



Mercedes Benz EVO Instrument Cluster Retrofit Adapter

Installation Guide

WARNING

This device is designed solely for use by properly trained and qualified automotive electronics experts, who are familiar with the dangers related to handling electrical equipment and systems. This manual intends to serve as a guide in the installation of adapter, failure to follow these instruction could result in a hazardous condition, destruction of car equipment and the retrofit adapter.

**DISCONNECT ANY CHARGING EQUIPMENT BEFORE
INSTALLATION AND CODING:
CAR BATTERY CHARGER, NOTEBOOK CHARGER, ETC.**

There are NO user serviceable parts contained in the retrofit adapter. Unscrewing or opening your adapter will render your warranty void. If your retrofit adapter require repair, please contact us directly and we will assist you.

The manufacturer is not legally responsible for any equipment damage or personnel injury caused by incorrect installation by unqualified technicians.



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Preface

This document will help you install the Mercedes Benz EVO Instrument Cluster Retrofit adapter for Mercedes Benz S-class cars 2013-2016



Instrument Cluster and Display before facelift



Instrument Cluster and Display after facelift

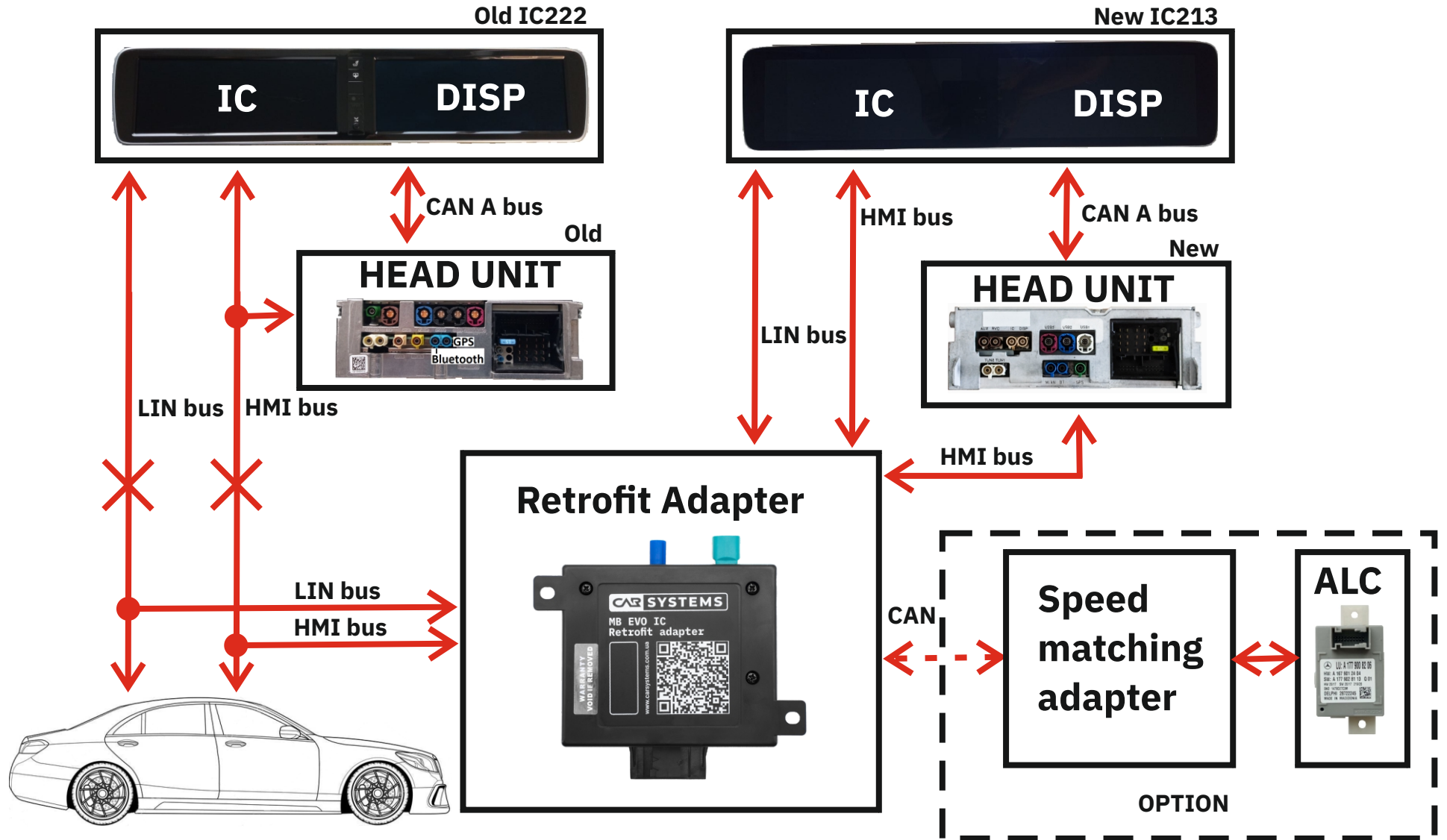
Audience

This document is intended for CarSystems customers, partners, and employees to get familiar with Extended Mercedes Benz EVO Instrument Cluster Retrofit Adapter. It provides instructions and graphical content for a user to get started with his first installation.

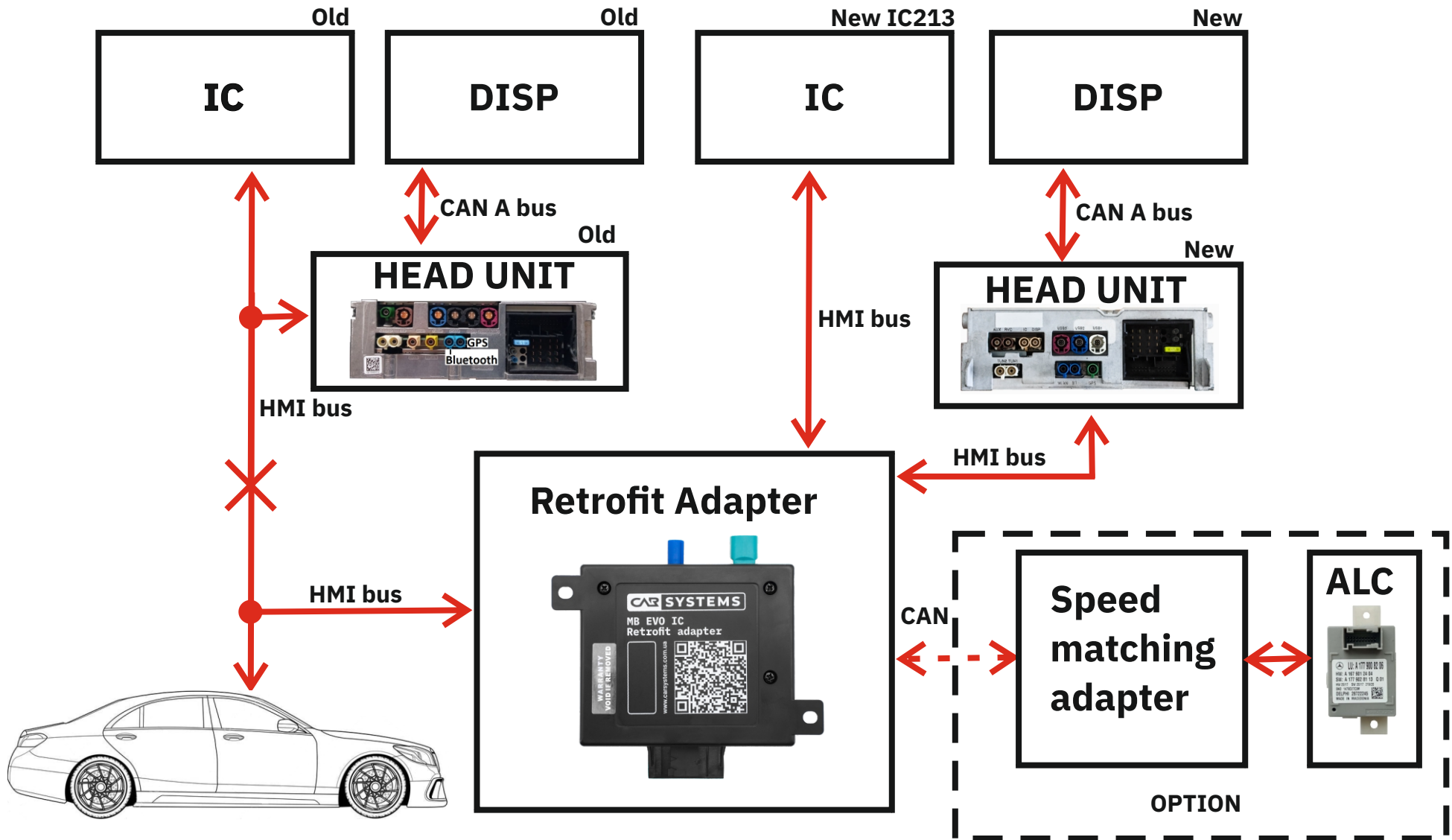
Pre Installation Skills

This document expects that you are familiar with automotive electronics, knowledge and experience in that field. High automotive diagnostic skills are welcome.

