EZ ELECTRIC POWER STEERING

INSTALLATION GUIDE

Triumph TR4-5-6

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The Product

Thank you for choosing an EZ ELECTRIC POWER STEERING system for its quality, certification and easy assembly. Since 2006 we produce complete steering columns with integrated power steering. All columns are tailor-made for each type of car and we already have 200 types in stock! For more information about our products (power steering systems and replica steering wheels) or to place an order, please visit our website www.ezpowersteering.nl or send an e-mail to info@ezpowersteering.nl. If you have any questions about the installation, please contact us at workshop@ezpowersteering..

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This manual should be read carefully to avoid errors. Check whether all parts of the set are present. This can be done on the basis of the picture in this manual.

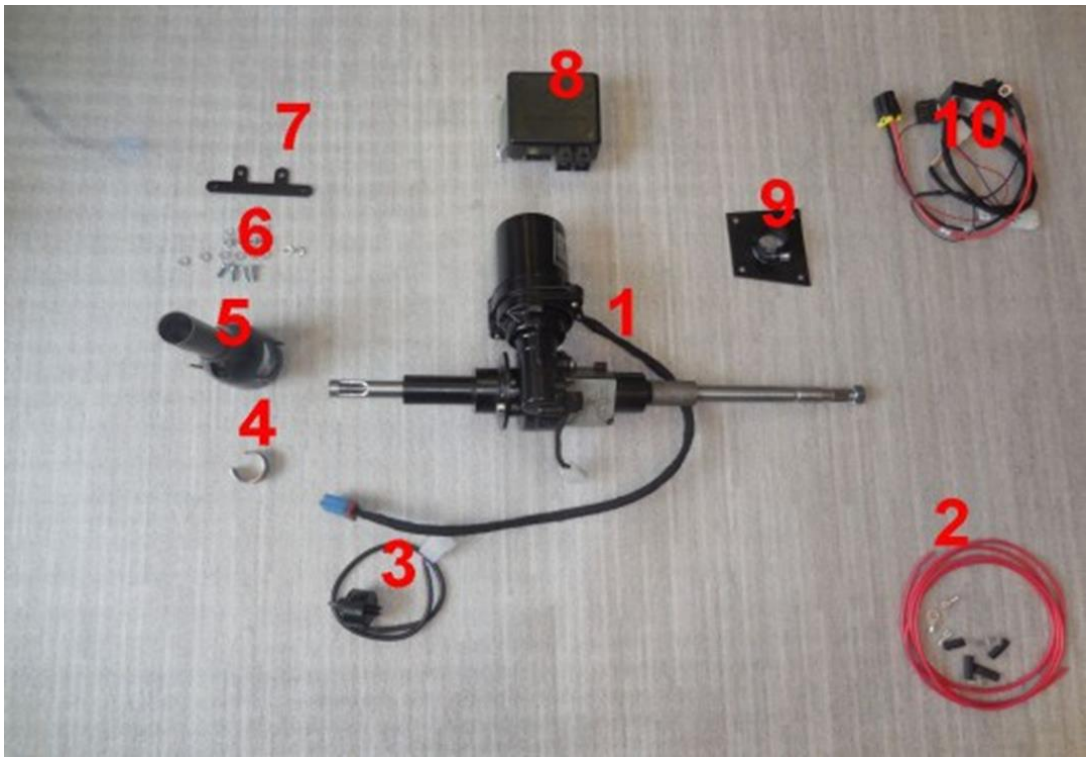
Before installation, compare the EZ POWER STEERING column with the original column. Check that the dimensions are the same. Also fit the steering wheel to the column.

If you do not have the skills or tools to perform the installation, have it performed by a professional. EZ POWER STEERING cannot be held liable for incorrect installation or self-inflicted damage.

The manuals are generally based on a left-hand-drive vehicle. In most cases, the right-hand drive version is the mirror image of the installation of a left-hand drive vehicle.

If you think that any changes are needed in this manual, we would like to receive your pictures and comments. With your feedback we can improve our manuals!

