Technicians.**

- **Having studied and instructed Automotive Technicians has enabled me to gain insights which I document and put together for them in the form of worksheets that complement the diagnostic process. It consists of a series of logical steps made in any diagnosis with a constant reinforcement of basic skills.**

- **I have accumulated a wealth of information, details and experience on the instruction of automotive repair technicians as related to the aftermarket repair industry. I have tested methods that increase their competency, not only in class but in the field as well. My approach promotes that they have the basic tools and information.**

Kenneth Zanders

Kzanders@dormanproducts.com

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What Will Be Covered

Instructions for this seminar:

- This seminar will be approximately 1+ hour long
- All slides that are presented are in your handout and are numbered
- Have a pen or pencil and paper for notes
- Questions can be asked at anytime

- Global A - 2010 to 2019
- Checking For 120 Ohms At The DLC
- Diagnosing By The Circuit Numbers
- Serial Data Gateway Module - Side A
- Serial Data Gateway Module - Side B
- Diagnosing By The Pin Numbers
- Checking For Direct & Resistive Shorts To Ground & More…

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GM Global A - 2010 to 2019 (Architecture)

Examples Of GM Global A Vehicles (Just To Name A Few)

- **2010-2018 SRX**
- **2010-2019 LaCrosse, Camaro, Equinox, Terrain**
- **2011-2019 Regal, Cruze**
- **2012-2018 Verano**
- **2012-2019 Sonic, Volt**
- **2013-2019 Encore, ATS, XTS, Spark, Trax**
- **2014 Silverado 1500, Sierra 1500**

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Examples Of GM Global A Vehicles (Just To Name A Few)

- 2014-2018 ELR, Caprice PPV, Spark BEV, SS
- 2014-2019 CTS, Corvette, Impala
- 2015-2019 Escalade, Colorado, Silverado, Tahoe, Suburban, Canyon, Sierra, Yukon
- 2017-2019 XT5, Acadia
- 2018-2019 Enclave, Traverse
- 2019 XT4, Silverado 1500, Sierra 1500
- 2010-2018 Equinox

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Do Not Swap Modules (GM Global A)

- **Swapping control modules, including the ECM, BCM, EBCM, SDM, TCM, ECC (HVAC), EPS, HPCM, IPC, and Radio, between vehicles will damage both controllers and will result in a no start condition on both vehicles due to the new vehicle security code protocol.**
- **These modules all have IDs that must match in order for the BCM to allow starting the engine. The control modules are coded to the vehicle when they are first programmed, which results in a unique ID being permanently stored in that module. Swapping these security-related modules will cause difficult and time - consuming remediation processes that may include the purchase of new components for both vehicles.**

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Symptoms Of Module Swapping **(GM Global A)**

- **A variety of symptoms may appear in a vehicle containing one or more control modules swapped from a like vehicle. Depending upon which control modules have been swapped, possible symptoms include:**
- **The VIN read by GDS and SPS does not match the vehicle.**
- **Current DTC B3902 - Incorrect IMMO ID Rec. set in IPC, SDM, ECM, HVAC, Steering Column Lock Control Module (if equipped) or BCM. There are no warning lamps or DIC messages and this DTC cannot be cleared.**
- **IPC module displays (- – -) for odometer and trip odometer values.**

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Symptoms Of Module Swapping (GM Global A)

- **Vehicle will enter power mode only if the key fobs that match the donor vehicle BCM are included in the swap.**
- **BCM and/or ECM has current DTC B389A – Environment Identification. There is a Service Theft System message on the DIC, the Security MIL is illuminated, and this DTC cannot be cleared.**
- **ECM odometer value is incorrect for the vehicle.**
- **Radio displays Locked.**

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Security Protocol

- **Security Code - The purpose of the security code is to protect the vehicle's security information against tampering. It's a random code, unique to each vehicle, generated at the vehicle assembly plant.**
- **Environmental ID - The purpose of the Environmental ID is to increase the time and complexity involved in attempting a vehicle theft by swapping control modules. In a potential theft situation, it will not allow continued running of the engine.**
- **Seed and Key - The purpose of Seed and Key is to protect certain control modules from unauthorized reprogramming when they are outside of the assembly plant environment. Each control module that implements Seed and Key is manufactured with a unique seed value and a corresponding key value stored in memory.**

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No Serial Data Gateway Module (Early-Global A) 2010 - 2013

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No Serial Data Gateway Module

- 60 Ohms at DLC
- Still embedded gateway, but more structured
- Improved message routing
- Early cybersecurity filtering
- Better separation between HS and LS networks
- Actual Gateway Modules
  - BCM (Primary gateway)
  - IPC (HS and MS GMLAN)
  - HMI/Radio (HS and MOST)
  - HVAC (LIN and HS)

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Serial Data Gateway Module
GEN 1 (Mid-Global A)
2014 - 2015

Serial Data Gateway Module GEN 1

- 60 Ohms at DLC
- Basic Message Routing
- Limited filter
- No cybersecurity layer
- No secure gateway functions
- Actual Gateway Modules
  - BCM (Primary gateway)

Serial Data Gateway Module
GEN 2 (Late Global A)
2015-2016

Serial Data Gateway Module GEN 2

- 60 Ohms at DLC
- Still embedded gateway, but more structured
- Improved message routing
- Early cybersecurity filtering
- Better separation between HS and LS networks
- Actual Gateway Modules
  - BCM (Primary gateway)
  - IPC (HS and MS GMLAN)
  - HMI/Radio (HS and MOST)
  - HVAC (LIN and HS)

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Serial Data Gateway Module
GEN 3 (Late Global A)
2016-2017+

Serial Data Gateway Module GEN 3

- 120 Ohms at DLC
- Dedicated Serial Data Gateway Module
- Full Network Isolation
- Real cybersecurity enforcement
- DLC traffic filtered and controlled
- Actual Gateway Modules
  - SDGM (Stand alone serial data gateway module)
  - K56 Module (Ensures secure diagnostics)

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Serial Data Gateway Module
K56 (Global B/VIP)
2020+

Serial Data Gateway Module K56 (Global B/VIP)

- 120 Ohms at DLC
- Automotive Ethernet Backbone
  - Ethernet replaces most high speed CAN
  - CAN FD still exists as a secondary network
- VIP Secured Gateway
  - Enforces cybersecurity
  - Manages OTA updates
  - Some modules require pre-authorization before programming

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Vehicle Intelligence Platform (VIP)

- **The new Vehicle Intelligence Platform (VIP) electrical architecture, introduced on some 2020 vehicles and beyond, powers a new electronic system that is capable of managing up to 4.5 terabytes of data processing power per hour, which is a fivefold increase in capability over the previous Global A electrical architecture.**
- **On vehicles using the VIP architecture, virtually all modules can support OTA updates, which means that the OTA software is not only for the infotainment system.**

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Over The Air Updates (OTA)

- **The new Vehicle Intelligence Platform (VIP) electrical architecture, introduced on some 2020 vehicles and beyond, powers a new electronic system that is capable of managing up to 4.5 terabytes of data processing power per hour, which is a fivefold increase in capability over the previous Global A electrical architecture.**
- **On vehicles using the VIP architecture, virtually all modules can support OTA updates, which means that the OTA software is not only for the infotainment system.**

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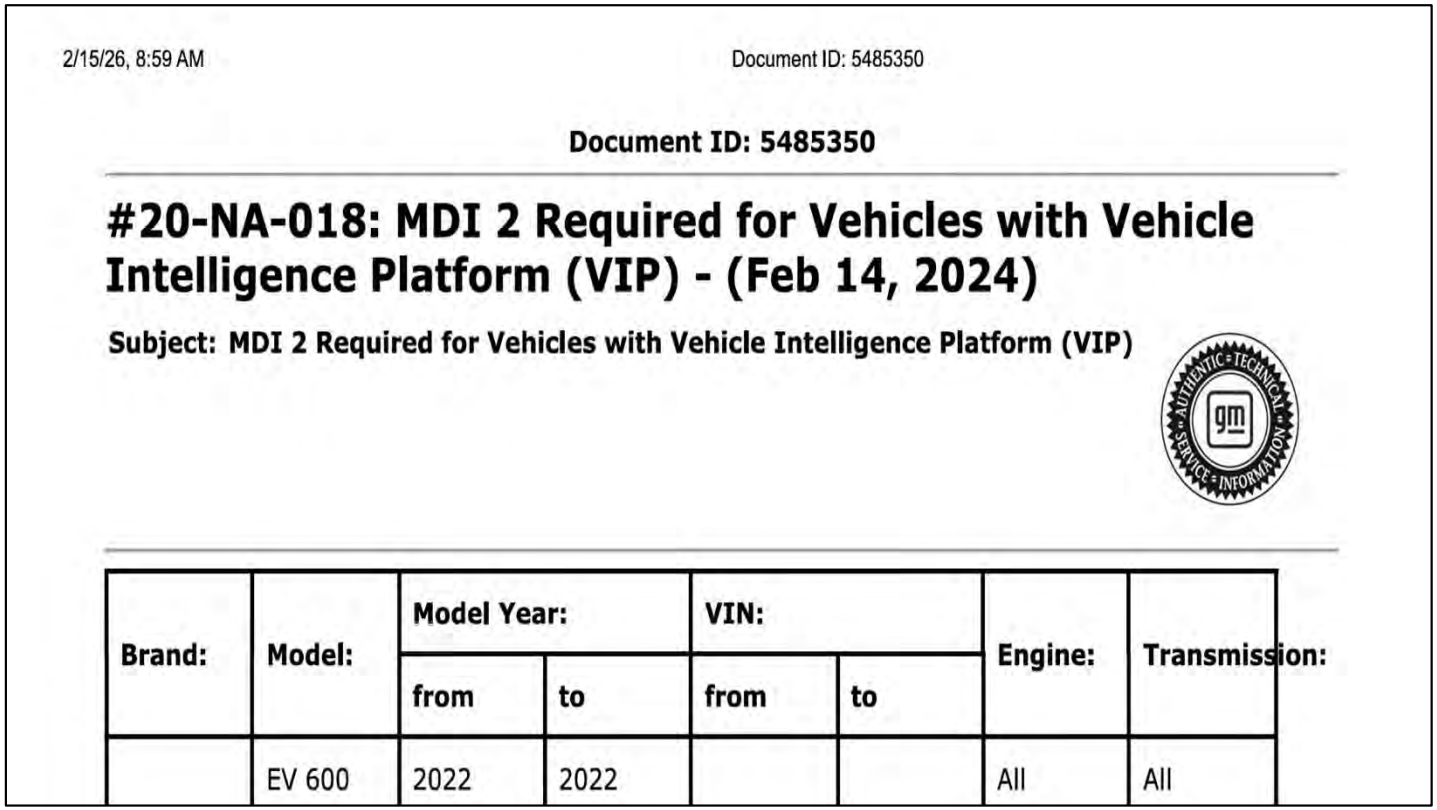

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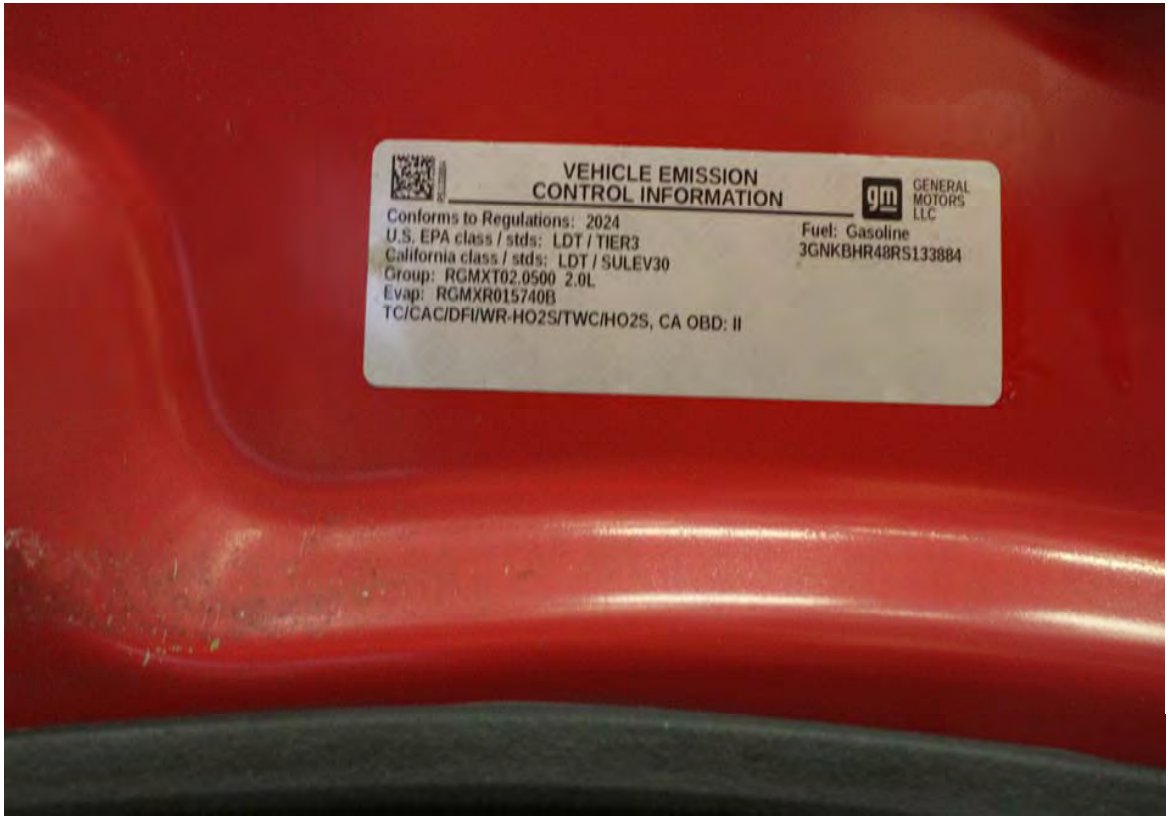
#20-NA-018: MDI 2 Required for Vehicles with Vehicle Intelligence Platform (VIP) - (Feb 14, 2024)

Subject: MDI 2 Required for Vehicles with Vehicle Intelligence Platform (VIP)

Brand:	Model:	Model Year:		VIN:		Engine:	Transmission:
		from	to	from	to		
	EV 600	2022	2022			All	All

K56 Serial Data Gateway Module (2.0 Liter)



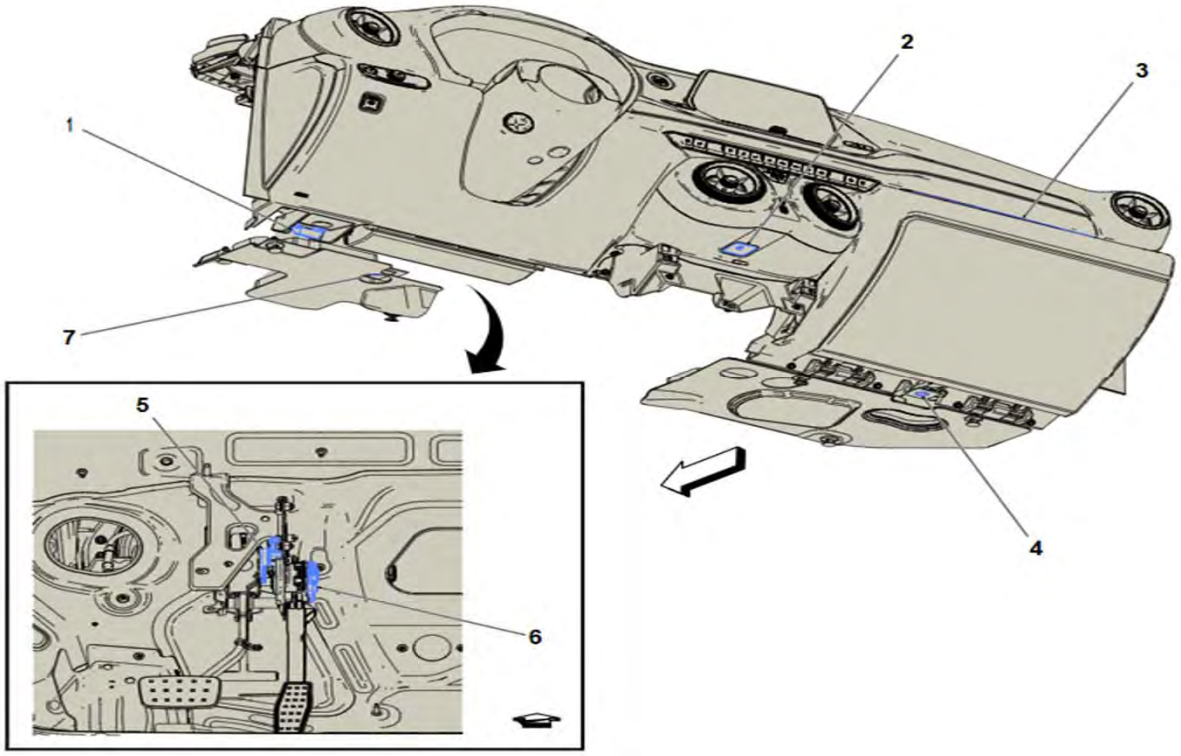
2024 Chevrolet Blazer

2024 Chevrolet Blazer

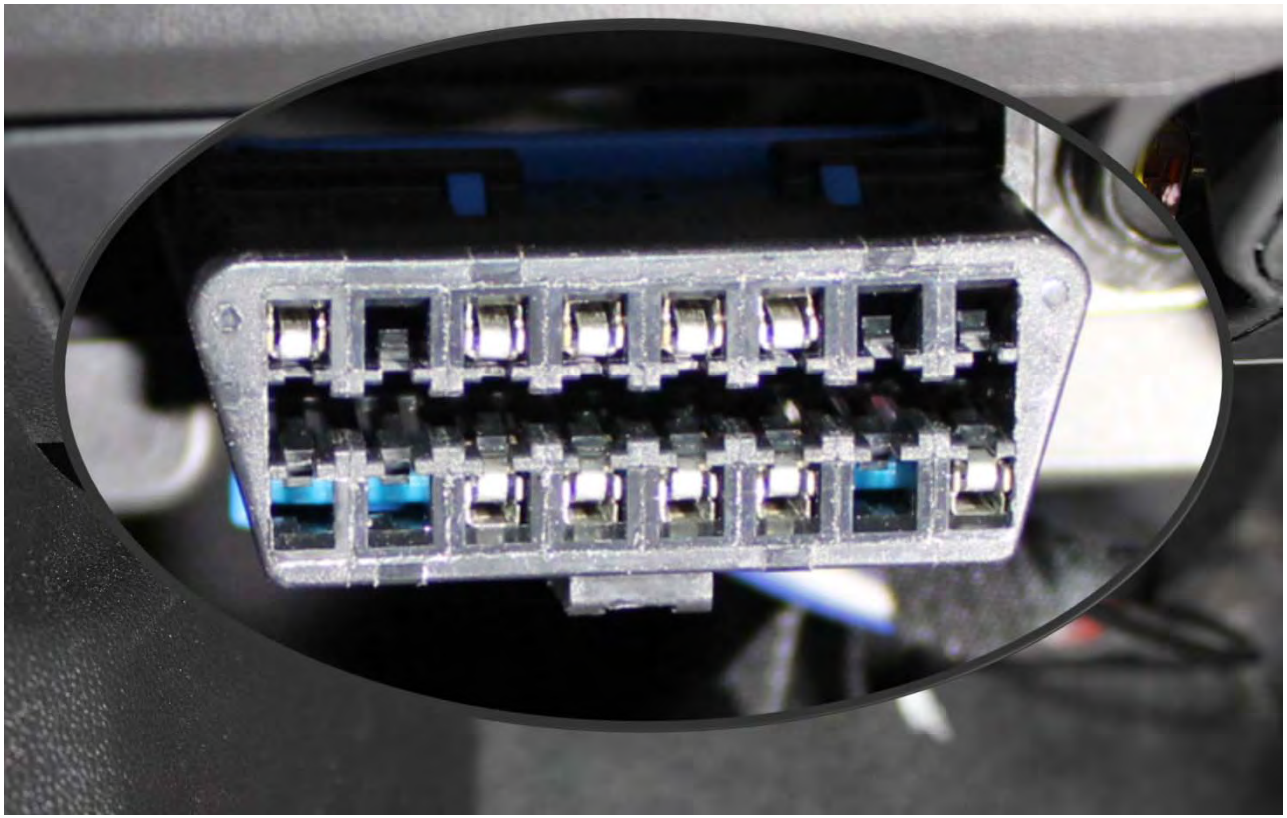
2024 Chevrolet Blazer

Checking For 120 Ohms At The DLC

X84 Data Link Connector



X84 Data Link Connector



X84 Data Link Connector

X84 Data Link Connector

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GN / WH	2100	Low Speed GMLAN Serial Data 3	I	—
2	—	—	—	Not Occupied	—	—
3	0.35	BU / WH	2089	High Speed GMLAN Serial Data [+] 13	I	—
4	0.5	BK / WH	1751	Signal Ground	I	—
5	0.5	BK / WH	1751	Signal Ground	I	—
6	0.35	BU / BK	1978	High Speed GMLAN Serial Data [+] 11	I	—
7 - 10	—	—	—	Not Occupied	—	—
11	0.35	WH	2090	High Speed GMLAN Serial Data [-] 13	I	—
12	0.35	BU / BN	1980	High Speed GMLAN Serial Data [+] 12	I	—
13	0.35	WH	1981	High Speed GMLAN Serial Data [-] 12	I	—
14	0.35	WH	1979	High Speed GMLAN Serial Data [-] 11	I	—
15	—	—	—	Not Occupied	—	—
16	0.5	RD / WH	140	Battery Positive Voltage	I	—

K56 Serial Data Gateway Module (GEN 3)

