

Passat B6 / 3C Inner Tail Light Install

(aka Skyline lights)

Updated Jan 30, 2012



Written by angelico.

Please contact me on vvwortex if you have questions or see a change that needs to be made.

Notes:

The more I looked into these lights, the more I found that could be done with them. There are many different wiring options depending on what function you want the lights to perform.

This document should apply to the Jetta as well but the size of the LED board is slightly different, and only works with the Euro LED tails, not the halogen North America tails.

The Jetta DIY can be found here, (http://www.angelico.ca/files/Rückleuchtenmodifikation_Jetta_V.pdf)

Special thanks to Kevin Dee, Iulian Dinu, passatfan2006, jhtopilko, chadcronin, LeeNouks, mvfdb6wag, and OemPlus.

Purchase info:

Preassembled lights (both sedan and wagon) can be purchased directly from:

Kevin Dee (Kevin_dee@163.com) (<http://www.car-led.com/>) Can provide lights for Mazda 6 and Mazda 3. Passat Front LED turn signals and DRL lights also available. Uses OSRAM LEDs, the official supplier to Hella and Valeo.

Iulian (iuly1209@yahoo.co.uk) (<http://www.jlstuning.com/>) Can provide lights for Jetta, Golf, and more. Passat front LED turn signals also available and other custom LED work.

---Due to difficulty of modifying your own lights, the LED boards are no longer available---

Personally, I recommend buying the lights already assembled because it's a lot of work to install the boards and you can very easily damage your lights. Leave it to the Pros!

Section A: Wiring for the inner taillight:

The below instructions assume you are not using the factory single rear fog light and have 2 reverse lights. If you have a World car or right-hand drive, some of the settings are different and you may not need to make any VAG-COM (VCDS) changes.

Option 1: Use as additional tail lights and brake lights

Wire (+) to pin 4 and (-) to pin 1 on outer tail light. For most North American cars this should result in dim with the regular lights and bright when braking.

Option 1a: Use as additional tail lights and brake lights (VCDS required)

This requires the left reverse light wire at the ECU to be moved into the “rear fog” position. (http://www.angelico.ca/files/gli_rear_fog.pdf). You do not need the Euro switch or the trigger wire installed for this but if you have them and want to use the rear fog, see option 2.

See Section B for building a factory look wire harness.

Make the following VCDS changes:

All settings are in 09-Central Electronics

Byte 3, Bit 1, checked, 1 rear fog light (yes, you will actually have 0)

Byte 3, Bit 2, checked, 1 reverse light (yes, you will actually have 2)

Byte 4, Bit 6, unchecked

Byte 10, 15%, rear fog as parking light (or same as your tail lights are set to)

Byte 21, Bit 4, checked, rear fog light as brake light

If you receive a bulb out indication, uncheck the following bits in VCDS.

Byte 19, Bit 3, Cold Diag Rear fog

Byte 19, Bit 6, Cold Diag Back-up light

Result should be dim with regular lights and bright with braking.

Option 2: Use as additional tail lights, brake lights and rear fog (VCDS required)

This requires the rear fog trigger wire to be installed (http://www.angelico.ca/files/gli_rear_fog.pdf), and the Euro switch with rear fog.

See Section B for building a factory look wire harness.

Make the following VCDS changes:

All settings are in 09-Central Electronics

Byte 3, Bit 1, checked, 1 rear fog light (yes, you will actually have 2)

Byte 3, Bit 2, checked, 1 reverse light (yes, you will actually have 2)

Byte 4, Bit 6, unchecked

Byte 10, 15%, rear fog as parking light (or same as your tail lights are set to)

Byte 21, Bit 4, checked, rear fog light as brake light

If you receive a bulb out indication, uncheck the following bits in VCDS.

Byte 19, Bit 3, Cold Diag Rear fog

Byte 19, Bit 6, Cold Diag Back-up light

Result should be dim with regular lights and bright with braking and bright when the rear fog switch is active.

Option 3: Use as additional tail lights and rear fog (VCDS required) [my personal choice]

Same as Option 2, but leave Byte 21, Bit 4 unchecked.

Option 4: Use as additional taillights Only

Wire (+) to pin 2 and (-) to pin 1 on tail light. Lights should be dim whenever taillights are on.
(also can be wired to license plate lights with additional resistor to reduce brightness)

Option 5: Use as additional tail lights and turn signals (red)