Facelift Block Diagram for W222, W217



Facelift Block Diagram for W205, W253, W190

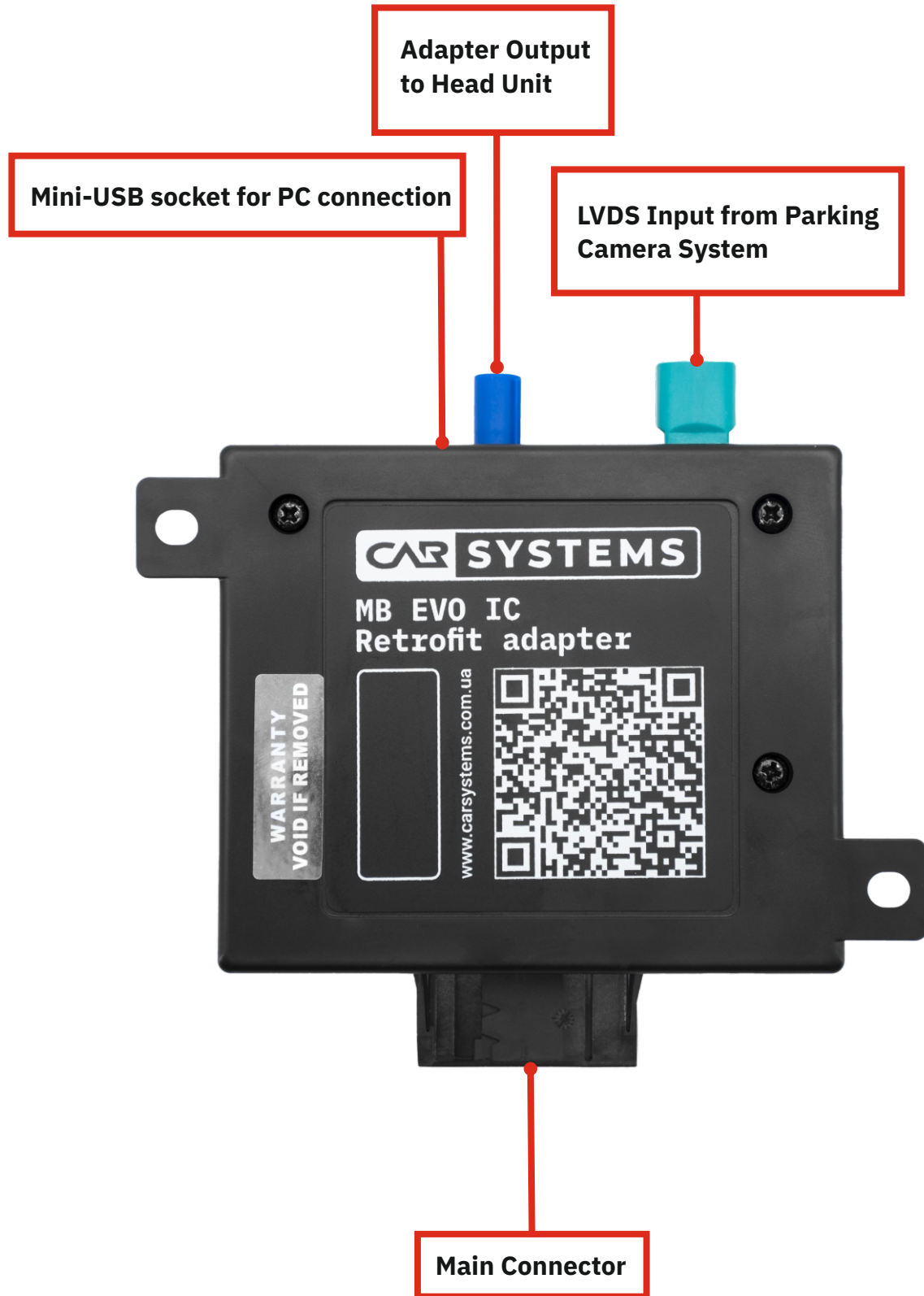


Location

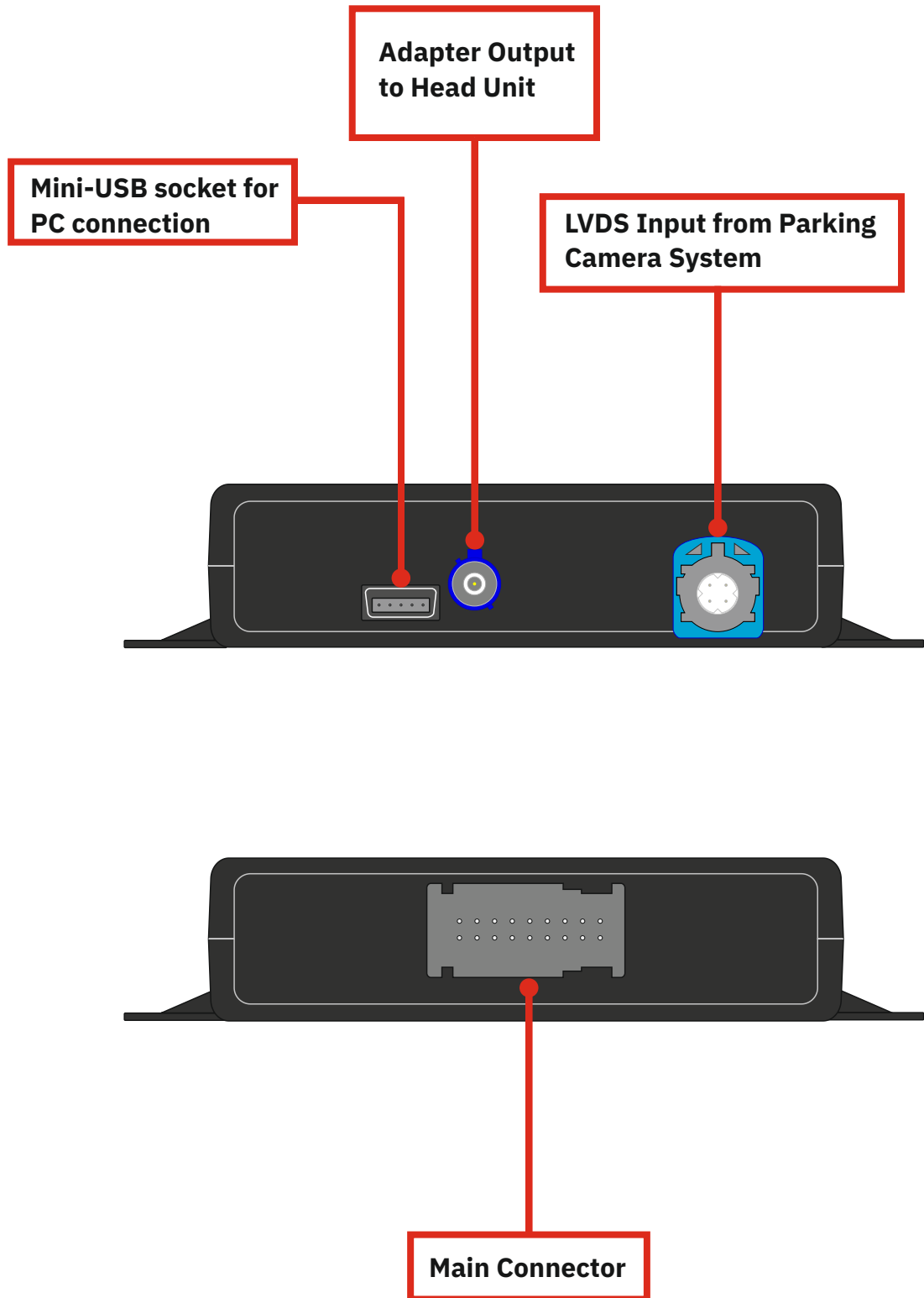
Recommended location for adapter installation is behind the driver-side fuse and relay module.



