

CAE Ultra Shifter

Installation instructions

📍 10084

Toyota Yaris GR
6-speed transmission



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

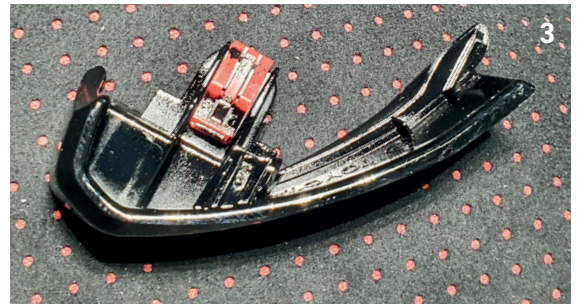
The question arises again and again: "Does a CAE shifter puts more strain on a gearbox than a standard gear lever?" The answer is clear: "No!" The things that are most stressful for a synchronizer ring in a transmission are excessive shifting forces or a wrong shift in gear. Basically, the shift travel 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 (often seen on various YT channels), which looks "important", but in no way makes it faster - but it 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 vehicles with interior equipment. The center console must be minimally modified for installation on the interior frame until appropriate clearance for the coupling rod on the left side of the shifter is ensured (see red marking in the picture on the right).

i PLEASE NOTE: No lifting platform is necessary for the installation of this shifter. All work is to be carried out in the interior.

Disassembling

- ▶ Remove the upper part of the center console: Open the glove box and first pull out the plastic clasp on the right (Picture 2+3).
- ▶ Pull the switch unit out of the dashboard (Picture 4+5). The connectors do not have to be disconnected!
- ▶ Pull the dashboard back above the recess for the clasp. First pull the upper part of the center console up at the back and then pull it completely back. Attention, the upper right corner is located behind the dashboard! (Picture 6)
- ▶ Now pull out the retaining clips of the shift bag and the electrical plugs from below (Picture 7 on page 2). Then remove the upper part of the center console (Picture 8-10 on page 2).
- ▶ The rear part of the center console (handbrake cover) can remain in the car, but should also be loosened to allow the center console to be pushed apart slightly (Picture 12 on page 2). To do this, pull the rear storage compartment upward (Picture 11 on page 2) and then pull the handbrake cover upward.
- ▶ Disconnect the shift cables from the levers. The selector cable to the L-lever has a rubber bushing and can easily be pulled off the bolt. Reinstall the rubber bushing in the eye of the selector cable and grease it. To remove the shift cable head from the shift lever, push apart the ends of the spring clip. This can be done quite well with needle-nose pliers, which are pressed apart (Picture 13 on page 2).
- ▶ Remove the original shift lever: The shift cables can be released if the black caps are twisted counterclockwise (as seen from the front), this will cause the cylindrical →





detents to move out of the bulkhead plate and the cables can be removed upwards. Fold in the white latches above the shift cables (Picture 16). This keeps the caps pretensioned for later assembly.

i The latches are irrelevant for the actual installation of the cables and the function of the shifter, it also works without them.

