

Polestar 2, 2002

Pilot package

Adding missing dash, door pocket, trunk interior lights

Bonus adding the missing shadow door light

By reneult



Disclaimer. If you do this modification, you are truly responsible if something goes wrong with your car's electrical system. Knowing that our cars were made during covid year with many shortage issues, the color codes for wires might be different from my car than

yours. Make sure you know how to use a multimeter (volts, ohms and amps). Also how to check for voltage. Use these notes as reference and always double check your installation.

The cars without a Plus package are missing some of the interior lights that give the cabin a nice atmosphere. The mod is relatively easy if you order the right materials. I was lucky to find a LED dimmer which allows the adjustment of the light intensity which is perfect for the interior lights, you will be able to adjust the intensity and measure so all the lights are at the same intensity. If you like a brighter light you can increase it in the dimmer switch or decrease it. The nice part is that you can still dim the lights using the physical dimmer switch in the car (not the one in the screen menu). Originally, my plan was to install the OEM lights for the doors. I purchased a used door harness from a Volvo XC40 that had both connectors, and the shadow lights. However, I was not able to find the part number for the door handle light. If you are thinking about the cool door shadow lights (with a Polestar logo) that can retrofit into the lights that our car is also missing, I was also thinking that by using the harness from the volvo I would be able to retrofit that one too. I was able to add the Volvo harness and retrofit the missing pins into the main door harness. Our car has the wires for the missing door lights coming from the main harness, but the door panel harness is missing those wires. However, after retrofitting the missing male pins and testing the Volvo's harness I was not able to get the shadow lights (which I ordered not noting the car will not have them fitted) to work. Testing with the voltmeter I found that those particular wires (handle, well shared the same circuit) and the shadow light are receiving less than 1 volt. I removed the extra added pins and decided on using the COB LED lights instead and tapping the wires from the door switches. For the lights to work using the OEM lights they will need to be abilitated by software (that is my guess).

I am showing the color wires I used to tap in the doors and the car's dimmer switch for the dash. If you find the same colors on your car you might be good to go. If you do not you will need to do further testing. Also, if you want to double check to be safe read below.

If you do not know how to check for “hot” wires on cars, I will recommend you watch a video on youtube or do some google search.

This is how I did it.

1. Have the car’s dimmer switch in the highest intensity position.
2. If you use a multimeter, using the volts at 20v setting, you need to find a ground surface (door’s bolts work) and making sure the car is “on” you will make contact with the red probe in the multimeter with each individual wire terminal in the connector. The wires that are “hot” will show around 12-13 volts.
3. If you get a 0v reading is either a ground or a hot wire not receiving any current at that time
4. Take notes on the wire color and the readings.
5. To find the wire that is controlled by the dimmer, roll the car’s dimmer switch to the lowest position and check again as you did on step 2.
6. The wire that gets a lower reading is the one that you will need to be able to connect the new LED strips and be able to dim them.
7. Once you have that “hot-dimmable wire id”, safely connect the positive wire of your LED harness to that one, and proceed to test on the wires that had 0V. If the lights turn on, test with the car’s dimmer switch and if that works you are good to go!

Finally, this modification will not work with the native interior light controls (cars menu, center screen). If you change the intensity there it will not change the intensity of the added lights. The car’s main dimmer switch will do the work.

Materials

The dimmer switch comes with two, you will need one for the dash lights and one for each door light. So you will need to order 3. \$25 per pair. \$75 total. Watch the video on the website is very informative.

<https://www.diodedynamics.com/2a-led-pwm-dimmer-with-bypass.html#truspot-write-review>

For the lights I ordered COB LED lights from AliExpress. I went with two sizes.

For the gear console I installed the 2.7mm and for the dash and doors I used the 5 mm. I found the 1 mm too big and bright.

Console:

https://www.aliexpress.com/item/3256803489157078.html?spm=a2g0o.order_list.0.0.771f1802n1AHAE

Color: Nature white 4000K

Dash and doors:

https://www.aliexpress.com/item/3256802515064707.html?spm=a2g0o.order_list.0.0.771f1802n1AHAE

Size: 5mm

Color: Nature white 4000K

For the doors and dash order 2 pin with end wires you will need at least one per each light. Two for each door and one for the dash lights. If you want to do modifications later I will order the 2 pin-2 end wires and extra connectors just in case. Better place a single order than wait several weeks.

https://www.aliexpress.com/item/3256804047208885.html?spm=a2g0o.order_list.0.0.771f1802n1AHAE

You need a good quality double sided tape

https://www.amazon.com/dp/B098PDY2JQ?ref_=cm_sw_r_cp_ud_dp_DEKSB6DM2C0KYFV8RRGR

Posi tap and posi lock connectors

Mini ones (the wires are thin!). This ones are for tapping into the wires

<https://a.co/d/6VHQeS8>

Posi lock connectors Mini ones. This ones are for connecting wires.

<https://a.co/d/dv3i8HW>

Posi lock connectors. This connect up to two wires on one side

https://www.amazon.com/dp/B004D0FAIA?ref_=cm_sw_r_cp_ud_dp_KC9XHVX47T7924968W18

Wire

<https://a.co/d/1eChebx>

3M electrical wage

<https://a.co/d/49gglcn>

Wrapping tape

https://www.amazon.com/dp/B07DWCCNBT?_encoding=UTF8&psc=1&ref_=cm_sw_r_cp_ud_dp_H0T0N66X77THR5J37WWG

12 v battery, maybe a 9 volt would work (for testing that the LED strip is making good contact with the 2 pin connector).

Small gauge shrinking tubing.

I will refer to the diode dynamics dimmer switch as the dimmer switch through the notes, when I refer to the car's main dimmer switch, I will be clear about it.

Procedure

Doors

You will need to remove the door panels. There are four screws. Two 25 torx below the arm rest and one 8 mm behind the rubber stopper on the door handle and one on the bottom of the door. Once the screws are out, gently lift up and the door panel will be released from the door. Then, disconnect the big connector and gently push out the cable holding the door handle. This procedure works for front and rear doors.

Making the light harness

Preparing the LED strip:

For the doors I used two lengths of LED strip. They have marked sections that allow the cutting in between.

For the door handle I cut sections of 2

For the door pocket I used sections of 4

1. Cut the sections making sure you know what side is + and -
2. Insert the cut sections into the 2 pin with end wires (again make sure you have the + on the red wire and the - on the black.

This part is a bit tricky! You have to align the metal “dot” of the LED strip with the metal connector that will make contact once you press it in. I lost 3 pins due to misalignment issues.

Test that the LED is lighting up using a 12 V battery (I have one from my electric gate so no need to use the polestar, but you can).

You need two for each door, a long and a short LED strip.

Connecting the LED with the diode dynamics dimmer

1. Connect the single red wire to each of the positive wires from the LED strips. In my picture I tried to have more “OEM look” using the extra J connectors (green connector in the picture), and crimping terminals but I found it to be too much work due to the crimping of the terminals, therefore, for the rest of the doors I use the posi-locks to complete the unions (the red ones can only fit one wire on each side, the blue ones you can fit up to two of the wires you will be using for this project). They are easy and reliable. The picture below shows the use of crimping terminals.
2. The wire length. I did not add extra wire to the short LED strip (door handle), and you will need to leave enough wire for the longer LED strip (door pocket). It depends where you want to attach the dimmer switch. I installed mine near the door handle area because I did not add extra wires to the short strip. HOWEVER, if you find a more suitable spot where you can access the dimmer switch without removing it would be a better spot. I thought about this when I was adjusting all lights to match light intensity.
3. The white wire from the dimmer switch will be connected to the red + tapping wire coming from the posi-tap and the black wire will connect

to the black - wire coming from the tapping wire and to the two negative wires from the LED strips. Using the blue posi taps they have more room for two wires on one side. If you only connect single wires go for the mini ones (red).

