

## How to install multi-function steering wheel in your VW



Retrofitted multi-function steering wheel (MFSW) from a MY06 Jetta GLI standard transmission (i.e., no DSG paddles) package unknown and build date unknown likely with MFD ...



### Parts Needed

MFSW p/n 1K0 419 091 BC TDL (p/n with DSG paddles unknown) MFSW Airbag Harness p/n 1K0 971 584 L MFSW Control Module p/n 1K0 953 549 AJ (superseded with AL)

Note: Stock SW control module p/n 1K0 953 549 AH has been tested (and recoded with Vag Com) and does NOT work with the MFSW. Control module p/n 1K0 953 549 AF has also been reported not to work. Control module p/n 1K0 953 549 AK has been reported to be used with the MFSW with DSG paddles.

Note: Some have reported that they needed to replace their slip ring with p/n 1K0 959 653C. Since I had no problems with my slip ring, I'm not sure exactly what the incorrect slip ring even looks like.

### **Tools Needed**

Required tools. All others will just make your life a whole heck of a lot easier.

VAG-COM and Hex+CAN cable

Wrench 10 mm (to remove battery connector)

Square Bit 12 mm (to remove steering wheel bolt)

T25 torx bit (to remove lower steering column cover)

Pocket knife or strong small blade Precision flathead screwdriver 2.5 mm or 3.0 mm (to remove airbag wires) Adjustable Torque Wrench (steering wheel bolt at 37 ft lb / 50 Nm) Trim Tool (to disassemble steering column) Mechanics mirror or small mirror (to look behind steering wheel for airbag removal)

### **Removal of SW and SW Airbag**

As a precautionary measure, let the car sit for 30 minutes. Pop the hood and disconnect the negative (-) battery cable using the 10 mm wrench. For good measure step on the brake a few times too to discharge any capacitor that may have some juice stored. Wait 1015 minutes before proceeding.

Unlock the steering column and pull the SW as far as it will go towards you and in the highest (up) position. Put the key into the ignition and turn to the "on" position so you can turn the wheel. Keep the key in the ignition throughout this entire process even while you are reconnecting the battery when the swap is finished – this will keep any power surges out of the airbag circuit (according to Bentley).

Turn the SW 90 degrees from center to the left (counterclockwise) so you can reach back there with a flathead screwdriver and unlock the SW airbag from the SW. Use the mechanics mirror to get a good view of the latch holding down the airbag.



The following photo shows the MFSW removed with the MFSW airbag (blown) attached to show the airbag securing bail you are disengaging from the SW mounting lug.



Disengage the left side of the airbag from the SW by inserting the flathead screwdriver as shown above and turn left (counterclockwise).

Turn the SW 90 degrees from center to the right (clockwise) so you can repeat the above process and disengage the right side of the airbag from the SW.

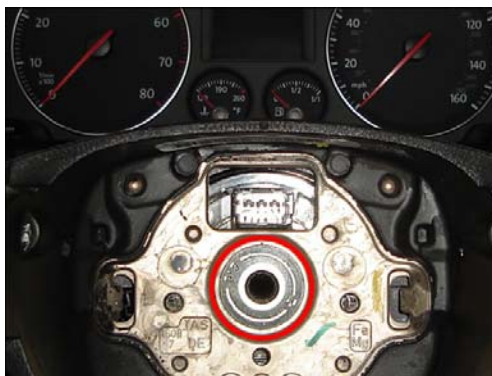
3. Turn the steering wheel back to center and carefully remove the airbag partially out of the SW. The SW airbag will be connected by a wiring harness with 1 connector.

Disconnect this harness by pulling on the orange locking tab and pulling on the harness connector. Set the airbag aside with the VW emblem facing up so if it does blow up, it won't shoot off like a rocket.

4. Remove the center bolt (red circle) using the 12 mm square bit.

5. Note that this bolt may be used 5 times only. Mark the bolt after each removal. I've marked mine off with a permanent marker. Mine actually has two hash marks now since I had to go back and remove the wheel after testing functionality with the stock control module. Yeah, you owe me huge.

6. Pull the SW off the column and set aside. If you are not planning on button functionality, skip ahead to step #19 taking note of applicable procedures (most will not apply). However, if you are planning on going all out, forge on, pilgrim.



## Control Module Swap

7. Adjust steering column downward as far as it will go. Keep it pulled towards you as far as it will go. Carefully pry off the lower instrument cluster trim using the trim tool and/or your trusty pocket knife.



The following shows where the lower instrument cluster trim latches onto the dash on the right side. The same latch is on the same location on the left side.

8. Remove the upper steering column cover by carefully and slowly prying it off with the trim tool or said trusty pocket knife. The images below show where they latch on the right. The left side is identical. Note there is a latch in the far back. Use a bit of pressure to pry the cover off.

