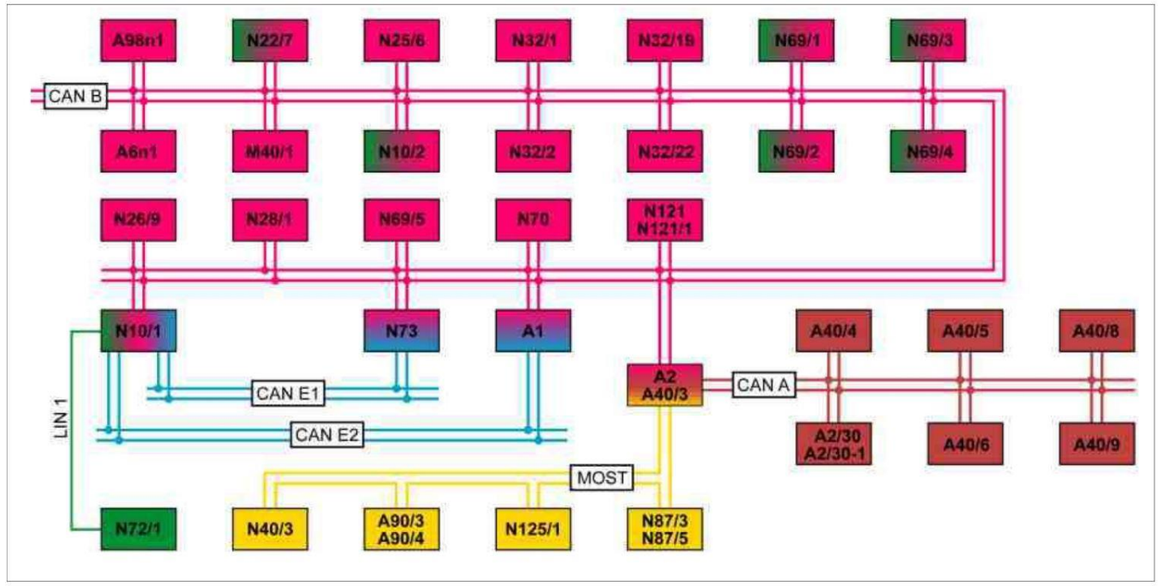
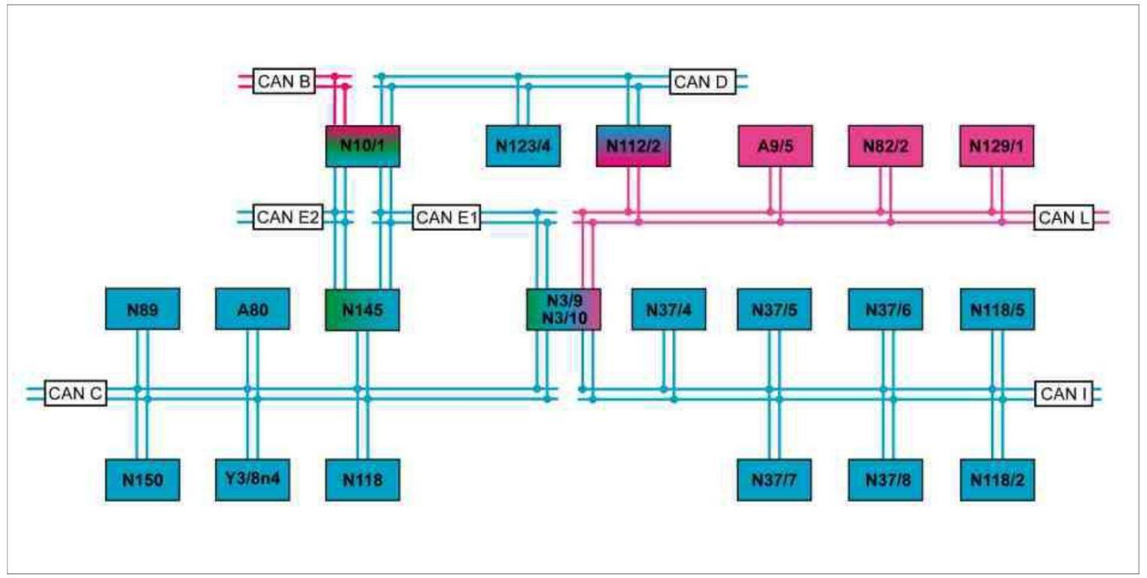
MODEL 212
as of model year 2014



P00.19-5476-79



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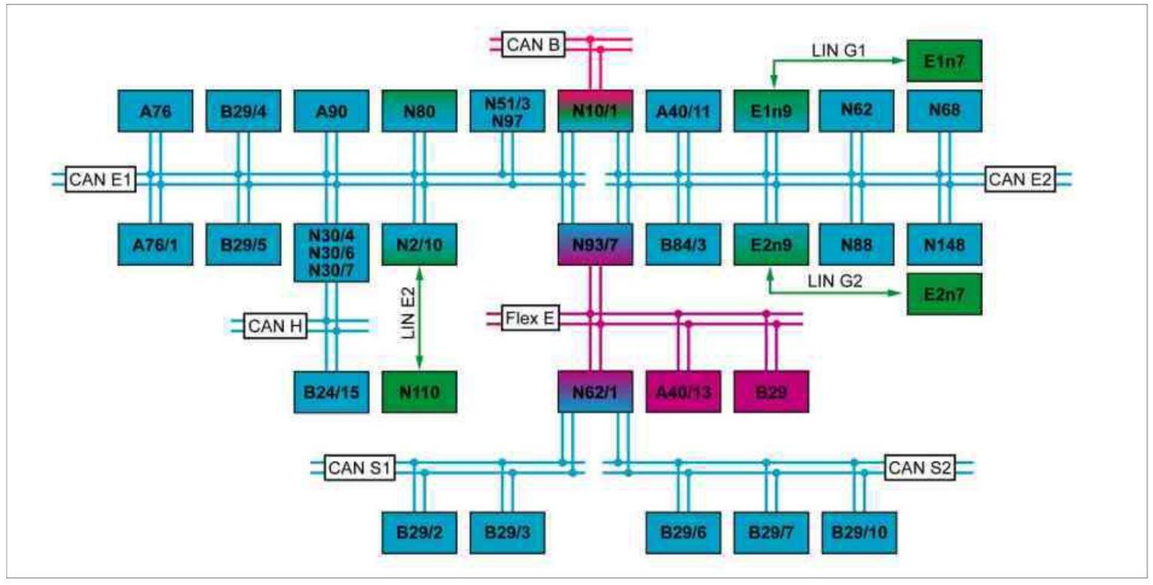


P00.19-5225-79

CAN
The CAN is an electrical bus system for the transmission of data via two lines. The CAN consists of a twisted two-core data line that connects all CAN participants (control units) via a parallel connection. The two lines of the data line must not be swapped (low level/high level). Each connected control unit is able to transmit or receive data (bidirectional bus). The data is transmitted digitally on the CAN at various intervals. The individual data blocks are defined in a data protocol and it is specified which data are received or transmitted by a control unit. The sum of the data blocks, the short break between two transmission intervals and other properties of the CAN are checked constantly. Detected faults are stored and placed in the fault memory.
The CAN offers the following advantages:
- Data exchange between individual control units
- Provision of sensor signals for several systems
- Reduction of the number of electrical lines
- Improved electromagnetic compatibility (EMC)

The following CANs are involved in the overall network:
- **Telematics CAN**
- **Interior CAN**
- **Drive train CAN**
- **Diagnostic CAN**
- **Chassis CAN 1**
- **Chassis CAN 2**
- **Vehicle dynamics CAN**
- **Drive train sensor CAN**
- ~~**Hybrid CAN (model 212.095/098/298)**~~
- ~~**Radar CAN 1**~~
- ~~**Radar CAN 2**~~

CAN **A** Telematics CAN
CAN **B** Interior CAN
CAN **C** Drive train CAN
CAN **D** Diagnostic CAN
CAN **E1** Chassis CAN 1
CAN **E2** Chassis CAN 2
CAN **H** Vehicle dynamics CAN
CAN **I** Drive train sensor CAN
MOST Media Oriented System Transport
Flex E Chassis FlexRay
LIN **G1** Left headlamp LIN
LIN **G2** Right headlamp LIN
LIN **E2** Seat occupied recognition LIN
There are many other actual LINs not drawn by MB

