

# Toyota Supra A90 Front Steering Rack Conversion Kit To BMW E90 Hydraulic Steering Rack

This manual describes the modification process of the Toyota A90/BMW G29 aluminium front subframe to allow the use of the BMW E90 LHD or RHD hydraulic steering rack. We recommend reading this manual all the way through before making any modifications.

With this modification the new steering rack will be fitted in place of the OEM electric steering rack.

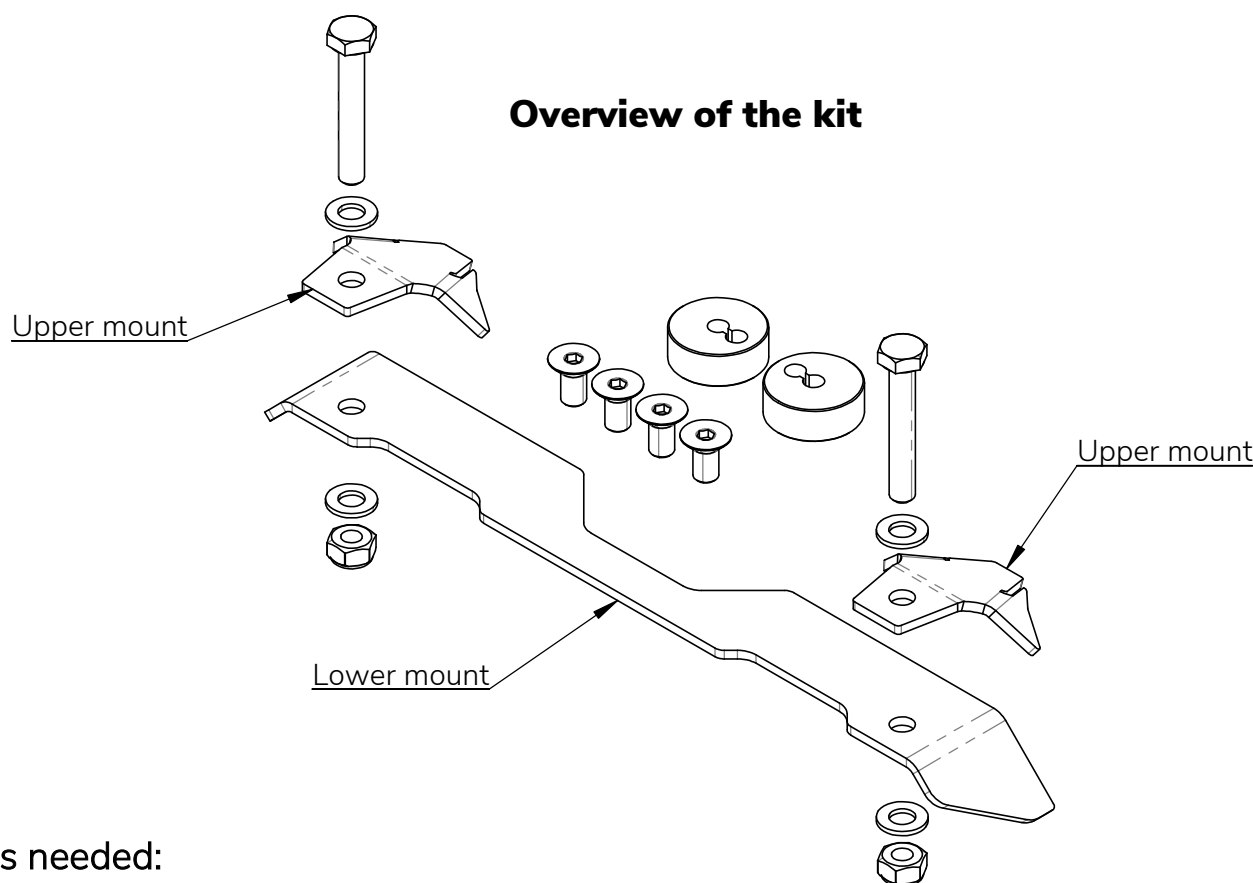
Given setup is meant to be used with **Toyota Supra A90 Front Drift Angle Lock Kit**.

