



ULTRA SHIFTER

Installation instructions

- 📍 VW
- Golf II / III
- Corrado
- Passat 35
- Polo

- 10005 HD 02A
- 10006 HD 02A
- 10007 HD 02A

5-speed transmission



WWW.CAE-RACING.DE

Corrado / Passat 35 / Polo

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!

- i** The shifter is designed 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 base plate of the shifter should be screwed directly onto the sheet metal of the center tunnel, any existing carpet must be cut out.

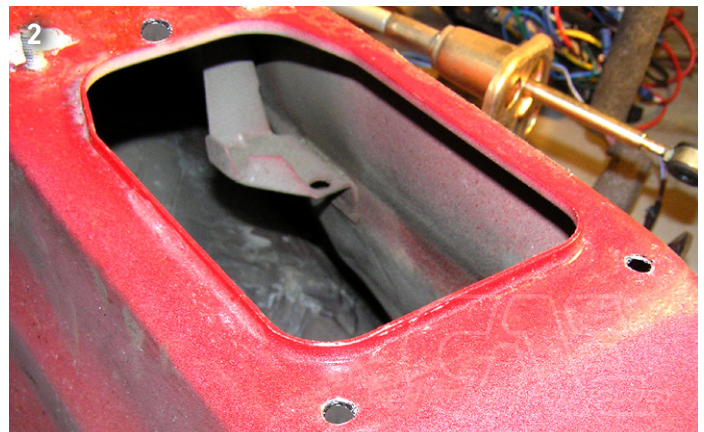
- i** Lubricate all moving parts occasionally with a good spray grease, e.g. by tapping the rubber caps on the ball heads. For cleaning the aluminum parts, we recommend commercial spirit.

The removal

- ▶ Completely remove the original shift lever and shift cables.

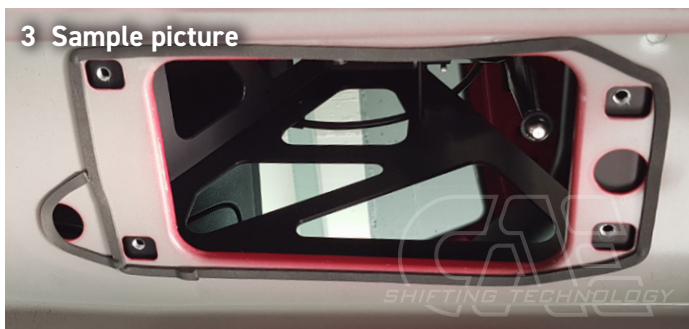
Metal sheet work

- ▶ Drill two 18 mm holes in the bulkhead. Remove heat protection plate in engine compartment and bitumen mat in interior accordingly. The holes should be drilled in the bulkhead at the positions shown here. (Picture 1, 2)



- ▶ Place the shifter on the center tunnel and mark the 3 additional holes. Drill a 6.5mm hole at each of these points and deburr.

- ▶ Glue the foam rubber strip under the tunnel as shown. Then screw the shifter incl. cover plate as shown and make sure that all holes in the base plate are covered. (Picture 3, 4)



i ORIENTATION FOR INSTALLATION

Our shift cables are marked with different stickers at the ends. The connection to the shifter comes with a circular contour, the connection to the gearbox is made without a circular contour (S = Shift / W = Choose).



Connection shifter



Connection gearbox



* With the underfloor shifter, this washer is omitted inside the shifter box!