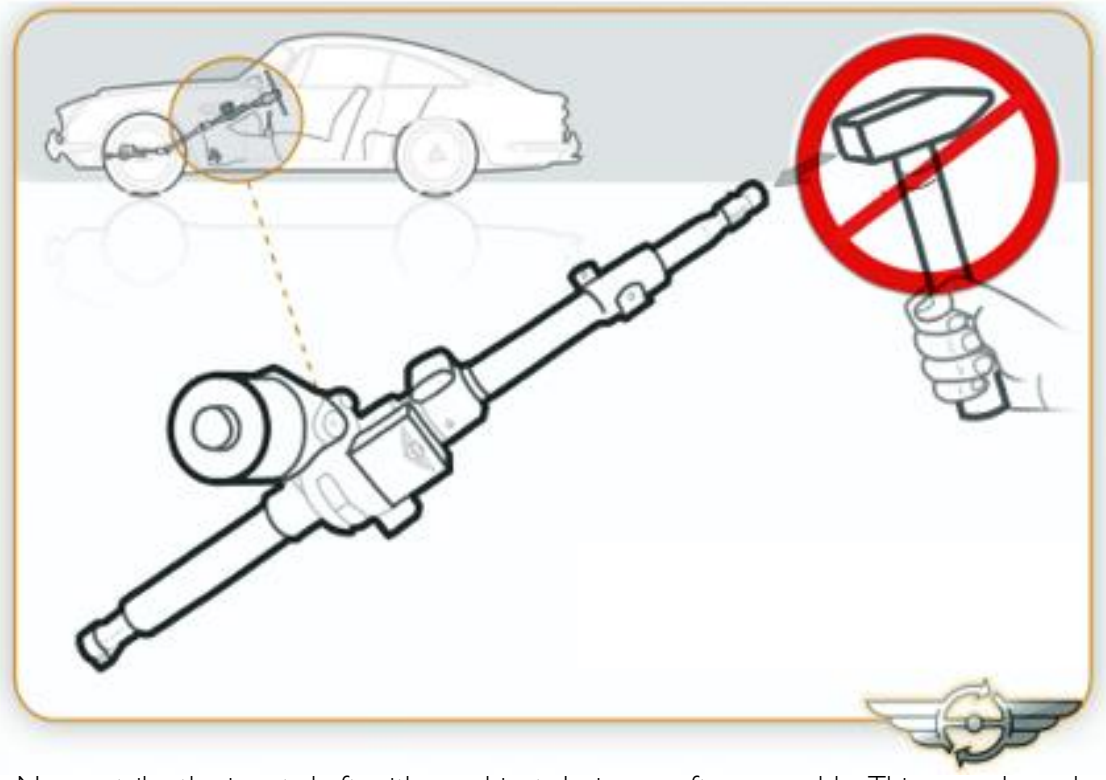
Contents of the set



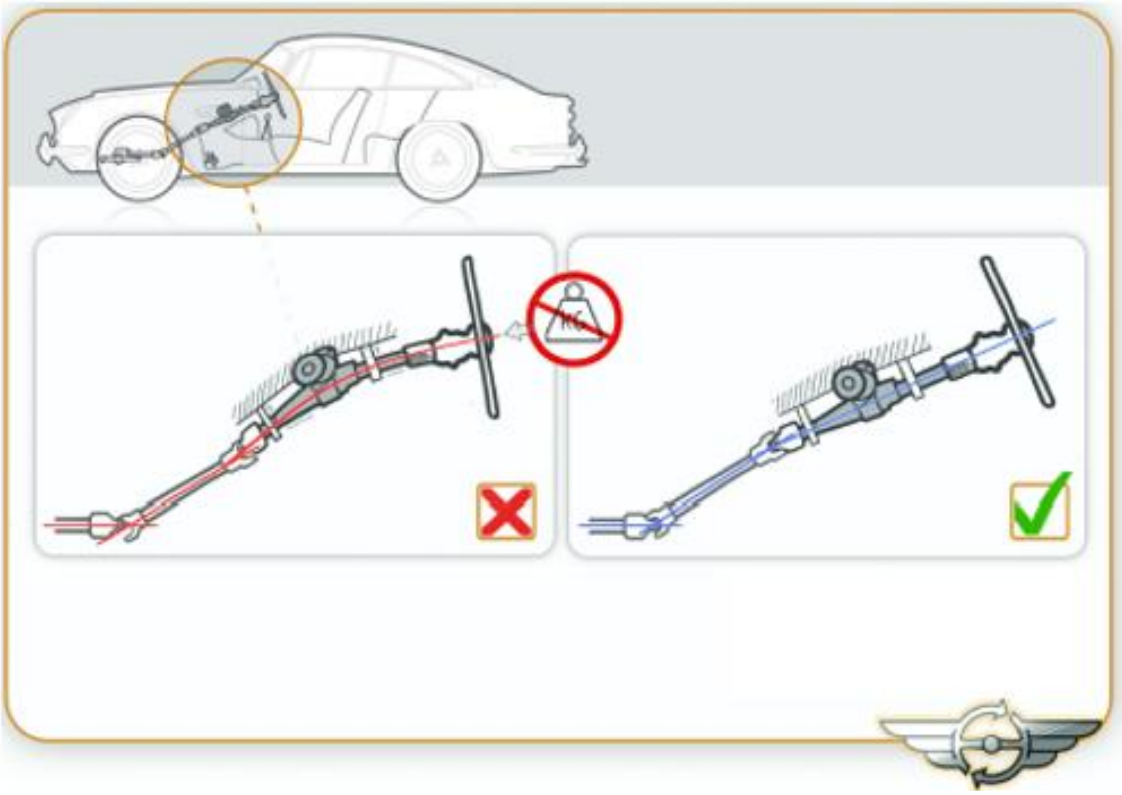
EZ-TR-1: EZ unit.
EZ-TR-2: Electric wire.
EZ-TR-3: Speed sensor.
EZ-TR-4: Bush.
EZ-TR-5: Input tube.
EZ-TR-6: Installation parts.
EZ-TR-7: Only for vehicles with steering lock.
EZ-TR-8: ECU.
EZ-TR-9: Firewall installation plate.
EZ-TR-10: EZ wiring harness with controller.