- **Note: The Data BUS Diagnostic Tool will not work with vehicles equipped with K56 Serial Data Gateway Module GEN 3.**
- **This vehicle is equipped with a K56 Serial Data Gateway Module GEN 3. The K56 Serial Data Gateway Module is used to handle communications between multiple GMLAN BUSes and functions as a gateway to isolate the secure networks from the unsecured networks.**
- **It was created to mitigate BUS loading to support cyber security and new active/advanced safety features (if equipped). The K56 Serial Data Gateway Module is used as a frame-to-frame gateway for all functional messages. Communication between the K56 Serial Data Gateway Module and a scan tool is done through the primary High Speed GMLAN BUS. When the K56 Serial Data Gateway Module is not communicating, the scan tool can not communicate with the vehicle.**

K56 Serial Data Gateway Module (GEN 3)

- **The K56 Serial Data Gateway Module has two microprocessors within the electronic control unit. Each microprocessor is diagnosed/programmed independently via the scan tool because the two microprocessors do not talk internally.**
- **Each of these processors are responsible for managing the traffic for specific communication BUSes on the vehicle. The two particular BUSes that they will manage are high speed and low speed. If communication does not exist or the particular microprocessors have not been programmed, control modules won't be able to communicate with or through the K56 Serial Data Gateway Module.**

K56 Serial Data Gateway Module (GEN 3)

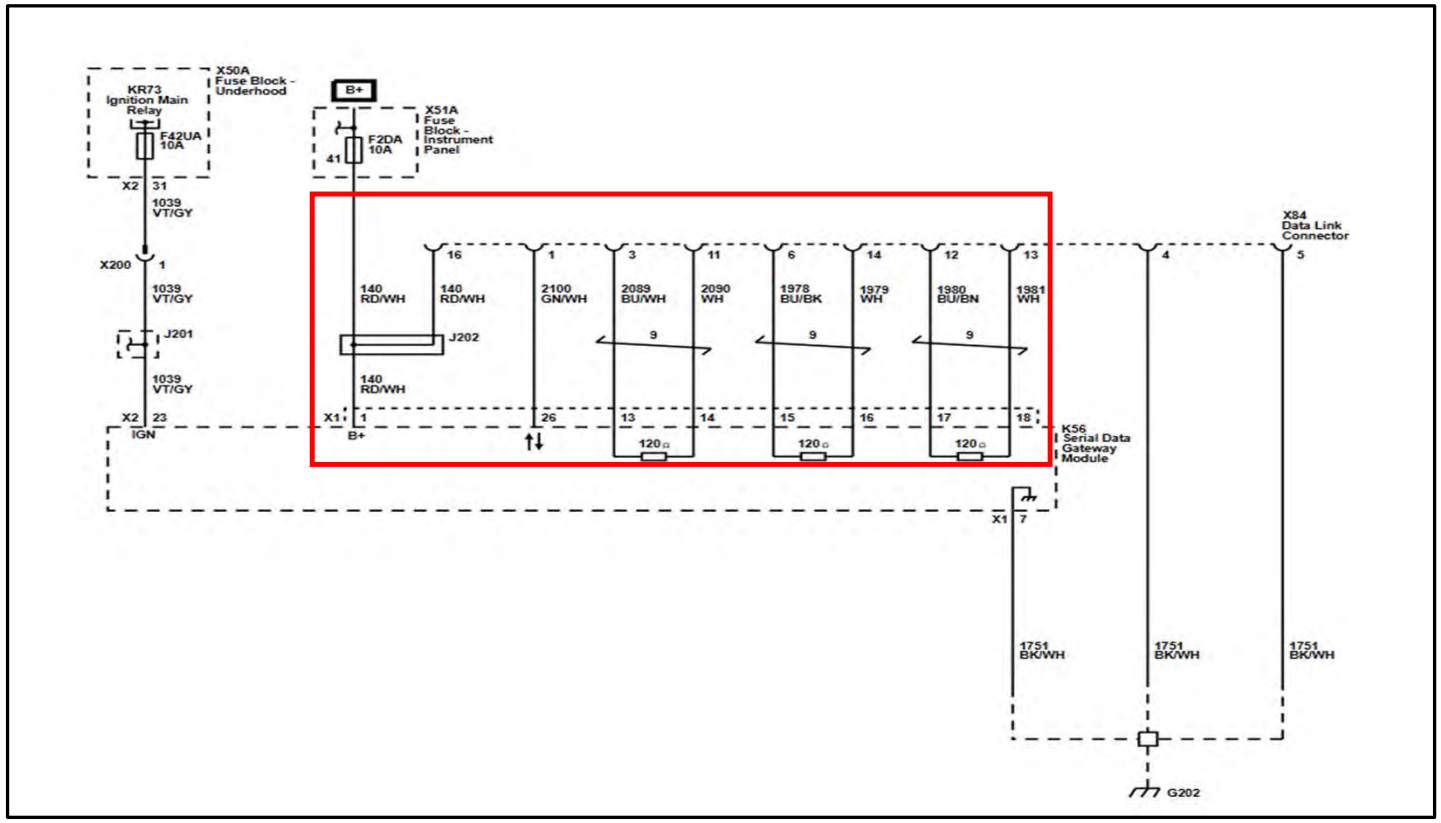
- **The low speed microprocessor is programmable via the X84 Data Link Connector (DLC) terminal 1. This low speed BUS between the X84 Data Link Connector and the K56 Serial Data Gateway Module is called the Low Speed DLC BUS.**
- **The low speed microprocessor is capable of gating signals between the Low Speed DLC, the primary Low Speed GMLAN, and the Gateway Isolated Low Speed GMLAN BUSes.**
- **The low speed microprocessor is also capable of gating signals between the Object High Speed DLC BUS (DLC terminals 3 & 11) and the Object High Speed GMLAN BUS.**

K56 Serial Data Gateway Module (GEN 3)

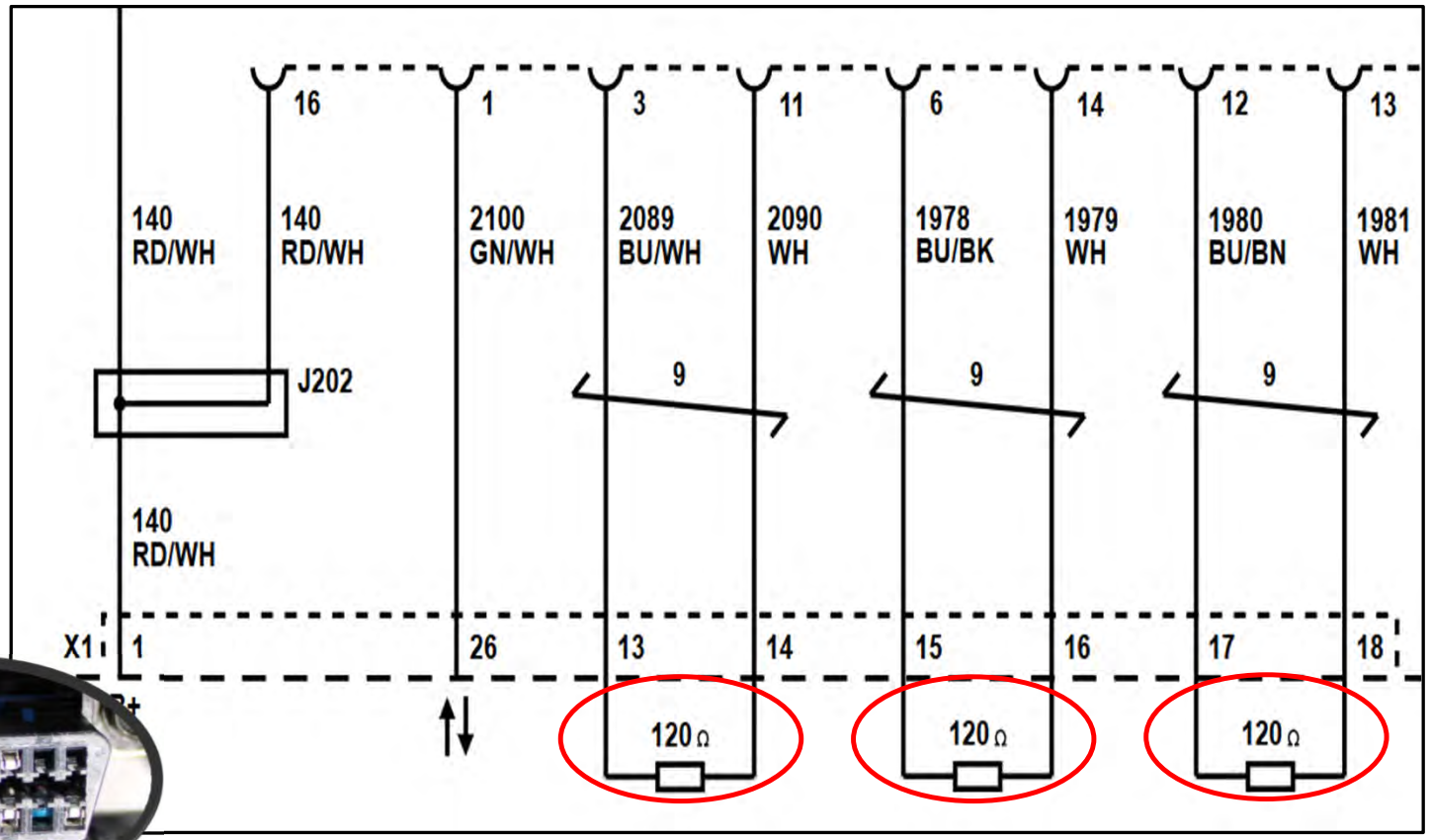
- **The high speed microprocessor is programmable via the X84 Data Link Connector (DLC) terminals 6 & 14. This high speed BUS between the X84 Data Link Connector and the K56 Serial Data Gateway Module is called High Speed DLC BUS.**
- **The high speed microprocessor is capable of gating signals between the High Speed DLC, the primary High Speed GMLAN, the Gateway Expansion High Speed GMLAN, and the Gateway Isolated High Speed GMLAN BUSes.**
- **The high speed microprocessor is also capable of gating signals between the Chassis High Speed DLC BUS (DLC terminals 12 & 13) and the Chassis High Speed GMLAN BUS.**

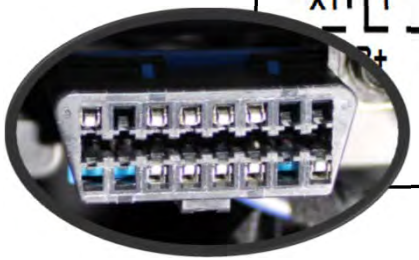
Diagnosing By The Circuit Numbers

K56 Serial Data Gateway Module



K56 Serial Data Gateway Module

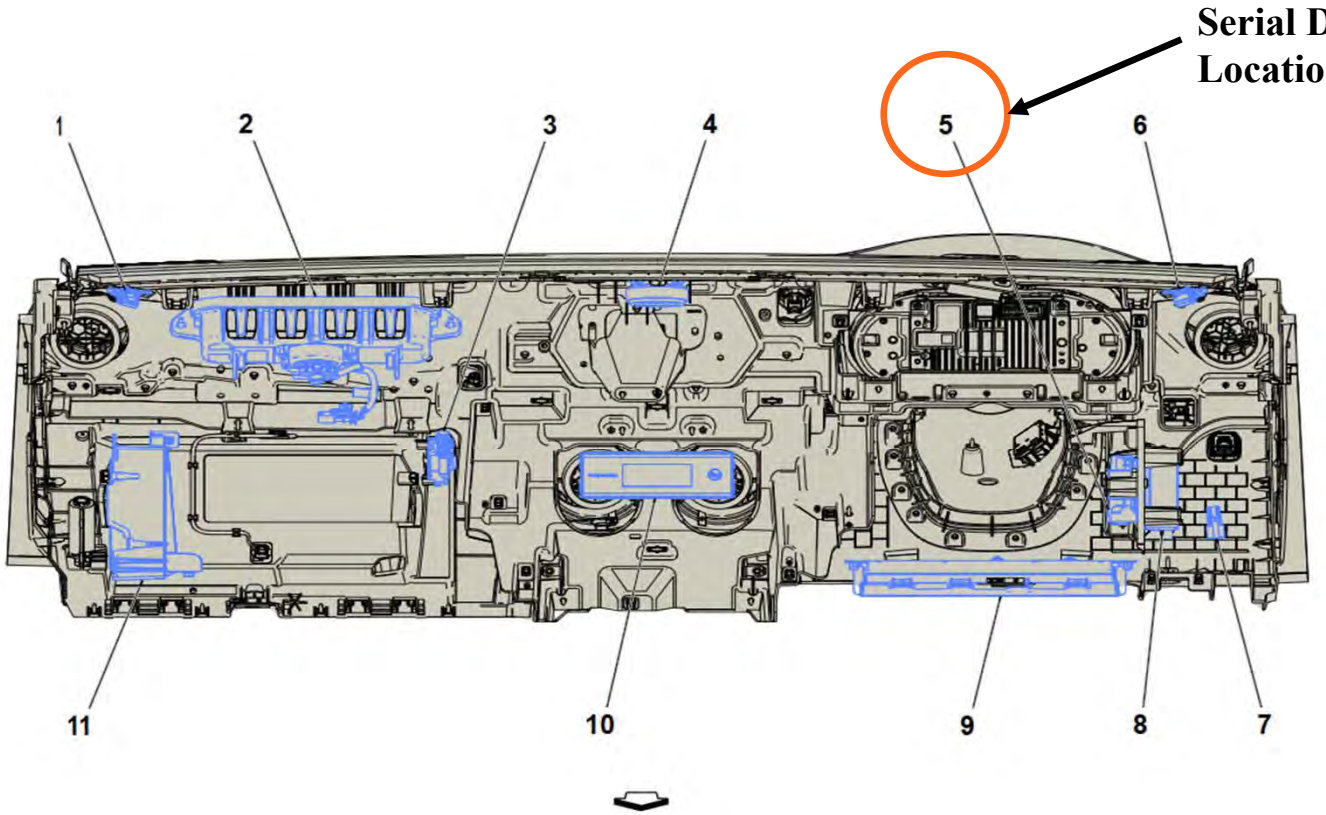




Chassis High Speed DLC BUS (Circuits 1980 & 1981)

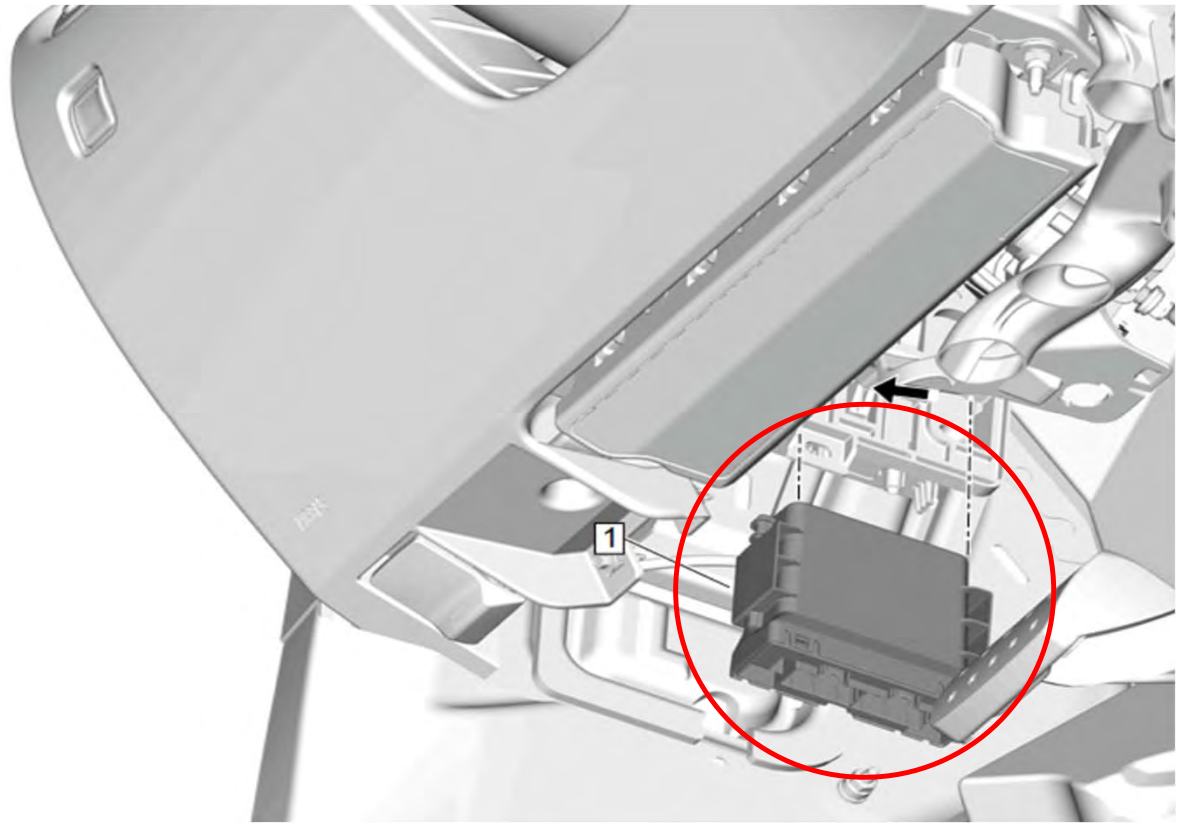
- **Between the X84 Data Link Connector (DLC) *terminals 12 & 13* and the K56 Serial Data Gateway Module terminals 17 X1 & 18 X1, there is a high speed BUS called the Chassis High Speed DLC BUS. The Chassis High Speed DLC BUS is similar to the Chassis High Speed GMLAN BUS. Between the GMLAN-High and GMLAN-Low circuits, there is a 120 Ω termination resistor internal to the K56 Serial Data Gateway Module. There is no terminating resistor at the DLC.**
- **The K56 Serial Data Gateway Module uses its high speed microprocessor to gate signals between the Chassis High Speed DLC BUS and the Chassis High Speed GMLAN BUS.**

K56 Serial Data Gateway Module



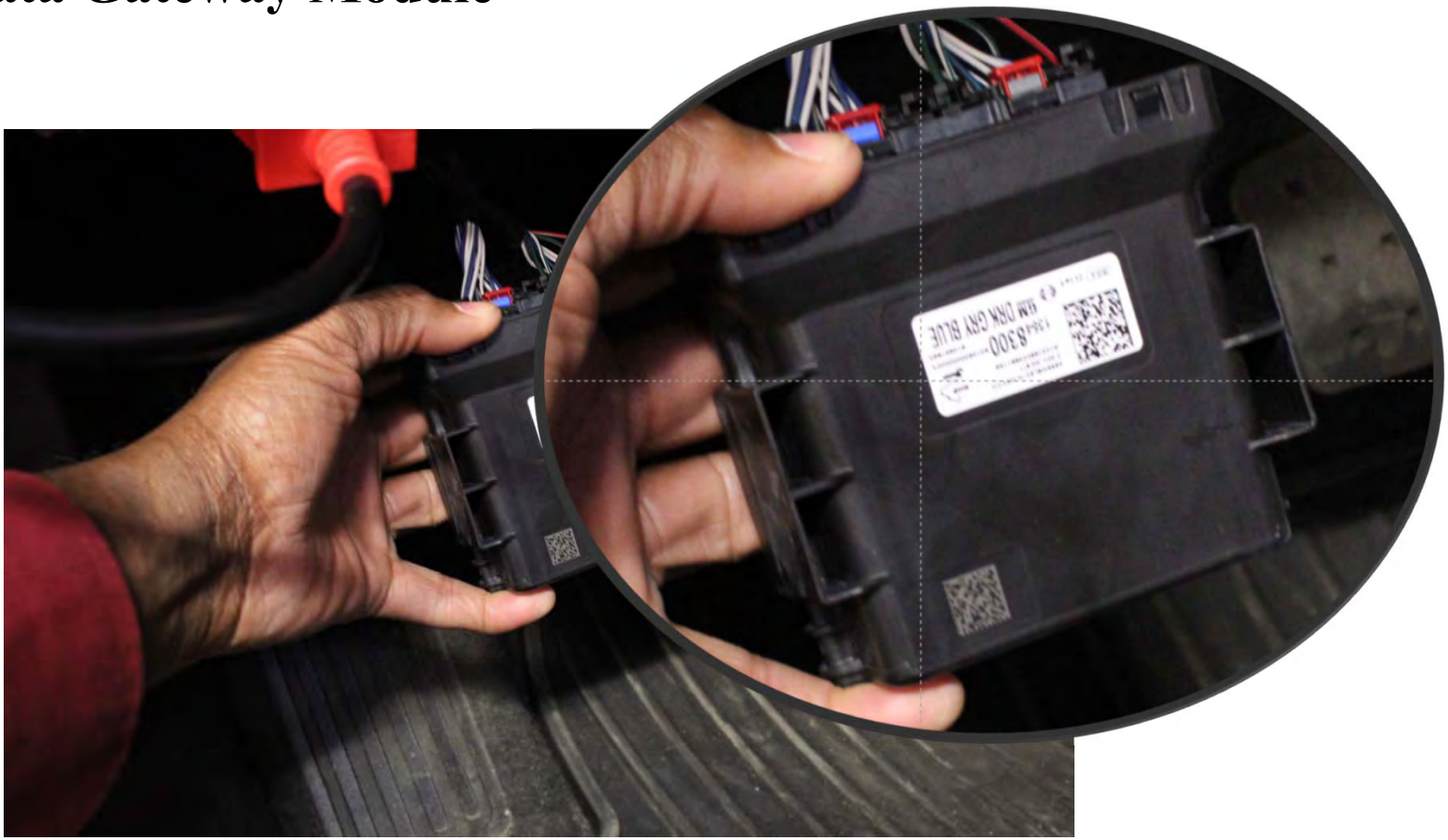
In the passenger compartment, behind the lower left side of the instrument panel, left of the steering column