Stock engine mounts could need modification or replacement to suit this kit.

Modifications are different for LHD and RHD steering racks. LHD needs an extra modification to the subframe, which is described in this manual. Pictures used in this manual are for illustrative purposes.

## Components needed:

Steering Rack: BMW E90 Hydraulic Steering Rack LHD or RHD (Active Steering and Electric Power Steering rack can **not** be used or may need more modification to the subframe than described in this manual.

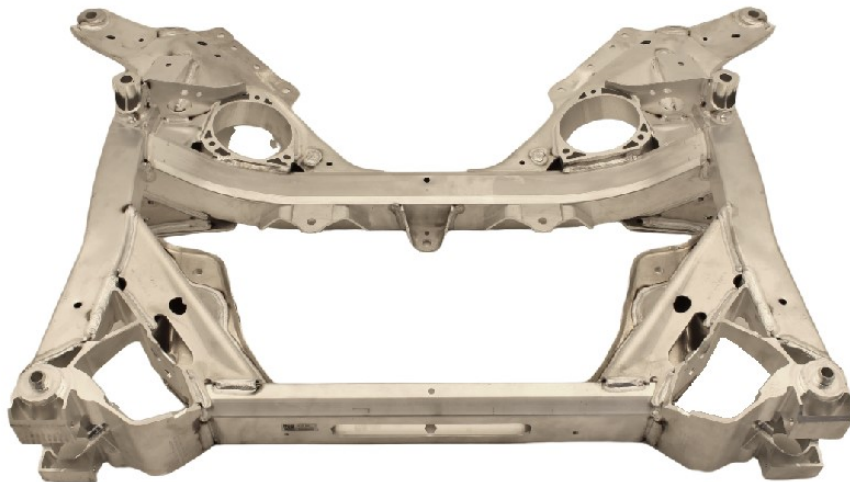


## Tools needed:

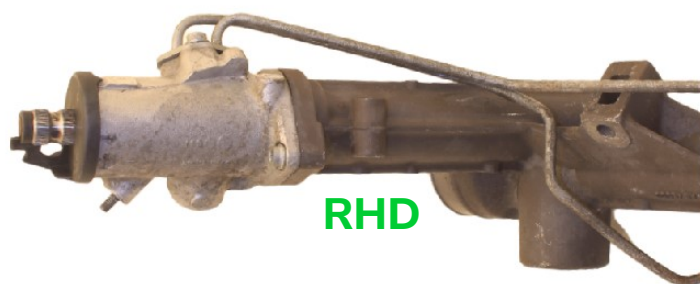
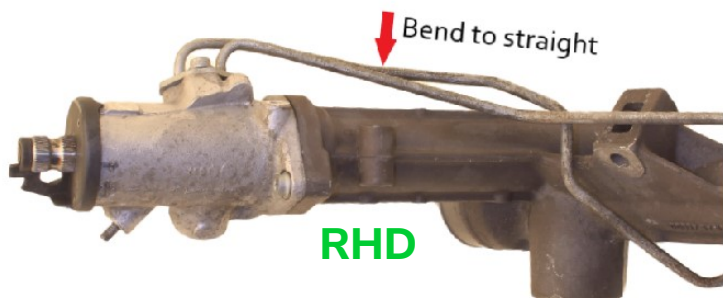
Make sure that You have all the required tools on hand. You will need:

- Safety equipment (welding mask, goggles, gloves)
- Fine tip permanent marker, measuring tape, scissors
- Wrenches
- Angle grinder with cutting and sanding discs
- Welding equipment for welding aluminium

