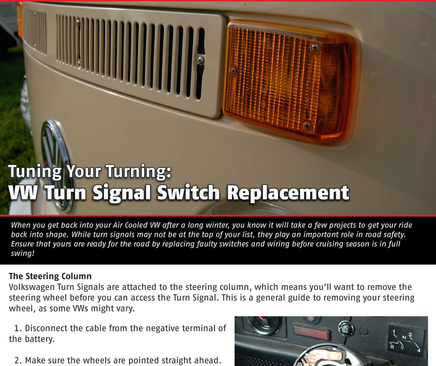
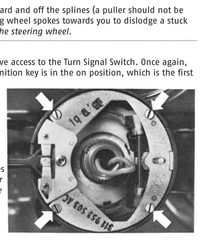


Tuning Your Turning:
VW Turn Signal Switch Replacement

When you get back into your Air Cooled VW after a long winter, you know it will take a few projects to get your ride back into shape. While turn signals may not be at the top of your list, they play an important role in road safety. Ensure that yours are ready for the road by replacing faulty switches and wiring before cruising season is in full swing!

The Steering Column

Volkswagen Turn Signals are attached to the steering column, which means you'll want to remove the steering wheel before you can access the Turn Signal. This is a general guide to removing your steering wheel, as some VWs might vary.


Steering Wheel Removed

1. Disconnect the cable from the negative terminal of the battery.

2. Make sure the wheels are pointed straight ahead.

3. Using a knife blade, carefully pry out the cap in the center of the steering wheel or, on 1972 and later cars, pry off the padded cap (in either case, be careful to not mar the finish).

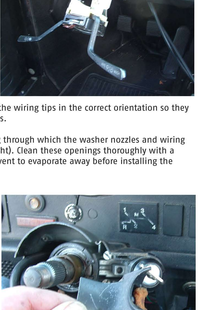
4. Disconnect the wire to the horn switch. ***Note:*** *if you are planning to remove the ignition switch later, do not remove the steering wheel yet.*

5. Remove the large (27mm) steering wheel nut and the spring washer. You will need a 6-inch extension on your ratchet to do this.

6. With a rocking motion, pull the steering wheel upward and off the splines (a puller should not be needed). Using the ball of your hand, bump the steering wheel spokes towards you to dislodge a stuck wheel. ***Note:*** *Do not hammer on the shaft to dislodge the steering wheel.*

Turn Signal/Windshield Wiper Switch Removal

Now that the steering wheel has been removed, you have access to the Turn Signal Switch. Once again, be sure that the battery is disconnected and that the ignition key is in the on position, which is the first position to the right.



1. Place the turn signal lever in its central position.

2. Remove the four long screws that hold the turn signal and wiper switches in place. The turn signal and windshield wiper switches must be removed together and then separated after removal. These switches have plastic guide channels behind them that guide the wires into the plugs in the wiring harness. ***Note:*** *Bleed the air from the windshield washer reservoir before you remove the water hoses from the valve on the switch.*

3. Remove the three electrical plugs from the rear of the steering column switch housing (turn signal, wiper, ignition).

4. Carefully pull the turn signal/wiper switches back and off the steering column, grasping the turn signal handle and the wiper handle close to the steering column. ***Caution:*** *Pull the switches out VERY carefully! The white plastic wiring channels behind the switch assembly are very fragile and easily broken.*

5. Thoroughly inspect the switches for wear and/or damage, paying close attention to the horn ring contact and the wiring channels behind the switch assembly. If the horn ring contact is damaged (e.g., a hole worn through it), it can be repaired with thin copper foil.

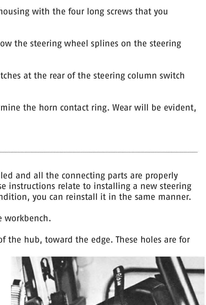
6. There are two white plastic wiring channels on the rear of the switch assembly: one for the turn signal switch (six wires) and one for the wiper switch (four wires). These channels connect to the rear of the switch assembly and to each other with little tabs. In addition, there is a small piece that snaps on to the very end of each of the channels to hold the copper tips in place. If any of these connections are broken, you may be able to repair them by simply snapping them back together or gluing them. If they are badly damaged, they must be replaced, which can be a minor expense.

7. Turn the switch assembly over so it is oriented with the switch upside down and the wires faced away from you. The wiring arrangement in the wiring channels is as shown in the following table. ***Note:*** *We found that on the replacement turn signal switch the below wire color convention is not followed. Rather, from left-to-right (as in the below table), the wire colors are Black-Black-Black-Brown-Black-Black. It is unclear why the replacement switch does not follow the original wire color convention.*

Turn Signal Switch Wiring						Wiper Switch Wiring			
Gray/Red	Gray	Gray/Black	Brown	Brown/White	Brown/Blue	Black/Gray	Black/Yellow	Green	Black

Reinstalling the Turn Signal/Windshield Wiper Switch

Reassembly of the other steering column internals is essentially the reverse of the removal.



1. Replace the steering/ignition lock retainer plate (two screws), making sure to properly install the spring behind it. ***Note:*** *The spring goes into hole in the steering column body, just to the left of the key switch.*

2. Assemble the turn signal and windshield wiper switches together, making sure that the four little tubes at the corners pass through both switch assemblies and are flush on both sides.

