

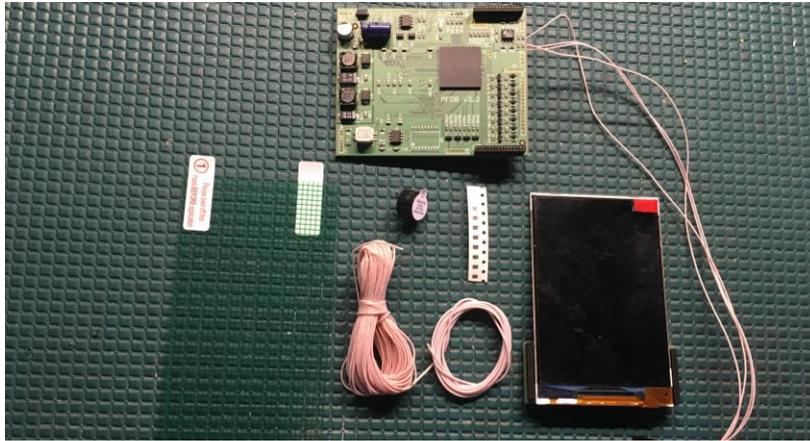
## Audi 8L A3 and B5 A4 ColorMFA Install Guide

ColorMFA from AutoPilot. Instructions from Clusters by Litke and pinout from Drive2

This is an overview guide on how to install the v3.2/v3.4 ColorMFA units into Audi 8L and B5 A4 VDO clusters. Though the 2 types of clusters appear very different, the fundamentals for ColorMFA operation and install are the same. This is a general step by step guide on how to fit the unit. This will not cover basics such as soldering techniques, or how to disassemble the cluster. By Litke LLC and Matthew Litke are not responsible for any damages you may cause to yourself, your cluster, or your vehicle during this process.

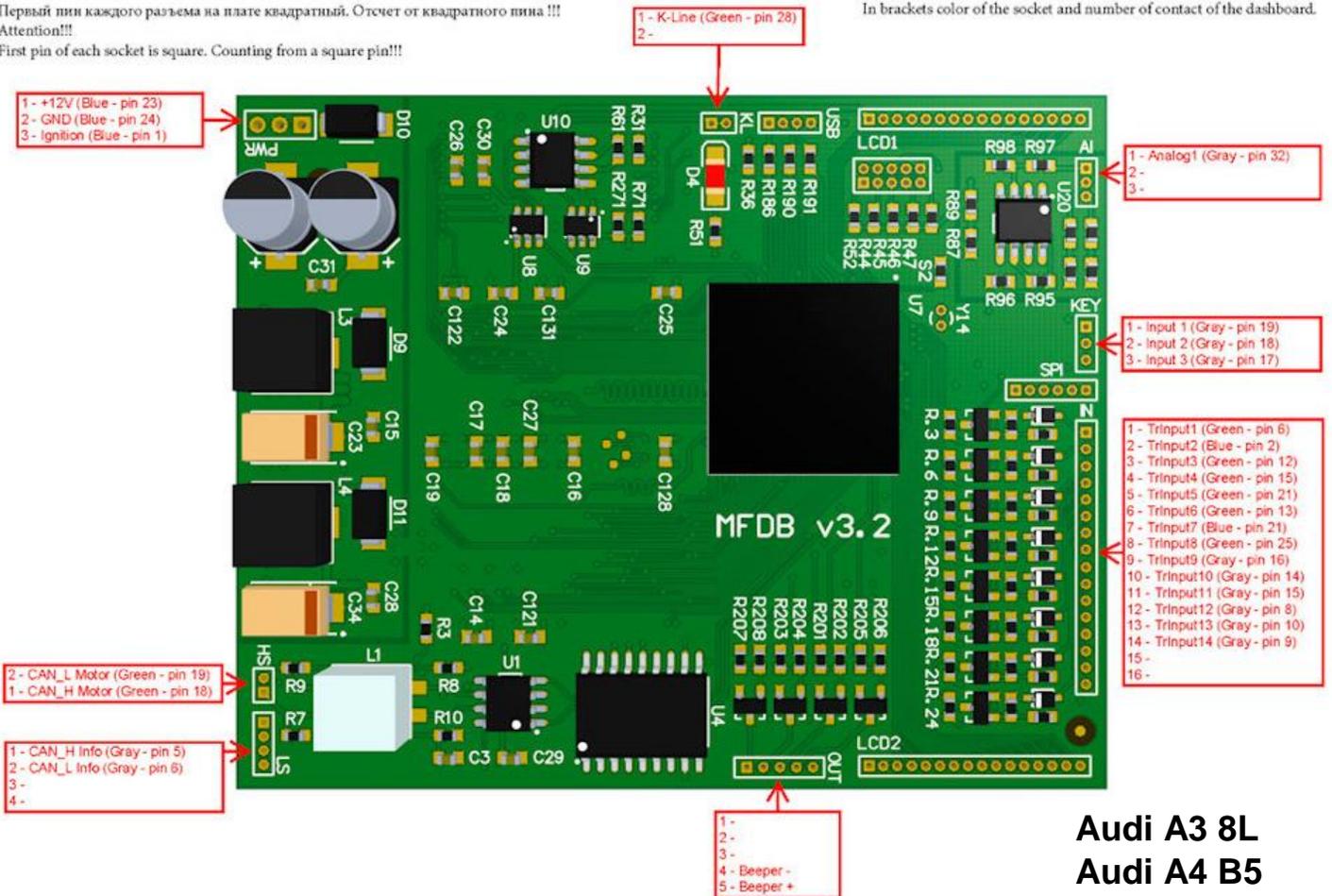
### ColorMFA Kit Contents:

-Main PCB, LCD, 0.12mm<sup>2</sup> wire, 0.35mm<sup>2</sup> wire, SMD resistors, beeper, matte film screen protector.



Внимание !!!  
Первый пин каждого разъема на плате квадратный. Отсчет от квадратного пина !!!  
Attention!!!  
First pin of each socket is square. Counting from a square pin!!!

В скобках указан цвет разъема и номер пина приборной панели.  
In brackets color of the socket and number of contact of the dashboard.



