20 YEARS EXPERIENCE

CAE SHIFTING TECHNOLOGY

Installation instructions

10002

VW Polo
with linkage gear type 085
4, 5 & 6 speed

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PLEASE NOTE

SAFETY FIRST!

- Please only do the installation if you have appropriate experience in the automotive sector and have the right tools! An incorrectly installed Shifter can seriously damage the transmission or make the vehicle undriveable or not shiftable and lead to serious accidents!
- If work on the electrical system is necessary, please follow the manufacturer's specifications.
- It is essential to leave the ignition switched off when the plugs are disconnected. Do not leave the car key in the vehicle.
- Carry out all work with care and cleanliness! For the professional assembly of a shifter is no force required. All parts are designed to fit your vehicle.
- If you are unsure, please contact your trusted workshop about the installation!

BASICALLY

- Use ethyl alcohol/brake cleaner to clean all aluminum parts.
- Occasionally lubricate all moving parts with spray grease, which has good creeping properties. Our recommendation: Würth HHS 2000 (WD-40 or similar is unsuitable because it is too thin)
- All screws and nuts that are not self-locking or are fitted with tooth lock washers glue in during assembly!
- Never kink shift cables, please!

ⓘ SURFACES AND THEIR CARE

Please note that an untreated aluminum surface (ALU) is sensitive to aggressive Liquids to which i.a. Hand sweat also counts. Especially the high-strength 7075 aluminum we use has a tendency to form black spots of corrosion due to its high copper content. Under special circumstances, very salty air near the sea and coast can lead to corrosion. The surfaces should therefore be cleaned regularly and treated with care to prevent this. For this purpose, e.g. ethyl alcohol or brake cleaner. Only spray these onto a cloth and wipe the shifter with it, NEVER spray the shifter directly. If stains have already formed, they can be removed with commercially available aluminum polish, but that is also not allowed get into the movable parts of the shifter.
The anodized versions of our shifters (EXS, EXGR) are more resistant to corrosion. The steel parts have to be also cared in all variants.

TIPS FOR GEAR SHIFTING

ⓘ FORCE DOESN'T MAKES YOU FASTER – IT ONLY HARMS THE TRANSMISSION

The question arises again and again: "Does a CAE shifter puts more strain on a gearbox than a standard gear lever?" The answer is clear: “No!” The things that are most stressful for a synchronizer ring in a transmission are excessive shifting forces or a wrong shift in gear. Basically, the shift travel with a CAE Shifter is significantly shorter than with the standard lever. We achieve 30 - 55 % reduction depending on the vehicle and transmission type. This can only be achieved by using the appropriate gear ratio on the shift lever. You can feel it through the precision of a CAE shifter engaging the gears is much better than with a standard gear lever designed for comfort.
The force for this decreases in the same proportion - we put in the gears with significantly less load for the synchronizer rings. In addition, with a correctly adjusted CAE shifter put in the gears is very precise and shifting into the wrong gear is extremely rare. Even in motorsport, fast, precise, but still sensitive shifting leads to the goal! Everything else is pure tugging and tearing which puts a disproportionately high strain on a transmission and in the worst case causes a fatal wrong shift in gear!