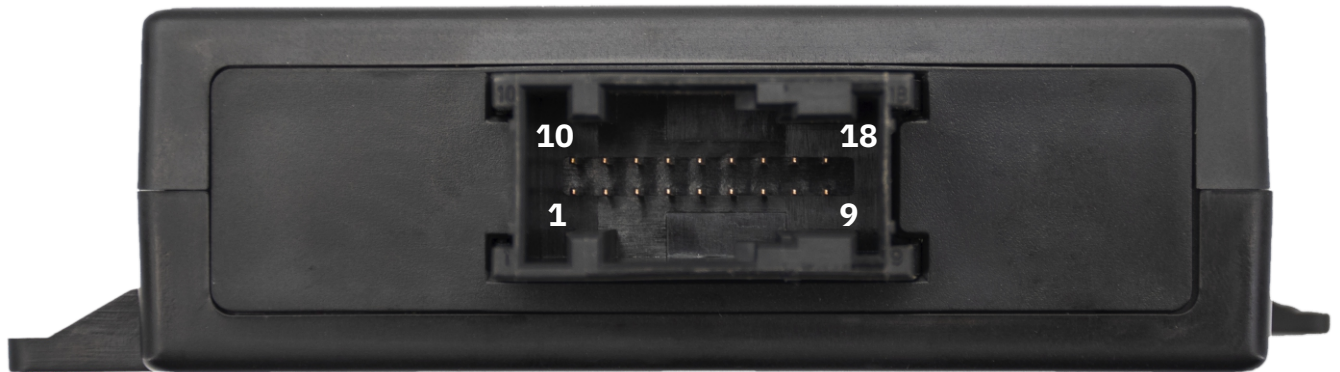
Retrofit Adapter connection points and indication



Retrofit Adapter connection points and indication (continuation)

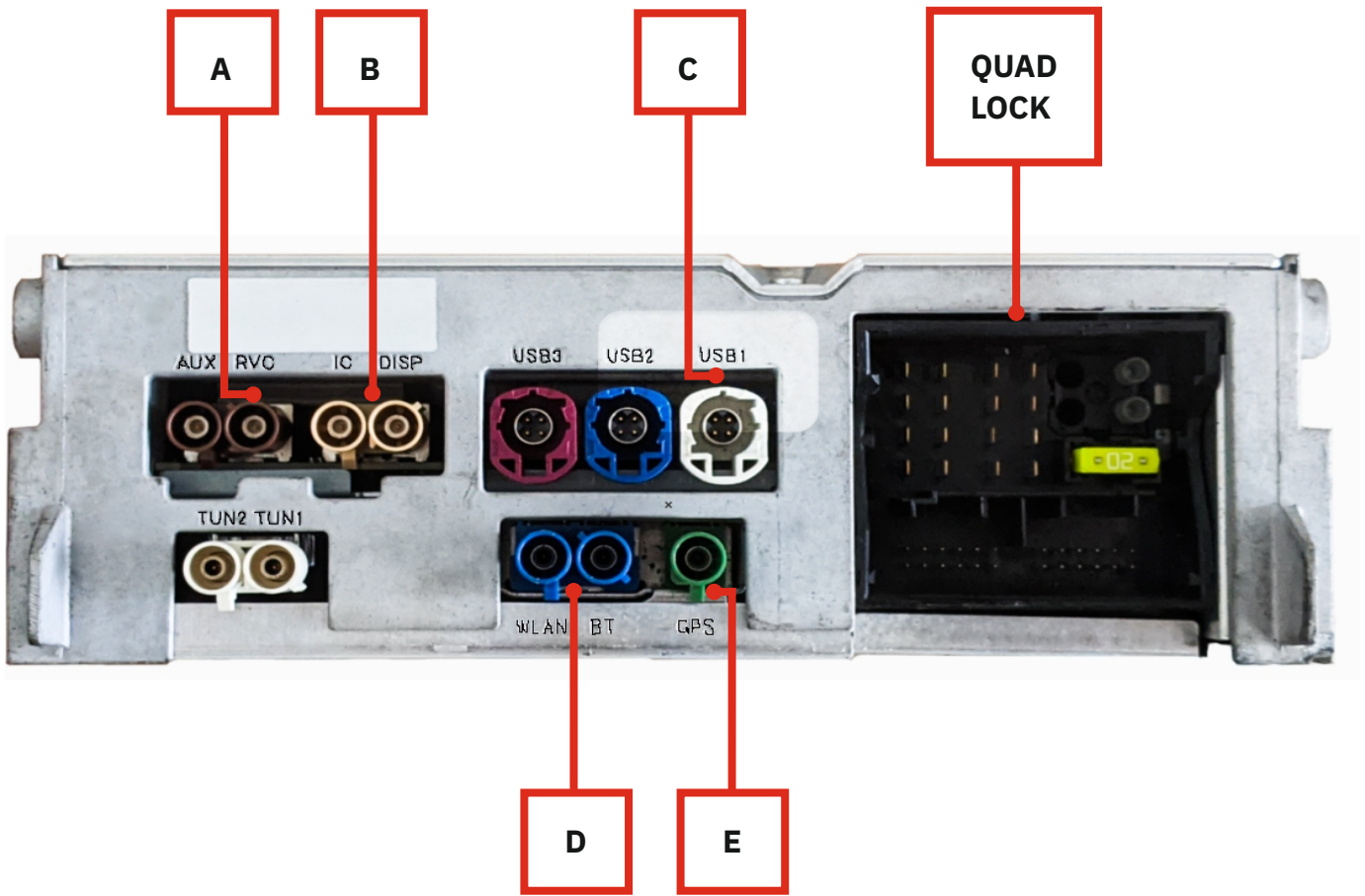


Retrofit Adapter main connector pinout

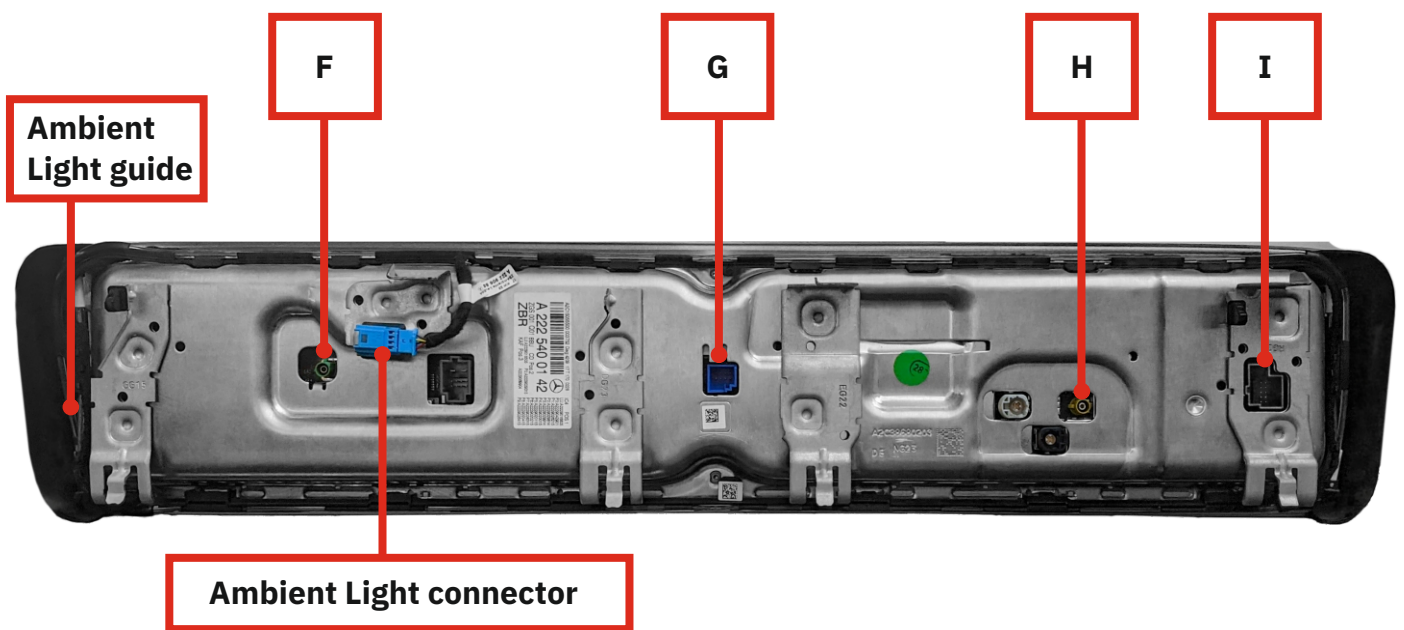


Pin	Pin name	Wire color	Description	
1	KL31	black	Negative terminal (GND)	
10	KL30	red	Positive terminal (+12V)	
2	OUT1	black/white	Heartbeat Led	
3	N.C.		Not connected	
4	N.C.		Not connected	
5	N.C.		Not connected	
8	CAN1	Hi	yellow	CAN Hi from old Instrument Cluster (car harness)
17		Lo	blue	CAN Lo from old Instrument Cluster (car harness)
9	CAN2	Hi	yellow/black	CAN Hi to new Instrument Cluster
18		Lo	blue/black	CAN Lo to new Instrument Cluster
6	CAN3	Hi	yellow/black	CAN Hi to Head Unit
15		Lo	yellow	CAN Lo to Head Unit
7	CAN4	Hi	grey/white	CAN Hi to car OBD connector
16		Lo	grey	CAN Lo to car OBD connector
11	N.C.		Not connected	
12	N.C.		Not connected	
13	LIN2	green/white	LIN to Driver Assist. Switch (see repining page 19)	
		green/white	LIN to Instrument Cluster Airbag Display connector	
14	LIN1	green	LIN from Driver Assist. Switch connect. (car harness)	