(Not used in my car : CAN **S1** Radar CAN 1 , CAN **S2** Radar CAN 2 , CAN **L** Hybrid CAN (model 212.095/098/298))

This page is from Document : Overall network (GVN) function. Number : **GF0019P0001FLM**

Based on : RWD RHD E400, Model Year 2014. W212.065, engine M276.820 3.0 Turbo. VIN : **WDD2120656L037906**

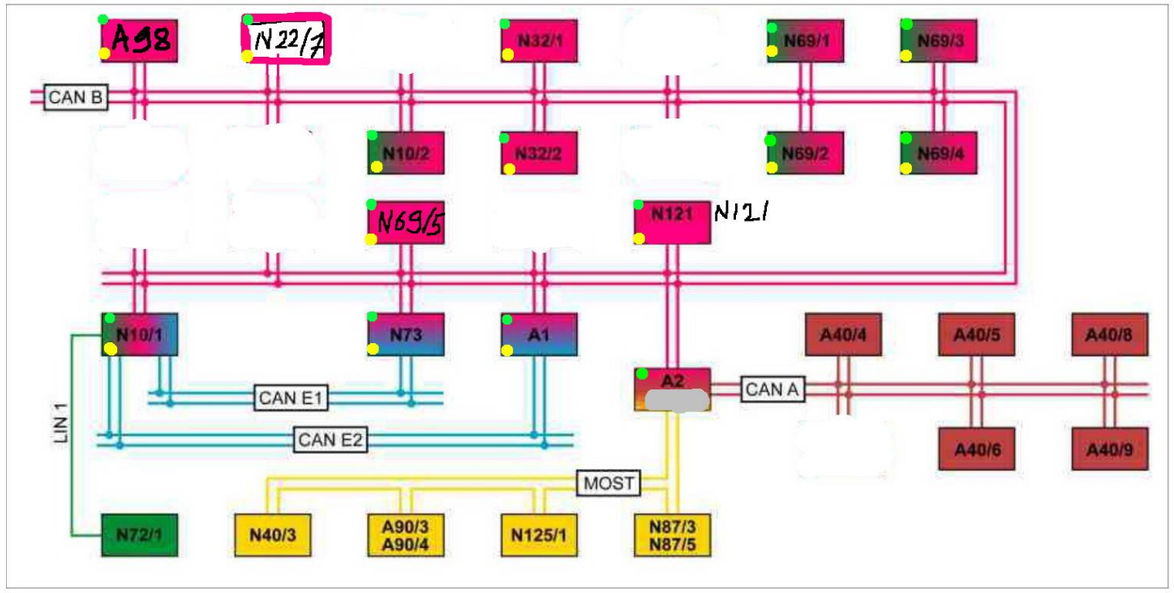
Twisted pair wire cable colors are : Brown-Red & Brown 0.35mm

CAN B, Interior CAN

Slot	X30/32 Distributor
4	A98 PanoRoof control
3	N69/3 Left Rear Door Control Unit
6	N69/1 Left Front door control unit
7	N121 Trunk Lid Control
9	N32/1 Driver Seat Control Unit
1	N10/1 Front SAM > Connector 22i pin 9 & 10
5	N10/1 Front SAM >>>> Connector 7i pin 10 & 11
2	X30/33Distributor >>>>

	Slot
N10/1 Connector 11C pin 9 & 7 >> << Z37/7z2 & Z37/6z2	
A1 Instrument Clsuter	
N73 Electric Ignition Switch	
N22/7 580 airconditioner	Slot
<<< X30/33Distributor	1
A2 510 Audio 20	4
N10/2 Rear Sam	2
N69/4 Right Rear Door control unit via connector X35/4	5
N69/2 Right front door control unit	6
N69/5 889 KEYLESS-GO	9
N32/2 Front Passenger Seat Control	13

MODEL 212
as of model year 2014



pe00.19-p-2185-97daa Wiring diagram of interior CAN. Model 212 Potential distributor X30/32, sheet 1
pe00.19-p-2185-97dab Wiring diagram of interior CAN. Model 212 Potential distributor X30/33, sheet 2

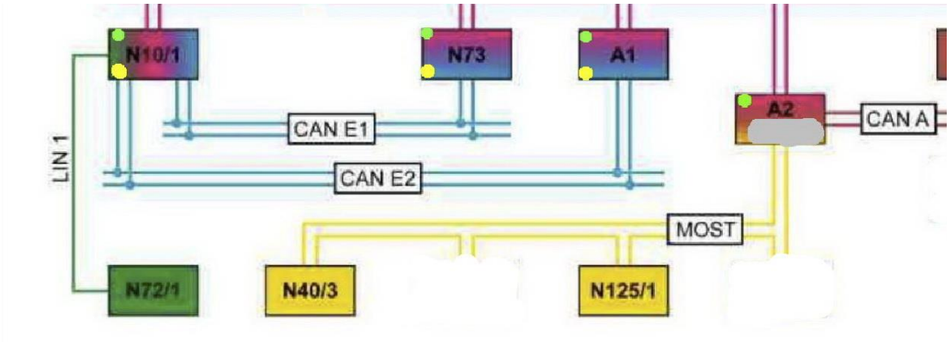
N72/1 is Upper control panel, control unit, using LIN

Based on : RWD RHD E400, Model Year 2014. W212.065, engine M276.820 3.0 Turbo. VIN : **WDD2120656L037906**

MOST (Media Oriented Systems Transport) Optical System

This has no distributor block, it is a daisy chain data over optical system. Each device has 1 input and 1 output. I

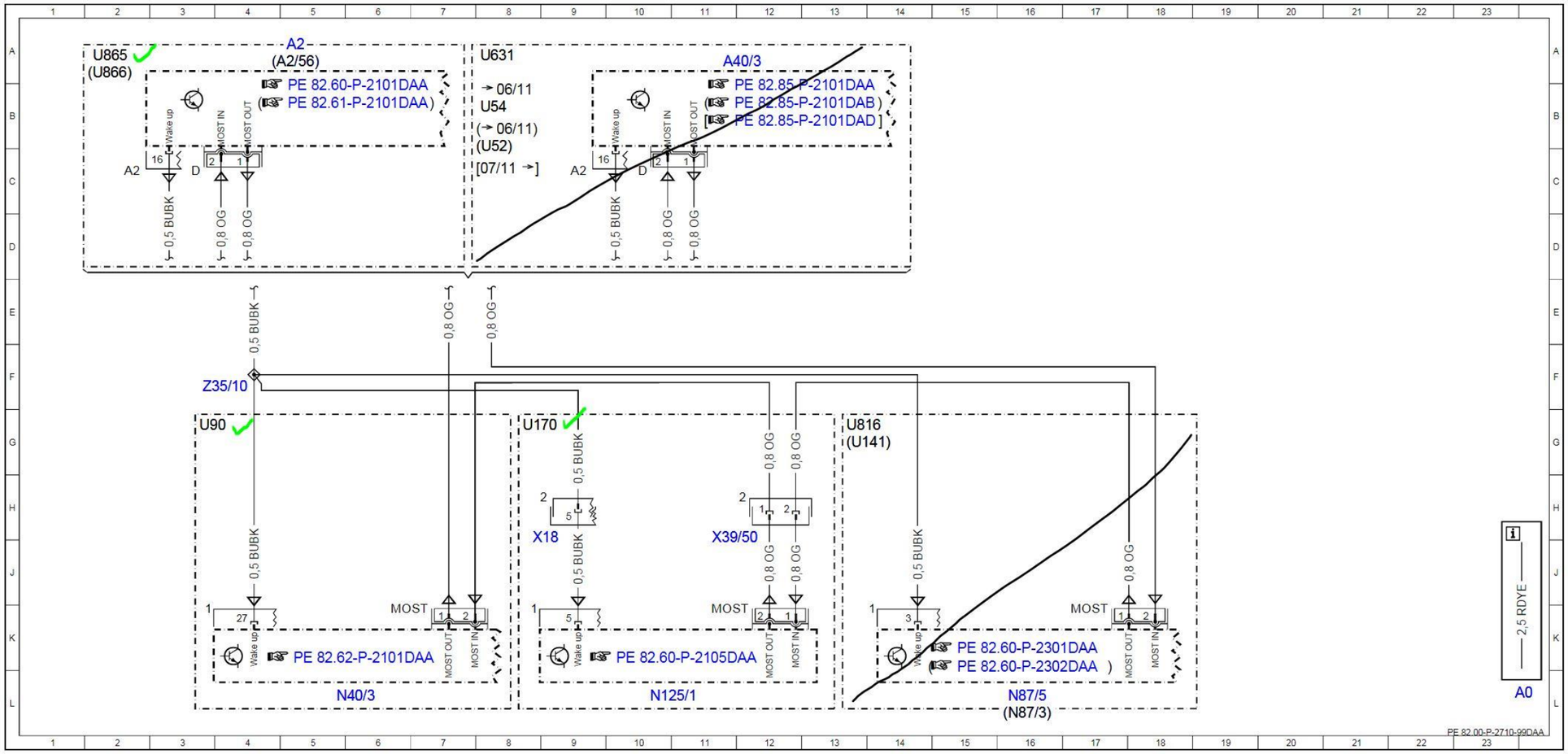
So A2 to N40/3 and N123/1 is strictly MOST communication only. Since MOST is a fiber optic, it is safe to say that it cannot damage other connected components like a shorted CAN BUS able to.