**Audi A3 8L**  
**Audi A4 B5**

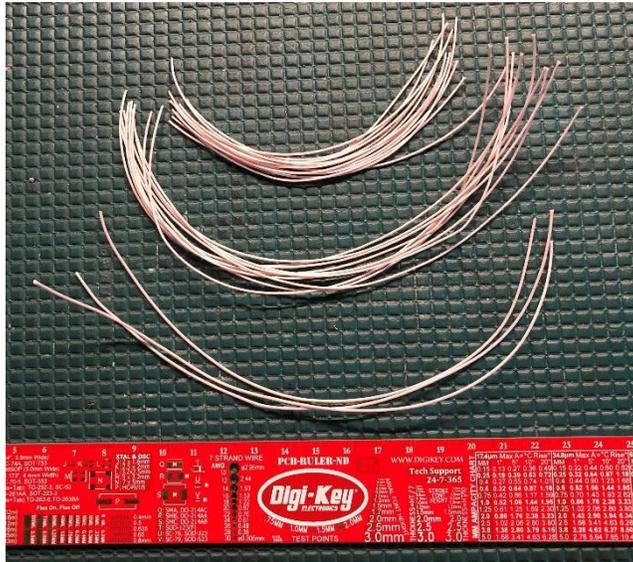
### Tools/Parts Required:

- Solder iron and solder. Solder wick is helpful but not required.
- Wire strippers and wire cutters
- T10 Torx Driver
- Needle nose pliers
- Tweezers
- Ruler/Tape measure
- Knife/Razor blade
- Dremel/Rotary tool
- Double Sided tape (3M's "Red" Very High Bond works well)
- Multimeter (to check wire continuity)
- Drill (to twist the CANBus pairs)
- Scissors
- Optional: Glue to secure wires and PCB
- Optional: Heat Shrink Tubing

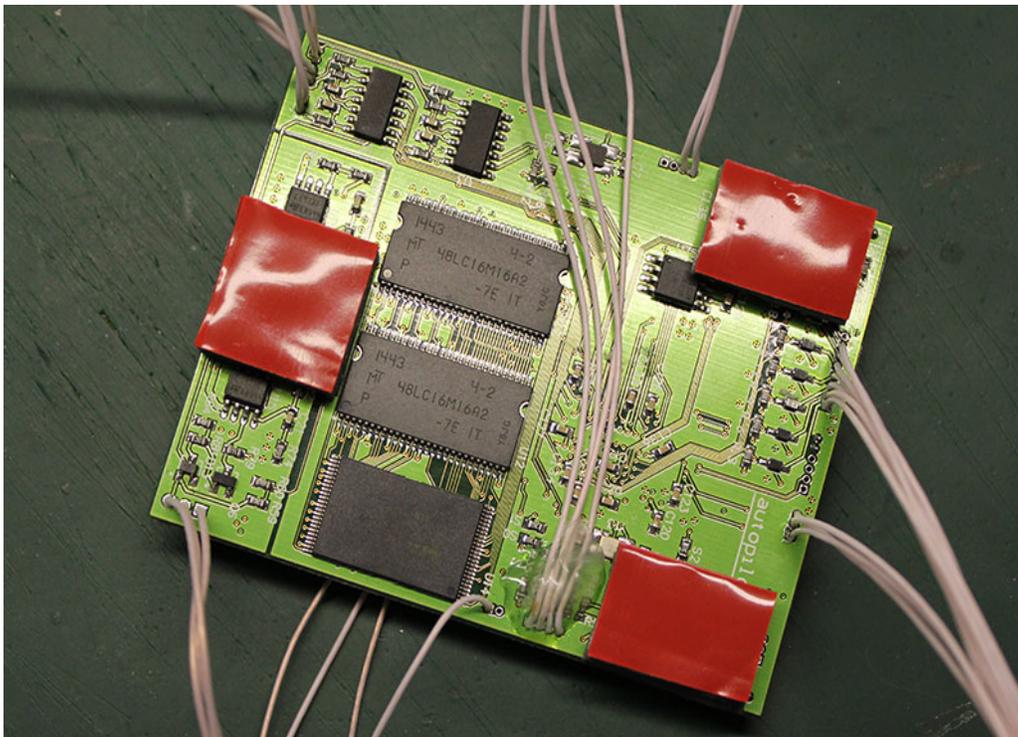


## Install Steps

- Prepare ColorMFA PCB
  - Cut the smaller gauge wire into 14 pieces in 100mm lengths each.
  - Cut 11 more pieces of the smaller gauge wire in 200mm lengths.
  - Cut the larger gauge wire in 3 equal pieces of roughly 230mm lengths.

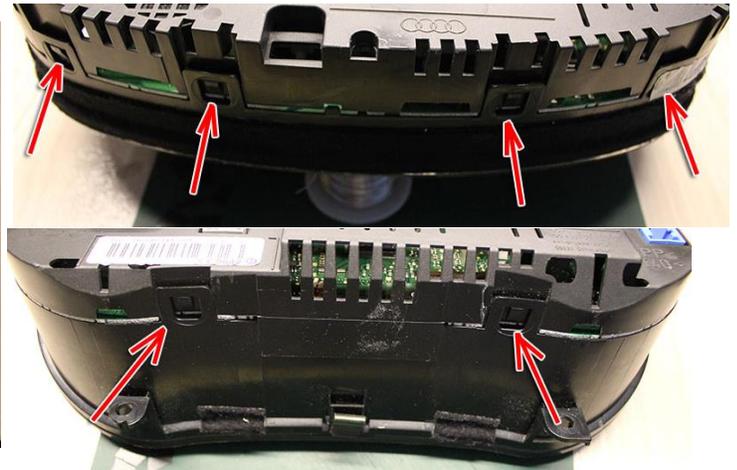


- Solder these cut wires to the ColorMFA PCB as shown the diagram above. Route the wires through the bottom of the PCB for a cleaner looking install. The large gauge is for Ground, 12V, and Ignition. The 100mm pieces will be used the 2 beeper wires and all wires going to the GRAY connector. The 200mm pieces will be used for wires going to the GREEN and BLUE connectors. Mark CAN High on both Comfort and motor with a marker than twist Motor CAN H and L together with the drill and twist Comfort CAN H and L together.
- Attach double sided tape to the backside of the PCB. Doubling up 2 pieces of 3M VHB provides good spacing between the cluster and ColorMFA PCBs and ensures the LCD won't sit too high or too low with regards to the face when installed. If you don't intend on glue the PCB later, use additional double sided tape at this step so the board sits securely.



