

Vehicle installation guidelines for the Philips Ultinon Driving Light Kit
Volkswagen Part Number: ZGB 2HJ 052 012



Important Note: This kit fits with Volkswagen Amarok Pan Americana / Aventura (2023>) models with the X-Design front bumper and IQ matrix LED headlights, it is also compatible with Life / Style (2023>) models with the LED Headlights or the IQ matrix LED headlights.

Please follow the model specific areas where highlighted in the below instruction set.

Description:

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Installation Time:



The Installation time for this accessory is 150-time units.

(Note: Non-VW part numbers)
Kit Contents:

Quantity:	Part Number:	Item Description:
1	UD2001LX2	Philips Ultinon Drive 2001L 6" LED Lightbar Set.
1	UD1002WX1	Philips Ultinon Drive 1002W 2XDT3 Wiring Harness Kit.
1	CNECT-POWERDUO(NEMESIS)	Can-Bus Interface with contactless reader for the VW Amarok 2023>
2	501931A	Driving Light Mounting Brackets for the VW Amarok X-Design front bumper.
1	TP-01	Round VHB Double-Sided Tape Pad. (40 x 3mm)
1	ESA-125	Pre-terminated Switch Wiring Harness (2500mm)
1	F1634645	Rocker switch (On/Off)
1	SK-25	Installation Fitting Kit - Comprising of the following components. <ul style="list-style-type: none"> • 20 x Black Cable Tie (140 x 3.6mm) • 10 x Button Head Allen Key Machine Screws A2 Stainless (M6 x 12mm) • 6 x M6 Nylok Nuts A2 Stainless. • 1 x M6x14 Washer BZP. • 1 x M5 Nylok Nut BZP. • 1 x Fuse Holder with (6.3mm) Male Terminals. • 1 x Standard Blade Fuse. (5A) • 2 x Red Female Crimp Terminals (6.3mm) • 1 x Red Ring Crimp Terminal (8.4mm) • 2 x Red Inline Crimp Terminal.

General Information:

It is essential the installations Instructions are read prior to any work commencing on the vehicle; check the vehicle electrics and ancillaries before and after the installation is carried out.

Note down any vehicle security codes and disconnect the vehicle battery prior to commencing work on the vehicle.

Always refer to the relevant workshop manuals for assistance in the removal and fitment of vehicle trim panels and components if not familiar with vehicle.

Always re-tape the vehicle harness using a protective cloth tape in areas where the harness has been uncovered during installation.

Always secure any routed cables or excess cabling with cable ties to the vehicles existing wiring harness where possible.

Where double sided tape is to be used always clean the securing surface first to remove all dirt and film with a suitable alcohol-based wipe or cleaner.

The images used in this document are for representation purposes only.

Product & Technical Support:
Retailer Support:

For Installation or user support please contact Nemesis Limited using the contact details below:

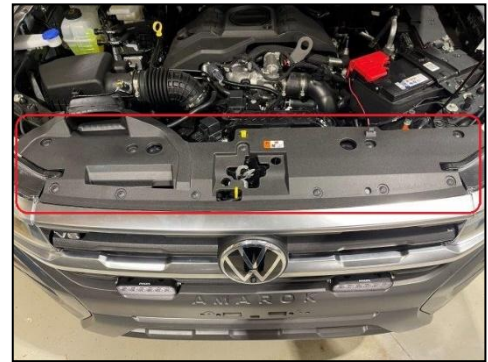
E-Mail: Support@nemesis.ltd

Telephone Number: 01905 720199

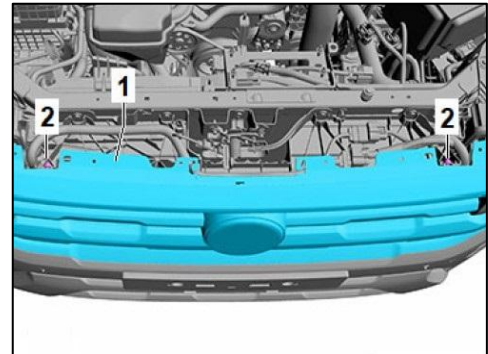
Opening Hours: Monday – Friday (09:00 am – 05:30 pm)

Vehicle Preparation & Grille Removal:

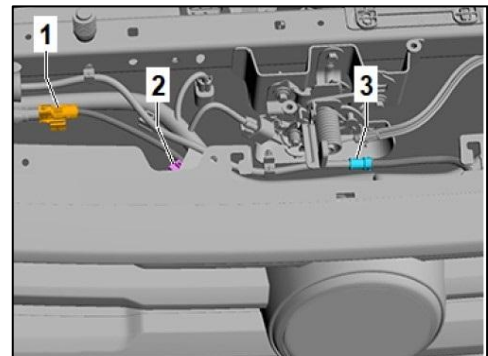
- 1.) Pull the bonnet release in the Left-hand kick panel and then lift the vehicles bonnet.
- 2.) Remove the bonnet lock carrier cover, which is located directly above the front grill. The cover is secured in place with 11 x plastic screw clips. (See Image>)