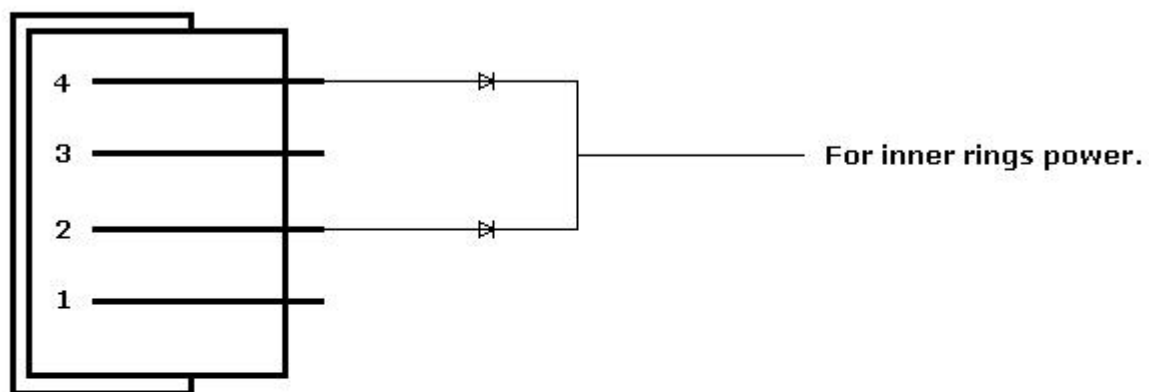
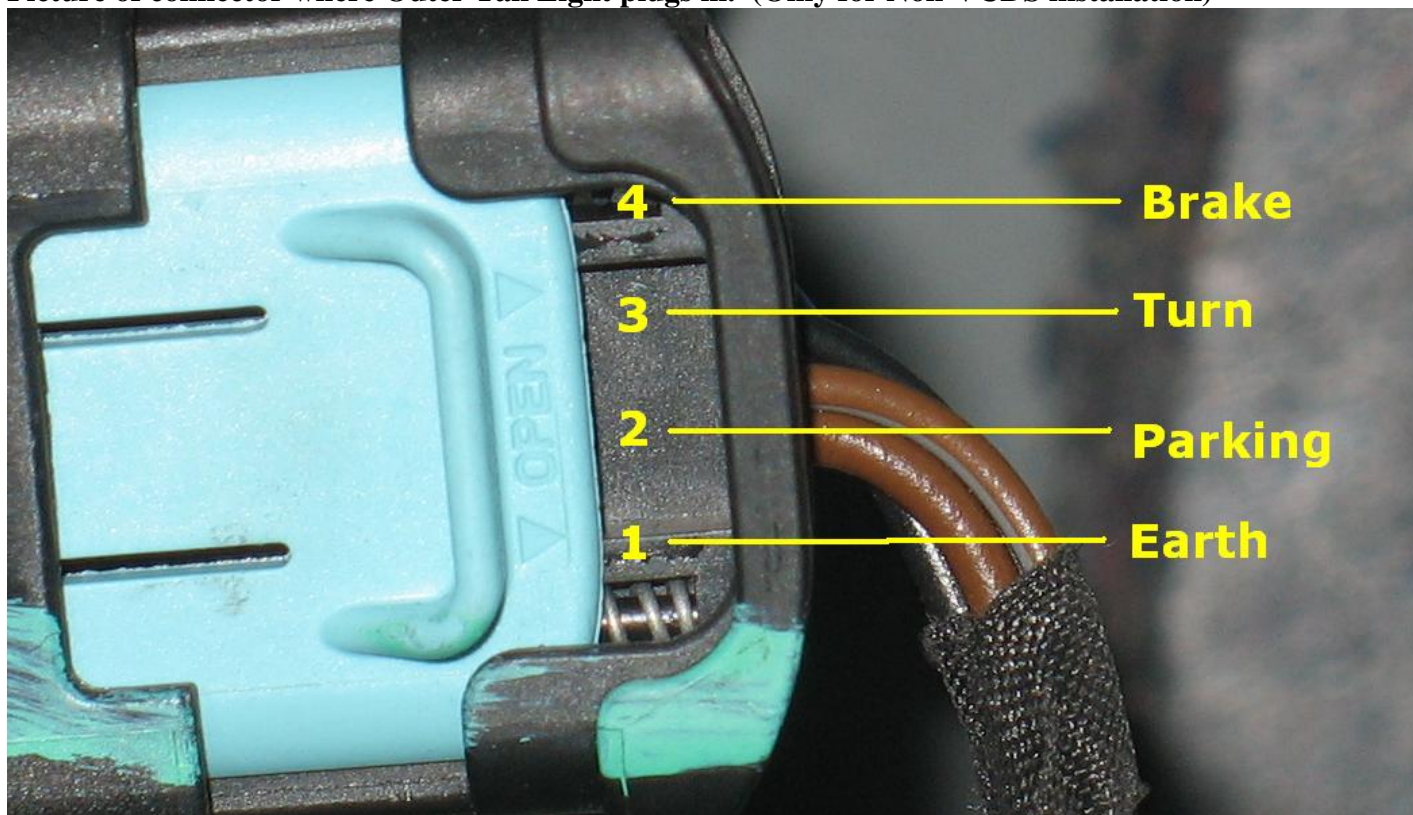
Wire (+) to pin 2 and (-) to pin 3 on tail light. Lights should be dim whenever taillights are on and flash bright with the turn signal.

Option 5a: Use as additional RED tail lights and AMBER turn signals

You need Euro outers and Iulian's special amber inner lights to do this. See this video for the coolness!

<http://www.youtube.com/watch?v=Zr-K5c0QoU8>

Picture of connector where Outer Tail Light plugs in. (Only for Non-VCDS installation)



- 1 Ground
- 2 Parking light power
- 3 Turn signal light power
- 4 Brake light power

2 step brightness for inner rings wiring up by Kevin
20091222

Section B: Wiring for the inner taillight (Building a wire harness):

The below instructions assume you are not using the factory single rear fog light and have 2 reverse lights. This wiring will allow to use Options 1a, 2 and 3 above. This is for a “2-wire” version of the LED board, some may have 3 wires to allow for amber turn signals.

In a perfect world we would run the 2 missing wires all the way from the ECU to the tail gate / trunk lid. Since VW “cost cut” these wires out it is easiest to connect the wiring to parts nearby.

Parts required:

1x 191 972 712 female connector housing with 1x 000 979 129 repair wire set

1x 1J0 972 923 male connector housing with 1x 000 979 133 repair wire set

2x wire splice connectors

4x Male and 4x Female bullet connectors or something better (I wanted something that could disconnect easily if I needed to take out the lights)

Crimping tool for above connectors

Solder and solder iron

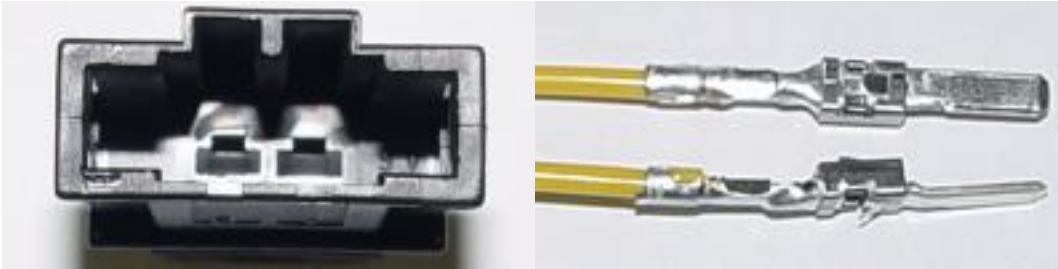
30ft AWG20 wire

Wire cutters

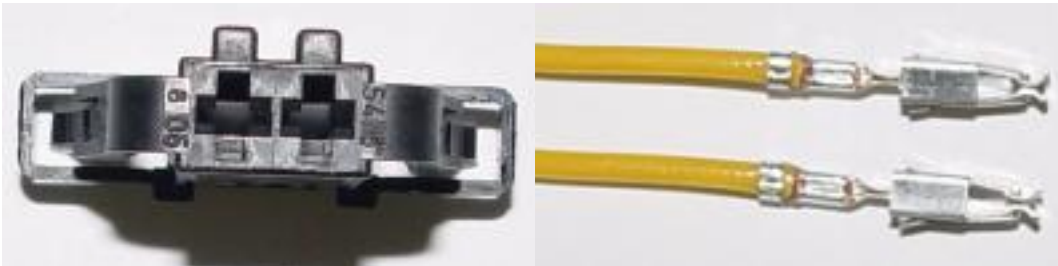
Cable ties

Cable wrap (optional) [Flexo-PET]