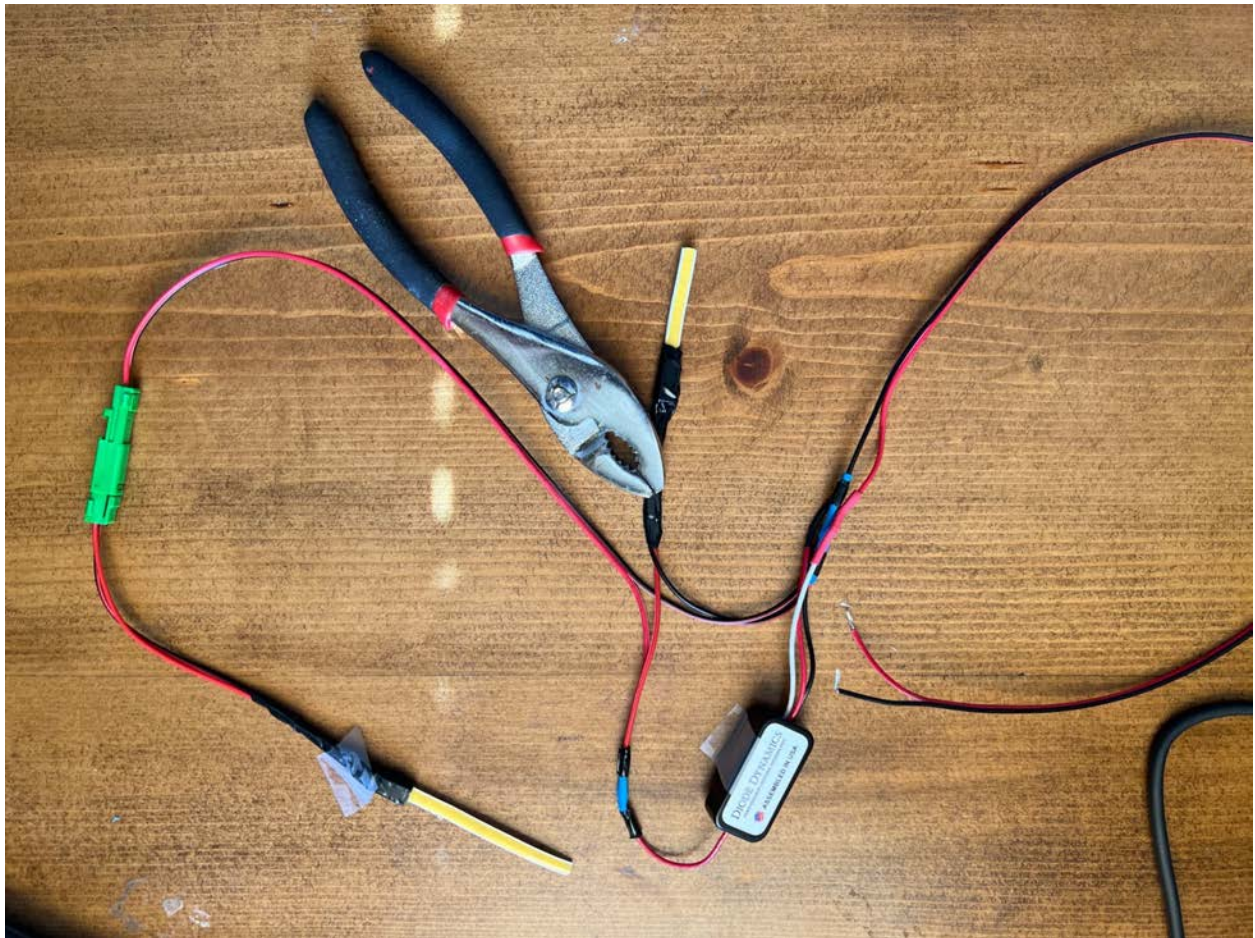
4. The left red wire is not going to be used, add a heat shrink tubing to keep it isolated.
5. Test with the 12 V source and by connecting the tapping wires. Make sure both LED strips work. Also, test the dimmer switch using the provided small screwdriver to increase or decrease the light intensity.
6. If all works, use some electrical tape to cover the LED pins and the posi connectors (Do not tape the posi locks connecting the LED strip red and black wire yet if you want to use the voltmeter to adjust intensity (volts output after the dimmer switch) once all doors are completed). You can wrap it all if you are ok by adjusting all four doors lights qualitatively using your eyes.
7. Wrap the wires using the harness tape to protect the wires.
8. You finished the light harness at this point.