New Head Unit connection points



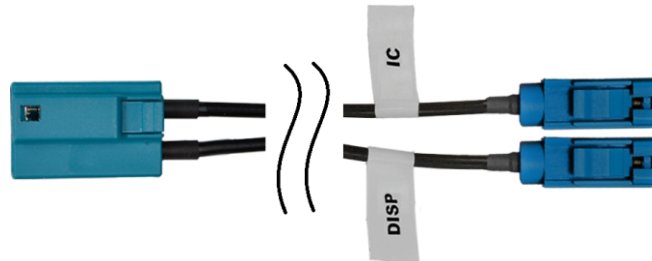
New Instrument Cluster connection points



Cables

Display Video cable

From point "B" of New Head Unit Connector

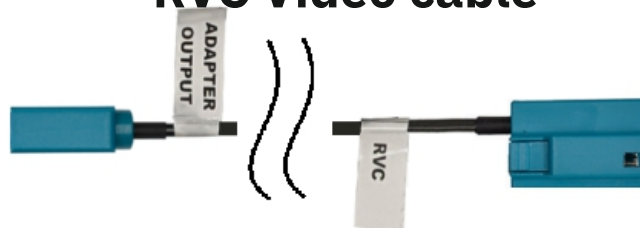


To point "H" of New Instrument Cluster Connector

To point "F" of New Instrument Cluster Connector

RVC Video cable

From "Adapter Output" IC Retrofit Adapter Connector



To point "A" of New Head Unit Connector

CAMERA LVDS cable

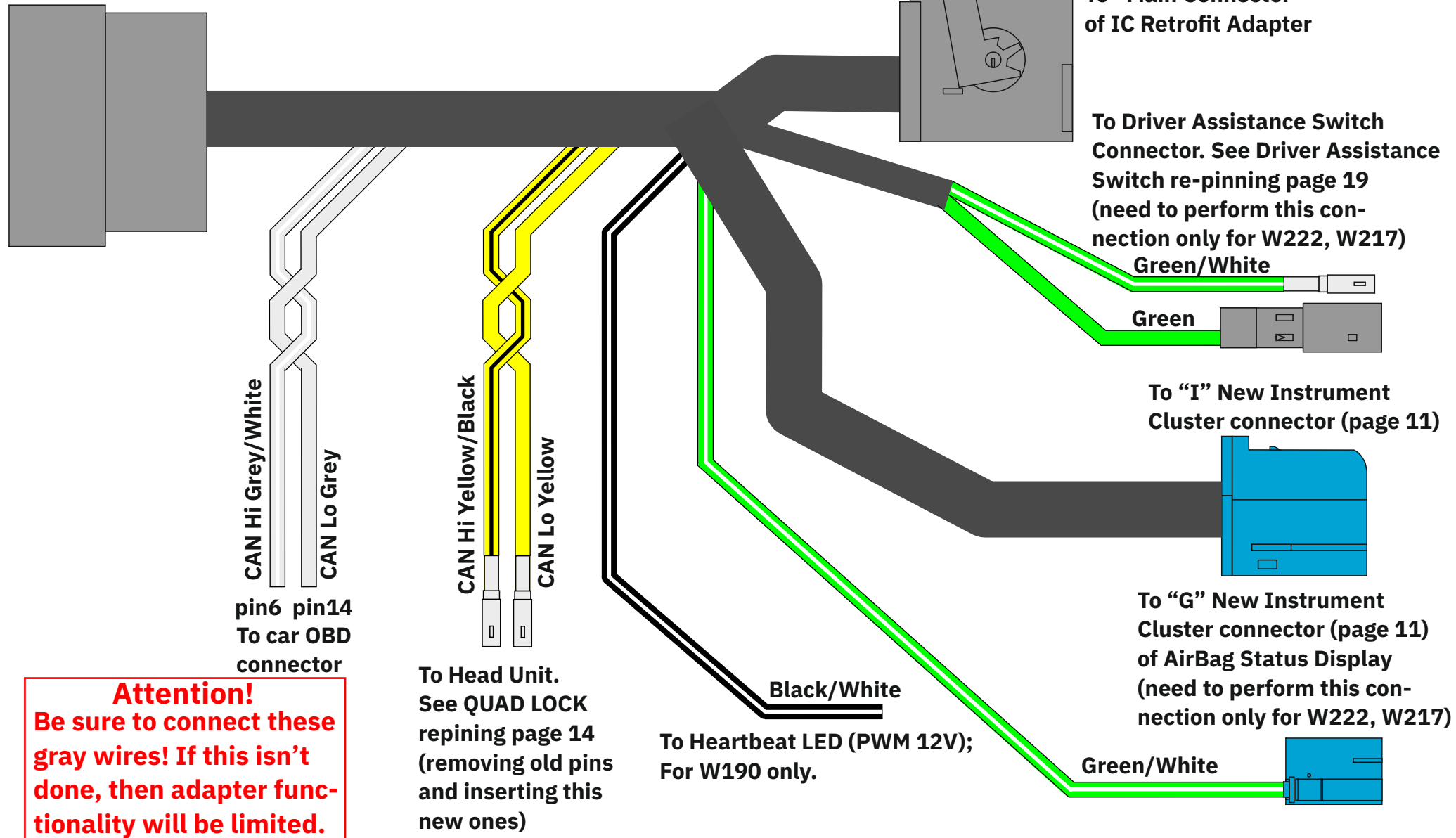
From CAMERA LVDS Cable from car side.
See Camera LVDS cable preparing page 18



To "LVDS Input" IC Retrofit Adapter connector

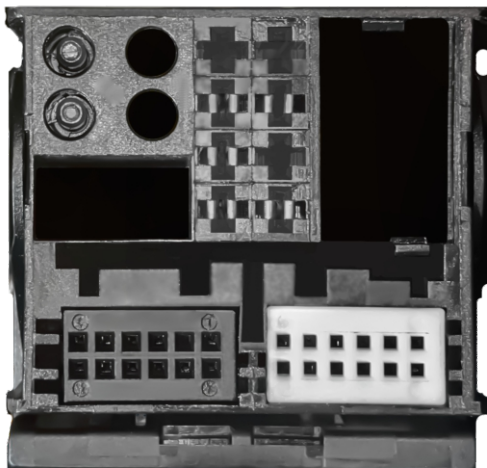
Wiring harness

To Old IC connector from car side



Attention!
 Be sure to connect these gray wires! If this isn't done, then adapter functionality will be limited.

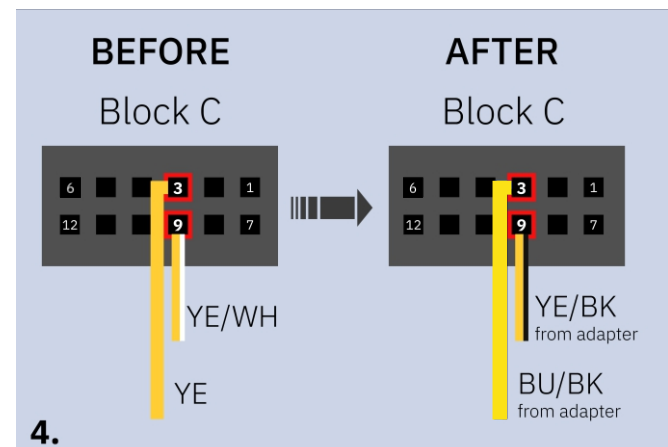
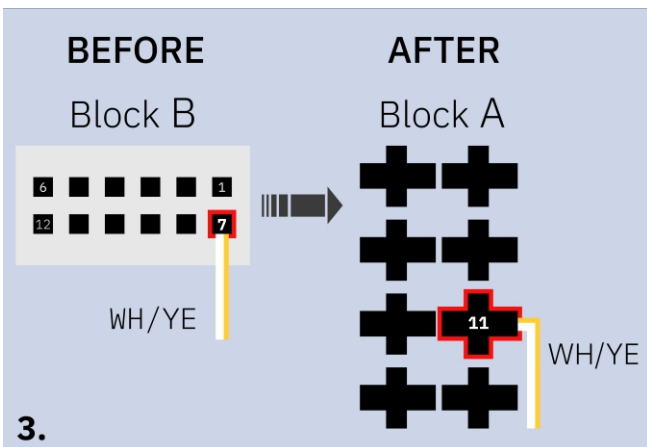
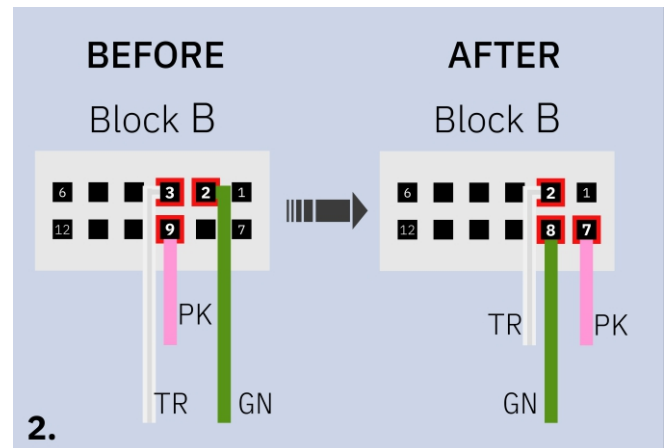
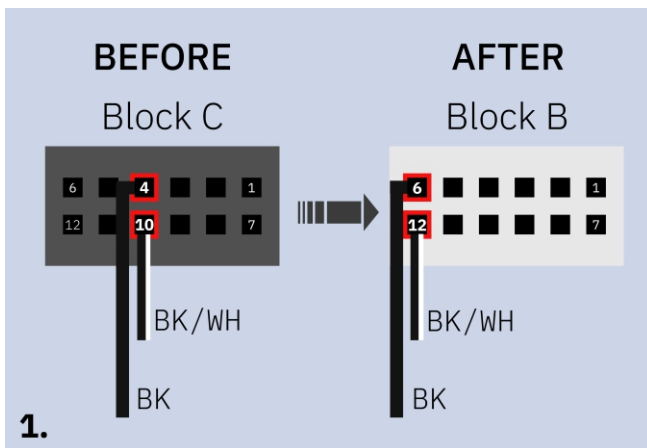
QUAD LOCK re-pinning