connector 191 972 712 and wire set 000 979 129



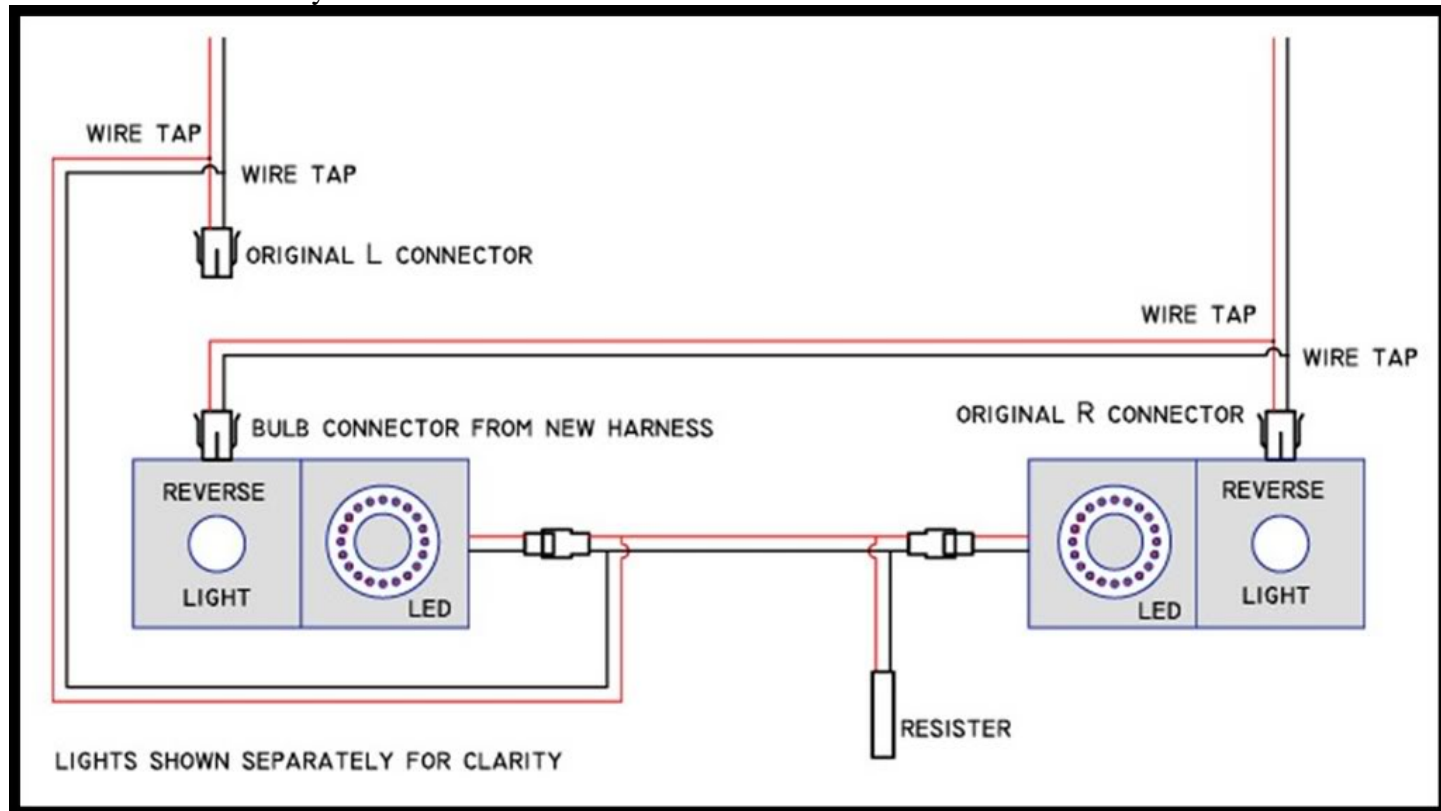
connector 1J0 972 923 and wire set 000 979 133



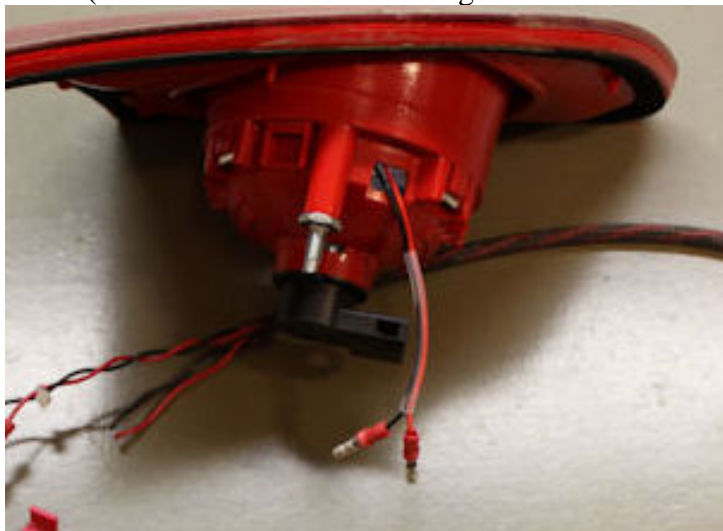
Building the wire harness:

-The idea is tap the right reverse light so it also runs the left reverse light and then connect both of the inner LED boards to the left reverse / rear fog light. (see chadcronin's drawing below)

You should not need the resistor. Instead of wire-tapping left connector use connector 191 972 712 and wire set 000 979 129 for "factory look" fit.