- Cluster Disassembly

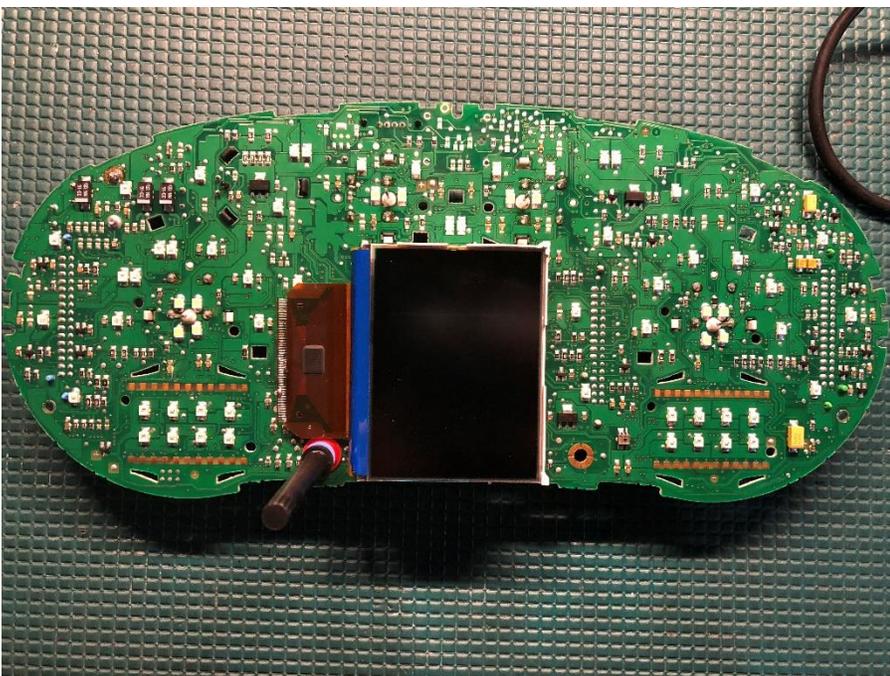
- Remove the lens. It is attached with 2 T10 screws (one near the green plug and 1 near the blue plug) and 8 clips (2 on bottom, 4 on top). B5 has an additional hook on the left and right side of the housing.



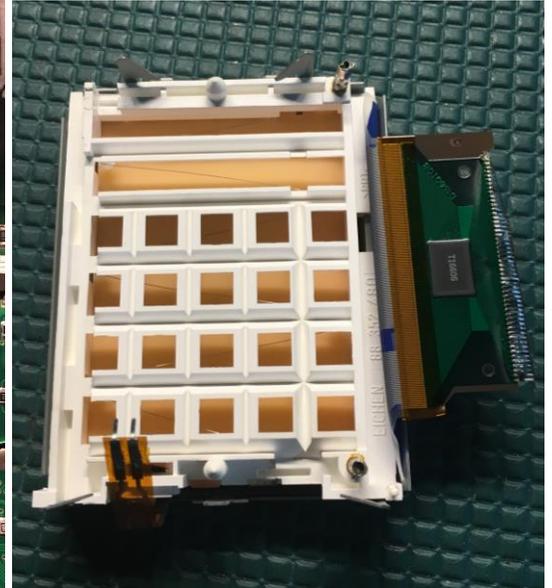
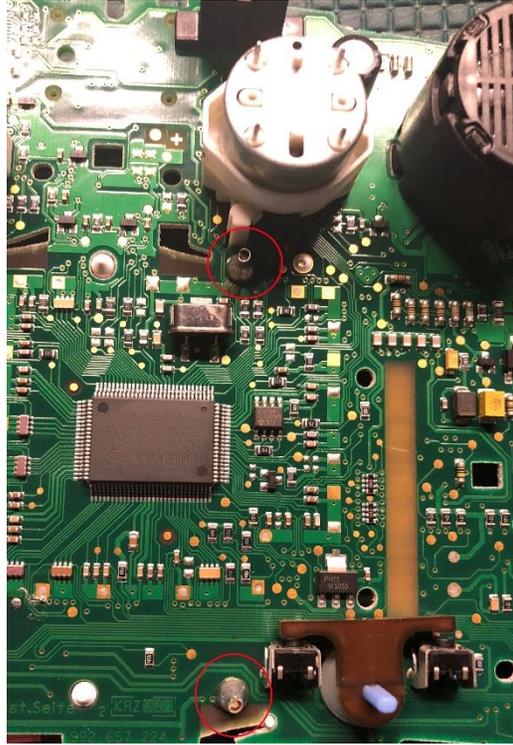
- Remove back plastic housing. This is held onto the PCB with 1 hook on the far left and 1 hook on the far right.
- Remove the needles by twisting counter clockwise while pulling up then remove faces.
- Remove the clock and odometer screen cage by bending the hooks and lifting them out.
- Remove the white plastic light shroud. There are hooks that need to be pressed on the backside of the PCB to release it. The odometer reset knob will also need to be pushed through the PCB by pushing in the hooks on it and feeding it through.

- Prepare cluster PCB for ColorMFA

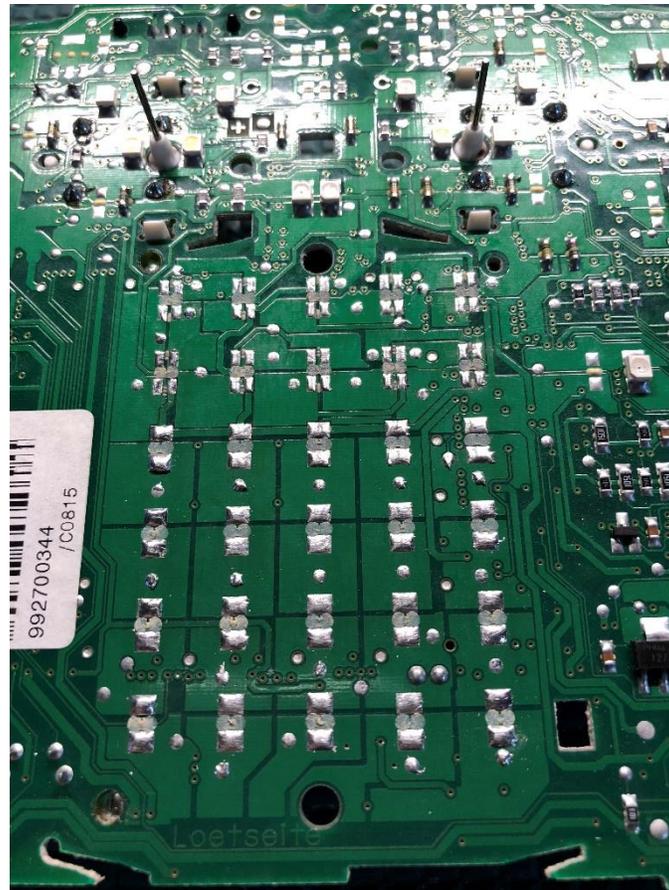
- Start by removing the stock screen by removing the metal cage around the screen (some do not have this) then un-soldering the ribbon cable. Make sure to clean up the solder pads after the screen is removed so that none of them are shorting together.