- 3.) For vehicles equipped with the front overhead camera you will need to disconnect the front camera connector (See Image> Item 1)
- 4.) Remove the Two bolts securing the top of the front grille using an 8mm socket. (See Image> Item 2)



- 5.) Disconnect the retaining clip further along the camera cable (See Image> Item 2)
- 6.) Disconnect the front camera water hose and then plug or tape the end of the pipe to prevent it from dripping. (See Image> Item 3)
- 7.) Use a small screwdriver to remove the Two number plate screw covers, and the Two Philips screws securing the number plate, then remove the Two bolts that secure the number plate carriage using an 8mm socket before removing it from the vehicle.

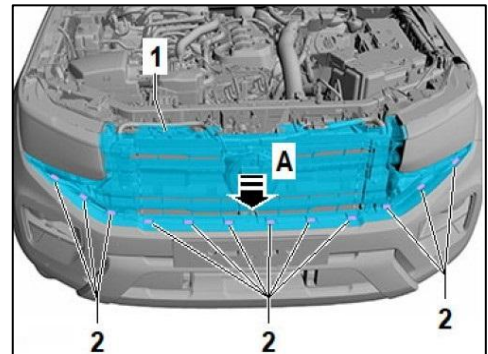


Amarok Life / Style Only:

8a.) Carefully mask the painted area of the bumper below the front grille.

9a.) Use a plastic wedge/trim removal tool to carefully unclip the grill in a forward direction, start by releasing the clips on both the left and right sides working downwards from the headlights, then unclip the bottom of the grille close to where the number plate was removed. (See Image> Item 2)

Top Tip: The clips along the bottom of the grille are very tight, use the wedge/trim tool to open a gap between the grille and bumper then spray a suitable silicone spray / lubricant onto the clips so they release easier.

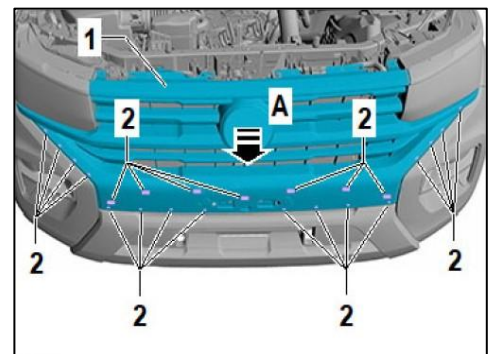


Amarok Pan-Americana / Aventura Only (X-Design Front Bumper)

8b.) Carefully mask the painted area of the bumper below the front grille.

9b.) Use a plastic wedge/trim removal tool to carefully unclip the grill in a forward direction, start by releasing the clips on both the left and right sides working downwards from the headlights, then unclip the bottom of the grille close to where the number plate was removed. (See Image> Item 2)

Top Tip: The clips along the bottom of the grille are very tight, use the wedge/trim tool to open a gap between the grille and bumper then spray a suitable silicone spray / lubricant onto the clips so they release easier.



Installation of the driving lights & brackets – Amarok Life / Style Only

10a.)

Install the Four stainless-steel mounting brackets onto the Two black mounting brackets using the (M6 x 12mm) Allen head screws, spring washers and flat washers provided in the Philips driving light kit. (See Image>)



11a.)

The light bars will be installed in front of the last two grille holes on both the left and right sides of the grille on the bottom row, the lights will be centred directly below the grill recess (See Image>)



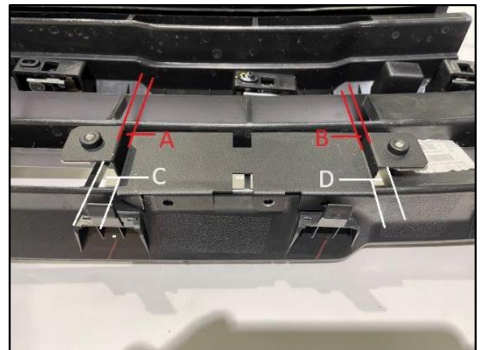
12a.)

Place the vehicle grille face down on a work bench over a soft cloth.

