SHIFTING TECHNOLOGY

ULTRA SHIFTER

Installation instructions

10033

Citroen DS3, Peugeot RCZ & 308
6 speed cable gearbox

WWW.GAE-RACING.DE

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)
- 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!

ⓘ 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

ⓘ FORCE DOESN'T MAKES YOU FASTER – IT ONLY HARMS THE TRANSMISSION

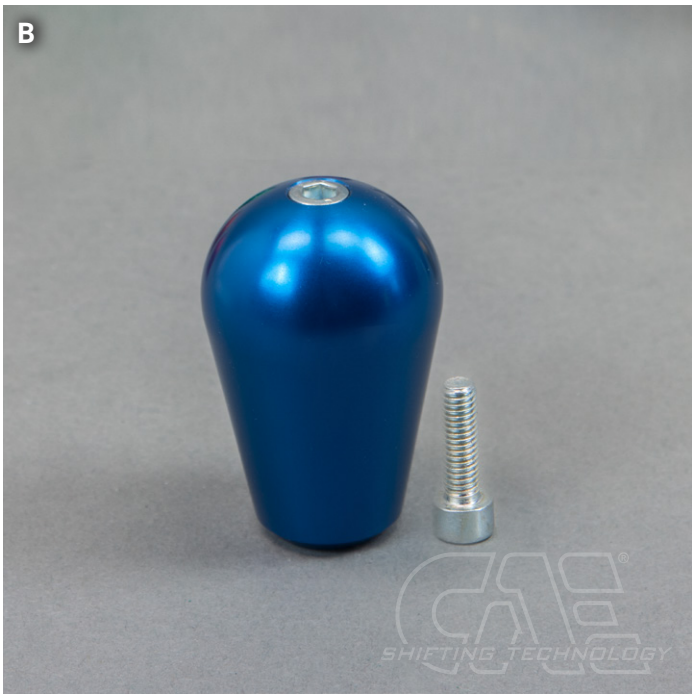
The question arises again and again: "Does a CAE shifter puts more strain on a gearbox than a standard gear lever?" The answer is clear: “No!” The things that are most stressful for a synchronizer ring in a transmission are excessive shifting forces or a wrong shift in gear. Basically, the shift travel 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 shiftercompletely 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)
- 1x shift cable (S), 1x selector cable (W) (Picture D)

A

B



C

D

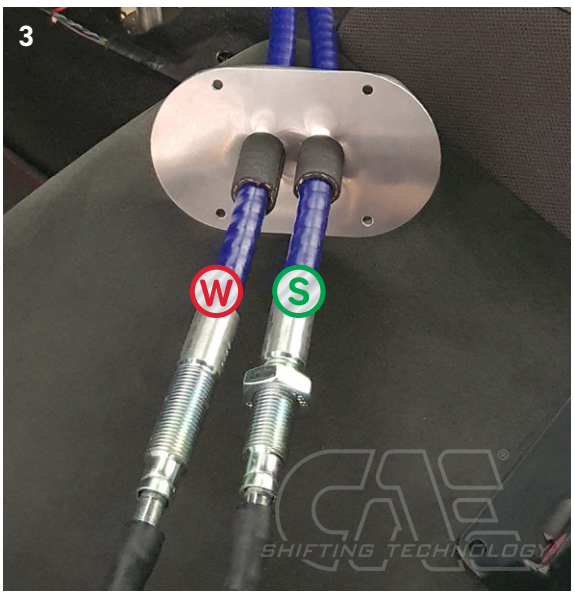
ⓘ The shifter is intended for vehicles without interior equipment. If the center console is installed, it must be removed or cut out until appropriate clearance is ensured.

Deinstallation

- Remove the center console.
- Completely remove original shift lever incl. shift cables and cable seal.
- The original cable holder and the levers on the gearbox remain.
- The absorber weight on the gear lever CAN be removed or lightened.

