20 YEARS EXPERIENCE

CAE SHIFTING TECHNOLOGY

Installation instructions

10055HD

VW Polo / Lupo GTI

5/6-speed gearbox
02T

POLO/LUPO GTI

WWW.CAE-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)
- Generally attach a sealing sleeve to all ball heads (if available on the model). Lift sealing sleeve very slightly to lubricate.
- All screws and nuts that are not self-locking or are fitted with tooth lock washers glue in during assembly!
- After installing the shifter, secure all ball heads (if available on the model) with the cotter pins provided!
- If CAE shift cables are included in the scope of delivery, please never kink them!

ⓘ 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!

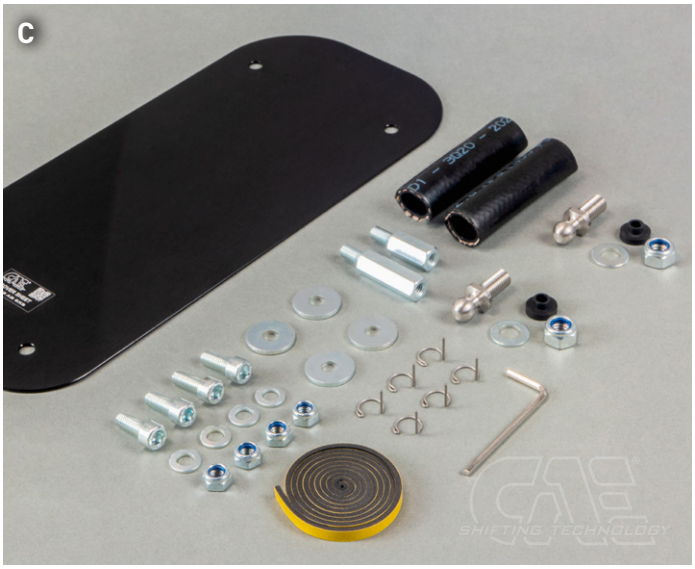
Included in delivery

- 1x shifter completely assembled, design depending on ordered variant (Picture A)
- 1x Shift knob incl. counter screw M6x20 V2A, design depending on ordered variant (Picture B)
- Accessories package + cover plate (Picture C)
- 1x shift cable (S), 1x selector cable (W) (Picture D, E)

A

B

C



D

S W Connections on the gearbox

E

S W Connections on the shifter

The shifter is intended for racing vehicles without interior equipment. If the center console is installed, it must be removed or cut out to the extent that a corresponding clearance for the shift cables is ensured. The gearshift bracket 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

- Remove the exhaust or leave it hanging. Completely remove the heat shield, as well as the original shift lever and shift cables.

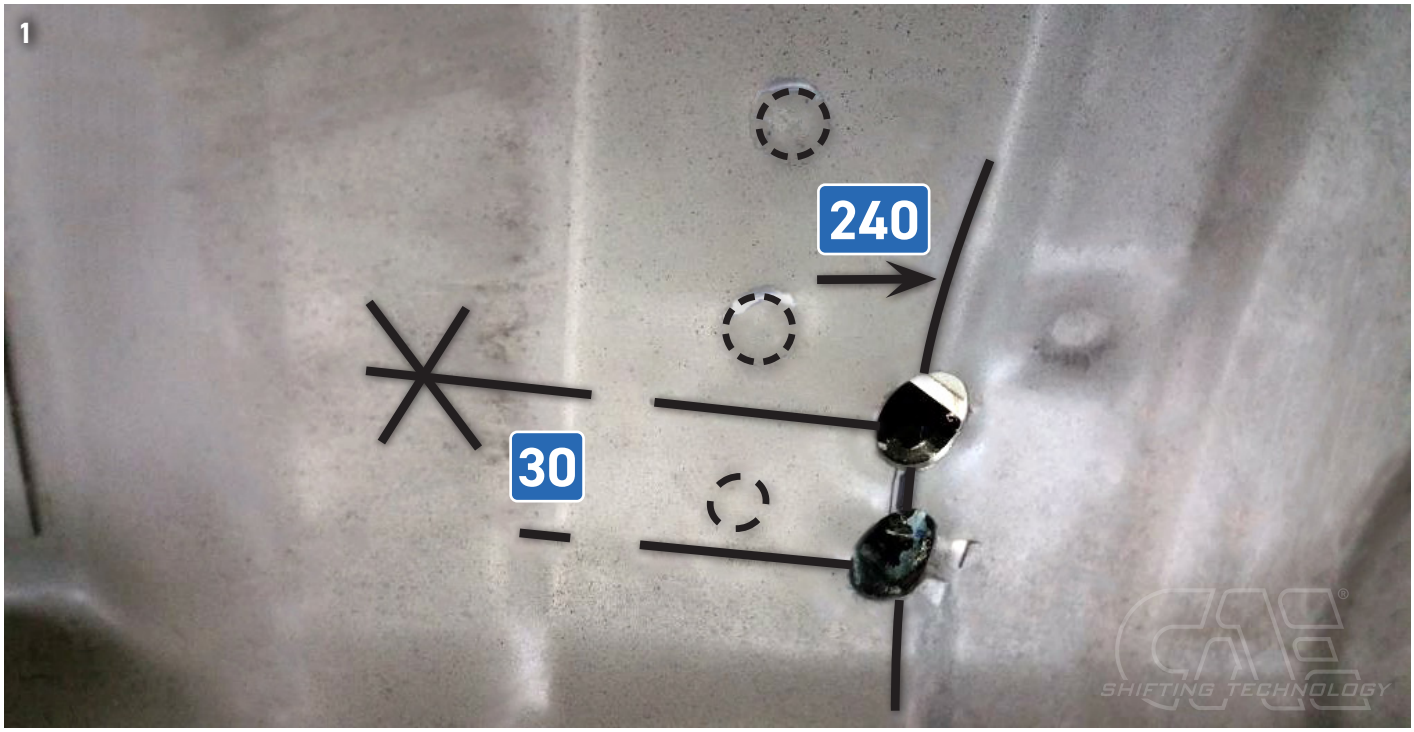
- Remove the gearshift and selector lever from the transmission.

