CAE SHIFTING TECHNOLOGY

ULTRA SHIFTER

Installation instructions

10091

Porsche 911 F, 915 & 901
5-speed gearbox

911

915 & 901

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!

ⓘ 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.

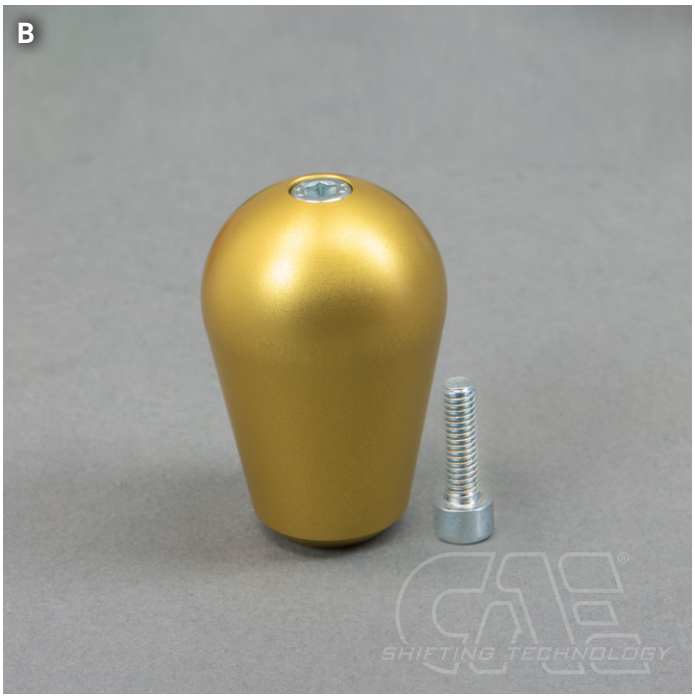
TIPS FOR GEAR SHIFTING

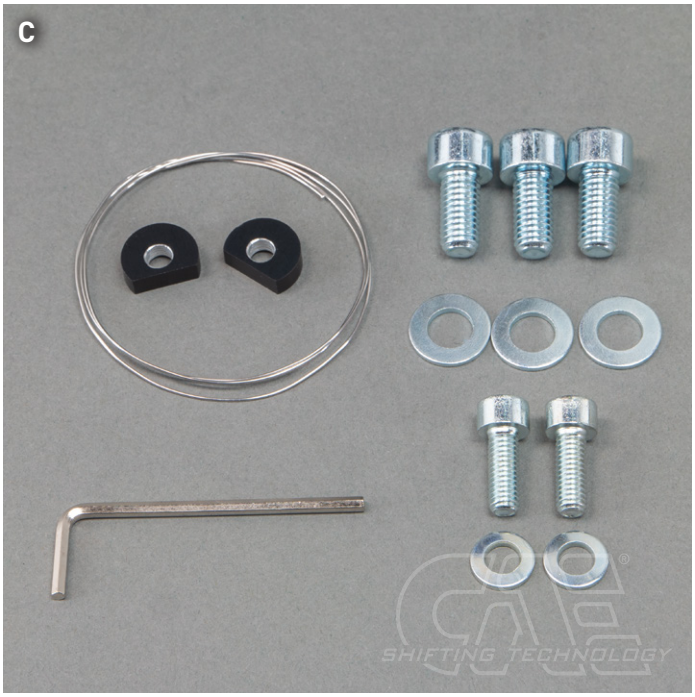
ⓘ FORCE DOESN'T MAKES YOU FASTER – IT ONLY HARMS THE TRANSMISSION

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 (Picture C)
- Switch rod connection (Picture D)





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.

The shifter must be screwed directly onto the sheet metal of the center tunnel.

The removal

- Completely remove the original gearshift. Remove the shift rod head and degrease the shift rod. (Picture 1, 2)

For the shifter to function properly, it is absolutely necessary that the rear shift rod joint and the front bearing of the shift rod are free of any movement.
It is essential to check this and replace the corresponding parts if necessary.
The shift rod clamp on the rear joint should be adjusted to the shortest length.