Attachment/routing of the shift cables

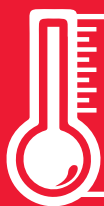
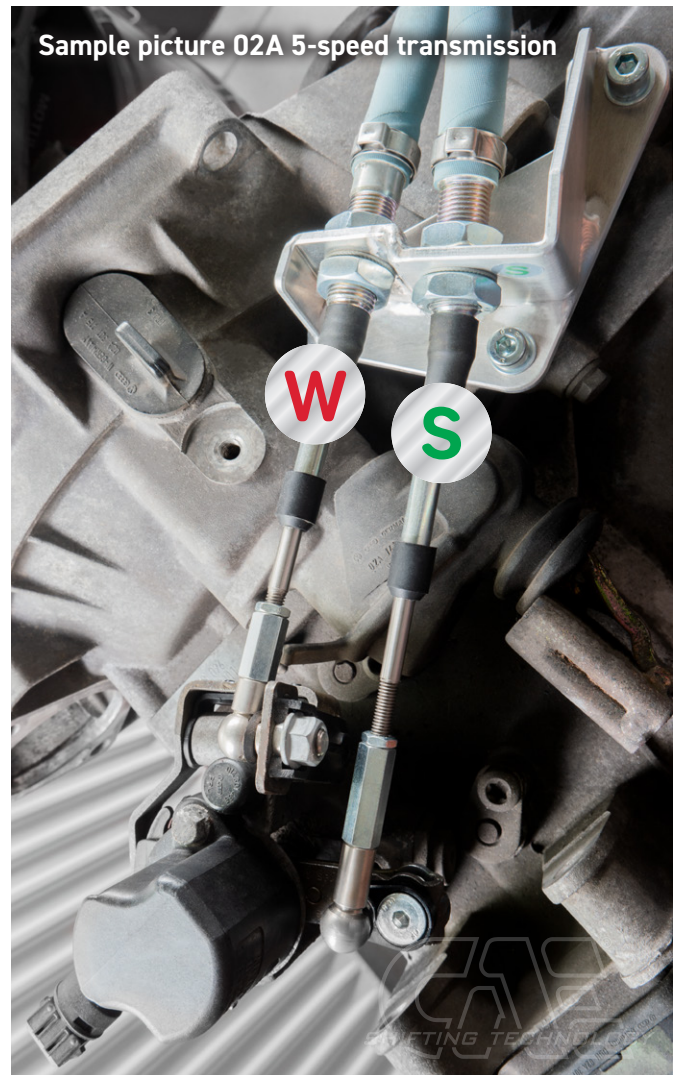
- ▶ Attach the shift and selector cables according to the markings on the shifter and the gearbox and first lay the "sleeves" tension-free, installing the sealing rubbers in the bulkhead. Remove the ball cups for disassembly and assembly of the M16 nuts. Install all nuts and washers in the same way as preassembled on the cables (see page 2). in the abutment and, if necessary, in the shifter.



- ▶ Dismantle all attachments on the transmission side of the S & W shift cables. The longer cable **Ⓢ** is attached to the center of the shifter, correspondingly the shorter selector cable **Ⓜ** on the left. The shift cables must protrude as far as possible from the shift tower, no thread is visible inside the shifter housing. (Picture 6)

Installing the shifting travel reducer

- ▶ Before installing the shift cables, screw the supplied reduction onto the transmission lever "S". The new pivot point points towards the gearbox input and thus shortens the effective lever by approx. 14 mm.
- ▶ Screw the supplied ball head with $\varnothing 10$ mm ball and M 8 thread onto the upright "W". This can be adjusted if necessary, as can the reduction for adjustment.



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.

