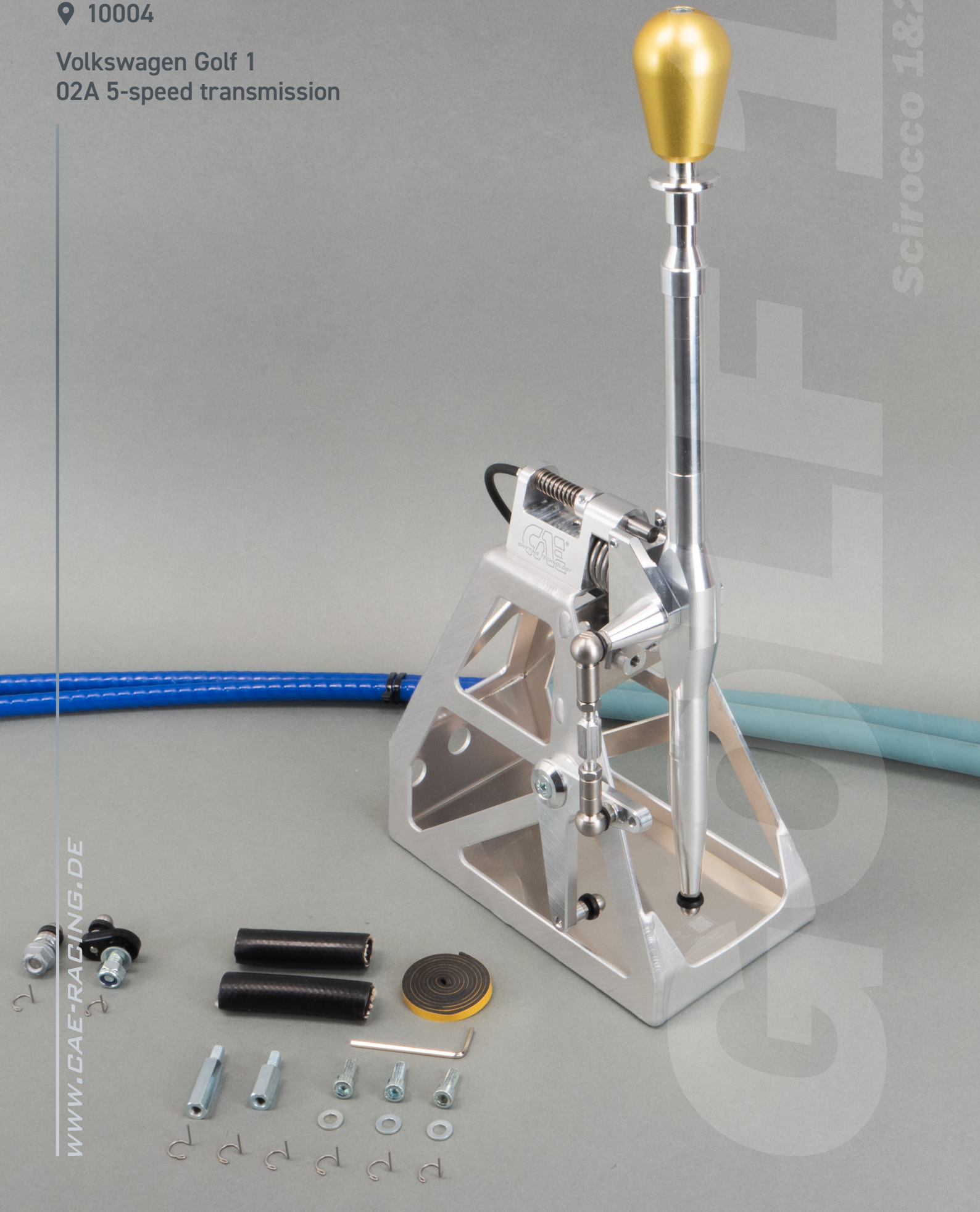
CAE SHIFTING TECHNOLOGY

ULTRA SHIFTER

Installation instructions

10004

Volkswagen Golf 1
02A 5-speed transmission



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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!