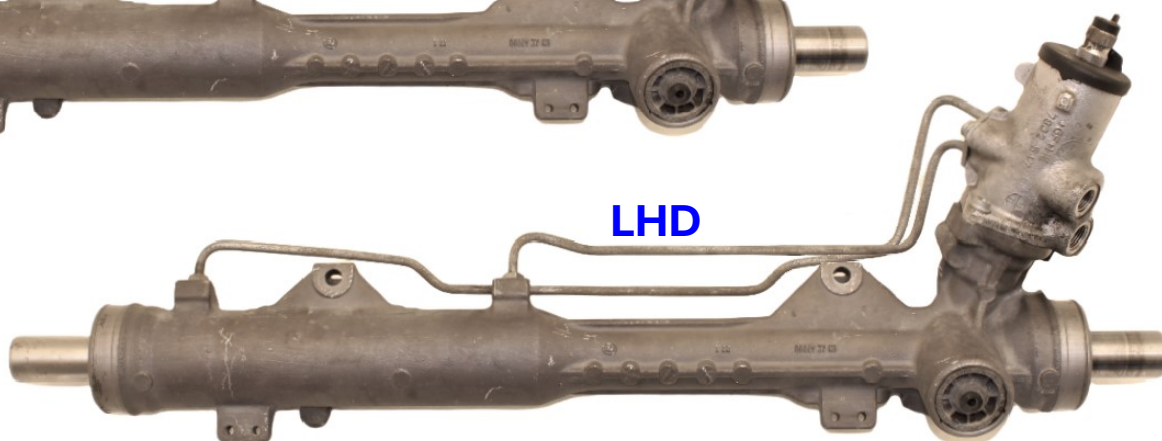
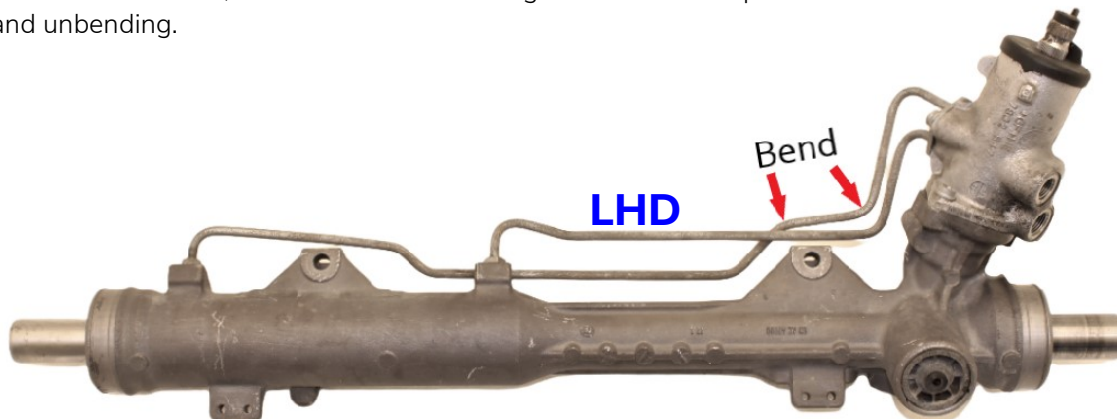
1. Remove tie rods and rubber boots from the steering rack and clean the rack.
2. Clean the subframe from dirt/oil. This is vital to ensure a good quality weld and proper penetration.



3. Before installation, the E90 steering rack lines need modification. On the **RHD** rack, the right-hand line needs to be bent to straight as shown in the pictures.

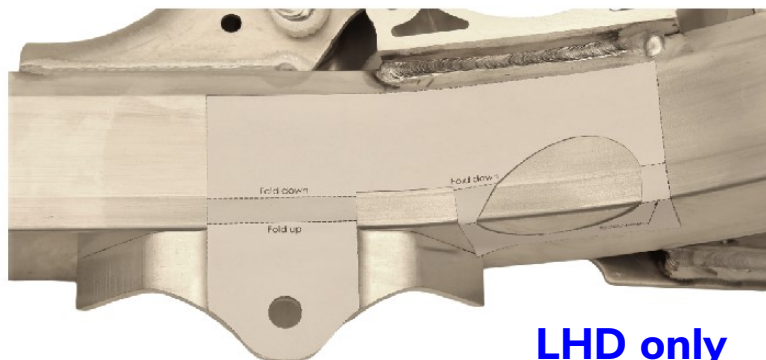


4. On the **LHD** rack, one line needs re-routing as shown in the pictures. Make sure not to kink the line while bending and unbending.