The installation

- Place the CAE shift rod end (connection rod) on the shift rod and fix it with the original clamping screw. (Picture 3)

- Then grease the plastic guide bush of the shift rod well again. We recommend Würth HHS 2000.

- The shift rod end (connection rod) should now be perpendicular to the center tunnel.

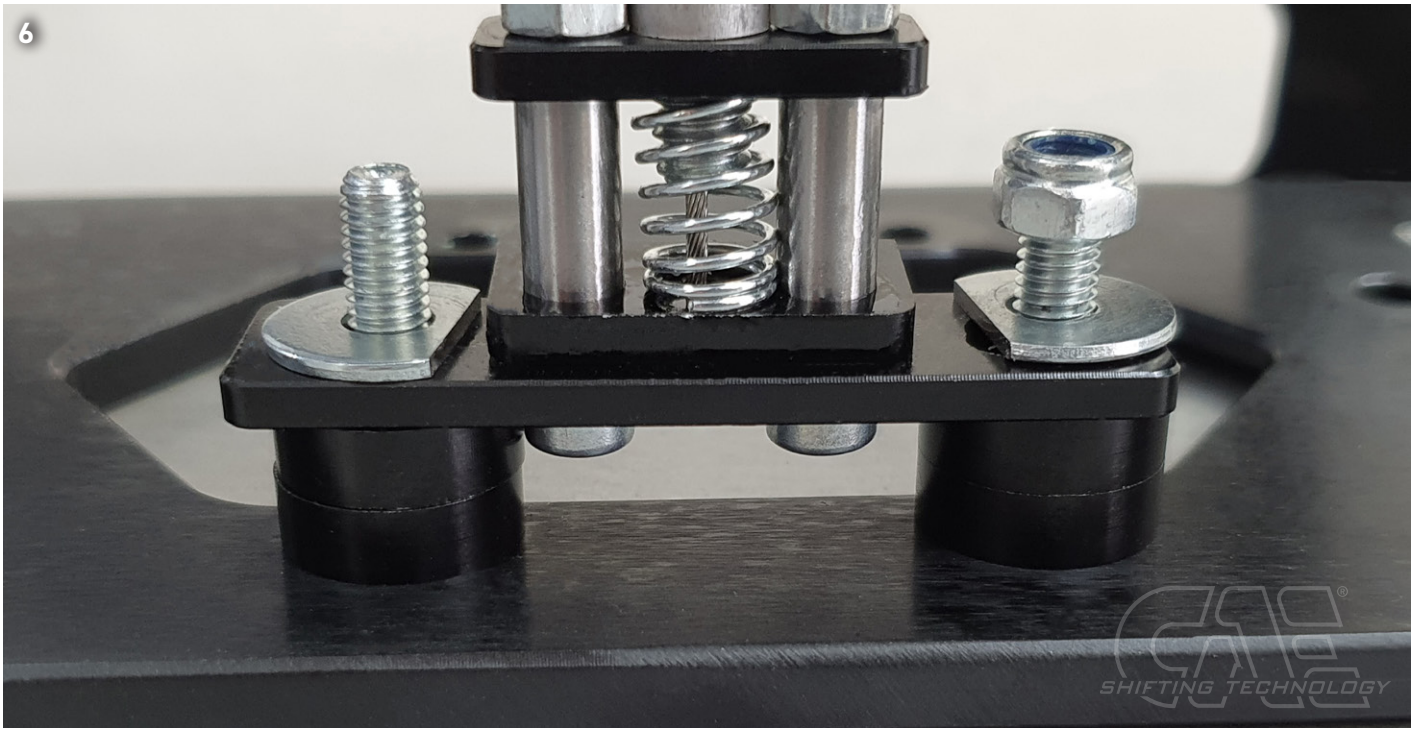
If this is not the case, the rear shift rod joint must be reworked. (Picture 4)