Pre-assembly of the shift cables

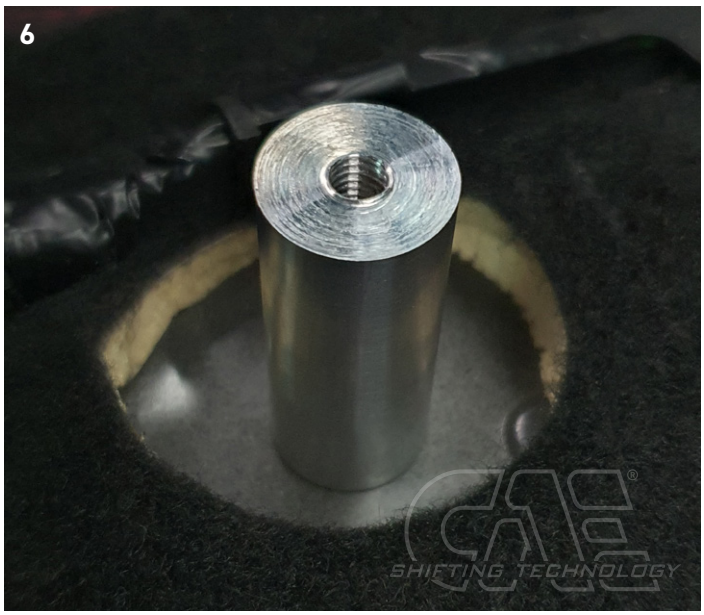
- Pre-assemble the shift cables with the cover plate. (Picture 1, 2, 3)
- Glue the foam rubber strip under the cover plate.
- The sheet metal is later fastened to the tunnel with the 4 drilling screws.
- Route the shift cables through the opening in the tunnel towards the gearbox.
- Pay attention to the assignment of the cables. (Picture 4) (S)(W) belongs to the shifter, S W belongs to the gear unit.