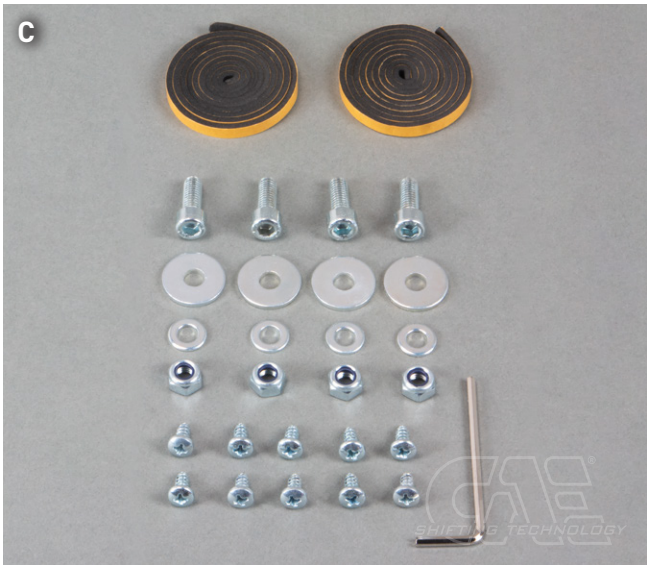
Included in delivery

- 1x shiftercompletely monted, design depending on ordered variant (Picture A)
- 1x Shift knob incl. counter screw M6x20 V2A, design depending on ordered variant (Picture B)
- Accessories package (Picture C)
- Shift rod adapter with universal joint (Picture D)
- Shift rod (blank, pre-bent) (Picture E)
- Cover plate (Picture F)
- Cover with rubber bellows (Picture G)

A

B

C



D

F

E

G

The shifter is intended for racing vehicles without interior equipment. If the center console is installed, it must be removed or cut out until there is sufficient clearance for the shift rod.

The shifter must be screwed directly onto the sheet metal of the center tunnel, any existing carpet must be cut out.

For sealing, glue the enclosed foam rubber strip around the tunnel opening.

The removal

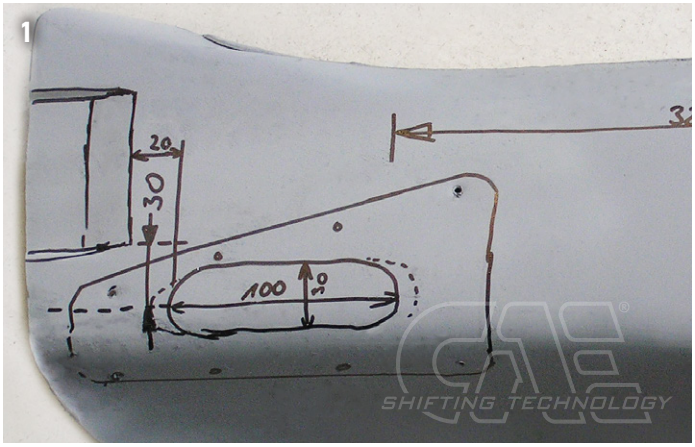
- Remove center console.
- Completely remove original shift lever and shift rod.