9. Once the top cover is removed, it will reveal two screws in front face to remove the lower steering column cover. There is also one more screw underneath to the left of the column adjustment locking lever that needs to be removed. Use the T25 torx bit to remove these screws. Release the locking lever in order to remove the lower cover.

10. Now take a step back, light up a smoke, and meet your nemesis ... that heartless mistress otherwise known as the steering wheel control module.

11. According to the Bentley manual, you would need to undo that tiny little screw with some sort of special elven torx bit that can only be forged in the volcanic icelands of Narnia and proceed to unlatch the rear locking mechanism with a 2.5mm drill bit along with some unholy arcana.

Eff that noise, man. We're going to replace the circuit board and bottom cover (which contains the relevant info anyway) and keep that bastard top cover secured to the steering column. Start off by slitting the "I know you effed with it" tamper seal and proceed to unlatch the six latches securing the lower cover from the top cover. The image below shows the control module disassembled. The red circles indicate the latches.

12. Once you've got the bottom cover off, use your trusty pocket knife to slowly and carefully pry the circuit board away from the top cover. The image above shows where the connectors (blue circles) are and be particularly careful with these. Note that the main connectors are part of the circuit board (green circles).

13. Once you've got the circuit board pried off, disconnect the main connectors by pulling out the red latch on the black connector and pulling out the orange latch on the yellow connector. The image below shows what these connectors look like once they have been disengaged.

14. Swap out the circuit board from the MFSW with your stock circuit board. Be careful they look exactly the same and I wasted about 5 minutes trying to remember which was which. There will be an audible response in re-engaging the two connectors. Carefully ease the pins back into the upper cover and relatch all six latches from the lower connector to the upper cover. Behold, the ghetto hack completed.



15. Reinstall the lower steering column cover and then the upper cover just by doing the above procedures in reverse. And now it's on to rewiring the airbag. Just pray it doesn't blow up and mame you forever.



### Rewiring Airbag

16. Use the precision flathead screwdriver or equivalent tool to help you remove the three grounding wires (red circles) behind the airbag. Note that the blue circle is not a grounding wire and should not be removed.
17. Remove the right spring and proceed to undo the rest of the wiring harness. Use the flathead precision screwdriver to disengage the two orange and green connectors. Disengage the yellow pieces in the center.

18. Weave the MFSW wiring harness into the airbag. Remember to disengage the yellow pieces in the center of the orange and green connectors and push down on these yellow pieces to keep the connectors secured in place. Study the image below and weave the harness as shows. Note the three clips (blue circles) should be used to guide the harnesses. Remember to replace the right spring once you have the harness in place.



### Install MFSW and Airbag

19. Carefully slip the MFSW onto the steering column. Note the hash mark on the steering column and align it as best you can with the hash mark on the MFSW (the hash mark on the MFSW isn't as visible in the image below but you will be able to see it). Secure the MFSW to the steering column with the bolt using the 12 mm square bit and an adjustable torque wrench set to 37 ft-lb (50 Nm).

20. Reconnect the airbag with the MFSW wiring harness. Note that the black connector connects to the receptacle in the lower spoke. When connecting the main yellow connector through the steering wheel to the steering column, there will be an audible click. Carefully but firmly push the airbag into the MFSW and you should feel the right and left latches engage. Make sure the airbag is firmly secure.

21. Before reconnecting the battery, insert your key and turn it to the "ON" position. Go to the hood and reconnect the battery. If you did everything correctly, there should be absolutely no error codes or lights on your dash. Just kidding. Your dash is going to light up like it's effing Christmas. Fear not for some vag com magic will set you straight.



## Control Module Coding

The following is the label file for 16 – Steering Wheel which needs to be rejiggered.

0?xxxx: Vehicle Type

0 = Normal

1 = Special Purpose (e.g., Taxi)

\* 0x?xxxx: Transmission

0 = Manual Transmission

1 = Automatic Transmission

\* 0xx?xxx: Steering Wheel

0 = Steering Wheel without Multifunction

1 = 3-Spoke Steering Wheel without Multifunction

2 = 3/4-Spoke Steering Wheel with Multifunction without Cruise Control

3 = 3/4-Spoke Steering Wheel with Multifunction with Cruise Control

0xxx?xx: Additional Equipment o +1 = Tiptronic (Shift Paddles)

0xxxx?x: Board Computer / Cruise Control System (CCS)

0 = w/o Board Computer and w/o Cruise Control System (CCS)

1 = with Board Computer and w/o Cruise Control System (CCS)

2 = w/o Board Computer and with Cruise Control System (CCS)

4 = with Board Computer and with Cruise Control System (CCS)

[http://wiki.ross-tech.com/index.php/16-Steering\\_Wheel\\_Coding](http://wiki.ross-tech.com/index.php/16-Steering_Wheel_Coding)