Door handle short LED strip



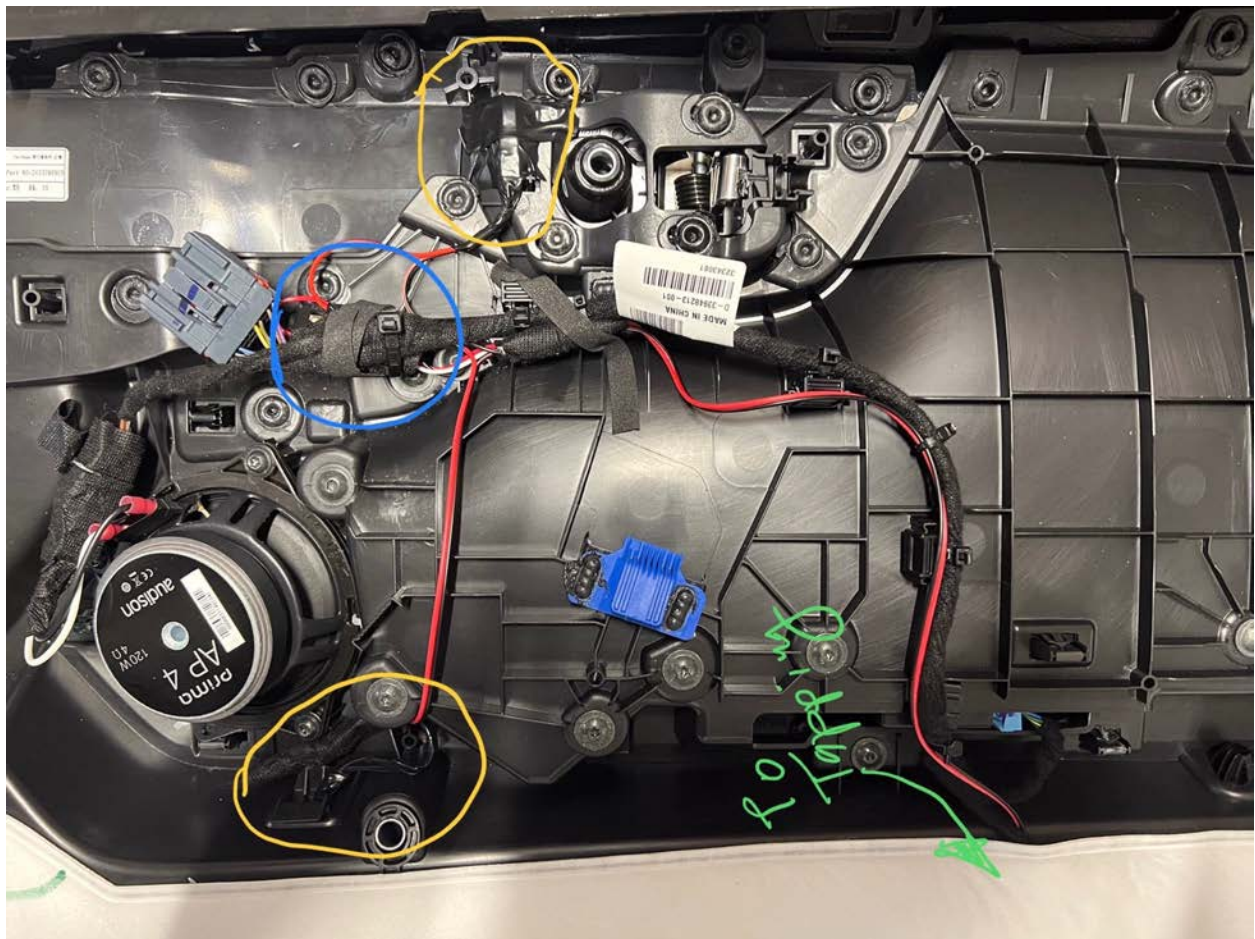
Door pocket long LED strip



This picture below shows the location of the new LED strips, the wrapped dimmer switch and the routing of the tapping wires going to the door switches harness. I wrapped before completing the installation and use zip ties to avoid leaving the red/black wire exposed.

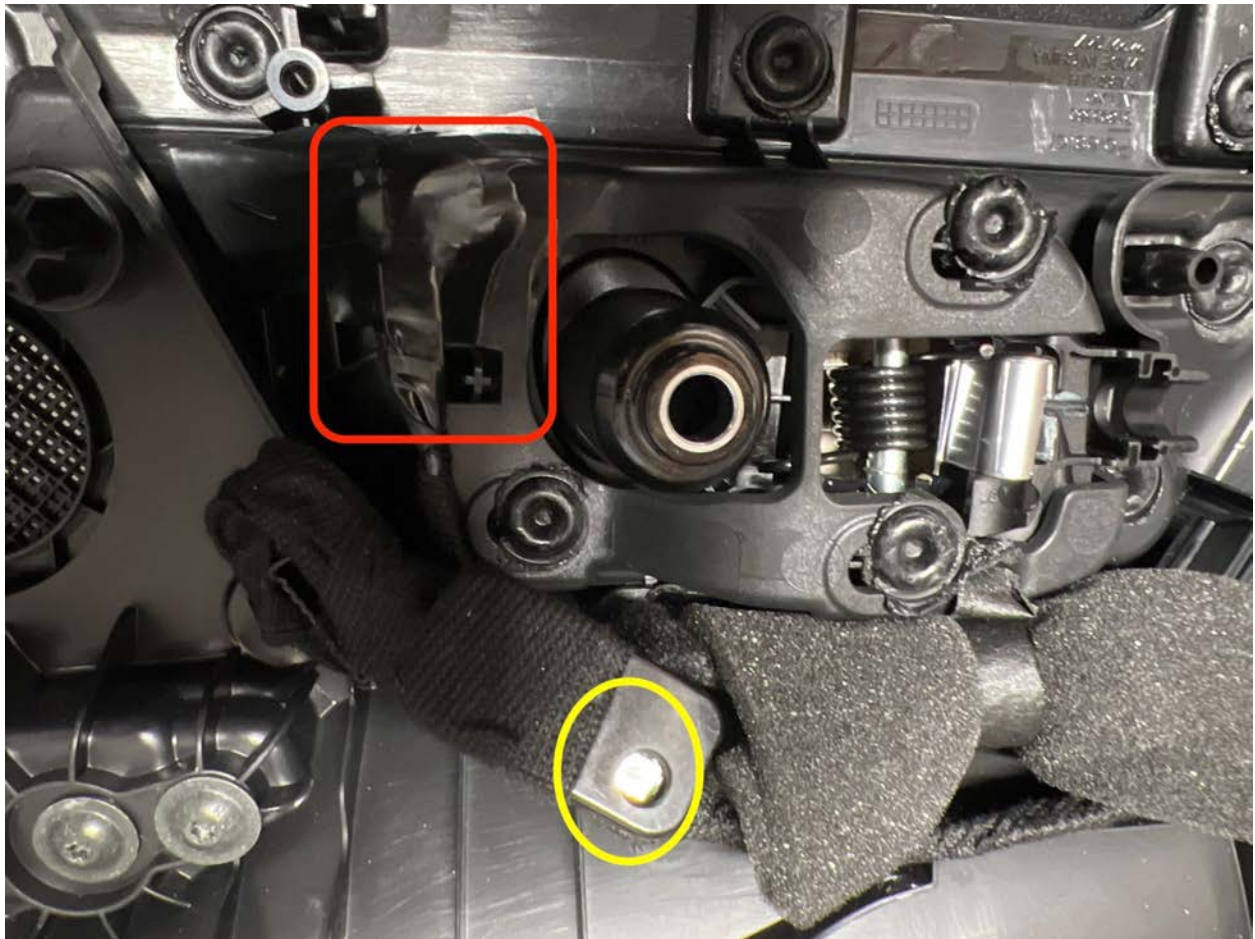
Fitting the LED strips to the door panel.

The image below show you an idea for wire lengths and routing. Blue section is the dimmer switch, the yellow the areas with the LED strips and the green the routing of the tapping wires. At the end, I wrapped all wires with harness electrical tape.



Door handle.

There is a small rectangular opening on the top of the door handle (see red marked area). I bend the led strip facing down, no need to remove the sticky tape on this one and use the 3M electrical tape to hold it in position. Once I tested I was covered with 3M heavy duty double side stretchy tape. If someone else has a better way to do it please message me! The dimmer is just below the door handle and I wrapped it with harness tape to prevent rattles. Remember to keep the dimmer switch opening uncovered for light intensity adjustment (yellow area).



Note: This is the rear door panel. You can clearly see that there is no tweeter speaker to the left. The harness that is wrapped on foam here to the right of the dimmer switch is the connector for the missing tweeter that shares wires with the lower speaker. However, even when the connector is there it doesn't have wires/terminals in the main door harness connector.

Door pockets

There is a blank cover where the OEM light fits. I take it off and drill a 5 mm hole large enough for the LED strip to go through.





Polestar 2, 2022, no plus package. Interior lights modification notes. Sep/2022. By reneult

Note: To improve my install I will try to fit the dimmer switch near the blank plastic cap and make a second hole that matches the dimmer switch adjusting. That way you can easily adjust the intensity of the lights without removing the door panel screws and lift up. I'm not sure it will fit there. But give it a try and let me know, maybe I will change mine.

Tapping the door wires to power the LED strips

I will recommend using the red posi taps for tapping. In my pictures you will see I used the blue ones, because I did not have the red ones handy. The red ones will fit the wire more snugly, and they will puncture the wire easier.

I like the posi taps because you can return the wire to almost its original state by heating it a bit and reshaping it gently with thin nose pliers, and applying a dot of liquid electrical tape.