Metal sheet work

- Drill two 20 mm holes in the center tunnel. The holes should be drilled at the positions shown here. (Picture 1)

- The dimensions refer to the front edge of the tunnel cutout.

- Insert a suitable rod into the holes from below and push the rod forward to create the to create the feedthroughs shown in the picture.



- Place the shifter on the center tunnel and mark the 4 holes. Drill a 6.5mm hole at each of these points and deburr. (Picture 2)

The installation

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

Laying the shift cables

- The longer cable 1200 Ⓢ is attached to the center of the switch tower, and the shorter selector cable 1160 Ⓦ is attached to the left. The switch cables must protrude as far as possible from the switch tower; no thread is visible on the inside. (Picture 3)
- To remove and install the nuts, pull off the rubber sleeves, the nuts can then be slipped over them.
  Do not mix up the cables!
  The shift cables must protrude as far as possible from the shift tower, no thread is visible on the inside:

- Feed the shift cables through the holes in the center tunnel, installing the protective hoses in the holes. (We recommend brake cleaner as a lubricant).
  Immediately when installing the shifter, route the shift cables over the gearbox in the direction of the cable abutment (under the center tunnel)
- Screw the shifter onto the tunnel, screwing the cover plate under the tunnel plate.
  Before mounting, adjust the plate to the tunnel curvature and glue the foam rubber strips to the edge of the plate for sealing. (Picture 4)