K56 Serial Data Gateway Module



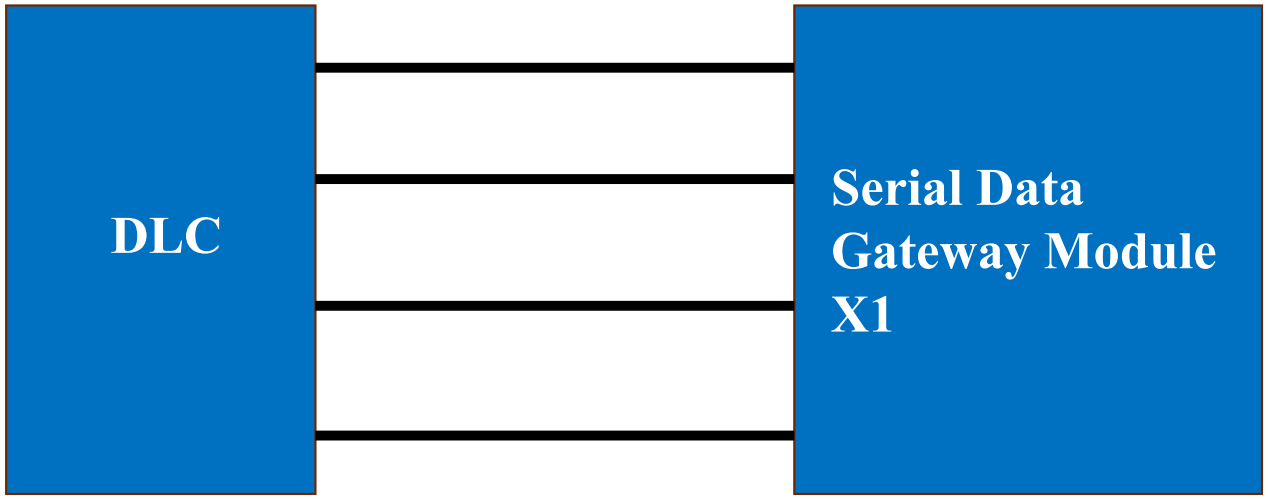
K56 Serial Data Gateway Module

K56 Serial Data Gateway Module

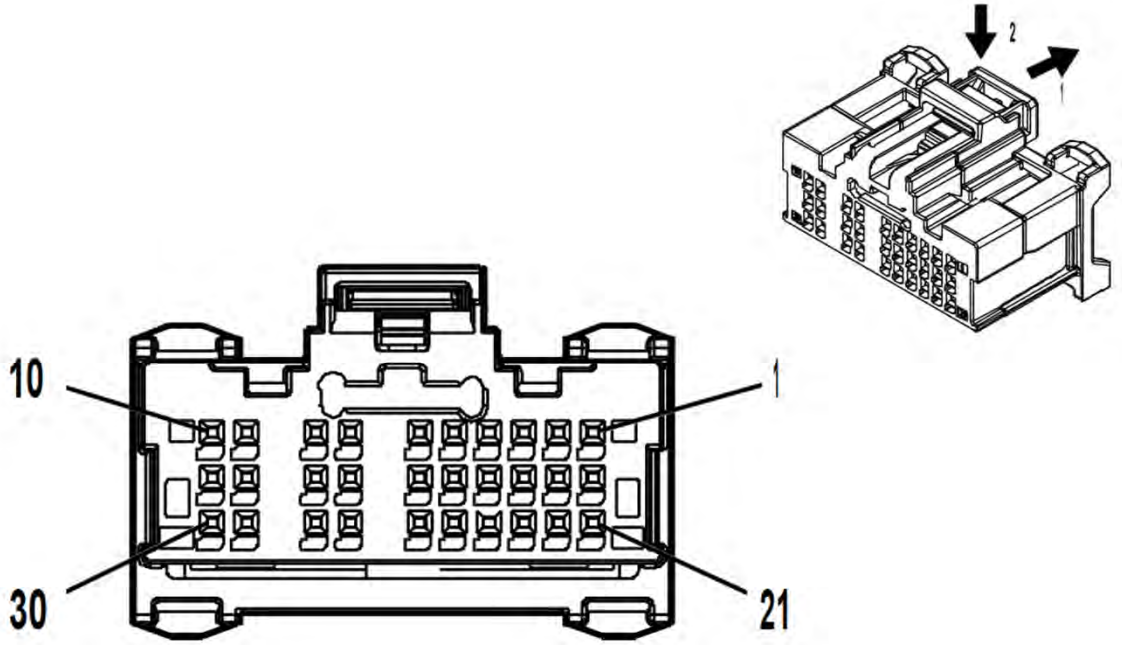


Serial Data Gateway Module (Side A)

K56 Serial Data Gateway Module X1 (Side A)



K56 Serial Data Gateway Module X1 (Side A)



K56 Serial Data Gateway Module X1 (Side A)

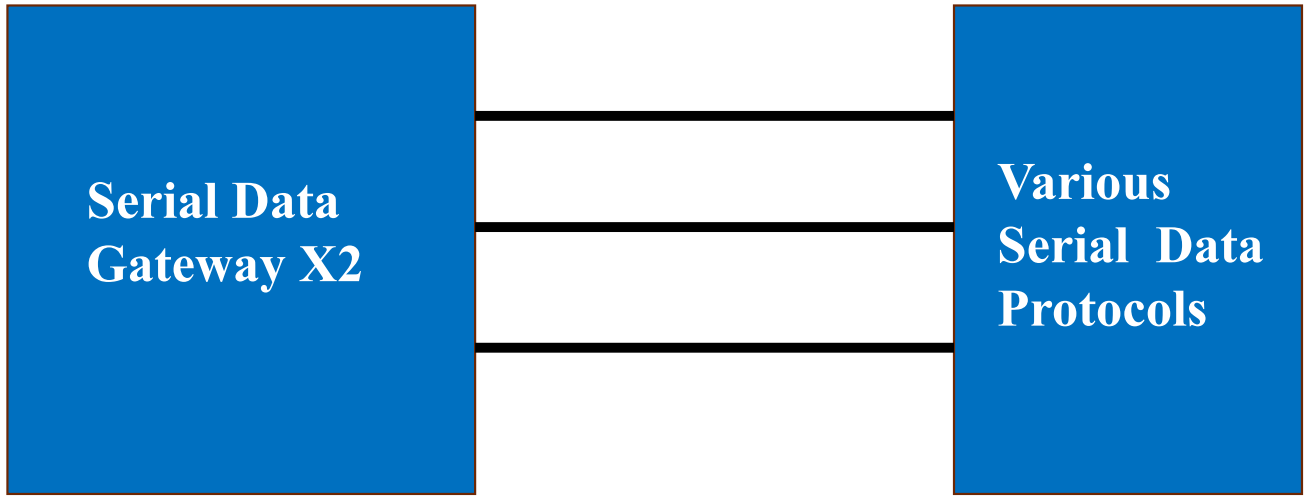
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	RD / WH	140	Battery Positive Voltage	I	–
2 - 6	–	–	–	Not Occupied	–	–
7	0.35	BK / WH	1751	Signal Ground	I	–
8	0.35	BU / GN	1304	High Speed GMLAN Serial Data [+] 9	I	
9	0.35	WH / GN	1305	High Speed GMLAN Serial Data [-] 9	I	
10 - 12	–	–	–	Not Occupied	–	–
13	0.35	BU / WH	2089	High Speed GMLAN Serial Data [+] 13	I	–
14	0.35	WH	2090	High Speed GMLAN Serial Data [-] 13	I	–
15	0.35	BU / BK	1978	High Speed GMLAN Serial Data [+] 11	I	–
16	0.35	WH	1979	High Speed GMLAN Serial Data [-] 11	I	–
17	0.35	BU / BN	1980	High Speed GMLAN Serial Data [+] 12	I	–
18	0.35	WH	1981	High Speed GMLAN Serial Data [-] 12	I	–

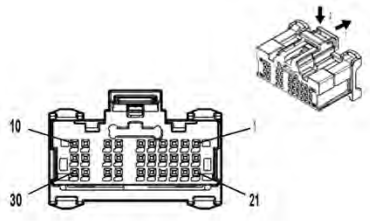
K56 Serial Data Gateway Module X1 (Side A)

19	–	–	–	Not Occupied	–	–
20	0.35	GN	5060	Low Speed GMLAN Serial Data	I	–
21 - 25	–	–	–	Not Occupied	–	–
26	0.35	GN / WH	2100	Low Speed GMLAN Serial Data 3	I	–
27 - 29	–	–	–	Not Occupied	–	–
30	0.35	GY / GN	1102	Low Speed GMLAN Serial Data 2	I	–

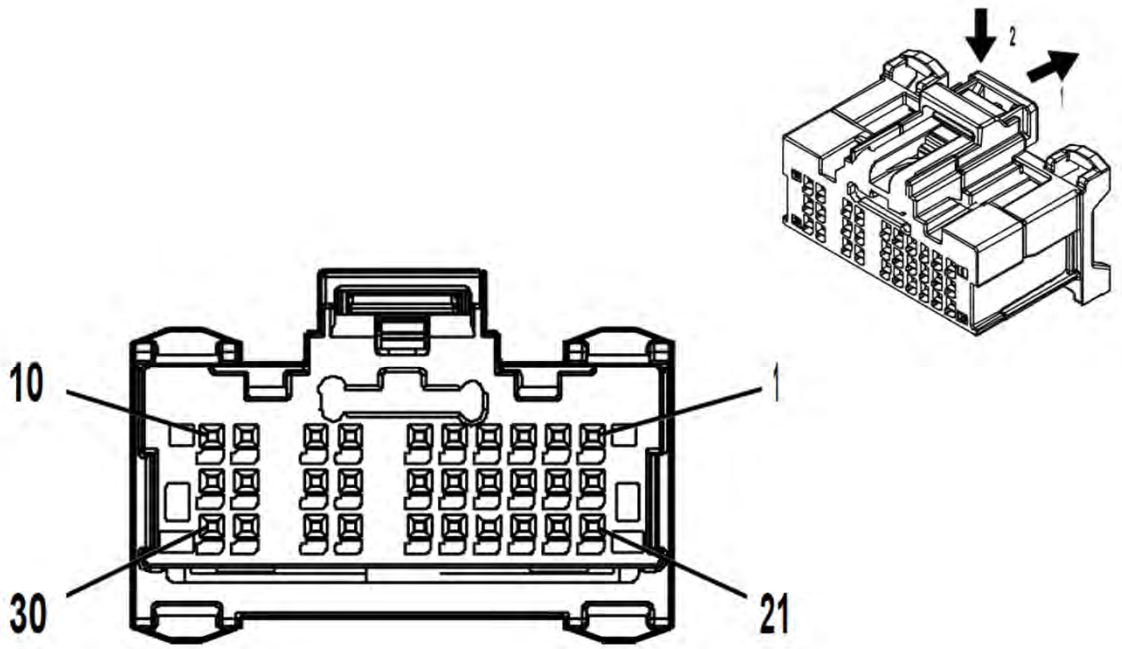
Serial Data Gateway Module (Side B)

K56 Serial Data Gateway Module X2 (Side B)





K56 Serial Data Gateway Module X2



K56 Serial Data Gateway Module X2

K56 Serial Data Gateway Module X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BU / VT	3813	High Speed GMLAN Serial Data [+] 4	I	UGN
2	0.35	BU / VT	3813	High Speed GMLAN Serial Data [+] 4	I	UGN
3	0.35	WH	3811	High Speed GMLAN Serial Data [-] 4	I	UGN
4	0.35	BU	2500	High Speed GMLAN Serial Data [+] 1	I	–
5	0.35	WH	2501	High Speed GMLAN Serial Data [-] 1	I	–
6	0.35	BU / GY	3935	High Speed GMLAN Serial Data [+] 8	I	–
7	0.35	WH / GY	3936	High Speed GMLAN Serial Data [-] 8	I	–
8	0.35	BU / YE	6105	High Speed GMLAN Serial Data [+] 2	I	–
9	0.35	WH	6106	High Speed GMLAN Serial Data [-] 2	I	–
10	0.35	BU / GY	3935	High Speed GMLAN Serial Data [+] 8	I	–
11	–	–	–	Not Occupied	–	–

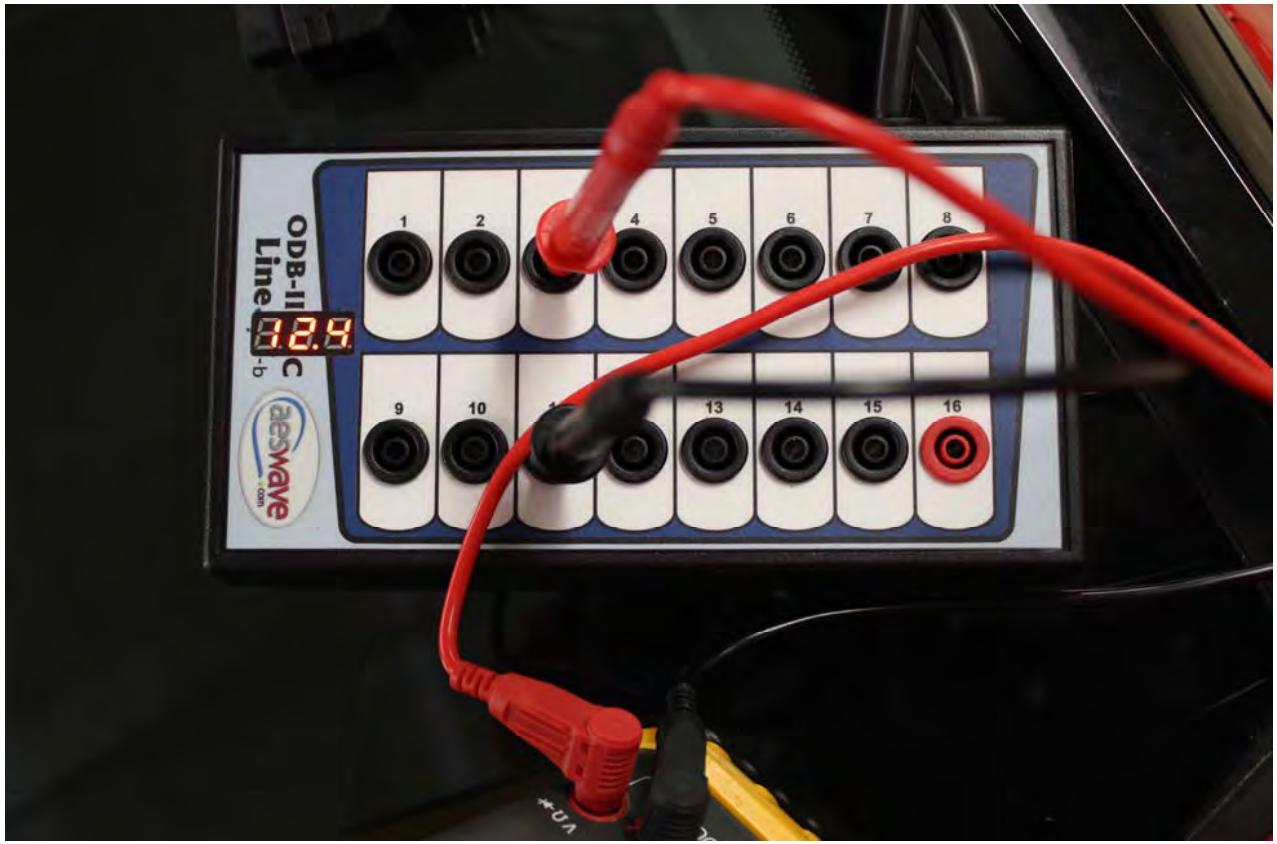
K56 Serial Data Gateway Module X2

11	—	—	—	Not Occupied	—	—
12	0.35	WH	3811	High Speed GMLAN Serial Data [-] 4	I	UGN
13	—	—	—	Not Occupied	—	—
14	0.35	BU	2500	High Speed GMLAN Serial Data [+] 1	I	—
15	0.35	WH	2501	High Speed GMLAN Serial Data [-] 1	I	—
16	0.35	BU / GY	3935	High Speed GMLAN Serial Data [+] 8	I	—
17	0.35	WH / GY	3936	High Speed GMLAN Serial Data [-] 8	I	—
18	0.35	BU / YE	6105	High Speed GMLAN Serial Data [+] 2	I	—
19	0.35	WH	6106	High Speed GMLAN Serial Data [-] 2	I	—
20	0.35	WH / GY	3936	High Speed GMLAN Serial Data [-] 8	I	—
21 - 22	—	—	—	Not Occupied	—	—
23	0.35	VT / GY	1039	Run/Crank Ignition 1 Voltage	I	—
24	—	—	—	Not Occupied	—	—
25	0.35	WH / BU	5986	Serial Data Communication Enable	I	—
26 - 30	—	—	—	Not Occupied	—	—