Before and after assembly

Installation



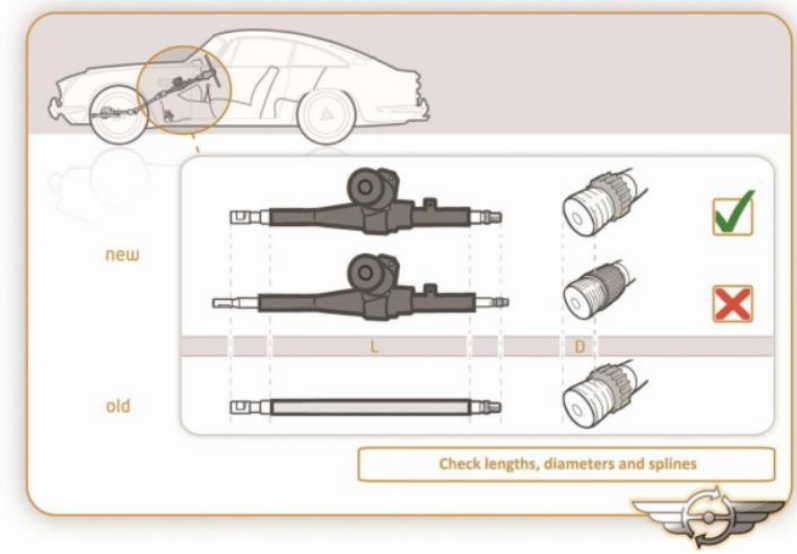
Never strike the input shaft with an object during or after assembly. This can adversely affect the sensors.



The steering system must always be properly aligned and mounted without tension.

Check length, diameter and splines

Compare the EZ Power Steering Column (EZ-unit) with the original steering column before installing it. Check if the splines on the top and bottom, the diameter of the steering tube and the length of the column are all the same as the original steering column. When in doubt you can use the original steering wheel to check the top splines for fit. Never hammer on the steering shaft of the EZ unit!



In the car industry its common to have some small tolerances in spline connections. In very exceptional cases connecting a new shaft from the EZ-unit in the original (old) U-joint could cause a tight fitting. This is sometimes relatively easy to solve by sanding only about 0,2mm (0,007 inch) in the inner part of the U-joint and also the spline on the output shaft on the EZ-unit.

Torque tightening values in Nm.

When the new steering column is being fitted hand tighten all the bolts and check if everything turns smoothly before tightening to required Torque, use torque tightening table below:

	strength class 8.8	strength class 10.9	strength class 12.9
Bolt M6	11	16	19
Bolt M8	27	40	47

The system works with a torsion bar into the unit, this measures the amount of torque/load on the steering shaft while steering, the torque sensor measures this and sends a voltage to the ECU. The ECU uses this signal together with the speed signal to control the electric motor from the EZ-unit.