Move pins in QUAD LOCK connector which used in the HEAD UNIT NTG 5.5

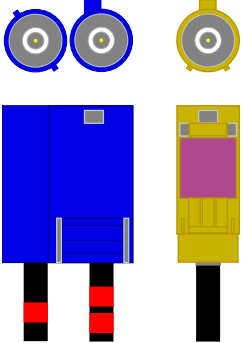
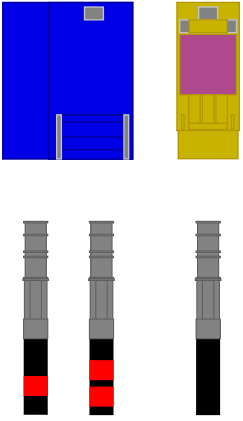
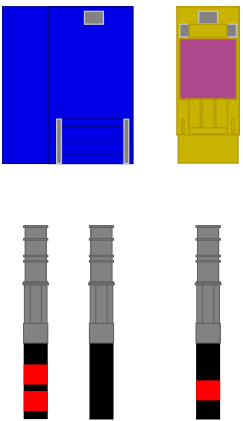
1. Move the “CAN A Lo” black wire from the pin 4 Block C to the pin 6 Block B. Move the “CAN A Hi” black/white wire from the pin 10 Block C to the pin 12 Block B.
2. Move the “Mic 2+” green wire from the pin 2 Block B to the pin 8 Block B. Move the “MIC GND” pink wire from the pin 9 Block B to the pin 7 Block B. Move the “MIC Shield” transparent wire from the pin 3 Block B to the pin 2 Block B.
3. Move the “Sig.” white/yellow wire from the pin 7 Block B to the pin 11 Block A.

4. Disconnect the OEM “HMI CAN Lo” yellow and “HMI CAN Hi” yellow/white wires from the pin 3 and the pin 9 Block C and isolate it. Insert the CAN HMI wires from the adapter in their places: the yellow “CAN HMI Lo” wire to the pin 3 and the yellow/black “CAN HMI Hi” wire to the pin 9.

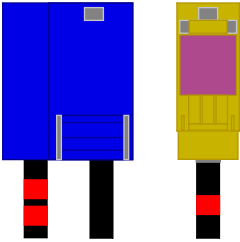
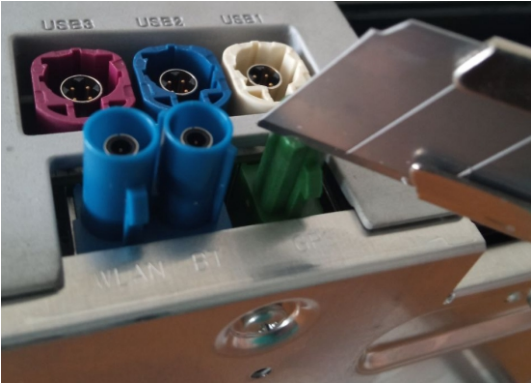
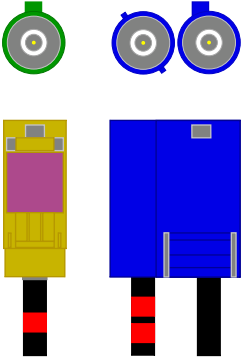


for W190 the colors of the wires differ from those indicated

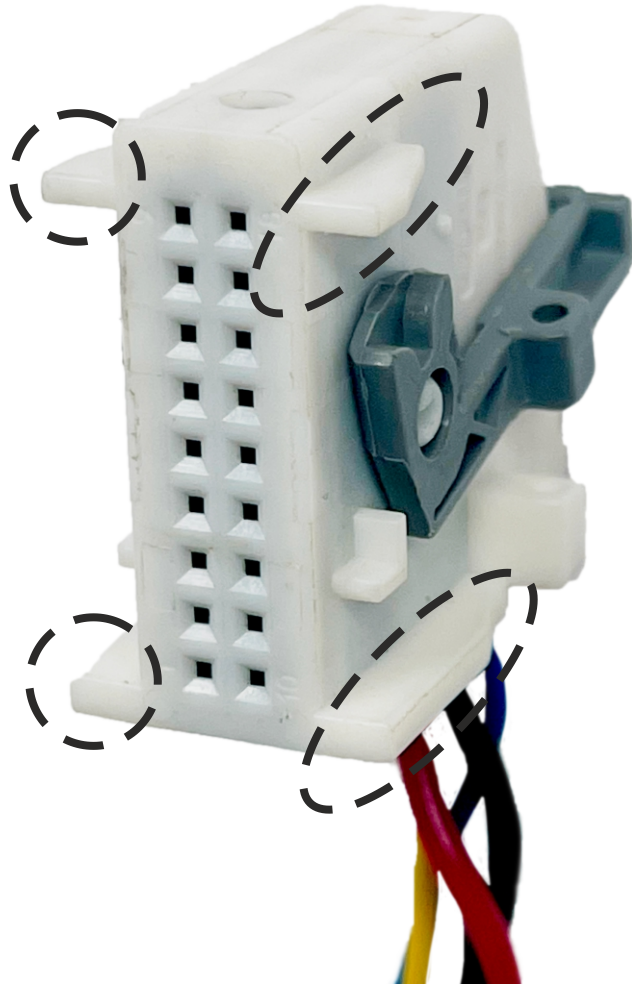
WLAN, BT and GPS antennas connectors re-pinning

Step		Notation
1	<p style="text-align: center;">Old Head Unit GPS BT WLAN</p> 	<p>Disconnect connector from old head unit. Mark connectors.</p>
2	 <p style="text-align: center;">GPS BT WLAN</p>	<p>Extract pins from connectors housings.</p>
3	 <p style="text-align: center;">BT WLAN GPS</p>	<p>Sort the pins in the following order.</p>

WLAN, BT and GPS antennas connectors re-pinning (continuation)

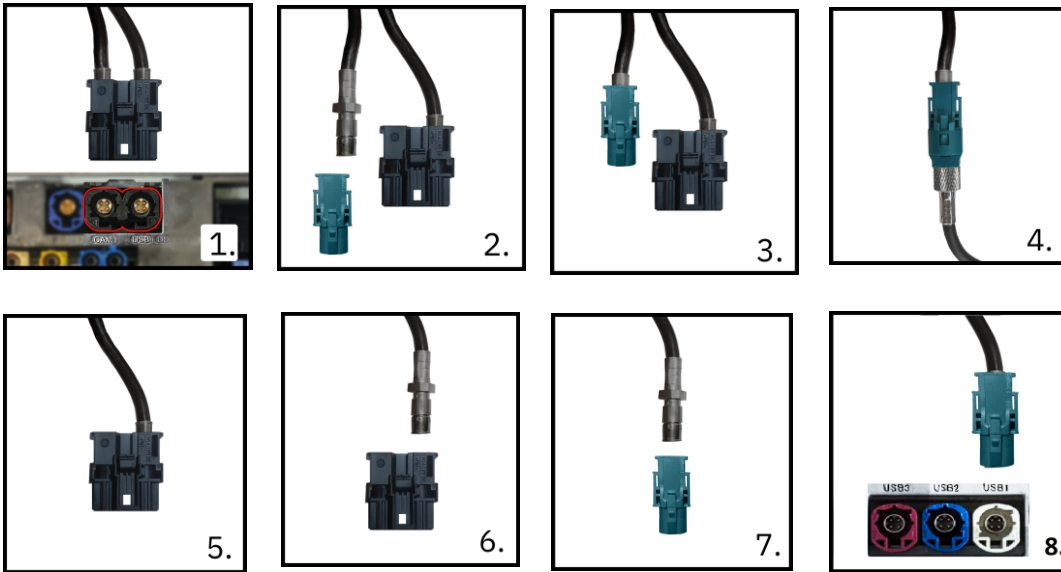
Step		Notation
4	 <p style="text-align: center;">BT WLAN GPS</p>	<p>Insert pins to connectors housings.</p>
5	<p style="text-align: center;">New Head Unit</p> 	<p>Use a knife to cut the key on the GPS-con- nector. To avoid damage the connector, cut the key very carefully. It is best to cut the plastic in thin layers.</p>
6	<p style="text-align: center;">New Head Unit</p> <p style="text-align: center;">GPS BT WLAN</p>  <p style="text-align: center;">GPS BT WLAN</p>	<p>Insert the connectors into the correspon- ding connectors of new head unit</p>