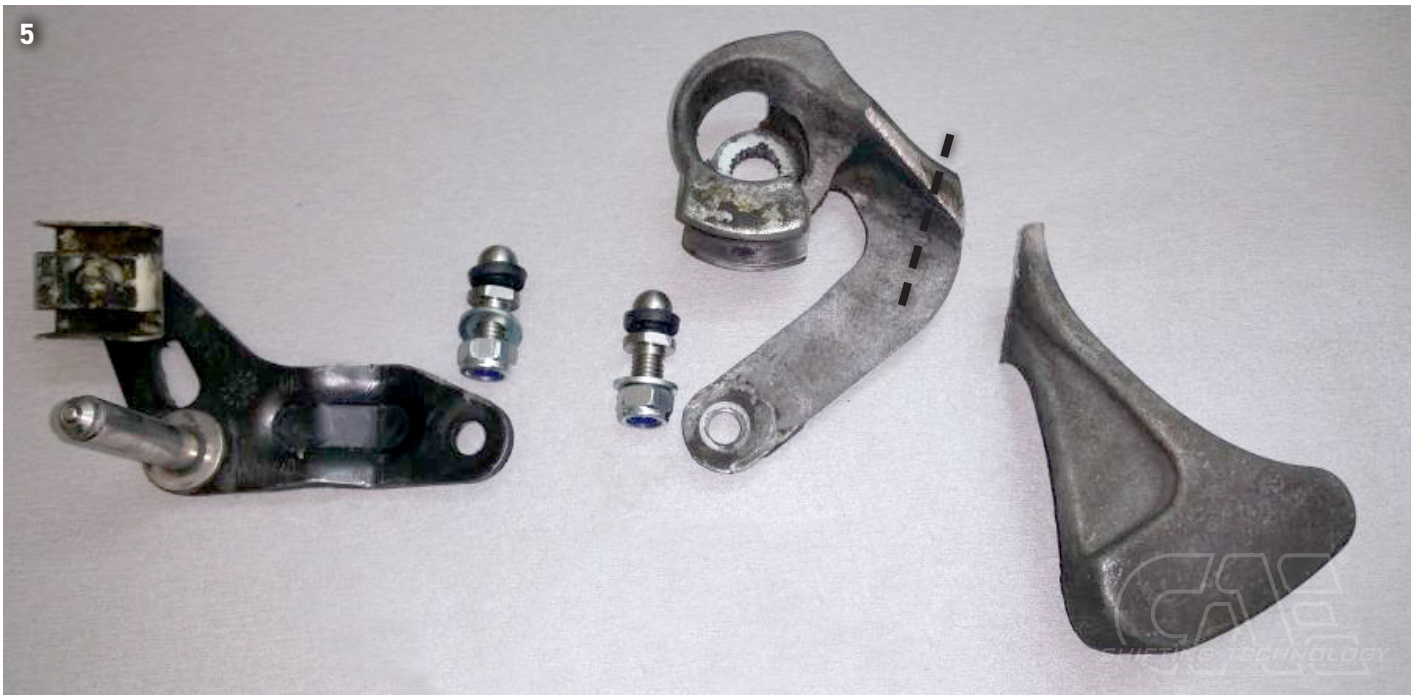
HEAT PROTECTION FOR SHIFT CABLES
(FOR ALL VEHICLES WITH CAE SHIFT CABLES)

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.

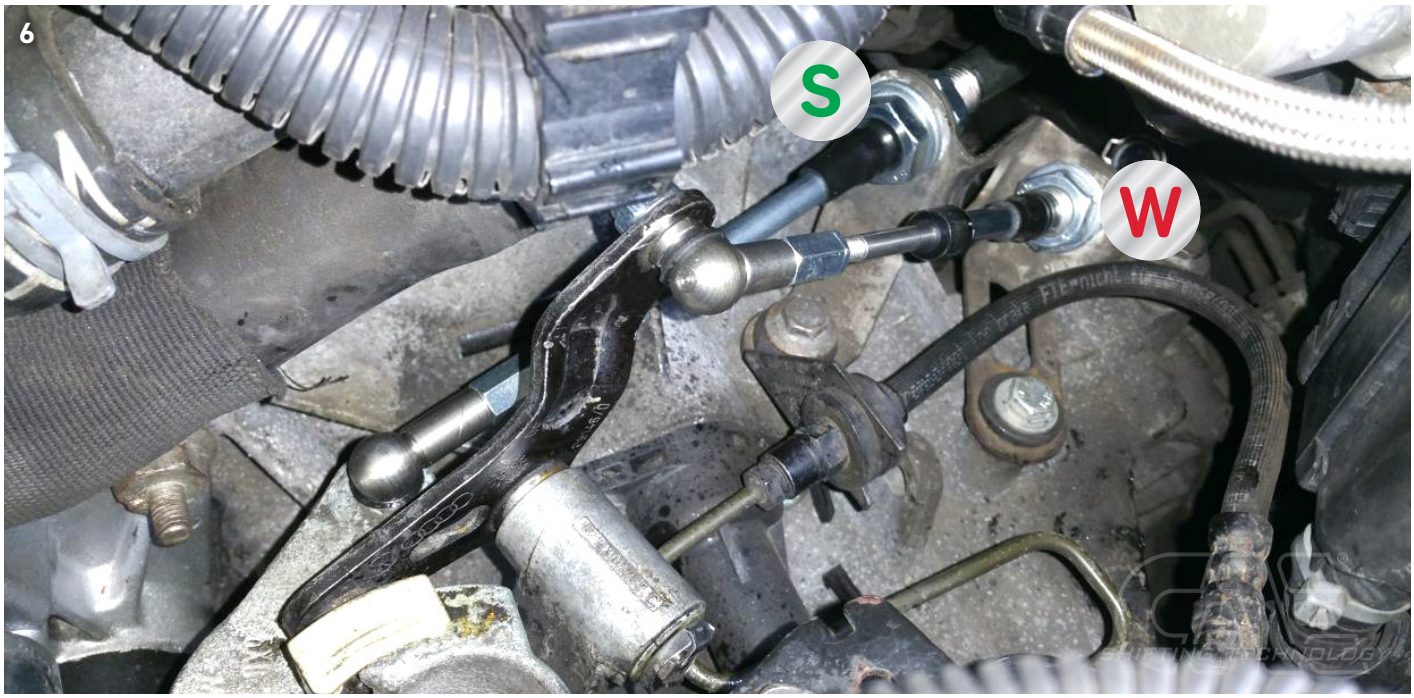
EXCESSIVELY HIGH TEMPERATURES PERMANENTLY DAMAGE THE SHIFT CABLES!
ESPECIALLY IN MOTORSPORTS, THE HEAT DEVELOPMENT IS ENORMOUS!