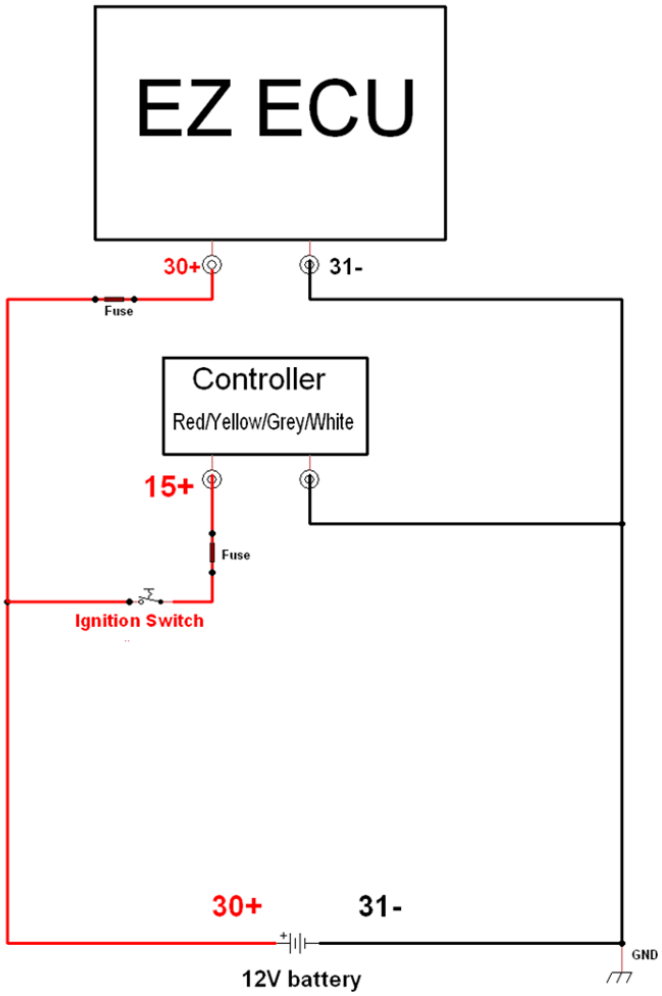
Voltage

The basic EZ-unit, is a 12V system with negative earth! There are extra wiring sets available, so that the kit will work with a 6V or 24V system and/or positive earth. Check your vehicle setup before fitting the EZ-unit.

The red supply wire (30+) has to be connected directly to the starter relay or the plus terminal of the battery and fused with the supplied 40 Ampere fuse.

Connect the black ground wire (31-) cable eyelet to a suitable earth point (not to the column). If you have a positive earth car (Plus battery terminal connected to the chassis) ensure that you have the correct wiring loom with additional relay

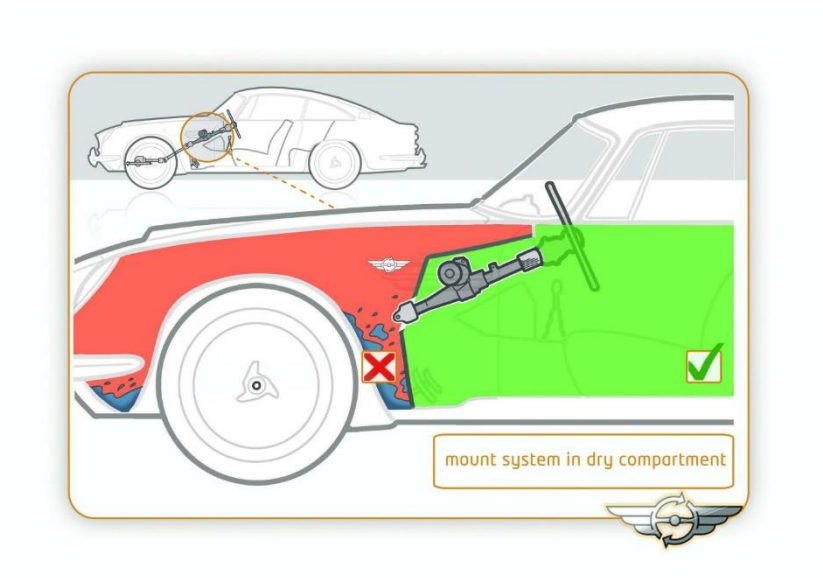
The thin red wire is ignition switched (15+) and should be connected to a fused contact switched power supply. Check the voltage between the ignition switched plus against earth, with switched on ignition, this must be at least 11,5 Volt. If it drops below this the electric power steering will switch off. (When this happens during driving, the vehicle will drive similar as before the EZ conversion).



Be sure to measure the voltage under load (with other electrical devices switched on like: cooling fan, windshield wiper or electric window defroster, etc.) and with running engine.

If needed there are electronical devices available, to maintain the correct ignition switched voltage above 11.5V!