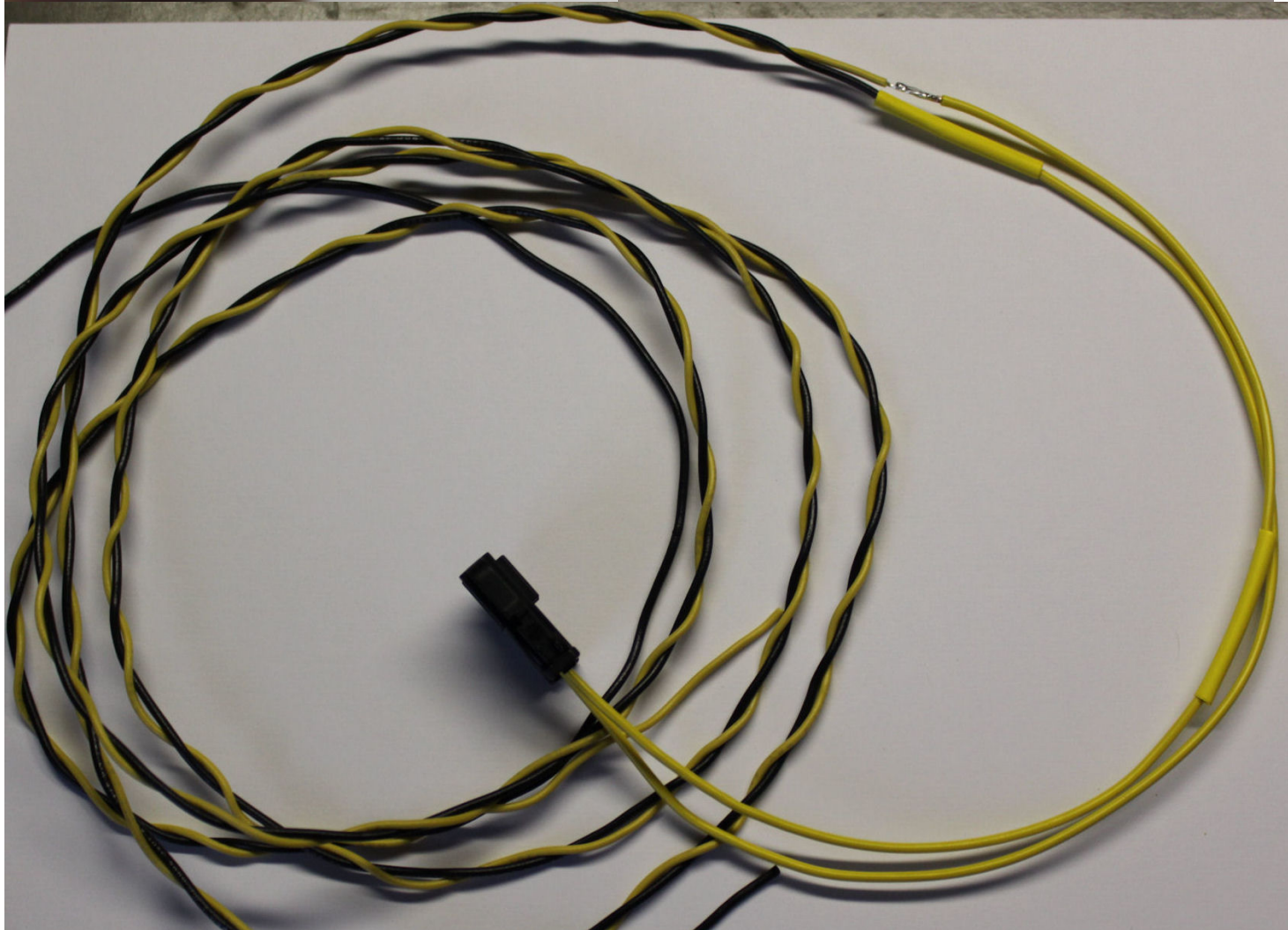
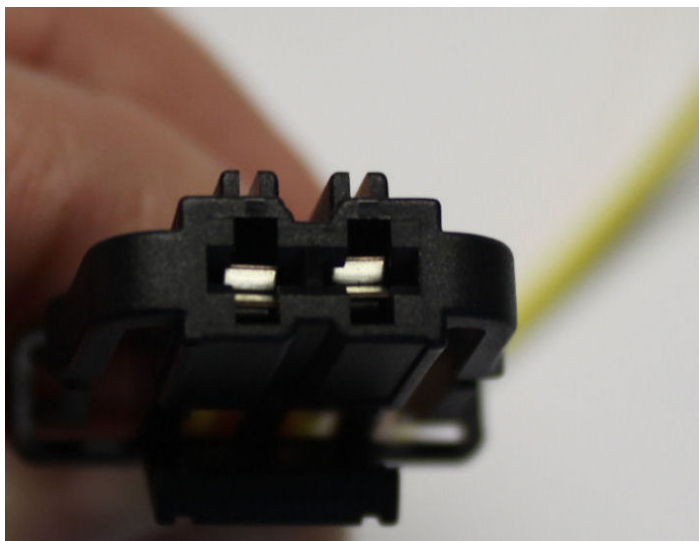


-Crimp 2 male bullet connectors to each inner skyline light wire, leave enough slack to connect to the female side later. (the heatshrink ones on the right would be better than the regular ones I used)

