

20 YEARS EXPERIENCE

CAE®
SHIFTING TECHNOLOGY

Installation
instructions

📍 10050 6N

Polo / Lupo / Arosa
with 5 speed 085 cable gear



WWW.CAE-RACING.DE

LUPU / AROSA
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!

Included in delivery

- ▶ 1x shifter completely mounted, 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)
- ▶ Cover plate (Picture D)
- ▶ 1x shift cable (S), 1x selector cable (W) (Picture E, F)



i The shifter is designed for racing vehicles without interior equipment. If the center console is installed must be removed or cut out until a sufficient clearance is guaranteed.

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

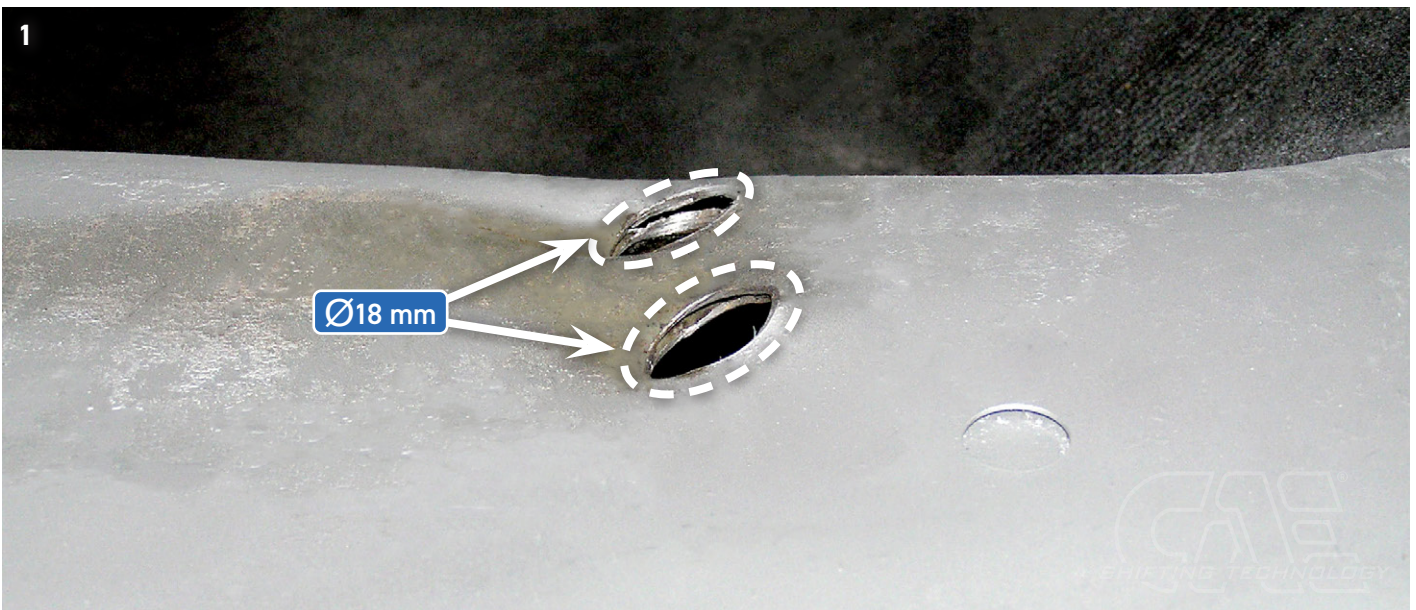
Lubricate all moving parts occasionally with good spray grease, e.g. by tapping the rubber caps on the ball heads. For cleaning the aluminum parts we recommend commercial spirit.

The removal

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

Metal sheet work

- ▶ Drill two 18mm holes according to the following pictures for the passage of the shift cables in the center tunnel. (Picture 1, 2)
- ▶ Insert an adequate metal rod into the drilled holes and carefully fold it backwards, this way you get the optimal feed-through for the shift cables.





Der Einbau

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

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. Making sure that the centering washers are correctly positioned in the abutment and, if necessary, in the shifter.