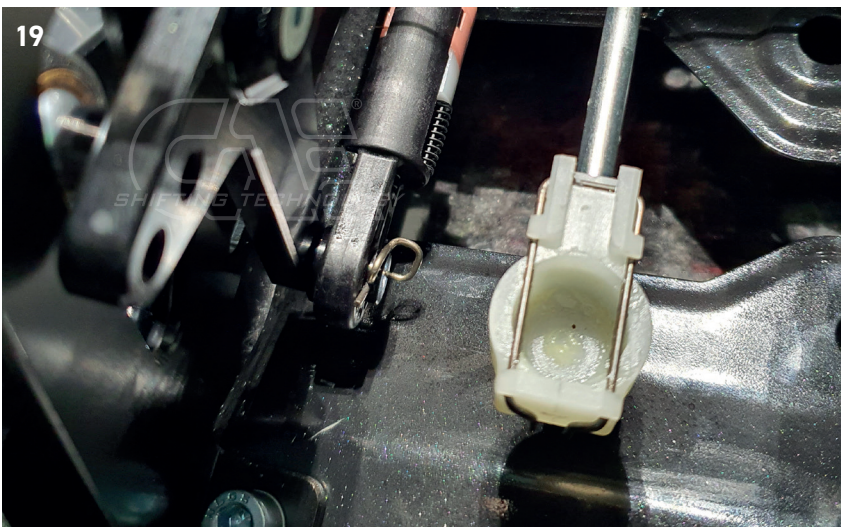
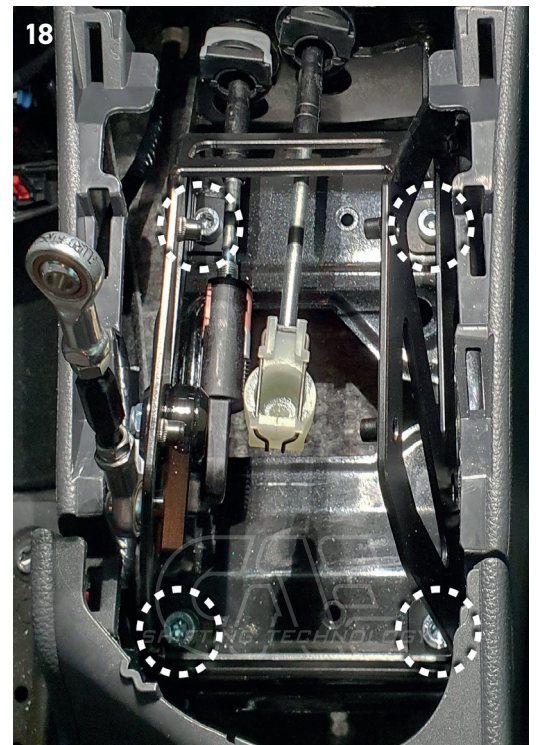
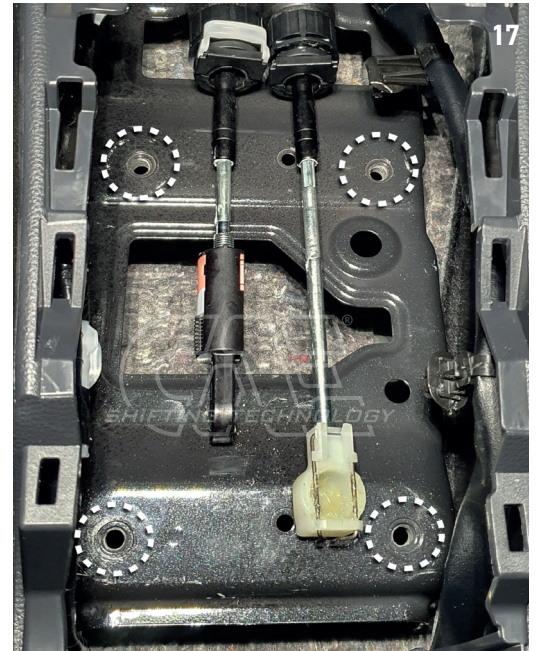
- Unscrew the 4 fastening screws of the original shift lever and unthread it from the center console (Picture 17 on page 3).
- Remove the plastic cap from the lower ball of the shift lever and install it later on the CAE shift lever (Picture 14+15).



The installation

- ▶ For easier assembly, remove the upper part of the shifter: To do this, unscrew the 2 side housing screws (M5, SW 8 mm) and the upper Allen screw of the coupling rod (M6 x 20, SW 4 mm).
- ▶ Then place the CAE shifter on the center tunnel, inserting the shift cables into the shifter housing from the front.
- ▶ Tighten the shifter with the 4 Allen screws M8 x 16 (kw 6 mm) and toothed lock washers (Picture 18), then insert the cables into the bulkhead plate. The white latches snap upwards, then tighten the caps clockwise (seen from the front) so that the cables sit tightly in the shifter housing.
- ▶ Put the end of the selector cable with the rubber bushing on the bolt of the L-lever and secure it with the original split pin (Picture 19). Place shifter upper part and tighten the 4 housing screws (Picture 20) and the connection rod (Picture 21), do not glue it!
- ▶ Press the shift cable head onto the ball with plastic sleeve on the shift lever.

❗ PLEASE NOTE: Generally grease each ball socket, bearing bolts and bushings. Never kink shift cables!