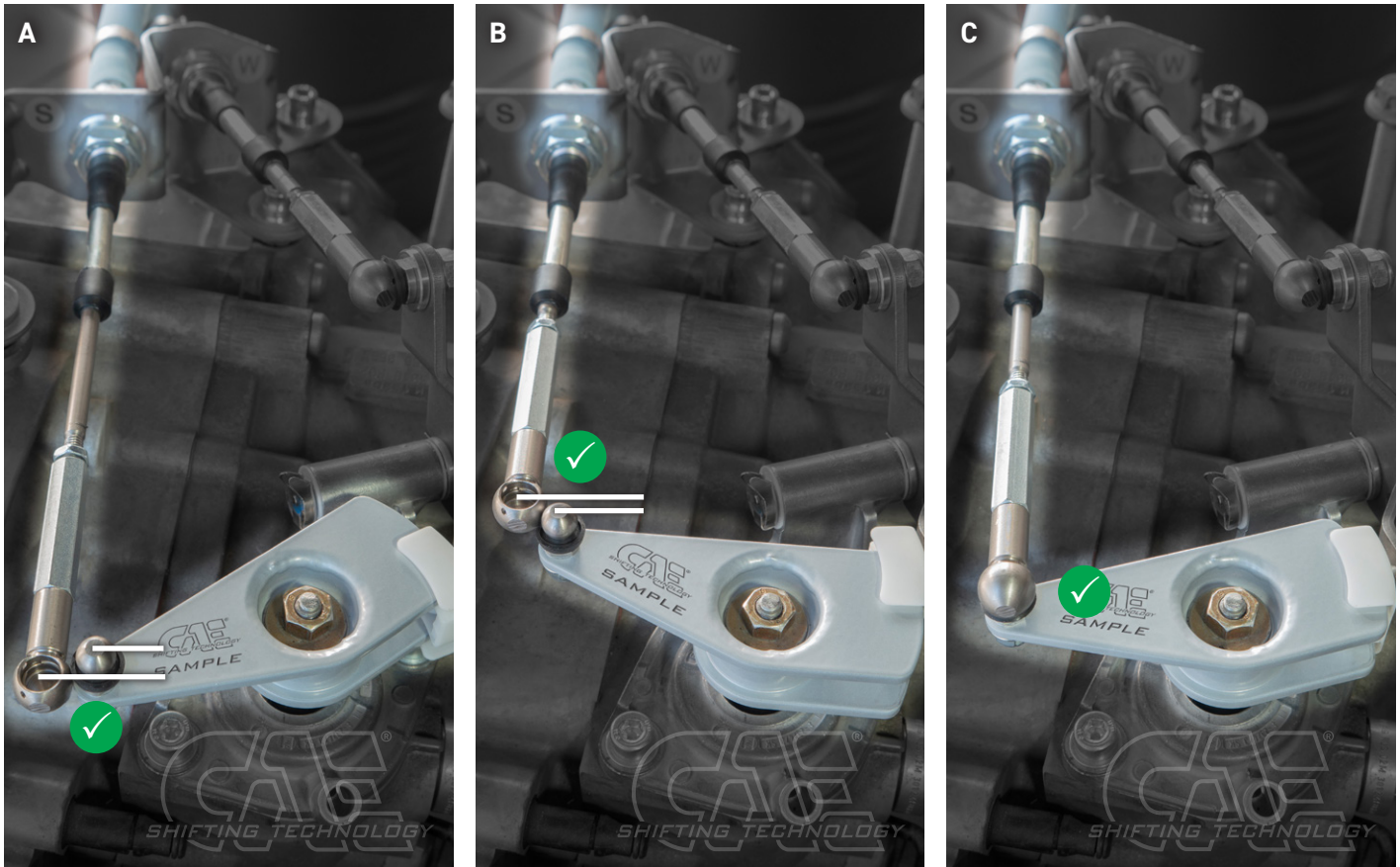


**EXCESSIVELY HIGH TEMPERATURES PERMANENTLY DAMAGE THE SHIFT CABLES!
ESPECIALLY IN MOTORSPORTS, THE HEAT DEVELOPMENT IS ENORMOUS!**

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:



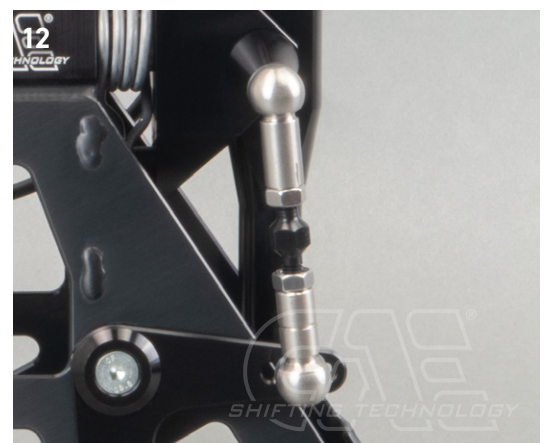
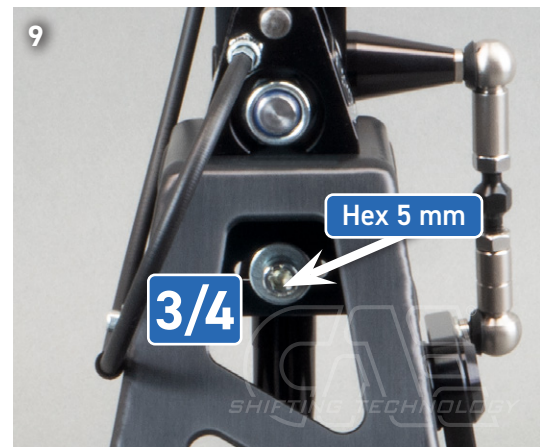
CHECK: With the gear engaged, pull the ball cup off the gearshift lever and check whether the shift cable can still be moved at least 3 mm. This applies to the "front" gears R-1-3-5 (Picture A) with the cable retracted and to the "rear" gears 2-4 (6) (Picture B) with the cable extended. The end position 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. !!!!!

Adjusting the shifting travel of the 5-speed transmission

- ▶ On the left of the shifter, pull the coupling rod off one of the balls. Shift the transmission to 3rd or 4th gear by hand. (Picture 12)
 - ▶ The 3rd and 4th gears are in neutral zero position. To engage them, simply move shift lever forward or backward without load.
 - ▶ Now determine the desired center position of the shift lever (in center position, the shift lever should be slightly tilted to the right) (Picture 10) and tighten the lower spring stop under the shift bracket using a 5mm Allen key.
 - ▶ 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.
- i CHECK:** When 3rd and 4th gear are engaged, the lateral play on the shift lever must be the same. Carry out the fine adjustment on the lateral coupling rod (Picture. 12) on the shifter.
- ▶ 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. (Picture 11)
 - ▶ Now shift gearbox to 5th gear level using shift lever and screw in stop screw until 5th gear can be engaged cleanly. Picture 11)
 - ▶ Actuate reverse gear locking pin via cable and shift gearbox to reverse gear level. Screw in stop screw until reverse gear can be engaged cleanly. (Picture 11)
 - ▶ Lock all ball cups and install retaining clips.