Rear doors

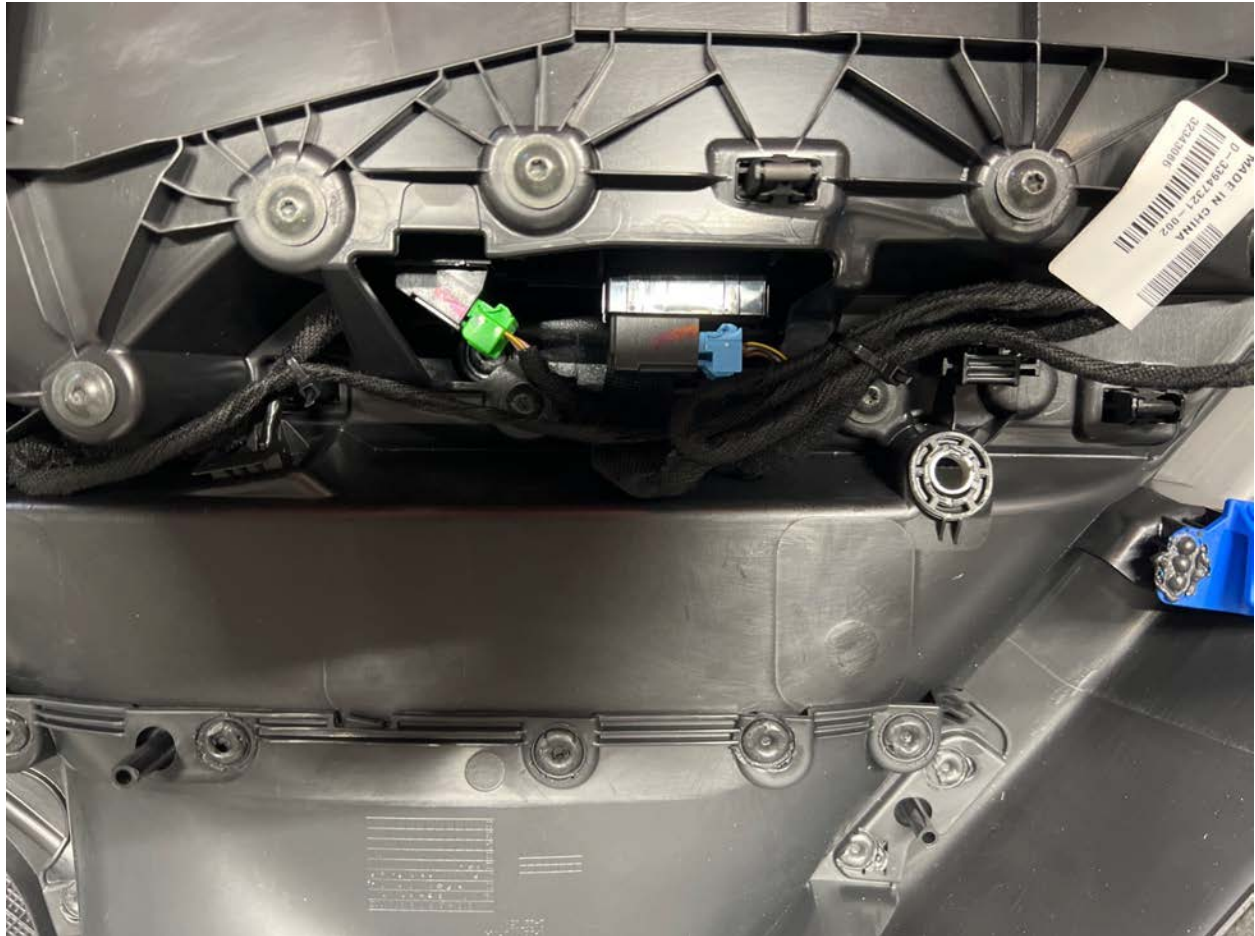
For the rear doors I used the green connector (lock switch).

Negative- Brown/yellow

Positive- Gray/orange



Picture of rear door installation complete with harness wrapped and tied up.



Front doors

I tapped different switches in the front doors. The reason was the space available for the posi taps. I used the blue ones and those are way bigger than the red ones.

Driver door

Memory seat switch

Negative: black/yellow

Positive: yellow/purple

Passenger door

Green connector/lock switch

Negative: brown/yellow

Positive: brown

Adjusting the intensity

Once all four door lights are attached to the doors and to their corresponding tapping wires, wrap posi tap connectors and zip tie the harness.

Mount the panel door temporarily into the door (do not attach the door handle cable yet!), connect the main door connector and test that all lights are working.

You will need to wait for night fall or turn off the lights on your garage to adjust all four dimmer switches for uniform brightness. Make sure you have the car's dimmer switch on the highest intensity and dim the switches down using the little screwdriver until your desired intensity. Remember these are ambient lights, too bright they become distracting specially on the handles that reflect light. If you have ocd and want to have them all the same, use the voltmeter to measure and adjust the output coming out of the diode dynamics dimmer switch and adjust all to receive the same volts (make sure the car's dimmer switch is in the highest position). I think I targeted mine at 7.3 v. You can just do this step visually and not worry about measuring.

Once you are happy with the intensity, reinstall the door panels.
You are done with the doors!

Ready for the dash & console install?



For this install the tapping will occur at the car's dimmer switch connector. The diode dynamics dimmer switch will be installed on the driver's side dash cover.

Materials

You will need

1. The 2.7 mm COB LED
2. The 5 mm COB LED
3. One diode dynamics dimmer switch
4. 2 pin with wire terminal for the 5 mm COB LED
5. One red tapping posi tap, 4 red posi lock connectors, and two blue posi lock.
6. Wire

7. One eye terminal that fits into the ground bolt in the dash next to the car's dimmer switch.
8. Electrical tape
9. Harness tape
10. A thick wire to fish out the wires from the center console to the driver's footwell.
11. Small mirror to fit the COB LED around the bottom section of the center screen.

