

MORE THAN
20
YEARS EXPERIENCE

CAE[®]
SHIFTING TECHNOLOGY

Installation instructions

📍 10001

Volkswagen Beetle-

4 & 5-speed gearbox



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PLEASE NOTE

SAFETY FIRST!

- ⚠️ Raise the vehicle safely with a vehicle lift for installation. Improper lifting can cause damage to the vehicle and/or personal injury or even death!
- ⚠️ 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.
- ⚠️ 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)
- ⚠️ Generally attach a sealing sleeve to all ball heads (if available on the model). Lift sealing sleeve very slightly to lubricate.
- ⚠️ All screws and nuts that are not self-locking or are fitted with tooth lock washers glue in during assembly!
- ⚠️ After installing the shifter, secure all ball heads (if available on the model) with the cotter pins provided!
- ⚠️ If CAE shift cables are included in the scope of delivery, please never kink them!

i 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.

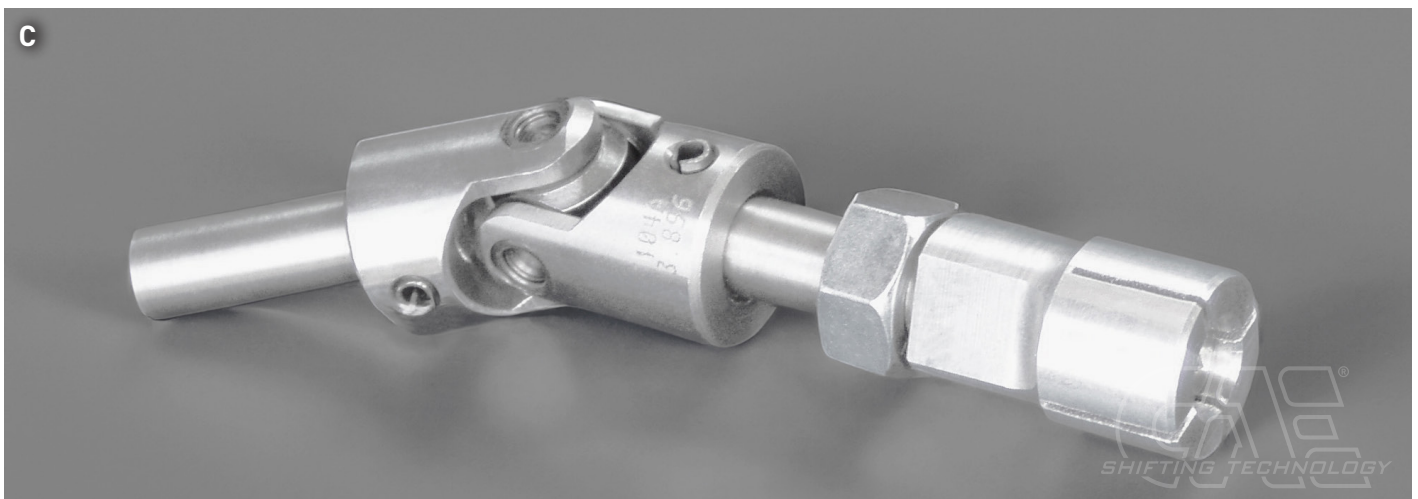
TIPS FOR GEAR SHIFTING

i 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 shifter completely assembled, design depending on ordered variant (Picture A)
- ▶ 1x Shift knob incl. counter screw M6x20 V2A, design depending on ordered variant (Picture B)
- ▶ Universal joint rod with spreader clamp (Picture C)



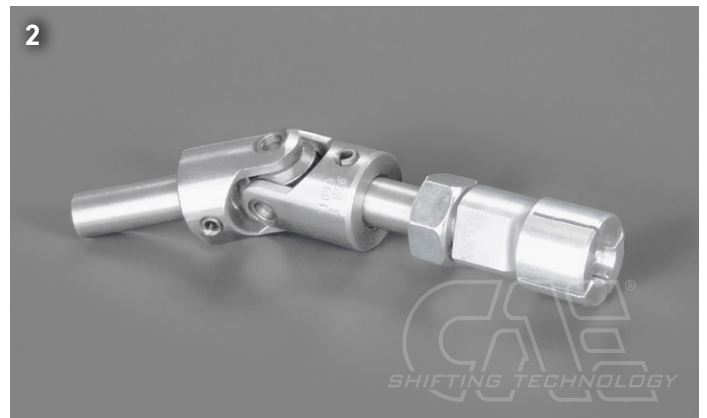
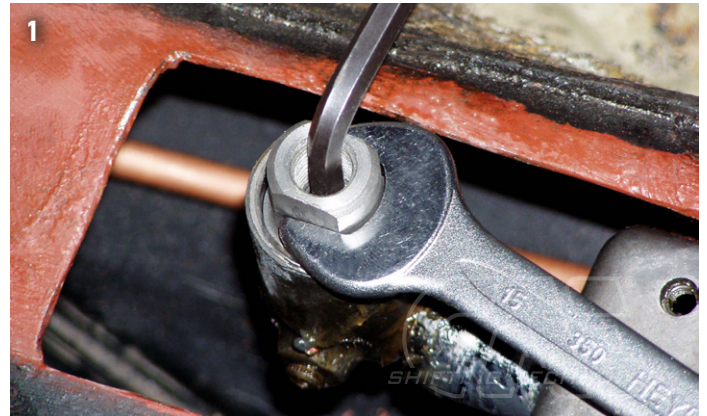
- i** The shifter is intended for vehicles without interior design. The center console must be removed or cut out until sufficient clearance is guaranteed.
The handbrake lever may have to be shortened. (available from GWD)
- i** The gearshift bracket must be screwed directly onto the sheet metal of the center tunnel; any existing carpet must be cut out.
- i** It may be necessary to rebuild the rear shift rod joint.
As this should always be new, or better still fitted with PU bushes, it is advisable to check the center position immediately.

If the joint is slightly tilted to the right in the center position, it must be turned over and a new M8 thread for the fixing screw must be cut on the opposite side of the clamping bushing. Mark the position of the hole when the joint is aligned horizontally.

Make sure that the centering on the gearbox shift rod is usually inclined slightly to the right.

Installation of the shifter

- ▶ Completely remove the original shifter.
Degrease the shift rod bore/whistle head.
 - ▶ Check the rear shift joint on the gearbox for clearance, replace if necessary.
 - ▶ Insert the expanding clamp into the shift rod bore and clamp with grub screw. (Tighten CORRECTLY!!!)
 - ▶ Screw the link rod into the expansion clamp and lock with the nut. (The screw-in height allows the shifting travel to be adjusted slightly)
 - ▶ Mount the shifter on the center tunnel, inserting the link rod into the shift lever.
Grease the upper part of the link rod and the hole in the shift lever well, as they must slide into each other to compensate for length in order to function properly.
- i** Relubricate the hole in the gearshift 2-3 times a year.
- ▶ For better lateral stability, cut additional threads into the tunnel at the 6 mm holes drilled in the base plate and additionally fix the gearshift bracket with two M6 screws. Due to the different tunnel designs and tolerances for horizontal alignment, it may be necessary to shim the base plate with washers.
 - ▶ Adjust the switching travel.



Adjusting the shift travel 5-speed gearbox (Porsche 901 gearbox)

▶ 901 Gearbox:

The reverse gear lock is installed on the right-hand side in the direction of travel.

 The setting is analogous to the 915 gearbox R-gear front left.



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.

Adjusting the shift travel 5-speed gearbox (Porsche 915 gearbox)

► 915 Gearbox:

The reverse gear is located at the right rear.

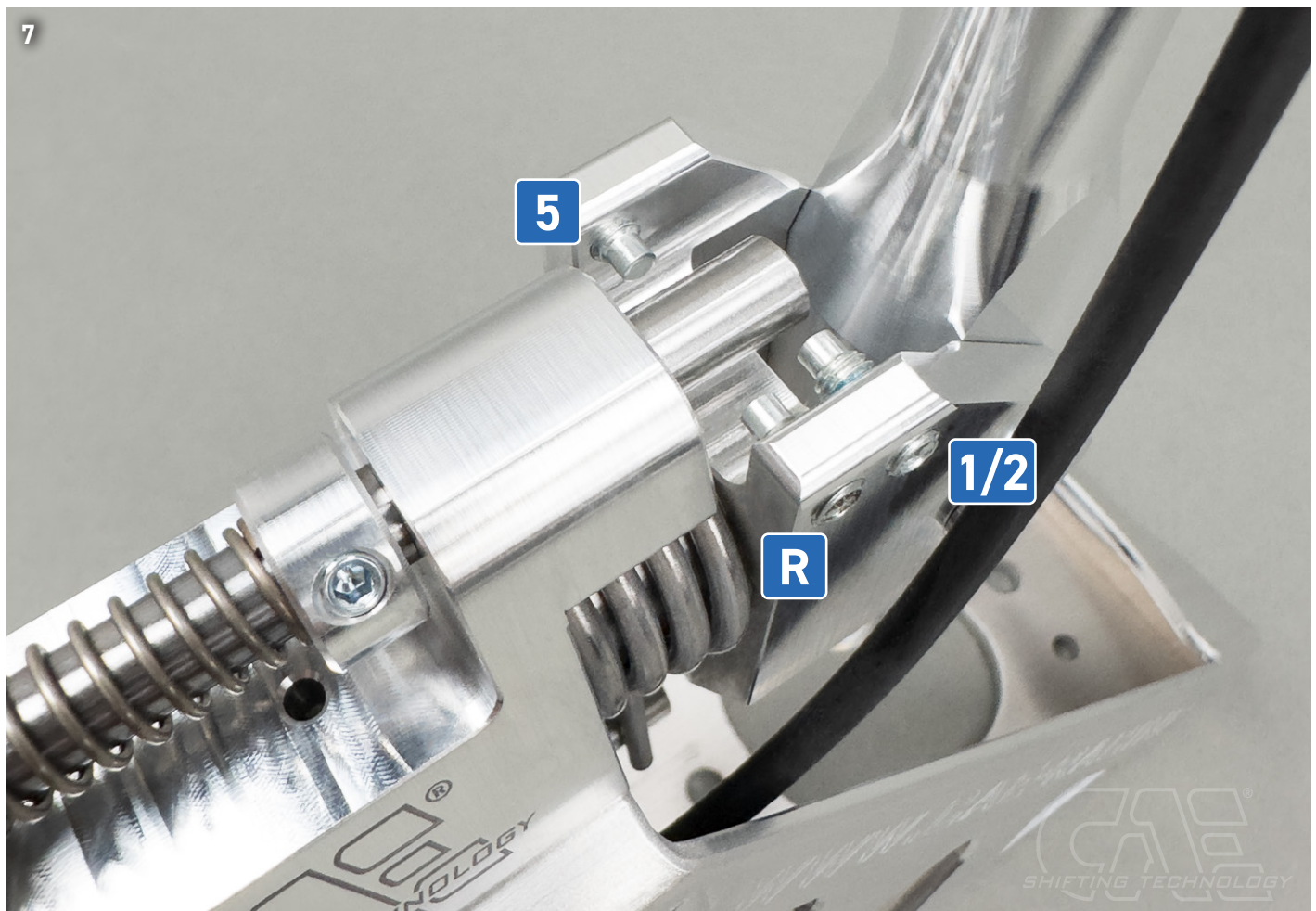
The R lock is installed on the base plate on the left in the direction of travel.

- Shift gearbox to middle gear level.
- Adjust the lower spring stop under the gearshift bracket using a 5 mm Allen key. The gear change in this plane must now function properly, otherwise readjust again. (Picture 8)
- Use the gearshift to shift the gearbox to the left level (1-2 or 1-R)
- Adjust the stop screw until the gears can be changed cleanly in this level. (Picture 9)
- Now use the shift lever to shift the gearbox to the right gear level and screw in the stop screw until 4-5 or 5-R gear can be engaged cleanly.
- The reverse gear lock must be adjusted so that the stop washer between the clamp and the nut is at the same height as the locking plate of the R lock.
- Swivel the gearshift into neutral position in the plane of the reverse gear. (Left or right depending on the gearbox version) To adjust, loosen the nuts and place the locking device against the stop plate. Tighten the nuts again. (Picture 10, 11)
- Actuate the lock by pulling and check whether reverse gear can be engaged.
- Grease the mechanism of the RW lock.



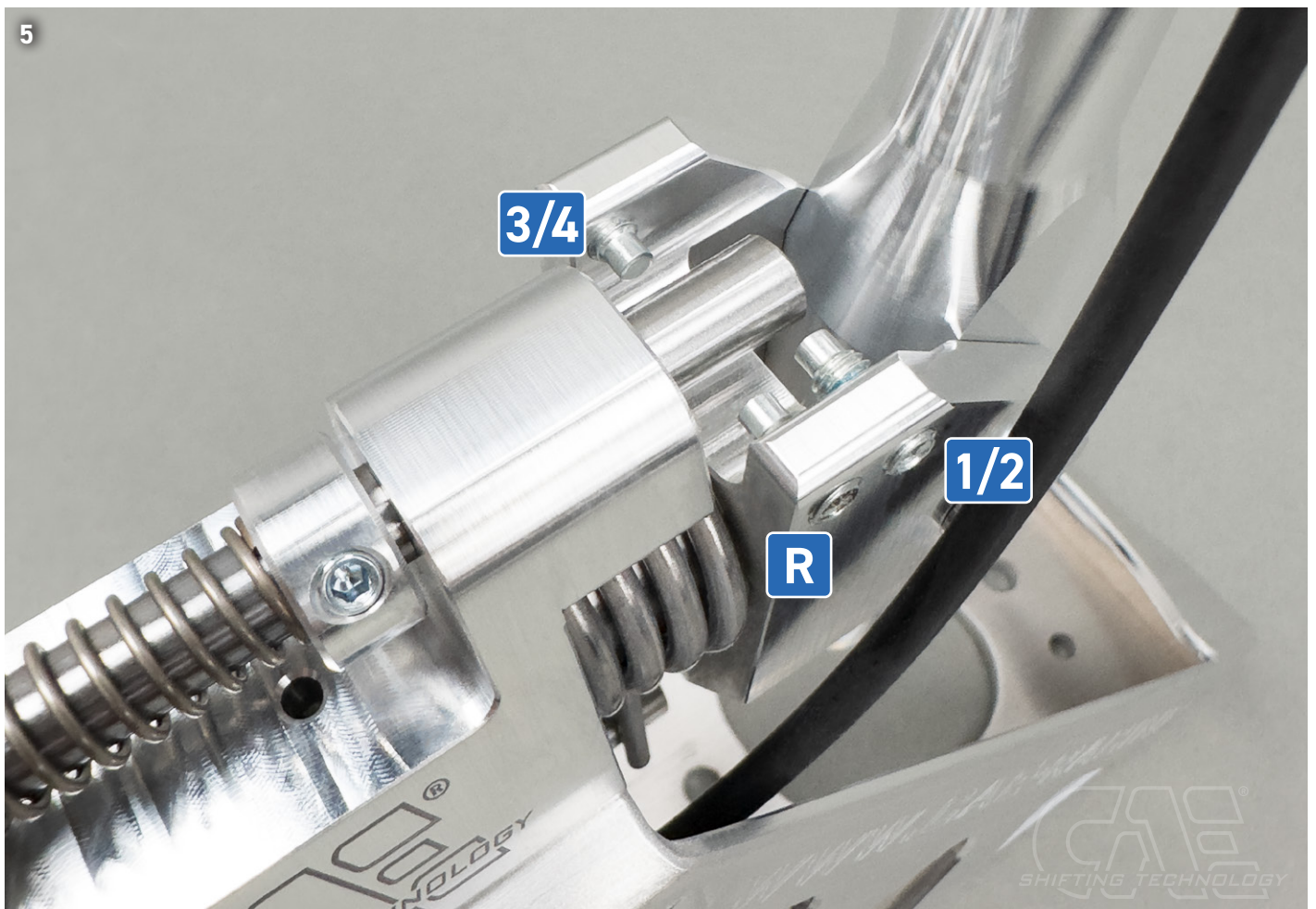
Adjusting the shift travel 5-speed gearbox e.g. Gene Berg or similar (not Porsche 5-speed)

- ▶ Shift the gearbox into 3rd or 4th gear.
- ▶ Adjust the lower spring stop under the gearshift bracket using a 5 mm Allen key. The gear change 3-4 must now work properly, otherwise readjust again. (Picture 6)
- ▶ Shift the gearbox to level 1 / 2 using the gearshift (search) and adjust the stop screw until the gears in level 1 / 2 can be changed cleanly. (Picture 7)
- ▶ Now use the gearshift to shift the gearbox to 5th gear level and screw in the stop screw until 5th gear can be engaged cleanly. (Picture 7)
- ▶ Actuate the locking pin via the cable and shift the gearbox into reverse gear. Adjust the stop screw until reverse gear can be engaged cleanly. (Picture 7)



Adjusting the shift travel 4-speed gearbox

- ▶ Release the spring stop of the center position spring. (Picture 4)
- ▶ Shift the gearbox into 3rd or 4th gear.
- ▶ Screw in the stop screw until the two gears can be engaged cleanly. In this position, tighten the lower spring stop under the gearshift bracket using an Allen key. (Picture 4)
In level 3/4, the screw is in contact with the bolt; the center position spring can also be pre-tensioned as required.
- ▶ Use the gearshift to shift the gearbox to level 1 / 2 and adjust the stop screw until the gears can be changed cleanly in level 1 / 2. (Picture 5)
- ▶ Actuate the locking pin via the cable and shift the gearbox to reverse gear level. Adjust the stop screw until the reverse gear can be engaged cleanly. (Picture 5)





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