13a)

The mounting brackets are stepped so that the light bars sit further forward on the outside of the grille and then further backwards towards the centre of the grille, this is to ensure the light beam faces directly ahead and is not affected by the curvature of the front bumper. (See image>)

- The 15mm step marked on the image with the letter (A) must face inwards towards the centre of the grille for both the left & right brackets.
- The 10mm step marked on the image with the letter (B) must face outwards towards the outside of the grille for both the left and right brackets.

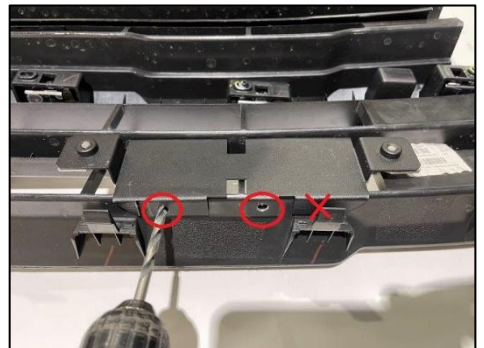


14a.) Once you have established the correct bracket orientation, rest the mounting brackets in position over the back of the grill.

The brackets will need positioning, so the lights sit perfectly in the bumper recess (See Image - Step 11a) position the brackets so the space between the bracket and the bumper is as follows: (See Image - Step 13a)

- There should be a 10mm space in the area marked on the image with the letter (C) at the end facing the centre of the grille.
- There should be a 20mm space in the area marked on the image with the letter (D) at the end of the bracket facing the outside of the grille.

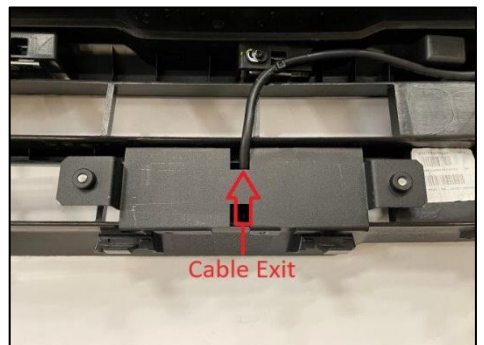
15a.) Using a drill with a 6mm diameter drill bit, drill two holes into the grille through the two holes in the bottom of the mounting bracket. (See Image>)



16a.)

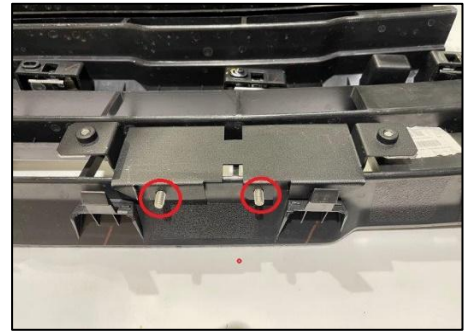
Raise the bracket and feed the light bar connector and cable through the 2nd and 7th holes in the front of the grille until the cable exits at the back, then re-position the bracket with the mounting holes (See Image>)

Note: There are 8 rectangular holes along the bottom row of the grille, the light bar cables must pass through the 2nd and 7th holes.



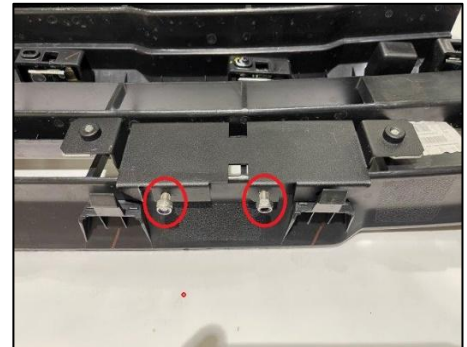
17a)

Using the button head Allen key screws provided, push the screws through the holes in the grille until the threads are visible below the bracket. (See Image>)



18a.)

Fit the (M6) Nylok nuts supplied onto the button head Allen key screws and then securely tighten the brackets onto the grill using an Allen key and a 10mm spanner. (See Image>)



19a.)

Install the light bars onto the mounting brackets using the button head Allen key screws, spring washers and flat washers provided.

Note: Do not fully tighten the lights at this point because they will need final adjustment later.



20a.)

Secure the cabling for both the left and right lights at the back of the grill using the cable ties provided. (See Image>)



21a.)

This image shows how the driving light bracketry and cabling will look after they have been assembled, the image right is for illustration purposes only and shows the back of the grille for the X-design front bumper (See Image>)



Installation of the driving lights & brackets – Amarok Pan-Americana / Aventura Only.

10b.)

Install the Four stainless-steel mounting brackets onto the Two black mounting brackets using the (M6 x 12mm) Allen head screws, Spring Washers and flat washers provided in the Philips driving light kit. (See Image>)



11b.)

The light bars will be installed in front of the last two grille holes on both the left and right sides of the grille on the bottom row, the lights will be centred directly above the grill recess (See Image>)

12b.)