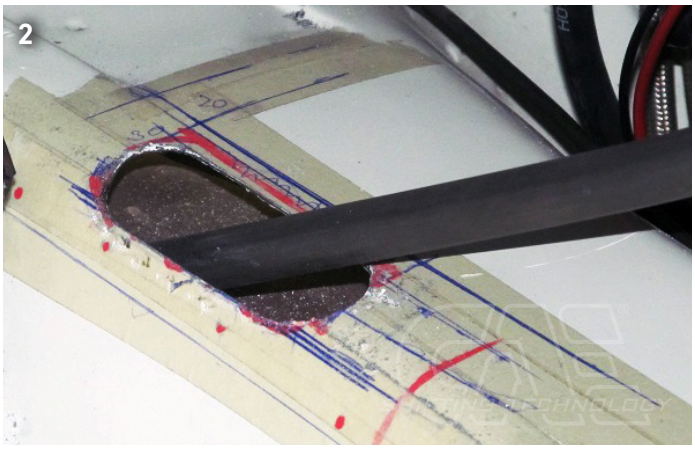
The installation

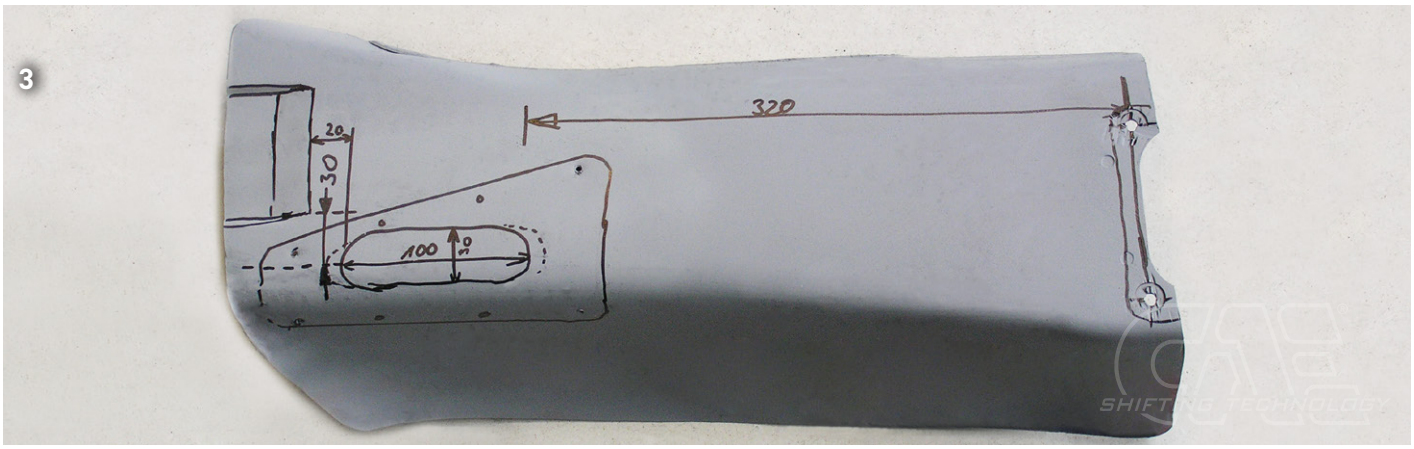
- Mount the gearshift bracket to the original mounting bolts on the center tunnel.
  The hole pattern of the gearshift bracket matches the original mounting points.
- On some Polo models the welded-in bolts point downwards, these must be drilled out, the gearshift bracket is fastened here with the screws supplied.
- The supplied aluminum sheet is used to cover the original gearshift bushing in the center tunnel, it is placed under / on top of the tunnel depending on the tunnel version and screwed together with the gearshift bracket.
- To seal the tunnel, glue the foam rubber strip to the edge of the cover plate before mounting it.

Sheet metal work

- Cut an oblong hole 30mm wide and 100mm long in the tunnel:







Installation of shift rod

- Fasten the universal joint to the transmission shift shaft using the original fixing screw.
- Guide the shift rod from the interior through the hole and push it onto the bolt of the universal joint.
- The shift rod is pre-bent on delivery. If there is not enough clearance, bend it accordingly. The bend near the gearbox should point to the left. This ensures that the shift rod makes the smallest pivoting movement at the tunnel bushing.

- Measure length incl. fork and gear connection, making sure that the shift lever does not touch the reverse gear lock pin in the front end position. If necessary, shorten the shift rod.
- Fix the end pieces using spot welds, then weld the rod, we recommend removing it for this purpose.

- Paint rod as required.