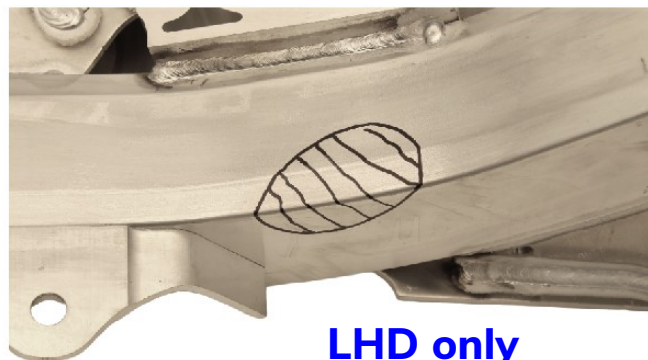


5. On LHD cars, the subframe needs extra clearance to fit the E90 rack. This is **not necessary on RHD** cars. Print and cut out the paper template which is at the end of this guide. Dotted line on template is for positioning, bold solid line is for marking the cutting line. In case you printed out the manual yourself, then there is a scale check line 127mm or 5" long. If the template is not in scale, then check your printer settings and reprint it until actual measurement is 127 mm. Double-sided tape or masking tape is useful for placement.

6. Place the template on the subframe as seen in the picture and mark the cutting line.



**LHD only**

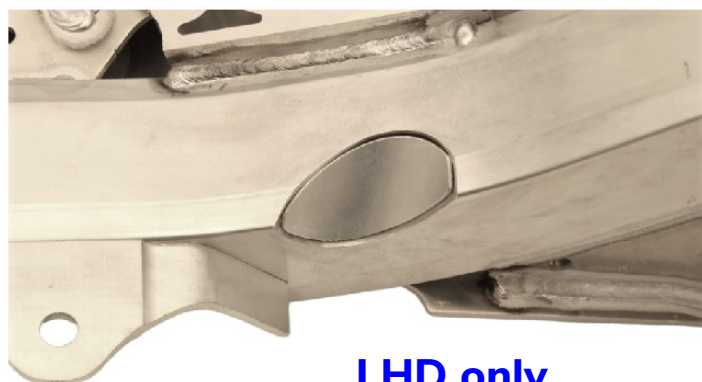


**LHD only**

7. Cut off the marked section. The area could also be carefully hammered in. If you wish to close the cutout, a piece of 2.5"/63mm aluminium tube could be used.