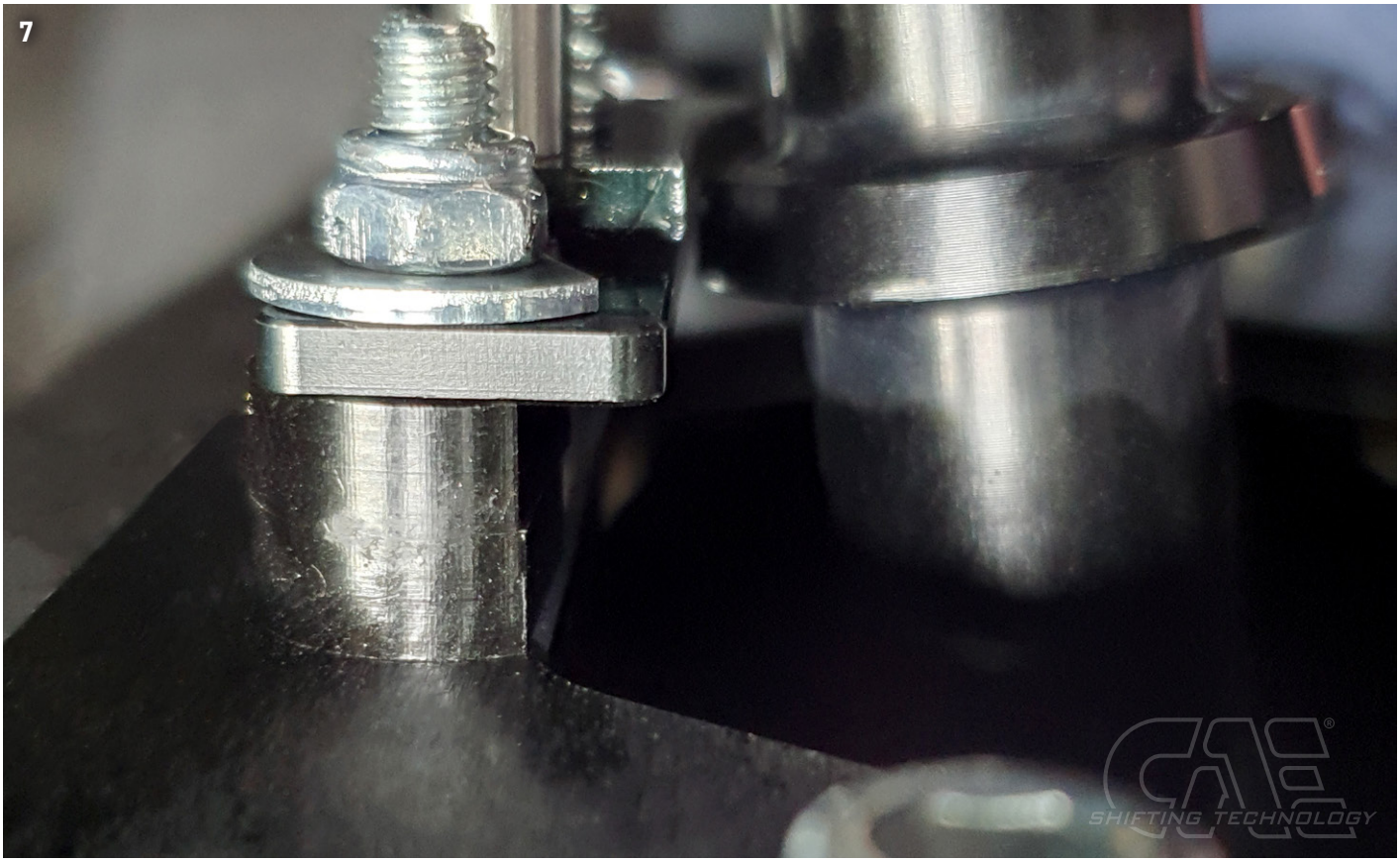
- Grease the ball on the lower part of the shifter. Now place the shifter on the center tunnel, inserting the ball of the shift lever into the shift rod end and the hole in the connection rod. (Picture 5)

- Place the shifter on the tunnel and tighten all screws (3x M8 and 2x M6 for the shift rod guide). Push the shifter all the way to the front and tighten all screws (Picture 5).