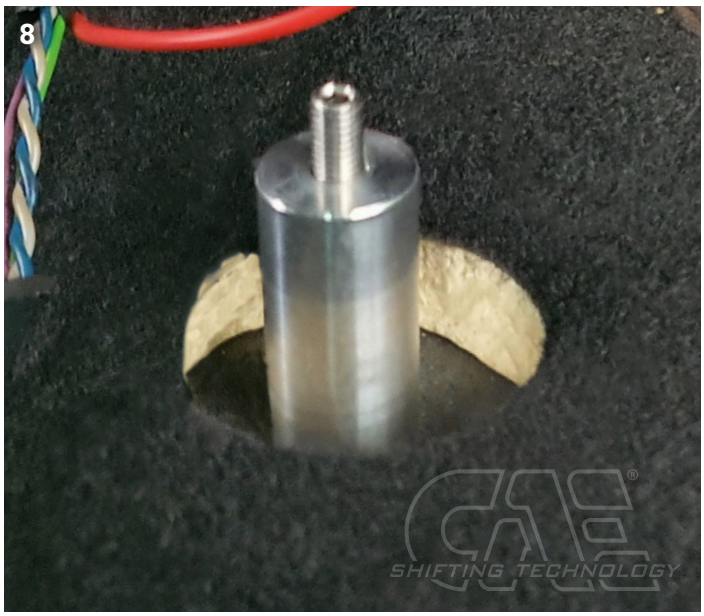


Mounting the shifter

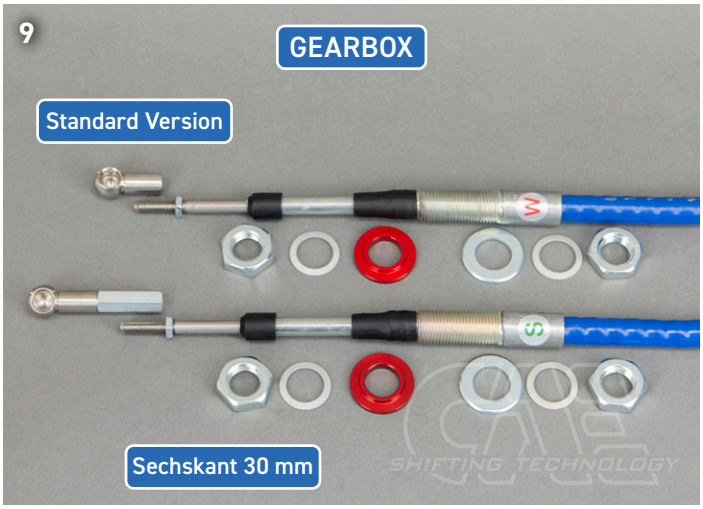
- Screw the 4 spacer sleeves onto the threaded bolts and tighten them slightly. Make sure that the recessed thread in the sleeves is at the bottom. (Pictures 5, 6, 7, 8)

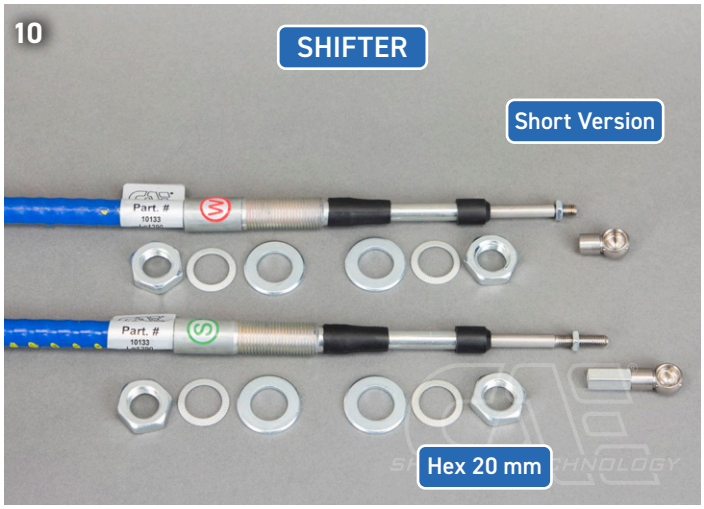
- Then screw the grub screws into the sleeves and tighten them. (Allen 3mm)





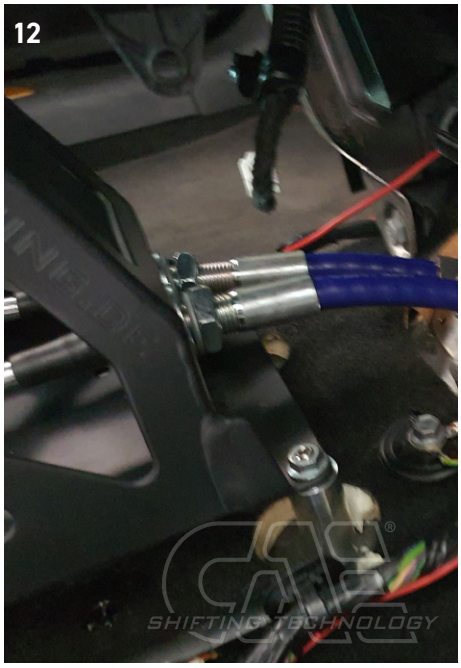
- Fitting of switching cables (Picture 9, 10)





- Fit the shifter, inserting the shift cables into the shifter; a nut, toothed lock washer and washer are already mounted on each cable. (Picture 11, 12) Pay attention to the assignment of the W S cables.