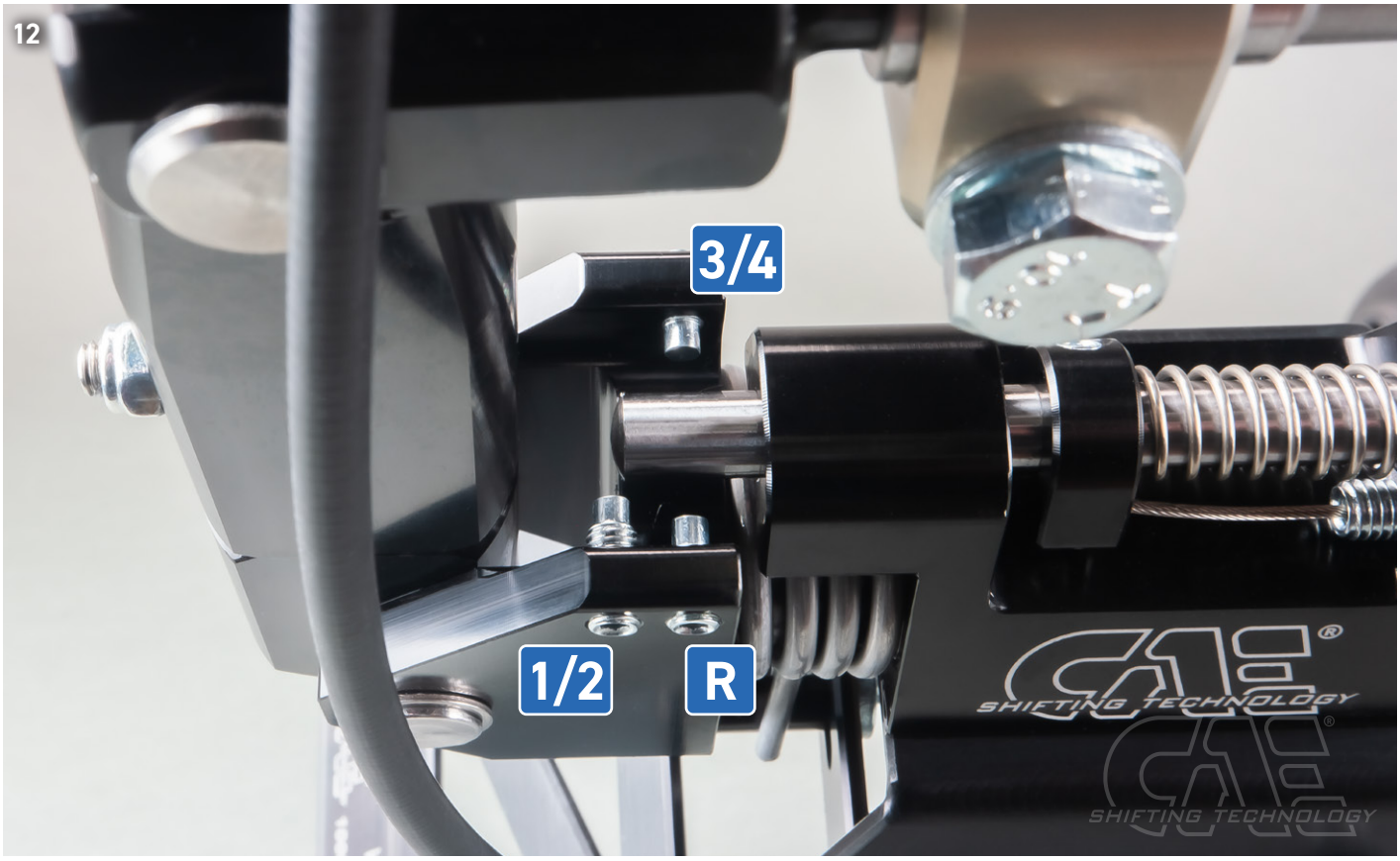
- Slide rubber bellows over shift rod. (Use brake cleaner as lubricant).

- Mount sheet metal hood over tunnel opening and check for gas-tight fit. Correct shape if necessary. Use foam rubber strips for sealing here as well.

- Reinstall shift rod, do not clamp fork yet. (see adjustment of gearshift travel).