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



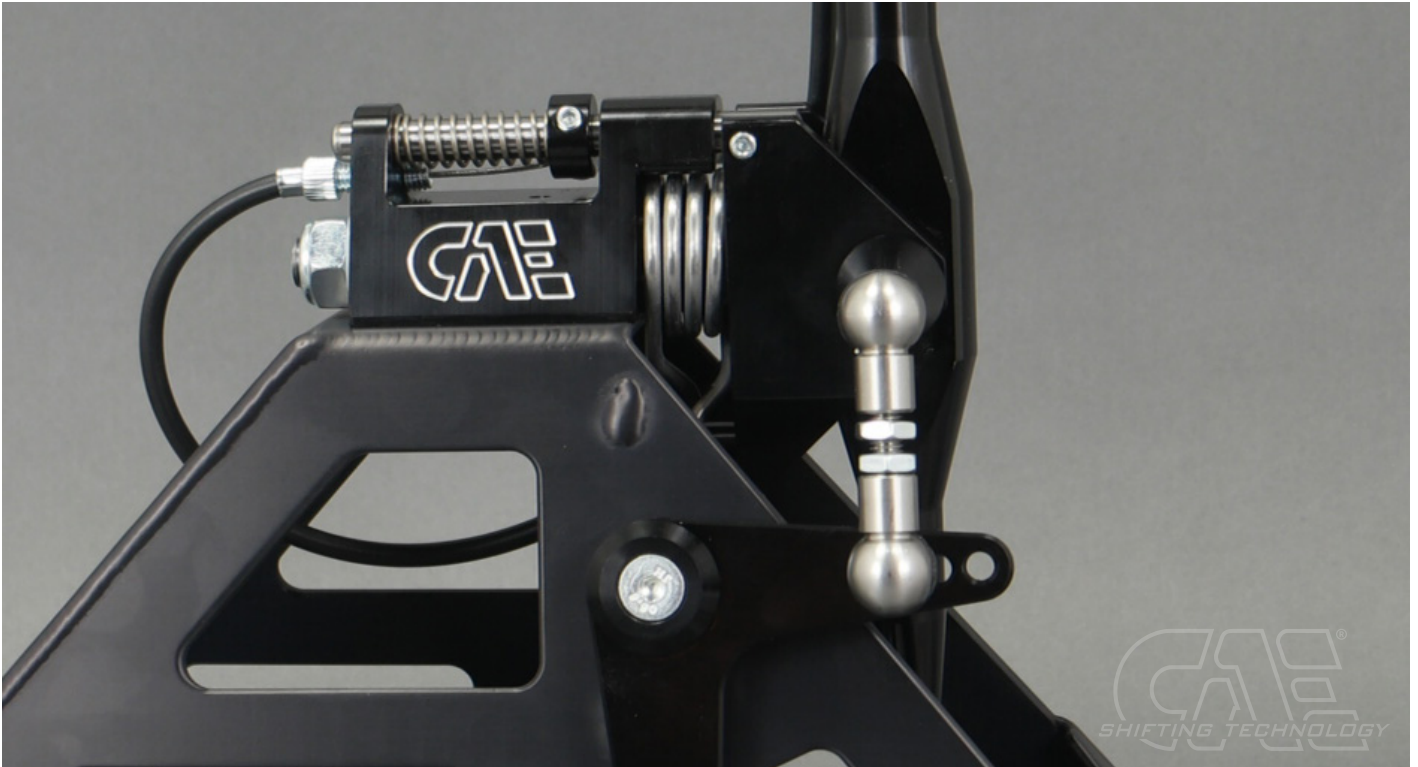
FINALLY! Check all functions and settings during
the test drive and readjust if necessary!

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

CORRADO COUPLING ROD

PLEASE NOTE: The coupling rod on the VW Corrado is not infinitely adjustable for space reasons. Here, the fine adjustment of the center position must be made via the spring stop or the cable sleeve on the selector cable (M16).

CHECK: With 3rd and 4th gear engaged, the lateral clearance at the shift lever must be the same.



RACE THE ORIGINAL



Alte Bottroper Strasse 103
D-45356 Essen
0049. 201. 8 777 802
service@cae-racing.de

WWW.CAE-RACING.DE