Instrument Cluster connector preparing



1. Remove the alignment ribs with the utility knife

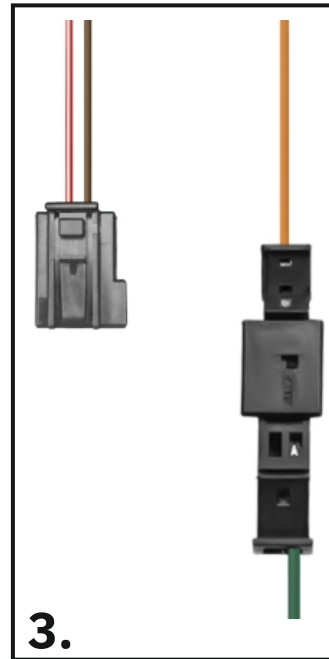
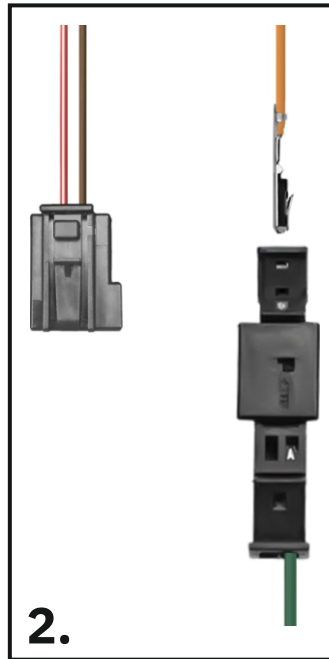
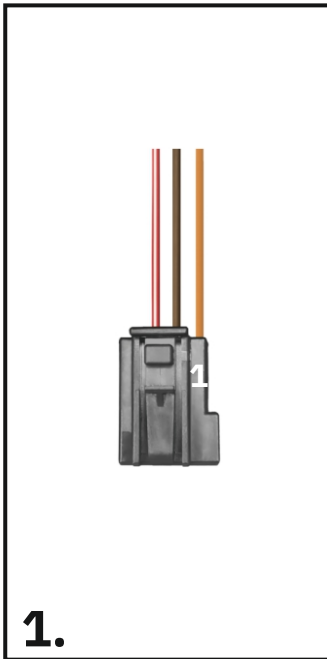
CAMERA LVDS cable preparing



1. Disconnect CAM/USB LVDS Dual connector from old Head Unit.
2. Unplug CAM cable from CAM/USB LVDS Dual connector housing.
3. Plug-in CAM cable in FAKRA Z LVDS jack housing from supply kit.
4. Connect CAM cable with FAKRA Z LVDS cable from adapter.
- 5.-6. Unplug USB cable from Dual connector housing.
7. Insert USB connector in FAKRA Z LVDS jack housing from supply kit.
8. Connect with "C" HEAD UNIT connector.

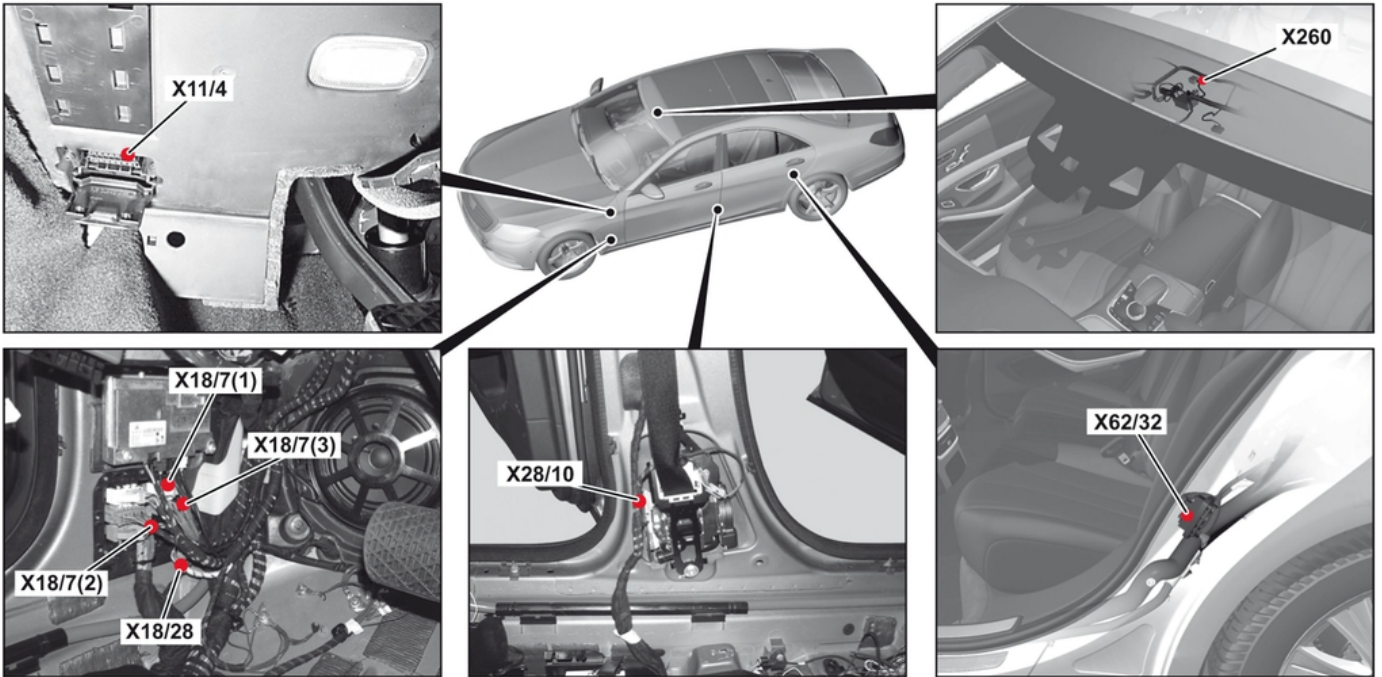
Driver Assistance Switch re-pinning

These actions are only needed for W222 and W217 instalations.