- Also install a washer, lock washer and nut inside the shifter. (Picture 13)

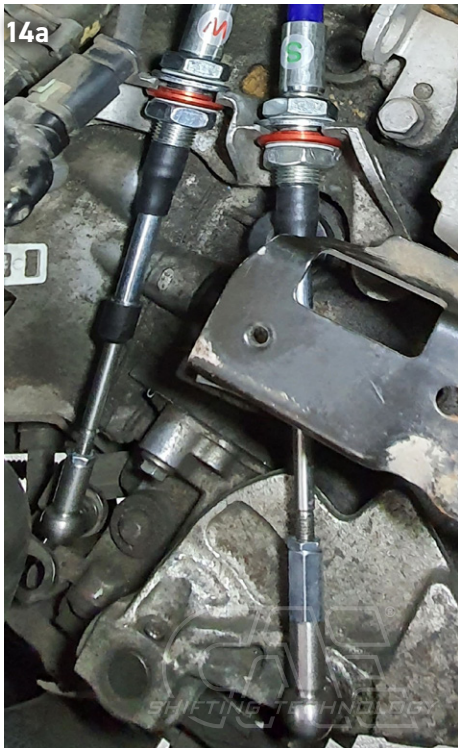


- Tighten nuts until lockwashers are on block. Do NOT glue in place. No M16 thread is visible inside. (Picture 13) Slide rubber caps into position, install ball cups. The short ball socket belongs on the selector cable W to the L lever below.

- Tighten the cables on the gear cable holder until the toothed lock washers are on block. The ropes must not be under tension. Assemble the shift cables as shown in the picture. (Picture 9, 14, 14a)

- To protect the cables on the servomotor, fasten the long pieces of hose with the cable straps. (Picture 15)

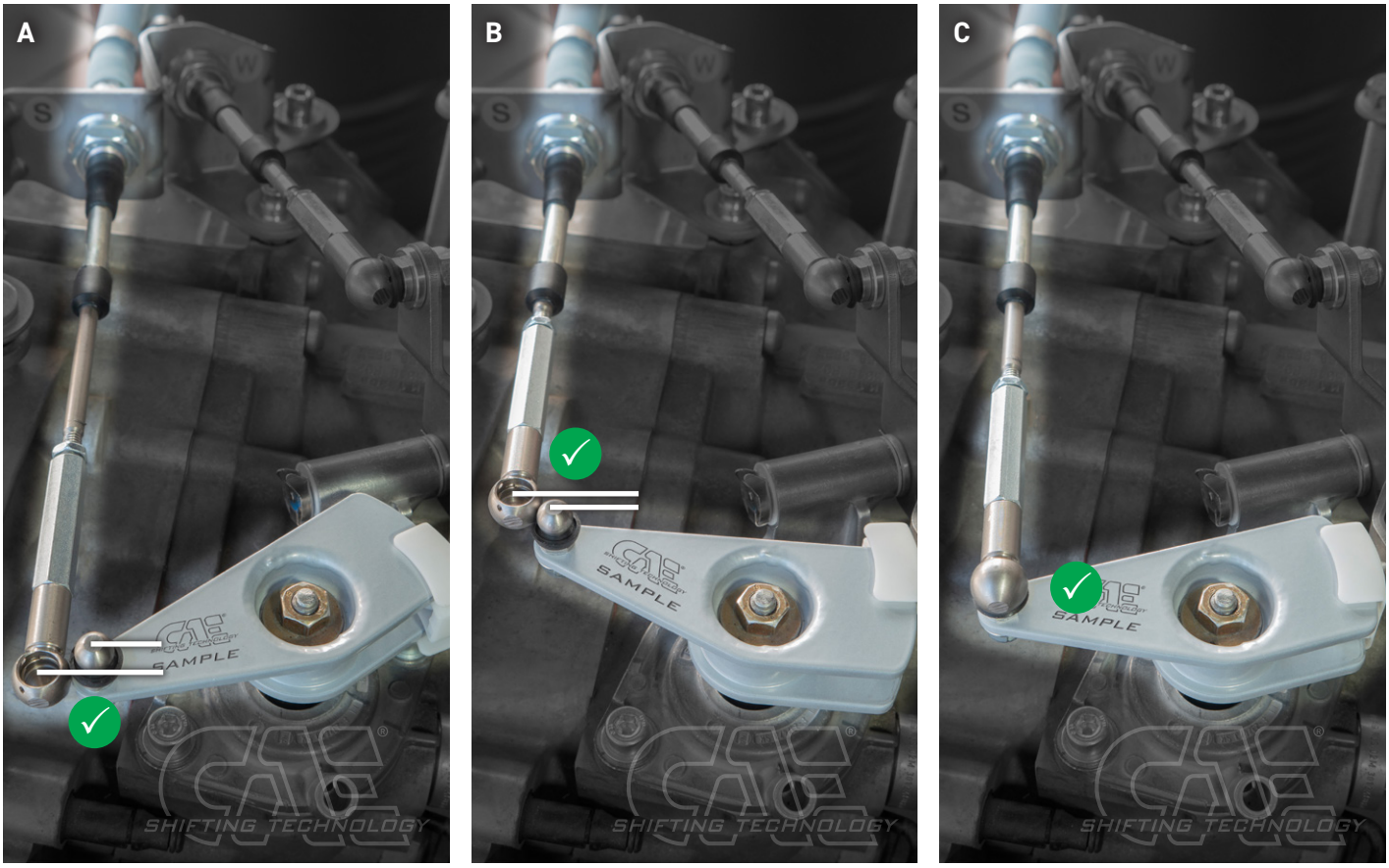
- Fit ropes with ball sockets. (Picture 16)