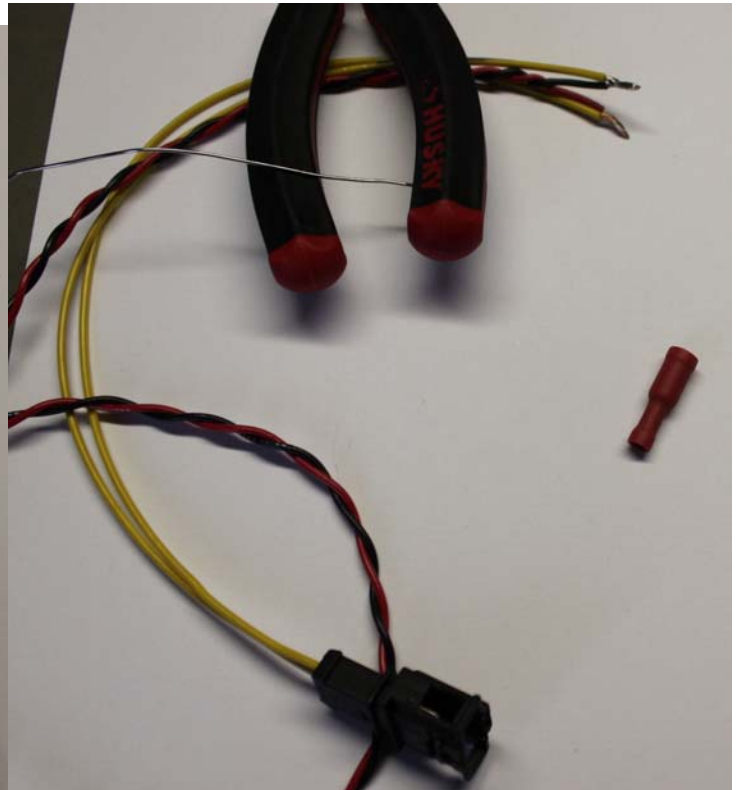
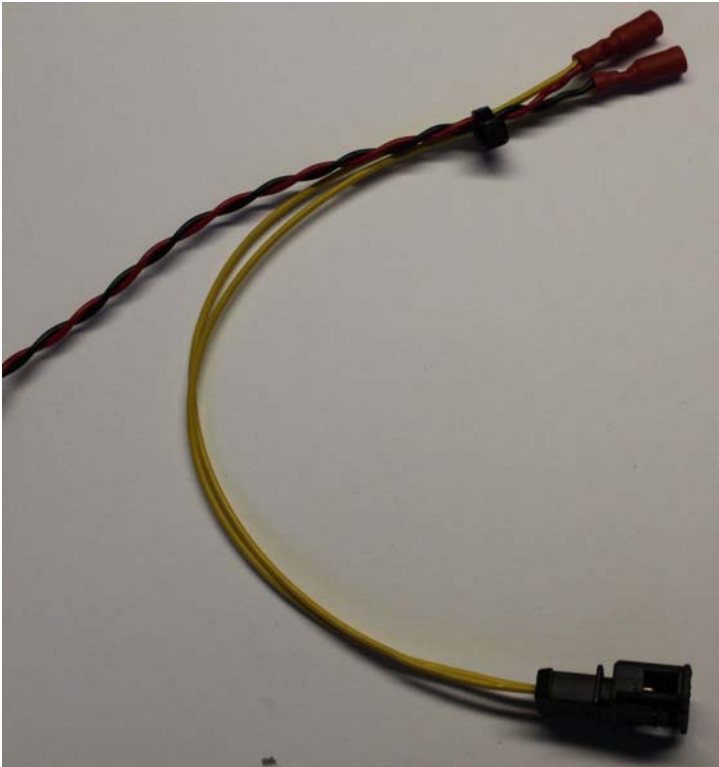
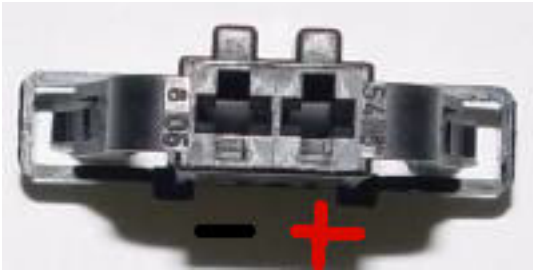


-Reverse Light: We will use the VW connectors to connect the lights on the left side of the car. Insert 000 979 133 repair wire into 1J0 972 923 male housing, the wire should only go in one way such that the flat part sits horizontally. Cut the repair wire in half and solder and heatshrink each of them to about 6ft of wire so they are

long enough to reach the right inner light in behind the trunk or hatch liner. (I had twisted my wires together so they were easier to work with)



-Skyline / Rear fog: Insert 000 979 129 repair wire into 191 972 712 female housing, the wire should only go in one way with the blade sitting horizontal. Cut repair wire in half and strip the ends. Next take 2 pieces of about 6ft wire and strip a bit from one end. Twist and solder an end of the long wire to one repair wires so you can put both of them into the female bullet connector, repeat for the other wire. With LEDs, polarity is important, the housing is labeled 1 and 2 if look closely. 1 is the negative side and 2 is the positive side. Crimp the bullet connector on each wire.



-Assemble the Harness: Now bring the 2 sets of wires together, all the connectors you put on should be at one side and the loose wires at the other. Using cable ties every inch or wire cover so they are easy to feed in the car. If you're sure of the length of the wires you can go ahead and put the other 2 female bullet connectors on the wires for the LED rings. The wire taps will be put on out at the car.



-Car Assembly: Take off the covers (inside trunk or hatch) to access the inner lights, unplug and remove. Feed your new wire harness from the left inner to the right inner. Install the left light and connect everything. On the right side use the wire splice connectors to tap the reverse light and crimp on the 2 bullet connectors if you didn't earlier. Install right inner light and connect connectors.



Section C: Even more options:

Outside “donut”

Generally if you’re installing the Skyline lights, you also want to change your outer tail light to a “donut” as well.

- With Euro-tails it’s easy just change Byte 9 in 09-Central Electronics to 00, Rear Brake Light as Parking Light.
- With NAR tails you need to cut a wire. It should be the small black wire inside the taillight, but read the thread below before trying this.

For the full forum thread:

[http://forums.vwvortex.com/showthread.php?4362705-new-change-in-my-brake-lights.\(singe-donuts\)-with-VAG-CABLE](http://forums.vwvortex.com/showthread.php?4362705-new-change-in-my-brake-lights.(singe-donuts)-with-VAG-CABLE)

Scandinavian DRL

For added safety and so everyone can see your cool lights all the time, change your Daytime Running Lights to Scandinavian. In 09-Central Electronics, uncheck Byte 0, Bit 4, and check Bit 3.

LED reverse Light

If you didn’t purchase Kevin’s “deluxe” version or similar, and want a nice bright LED reverse bulb, I recommend one from autolumination.com. I’ve been using the 48 LED SMT towers for >2 yrs and they’ve been perfect. There are now even brighter ones available for a good price.