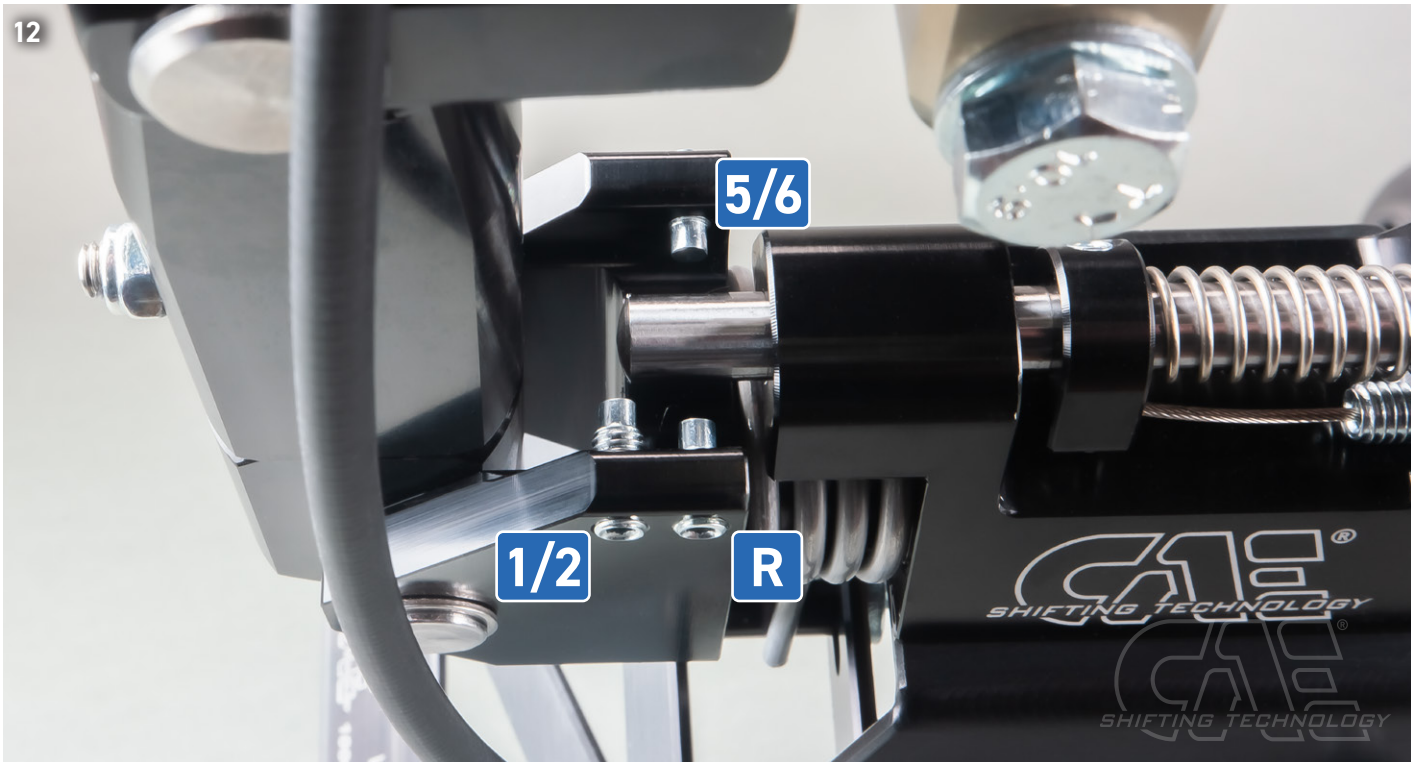
Adjusting the shift travel of the 4-speed gearbox

- Loosen lower spring stop of center position spring.
- Shift gearbox to 3rd or 4th gear by hand. (This is the "zero position" of the transmission; to do this, move the shift rod forwards or backwards without rotating it).
- Determine the desired center position of the shift lever and tighten the lower spring stop under the shift bracket using an allen key.
- For the 4-speed gearbox, screw in the stop screw "3/4" until it is in position 3/4 (center position).
- Now clamp the fork on the shift rod. The gears 3-4 must now be able to be changed without problems, otherwise readjust.
- Now shift the gearbox to level 1/2 using the shift lever and adjust the stop screw until the gears in level 1/2 can be changed cleanly.
- Actuate locking pin via cable and shift gearbox to reverse gear level.
  Adjust stop screw R until the reverse gear can be reverse gear can be engaged cleanly.



Adjusting the shifting travel of the 5 & 6 speed gearboxes

- Loosen lower spring stop of center position spring.
- Shift gearbox to 3rd or 4th gear by hand.
  (This is the "zero position" of the transmission, to do this move the shift rod forward or backward without rotating it).
- Determine the desired center position of the shift lever and tighten the lower spring stop under the shift bracket using an allen key.
- (Select the center position so that the shift lever is tilted very slightly to the right. Otherwise there may be problems with engaging R. gear or 5th gear)
- Now clamp the fork on the shift rod.
  The gears 3-4 must be able to be changed now already perfectly, otherwise readjust.
- Now shift the gearbox to level 1/2 using the shift lever and adjust the stop screw until the gears in level 1/2 can be changed cleanly.
- Now shift gearbox to 5th gear level using shift lever and screw in stop screw X until 5th gear can be engaged cleanly. Actuate locking pin via cable and shift gearbox to reverse gear level.
- Adjust stop screw R until reverse gear can be engaged cleanly.



FINALLY! Check all functions and settings during the test drive and readjust if necessary!

Incorrect or inaccurate settings can cause damage to the gear box and consequential damage!

If you have any questions or problems, please be sure to contact us, we look forward to your feedback to improve our products.

CAE wishes you a good trip.

RACE THE ORIGINAL

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