! Additional info: Height of the reverse gear lock!

- Depending on the vehicle model, the height of the R-lock varies. (Picture 6)
- This must be checked and adjusted before setting the reverse gear lock.
  If necessary, the supplied spacers must be installed under the R-lock. (Picture 7)
- The height of the ratchet can also be adjusted via the cable sheath. (max. 2mm)
- In any case, also make sure that the reverse cable does not get caught anywhere during the V/R movement of the shift lever, if necessary, fasten it to the shifter housing with a Kablestraps.





- Reverse gear lock is installed in the shifter on the left side. Loosen the spring stop in the shifter slightly with a 5mm Allen key so that it can be moved sideways. (Picture 8)
- Shift the gearbox to 3rd or 4th gear. (Middle gear level)
- Now tighten the spring stop again. The gear change in this gear must now work properly.
  Check: with 3rd/4th gear engaged, the lateral play on the shift lever must be the same on both sides, otherwise readjust again.
- Shift the gearbox to the left level (1 / 2) using the shift lever.
- Adjust the stop screw until the gears can be changed cleanly in this plane. The screw must not be tight against the bolt, approx. 0.5mm air is OK. (Picture 9)

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- Now shift to 5th gear using the shift lever and screw in the stop screw until 5th gear can be engaged cleanly. Here, too, the screw must not touch the bolt. (Picture 9)
- Swivel the shift lever to the right (reverse gear) in neutral.
- To adjust the reverse gear lock, loosen the nuts and place the lock against the stop plate. Tighten nuts again. (Picture 10)
- Actuate reverse gear lock by pulling and check whether reverse gear can be engaged. Readjust if necessary.
- Grease the mechanism of the reverse gear lock.

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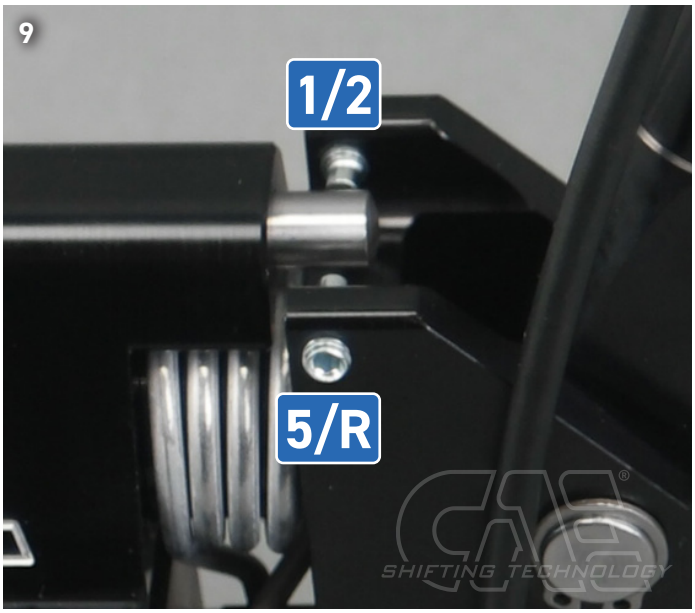