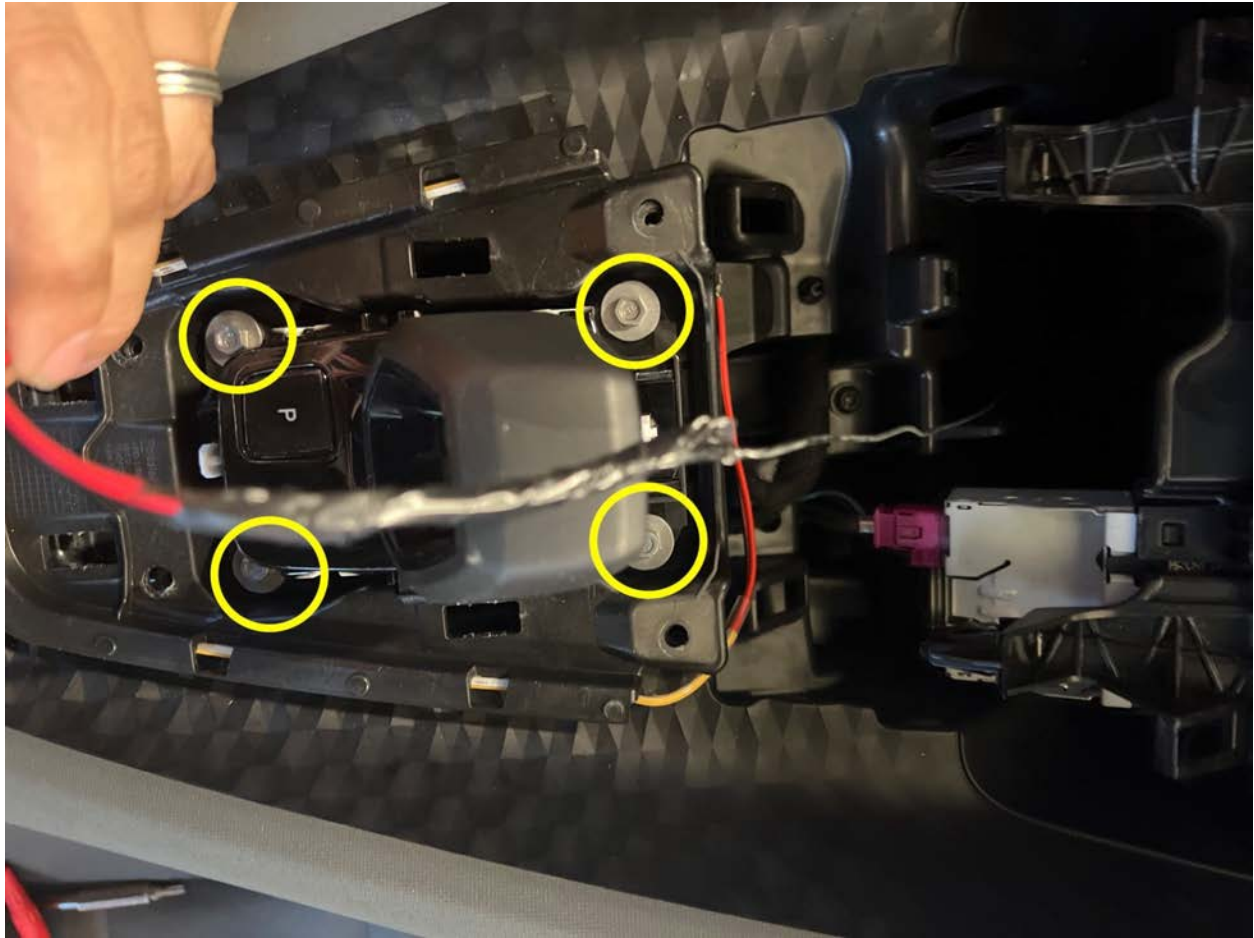
Gear console light

1. Remove the gear console.

For this step, you will need to remove the piano black section. If you have not done the wrapping yet, I will recommend you to look for a video on Youtube.

I use my fingers to pull it out on each side. Once it is detached from the brackets you will need to take it out completely. Make sure to disconnect the harness attached.

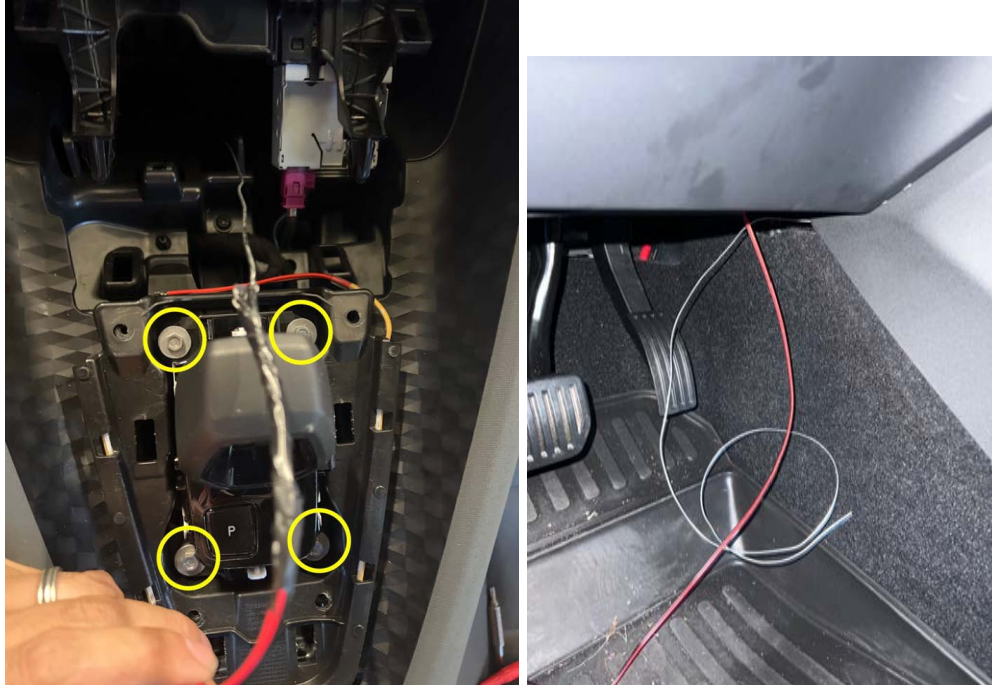
2. Remove the gear shifter (scary yes!) There are four bolts (7 mm or 8 mm). Disconnect the connector below. I did not disconnect the car's negative battery for this. The car will show a warning message on the dashboard. The message disappeared when I connected the gear shifter back.



3. Install the 2.7 mm LED strip. I face it with the LED lighting on the sides. Fit it first for length and then remove the strip from the sticky and stick it around.



4. Reconnect the connector and tight bolts back.
5. Using the thick wire, fish a section of wrapped (3M electrical tape, it is not showing on my picture here, but I wrap it after.) wire from the driver's footwell to the center console. I tried to run it as close as possible from the edge of the main console. You will need enough wire to be routed to the car's dimmer switch going right below the steering wheel. There is a knee airbag in the bottom of the panel there, so keep the wires above that section.



6. It is time to uncover the car's dimmer switch connector. Remove the driver's side panel using a trim tool.



7. For the panel holding the car's dimmer switch first remove two 25 torx screws from the bottom. Then proceed by prying out the panel from the edge using your fingers. It is pretty tight so take your time. I will go out. I did not use any trim tools here. Study the image below and the location of the pins. The dimmer switch is held by two strong pins and it is even more difficult to remove since it is held by hard plastic, I will avoid removing that one.



8. Now you can cut the wire from the center console to size and use the red posi lock to connect the COB LED wires to the wire. Make sure to wrap them with harness tape.

Dash light

The dash light is a long single section of the 5 mm COB LED. Sorry I do not have the final length because once I fit it around the center screen I did not want to take it out for that. To fit it you will need to remove the two dash fabric panels and you will need to fish a wire for power. This light will share the diode dynamic dimmer switch.

1. Remove the two dash fabric panels, gently pull out upwards with your fingers until they get loose. No need for trimming tools.
2. You will need to find a way to test the LED strip if you are adding a 2 pin connector. Do this first and test with the 12 v battery to make sure there is a good connection.
3. Without exposing the sticky side of the lights, start by fitting the lights on the dash. I guess you can start on each side. I started on the driver side on the first opening section (see on pic below) because I already have a 2 pin and wires attached to the strip. Follow the corners, the light will stick into the vertical side and move it behind the center screen, it is tight in there. You want the light to face the bottom section of the screen (phone section) , not much light on the sides. Use the mirror to guide you the fitting. The lights are some sort flexible and will bend on the corners. Once you reach the passenger section the light will continue on running on the corner (you will cover it at the end). Continue fighting it until it reaches the end of the dash before the air vent. Make sure it is snugly but not too tight, you still need to expose the sticky side and you need some room to be able to do that. At this point you need to fit the length.