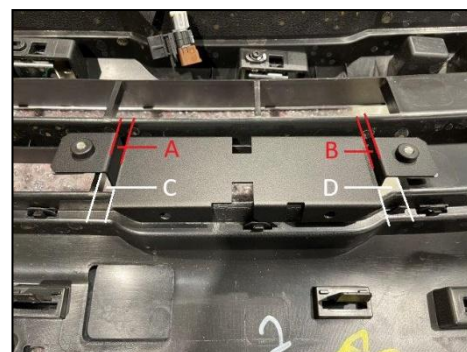
Place the vehicle grille face down on a work bench over a soft cloth.



13b.)

The mounting brackets are stepped so that the light bars sit further forward on the outside of the grille and then further backwards towards the centre of the grille, this is to ensure the light beam faces directly ahead and is not affected by the curvature of the front bumper. (See image>)

- The 15mm step marked on the image with the letter (A) must face inwards towards the centre of the grille for both the left & right brackets.
- The 10mm step marked on the image with the letter (B) must face outwards towards the outside of the grille for both the left and right brackets.



14b.) Once you have established the correct bracket orientation, rest the mounting brackets in position over the back of the grill.

The brackets will need positioning, so the lights sit perfectly in the bumper recess (See Image - Step 11b) position the brackets so the space between the bracket and the bumper is as follows: (See Image - Step 13b)

- There should be a 10mm space in the area marked on the image with the letter (C) at the end of the bracket facing the centre of the grille.
- There should be a 20mm space in the area marked on the image with the letter (D) at the end of the bracket facing the outside of the grille.

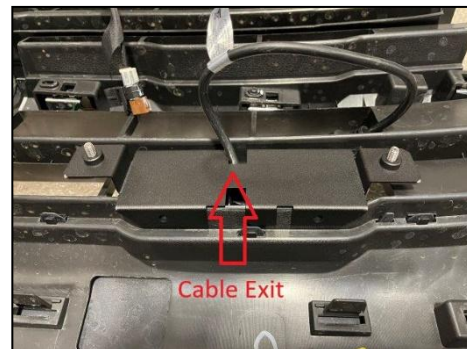
15b.) Using a drill with a 6mm diameter drill bit, drill two holes into the grille through the two holes in the bottom of the mounting bracket. (See Image>)



16b.)

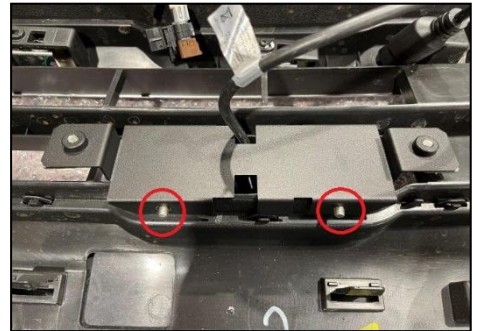
Raise the bracket and feed the light bar connector and cable through the 2nd and 7th holes in the front of the grille until the cable exits at the back, then re-position the bracket with the mounting holes (See Image>)

Note: There are 8 rectangular holes along the bottom row of the grille, the light bar cables must pass through the 2nd and 7th holes.



17b.)

Using the button head Allen key screws provided in the (SK-25) fitting kit, push the screws through the holes in the grille until the threads are visible below the bracket. (See Image>)



18b.)

Fit the (M6) Nylok nuts supplied onto the end of button head Allen key screws and then securely tighten the brackets onto the grill using an Allen key and a 10mm spanner. (See Image>)



19b.)

Install the light bars onto the mounting brackets using the button head Allen key screws, spring washers and flat washers provided.

Note: Do not fully tighten the lights at this point because they will need final adjustment later.



20b.)

Secure the cabling for both the left and right lights at the back of the grill using the cable ties provided. (See Image>)



21b.)

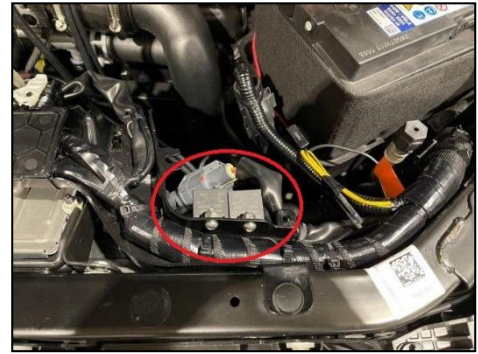
This image shows how the driving light bracketry and cabling will look after they have been assembled, the image right is for illustration purposes only and shows the back of the grille for the X-design front bumper (See Image>)



Relay Installation & Cable Harness Routing:

22.)