Also a simple test of the electronics is to check if you hear a click after switching on the ignition, another click should be heard after 1 or 2 seconds after switching off the ignition



The EZ unit, wiring loom, ECU and other electric components may not be exposed to high temperatures (60 degrees centigrade or higher) or a wet environment.

Step 1.

Inspect the tyre pressure and test drive the car. Check that the steering wheel self-centers. Exeman that the steering and instruments are not defective. If everything this is in order, proceed with the conversion.

Step 2.

Find a fused power supply switched via the ignition. This is necessary for the power supply of the EZ powersteering unit (see step 26). The switched power supply can either be taken from the ignition switch or from the fuse box. Then disconnect the battery negative terminal lead.

Step 3.

Put the wheels in the straight-ahead position and mark this position on the shaft in the engine compartment. Remove the horn cap and steering. Then remove the clip from the indicator switch.

Step 4.

Measure the protrude length of the steering shaft and steering column relative to each other and the dashboard, record these lengths.

Step 5.

Disassemble the clamping bolt on the steering axle together with the mounting bolts of the steering axle coupling.

Step 6.

Remove both mounting clamps from the steering column (both bulkhead and dashboard side).

Disassemble the wiring of the indicator-, light switch and horn (behind the dashboard).

NOTE: if the car is equipped with a steering lock: disassemble the contact part of the steering lock, then disassemble the steering lock part of the steering tube.

The steering column can then be removed from the car.

Step 7.

Install the speed sensor between the cable and speedometer.

Step 8.

Disassemble the original installation bracket (behind the dashboard of the car and adjust it so that it fits around the tube of the EZ unit. Afterwards the bracket can be installed in the car again. Replace the clamping bush in the bracket

Step 9.

The original support that is mounted on the bulkhead must be cut off, see photo.

Step 10.

In some cases it may be necessary to modify the the bulkhead. Use an (air) saw to cut off the “guide” from the bulkhead. After removal, it must be completely flat.

Step 11.

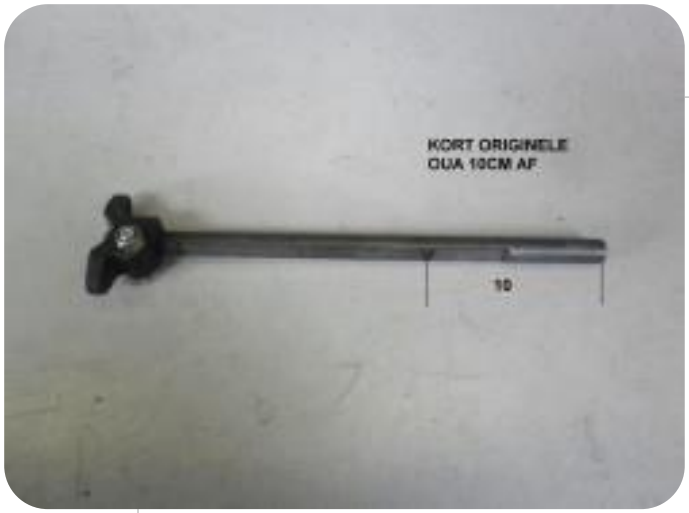
Disassemble the input tube from the EZ unit.

Step 12.

Remove the output tube and shaft from the EZ unit. First remove the output tube with 2 Allen bolts. After this, remove the clamping bolt from the output shaft and remove the shaft itself afterwards.

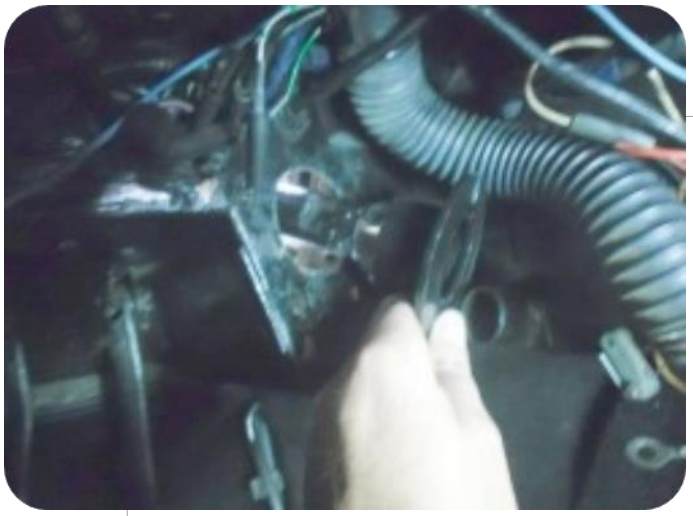
Step 13.