**LHD only**



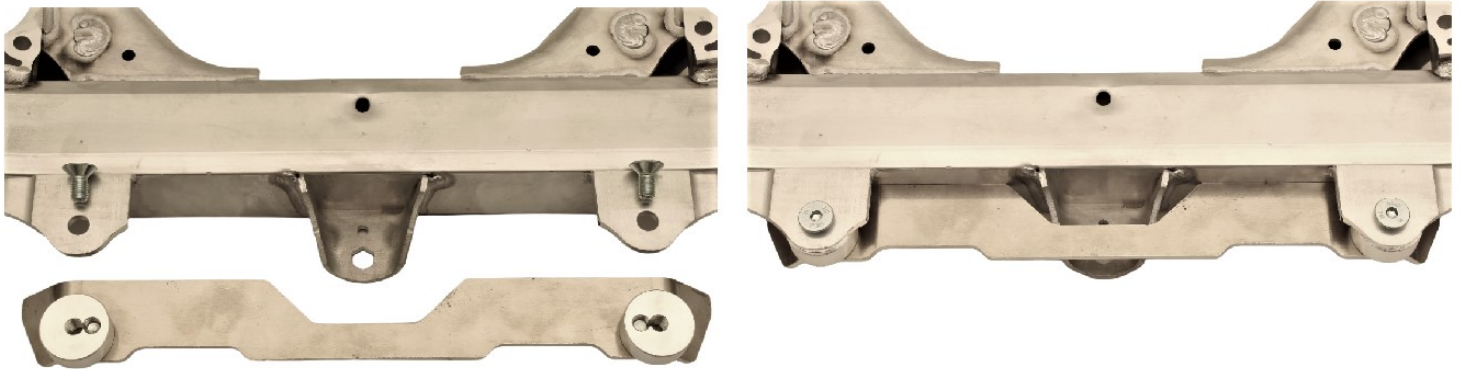
**LHD only**

8. Cut off the marked section from the original steering rack mounts as seen in the picture. Grind the surface flat. Also grind/sand clean any surfaces which are about to be welded.



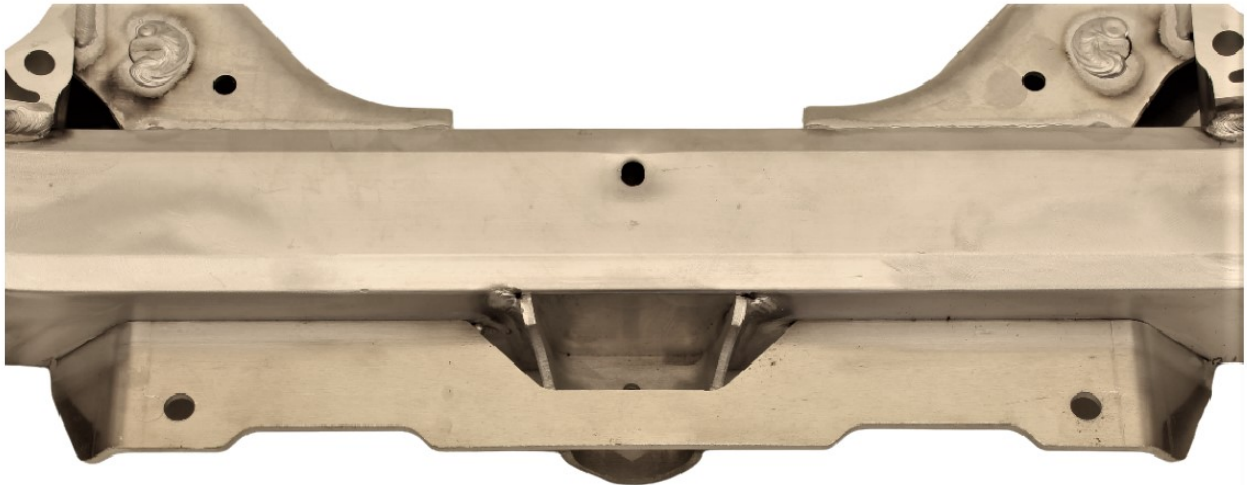


9. Place the supplied threaded bushings and new lower rack mount under the original rack mount as seen in the picture. Make sure the new mount sits snug against the subframe. Use the supplied M10 conical bolts to fix the parts in place. Do not overtighten the bolts!