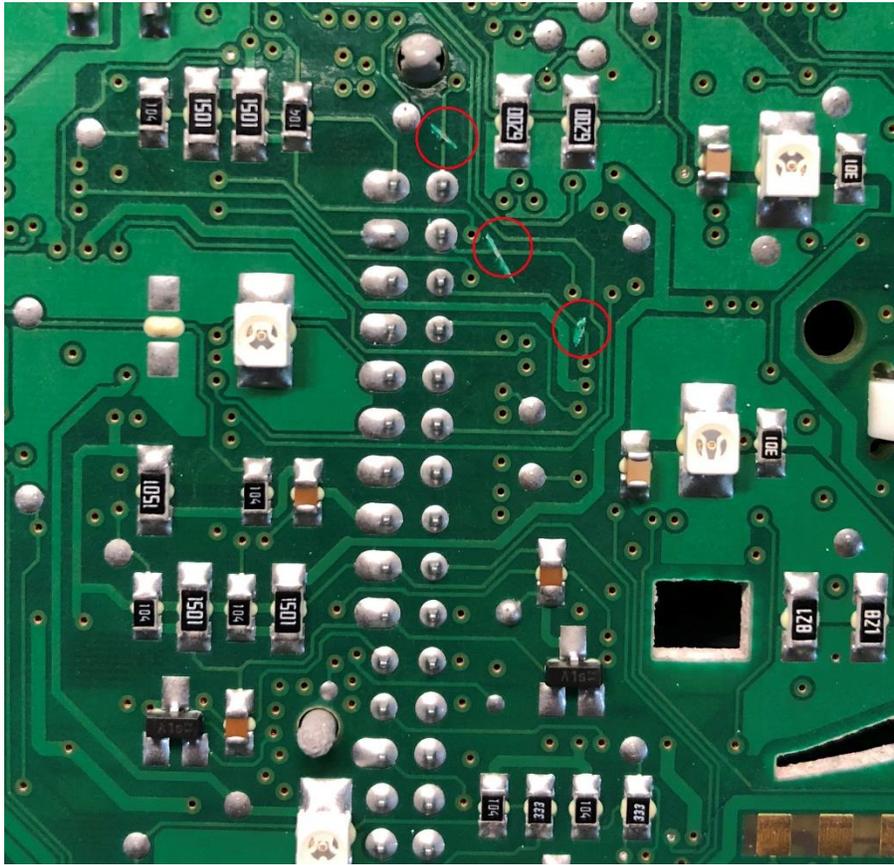
- The 2-wire sensor and the plastic housing/shroud needs removed. Remove the LCD housing (2 large metal pins. Heat with solder while pulling the housing off the PCB) then located the 2 pads for the sensor and heat those up while pulling the sensor cable off.



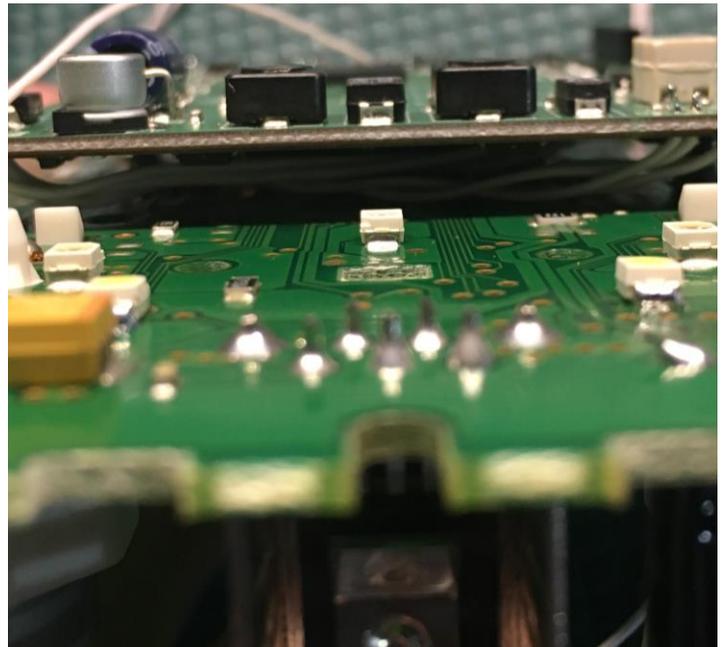
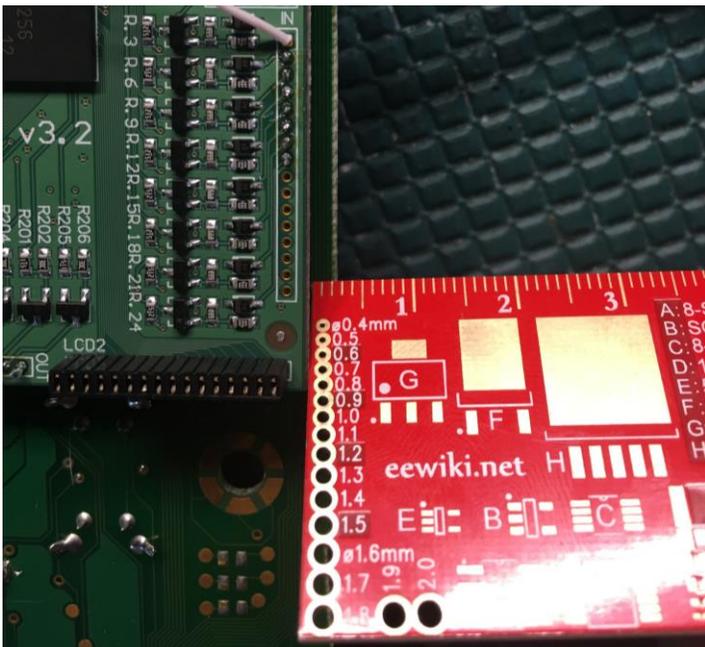
- Remove all the LED's originally behind the LCD. These LEDs do not require jumper resistors. Leave them "open". Ensure solder is not bridging any of the pads together.