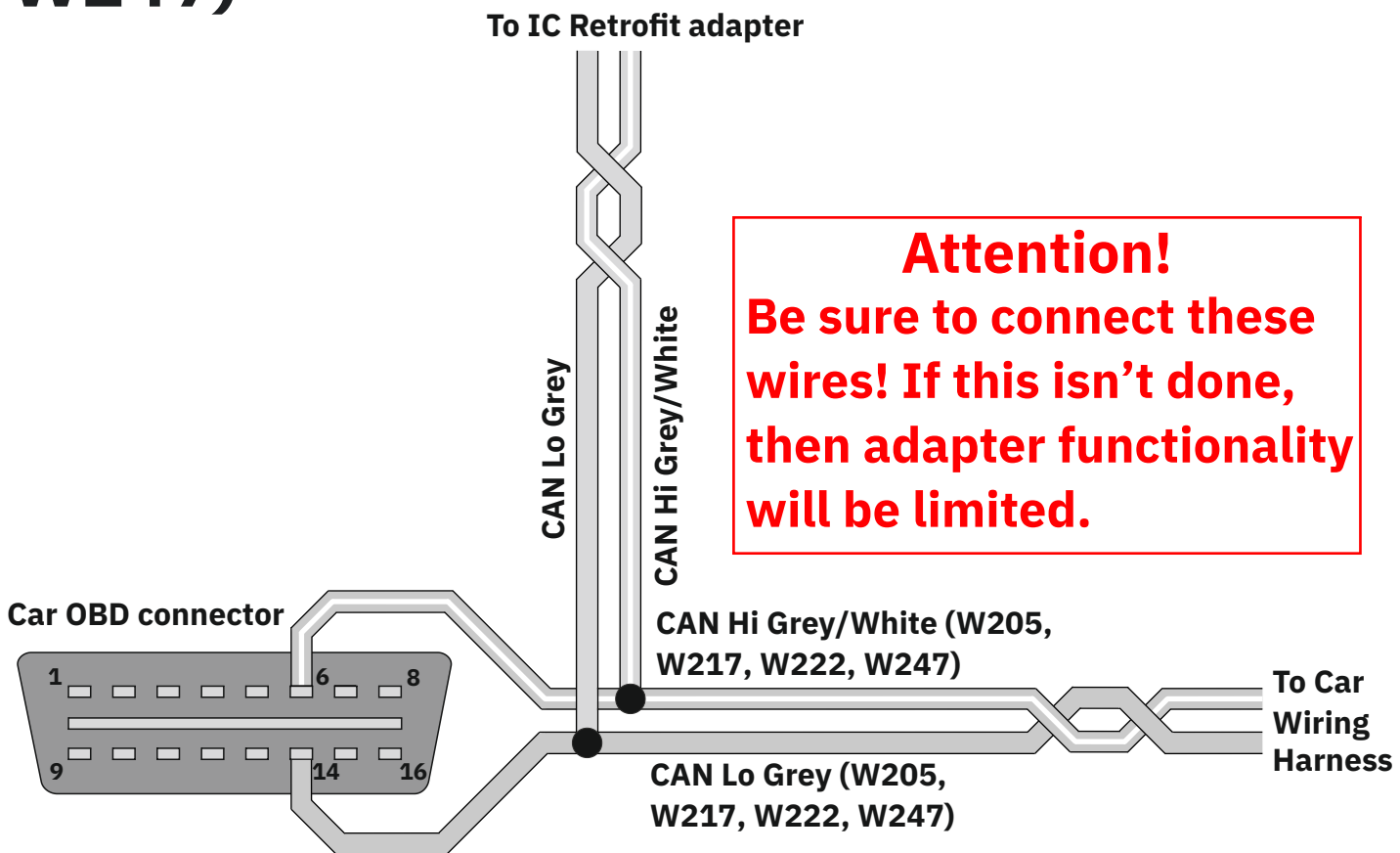


- 1. Unplug pin 1 orange wire from Driver Assistance Switch connector.**
- 2-3. Insert orange wire into the plug from adapter.**
- 4. Insert green/white wire from Retrofit Adapter into Driver Assistance Switch connector.**

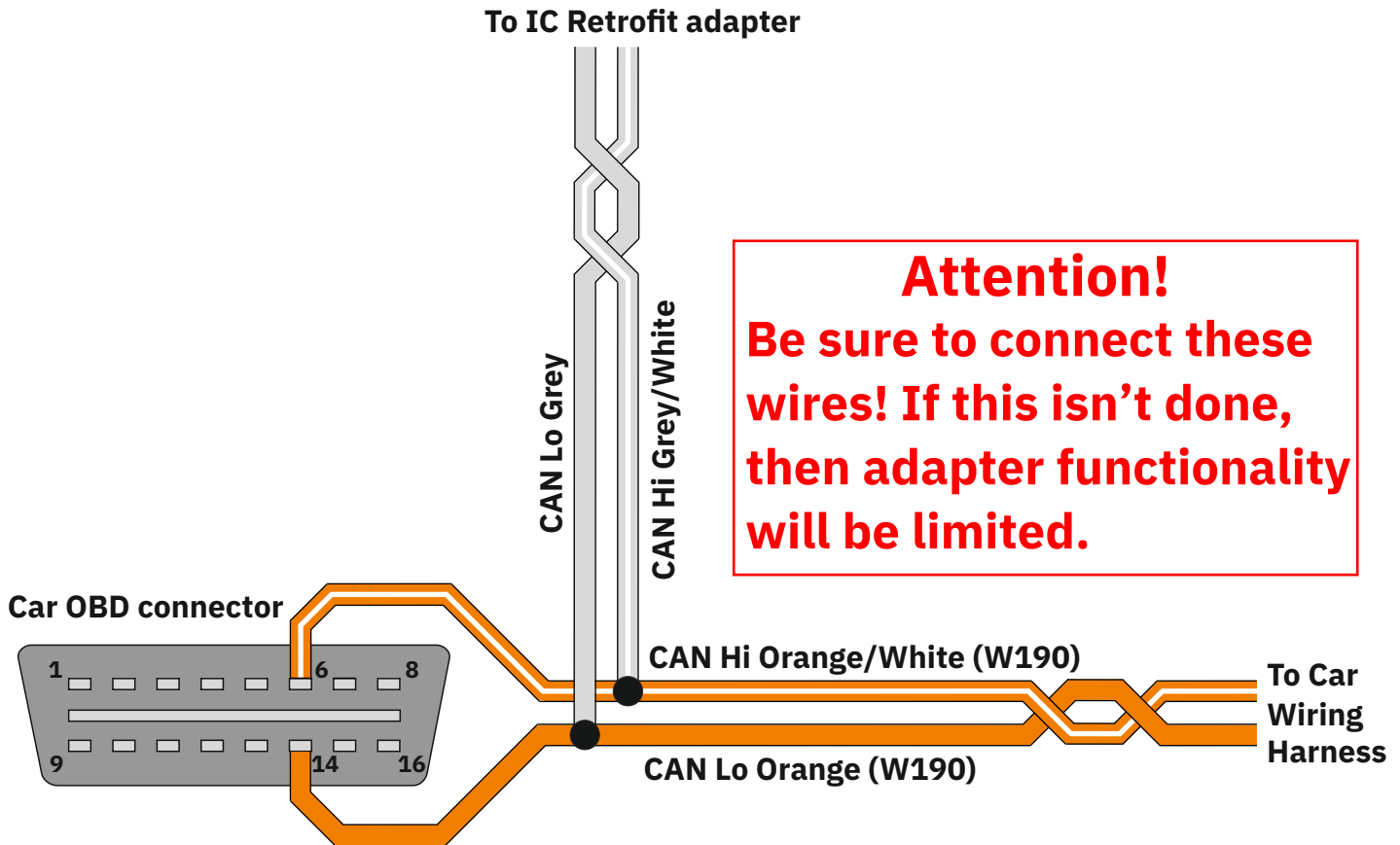
OBD (X11/4) connector location



IC Retrofit adapter and OBD (X11/4) connection schematic (for W205, W217, W247)



IC Retrofit adapter and OBD (X11/4) connection schematic (for W190)

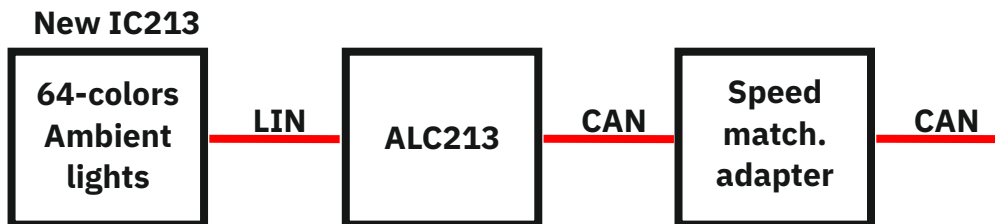


Ambient Lights block diagram

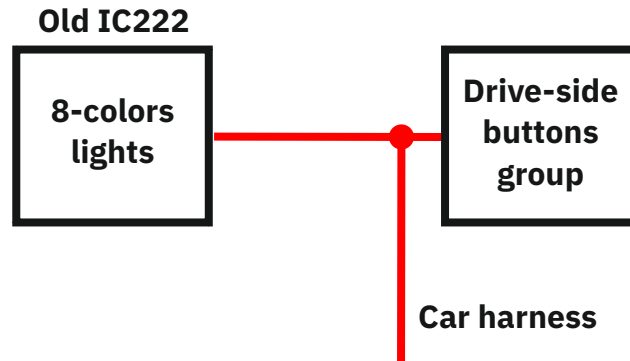
There are 2 options for all vehicle illumination:

1. 64-colors ambient lights (native IC213 lights)
2. 8-colors OEM lights (native IC222 lights)

The 64-colors ambient lights requires an ALC unit (ALC213).