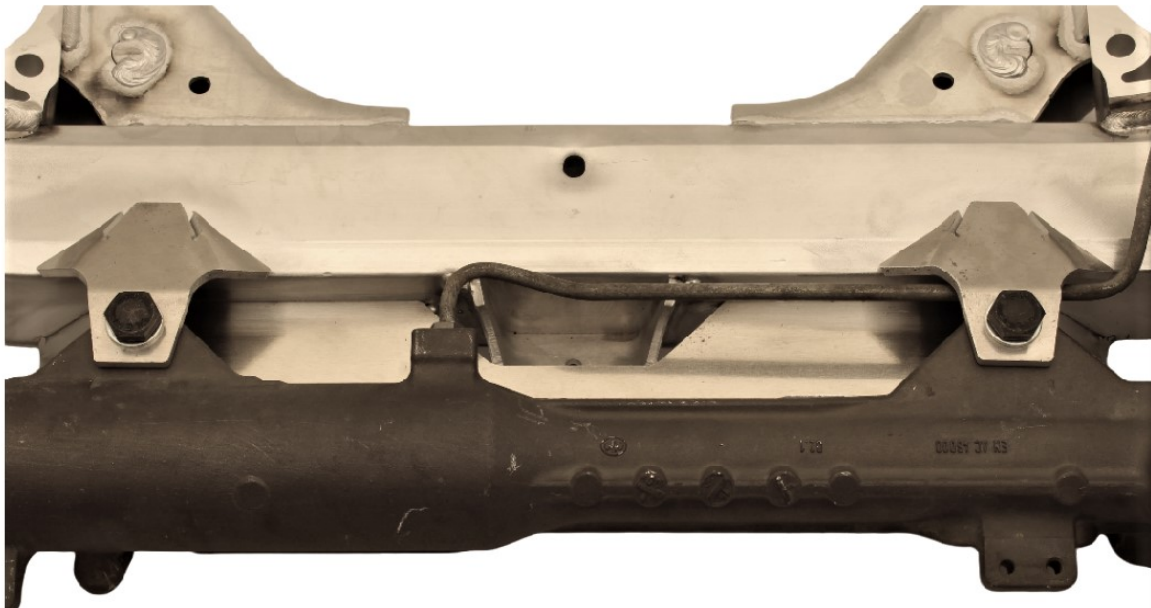


10. Weld the new mount to the subframe. Weld from the underside of the mount.

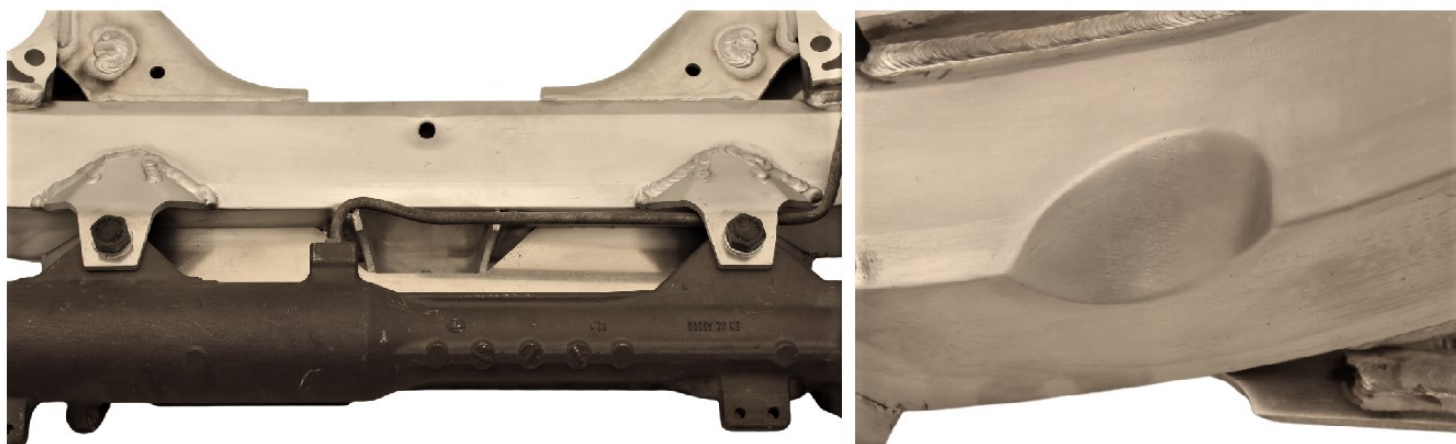
11. Take off the two bushings and cut off the original mounts. The center mount for the front axle support plate can be left intact if necessary.



12. Use the E90 steering rack to locate the new upper rack mounts. Make sure the steering rack is level with the subframe. Tack weld the new mounts.



13. Fully weld the new mounts. DO NOT overheat the steering rack. On LHD cars, now also weld the cutout for rack clearance.



14. Overview of the modified subframe.



15. Subframe with LHD rack.

Subframe with RHD rack.