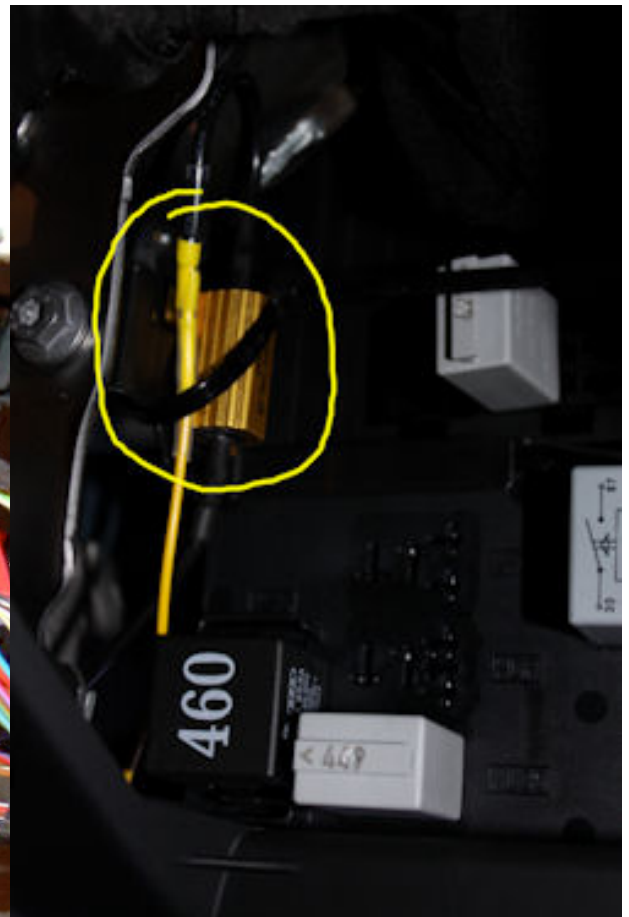
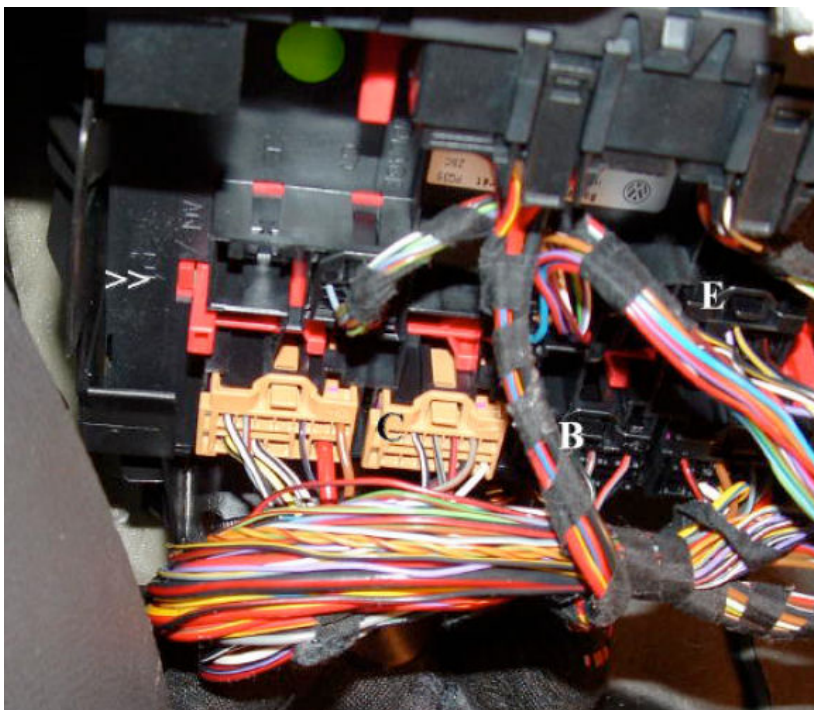
http://autolumination.com/1156_1157.htm

“Right Rear fog not working”:

If you use Options 1a, 2, or 3 from above and have a newer B6, you may get a bulb out indicator for the right rear fog. This is because the “use rear fog as additional tail lights” function expects there to be 2 rear fogs wired directly to the ECU. In the ideal world you would actually run 2 complete pairs of wires from the ECU to your new lights, but that is a lot of work. Using the wiring diagram I found from the CC (it’s basically the same electronics!), we can find out where the right rear fog is supposed to be connected and add a load equalizer so there is no more warning. The diagram is on the next page.

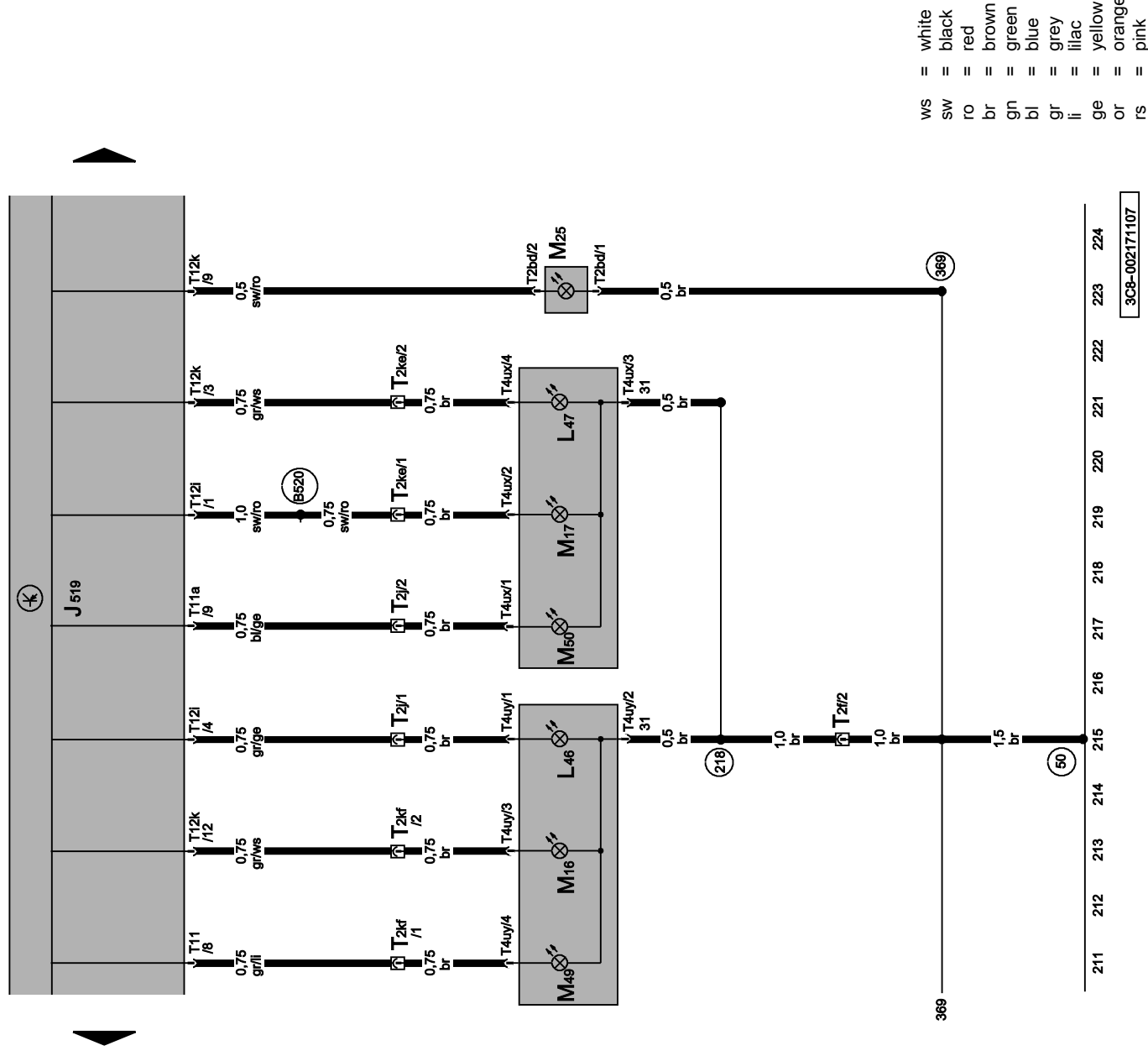
You will need VW repair wire 000 979 150 and a 25W load equalizer. I got the LE from <http://autolumination.com/equalizers.htm>. Follow the directions here for accessing the connector shown in the picture below, <http://forums.vwvortex.com/zerothread?id=2290044>. Cut the repair wire in half and connect one of the halves to the LE, add a piece of 20G wire to the other end to wire splice to a ground somewhere nearby. The positive side of the right rear fog is Pin 3 on the brown connector labeled “C” below. Negative can be connected to any brown ground wire, I used the negative side of the drivers footwell light because it was easy to access.. The LE does not have a positive or negative side. It will get warm however, so place it somewhere that the heat will not damage, I choose a metal bracket near the fuse panel which is close by but not in the way of anything.