Machining the gearbox levers

- On transmission "selector" and "shift" levers, drill out ball ends and replace with those supplied.
  Cut off the absorber weight as shown. (Picture 5)



- Install shift cables on transmission. (Picture 6)



ⓘ ORIENTATION FOR INSTALLATION

Our shift cables are marked with different stickers at the ends. With a circular contour, the connection is made to the shifter; without a circular contour, the connection is made to the transmission (S = shift / W = select).

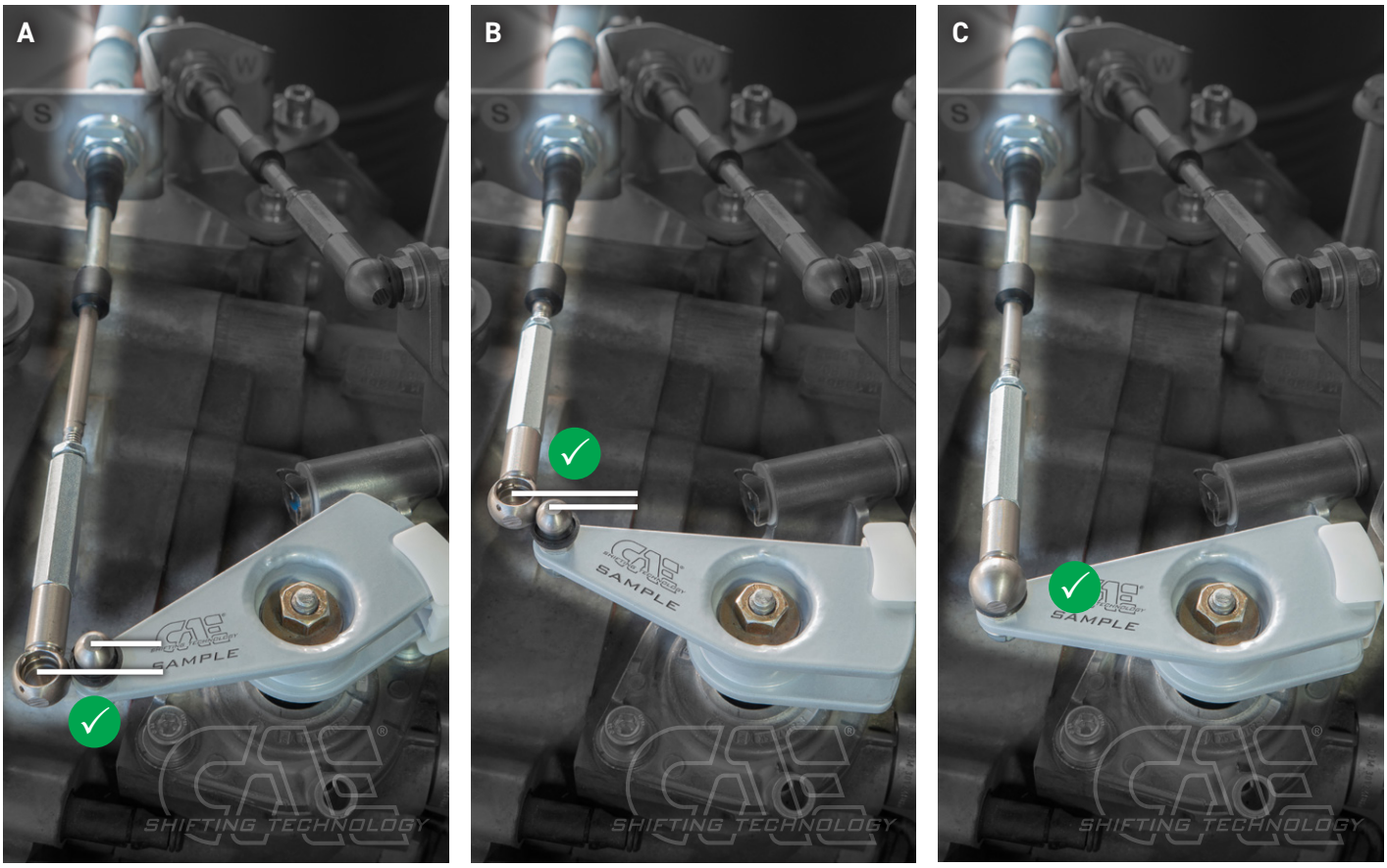
Connections on the shifter

Connections on the gearbox

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 & 6 gear transmission

- On the left of the shifter, pull the coupling rod off one of the balls Shift the gearbox to 3rd or 4th gear by hand. (Picture 7)

- The 3rd and 4th gears are in neutral zero position. To engage them, simply move shift lever forward or backward without load.