Position the Two relays against the outside of the plastic cable harness ducting, then drill Two 6mm holes into the ducting and secure the two relays using the (M6x12mm) Button head Allen key screws and the (M6) Nylok nuts supplied. (See Image>)



23.)

Remove the bolt from the top of the bonnet landing panel just in front of the battery using a 13mm socket, then re-install the bolt using it to secure the ring terminal on the end of the Black chassis negative cable from the driving light wiring harness (See Image>)



24.)

Feed the Two driving light cables with the Grey (3 Pin) connectors, down into the void at the side of the battery so the connectors can be retrieved below the Left-hand headlight (See Image - Step 25.)



25.)

Retrieve both of driving light cables from the void below the Left-hand headlight. (See Image>)



26.)

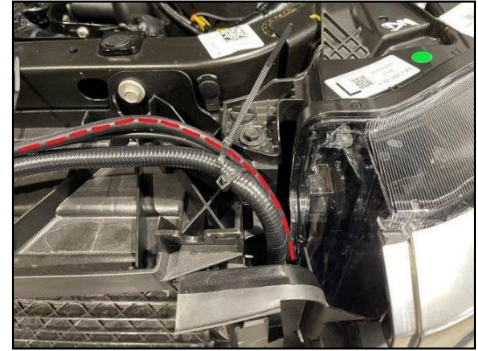
Coil any excess of the driving light cables below the Left-hand headlight and secure it with a cable tie. (See Image>)

Note: Secure the coiled cable to the vehicle harness in the space below the headlight using a cable tie, leaving the connector visible and ready for connection later.



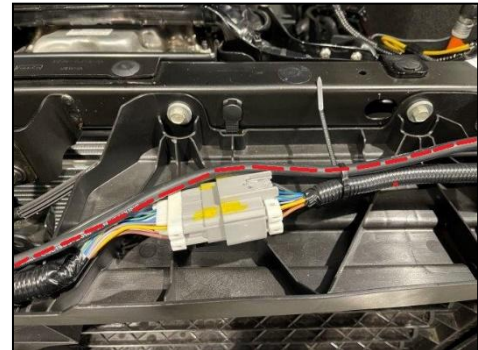
27.)

Route the other driving light cable up the inside of the Left-hand headlight, following the vehicles existing wiring harness and secure with a cable tie. (See Image>)



28.)

Route the driving light cable along the top of the bonnet landing panel, securing it to the vehicles wiring harness with a cable tie. (See Image>)



29.)

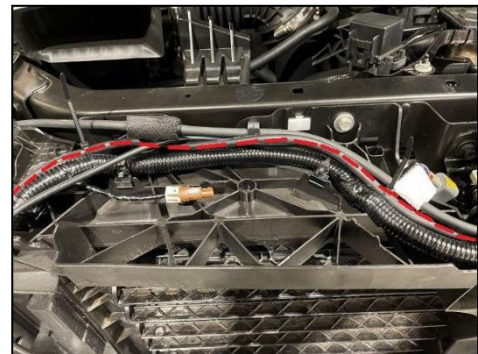
Route the driving light cable around the bonnet release mechanism, securing it to the vehicles existing wiring harness with cable ties. (See Image>)



30.)

Continue to secure the driving light cable to the vehicles existing wiring harness until you reach the Right-hand headlight. (See Image>)

When you reach the Right-hand headlight, route the cable down the inside of the headlight so the cable exits from the space below the headlight.



31.)

Coil any excess cable below the right-hand headlight and secure with a cable tie. (See Image>)

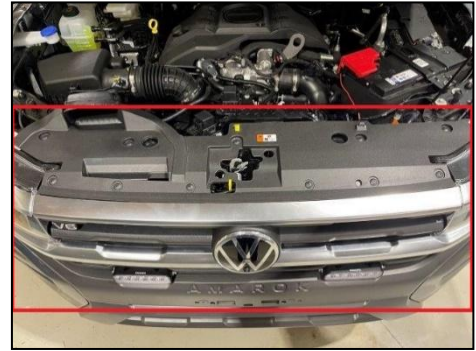
Note: Secure the coiled cable to the vehicle harness in the space below the headlight using a cable tie, leaving the connector visible ready for connection later.



32.)

Connect the two driving light connectors to the wiring harness then carefully feed any excess cable into the space below each headlight.

Re-install the front grille assembly, the bonnet lock carrier cover, the number plate carriage, and the vehicle number plate (See Image>)



33.)

Important Note: Make sure the (Red) power supply wire is disconnected from the battery, then cut and remove the three-way switch and terminals using a pair of side-cutters, the three-way switch is surplus and will not be required.

