

VW Transporter T5 T6 7H - Multivan 7E

Multifunction Steering Wheel Retrofit Wiring Harness

These instructions are for retrofitting a multifunction steering wheel (MFSW).

Parts, tools and accessories needed, for example:

- MFSW with buttons
- buttons control module with appropriate wiring
- airbag suitable for MFSW
- airbag wiring loom (5K0 971 584 A) with connector for buttons control module
- repair wire (000 979 009 E) with pins suitable for slip ring / stalk switch connector
- 0.35...0.5sqmm wire to extend repair wire
- shrink tubing to insulate wire connections
- Torx screwdriver T20 (and optionally T25)
- Torx bit T55
- torque wrench
- tools to make electrical connections (soldering iron, cutting pliers etc.)
- bandage, tranquilisers...



Disconnect the battery earth cable (-).

Insulate the end of the loose cable so that it doesn't conduct electricity, should it for any reason touch the battery minus pole. Before moving on to remove the airbag, wait for at least 15 minutes for any electrical charges in the car's component to discharge.

Sit in the car and touch the metallic door lock counterpiece on the B-pillar, to discharge any electrical charging you might have stored in your clothing. This is to rule out even the remotest theoretical possibility that the potential difference could make the airbag go bang.



Turn the steering wheel 90 degrees from the straight-ahead position.



Use a mirror to see a hole on the back of the steering wheel. In that hole you can see one of the airbag retaining loops.



Use a flathead screwdriver to lever the retaining loop around the stud on the steering wheel. Simultaneously, pull from the edge of the airbag towards you.

Next, turn the steering wheel 180 degrees and undo the retaining loop on the other side. Then the airbag is free (apart from the wiring).



Hold the airbag in your other hand to prevent it hanging from the wiring. Undo the yellow connector that goes to the slip ring. Pull the white locking piece towards you to free the connector.

Store the old airbag in a safe place WITH THE VW LOGO UP! If stored the other way up, should the airbag ignite for some reason, you have a potentially lethal projectile!



Undo the steering wheel mounting bolt. If you don't have the special 12-star bit, a regular six-star Torx bit (T55) will do just fine.



Turn the wheels and steering wheel back to straight-ahead position. Always a good practice to mark the position of the steering wheel in relation to the end of the steering axle, even if you weren't to mount the same wheel back on this car.

Pull the steering wheel free from the splines on the steering axle.



Now you can see the airbag slip ring that makes all the electrical connections to the steering wheel. Avoid spinning the slip ring, otherwise you might lose its central position, which could lead to the ribbon cable getting destroyed the next time you turn the steering to full lock. Use tape to "lock" the slip ring to this central position.



Lock the steering wheel height adjustment to its lowest position. Pull out the trim piece under the instrument panel, it's held with three clips.



Push the steering column upper trim half from both sides as shown to unclip it from the lower trim half.



The upper trim half should pop up as shown.



The front end of the upper half remains still "hinged" to the lower half. Free the upper half from the lower half completely by "un-hinging" the front end (just lift up).

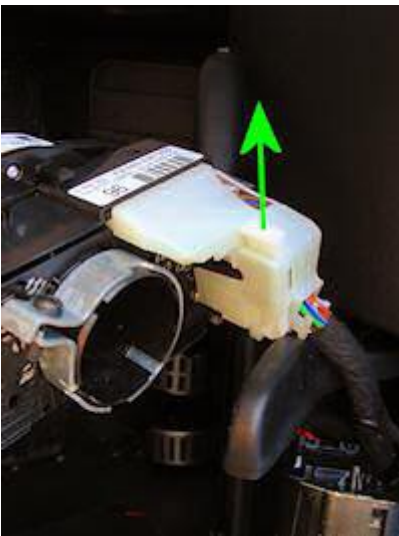


Remove the lower trim half: Undo the mounting screws (T20) on both sides, accessible from above.