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 cable! (Picture A, B, C)

Sample pictures:



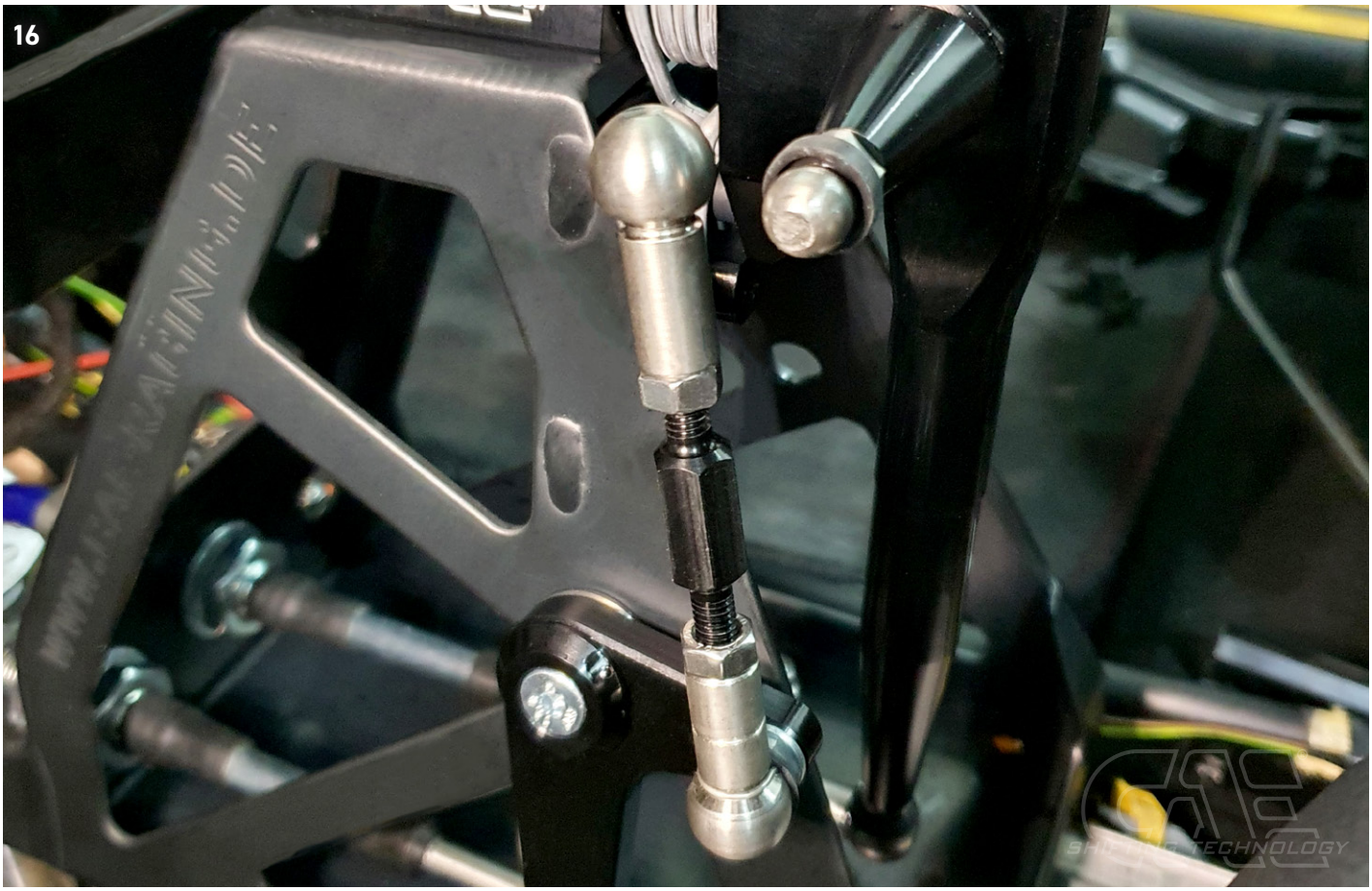
CHECK: CHECK: With the gear engaged, pull the ball cup off the gearshift lever and check whether the shift cable S can still be moved at least 3 mm. This applies to the "front" gears R-1-3-5 (Picture A) with the cable retracted and to the "rear" gears 2-4 (6) (Picture B) with the cable extended. The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