N40/3 for my car is a Code 810 (Premium sound system), it is a power amplifier for most of the speakers .
Diagram is **pe82.62-p-2101-97-daa**
N40/3 also is linked to other modules like N40/9 Rear Bass Speaker Amplifier. There is no CAN BUS for N40/3.
Powered by Rear SAM N10/2 , fuse #67 at 40 amps and the N40/9 9 Rear Bass Speaker Amplifier is powered also by Rear SAM N10/2 from fuse #69 at 25 amps.

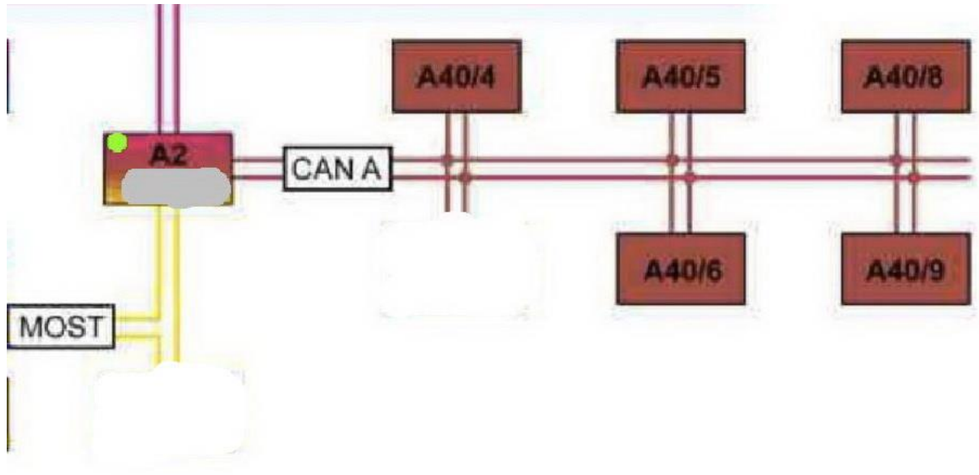
N123/1 is a Code 518 Media Interface Control Unit, diagram **pe82.60-p-2105-97-daa .** Surely here is no CAN BUS for N123/1.
Powered by Rear SAM 10/2, fuse #78 at 7.5 amps.

A2 for my car is Code 510 (Audio 20 with 6 disc CD Changer). Diagram is **pe82.60-p-2101-97-daa**
A2 has 2 CAN BUS, one being CAN A (Telematics CAN) and CAN B (Interior CAN) surely it has the MOST data bus.
Powered by Front SAM 10/1, fuse #26 at 20 amps.



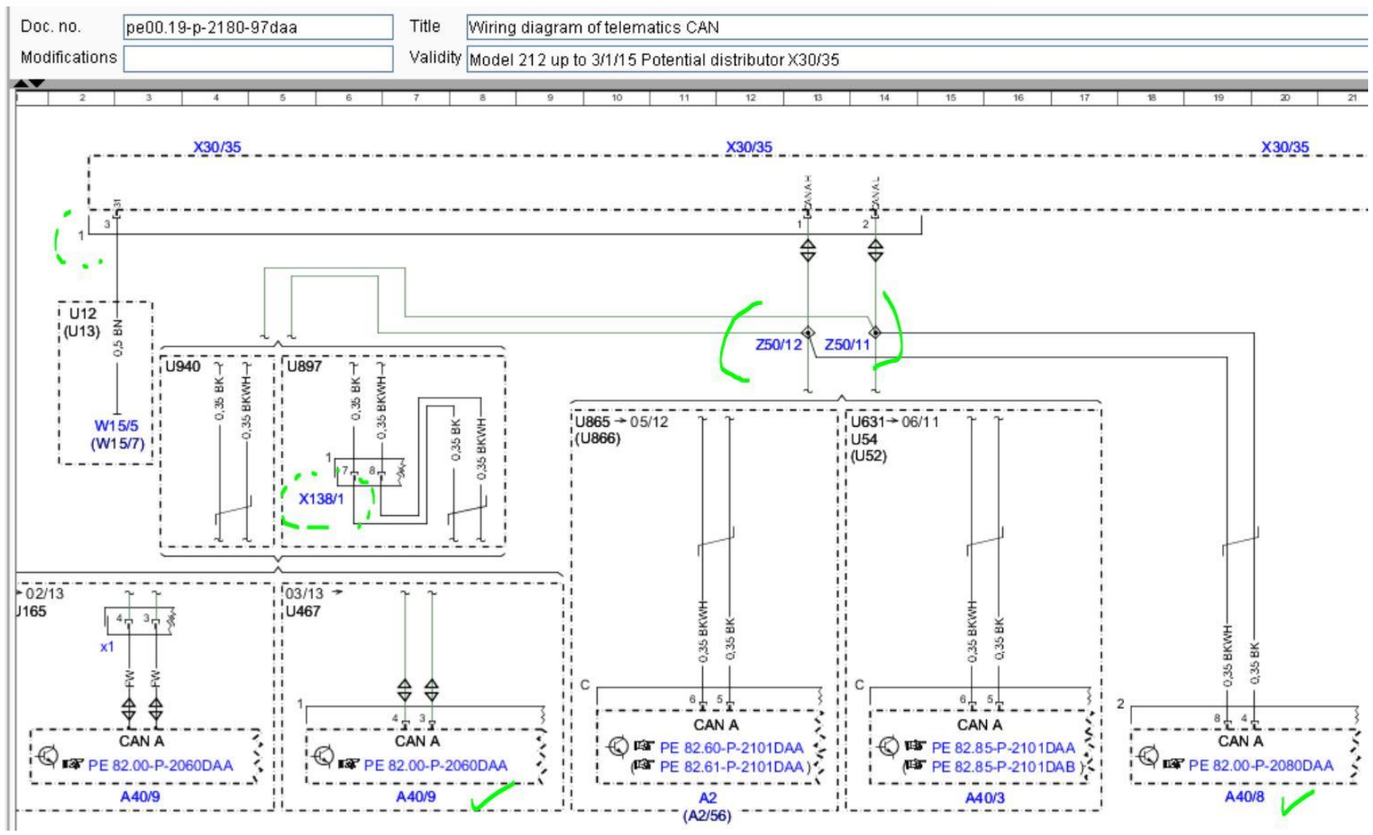
Based on : RWD RHD E400, Model Year 2014. W212.065, engine M276.820 3.0 Turbo. VIN : **WDD2120656L037906**

CAN A , Telematics CAN BUS. Twisted pair wire cable colors are : Black-White & Black 0.35mm