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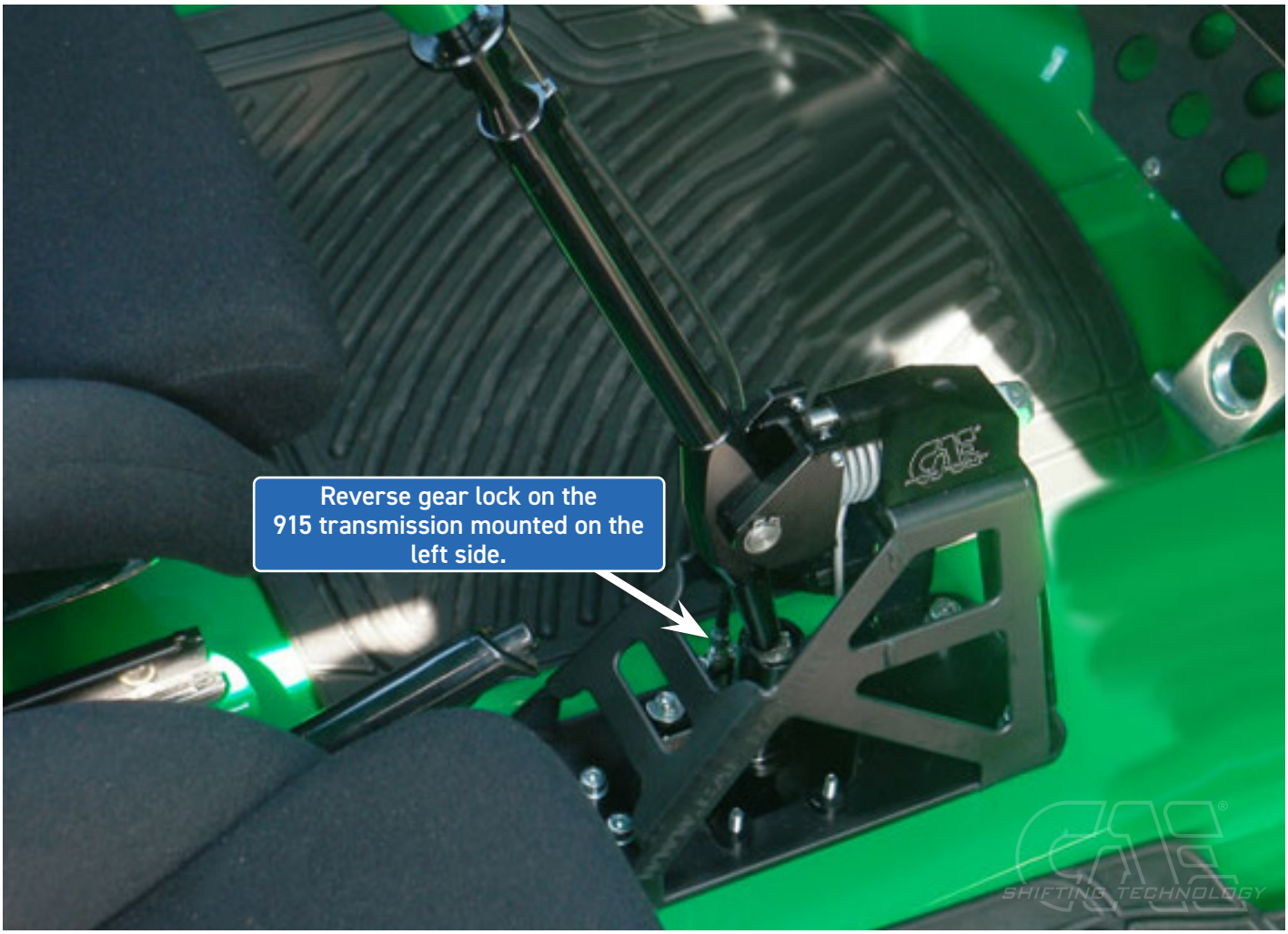

Reverse gear lock on the
915 transmission mounted on the
left side.


Reverse gear lock on the
901 transmission mounted on the
right side.