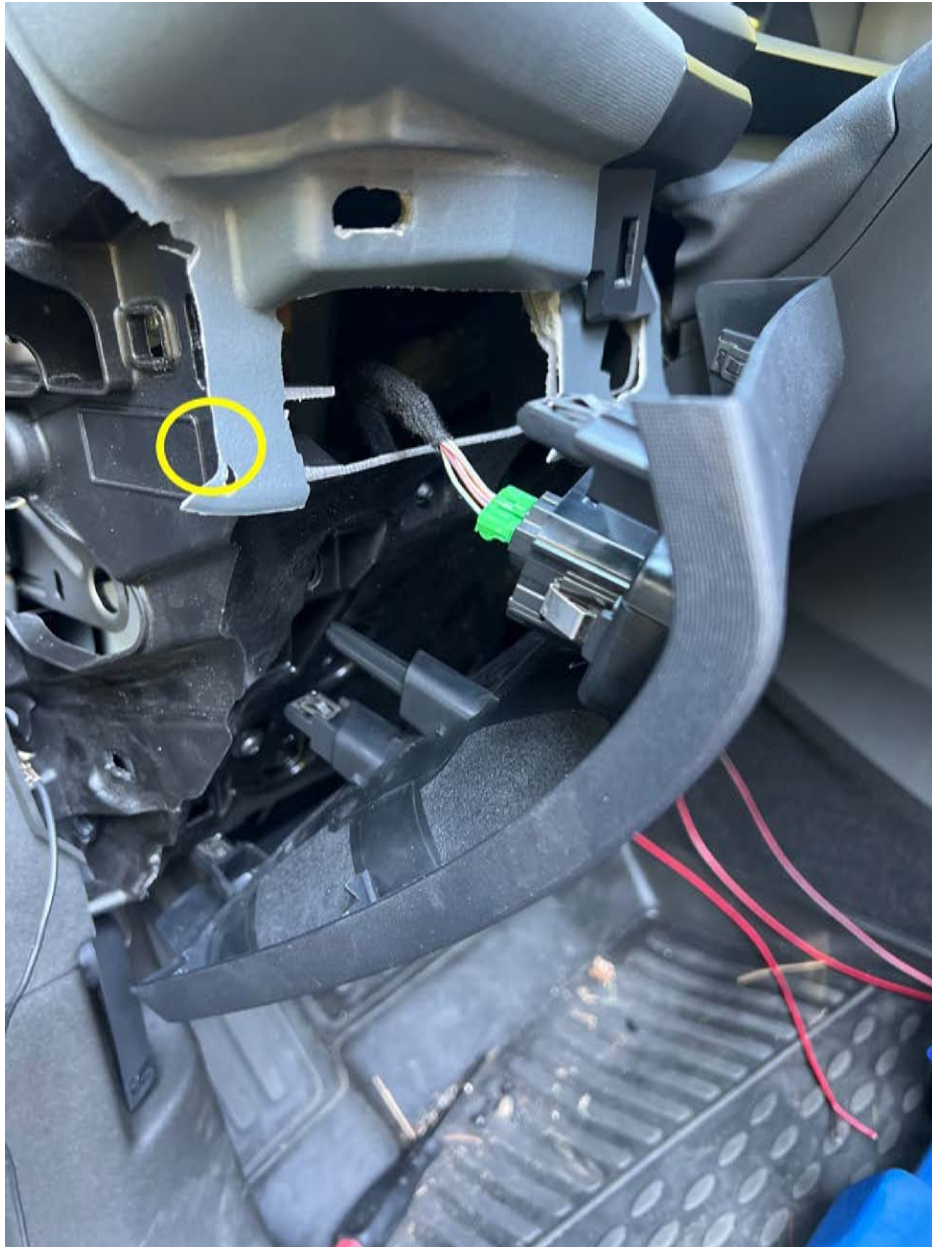


4. Time to connect the dash light to the dimmer switch. You will need to use the wire to fish wire from the upper dash to the drivers footwell, and to the car's dimmer switch where it will be connected to the diode dynamics dimmer switch (wrap your wire with 3M electrical tape for extra protection).
5. Once you have the wire cut to size, attach it to the COB LED lights using the red posi locks. Wrap them with harness tape.
6. It is time to connect both LED strips to the dimmer switch for testing.

Tapping one wire on the car's dimmer switch.

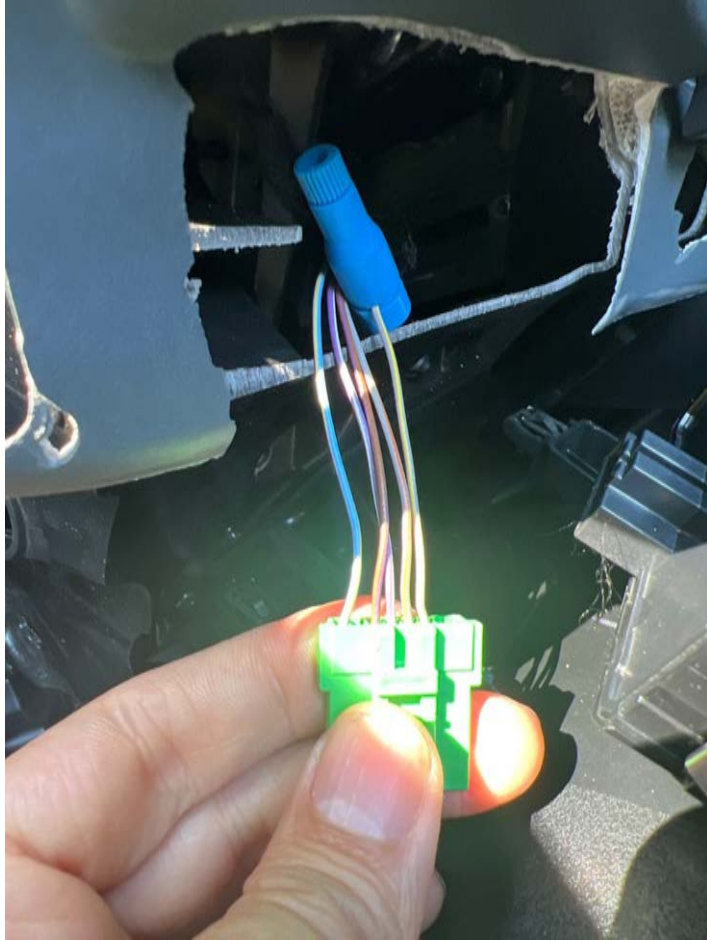
1. Detach the car's dimmer switch connector.
2. Find the gray/yellow wire and use a red posi tap to tap it (You will need to strip some of the harness tape away). If you see a blue posi tap on my pictures you are doing it better using the red one.

3. To avoid more tapping wires, for the ground I decided to use a bolt that is not visible on the picture (yellow section, pic below) but you will see it once you have this open. It is positioned horizontally towards the front of the car. Use the eye terminal connector and crimp it to a section of black wire.



4. Once all the four wires from the lights are in the proximity is time to connect all.

5. The three black wires (ground, and two LED strips) need to be connected together. The blue posi taps accept two wires on each side.
6. The white wire from the diode dynamic dimmer switch will connect to the gray/yellow wire from the car's dimmer switch.
7. The single red wire from the diode dynamic dimmer switch will connect to the red wires from both LED strips.
8. Make sure to add some shrinking tubing to the left red wire from the diode dynamics switch.
9. Ready to test once all the connections are made.
10. You will have full control of the intensity using the car's dimmer switch and the one from the diode dynamics one.
11. I wrapped the connectors with harness tape and used a zip tie to hold the diode dynamic dimmer switch to the metal frame on the side of the dash. Make sure you left the opening for the screwdriver accessible to adjust at the end.
12. Once all lights are working properly it is time to finish the dash lights.