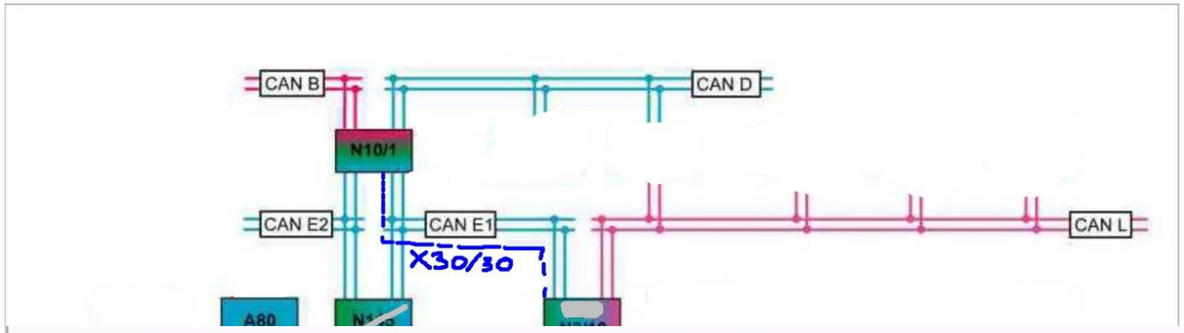
	CAN A, Telematics CAN BUS	
Slot	**X30/35 Distributor**	
4	A40/4 DVD Player (at rear Seat)	
2	Via X55/4 to A40/5 Left Rear Display	
3	Via X55/3 to A40/6 Right Rear Display	
5	A2 Code 510 Audio 20 with 6 disc CD Changer	
1	Z50/12 & Z50/11 >>>	<<< Z50/12 & Z50/11
		A40/8 Audio COMAND display
		Seems Via X138/1 and to A40/9 Audio COMAND Control Panel

pe00.19-P-2180-97daa Wiring diagram of telematics CAN. Model 212 up to 3/1/15 Potential distributor X30/35



Based on : RWD RHD E400, Model Year 2014. W212.065, engine M276.820 3.0 Turbo. VIN : **WDD2120656L037906**

CAN D, Diagnostic CAN BUS or known as OBD. Twisted pair wire cable colors are : Green-White & Green 0.35mm



Pe54.22-p-2000-97daa Wiring diagram for data link connector/diagnostic socket
Model 212 Diagnostic connector X11/4

The CAN D is only available for my car at N10/1 Front SAM.
In WIS to find CAN D, search for DIAGNOSTIC and not under CAN BUS

Doc. no. pe54.22-p-2000-97daa
Modifications
Title Wiring diagram for data link connector/diagnostic socket
Validity Model 212 Diagnostic connector X11/4

X11/4 X11/4 X11/4
03/15 → Code 531 (Code 505 / Code 522)
U12 (U13) U75 U880 U948
0,75 BN 1,0 BNWH 1,0 BNWH 1,0 BNWH
W15/2 (W15/1) W16/5 W3/1 W16/6
0,75 RDGN 0,5 GYWH 0,5 GY
0,35 WHBK 0,35 BU 0,35 BUBK 0,35 PK 0,35 GN
U938 (U939) → 02/13
0,5 YERD
PE 42.47-P-2000DAA
PE 42.47-P-2000DAB)
N30/4
15H PE 54.21-P-2108DAG N10/2
19I CAN D PE 54.21-P-2106DAG N10/1
C PE 82.85-P-2101DAF A40/3

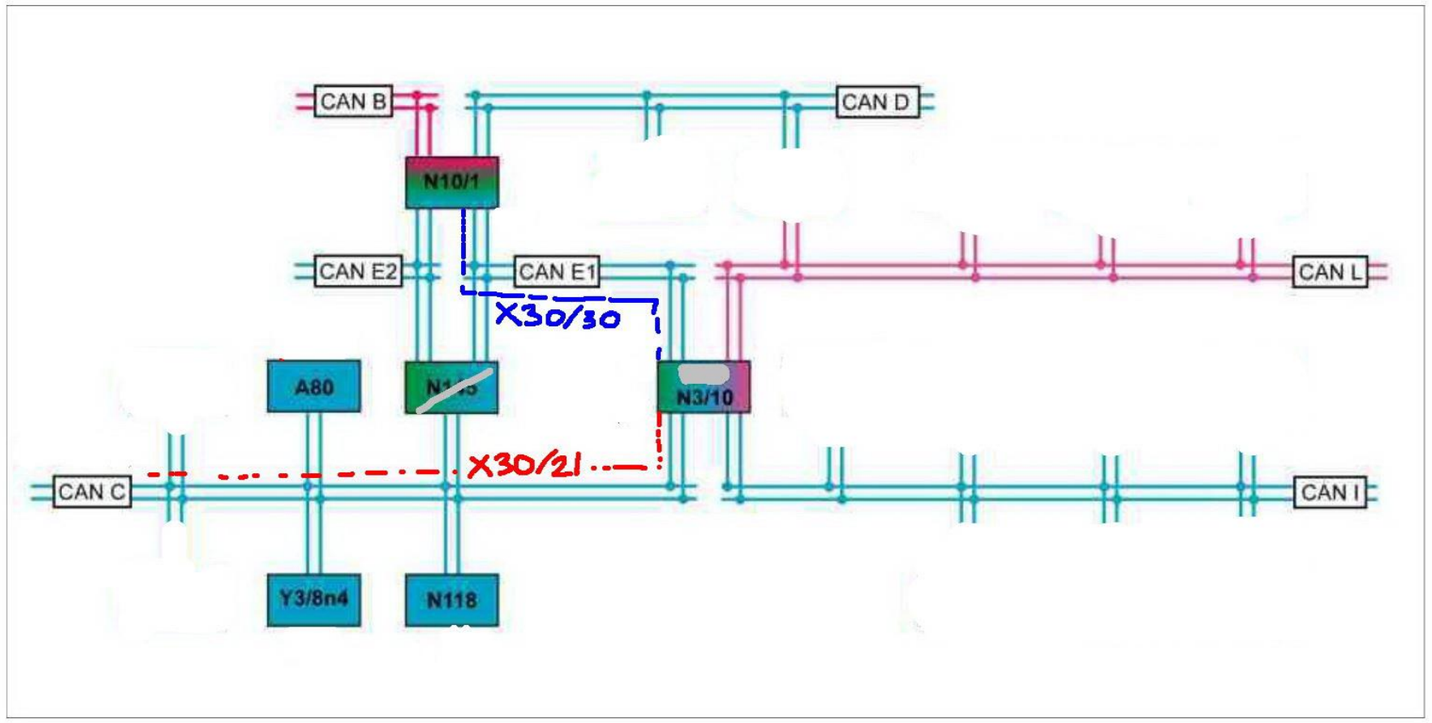
Legend

A2	Radio
A40/3	COMAND control unit
CAN D	Diagnostic CAN
Code 505	Radio 20 NTG5, non-navigation-capable
Code 522	Audio 20 radio
Code 531	COMAND APS
N10/1	Front SAM control unit with fuse and rela
N10/2	Rear SAM control unit with fuse and relay
N10/2f73	Fuse 73
N30/4	Electronic Stability Program control unit
N30/7	Premium Electronic Stability Program cont
U12	Valid for left-hand drive vehicles
U13	Valid for right-hand drive vehicles
U75	Valid for gasoline engines
U880	Valid for diesel engine 642
U938	Valid for ESP Basic
U939	Valid for ESP Premium
U948	Valid for diesel engine 651
W15/1	Right footwell ground point
W15/2	Left footwell ground point
W16/5	Left major assembly compartment electroni
W16/6	Right major assembly compartment ground p
W3/1	Ground point (right front wheel well)
X11/4	Diagnostic connector
X11/4	Diagnostic connector

Search
Codes only
Find next

Based on : RWD RHD E400, Model Year 2014. W212.065, engine M276.820 3.0 Turbo. VIN : **WDD2120656L037906**

CAN C, Drive train CAN. Twisted pair wire cable colors are : Blue-White & Blue 0.35mm