Please Note:

The switch should be installed on all vehicles fitted with IQ Matrix headlights to enable the user to disable the additional driving lights when using Dynamic Light Assist on main beam, for vehicles without IQ matrix headlights the switch installation is optional, but if it is not installed the driver will not have the option to disable the additional driving lights whilst driving on high beam.



34.) Engine Compartment

Route the cable between the bonnet landing panel and the battery, then secure the cable to the vehicle existing wiring harness using a cable tie. (See Image>)



35.) Engine Compartment

Continue to route the cable along the Left-hand inner wing towards the bulkhead and secure with cable ties. (See Image>)



36.) Engine Compartment

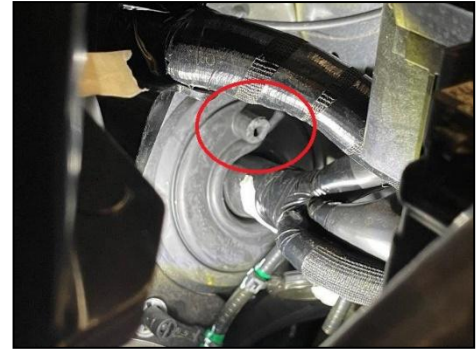
Locate the cable wiring grommet located on the Left-hand (Passenger) side of the bulkhead in the engine compartment.

Note: Just above the main wiring harness there is a spare wiring grommet that is blanked off. (See Image>)



37.) Engine Compartment

In the engine bay carefully remove the blanked end of the spare wiring grommet using a pair of side cutters, the image shows the grommet with a hole in the centre after the blanked end has been removed. (See Image>)



38.) Left-Hand Footwell

Open the vehicles glove compartment and then press the lid stops inwards on both sides to release the glove compartment lid, open the lid fully towards the floor making sure the damper arm is disconnected and then whilst holding the glove compartment slightly off the floor pull it towards you to un-clip and remove it from the vehicle.

39.) Left-hand Footwell

Using the trim removal tool carefully un-clip and remove the left dashboard end cap trim and the Left-hand kick panel trim, take care when removing the trim from around the bonnet release catch.

Looking at the bulkhead wiring grommet through the glove compartment aperture, you can see a small circle marked on the top of the bulkhead wiring grommet. Carefully pierce a small hole in the centre of the circle and then carefully push a draw wire through the hole from the inside through to the engine compartment. (See Image>)



40.) Engine Compartment

Retrieve the end of the draw wire in the engine compartment and then tape the three cut ends from the driving light wiring harness cable to the draw wire using a suitable insulating tape. (See Image>)

Note: Spray the grommet in the engine compartment where the draw wire exits using a suitable silicone spray / lubricant this make the cable easier to pull through the grommet.



41.) Left-Hand Footwell

Carefully pull the draw wire from inside the vehicle until all the excess cable is located inside the Left-hand footwell.

42.) Engine Compartment

Position the cable in the engine compartment so it is directed downwards and then secure it to the main wiring harness using a cable tie. (See image>)



Switch Installation:

43.)

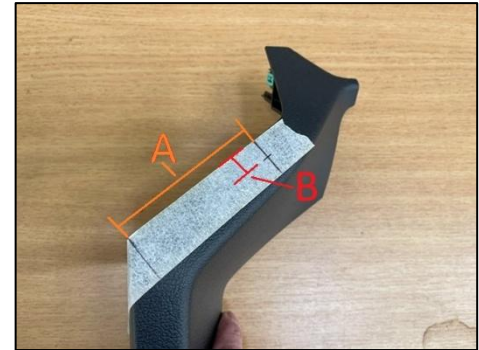
Using the trim removal tool, carefully un-clip and remove the trim panel located on the right side of the switch panel. (See Image>)



44.)

Apply some masking tape to the surface of the trim panel where the switch will be installed, then measure 80mm from the corner of the trim and draw a line at a 90-degree angle. (See Image A)

Then measure 12mm in from the edge of the trim and draw a line at a 90-degree angle to the first line marking the centre of the trim. (See Image B)



45.)

Drill a pilot hole in the centre of where the two lines cross, then carefully drill out the hole to a diameter of 20mm see area highlighted. (See Image>)

Important Note: Whilst drilling the hole do it very slowly once the hole diameter is around 19mm, then keep testing the switch at intervals to make sure the switch fits tightly into the trim panel.



46.)

Feed a draw wire down into the centre console where the trim panel was removed and then retrieve it in the footwell at the side of the centre console. (See Image>)



47.)

Tape the ends of switch cable to the draw wire using insulation tape, and then draw the wires through into the footwell, leave approx 300mm of cable at the top ready for connection to the switch. (See Image>)



48.)