Diagnosing By The Pin Numbers

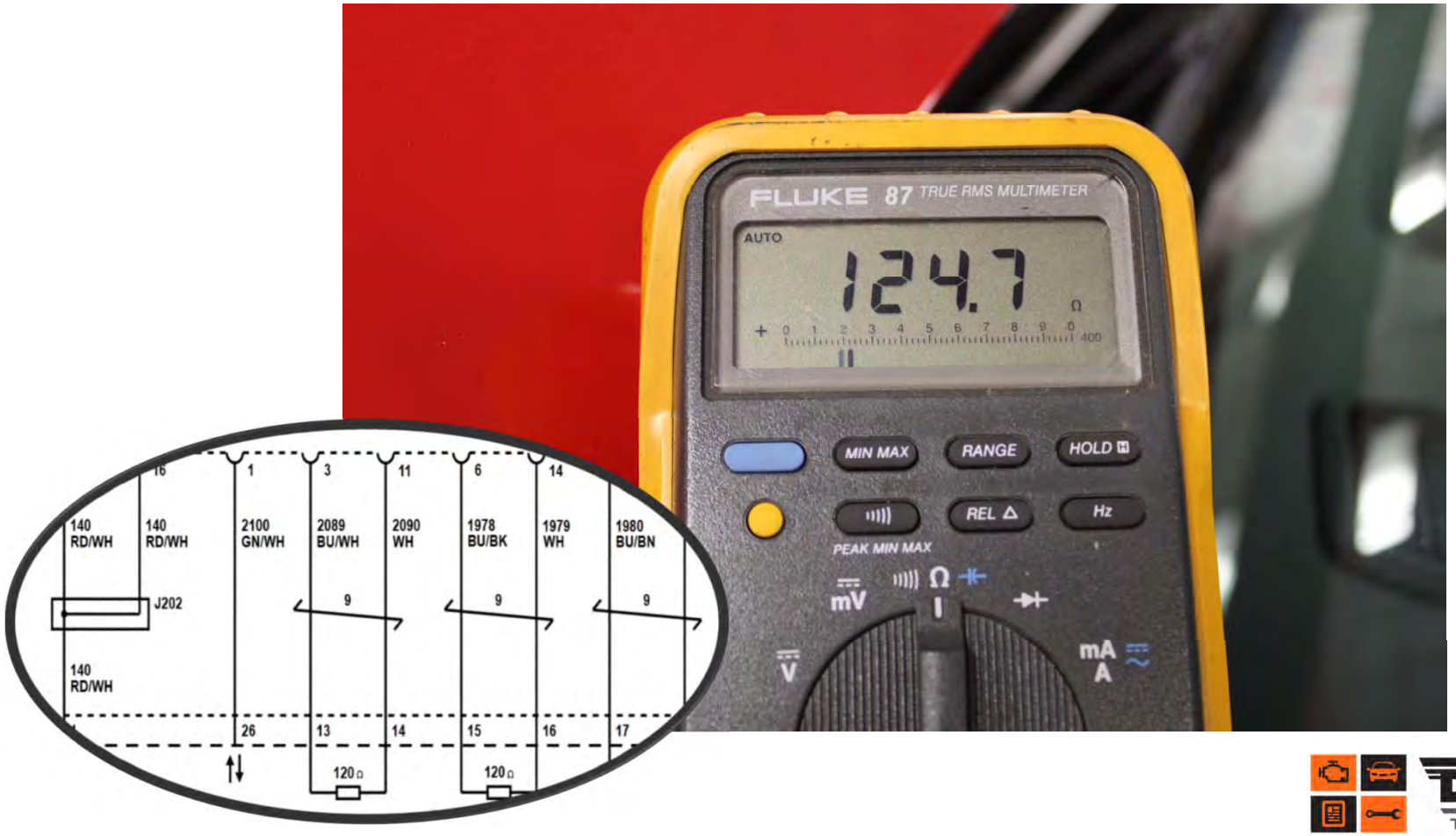
DLC Breakout Box

Pin #3 & #11

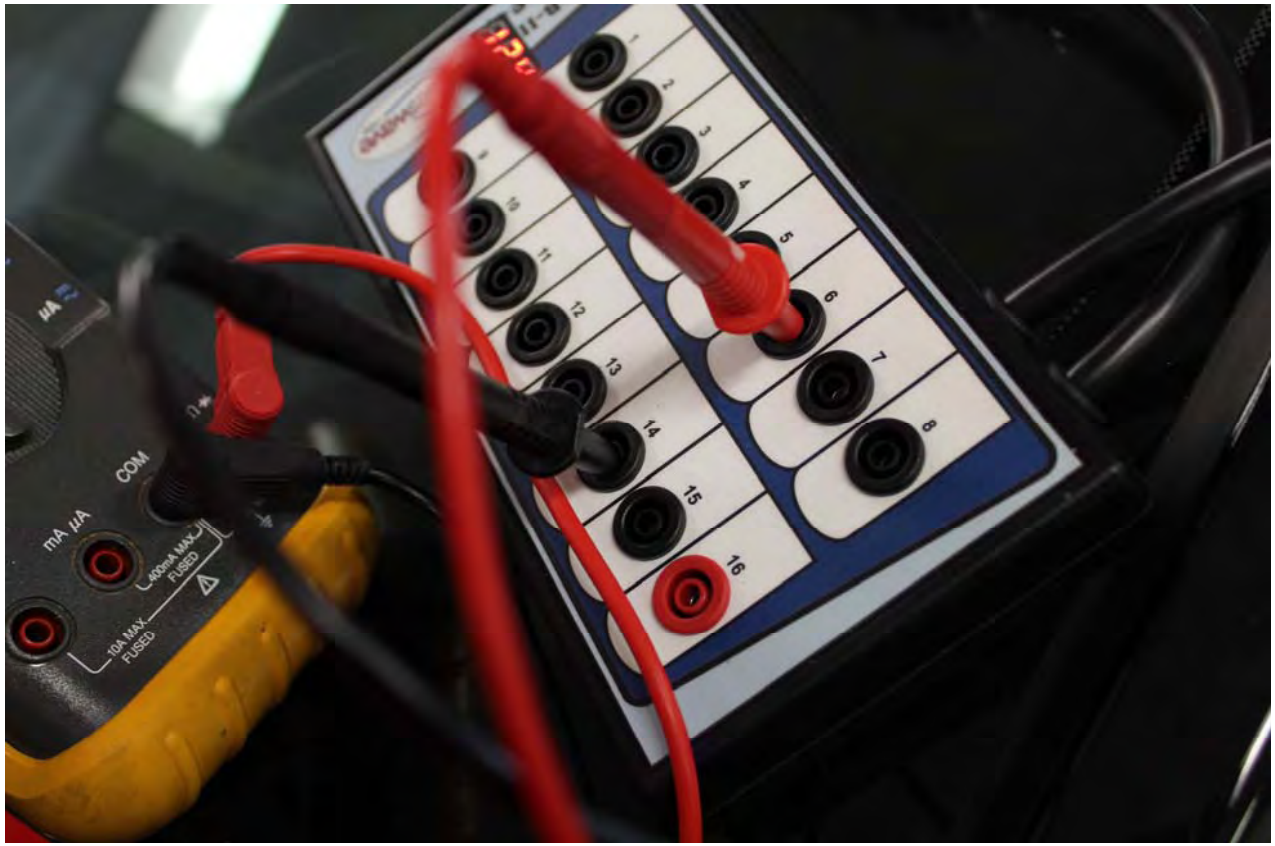


Pin #3 & #11

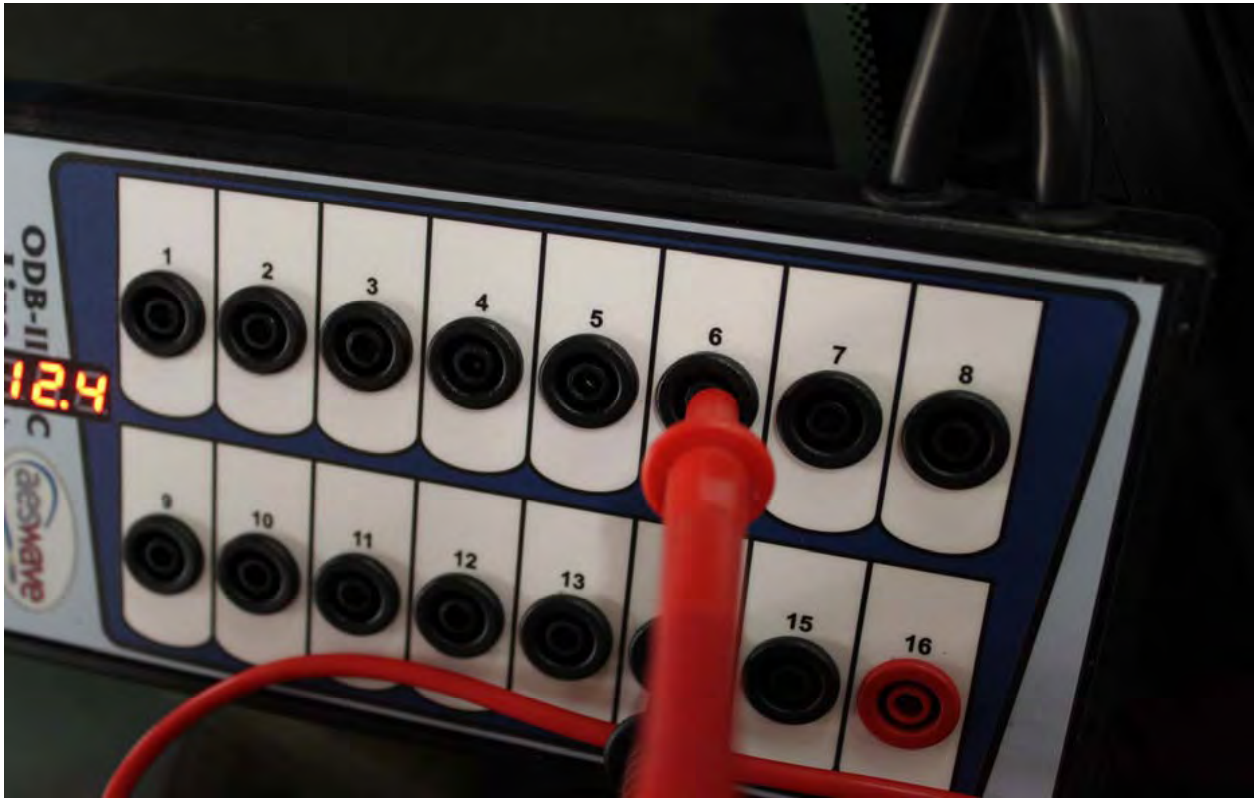
Pin #3 & #11 (124.7 Ohms)



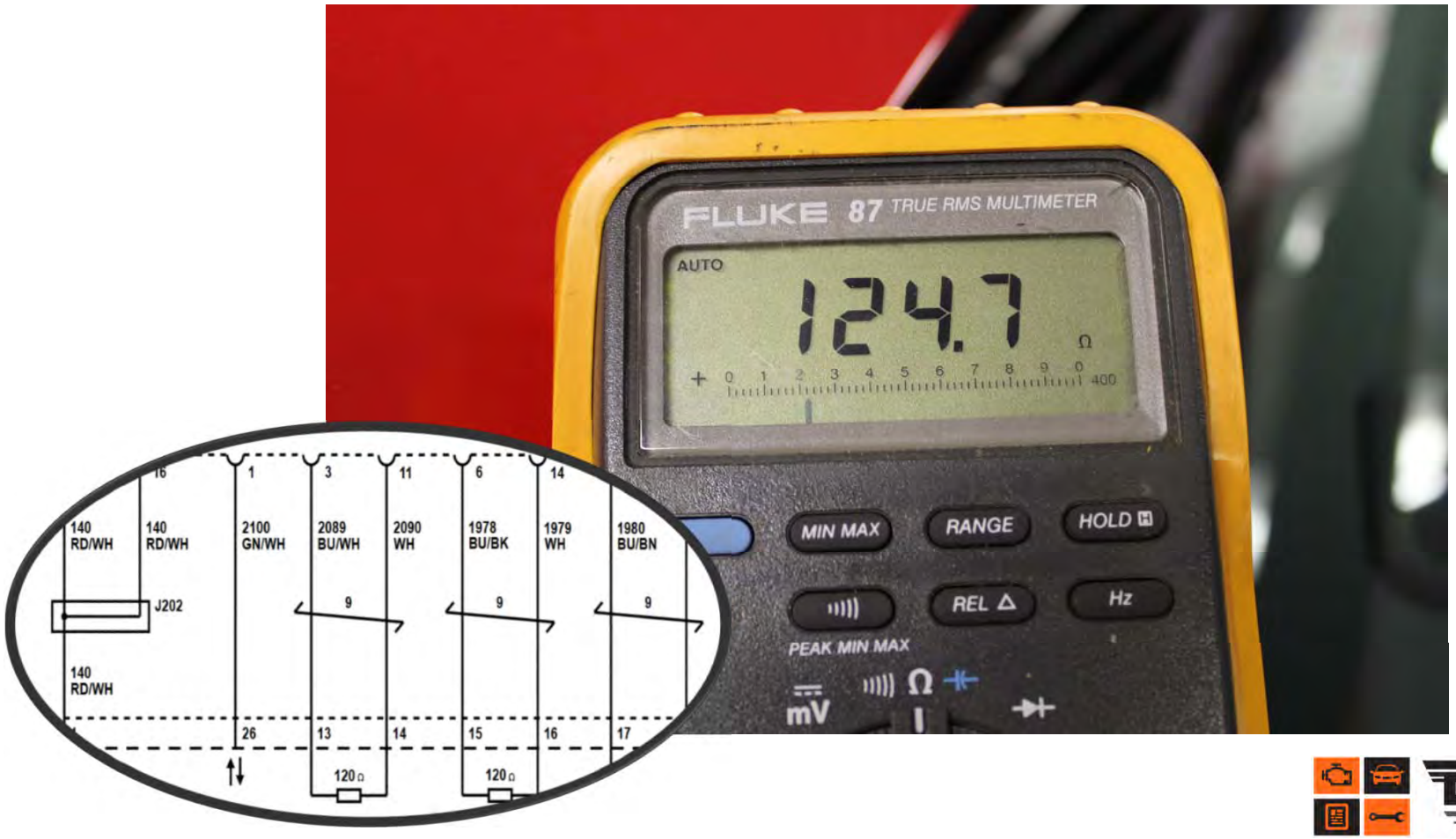
Pin #6 & #14



Pin #6 & #14



Pin #6 & #14 (124.7 Ohms)



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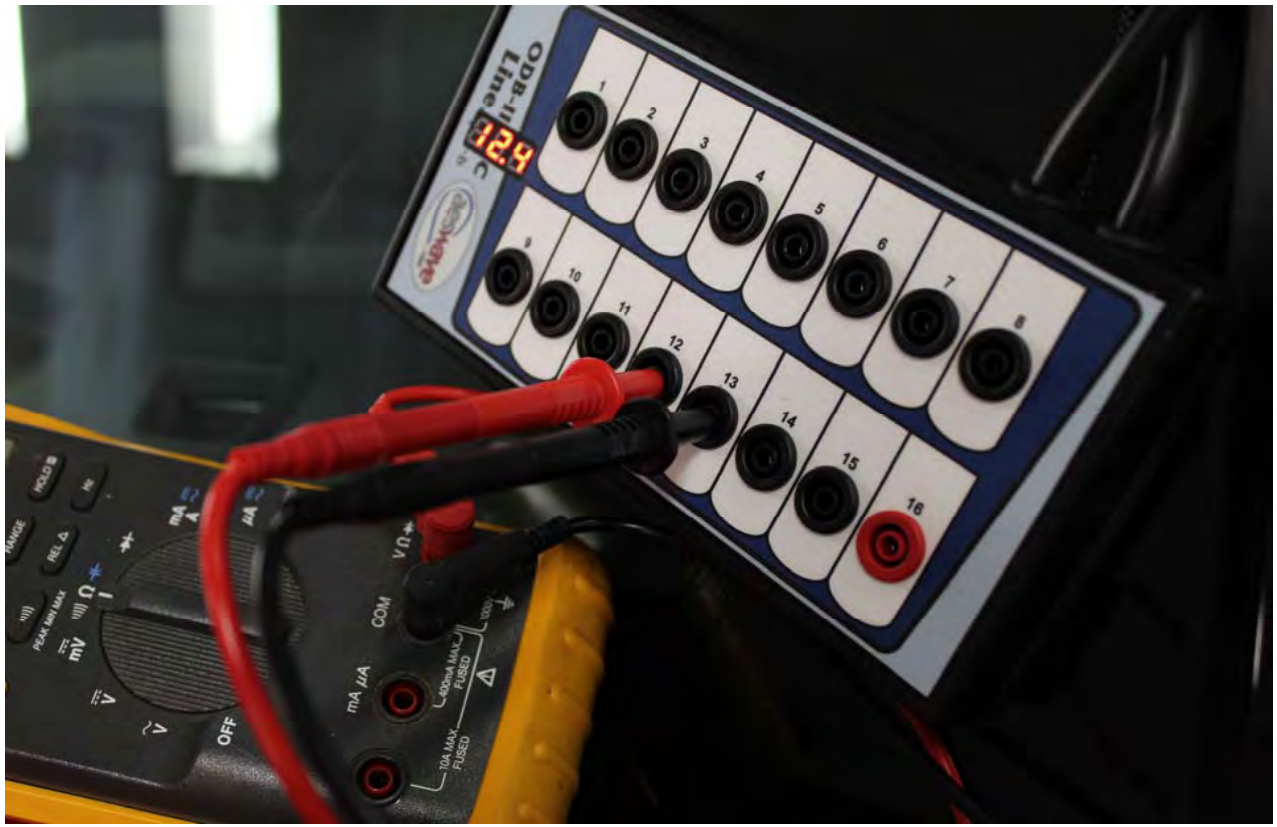
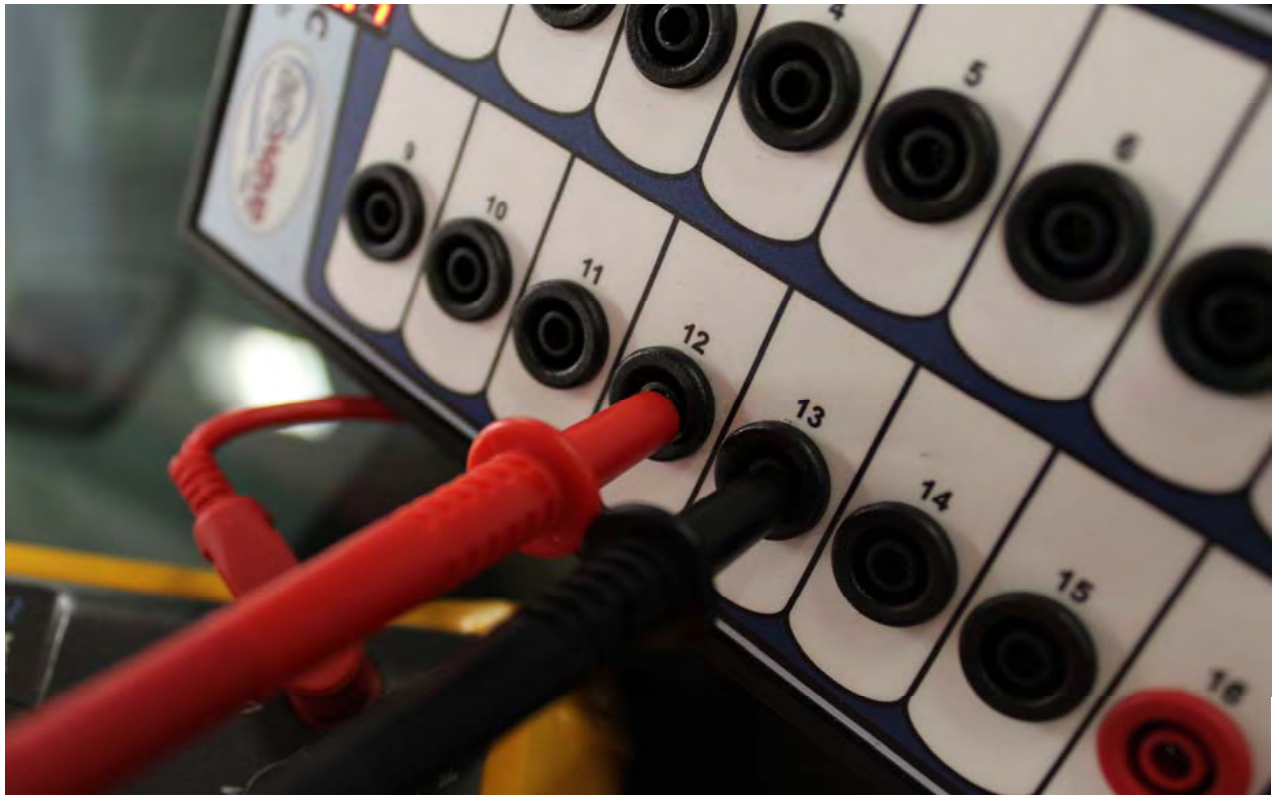
Chassis High Speed DLC BUS (Circuits 1980 & 1981)

- **Between the X84 Data Link Connector (DLC) *terminals 12 & 13* and the K56 Serial Data Gateway Module terminals 17 X1 & 18 X1, there is a high speed BUS called the Chassis High Speed DLC BUS. The Chassis High Speed DLC BUS is similar to the Chassis High Speed GMLAN BUS. Between the GMLAN-High and GMLAN-Low circuits, there is a 120 Ω termination resistor internal to the K56 Serial Data Gateway Module. There is no terminating resistor at the DLC.**
- **The K56 Serial Data Gateway Module uses its high speed microprocessor to gate signals between the Chassis High Speed DLC BUS and the Chassis High Speed GMLAN BUS.**

Pin #12 & #13



Pin #12 & #13



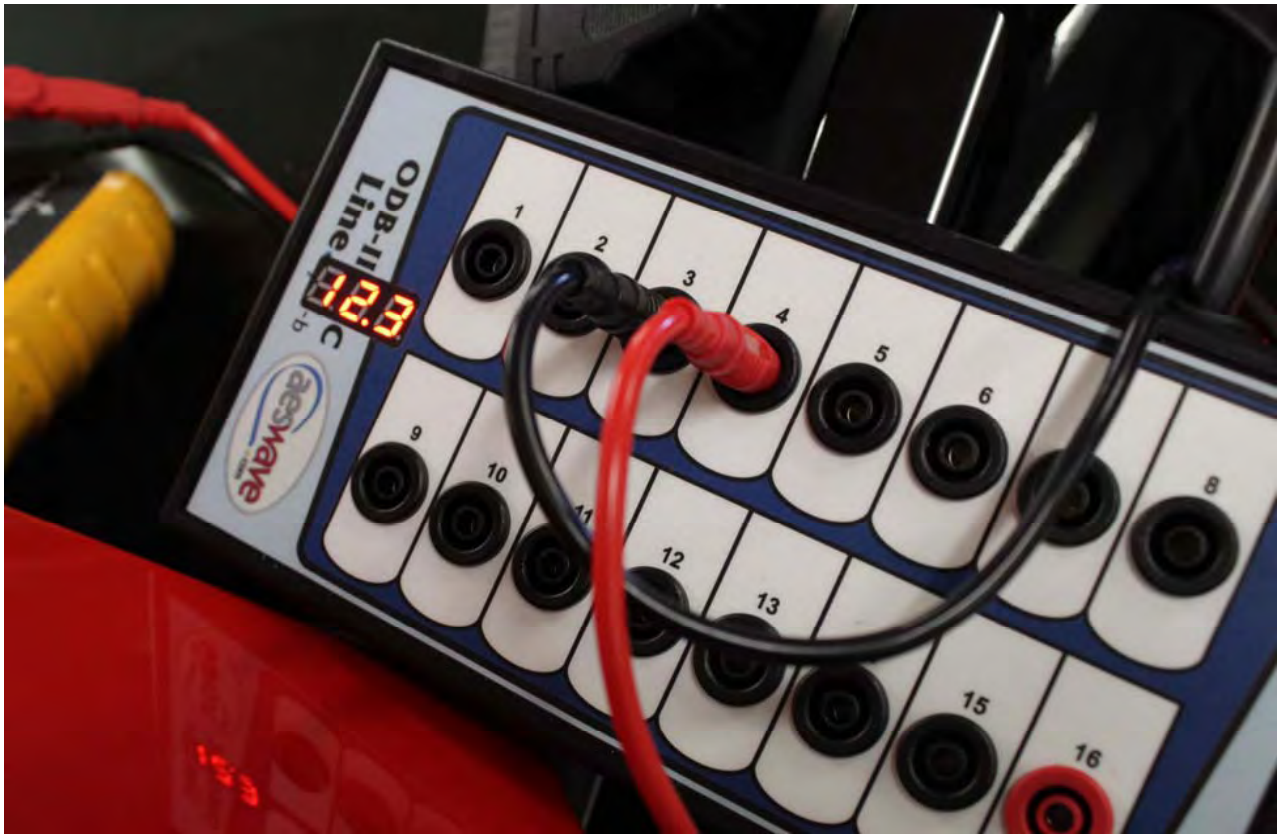
Pin #12 & #13 (123.8 Ohms)

Checking For Direct & Low Resistive Paths To Ground

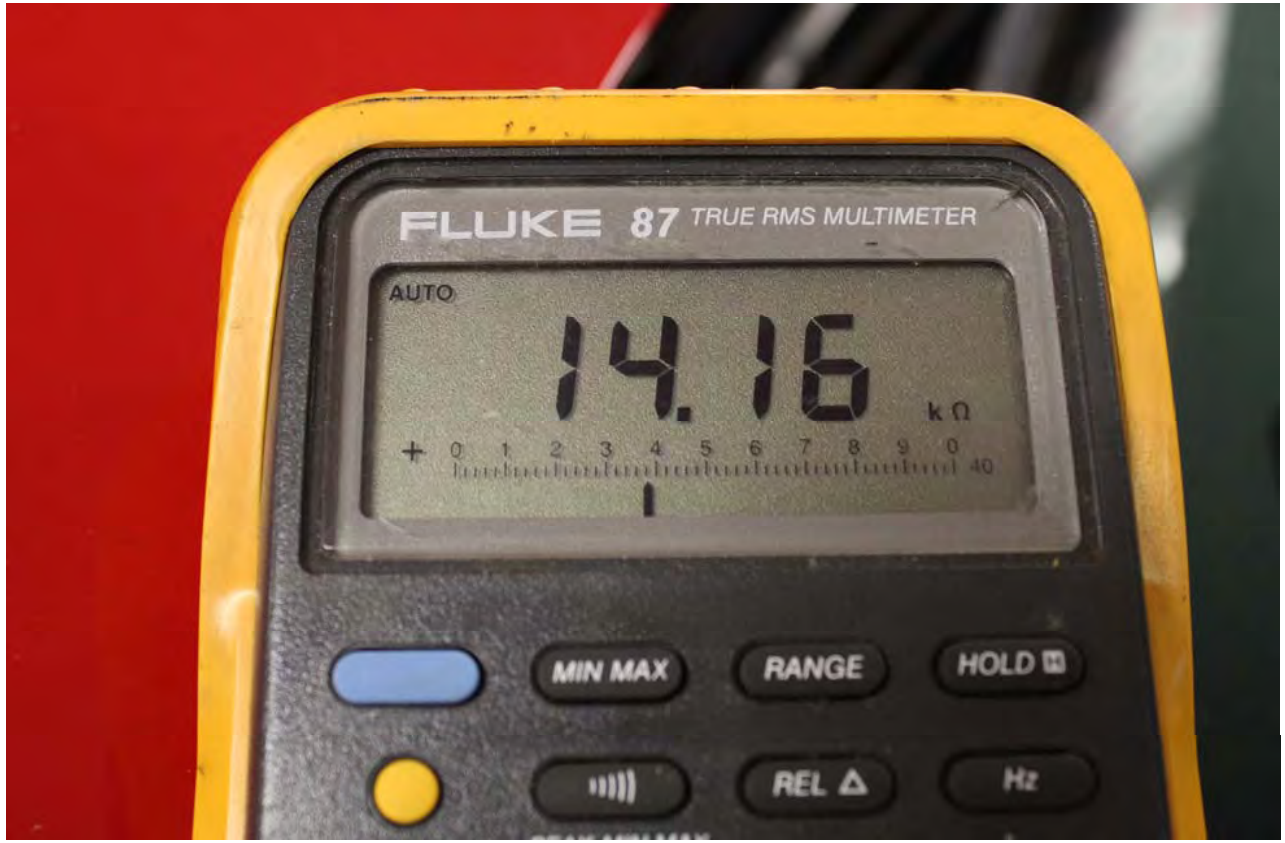
Pin #1 To Ground

Pin #1 To Ground (3.014 Kilohms)