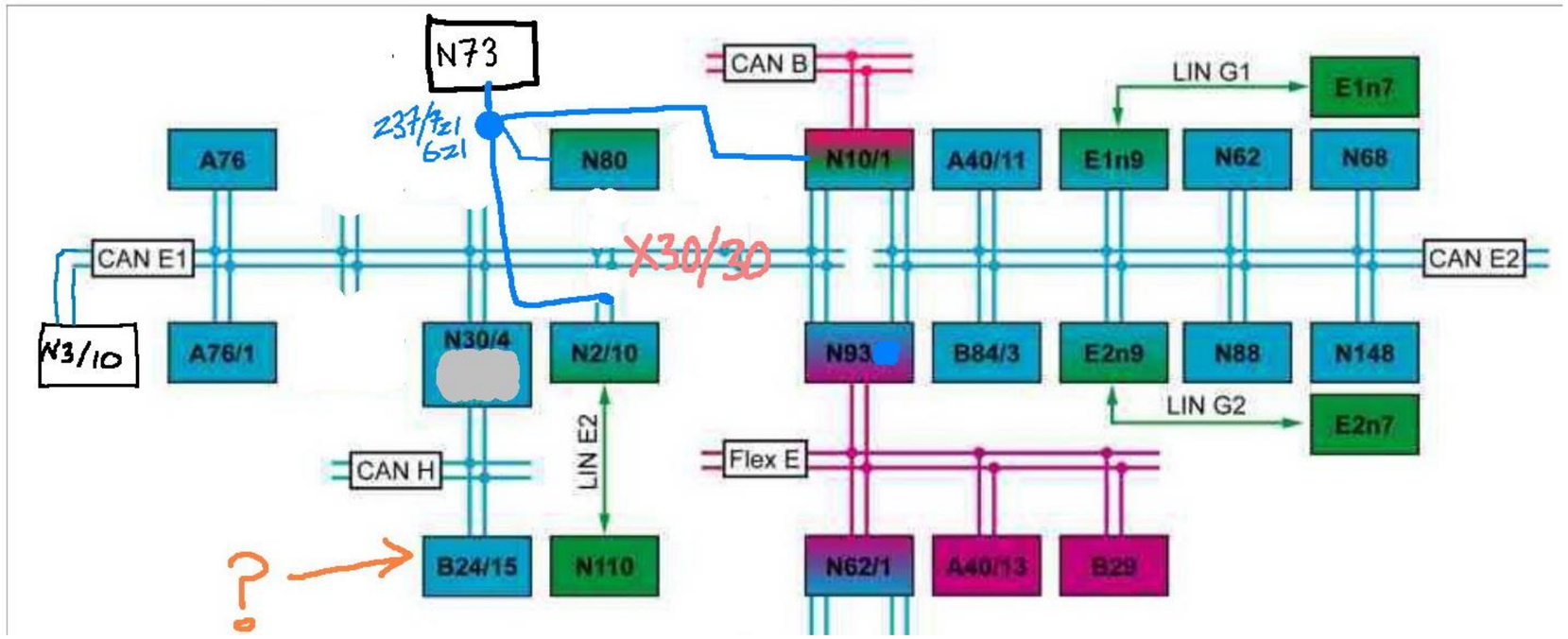
	CAN C, Drivetrain CAN
Slot	**X30/21 Distributor**
1	N3/10 Engine computer gasoline
2	N118 Fuel Pump Control Unit
3	Y3/8n4 Fully integrated trasnmission control unit 722.9
5	A80 Intelligent servo modue for DIRECT SELECT

PE00.19-p-2170-97daa Wiring Diagram of drive train CAN. Model 212 Potential distributor X30/21, sheet 1
PE00.19-p-2170-97dab Wiring Diagram of drive train CAN. Model 212 Potential distributor X30/21, sheet 2

CAN L is Hydrid model related, so not relevant for me
CAN I is Drive train sensor CAN , it handles unique sensors for like Code 920 Nox sensors, Code U42 BlueTec diesel exhaust treatment and some others. So not relevant for me.

Based on : RWD RHD E400, Model Year 2014. W212.065, engine M276.820 3.0 Turbo. VIN : **WDD2120656L037906**

CAN E1 or simply CAN E, known as Chassis CAN 1. Twisted pair wire cable colors are : Green-White & Green 0.35mm



	CAN E1 or CAN E, Chassis CAN 1	
Slot	**X30/30 Distributor**	
1	N30/4 ESP Basic	
2	N10/1 Front SAM	
3	N3/10 Engine computer, gasoline M276.820	
5	A76 Left front reversible emergency tensioning retractor	
6	A76/1 Right front reversible emergency tensioning retractor	
10	N93/7 Chassis gateway control unit	
4	N10/1 Front SAM , connector 7i pin 8 & 9 >>>	<<< N10/1 Front SAM, connector 11c pin 5 & 3 >> Z37/6z1 and Z37/7z1
		N80 Steering column module control unit
		N73 Electronic ignition switch control unit
		N2/10 Supplemental restraint system control unit

PE00.19-p-2195-97dac Wiring diagram of chassis CAN. Model 212 as of model year 2014. Potential distributor X30/30, sheet 1

PE00.19-p-2195-97dad Wiring diagram of chassis CAN. Model 212 as of model year 2014. Potential distributor X30/30, sheet 2

N93 or N93/7 is the same. However Xentry and Autel call it N93. WIS call it N93/7.
In the Overall network (GVN) function document, it is written as N93/7

B24/15 is Yaw rate, lateral and longtitudinal acceleration sensor. As per Xentry I do not have it.

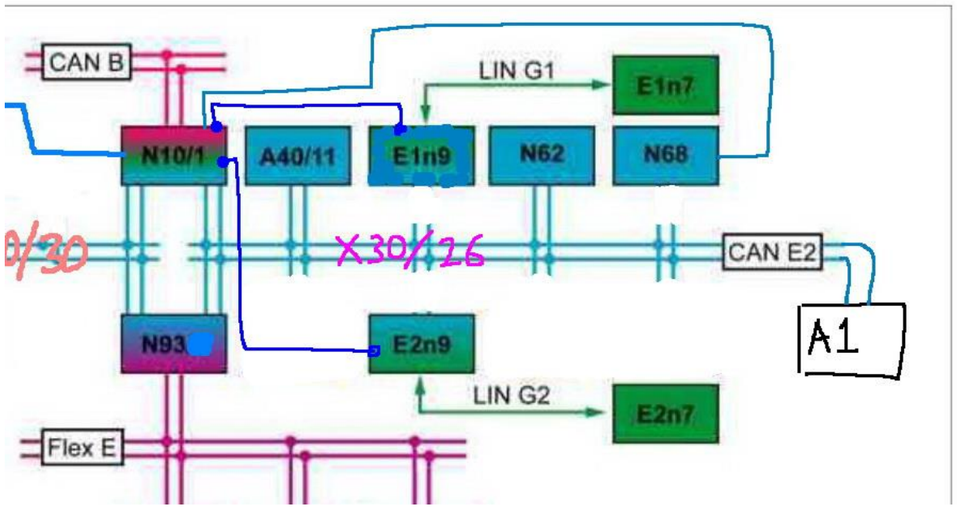
N110 is the *Weight sensing system (WSS) control unit (with CODE U10) (Front passenger seat with weight sensing). This is using LIN.*

Unlike page 2 (CAN B, Interior CAN) which I did not improvise drawing the extra connectors Z37/??, in this page for CAN E, I made it a point to draw and show for clarity sake to show the extra Z37/7z1 and 6z1 interconnection. Because when we do troubleshooting and assuming the WIS diagram is accurate, actual wire routing and any additional splice or mini junction box or connector is important to know.
Mode of failure can be visualized easier with accurate wire routing or some may call it as built-drawing.

It only takes 1 device/module with a shorted CAN BUS, if all are sharing a distributor box like X30/30 , all the devices connected here can default to auto shut down for protection and one may be misled that many modules went “bad” for being offline (like playing dead). For this very reason I made the excel table for the actual wire routing & connection of all the CAN BUS-es, this is for easy representation of what-s connected to where-s.

Based on : RWD RHD E400, Model Year 2014. W212.065, engine M276.820 3.0 Turbo. VIN : **WDD2120656L037906**

CAN E2 , Chassis CAN 2. Twisted pair wire cable colors are : Yellow-White & Yellow 0.35mm



	CAN E2 , Chassis CAN 2	
Slot	**X30/26 Distributor**	
1	N10/1 Front SAM	
2	Via X83/11 to A1 Instrument Cluster	
4	A40/11 Multifunction camera, Code 235	
6	N83 Parking System Control Unit. Code 220 PARKTRONIC	
9	N93/7 Chassis gateway control unit	
3	N10/1 Front SAM , connector 19i pin 2 & 4 >>>	<<< N10/1 Front SAM, connector 18M pin 18 & 9 to N68 Electric Power Steering
		From N10/1 connector 21M pin 1 & 2 to E1n9 Left Headlamp Control unit
		From N10/1 connector 20M pin 2 & 3 to E2n9 Right Headlamp Control unit

pe00.19-p-2195-97dae Wiring diagram of chassis CAN. Model 212 as of model year 2014. Potential distributor X30/26
pe54.21-p-2106-97dab Wiring Diag of Front SAM *** N10/1. Model 212 sheet 2.
pe82.10-p-2000-97dac or dad Wiring Diag of exterior lights *** Code 641/642 Left and Right side , E1/* and E2/*

Yes, the Left and Right Headlights are not using X30/26 distibutor. E1/* and E2/* are headlights designations for MB's. I have option 641 Dynamic LED or better known as ILS.