Finishing the dash lights

1. I exposed the sticky side on the drivers side and continued my way to the passenger side. I left the light right in the bottom section of the vertical dash wall. It is fine in this part of the dash.
2. Expose the sticky side on small sections at the time and confirm fit and gentle press against the surface, use the mirror on the bottom side of the screen, make sure the light is lighting facing down.
3. Once you reach the passenger upper side, you will need to do some extra testing. After I placed mine at the corner of the two surfaces (bottom section of the vertical dash) and repositioned the fabric dash panel and seat on the rear seat, I was able to see the light if I moved my head down. It is quite annoying and distracting especially at night.

You will need to move it higher so it is not on eye level for rear passengers (I haven't moved mine yet, I never have rear passengers hehe, I will do that next summer).

4. Once you have that fitted well, expose the sticky section and hold it in position.
5. Install back all panels, don't forget the two screws from the driver's panel.
6. Last thing to do is adjust the intensity. Under dark conditions, have the car's dimmer switch to the highest position and, using the screw driver provided by the diode dynamic switch, adjust until you get a nice intensity. You can leave the side dash panel open for now until you drive the car at night and you find the best intensity.
7. You are done now! I think this setup has more adjusting than the OEM, I read that the OEM lights get very dimmed and there is not much flexibility to adjust that.

Trunk light






Our cars have only one light in the trunk area. However, there is a blank cover and a space for a second one (the PLUS package has one here). It is an easy modification. However, be aware I am not sure you can fit any light here. I run into some issues installing one I ordered from Aliexpress (LED) and it caused some issues with the mood lights. I think I maxed out the circuit. I later read on a Volvo S60 forum that “the circuit max at 500mA” (<https://www.swedespeed.com/threads/the-s60s-trunk-illumination-is-weak-sauce-time-to-put-some-light-on-the-subject.642850/>).

Even then the guy from the S60 used more LED lights, I did not want to pursue adding more lights (yet). However, I think it is possible if you know how to measure the Amp load of the extra lights. Using a diode dynamics switch might do the trick. Also, I think the idea on tapping into the LED light circuit is nice if you want to avoid tapping wires. I found the volvo post after I tapped into my car’s wires.

Materials

1. Volvo courtesy lamp P/N#: 31663793 . I got my used one from ebay. If your foot well front lights are not working now (they are not working on my car currently due to software issue, Polestar is working on fixing it on the nex update (Sep, 2022). Take one off and test until you get the one you order.
2. Red posi taps 2x
3. Red posi locks 2x
4. 3M electrical tape
5. Harness tape
6. 3 pin JAE connector with female terminals 1x (order 3 if you want to add ghost lights). They cost \$0.82 and the terminals \$0.10
 - a. https://www.digikey.com/en/products/detail/jae-electronics/IL-AG9-3S-S3C1/2044124?utm_medium=email&utm_source=oce&utm_campaign=4251_OCE22RT&utm_content=productdetail_US&utm_cid=3049095&so=76978572&mk_t_tok=MDI4LVNYSy01MDcAAAGFx2hYtNV87fRQkGh0V04IRMurzg9kloH5wjMFJKj9v1000cEESu4-j90YpqVcOV713A-Qavqgsw6uf9YWPwKeVKA-bXlo6XOXIJCNaSHQ
 - b. https://www.digikey.com/en/products/detail/jae-electronics/IL-AG5-C1-5000/1969206?utm_medium=email&utm_source=oce&utm_campaign=4251_OCE22RT&utm_content=productdetail_US&utm_cid=3049095&so=76978572&mk_t_tok=MDI4LVNYSy01MDcAAAGFx2hYtEiQQ3oqXpPNmMslfTg4xaOayHj5TN7t1AZjL1AkyHFG0dKaM9GAhm132aAA8VSP48eGm4Q00rlrnBlvOhECf8nXUIXKEBLcO-GD

Details	Available Quantity	Backorder Quantity	Unit Price	Extended Price
 <p><u>IL-AG9-3S-S3C1</u> 670-2217-ND CONN SOCKET 3POS HOUSING 2.5MM</p>	4	0	0.82000	\$3.28
 <p><u>IL-AG5-C1-5000</u>  670-1785-1-ND CONN SOCKET 18-22AWG CRIMP TIN</p>	10	0	0.10000	\$1.00

2 of 2 parts displayed.

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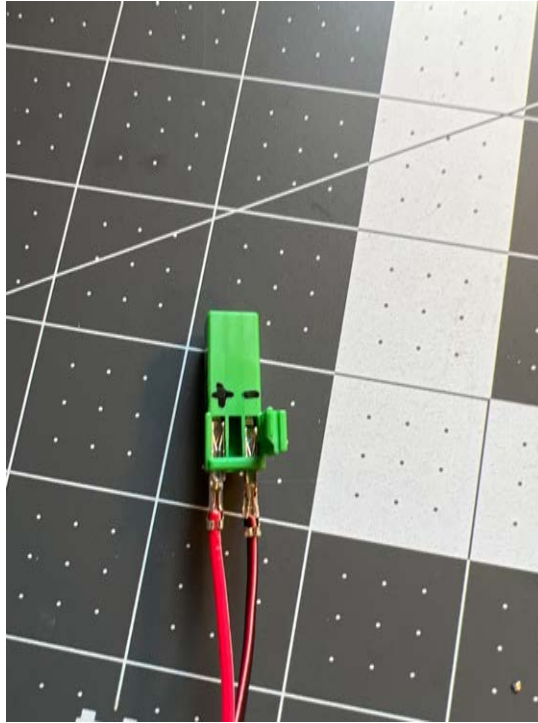
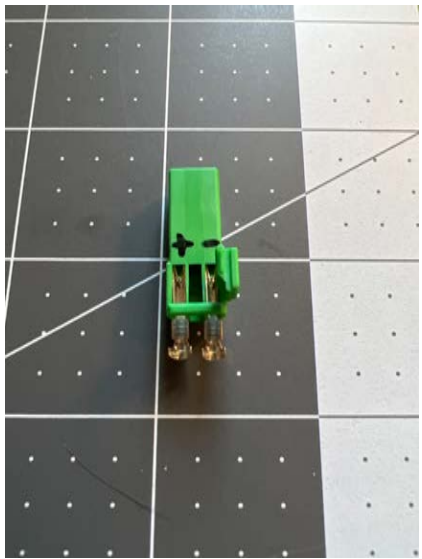
7. Wire (same you used for the other lights).

Procedure

Make the wire harness

1. Lift the trunk floor
2. Remove the inner trunk insert/floor
3. Remove the blank from the side using a trim tool
4. Remove the Led light on the driver side
5. Measure the length of wire you need by feeding it from side to side, you will need to loosen the trunk sides by pullin up the gasket and pulling out, just enough to give you some space, no need to remove the whole thing.
6. You will be running the wire through the space on the rear side of the trunk.
7. Cut the wire, wrap it with electrical tape.
8. Connect the wire to the 3 pin JAE connector see the polarity on the pics below. Keep the terminals facing up when you push them in. This connects to the light.

9. Tap into the wires from the original light using the red posi taps and wrap them with harners tape. Black wire is negative and the brown/green is positive (always double check if that is not your wires color).
10. Test the new light
11. Use zip ties to hide the new wires and enjoy the new light.



Shadow lights



I ordered these shadow lights while I was waiting for delivery. I did not know that the car would not be fitted. As I mentioned at the beginning I try to fit them using the harness from the XC40 but the circuit is not receiving the 12 V that they need. I almost gave up. But I got the idea of connecting them to the exterior door handle lights. The lights don't light up when you open the door, but they do when you unlock the door.