Pin #3 To Ground



Pin #3 To Ground (14.16 Kilohms)



Pin #11 To Ground

Pin #11 To Ground (14.16 Kilohms)

Pin #12 To Ground

Pin #12 To Ground (14.03 Kilohms)

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Pin #13 To Ground

Pin #13 To Ground (14.07 Kilohms)

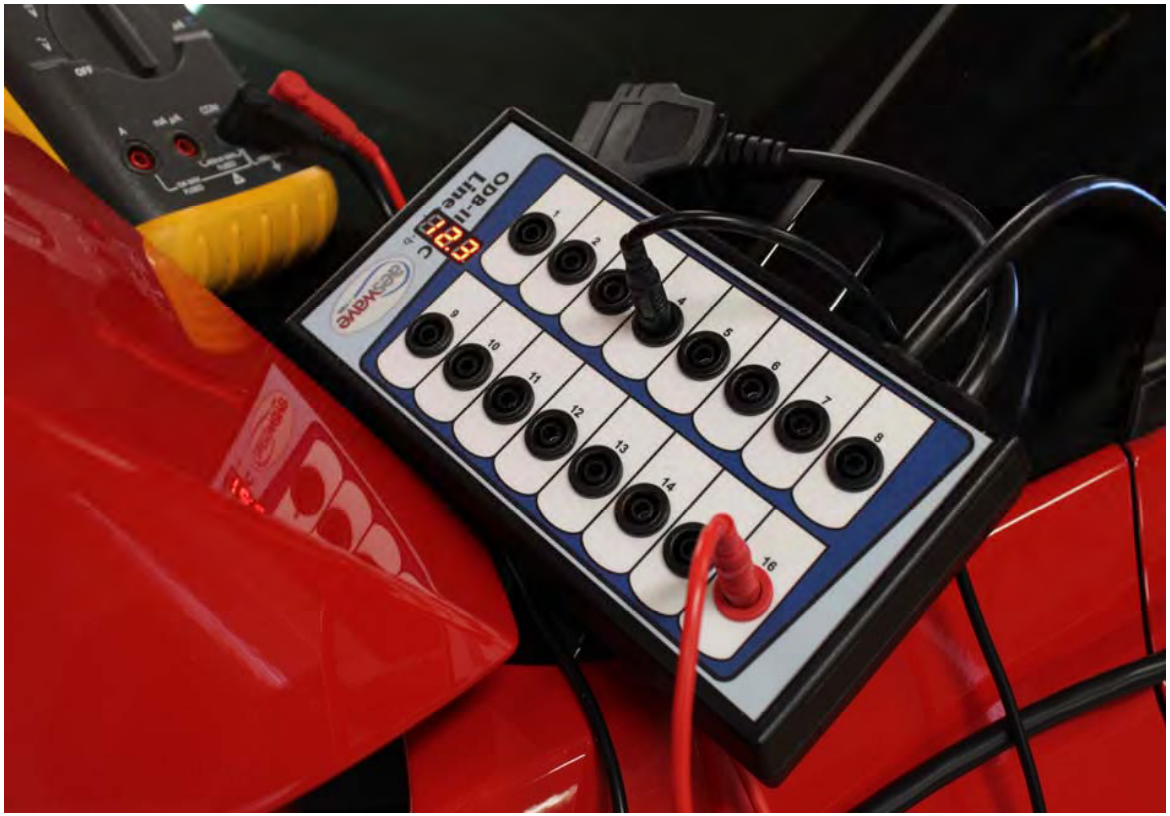
Pin #6 To Ground

Pin #6 To Ground (14.07 Kilohms)

Pin #14 To Ground

Pin #14 To Ground (14.02 Kilohms)

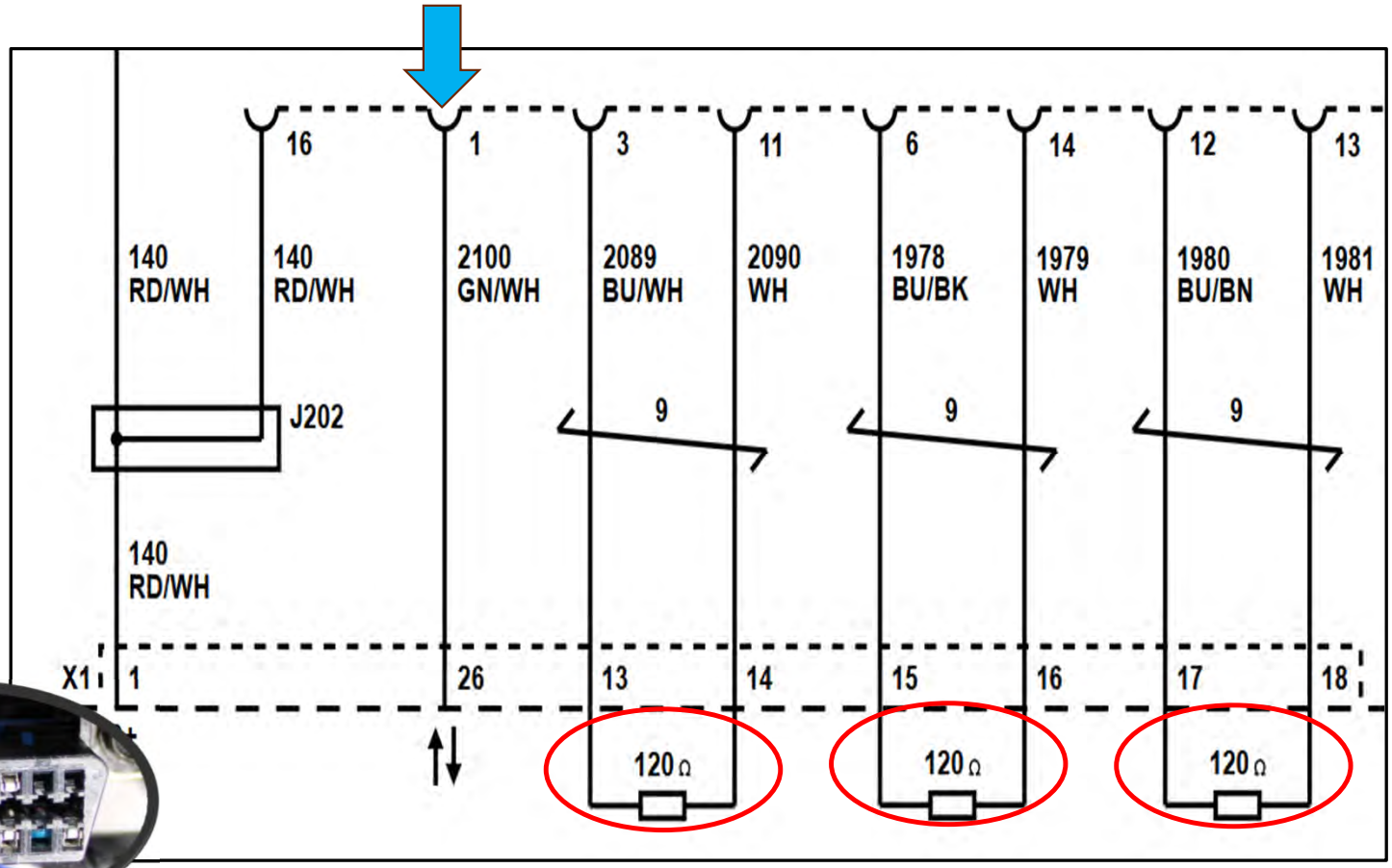
Pin #16 To Ground

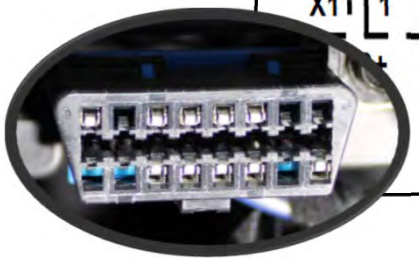


Pin #16 To Ground (Out Of Limits)

Checking For Direct & Resistive Shorts To Voltage At The DLC

K56 Serial Data Gateway Module

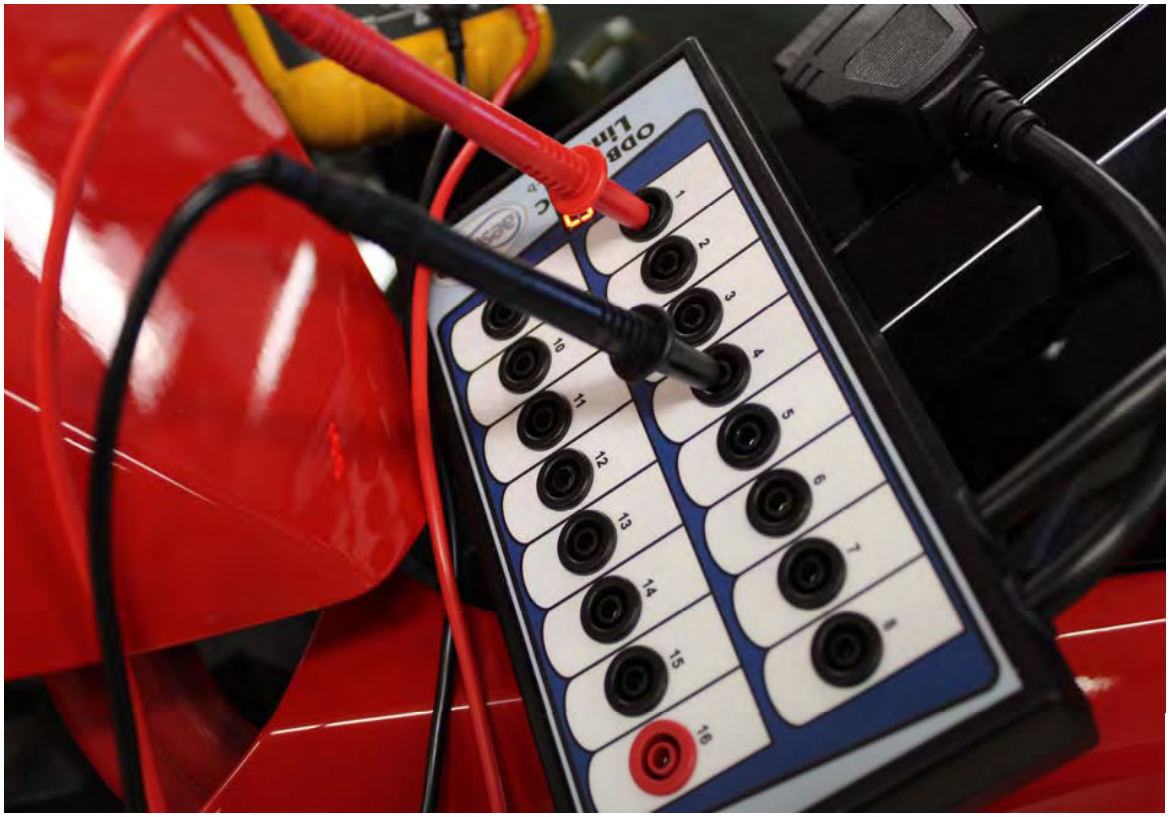




Low Speed DLC BUS (Circuit 2100)

- **Between the X84 Data Link Connector (DLC) *terminal 1* and the K56 Serial Data Gateway Module terminal 26 X1, there is a low speed BUS called the Low Speed DLC BUS. The Low Speed DLC BUS is similar to the primary Low Speed GMLAN BUS.**
- **The data symbols to be transmitted over the BUS are represented by different voltage signals on the BUS. When the Low Speed DLC BUS is at rest and is not being driven, there is a low signal voltage of approximately 0.2 V. This represents a logic "1". When a logic "0" is to be transmitted, the signal voltage is driven higher to around 4.0 V or higher.**

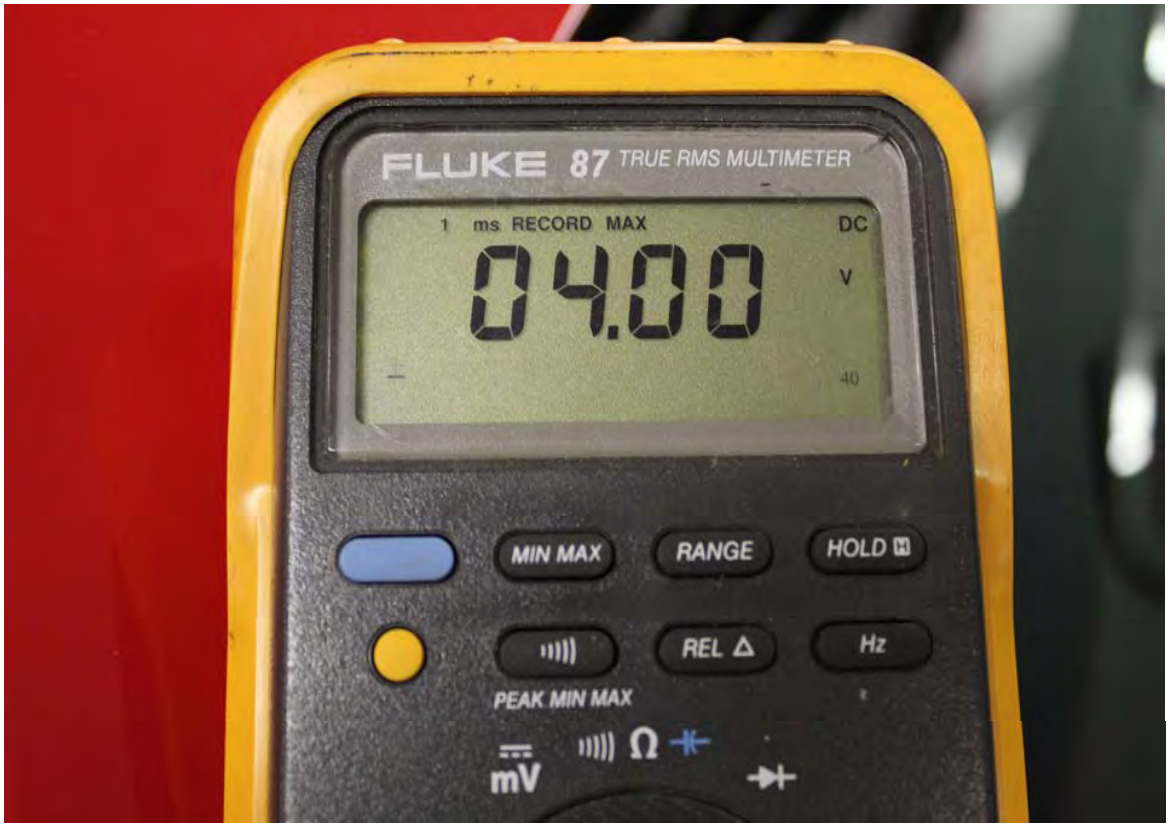
Pin #1 To Ground



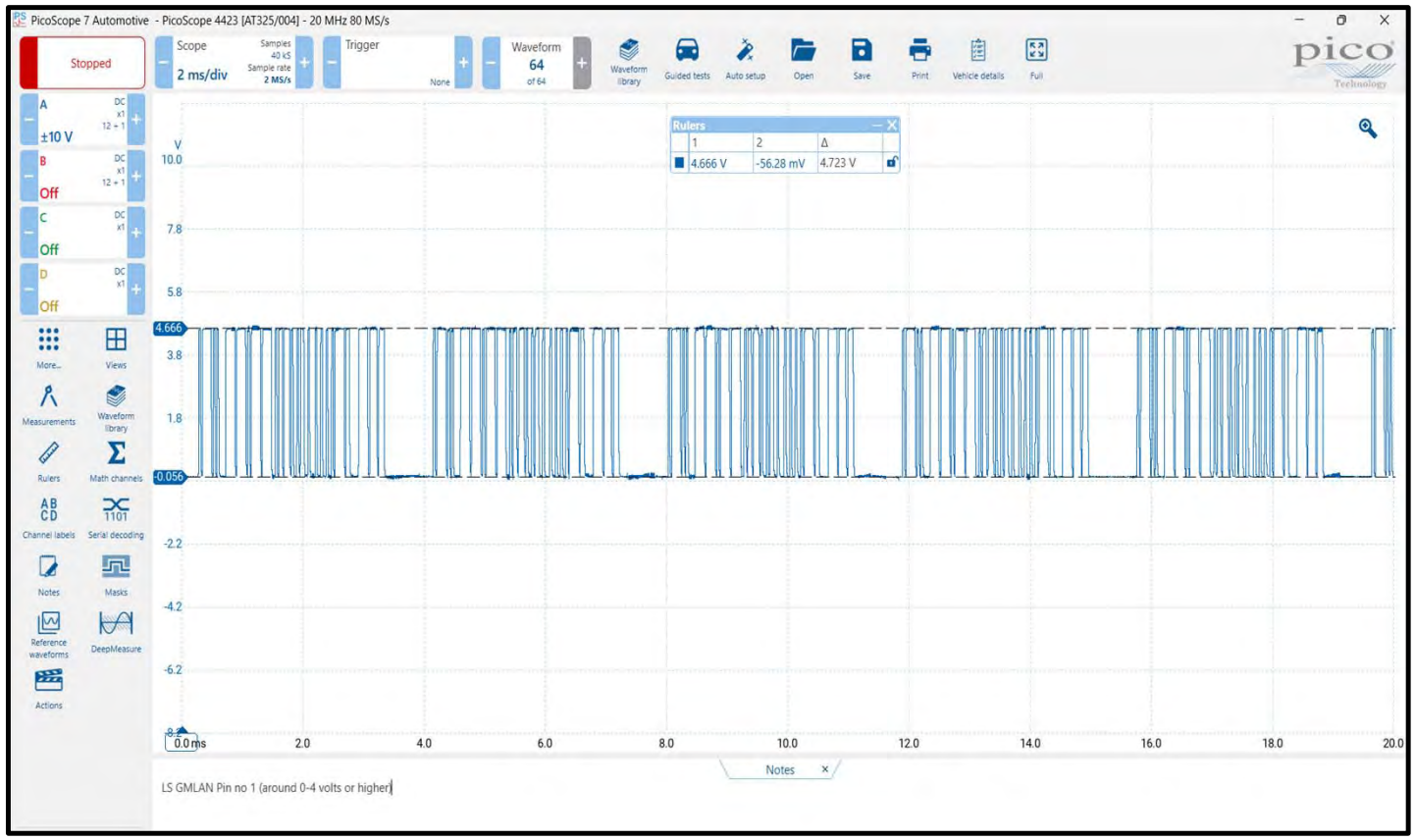
Pin #1 To Ground Average (2.629 Volts)

Pin #1 To Ground Min (.08 Volts)

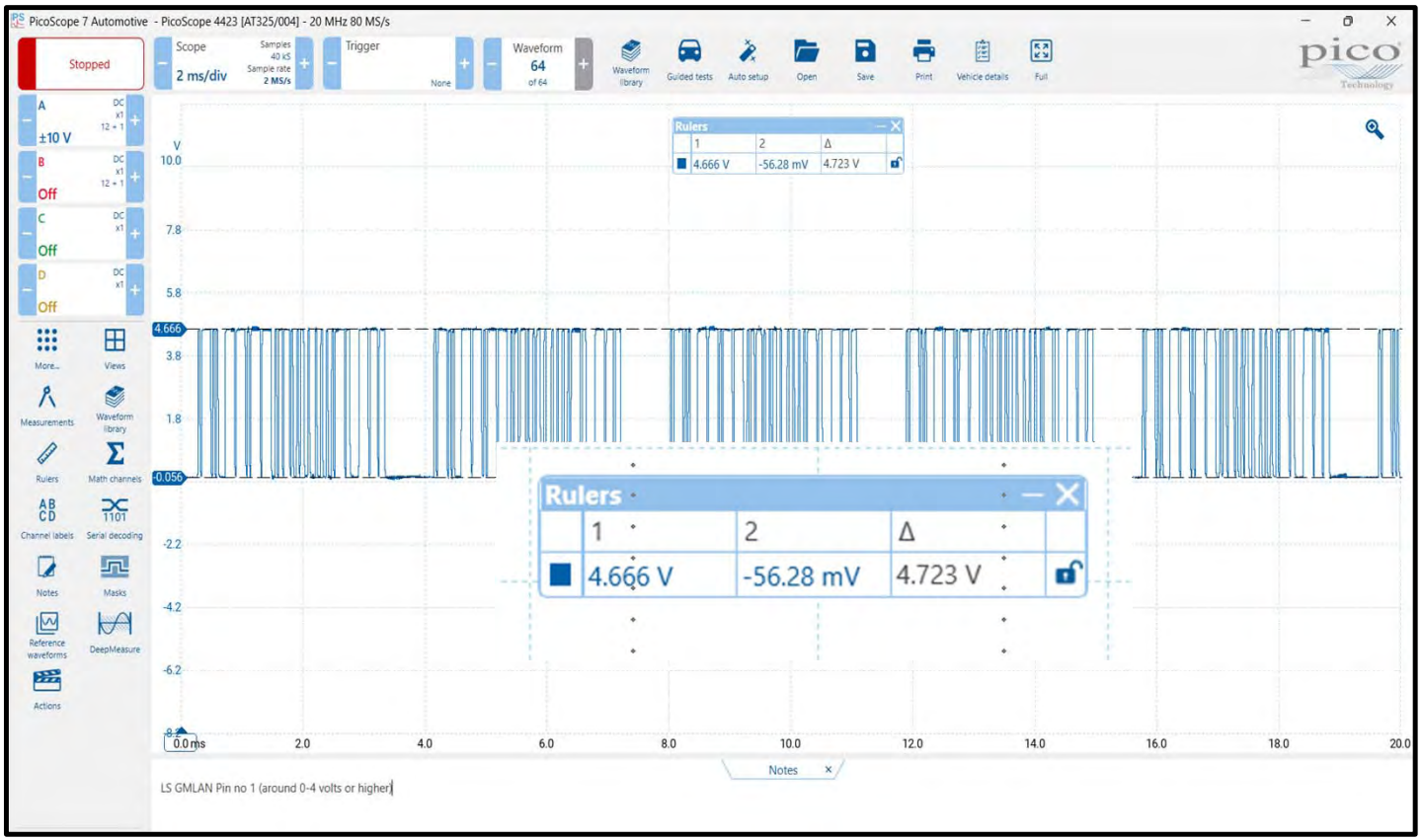
Pin #1 To Ground Max (4.00 Volts)



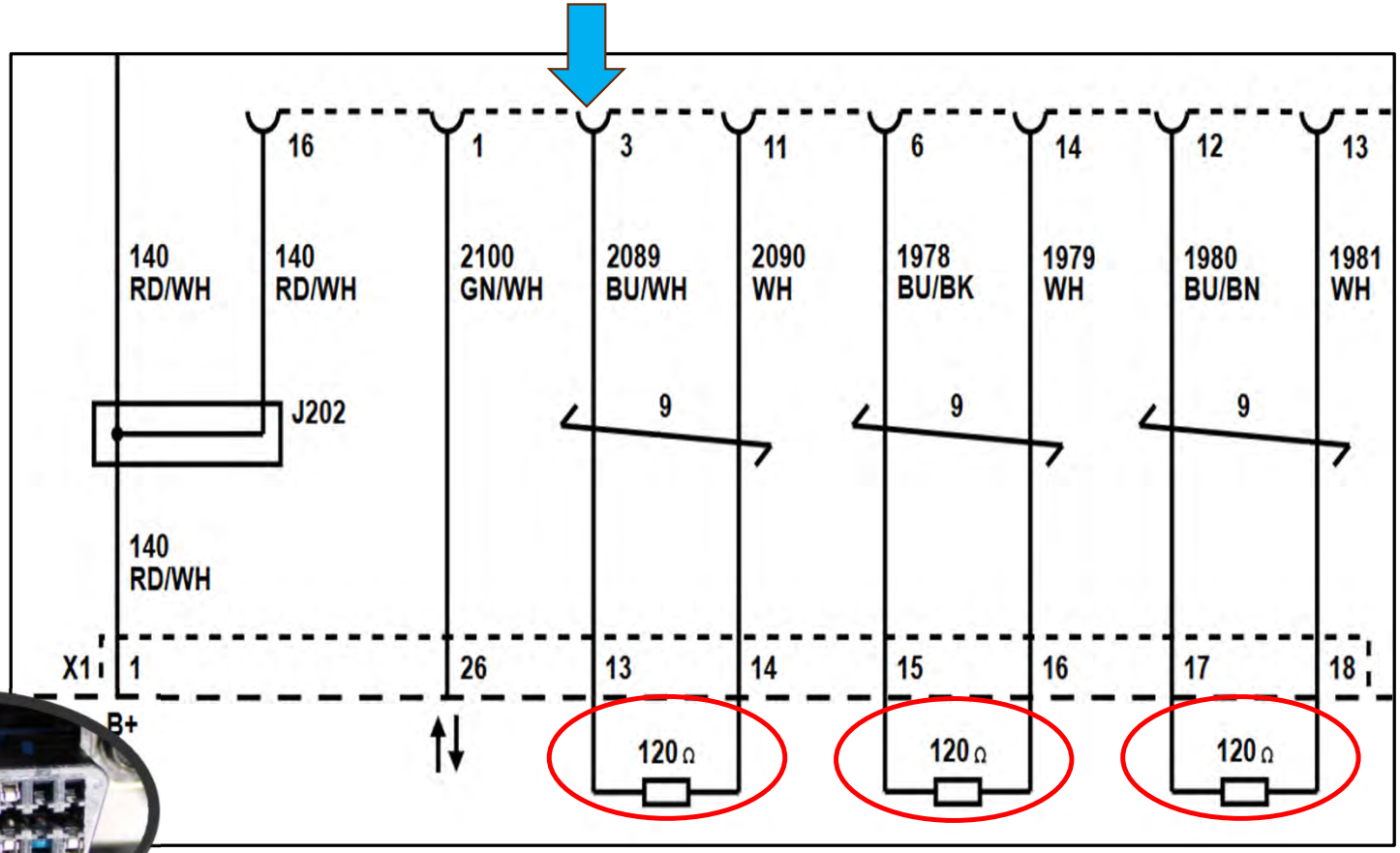
Pin #1 Scope Pattern



Pin #1 Scope Pattern - Delta Of 4.723 Volts



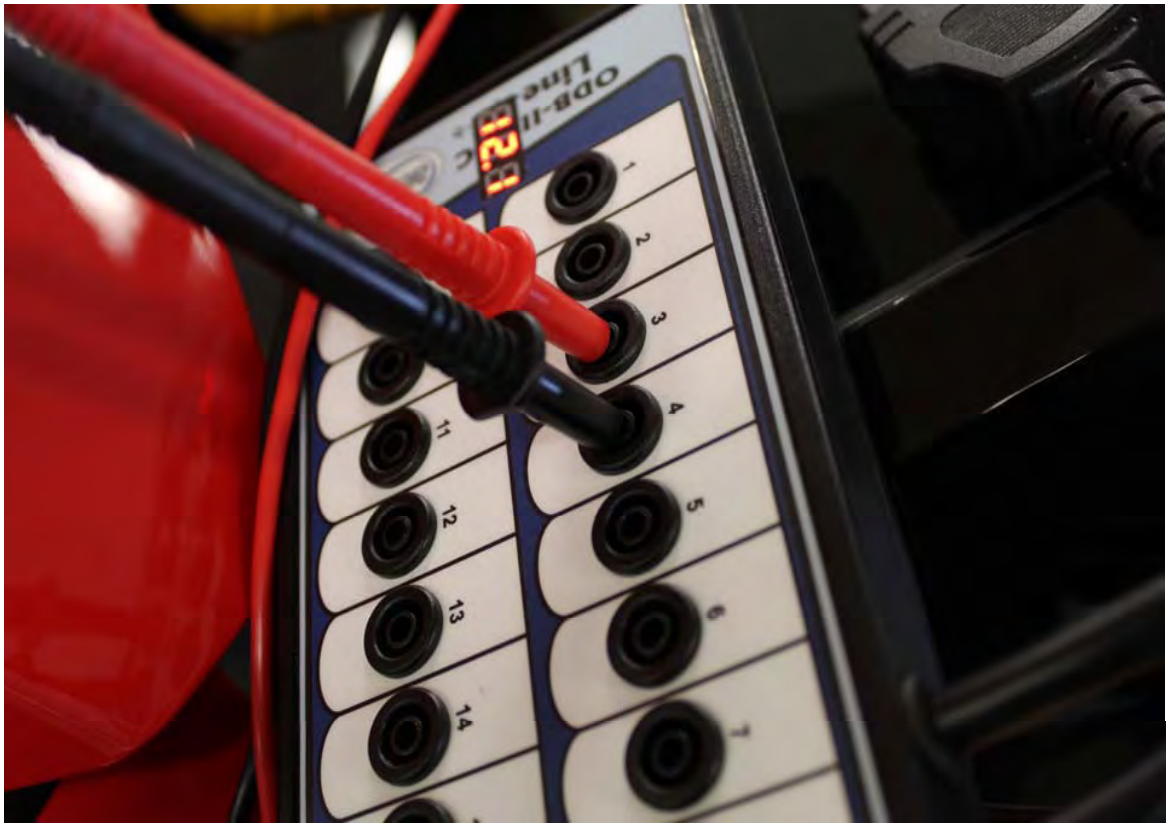
K56 Serial Data Gateway Module



Object High Speed DLC BUS (Circuits 2089 & 2090)

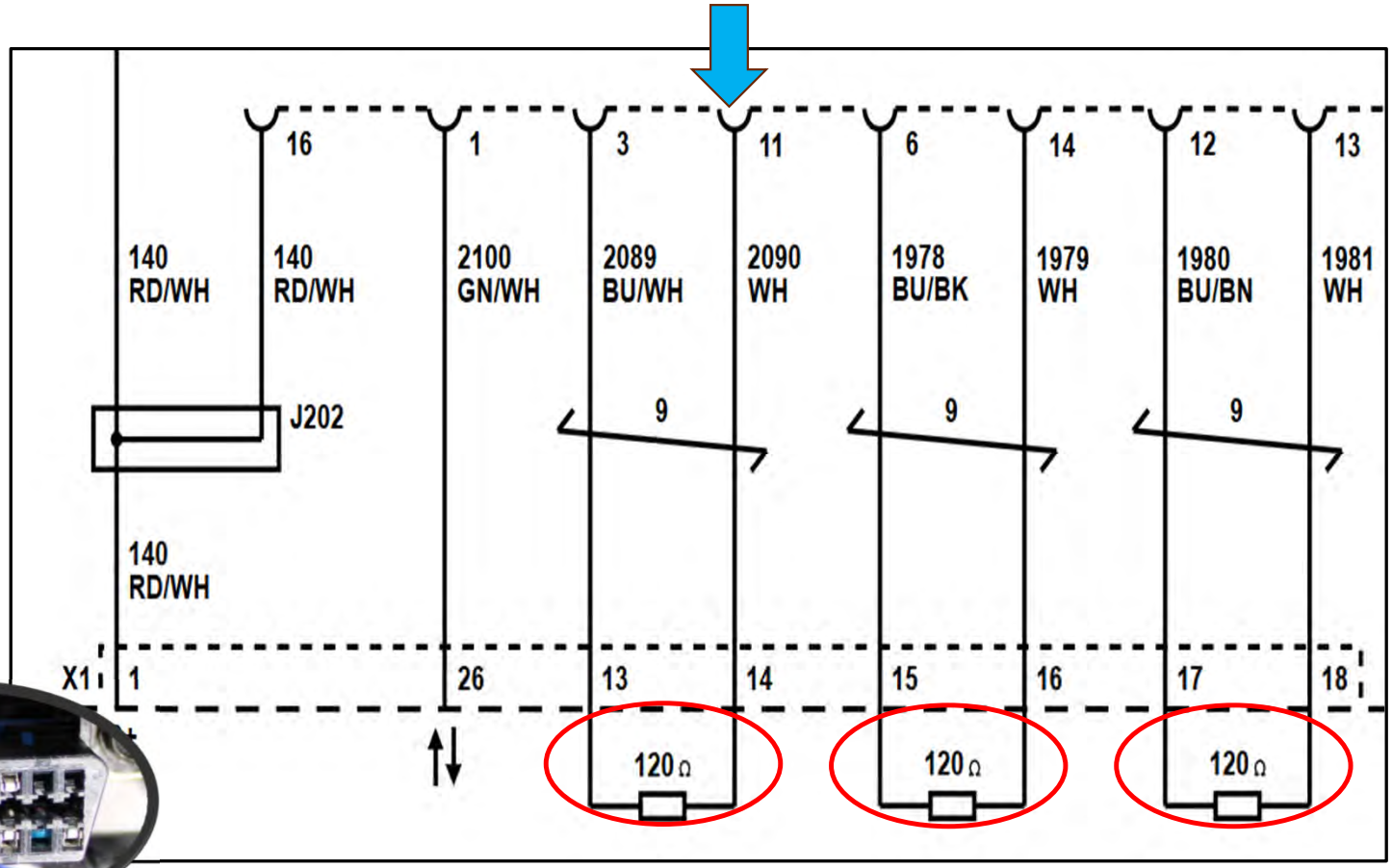
- **Between the X84 Data Link Connector (DLC) *terminals 3 & 11* and the K56 Serial Data Gateway Module terminals 13 X1 & 14 X1, there is a high speed BUS called the Object High Speed DLC BUS. The Object High Speed DLC BUS is similar to the Object High Speed GMLAN BUS. Between the GMLAN-High and GMLAN-Low circuits, there is a 120 Ω termination resistor internal to the K56 Serial Data Gateway Module. There is no terminating resistor at the DLC.**
- **The K56 Serial Data Gateway Module uses its low speed microprocessor to gate signals between the Object High Speed DLC BUS and the Object High Speed GMLAN BUS.**

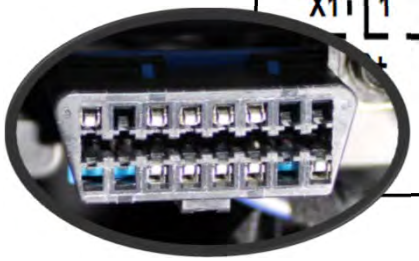
Pin #3 To Ground



Pin #3 To Ground Average (2.507 Volts)

K56 Serial Data Gateway Module





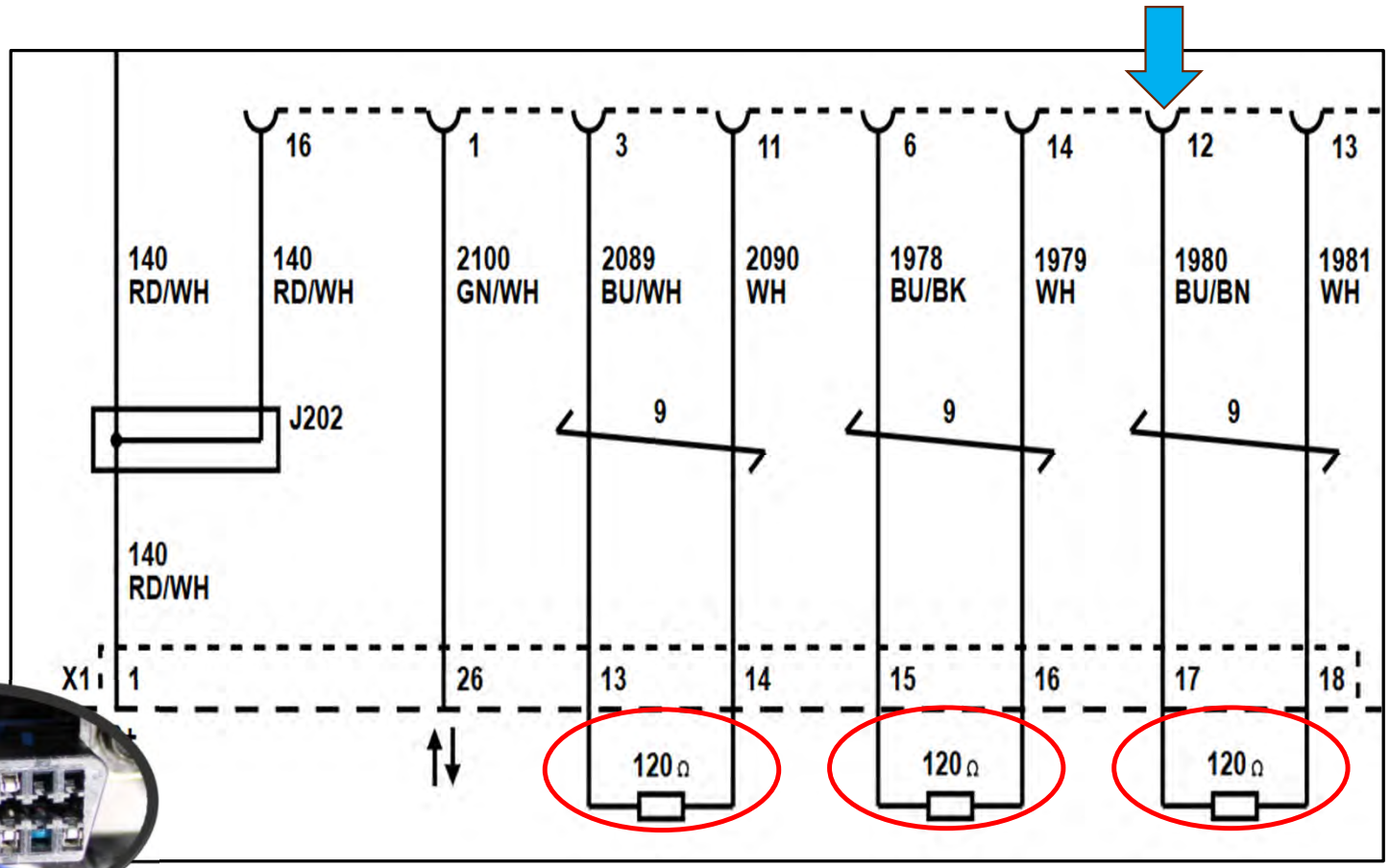
Pin #11 To Ground

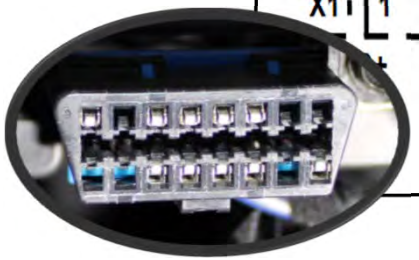
Pin #11 To Ground Average (2.506 Volts)

Chassis High Speed DLC BUS (Circuits 1980 & 1981)

- **Between the X84 Data Link Connector (DLC) *terminals 12 & 13* and the K56 Serial Data Gateway Module terminals 17 X1 & 18 X1, there is a high speed BUS called the Chassis High Speed DLC BUS. The Chassis High Speed DLC BUS is similar to the Chassis High Speed GMLAN BUS. Between the GMLAN-High and GMLAN-Low circuits, there is a 120 Ω termination resistor internal to the K56 Serial Data Gateway Module. There is no terminating resistor at the DLC.**
- **The K56 Serial Data Gateway Module uses its high speed microprocessor to gate signals between the Chassis High Speed DLC BUS and the Chassis High Speed GMLAN BUS.**

K56 Serial Data Gateway Module

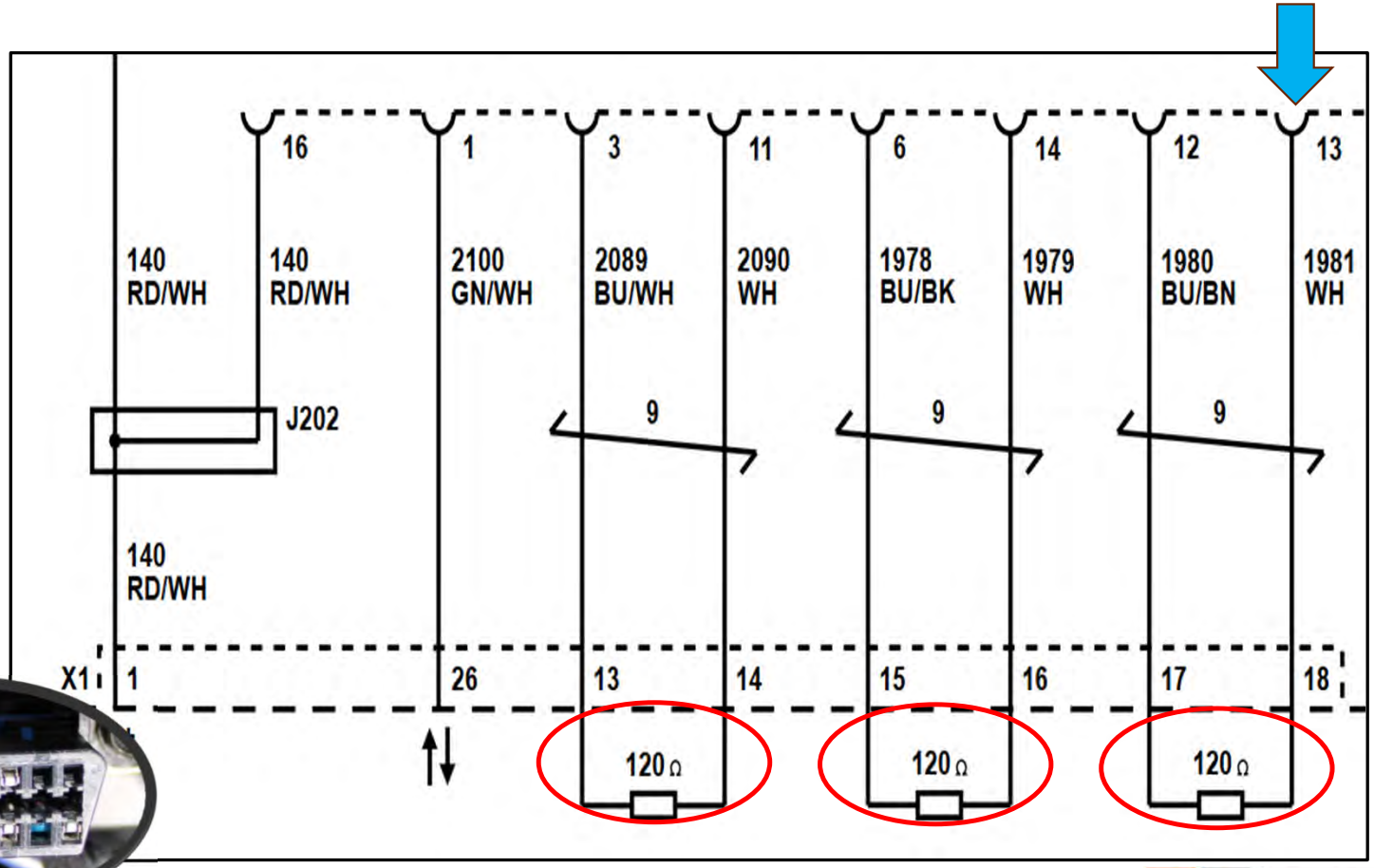


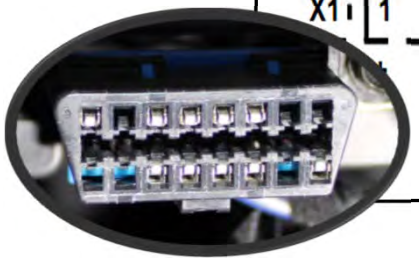


Pin #12 To Ground

Pin #12 To Ground Average (3.149 Volts)

K56 Serial Data Gateway Module

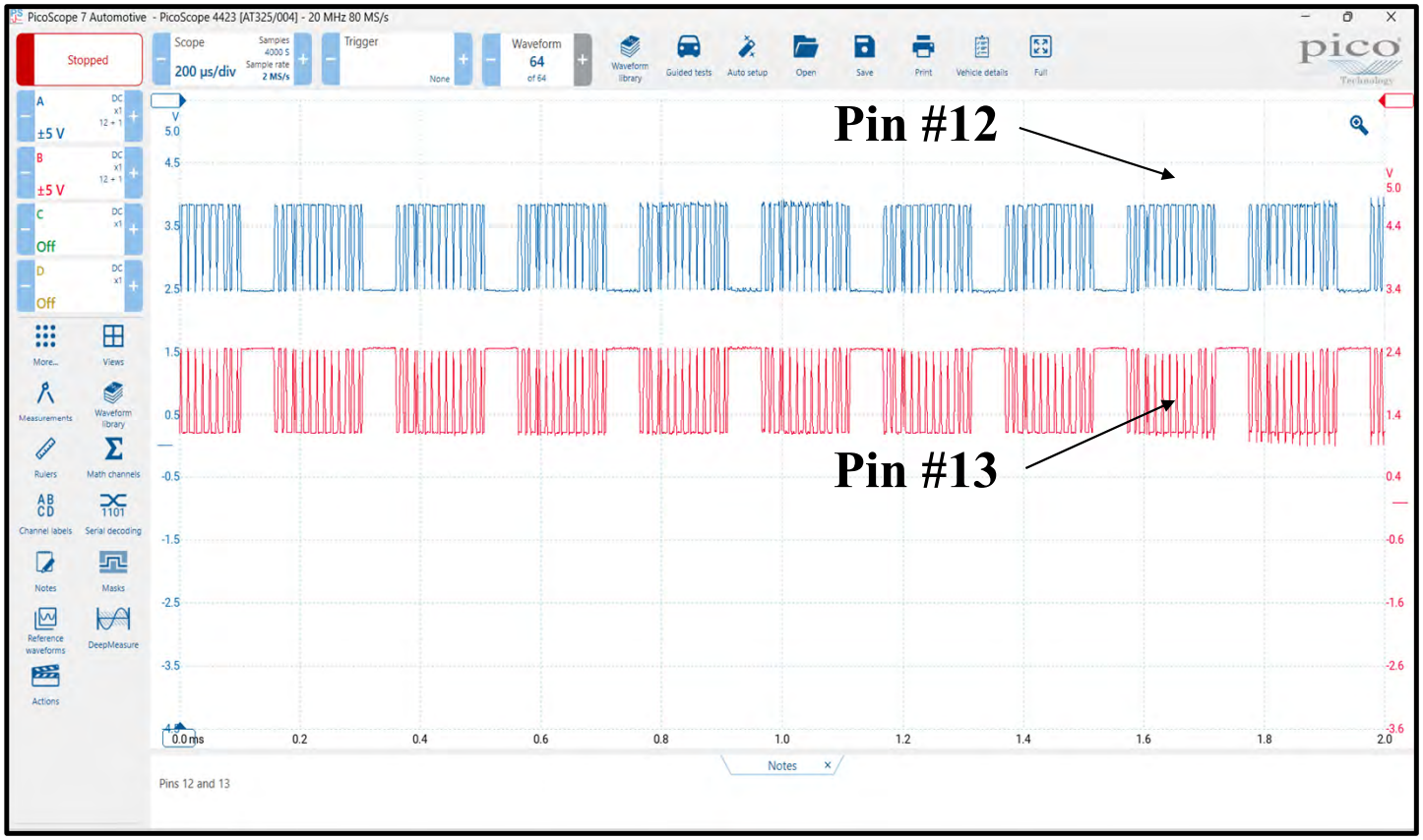




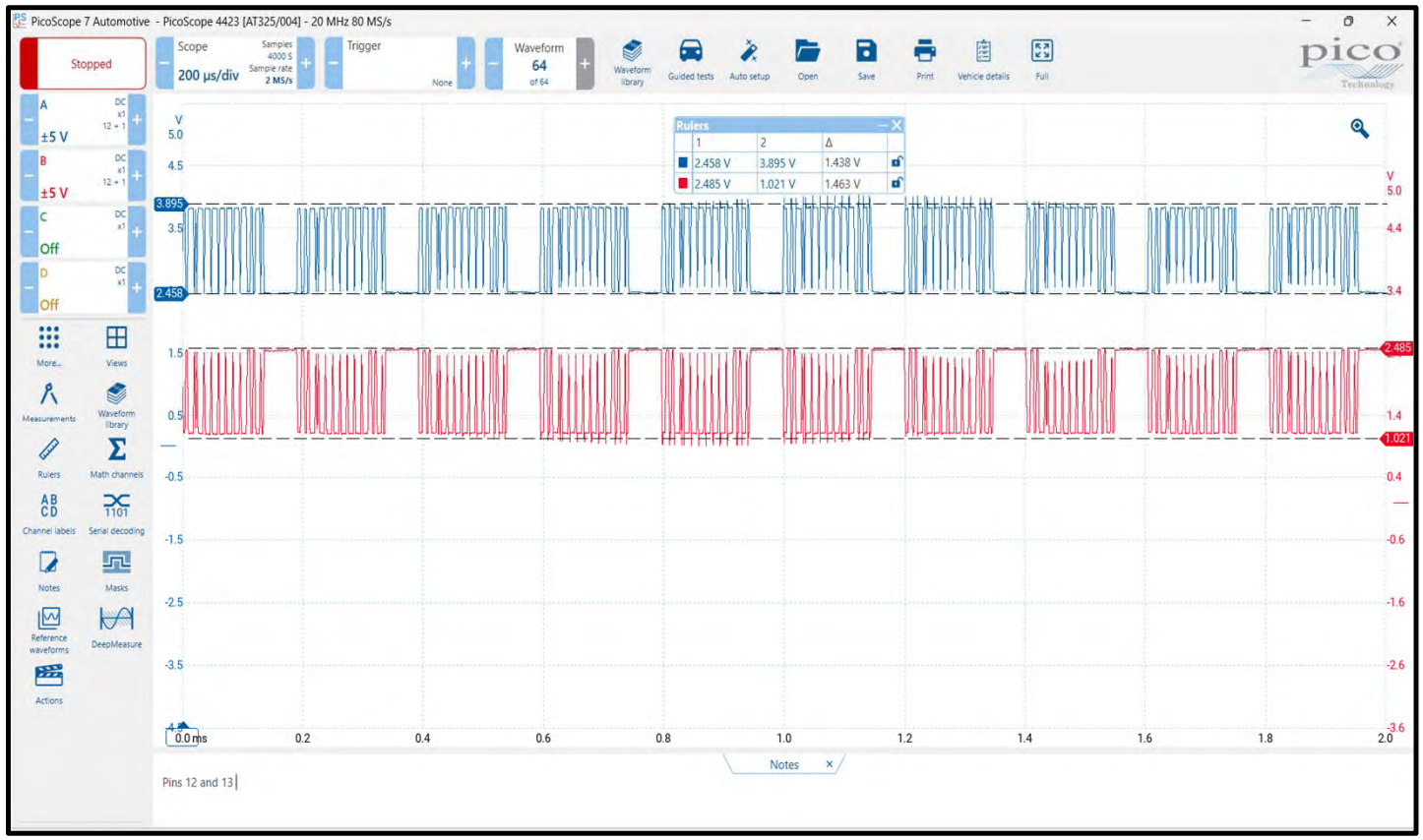
Pin #13 To Ground

Pin #13 To Ground Average (1.783 Volts)

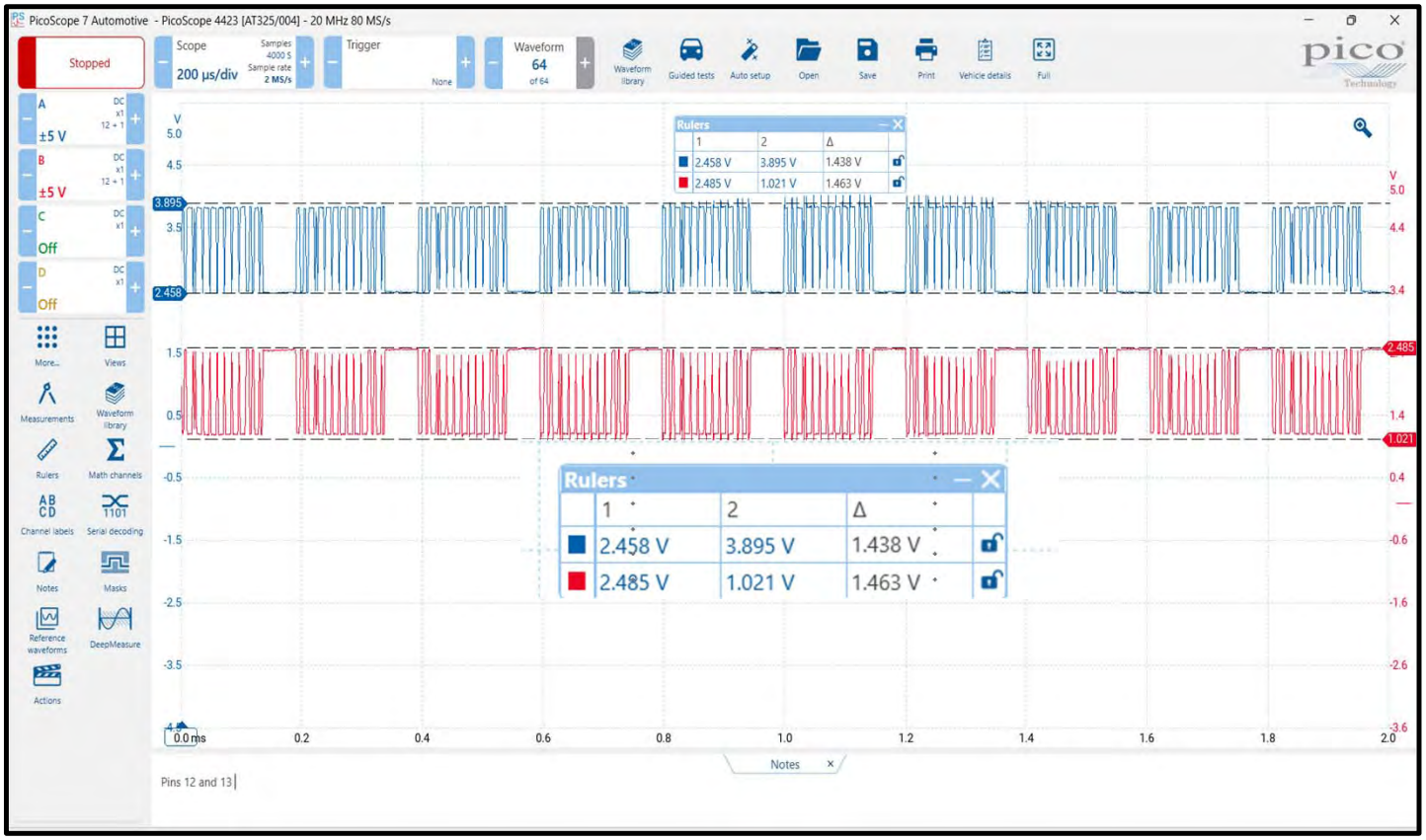
Pin #12 & #13 Scope Patterns (No Acknowledgement Pulses)



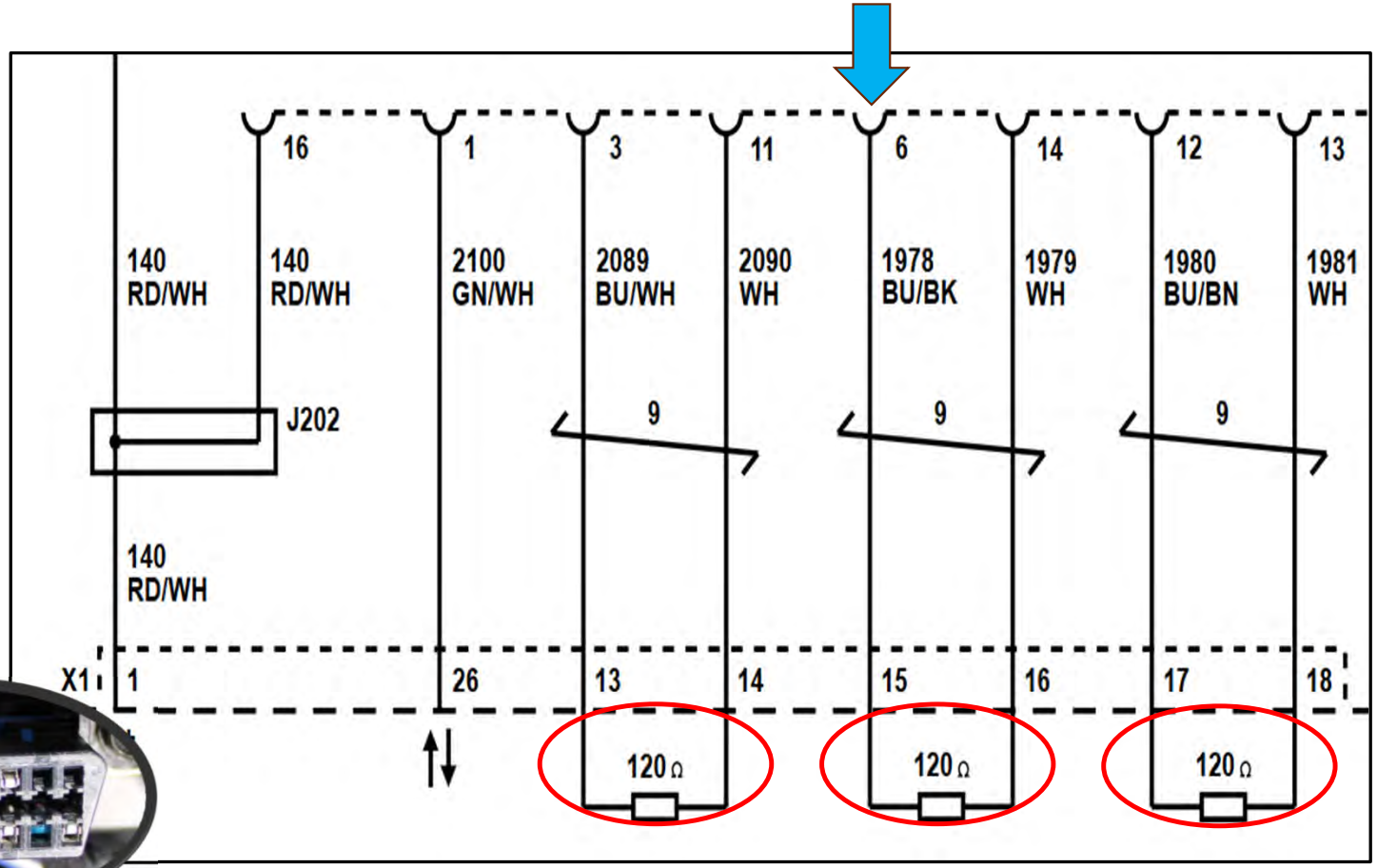
Pin #12 & #13 Scope Patterns (Voltage Measurements)

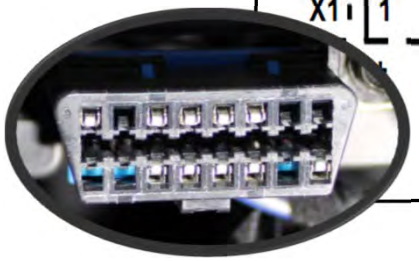


Pin #12 & #13 Scope Patterns (Voltage Measurements)



K56 Serial Data Gateway Module





High Speed DLC BUS (Circuits 1978 & 1979)

- **Between the X84 Data Link Connector (DLC) *terminals 6 & 14* and the K56 Serial Data Gateway Module terminals 15 X1 & 16 X1, there is a high speed BUSs called the High Speed DLC BUS. The High Speed DLC BUS is similar to the primary High Speed GMLAN BUS. Between the GMLAN-High and GMLAN-Low circuits, there is a 120 Ω termination resistor internal to the K56 Serial Data Gateway Module. There is no terminating resistor at the DLC.**
- **The K56 Serial Data Gateway Module uses its high speed microprocessor to gate signals between the High Speed DLC, the primary High Speed GMLAN, the Gateway Expansion High Speed GMLAN, and the Gateway Isolated High Speed GMLAN BUSes.**

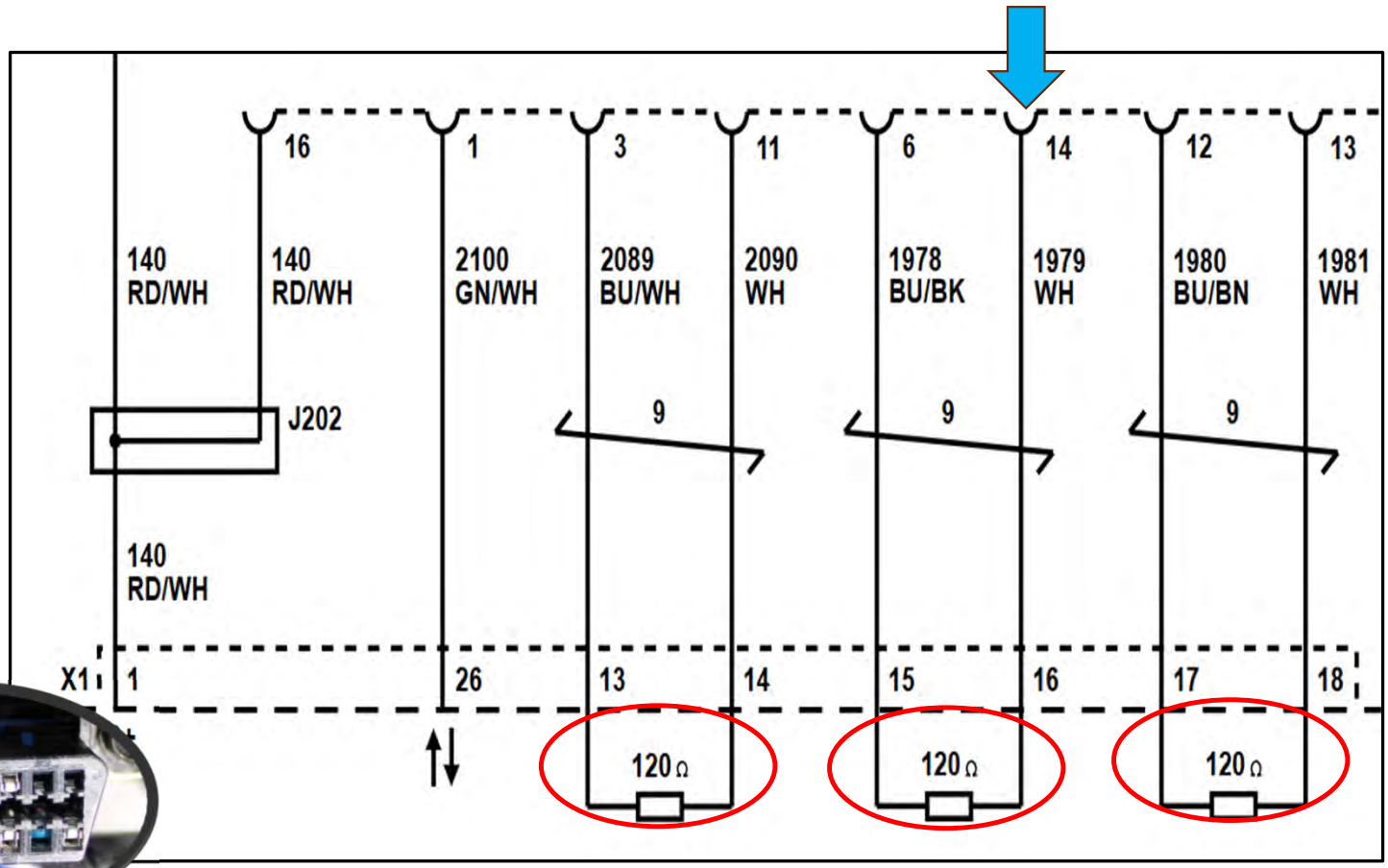
High Speed DLC BUS (Circuits 1978 & 1979)

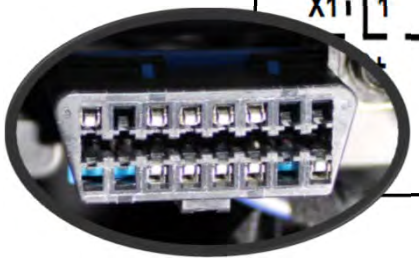
- **When the two wire BUS is at rest the GMLAN-High and GMLAN-Low signal circuits are not being driven and this represents a logic "1". In this state both signal circuits are at the same voltage of 2.5 V. The differential voltage is approximately 0 V.**
- **When a logic "0" is to be transmitted, the GMLAN-High signal circuit is driven higher to about 3.5 V and the GMLAN-Low circuit is driven lower to about 1.5 V. The differential voltage becomes approximately 2.0 (+/- 0.5) V.**

Pin #6 To Ground

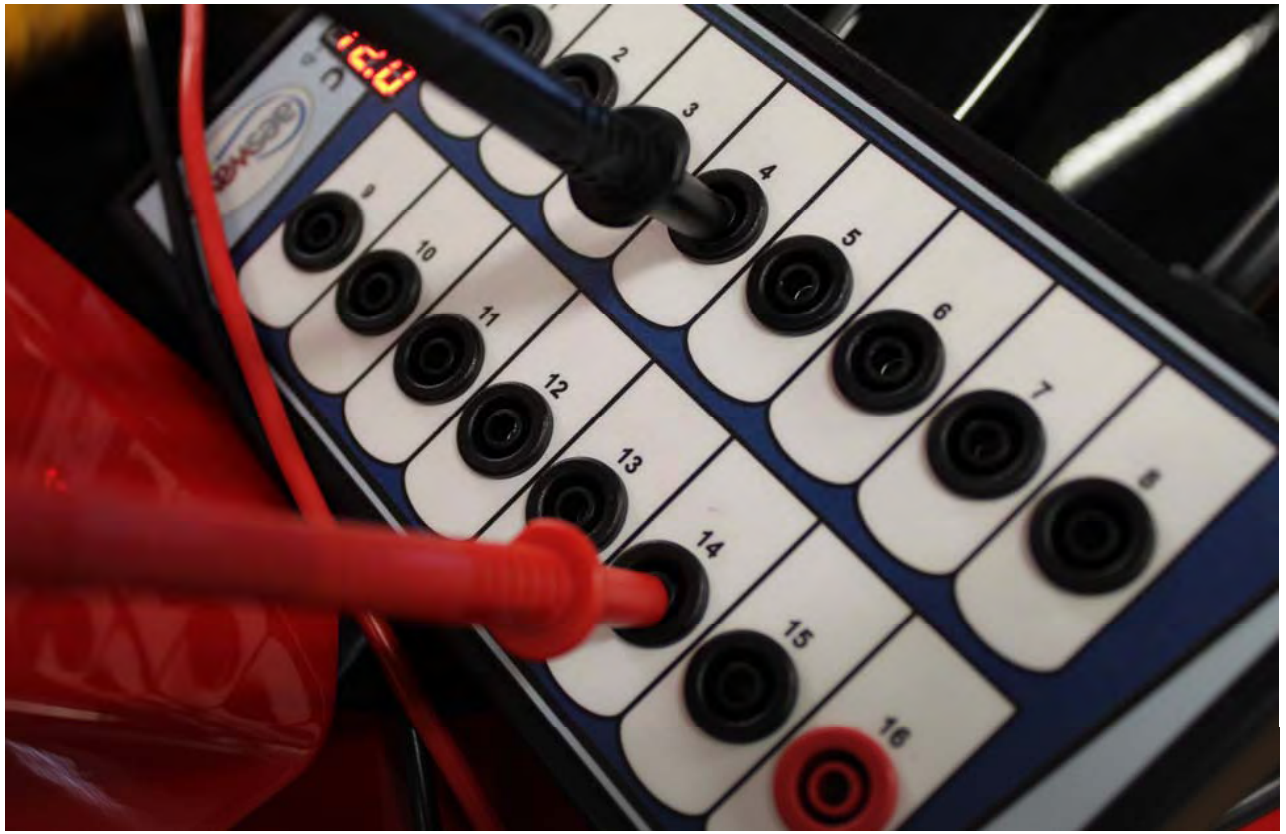
Pin #6 Average (3.111 Volts)

K56 Serial Data Gateway Module



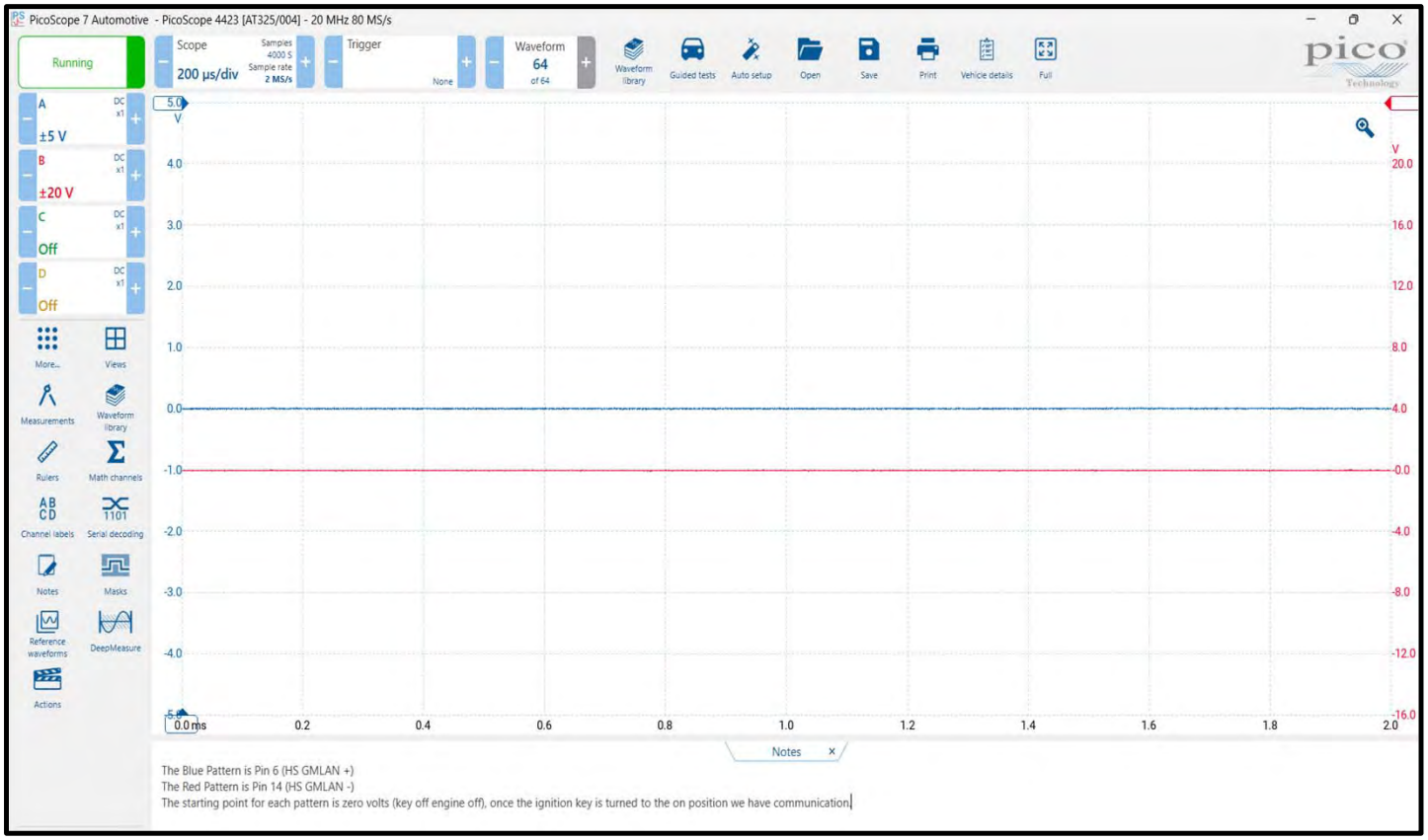


Pin #14 To Ground

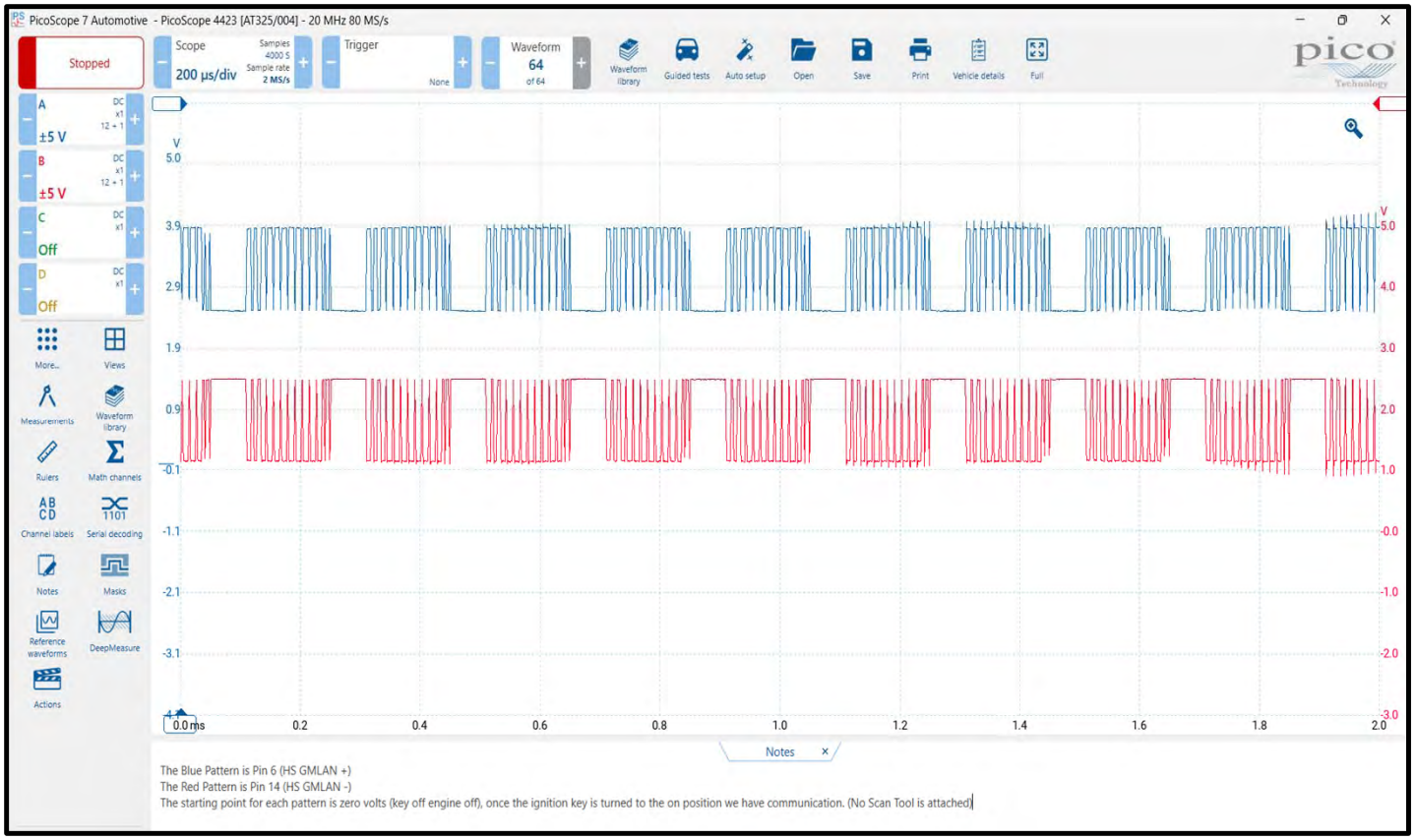


Pin #14 To Ground Average (1.739 Volts)

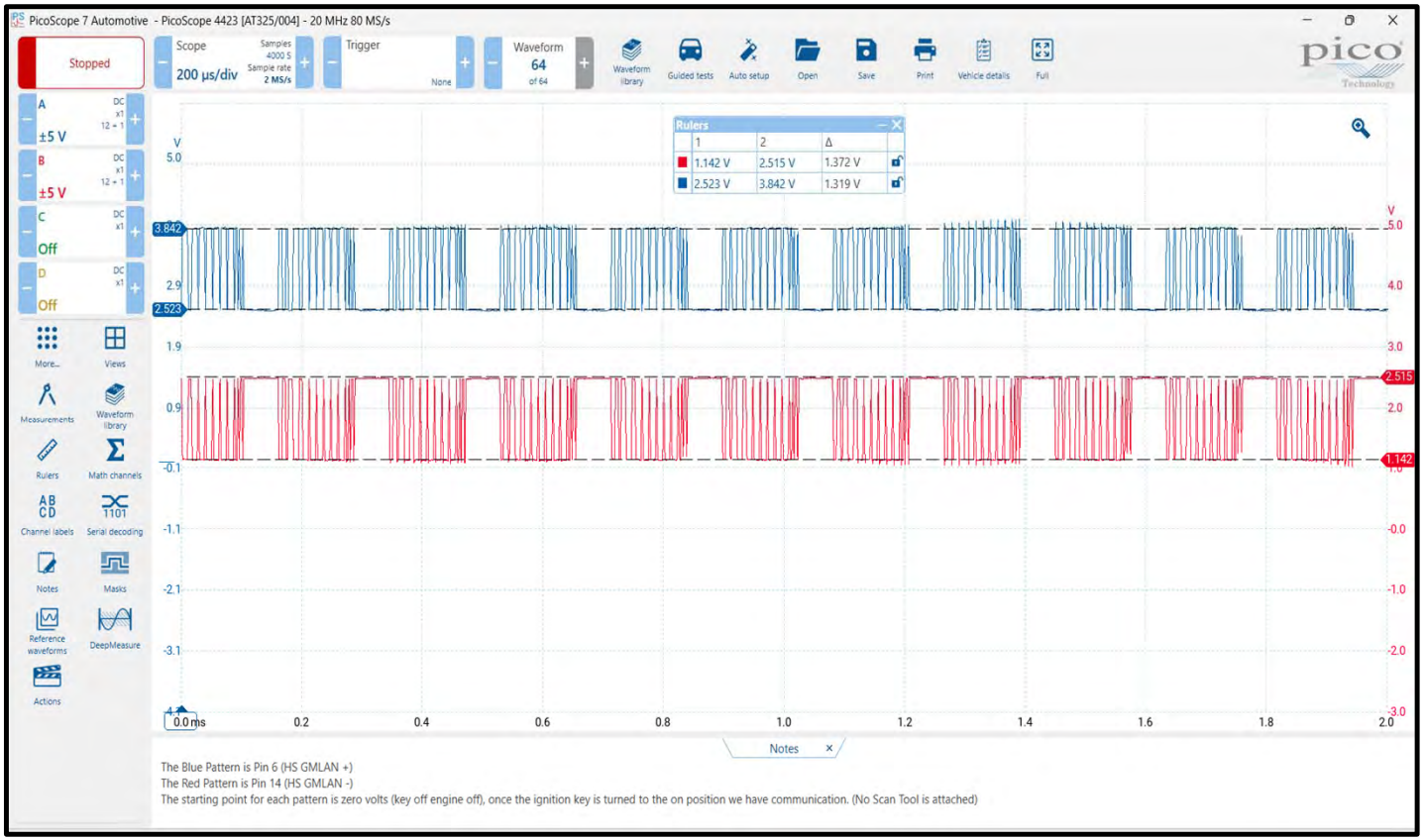
Pin #6 & 14 - Voltage Measures



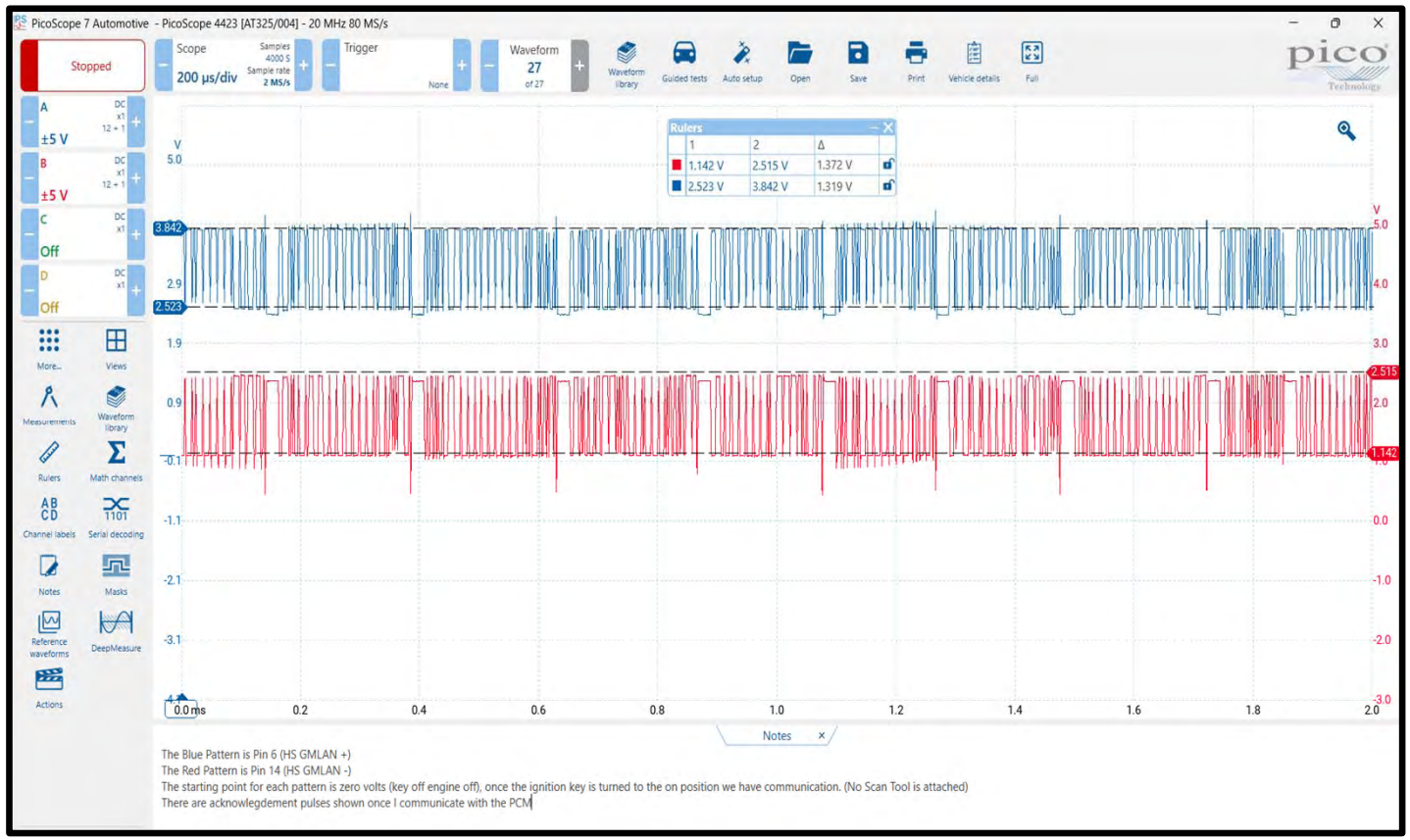
Pin #6 & 14 - Voltage Measurements



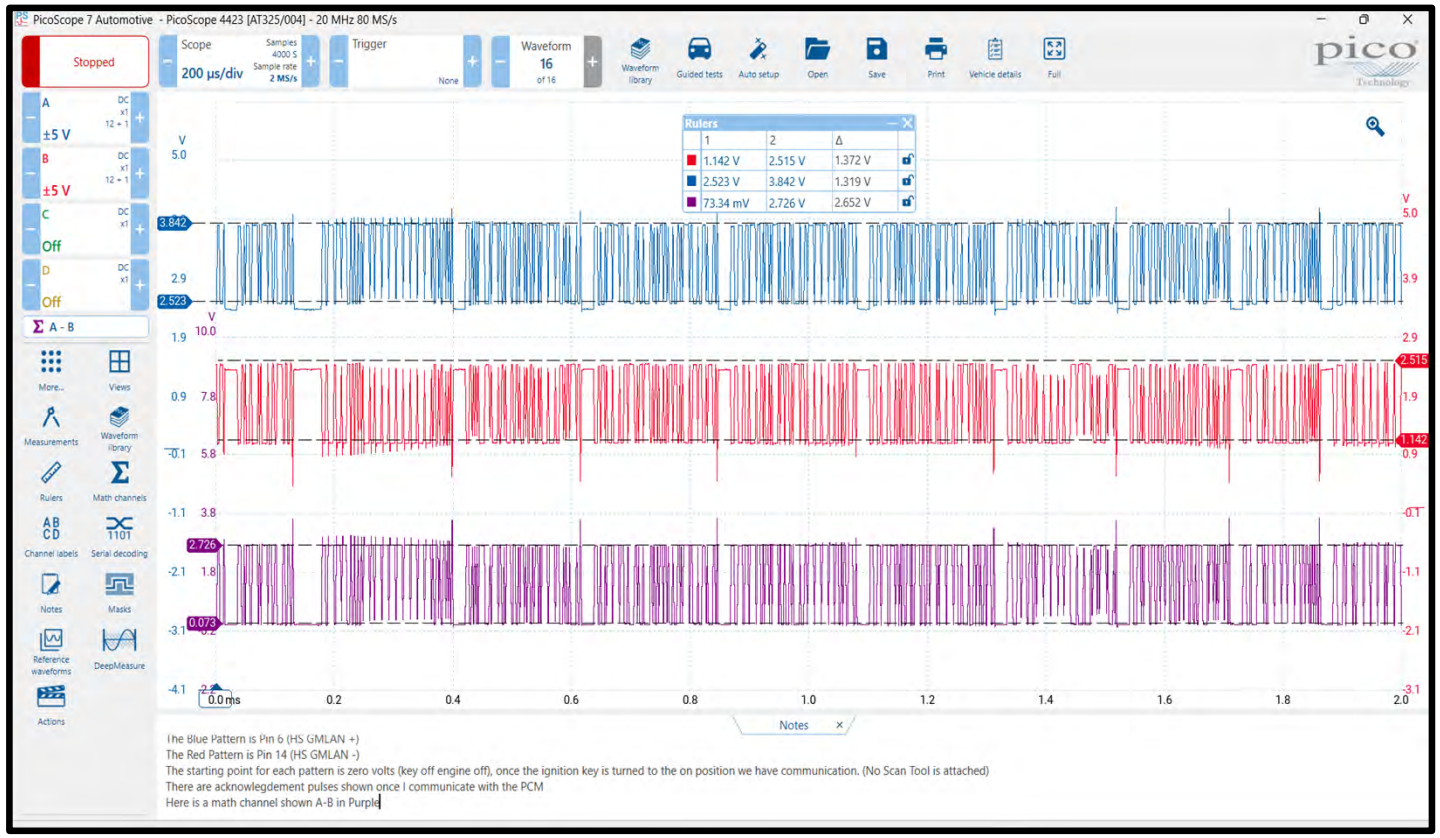
Pin #6 & 14 - Voltage Measurements



Pin #6 & 14 - Voltage Measurements



Pin #6 & 14 - Voltage Measurements



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