3. Make sure the switch wiring is properly installed in the plastic guide assemblies (see the table above).

4. Properly connect the wiring guide channels to the switch assembly and to each other (note the tabs at the connection points), and make sure the small pieces at the end of each channel are in place. These pieces hold the wiring tips in the correct orientation so they will accurately mate with the plugs on the wiring harness.

5. Inspect the openings in the steering column housing through which the washer nozzles and wiring guide assemblies will pass (you will need a good flashlight). Clean these openings thoroughly with a long Q-tip dampened with mineral spirits. Allow the solvent to evaporate away before installing the wiring guide assemblies.

6. Pull the two windshield washer hoses through the steering column body as far as you can, then reattach them to the washer nozzles on the switch. Route the inlet hose (lower nozzle) through the firewall into the luggage compartment and on to the washer reservoir. Route the outlet hose (upper nozzle) through the firewall into the fresh air box; then reattach it to the washer sprayer.

7. Carefully reinstall the turn signal/wiper switches back into the steering column housing, making sure that the wiring assemblies properly pass through the opening that is provided for them. ***Note:*** *The opening for the wiring assemblies is the same shape (in cross section) at the wiring assemblies. Make sure to properly guide the wiring assemblies through this opening, otherwise you will have trouble installing the switch assembly in the steering column housing and may damage the wiring tips.* ***Note:*** *During turn signal switch installation, be sure that the contact ring between the ball bearing and the steering column is positioned properly and that the turn signal switch lever is in its central position. Otherwise, the canceling cam will be damaged by the tongue of the contact ring when the steering wheel is installed.*

8. Secure the switch assembly in the steering column housing with the four long screws that you removed previously.

9. If applicable, replace the circlip from the groove below the steering wheel splines on the steering column.

10. Reattach the three electrical plugs to the three switches at the rear of the steering column switch housing.

11. Turn the steering wheel hub upside down and examine the horn contact ring. Wear will be evident, but if the ring is damaged it must be replaced.

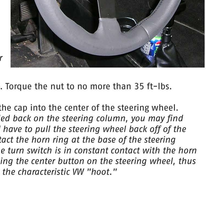
12. Place the turn signal lever in its central position.

Steering Wheel Reinstallation

Once the Turn Signal/Windshield Wiper Switch is reinstalled and all the connecting parts are properly attached, it's time to re-attach the steering wheel. These instructions relate to installing a new steering wheel. If your existing steering wheel is still in good condition, you can reinstall it in the same manner.

1. Set the steering wheel and hub upside down on the workbench.

2. You will find one or two small holes in the bottom of the hub, toward the edge. These holes are for the directional signal cancelling pins.



Note: *Better quality steering wheels have two directional signal canceling pins. On the right side of the column, note the sideways "M" device. This is the directional signal cancelling mechanism. If you have just a single return pin, it must fit into the center portion of the "M." If you have two return pins, they must fit into the two outer portions of the "M." The two-pin system gives a much more positive return.*

3. Carefully tap the directional signal cancellation pin(s) provided with the steering wheel kit into the hole(s) provided in the base of the steering wheel hub. Make sure the pins are seated firmly and that they protrude 7/16" (11 mm). ***Note:*** *If the cancellation pins are missing or loose, the turn signals will not return to the "off" position as they should. A new pin can be made and secured in place with epoxy.*

4. Before installing the new steering wheel, confirm that the wheels are pointed straight ahead and centered, and that the turn signal switch is in its central position.

5. Apply a thin coat of lithium grease to the splines on the steering wheel shaft.

6. Make sure the directional signal cancellation pin(s) align properly in the "M" (as described above), then carefully slide the steering wheel hub onto the shaft. ***Note:*** *Make sure that the steering wheel is oriented properly for the straight ahead position (e.g., for a three-spoke steering wheel, the center spoke is point straight down).*

7. Adjust the clearance between the steering column switch housing and the steering wheel hub. This distance must be 2 to 3 mm. To adjust the distance, loosen the two screws that secure the switch to the car body or steering column tube; then move the switch housing in the slotted holes. ***Note:*** *This adjustment is very important, but quite difficult to do. If this adjustment is incorrect, the switches in the steering column will not work properly. In a Super Beetle the two screws that secure the switch are the column tube mounting bolts: 6mm hex, nestled behind wiring and switch connections underneath the dashboard. These bolts are indeed in slotted holes, and once they are loosened the whole switch assembly can be moved a bit. It may be easiest to do with the steering wheel removed, tapping around the switch tube with a rubber hammer.*

8. Replace the steering column spring washer and nut. Torque the nut to no more than 35 ft-lbs.

9. Connect the horn wire to the central cap and press the cap into the center of the steering wheel. ***Note:*** *Once you have the steering wheel and hub installed back on the steering column, you may find that the horn does not work. If this is the case, you will have to pull the steering wheel back off of the column and bend the copper contact so that it will contact the horn ring at the base of the steering wheel hub. When properly bent, the copper contact on the turn switch is in constant contact with the horn ring - it is always "hot." You activate the horn by pressing the center button on the steering wheel, thus providing ground, completing the circuit and sounding the characteristic VW "hoot."*

10. Reconnect the negative battery cable.

A weekend project is all that separates your Volkswagen from worry-free Turns Signals. Make the most of driving season with fully functioning signals and switches!

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