Adjustment of gear shift paths 6-speed transmission

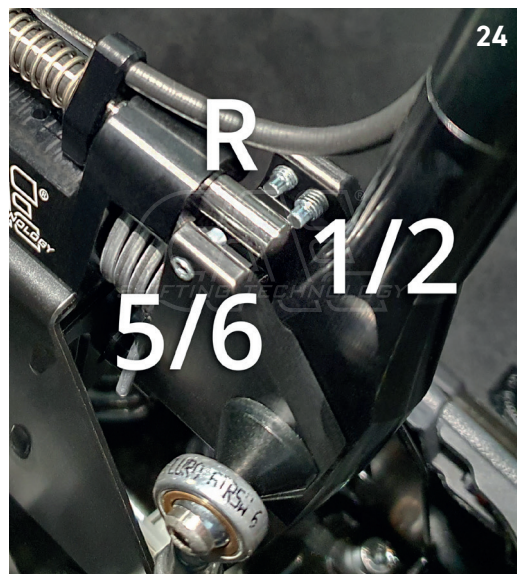
- ▶ Adjust the center position of the shift lever. This must be slightly inclined (approx. 3-5 degrees) to the right, this is the gear level 3/4. Correct this setting, if necessary, by moving the spring stop (Picture 22). Only loosen this screw with an Allen key (SW 5 mm, approx. 2 turns), but never unscrew it completely!
- ▶ Adjust the length of the side coupling rod (Picture 23).
- ▶ Now shift the transmission to 3rd or 4th gear. The 3rd and 4th gears are in neutral zero position. To engage them, simply move the shift lever forward or backward without load (Picture 24).
- ▶ Now adjust the connection rod (Picture 22, R/L thread) so that the lateral play on the shift lever is the same when 3rd and 4th gear are engaged. Otherwise, the connection rod must be readjusted - it's a matter of tenths of a millimeter! Even countering the nuts will bring about a change. Note that the lower thread is a left-hand thread.

! TEST: With 3rd and 4th gear engaged, the lateral play at the shift lever must be equal.

Make the fine adjustment on the side connection rod (Picture 18) on the shifter.

- ▶ When these settings fit perfectly, shift the gearbox to gear level 1/2 using the shift lever and adjust the stop screw until the gears 1. and 2. can be engaged and changed cleanly.
- ▶ Now shift the transmission to gear level 5/6 using the shift lever and screw in the stop screw until the 5th gear can be engaged cleanly.
- ▶ Actuate reverse gear lock pin via pull and shift transmission into reverse gear. Screw in the stop screw until reverse gear can be engaged cleanly.

ⓘ PLEASE NOTE: The stop screws (Picture 24) must never touch the bolt when the gear is engaged.
A distance of approx. 0.5 mm is okay.



Editing and installation of the center console

Now the shifter top has to be removed again to be able to mount the center console.

- ▶ Disassemble the shift cable head again (Picture 13 on page 2).
- ▶ Unscrew the upper screw of the connection rod.
- ▶ Unscrew the 4 housing screws and remove the shifter upper part completely.

Process the center console according to the red marking (Picture on Page 1). The free movement of the shifter must generally be ensured and the coupling rod on the left side sits very close to the inner plastic edge. Please remove material there accordingly. A small air saw or a coarse file can be helpful here. Now reinstall the center console in reverse order.

- ▶ Press down handbrake cover.
- ▶ Press on the rear storage compartment of the center console.
- ▶ Plug in the electrical connectors of the center console upper section.
- ▶ Put on the upper part of the center console - first forward, then downward. Hold up the corner of the dashboard and press it firmly behind.
- ▶ Push in plastic clasp, push in switch unit.
- ▶ Replace the upper part of the shifter and use needle-nose pliers or tweezers to tighten the 4 lateral fastening screws (Picture 25+26).
- ▶ Then tighten the screws with an 8 mm open-end wrench (or ratchet wrench). Now tighten the upper unibal of the connection rod again, glue the screw with a small drop of Loctite.
- ▶ Press the shift cable head back onto the shift lever.



25



26

! 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!

CAE wishes you a good trip.

RACE THE ORIGINAL



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

WWW.CAE-RACING.DE