Remove the electric motor from the EZ unit.



Step 14.

The original steering shaft must be cut 10 cm, see photo. Now mount the sawn-off shaft together with the clamping plate in the car.

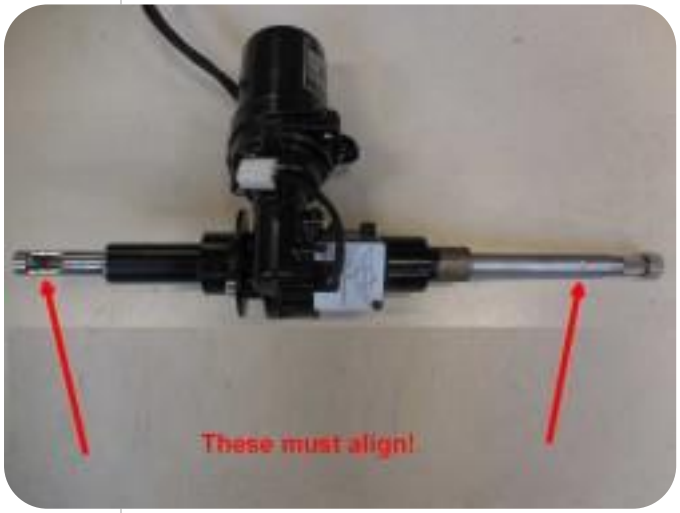


Step 15.

The output tube must be installed first, slide it through the bulkhead.

Step 16.

Slide the clamping plate from the engine compartment around the output tube. Then slide the output shaft through the output tube into the original shaft



Step 17.

Install the EZ unit in the car, pay attention to the correct position, the wheels must be straight. There is a mark on the EZ output shaft that must match with the shaft on the EZ unit. This is necessary to maintain a correct working indicator switch reset. There are 2 recesses/dimples on the input axis, these are for securing the indicator reset. During assembly, make sure that 1 of this recess/dimples is in line with the recess in the output shaft.

Step 18.

Install the output tube back on the EZ unit.

Step 19.

Install the steering shaft on the rubber coupling and the EZ unit. Drill through the 4 holes of the clamping plate in the bulkhead. Use a 7 mm drill. Note the centering of the steering axle in the bulkhead. Also make sure that the rubber coupling can rotate freely. Then tighten all bolts except the clamping bolt.

Step 20.

Re-install the electric motor on the EZ unit. Check the protrude length of the steering shaft against the dashboard. as measured in point 4 and adjust the position of the column if necessary. Turn the column to the correct position (as high as possible), then tighten the clamp bolt at the bulkhead together with the steering axle in the engine compartment.

Step 21.

Remove the switches from the original column for later installation on the EZ column.

Step 22.

Remove the horn ring from the steering column, which is attached with 4 locking clips. The horn ring can be removed by bending the clips open. The horn ring can be installed after both switches have been installed. It is also secured again by closing the 4 clips.

Step 23.

Install the EZ steering tube on the EZ unit. If everything is in the correct position, secure the mounting clamp behind the dashboard. The wiring from the indicator- and horn switch can be installed now.

Step 24.

Check the straight-ahead position again, if everything is okay, install the indicator reset. Then install the steering wheel, make sure it is in the correct position!

Step 25.

Replace the marked bolt and with the supplied longer bolt. This longer bolt can now be used on the inside to mount the ECU. TIP: use some extra sealant at the back of the ECU during assembly, this will fix it better.

Step 26.

Connect the thin red wire (15+) to a fused ignition contact switched power supply (see point 2

Step 27.

Connect the thick red wire (30+) from the fuse holder directly to the positive battery. It is advisable to extra isolate the wire

Step 28.

Connect the black wire (31-) to a suitable clean ground point..

Step 29.

Connect the previously disconnected battery negative terminal lead. After switching on the ignition a click can be heard from the ECU, the system is now operational, check this by making steering movements. After switching off the ignition a click is heard again after about 3 seconds. The system is now switched off.

Step 30.

Take a test drive and check all systems again. Also check if the position of the steering wheel is correct, if not adjust it. Make sure there is enough length on the horn wire for the possible adjustment of the steering wheel.

Step 31.

The end result. PLEASE NOTE: if there is an original ignition lock mounted on the steering column of the car, there is the possibility to move it on the support behind the dashboard. This means that the function of the steering lock is canceled.