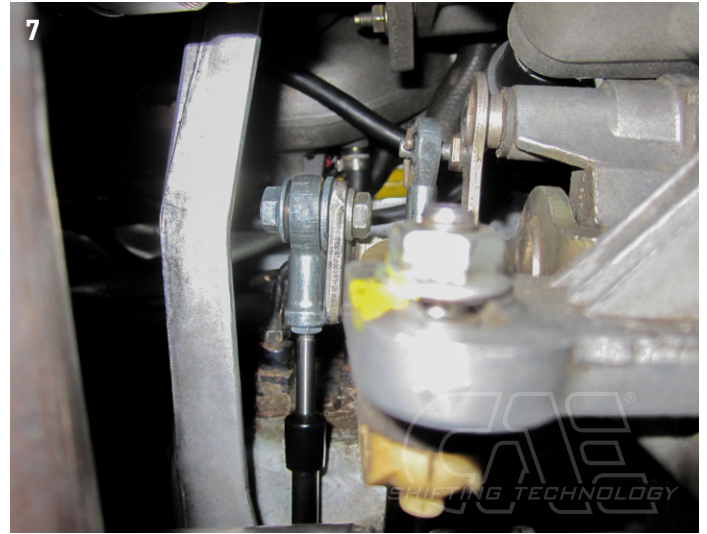


- ▶ Dismantle all attachments on the gearbox side of the S & W shift cables. Attach the longer cable  to the center of the shifter, correspondingly the shorter selector cable to the left.  Mount the aluminum centering disk on the shift cable according to the housing bore. The shift cables must protrude as far as possible from the shifter tower, no thread is visible inside the shifter housing. (Picture 4, 5)

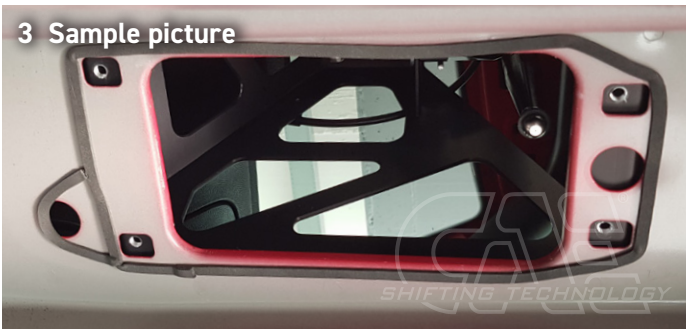


Mounting the shifter

- ▶ Pass the shift cables through the holes in the tunnel without the unibal and nuts, installing the pieces of tubing in the tunnel. After passing through the shift cables and before mounting the shifter, screw 1 nut and 1 washer onto each of the shift cables below the tunnel and insert the cables analogous to the series cables at the bracket from the gearbox, cables run parallel from the shifter to the gearbox. (Picture 6,7)



- ▶ Screw on the 2nd nut M16, the sealing caps, nut M6 and unibal joints and fasten to the gear unit.
- ▶ Screw the shifter to the tunnel and screw the cover plate under the tunnel plate. Before mounting, adjust the plate to the tunnel curvature and glue foam rubber strips 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. (Example pictures)





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!**

Adjusting the shift travel of the 5-speed gearbox

- ▶ Shift gearbox to 3rd or 4th gear by hand.
(This is the "zero position" of the gearbox; 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. (Picture 8)
In the center position, the shift lever should be inclined slightly to the right. (Picture 9)
- ▶ Now press the ball socket onto the ball L lever, adjusting the R/L spindle between the L lever and the lateral extension arm so that the shift lever does not move laterally when the ball socket is pressed on. Now 3rd / 4th gear must be able to be engaged properly.
- ▶ 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 10)
- ▶ Now shift the transmission to the 5th (or 6th) gear level using the shift lever and screw in the stop screw until the 5th gear can be engaged cleanly. (Picture 10)
- ▶ Actuate locking pin via cable and shift transmission to reverse gear level. Screw in stop screw until reverse gear can be engaged cleanly. (Picture 10)





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.



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