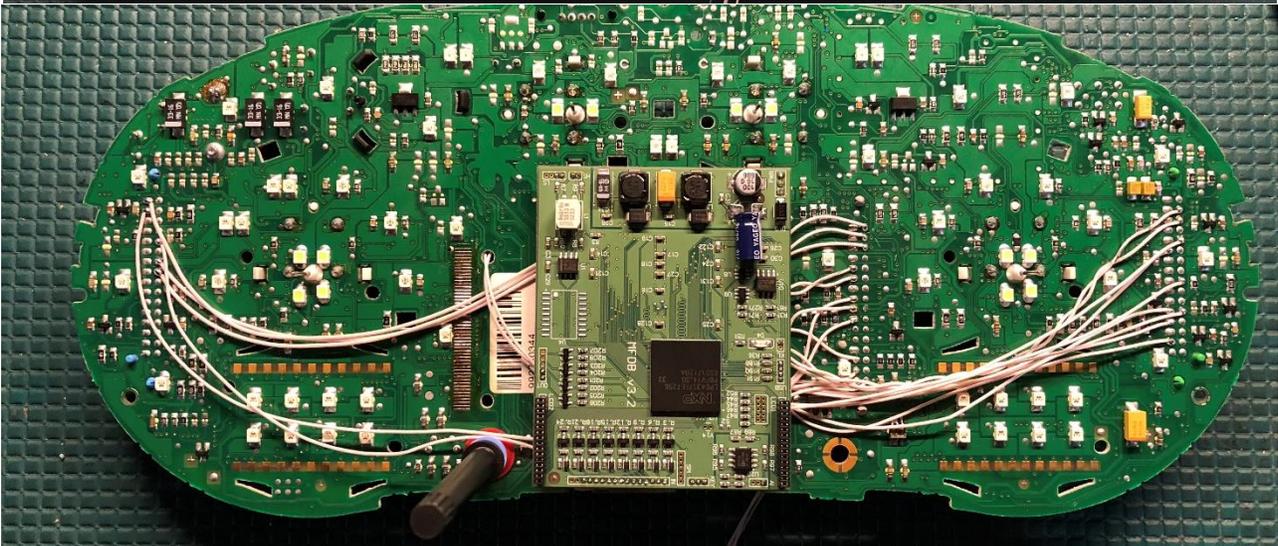
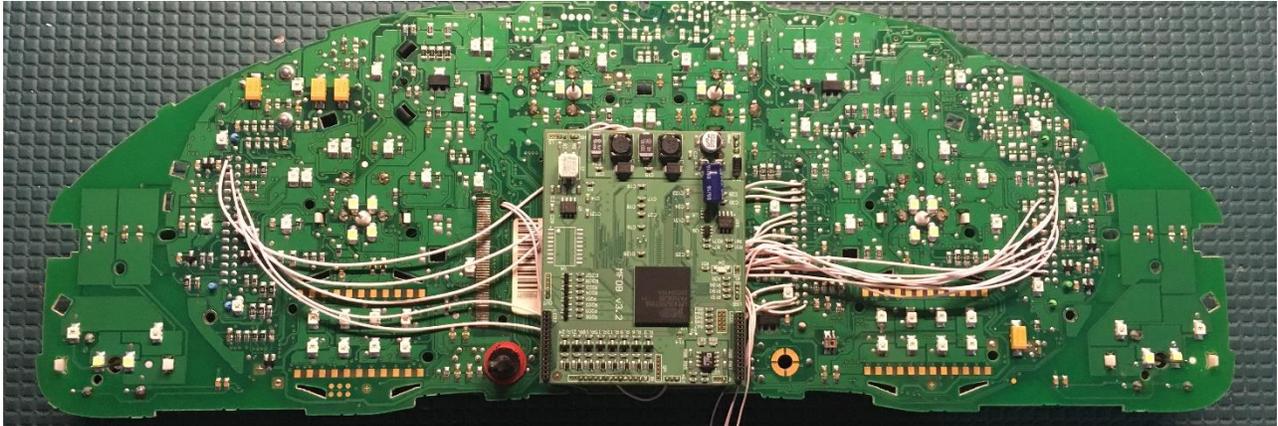
- Cut the traces for pin 17, 18, and 19 on the gray plug for the factory menu controls.



- Fitting ColorMFA to cluster
  - Remove the double-sided tape backing and press the ColorMFA board to the cluster. The large diode at the top of the board should be centered with the high beam LED(s). Leave about a 3-4mm gap between the bottom of the board and the cluster PCB. Do not have the edges of the two be flush with one another or the screen will sit too low and the bottom of the screen will be covered up when the lens is installed.



- Begin identifying where each wire will go and route it so that it runs along the top of the clock/odometer screen area. Cut the wire to proper length (extra wire can be tucked under the ColorMFA PCB if you want to error on the side of caution).
- Begin soldering each wire to its corresponding pin on the blue, green, and gray headers. Since the wires are exposed and easy to follow, you can go one wire at a time and follow the pinout chart on the above or can use a multimeter to identify each wire to ensure everything is connected correctly.