NOTE : When using N10/1 Front SAM diagram or Code 641/2 Dynamic LED diagram , please take note that CAN E2 at some pins are still called CAN G.
W212 up to 28th Feb 2013 uses CAN G designation and there was no CAN E2 yet.
W212 starting 1st March 2013 uses CAN E2 designation and gone is the CAN G.

CAN H , Vehicle Dynamics CAN and **Flex H** the Chassis Flexray Network
My car does not have the options requiring these network.

	GATEWAYS - Actual Gateways or capable of being a Gateway	CAN BUS-es
1	N10/1 Front SAM	B, D, E1 & E2
2	N3/10 Engine computer	C & E1
3	N93 Chassis Gateway	E1 & E2
4	A2 Audio System Head Unit	A & B
5	A1 Instrument Cluster	B & E2
6	N73 Electric Ignition Switch	B & E1
7	N30/4 If ESP Premium, mine is ESP Basic so CAN H not in use	E1 & H

CAN BUS TWISTED WIRE PAIRS COLORS - QUICK SUMMARY

CAN A , Telematics CAN BUS. Twisted pair wire cable colors are : Black-White & Black 0.35mm

CAN B , Interior CAN. Twisted pair wire cable colors are : Brown-Red & Brown 0.35mm

CAN C, Drive train CAN. Twisted pair wire cable colors are : Blue-White & Blue 0.35mm

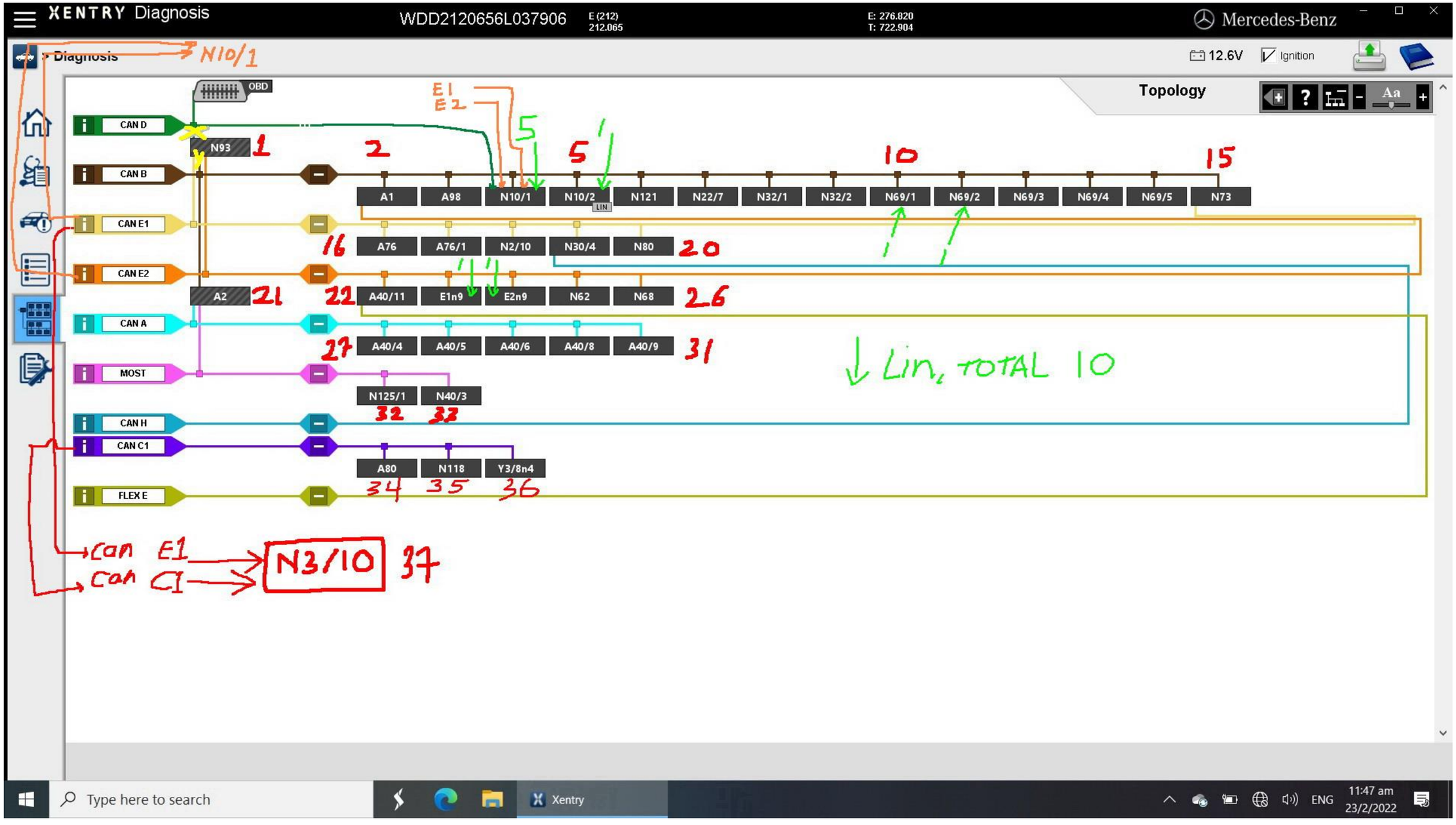
CAN D, Diagnostic CAN BUS or known as OBD. Twisted pair wire cable colors are : Green-White & Green 0.35mm

CAN E1 or simply CAN E, known as Chassis CAN 1. Twisted pair wire cable colors are : Green-White & Green 0.35mm

CAN E2 , Chassis CAN 2. Twisted pair wire cable colors are : Yellow-White & Yellow 0.35mm

Xentry version of Network Topology. It has some errors too.

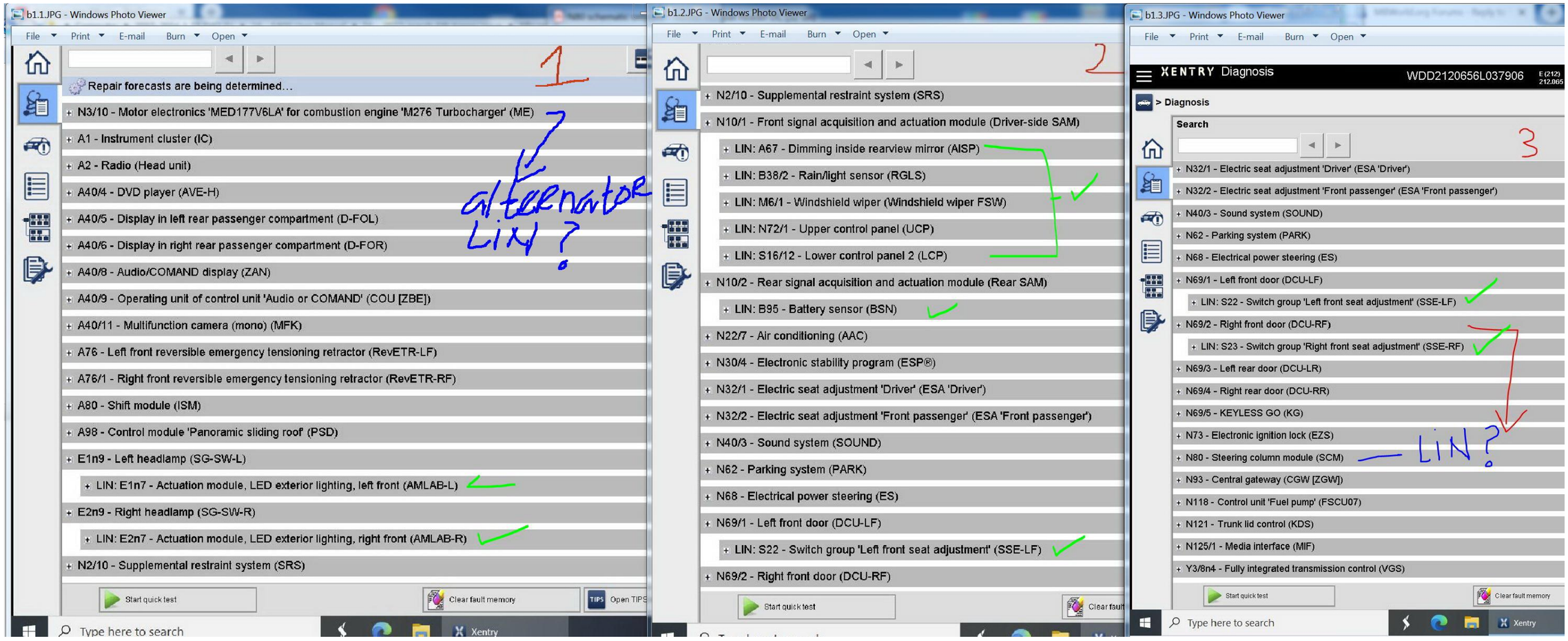
01. N93 does not connect to CAN D (Diagnostic CAN) and also does not connect to CAN B (Interior CAN), so those 2 mistakes can confuse Xentry user/s. I cross **X** in yellow for the 2 mistakes.
02. I don't understand how the most important module, which is the engine computer N3/10 is not shown on the Topology ?
03. N10/1 Front SAM connects to CAN B, D, E1 and E2, as to why Xentry only shows it being connected to CAN B is a very big WTF ?