- Now determine desired center position of shift lever (in center position, shift lever should be slightly tilted to the right) and tighten lower spring stop under shift bracket with 5mm Allen wrench. (Picture 8)

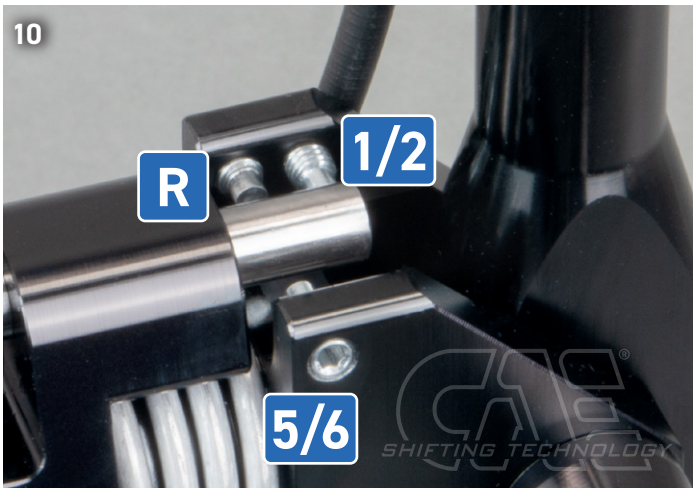
- Now press the coupling rod back onto the ball on the L lever. Adjust the R/L spindle between the L lever and the side arm so that the shift lever does not move sideways when the ball socket is pressed on. (Picture 9)
  It must now be possible to engage 3rd / 4th gear correctly.

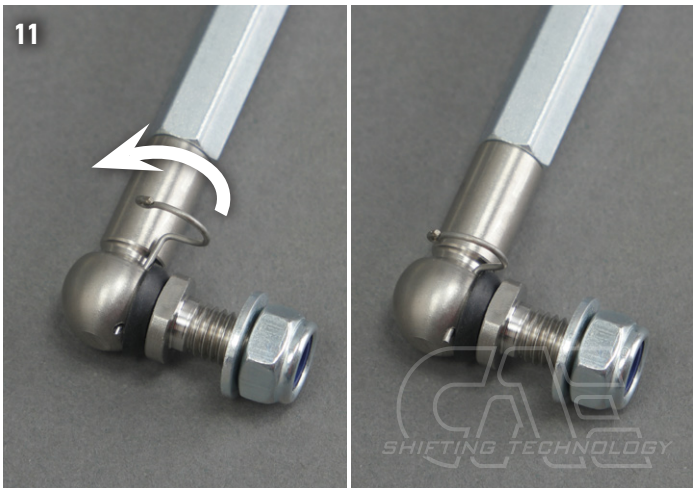
- Shift the gearbox to level 1 / 2 using the shift lever and screw in the stop screw until the gears in level 1 / 2 can be changed cleanly. (Picture 10)

- Now shift gearbox to 5th (or 6th) gear level using shift lever and screw in stop screw until 5th gear can be engaged cleanly.

- 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 10)

- Lock all ball cups and install retaining clips. (Picture 11)





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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