That’s it. No more bulb out indicator for a light you don’t really have. (Those with RHD would get a left bulb out message and need to use pin 4 on the black connector labeled “B”.)



Taillamp Rear Lid

J519	Vehicle Electrical System Control Module
L46	Left Rear Fog Lamp
L47	Right Rear Fog Lamp
M16	Left Back-Up Lamp
M17	Right Back-Up Lamp
M25	High-mount Brake Light
M49	Left Taillight Lamp 2
M50	Right Taillight Lamp 2
T2f	Double Connector, green, connector station rear lid
T2j	Double Connector, black, connector station rear lid
T2bd	Double Connector
T2ke	Double Connector, brown
T2kf	Double Connector
T4uy	4-Pin Connector
T4ux	4-Pin Connector
T11	11-Pin Connector, black
T11a	12-Pin Connector, black
T12i	12-Pin Connector, black
T12k	12-Pin Connector, brown
50	Ground Connection (in luggage compartment, left)
218	Ground Connection 1 (in rear lid wiring harness)
369	Ground Connection 4 (in main wiring harness)
B520	Connection (RF) (in main wiring harness)

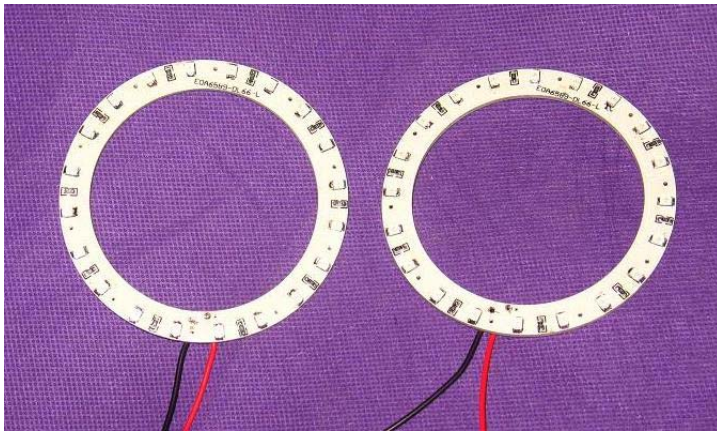


Assembling your own:

---Due to difficulty of modifying your own lights, the LED boards are no longer available. I have left this section as information only

There are 2 different methods for accessing the place where the LED board needs to be placed. Both are of moderate difficulty and you can very easily damage your lights. ***I suggest that if you have not done this type of work before to just purchase preassembled lights.***

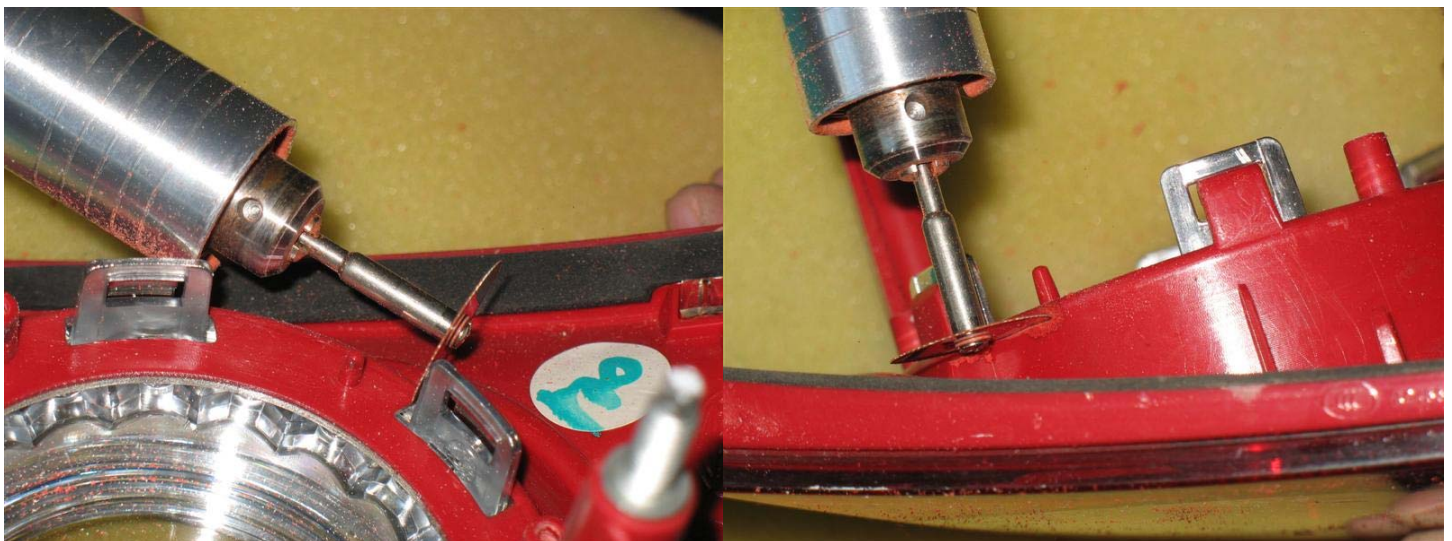
Kevin cuts the back off (method 1) and Iulian takes the lens off (method 2). I took the lens off of mine and took the pictures shown in method 2. Iulian's work is higher quality than mine as he has much more experience.