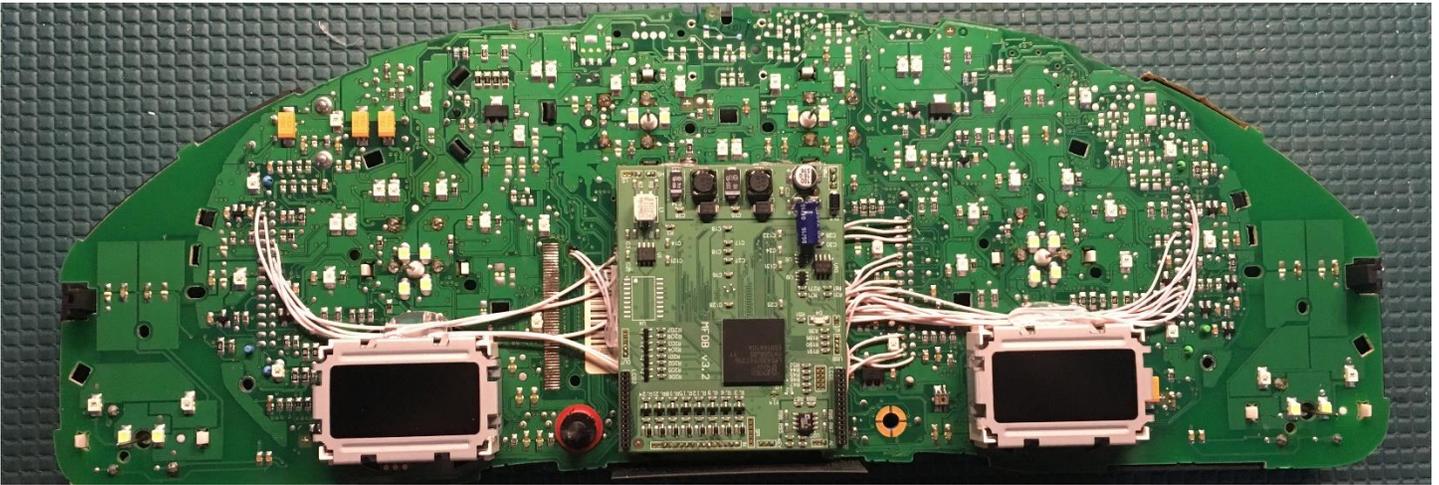
- Route the 2 remaining wires for the beeper through the opening next to the stock LCD solder pads and solder them to the beeper. The longer leg of the beeper is positive. Add heat shrink to these solder joints.



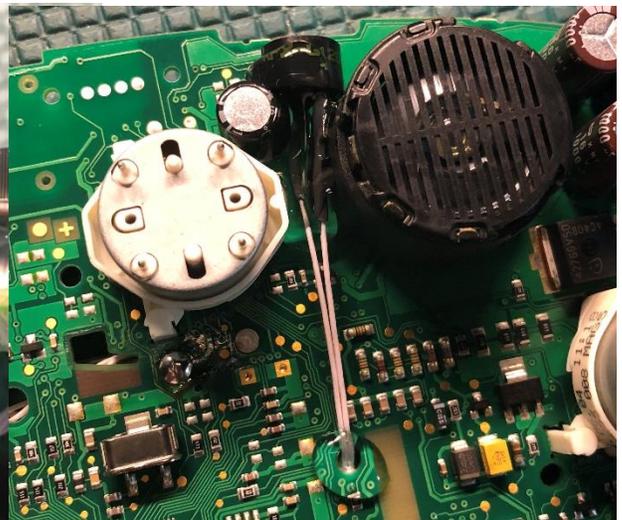
- Do 1 final check with the meter to ensure each wire from the ColorMFA board is in the correct location. The solder portion is now complete.

## Reassembly

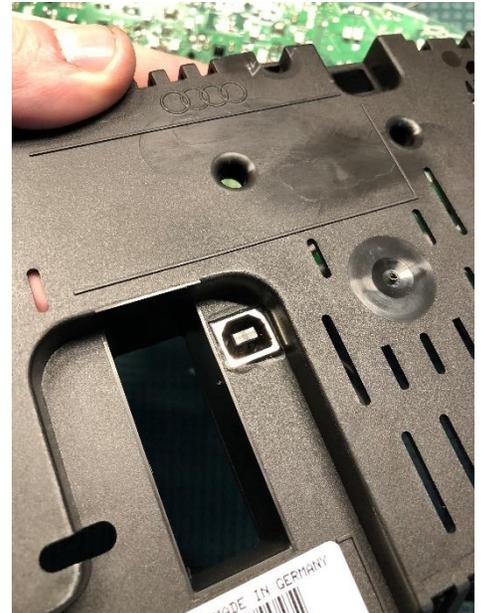
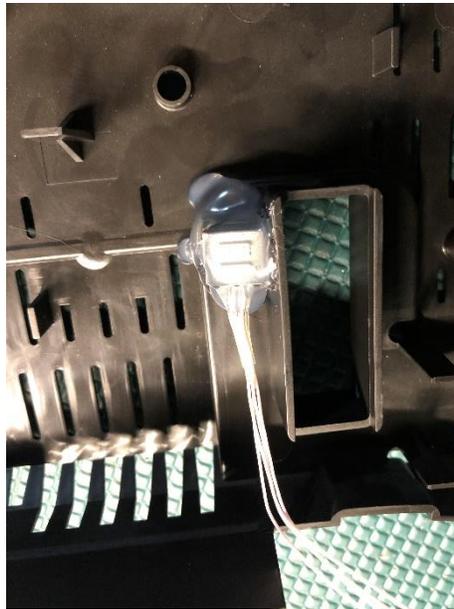
- Cut the clock and odometer LCDs out from the rest of the light shrouds and attach these to the cluster PCB.



- Secure all the wires with tape, epoxy, hot glue, etc so that they do not chaff and cause accidental shorts. Can also secure the ColorMFA PCB better at this time just ensure the board is sitting straight and level.



- Locate where you'd like the USB B to go. Cutting a square hole next to the gray connector is an option. Glue the port so the location you chose.



- Use a rotary tool to trim an opening in the white plastic shroud to fit the ColorMFA screen. It is necessary to cut out roughly half of the high beam icon area and flatten out the round posts on either side.