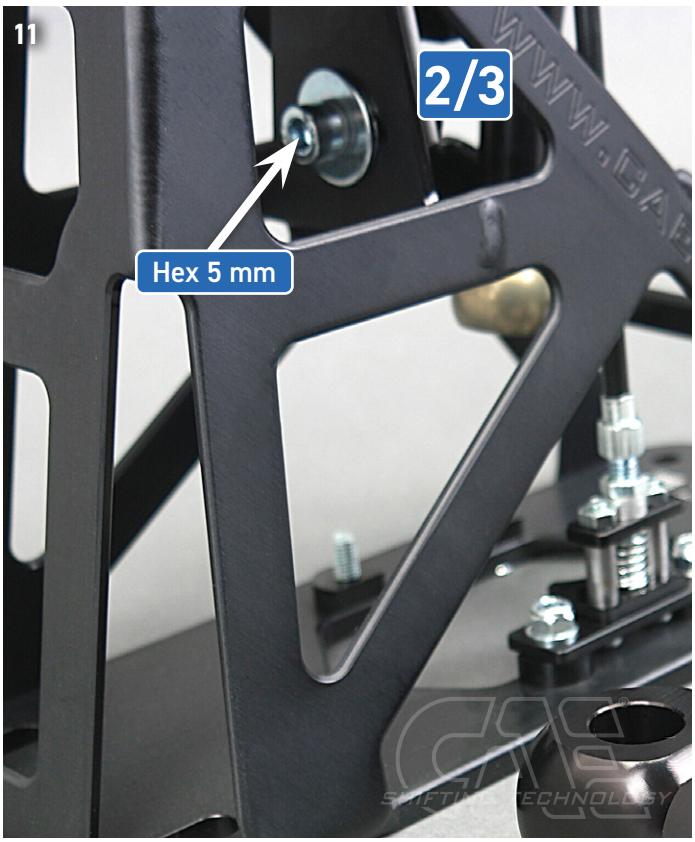
- Reverse gear lock is installed in the shifter on the left side. Loosen the spring stop in the shifter slightly with a 5mm Allen key so that it can be moved sideways. (Picture 11)

- Shift the gearbox to 2nd or 3rd gear. (Middle gear level)

- Now tighten the spring stop again. The gear change in this gear must now work properly.
  Check: with 2nd/3rd gear engaged, the lateral play on the shift lever must be the same on both sides, otherwise readjust again.

- Shift the gearbox to the right level (4 / 5) using the gearshift lever.

- Adjust the stop screw until the gears can be changed cleanly in this plane. The screw must not be tight against the bolt, approx. 0.5mm space is OK. (Picture 12)



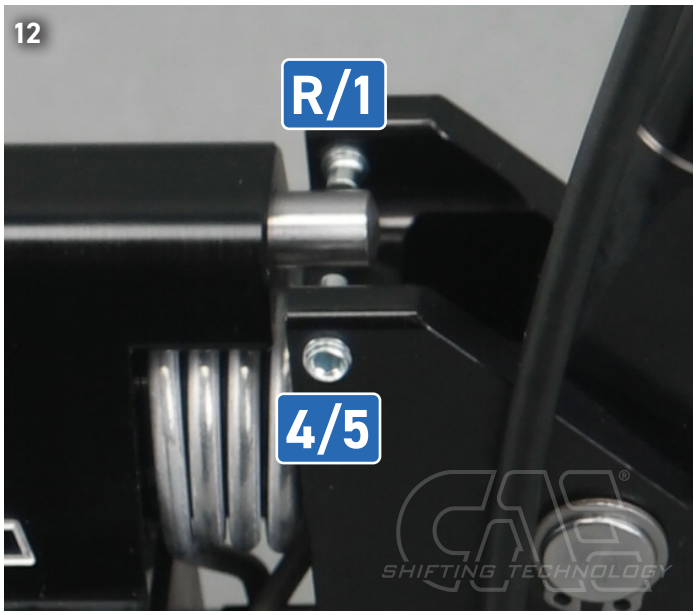
- Now shift to 1st gear using the shift lever and screw in stop screw a until 1st gear can be engaged cleanly. Here, too, the screw must not touch the bolt. (Picture 12)

- Swivel shift lever to the left (reverse gear) in neutral plane.

- To adjust the reverse gear lock, loosen the nuts and place the lock against the stop plate. Tighten nuts again. (Picture 13)

- Actuate reverse gear lock by pulling and check whether reverse gear can be engaged. Readjust if necessary

- Grease the mechanism of the reverse gear lock.



Machining and installation of the center console

- If the center console is to be installed, it must be machined to provide clearance for all moving parts of the shifter.

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.

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

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