One more mounting screw (T20) beneath.

Now you can remove the lower trim half.



Undo the connector T41 at the slip ring / stalk switch. There's a locking to the connector: lift up the locking rod as indicated by the green arrow.

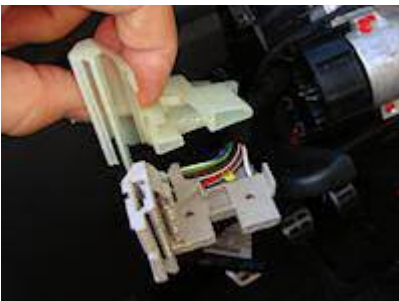
In the picture, the slip ring / stalk switch unit is removed from the **steering** column for ease of access to the connector. Should you want to do the same, just loosen the Torx screw (T25) on the metal tightening collar, and the unit can be pulled away from the **steering** column.



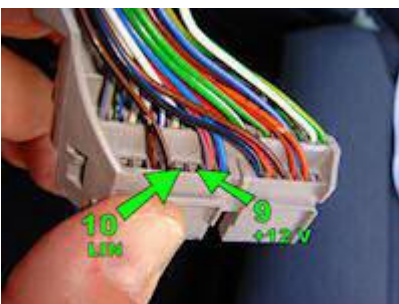
Locking rod completely up, the connector is free to come off.



Remove the connector cover: Prise up the locking tabs indicated by the green arrows, and simultaneously pull the cover to the direction indicated by the red arrow.



The connector cover removed.



Under the cover you can see the individual wire positions in the connector body. You'll need to add the ends of the repair wires to positions 9 and 10 indicated by the arrows.

- Position 9: +12V
- Position 10: LIN bus



Push the ends of the repair wires into their designated positions. Make sure the locking tabs on the pins engage with connector body so the wires don't become loose later.

Route both new wires parallel to the existing wire looms.

Slide the connector cover back on making sure it locks into place.

Next, connect the +12V wire to the light switch connector.



Light switch removed and its connector exposed.

To remove the light switch, turn the knob clockwise and push. This frees a locking tab inside and enables the switch to be pulled out of the dashboard. Undo the connector from the switch.



The required constant +12V is found at pin 15.



Free the pin 15 from the connector body using an appropriate tool, or alternatively by pushing with

to lengths of suitable diameter metal wire or similar.



The pin freed. You can see the small locking tabs you need to push down for the pin to come out.



Connect the new wire coming from the slip ring / stalk switch unit pin 9.

I decided to solder the end of the wire around the base of the connector pin. This way there's no need to touch the original wire itself. The electrical tape is to keep the new wire in place until I've soldered it in place



The new wire soldered to the base of the pin. Try to make the join as thin as possible, otherwise you may have trouble getting the pin to fit back into the connector body. Be careful not to destroy the dashboard with the hot soldering iron!



The new wire in place. Shrink tubing and a wire tie used to secure the new wire.

The original wire for the LIN bus is found at the Central Electronics Control Module (CECM). On LHD cars this module is situated inside the dashboard above the driver's footwell. The module

should be visible by peeking under the dashboard, there should be two large connectors (a black and a white) connected to it.

I've read that there should be a connector behind the right-hand side lower A-pillar trim panel that also has a LIN bus wire. For RHD cars, this could be an easier place to get the LIN bus from as there'd be no need to run a wire through the crowded centre console area to the other side of the vehicle. This we'd need to do more research on!

Laying on your back on the LHS sill, undo both of the connectors coming to the CECM. There's a locking latch again on the connectors, free it by turning it down 90 degrees.



The CECM removed. It pays off to remove it since this created just a little more space to work in. At least on LHD cars that area is a nightmare to access, on RHD cars it MIGHT be a doddle since the glovebox can be removed.



The connector cover is removed by spreading the locking tabs on both sides in the direction of the green arrow, while simultaneously pulling the cover in the direction of the red arrow.