- Pull off the side coupling rod on the shifter to the L lever on a ball. (Picture 16)



- Now adjust the center position (3rd/4th gear) of the shift lever. In the center position, the shift lever should be slightly tilted to the right.

- To do this, adjust the lower spring stop under the gearshift bracket using a 5mm Allen key. (Picture 17)

- Shift the gearbox to 3rd gear. To do this, push the shift lever forward without moving it sideways.

- Now adjust the length of the coupling rod so that it can be pressed on without lateral movement of the shift lever.

ⓘ **CHECK: With 3rd and 4th gear engaged, the lateral play on the shifter must be the same. Make the fine adjustment on the lateral coupling rod (Picture 18) on the shifter.**

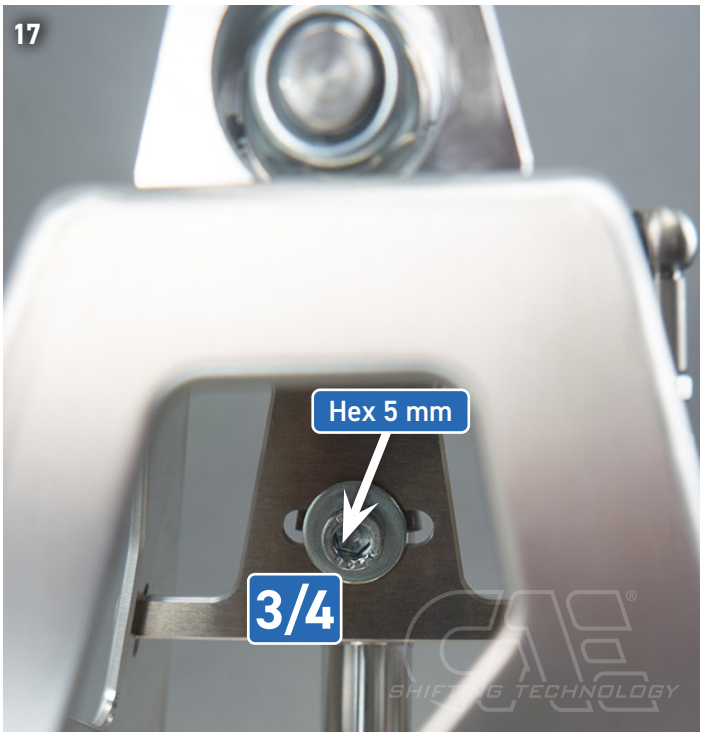
- Now shift to level 1/2 using the shift lever. Screw in the stop screw until the gears can be changed cleanly in level 1/2. (Picture 19)