NOTE: I left this mod at the end, by now you might feel more comfortable tapping on wires and removing door panels. It is relatively easy to do, however, the tapping wires are more difficult to uncover due to the sticky

electrical tape and there are two violet wires that only one works. You will need to tap and test both, if the first one works, you are good to go.

The downside for this one, is that the light harness is not tapping into existing panels wires and if the door panel is removed for service, the light is going to be attached to the panel. So, if you take your car to service the door, I will recommend disconnecting the LED prior to that.

Materials

1. Two shadow lights with polestar logo (Ali express)
2. Wire
3. 3M electrical tape
4. Harness tape
5. 3 pin JAE connector with female terminals 2x. With female terminals. Same as the trunk.
6. Piercing probes for wire testing

https://www.amazon.com/dp/B08NP37CZ7?_encoding=UTF8&psc=1&ref_=cm_sw_r_cp_ud_dp_350MD65C0NRQZJWPR7R3

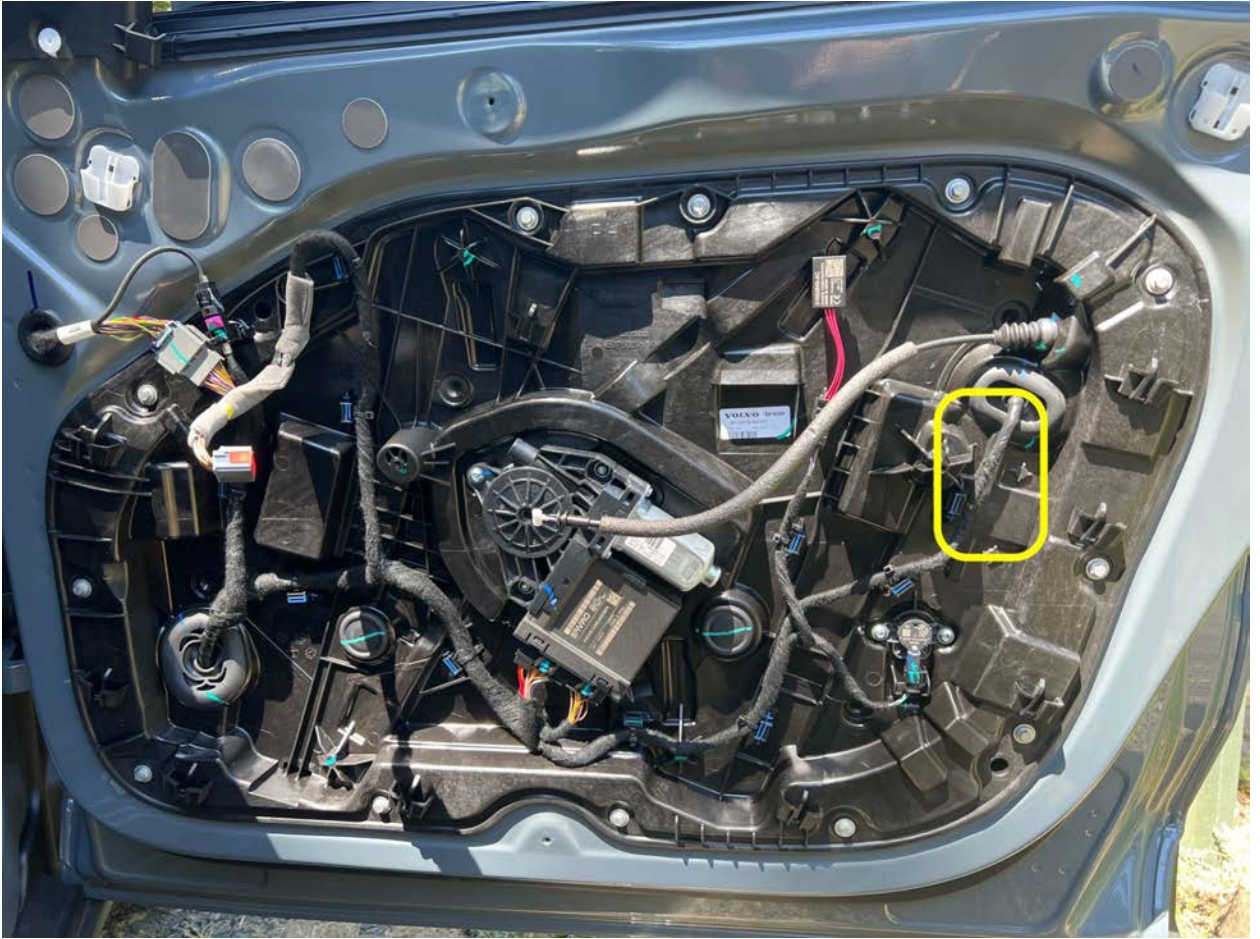
Procedure

1. Make a harness using the JAE connectors (like the one for the trunk light).

Tapping wires

1. Remove the door panel

2. Find door handle harness



3. Very carefully unwrap the wires from the section close to the rubber gasket. The electrical tape is very sticky.

Tapping wires

Passenger side

1. On the passenger door tap.
2. There are two violet wires, one is the "hot" 12 V. You will need to tap and test or use the tapping needle and the multimeter.
3. The brown is the ground.



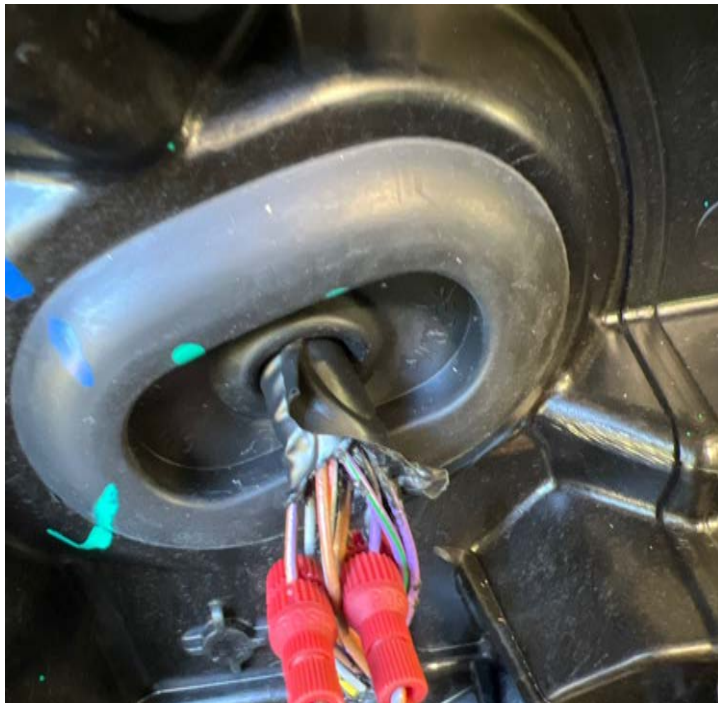
Driver door

There are two brown wires and two violet wires.

For the ground I tapped into the thin brown wire.

For the positive I tapped in one of the violet wires

If you tapped wires that did not work. You can reshape the little hole by heating up and adding a bit of liquid electrical tape



Make sure to test the lights, using the remote control lock/unlock the doors. The shadow lights will light up as the door lights.
Wrap posi taps connectors with harness wire for extra protection. Re-install the door panels.
Enjoy!