Based on : RWD RHD E400, Model Year 2014. W212.065, engine M276.820 3.0 Turbo. VIN : **WDD2120656L037906**

Based on : RWD RHD E400, Model Year 2014. W212.065, engine M276.820 3.0 Turbo. VIN : **WDD2120656L037906**

LIN devices on my car and how the Xentry or other scanner are seeing it, ina quick test. Some LIN connected devices/modules are not discoverable untill you go to each module and run some test.
Example N80 – Steering Column module, it has a switch interface boar called N135 at the steering wheel using LIN which can be tested but must be at the N80 module directly and not during general scan.

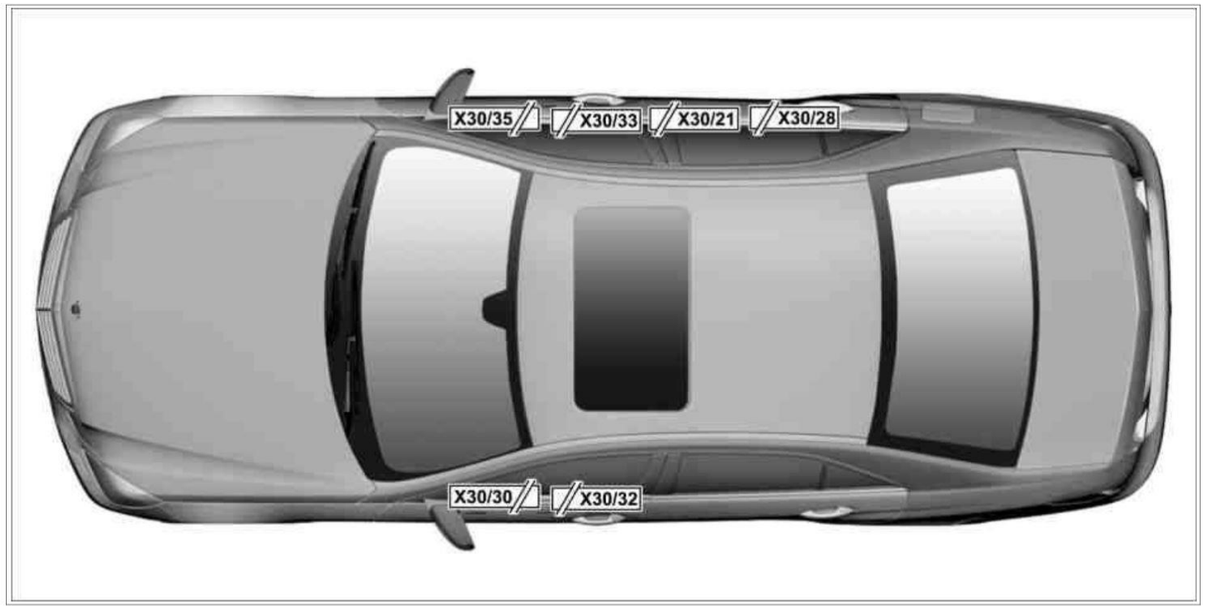


CAN CONNECTORS/DISTIBUTORS , LOCATION

All on the floor near doors.

GF00.19-P-0800FL	**CAN electrical connector, as-built configuration**	**18.12.08**

MODEL 212.0



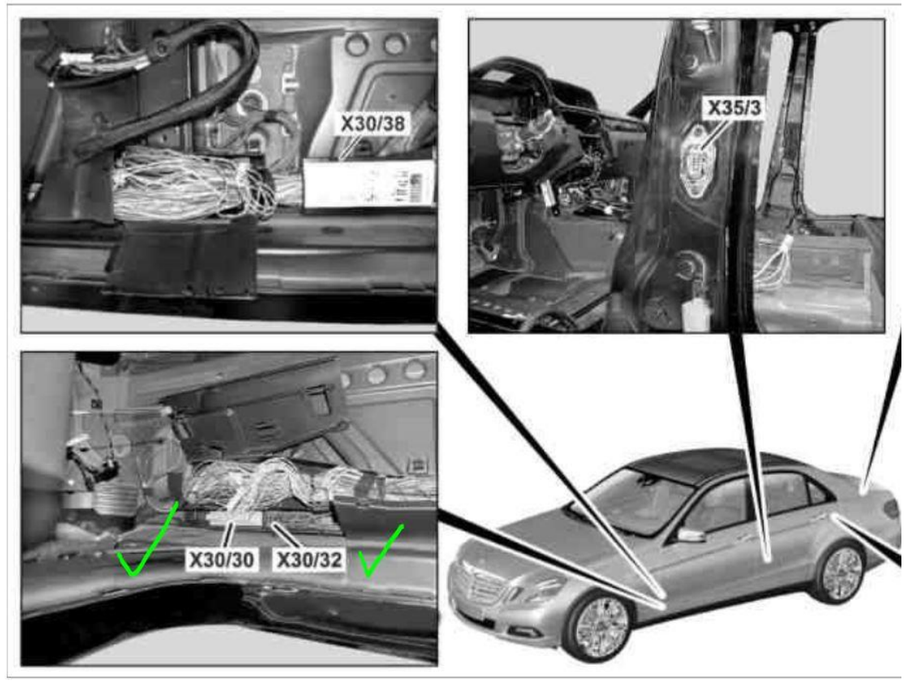
P00.19-4422-09

Shown on model 212.0

X30/21	*Drive train CAN voltage distributor electrical connector*	*X30/30*	*Vehicle floor chassis CAN voltage distributor electrical connector*	*X30/33*	*Right vehicle floor interior CAN voltage distributor electrical connector*
X30/28	*Vehicle dynamics CAN voltage distributor electrical connector*	*X30/32*	*Left vehicle floor interior CAN voltage distributor electrical connector*	*X30/35*	*Telematics CAN voltage distributor electrical connector*