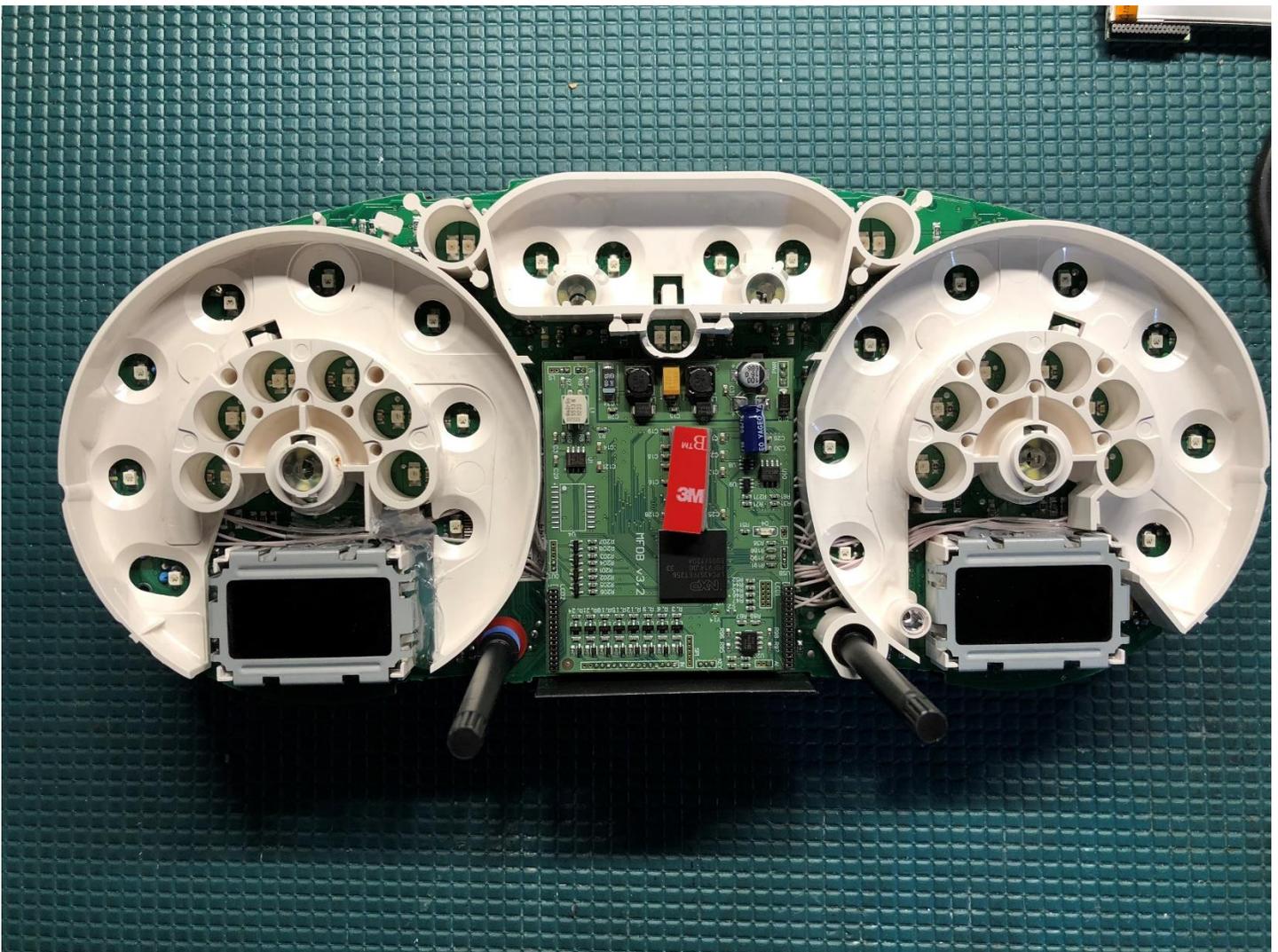
- Cut off the high beam alignment pin.



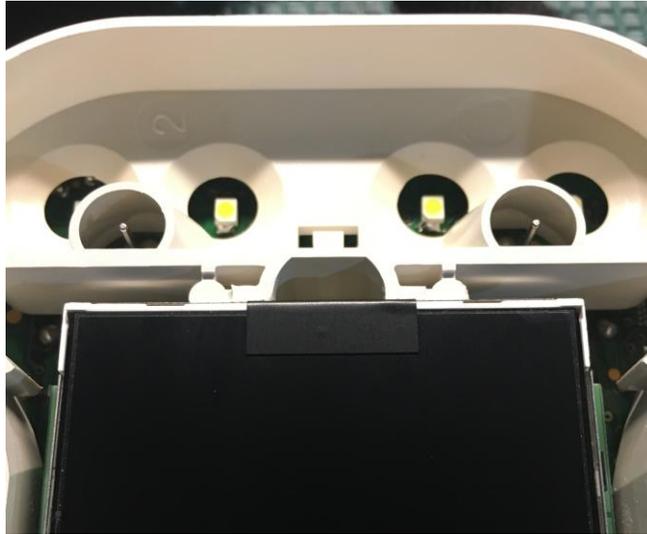
- Cut the matte screen protector film to the size of the LCD and apply it to the LCD. Additionally, it's not a bad idea to apply a small piece of black electrical tape to the top area where the screen covers up the high beam icon. This will prevent any LCD light bleeding through the high beam icon at night.