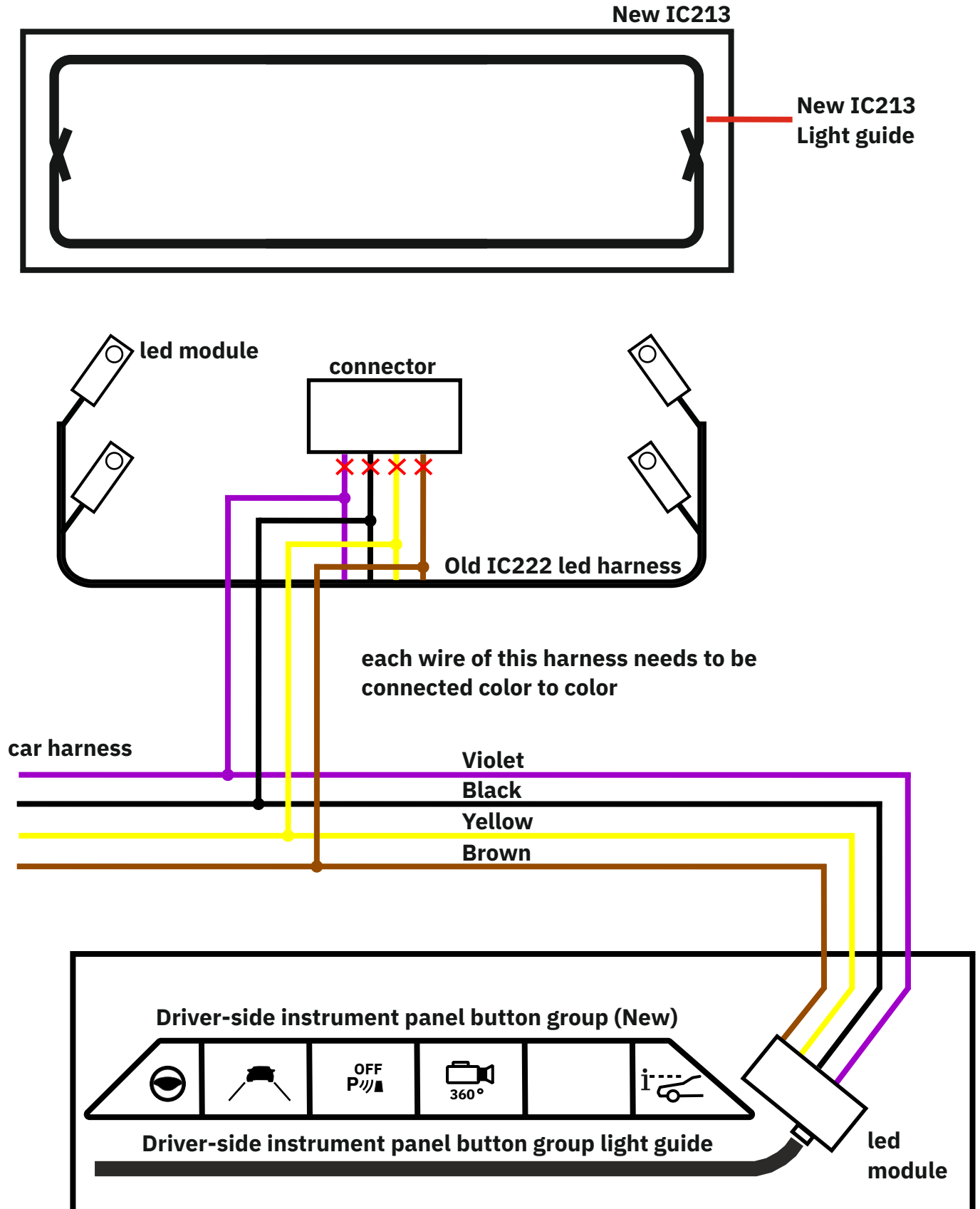


The 8-colors lights requires wire to wire connecting with lights harness of Drive-side instrument panel button group (more details on the next page).



Old IC222 Ambient Lights installing

It's need to install the old wiring harness with LEDs in the new instrument cluster IC213. To do this, you need to cut the connector of this old IC222 harness and connect all the wires color to color with the car wiring harness which is connected to the Driver-side instrument panel button group.



Preparation for coding

Windows 7 or 10 PC (English locale, without hieroglyphs, clean English installation) and TeamViewer for remote control are required. About coding time we need to agree in advance.

Before starting we need to know the following:

1. What is the car VIN?
2. Which mileage in the ignition lock?
3. Which mileage in the IC213?
4. Which mileage need to write to IC213?
5. IC213 - AMG? Need to do it AMG?
6. Write down Anti-Theft code for COMAND 5.5
7. Which VIN write for maps? Or no need to change it?
8. Which ambient lights? OEM or 64-color retrofitted?
9. Which steering wheel is installed?
10. What else was retrofitted?
11. What version of software of the IC213 and COMAND 5.5?

Operability Check

1. Disconnect USB
2. Turn the ignition off.
3. Lock the car.
4. After 20 minutes - unlock the car and drive car until car gets a real satellite time through GPS.
5. Only after this - check all.

Package list

1. Extended Mercedes Benz EVO IC Retrofit adapter - 1pcs
2. Display Video cable - 1pcs
3. RVC Video cable - 1pcs
4. Camera LVDS cable - 1pcs
5. Wiring harness - 1pcs

Contacts



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Telegram: [@CarSystems_Support](https://www.telegram.com/@CarSystems_Support)

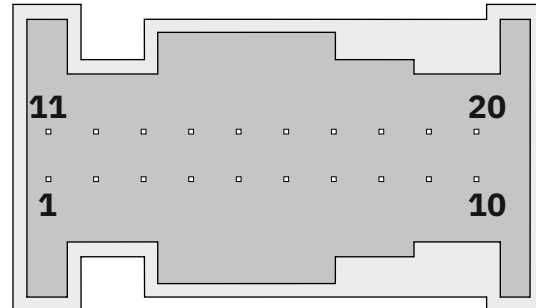
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**Monday to Friday (except public holidays),
from 10:00 to 19:00 (UTC+2:00).**

Due to the increasing amount of unsolicited emails we tightened anti-spam. If your letter has not been delivered, please contact us via Skype or through the inquiry form in our website carsystems.com.ua

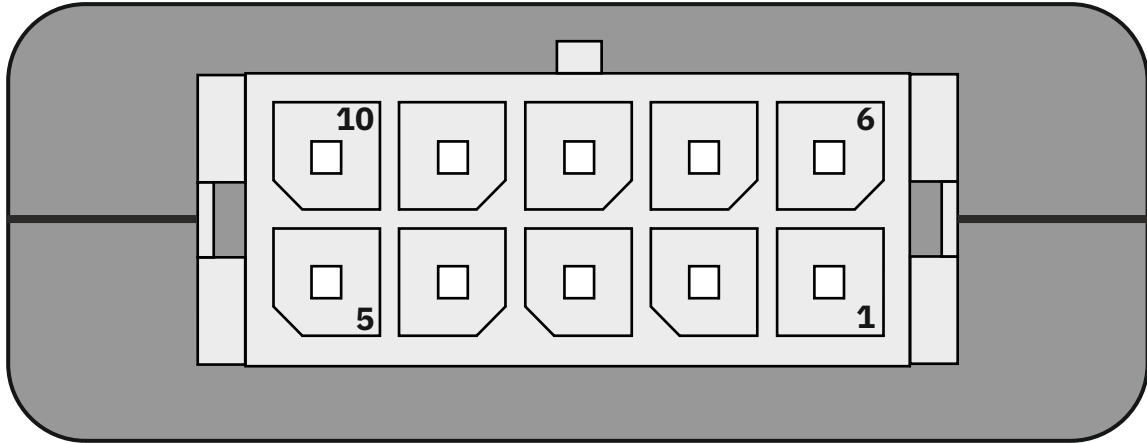


Appendix 1. ALC module connector pinout



Pin	Pin name	Wire color	Description
1	31	brown	Negative terminal (GND)
2	CAN-B H	brown/red	CAN-bus B High
3	CAN-B L	brown	CAN-bus B Low
4	N.C.		Not connected
5	N.C.		Not connected
6	N.C.		Not connected
7	N.C.		Not connected
8	N.C.		Not connected
9	30t	red/white	Positive terminal (+12V)
10	N.C.		Not connected
11	N.C.		Not connected
12	LIN B30	yellow	Left front door ambiance illum. LIN
13	LIN B31	yellow	Right front door ambiance illum. LIN
14	LIN B32	yellow	Left rear door ambiance illum. LIN
15	LIN B33	yellow	Right rear door ambiance illum. LIN
16	LIN B35	yellow	Vehicle interior ambiance illum. LIN
17	LIN B36	yellow	Roof ambiance illumination LIN
18	LIN B34	yellow	Cockpit ambiance illumination LIN
19	N.C.		Not connected
20	N.C.		Not connected

Appendix 2. MB Speed matching adapter for ALC connector pinout



Pin	Pin name	Wire color	Description
10	KL30t	red	Positive terminal (+12V)
5	KL31	black	Negative terminal (GND)
9	CAN1	Hi yellow	CAN-bus High to CAN-HMI bus High
4		Lo blue	CAN-bus Low to CAN-HMI bus Low
8	CAN2	Hi yellow/black	CAN-bus High to pin 2 of ALC module
3		Lo blue/black	CAN-bus Low to pin 3 of ALC module
1	N.C.		Not connected
2	N.C.		Not connected
6	N.C.		Not connected
7	N.C.		Not connected

Appendix 3. MB Speed matching adapter for ALC schematic