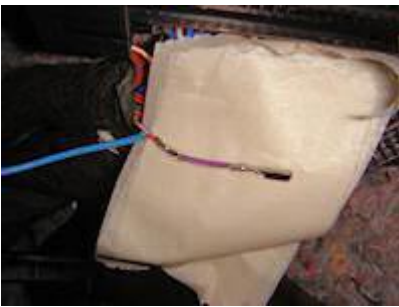
Under the cover is the connector body with two halves. You'll need to slide the halves apart to get access to the pin 17 situated in one of the inner rows. The wire in question is violet-white in colour.



Free the violet-white wire from the connector body position 17. It should free using roughly the same method as for the light switch connector before. Then you can remove the insulation from around the copper wire for connecting the new wire.

The insulation can be removed by very very carefully cutting/carving with a small, sharp hobby knife. Being just 0.35sqmm in diameter, the wire is very delicate and easily destroyed, so be careful!

On this connector you can't solder the new wire around the base of the connector pin as it would get too thick, meaning it couldn't fit back inside the connector body. That's why you need to do the soldering further up the wire.



Wrap the new wire coming from the slip ring / stalk switch unit pin 10 around the violet-white wire. Solder it, again careful not to damage anything with the hot soldering iron.



Insulate the connection with shrink tubing. Don't run the tubing all the way to the pin as in the picture: I had trouble get the pin to fit into the connector body so had to cut away some of the tubing.

Slide the separated connector body halves back together, then slide the connector cover back on again making sure it locks in place.

You'll need to reconfigure the CECM to get the **multifunction** buttons and the horn to function.



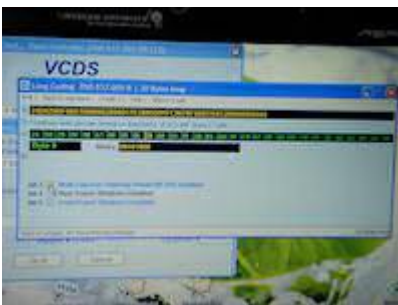
In VCDS, select address 09.



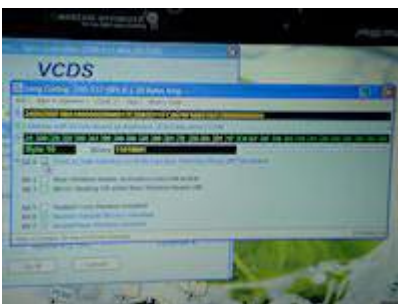
Then select "Coding - 07".



Select "Long Coding Helper".



Find the checkbox "Multi-Function-**Steering-Wheel** (MFSW) installed" and check that. For this particular CECM it was Byte 9 Bit 3.



If you have a VW bluetooth kit that supports voice control and want to enable that feature, find the checkbox "Push-to-Talk Function via Multi-Function-**Steering-Wheel** (MFSW) active" and check

that.

In this case it was Byte 15 Bit 0.

When you've made the required alterations, select "Exit".



Confirm the changes by selecting "Do It!".

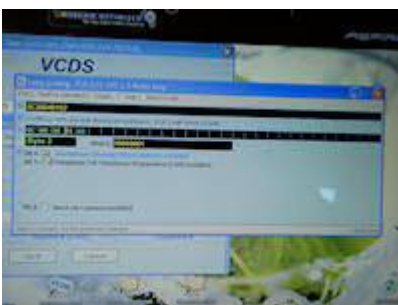
Next you can tell the radio it's being controlled by **steering wheel** buttons. I don't know if this step is strictly necessary, since after a quick test my SW buttons did control the radio even before this.



In VCDS, select address "56 - Radio".



And again "07 - Coding".



And "Long Coding Helper".



For the RCD510, Byte 3 Bit 0 is "Shortpress **Steering Wheel** Buttons installed". Check that.

Then "Exit" and confirm the changes by selecting "Do It!".