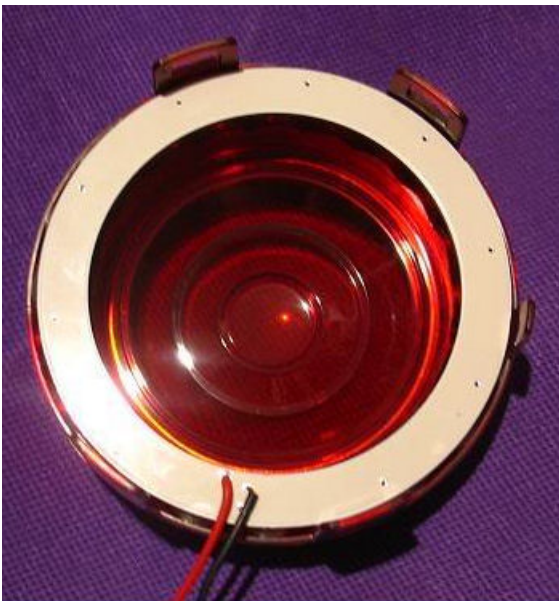
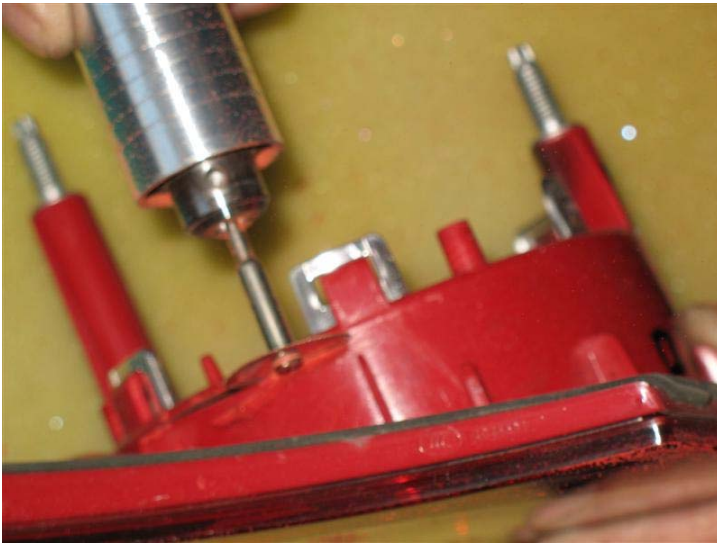


Method 1: Cutting the back off

(pictures from a sedan / saloon, courtesy of Kevin)

The pictures are self explanatory. You can also have a look at the Jetta modification by Jürgen Hauptmader. (http://www.angelico.ca/files/Rückleuchtenmodifikation_Jetta_V.pdf) Once you get the holes drilled, check method 2 for the LED board placement.





Method 2: Removing the lens

(pictures from a wagon / estate)

You can use a heat gun or heat the oven up to 220F. I tried both methods and found that the putting the lights in the oven for about 10 min provided more even heat allowing the factory seal to break easier. Using a plastic putty knife, a small piece of metal (I had a door catch lying around), you can work around the edge to pull the lens off. You will hear some nasty plastic breaking sounds but if you're careful, it should come off in one piece and not crack the lens. (but even if you take it easy, you still might break it...)

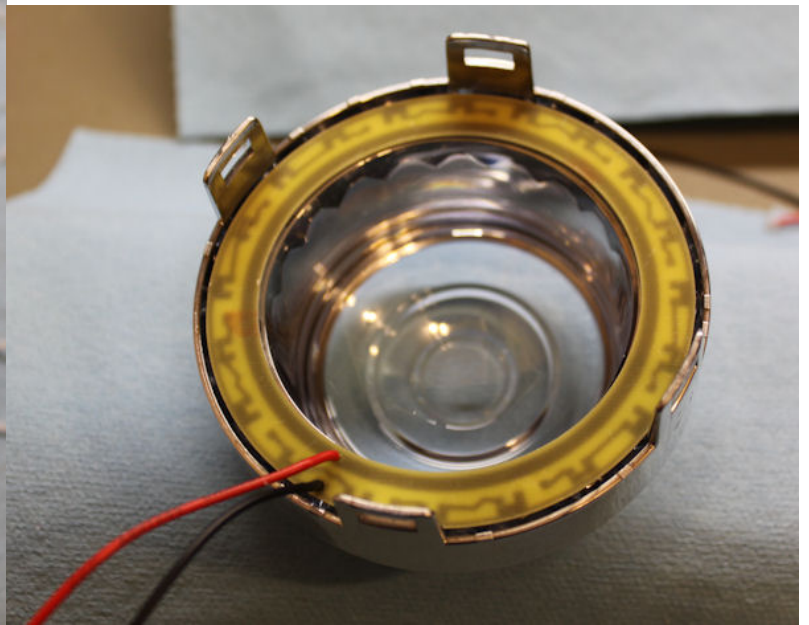


Next I suspended it upside down over two blocks so that you can press the four latches and pop out the center chrome ring. (Do Not touch the chrome!! You will not be able to remove the fingerprints without scratching the very thin layer of chrome)





Drill out the holes for the LEDs, I used a 3/16" drill bit. Use compressed air to blow off the plastic garbage. Mount the LED board onto the back of the chrome ring. I used two small pieces of tape to hold it in place. Place the wires so that you can feed them through one of the holes in the back of the light (not the centre one!).



Feed the wire through your chosen hole and carefully insert the centre ring into the light. I used a blue lint free shop towel to push it back in. Don't touch the chrome with your fingers!

Next you need to put the lens back on. Dry fit it first to make sure there is no extra gunk in the way. I used LePage 5-minute epoxy. This only gives you about 3 minutes to mix it, place it in the channel on the light (not the lens), and press the lens back on. You need to use enough to form a good seal but not too much that it squishes out all over. (if you haven't done this before, practice on something else first!)



Below are some examples of Epoxy that should work. I like the idea of the one that mixes as you squeeze it out but haven't tried it.



Completed pictures:

