

20
YEARS EXPERIENCE

CAE
SHIFTING TECHNOLOGY

Installation instructions

📍 10004

Volkswagen Golf 1
02J new version only & 02 M / Q
5 & 6-speed transmission



Scirocco 1&2

WWW.CAE-RACING.DE

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!

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.

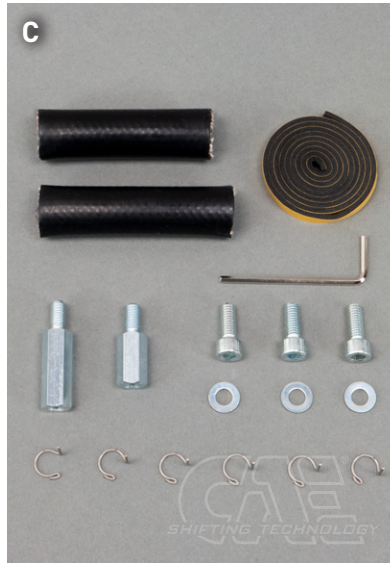
TIPS FOR GEAR SHIFTING

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 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 (Bild C)
- ▶ Connecting parts 02A gearbox (Picture D)
- ▶ 1x shift cable (S), 1x selector cable (W) (Picture E, F)



- i** 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 cables.
- i** The shifter must be screwed directly onto the sheet metal of the center tunnel, any existing carpet must be cut out.
- i** For sealing, glue the enclosed foam rubber strip around the tunnel opening.

The removal

- ▶ Remove center console.
- ▶ Completely remove original shift lever and shift cables.
- ▶ Remove cable abutment on transmission and transmission lever.

Machining the transmission levers

- ▶ If our modified lever kit 10145KIT was not ordered, the existing levers must be reworked as described below:

i PLEASE NOTE: The plastic selector lever cannot be reworked.

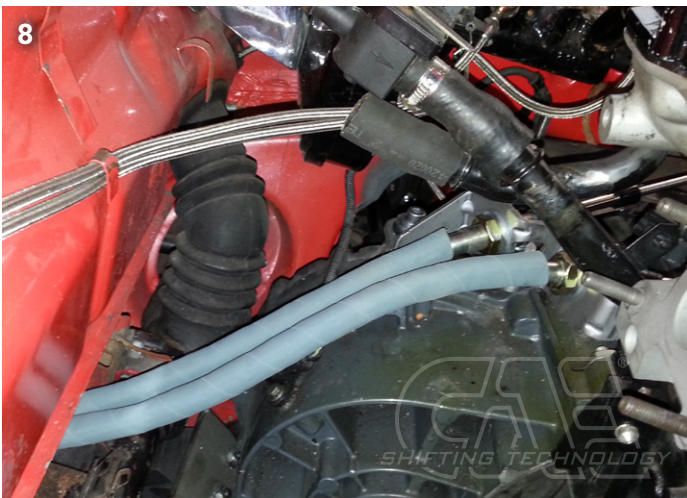
- ▶ Cut off the absorber weight on the SHIFT lever as shown: (MQ200/250 correspondingly similar) (Picture 1, 2).



- ▶ Drill out the original bolts for the cable attachment on both bolts (\varnothing 8mm) and mount the supplied ball heads: Optionally, the bolt in the SHIFT lever of a new hole can be offset 10mm towards the pivot point; this again reduces the shifting travel. (Picture 3)
- ▶ Reattach gearshift and selector lever to transmission but not yet the cable abutment.



- ▶ The original hole in the frame triangle of the bulkhead can be used to feed through the shift cables; this must be extended accordingly: (Picture 6, 7, 8, 9)



Attachment/routing of the shift cables

- ▶ Attach the shift and selector cables to the shifter and the gearbox according to the markings. Lay the "sleeves" free of tension, installing the sealing rubbers in the splashboard. Remove the ball cups for disassembly and assembly of the M16 nuts. Install all nuts and washers in the same way as preassembled on the cables (see page 2), making sure that the washers are correctly positioned in the abutment and, if necessary, in the shifter.
- ▶ Tighten nuts until lockwashers are on block. Do NOT glue in place. Slide rubber caps into position, install ball cups. The short ball socket belongs on the selector cable **W** to the L lever below.



i No M16 thread is visible inside.

Shifter assembly

- ▶ Bring the pre-assembled shifter into the passenger compartment and guide the shift cables through the holes in the tunnel, inserting the black pieces of tubing to protect the shift cables.
- ▶ Immediately bring the shift cables in the direction above the gearbox, cables run parallel from the shifter.
- ▶ Place the shifter on the tunnel and tighten the screws.

i Generally, mount a sealing collar on each ball and grease the ball cups. After complete assembly of the shifter, secure the ball heads with the split pin clamps.
Glue in all nuts / screws during assembly! Never kink the shift cables!



HEAT PROTECTION FOR SHIFT CABLES (FOR ALL VEHICLES WITH CAE SHIFT CABLES)

Exhaust systems generate incredible temperatures, which can be several 100 degrees, especially under full load! Therefore, the shift cables must be absolutely protected with the blue-gray protective hoses against the strong heat effect!

Also the protected shift cables must not be in contact with the exhaust. For turbo engines please take additional measures should be taken, e.g. aluminum honeycomb sheets, heat protection tape or foils.

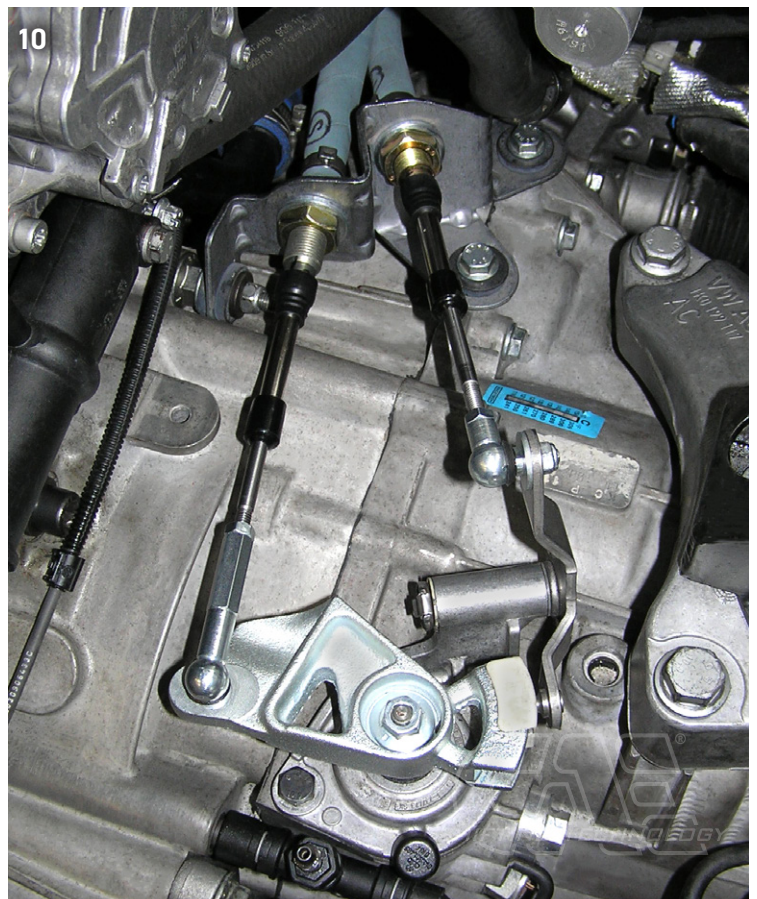


**EXCESSIVELY HIGH TEMPERATURES PERMANENTLY DAMAGE THE SHIFT CABLES!
ESPECIALLY IN MOTORSPORTS, THE HEAT DEVELOPMENT IS ENORMOUS!**

- ▶ From the engine compartment, slide one heat protection hose onto the ropes and (later) attach it to the metal with the clamp still on the metal bushing behind the thread. Shorten the protective hoses as required.
- ▶ Then mount one M16 nut each, one large washer and the centering ring.
- ▶ Install the cable abutment.

i **PLEASE NOTE:** We recommend our steel plate abutment10145WID.

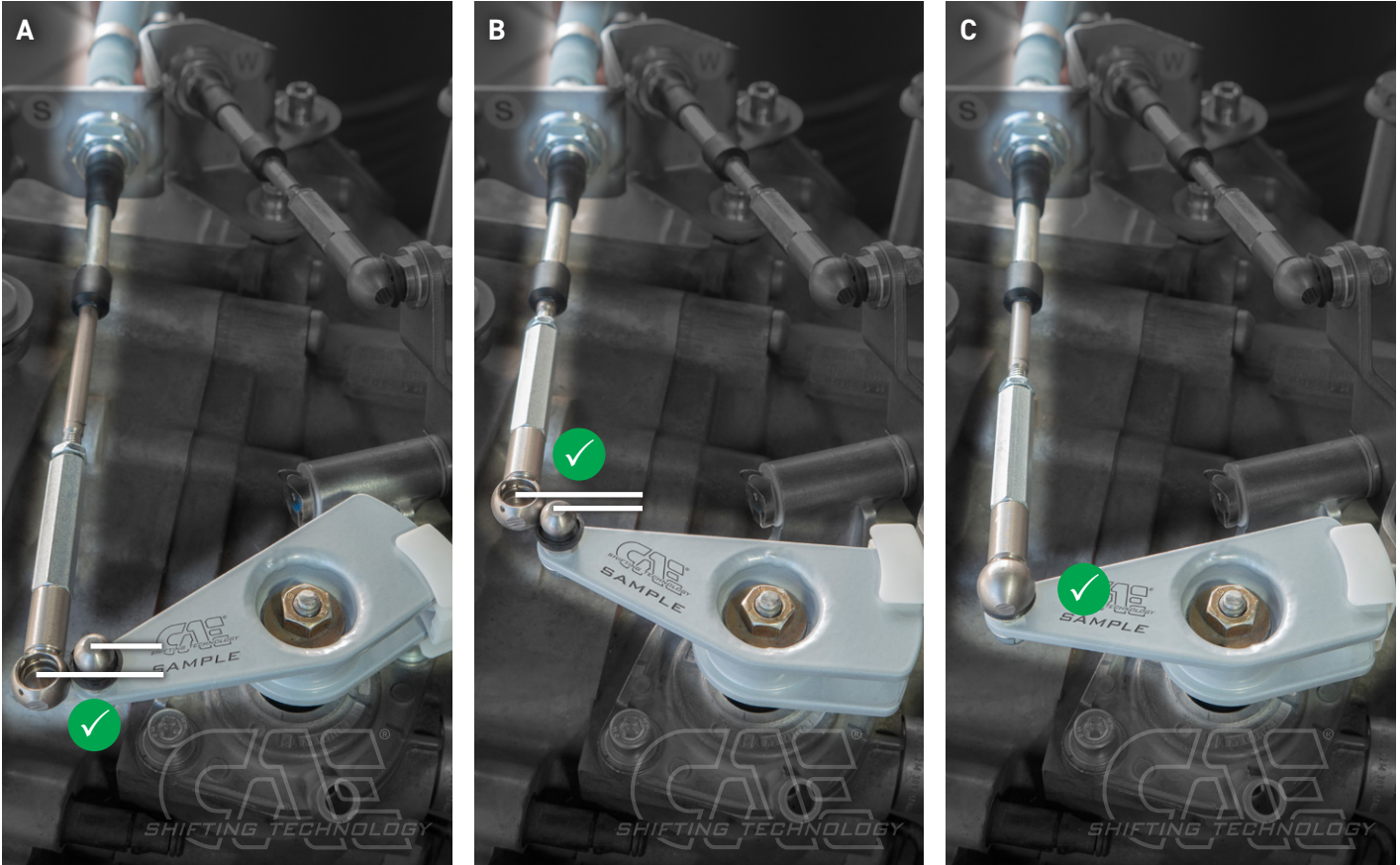
- ▶ Again, install a large washer, nut and Seal caps on both cables.
- ▶ Install M6 nuts and ball cups as shown in the picture and press them onto the ball heads. (Picture 10)
- ▶ Tighten the M16 nuts and make sure that there is no tension on the cables.



CHECK THE END POSITIONS OF THE SWITCHING CABLES

ⓘ PLEASE NOTE: ! Check cables for "end position free travel". When a gear is engaged, there must still be a residual travel available on the rope! (Picture A, B, C)

Sample pictures:



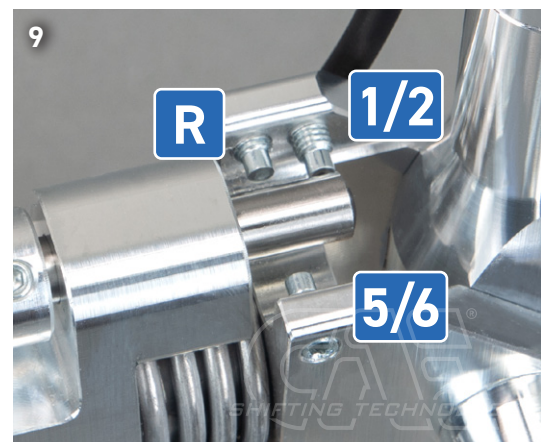
ⓘ CHECK: With the gear engaged, pull the ball cup off the gearshift lever and check whether the shift cable **S** can still be moved at least 3 mm. This applies to the "front" gears R-1-3-5 (Picture A) with the cable retracted and to the "rear" gears 2-4 (6) (Picture B) with the cable extended. The end position can be corrected by screwing the ball cups on the M6 thread of the cables in or out.

► After checking and adjusting, reassemble the ball cups from the shift cable. (Picture C)

ATTENTION: THIS CONTROL IS VERY IMPORTANT FOR THE FUNCTION OF THE SHIFTER !!!
If the remaining travel on the shift cable is missing, there is an immediate risk of damage to the gearbox. !!!!!

Adjust the shift range 5 & 6 speed gearbox

- ▶ On the left of the shifter, pull the coupling rod off one of the balls. Shift the transmission by hand to 3rd or 4th gear.
- ▶ The 3rd and 4th gears are in neutral zero position. To engage them, simply move shift lever forward or backward without load.
- ▶ Now determine desired center position of shift lever (in center position, shift lever should be slightly tilted to the right) and tighten lower spring stop under shift bracket with Allen wrench.
- ▶ Now press the coupling rod back onto the ball on the L lever. Adjust the R/L spindle between the L lever and the side arm so that the shift lever does not move sideways when the ball socket is pressed on. It must now be possible to engage 3rd / 4th gear correctly.
- ▶ Shift the gearbox to level 1 / 2 using the shift lever and screw in the stop screw until the gears in level 1 / 2 can be changed cleanly.
- ▶ Now shift gearbox to 5th (or 6th) gear level using shift lever and screw in stop screw until 5th / 6th gears can be engaged cleanly.
- ▶ Operate reverse gear locking pin via cable and shift gearbox to reverse gear level. Screw in stop screw until reverse gear can be engaged cleanly.
- ▶ Reinstall heat shields, exhaust, underbody panelling, battery support and battery.



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



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!

RACE THE ORIGINAL



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