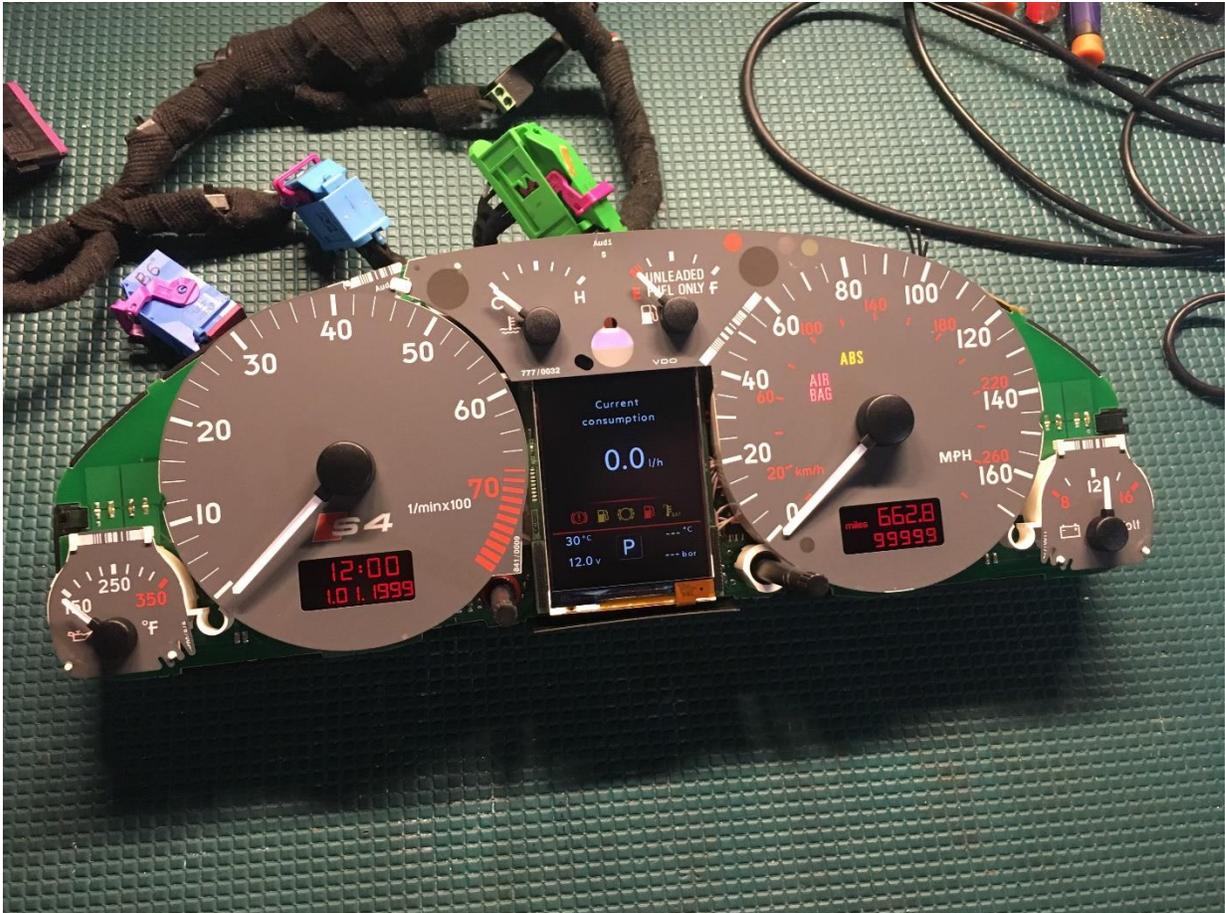
- Install the white plastic shrouding and odometer reset knob. Ensure it fully sits onto the PCB and isn't being lifted up by wires.



- Install the ColorMFA screen onto the ColorMFA PCB. It's recommended to add about 3 layers of the double sided tape to hold the screen and board securely together. Do not stack too much tape though that it causes the screen to sit above the white plastic and thus would cause the faces to not sit flush.



- Install faces and needles. When installing the needles be sure to only turn counter clockwise so the motor “zeros out” then keep turning until you reach 0. If you pass 0, go all the way around again and start over. Never turn clockwise. Also leave about a 2mm gap between the bottom of the needle and the face so that it does not rub and catch. If VCDS is available, the needles can be checked with 17-Instruments and output tests which will result in the needles sweeping and stopping at 3000 RPM, 190\* (or 90\* on metric), ½ tank, 62MPH and on B5 250\* oil temp and 12V. If the needle is off during these tests to NOT move them while still in the test, click next so the needle goes back to zero then move it.



- Snap the lens back together and reinstall the 2 T10 screws. Install complete.

Notes:

- For use of the boost gauge function on the ColorMFA, the MAP sensor must be splice into and run to the Gray cluster plug cavity 32 (will be unpopulated). If the car is not factory turbo, a 5V MAP sensor can still be used and return signal run to Gray connector cavity 32. Connect to ECU T121/101 for Gas, T121/71 for TDI.
- Be sure to adjust the gear ratios in the calibration settings so that the indicator works correctly. A step by step guide has been made for that as well and can be provided.

Instrument cluster pinout							
Audi A3 8L (2000 >= )							
1	Terminal 15		Ignition		1	Door contact (all doors)	
2	Brake pad wear		Triinput2		2	Transponder	
3	Speedometer output 1				3	Not used	
4	5 V supply				4	Not used	
5	Fuel gauge sender				5	W-wire	
6	Tank warning OBD 2				6	Tailgate/boot lid	Triinput1
7	Terminal 31 (sensor earth)				7	Right turn signal	
8	Coolant temperature				8	External buzzer	
9	Terminal 31 (load earth)				9	External gong	
10	Oil pressure (high)				10	Airbag	
11	Engine speed signal				11	Standing time output	
12	Air conditioner shutoff				12	Terminal 61	Triinput3
13	Electronic throttle/glow period warning lamp				13	Parking brake	Triinput6
14	Adaptive suspension				14	CHECK	
15	Terminal 58d				15	Oil level/oil temperature	Triinput4
16	Trailer turn signal				16	Not used	
17	Main beam				17	Transponder 2	
18	Left turn signal				18	CAN bus High (motor)	CAN_H Motor
19	Not used				19	CAN bus Low (motor)	CAN_L Motor
20	Terminal 58s				20	Not used	
21	Driver's door contact		Triinput7		21	ABS	Triinput5
22	Low coolant				22	CAN bus High (convenience)	
23	Terminal 30		+12		23	CAN bus Low (convenience)	
24	Terminal 31 (load earth)		GND		24	Not used	
25	Consumption signal				25	Bonnet	Triinput8
26	Right parking light				26	Filler neck compartment lid	
27	Left parking light				27	Belt buckle	
28	Speedometer input				28	K-wire	K-Line
29	Low brake fluid				29	Ambient temperature input	
30	S-contact				30	Terminal 58de	
31	Speedometer output 2				31	Selector lever position display	
32	ESP/TCS				32	Not used	

1	Menu control switch (menu)		
2	Menu control switch (out A)		
3	Menu control switch (out B)		
4	Menu control switch (enter)		
5	CAN bus High (display)		CAN_H Info
6	CAN bus Low (display)		CAN_L Info
7	Not used		
8	Front passenger's door contact		Triinput12
9	Rear right door contact		Triinput14
10	Rear left door contact		Triinput13
11	Enable		
12	Clock		
13	Data		
14	Brake light		Triinput10
15	Washer fluid level		Triinput11
16	Reversing light/dipped beam		Triinput9
17	On-board computer, left		Input3
18	On-board computer, right		Input2
19	On-board computer reset		Input1
20	Not used		
21	Not used		
22	Not used		
23	Control group 1 Navigation		
24	Control group 2 Navigation		
25	Control group Telematics		
26	Not used		
27	Not used		
28	Not used		
29	Not used		
30	Not used		
31	Not used		
32	Not used		Analog1