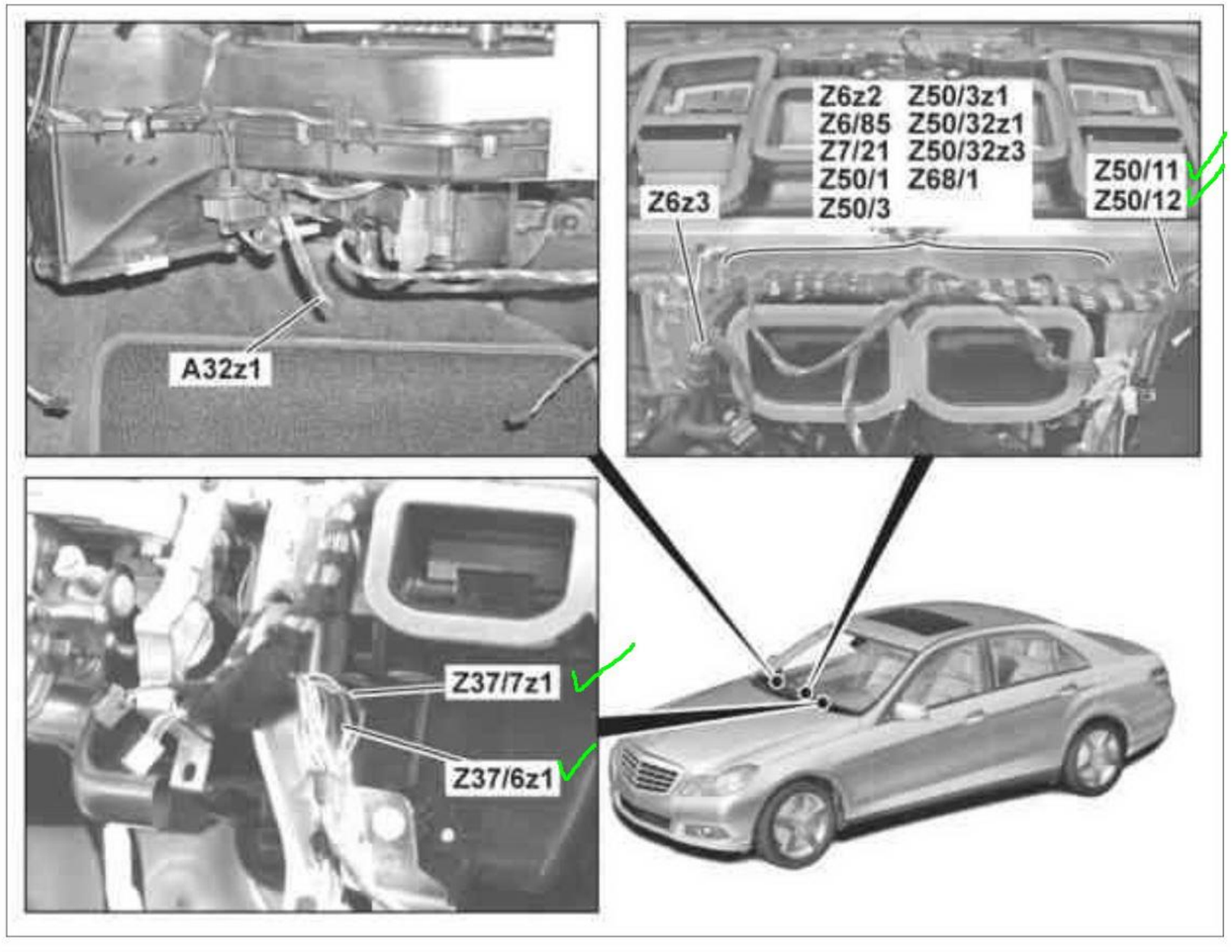
GF00.19-P-1000-04DAA	Location and assignment of line and plug connectors, interior compartment, left	

Model 212



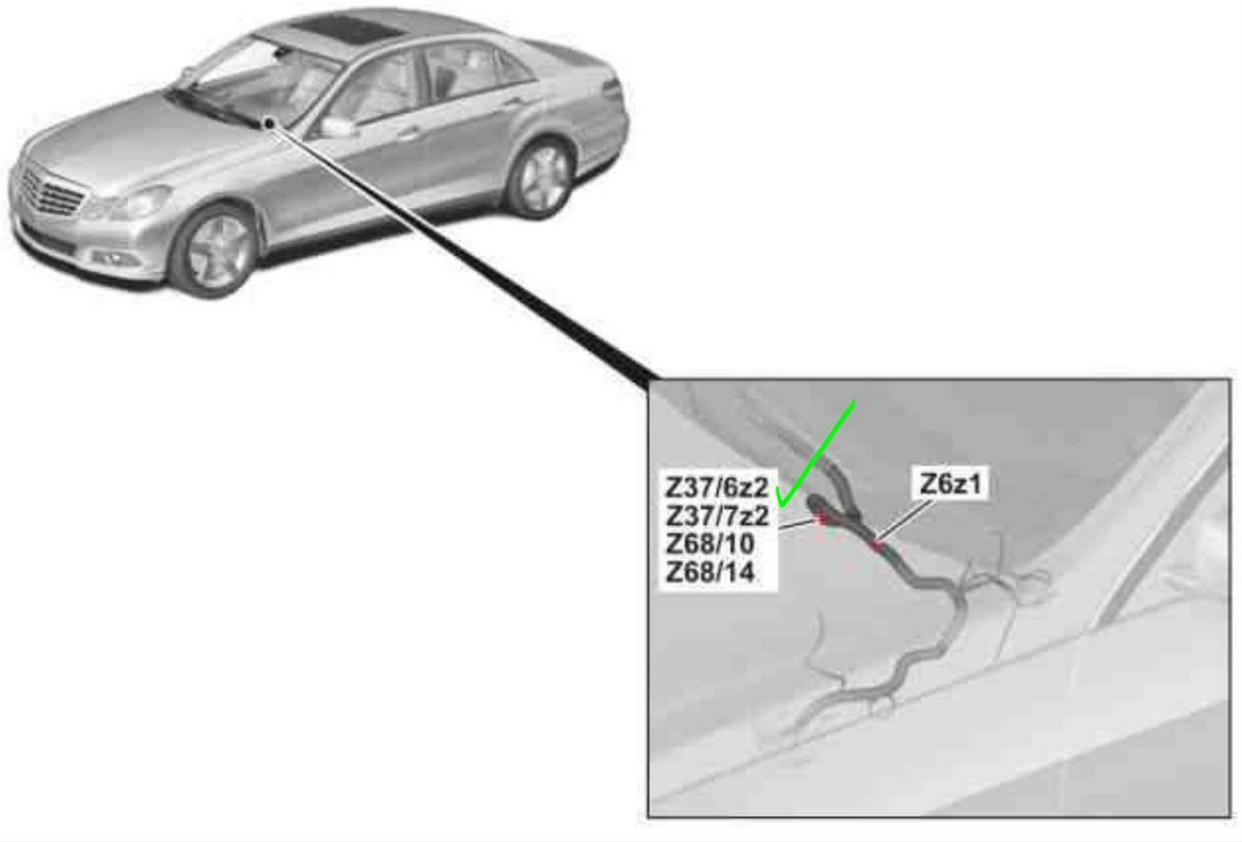
GF00.19-P-3000-03DAA	Location and assignment of Z connector sleeves (cable connections in wiring harness) - cockpit		

Model 212

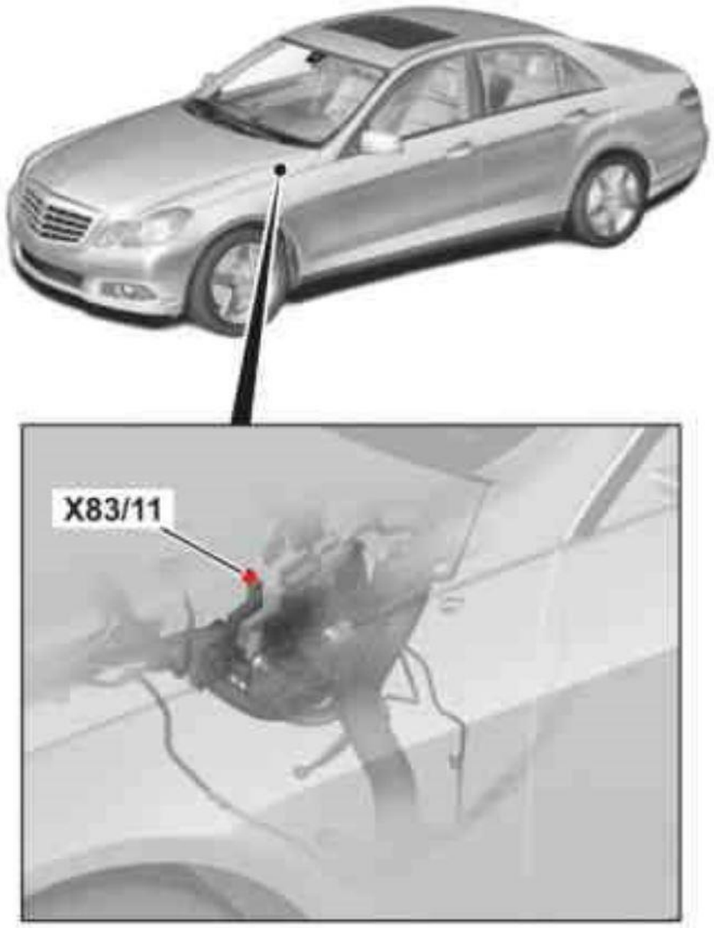


P00.19-4607-06

CAN BUS - SPLICE/BRANCHING CONNECTORS, The “Z” , LOCATION



P00.19-5871-79



END – Last edited 14th March 2022