Connect the two cables onto the back of the switch and then re-install the trim panel. (See Image>)



49.)

From inside the drivers footwell, feed the draw wire into the space above the carpet but on the underside of the heater matrix. (See Image>)



50.)

With cables still taped to the draw wire, retrieve the draw wire in the passenger footwell and then pull the cabling into the passenger footwell. (See Image>)



51.)

Unscrew and remove the plastic retaining nut securing the carpet in position, then pull back the carpet in the passenger footwell. (See Image>)



52.)

There is polystyrene tray located under the carpet in the passenger footwell, route the wiring harness under the tray in the direction of the passenger door and then replace the carpet and the plastic retaining nut. (See Image>)

Note: Leave the ends of the cable at the bottom of the "A" pillar trim ready to be connected later.



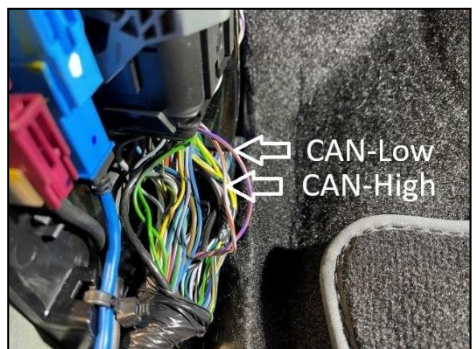
Can-Bus Interface Installation & Connectivity:

53.)

At the bottom of the "A" pillar on the passenger side below the bonnet release lever, you will find the Can-Bus wires which are a twisted pair. (See Image.)

Important Note: Vehicle CAN-BUS wire colour references are listed below:

- Purple / Orange = CAN-Low
- Grey / Orange = CAN-High

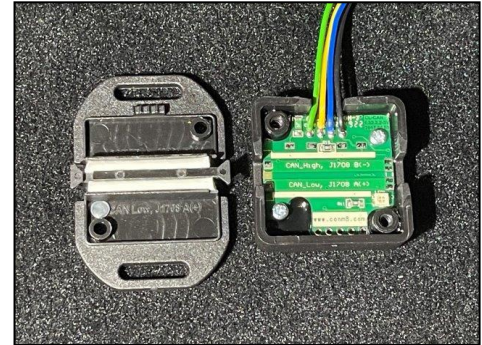


54.)

Remove the Two Philips screws from the contactless reader, and then remove the base that holds the two white fibre insulators (See Image>)

Note: There are two white lines on the printed circuit board marking the channels where the Can-Bus wires must be situated.

Note: One is marked CAN-Low, and the other is marked CAN-High.

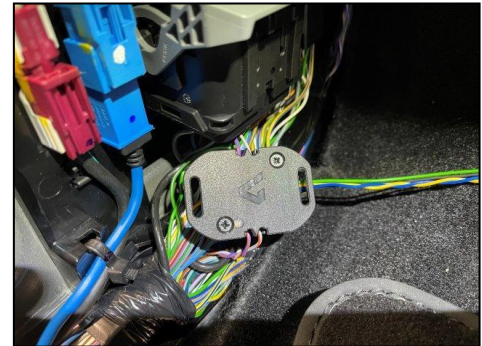


55.) Un-twist the two Can-Bus wires and then lay the wires inside the channel on the contactless reader making sure.

Purple/Orange wire is positioned in the CAN-Low location.

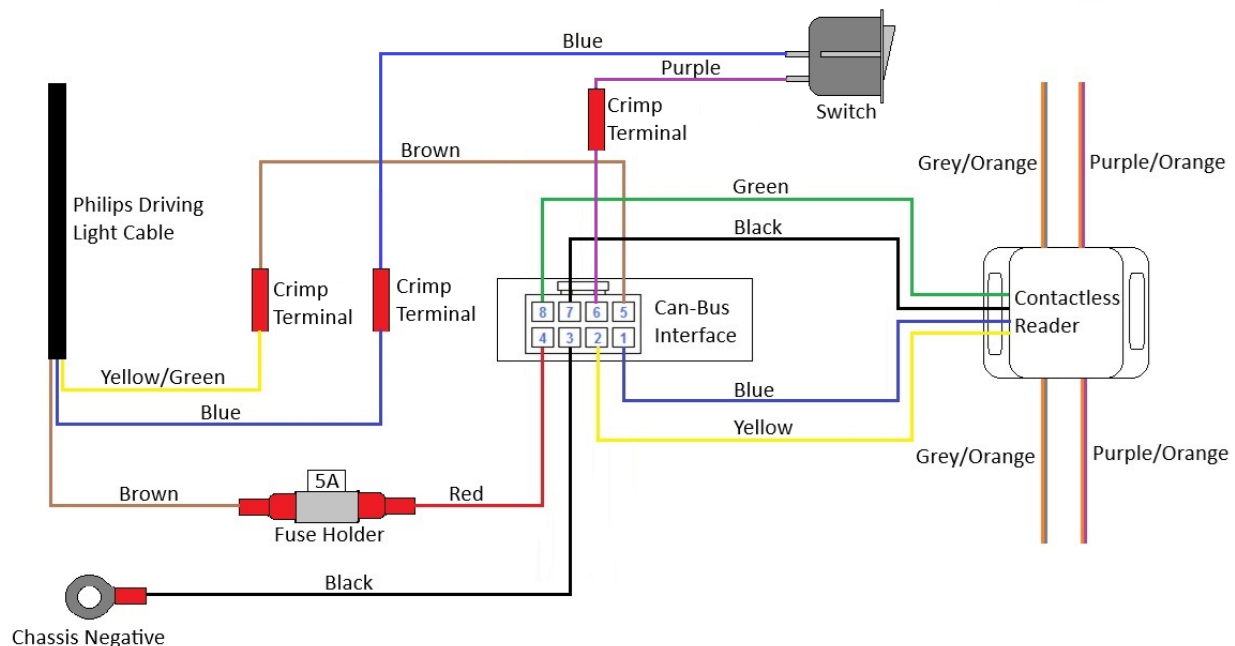
Grey/Orange wire is positioned in the CAN-High location.

Refit the contactless reader base making sure the wires are positioned correctly between the white fibre insulator and the printed circuit board, then secure the base by re-installing the Two Philips screws. (See Image>)



56.)

Using the connectivity diagram below, connect the wires from the Philips driving light harness, the Can-Bus interface and the Switch, use a ratchet crimp tool to install the crimp terminals, fuse and fuse holder provided. (See Diagram Below)



Driving Light Harness:

Yellow/Green = Position Light
Blue = Driving Light
Brown = Permanent 12Vdc+

Can-Bus Interface:

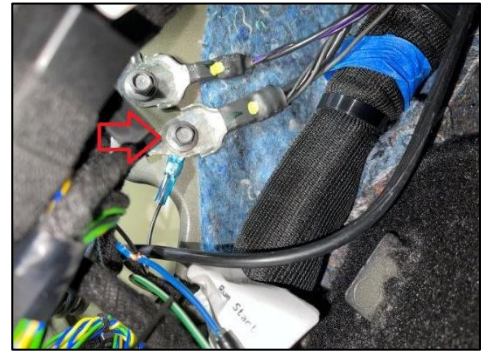
Black = Chassis Negative-
Red = Permanent 12Vdc+
Brown = Ignition Output 12Vdc (1A Max)
Purple = High Beam Output 12Vdc (1A Max)

VW Amarok 2023>

Grey/Orange = CAN-High
Purple/Orange = CAN-Low

57.)

Once all the connections have been terminated, remove the nut from the chassis ground connection on the Left hand "A" pillar using a 10mm socket, then secure the ring terminal on the end of the black wire to the ground connection using the same nut.



58.)

Install the ring terminal on the (Red) wire onto the vehicles positive battery terminal using the (M6x14mm) Washer and the (M5) Nylok Nut provided. (See Image>)

59.)

Once the Red battery positive wire is connected to the vehicle's battery, the LED status indicator on the Can-bus interface and the contactless reader will start to flash Red. Switch on the vehicles ignition and then wait for the LED status to go to solid Red and then solid Green.



60.) Can-Bus Interface / Contactless Reader - LED Status Light.

- Flashing Red – Searching for Can-Bus information.
- Solid Red – Can data received; vehicle not identified.
- Solid Green – Can data received; vehicle type recognised.
- Flashing Green – Vehicle speed/movement detected.



61.)

Once the LED status indicator is solid Green, check the Position Lights are operational on both driving lights, then switch the vehicle headlamps onto high beam and check the High beam is operational on both driving lights.

62.)

Tape up the wiring harness using a suitable cloth/insulating tape, then use the double-sided tape pad provided to adhere the can-bus interface to the metal plate located at the dashboard end above the Left-hand kick panel. (See Image>)



63.)

Re-install the glove compartment assembly, the Left-hand kick panel trim, and the Left-hand dashboard end cap trim.

Note: Check that all electrical connections are secure and safely insulated and that all removed trims have been refitted correctly.

64.)

Once the driving light installation is completed and the driving lights have been checked, turn on the headlamps and switch the headlights onto high beam. Adjust the beam height on both driving lights to the correct height and then tighten the Allen head screws to secure each light firmly in position at the correct height.