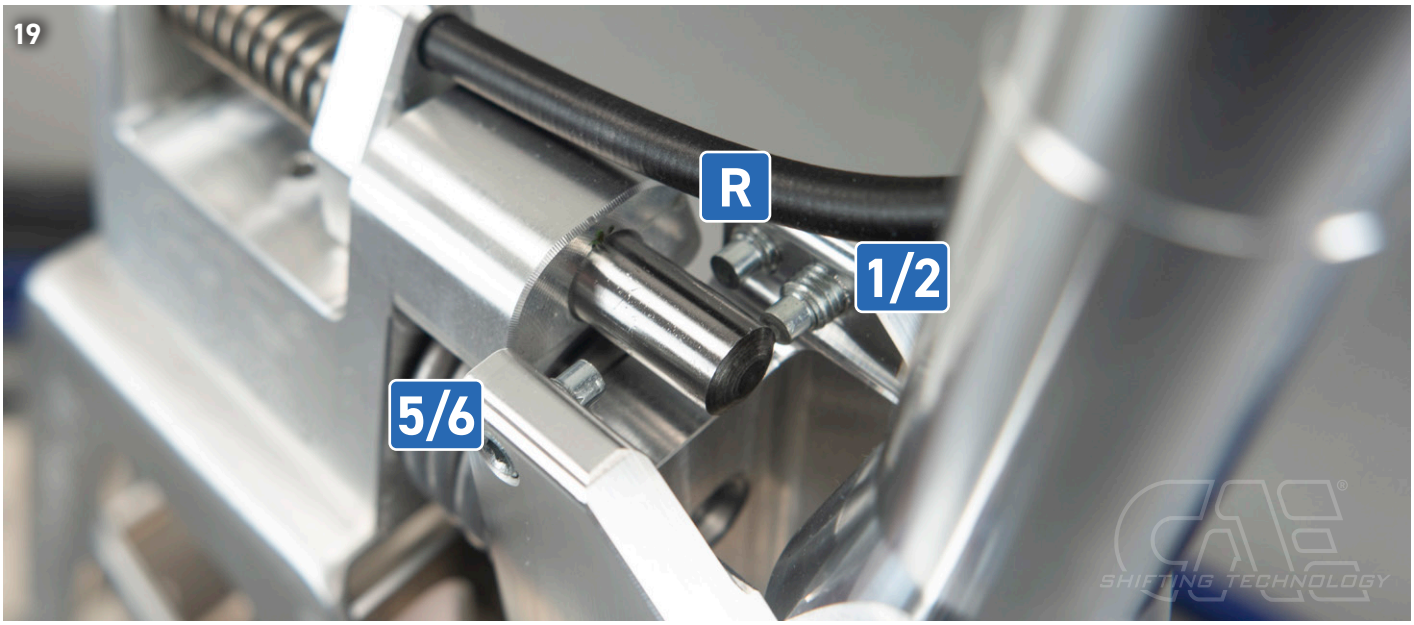
- Now shift to 5/6 gear level and screw in the stop screw until the 5th/6th gear can be engaged cleanly. (Picture 19)

- Actuate reverse gear locking pin via pull and shift transmission to reverse gear level. Screw in stop screw until reverse gear can be engaged cleanly.

- The stop screws must never touch the pin when the gear is engaged. approx. 0.5 mm distance is o.k.

- Mount retaining clips on all ball cups. (Picture. 20, 21)





ⓘ **Lock all ball cups with the nuts and install locking clips.**

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!

Machining the center console

- If the center console is to be installed, it must be machined according to the sample images. (Picture 22, 23)

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

CAE wishes you a good trip.

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