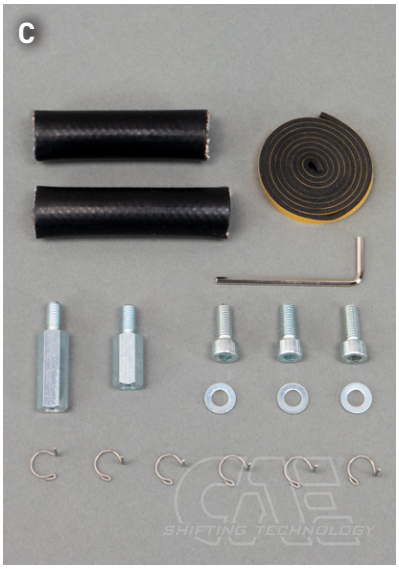
Included in delivery

- 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 (Bild C)
- Connecting parts 02A gearbox (Picture D)
- 1x shift cable (S), 1x selector cable (W) (Picture E, F)

A

B

C



D

E

F

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, any existing carpet must be cut out.

The removal

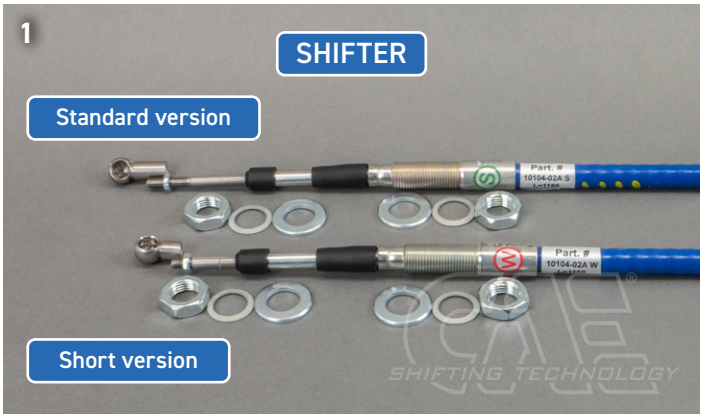
- Remove center console.
- Completely remove the original shift lever.

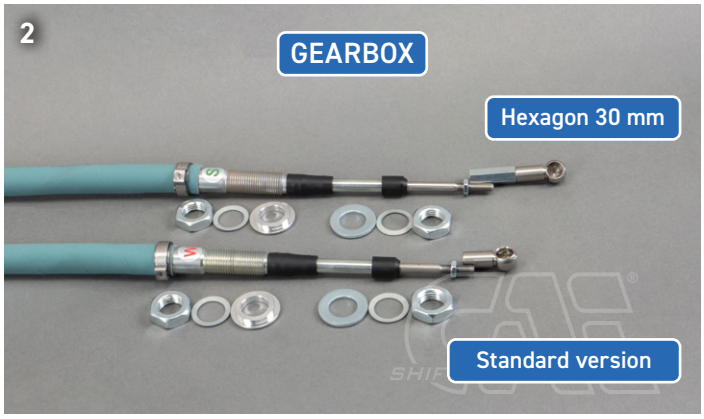
The installation

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!

Laying the switching cables

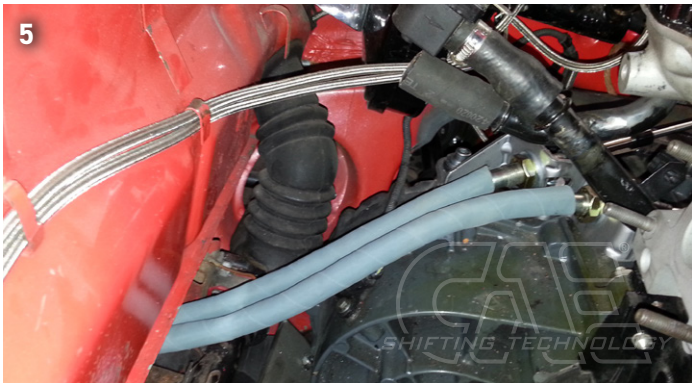
- Assembly of switching cables (Picture 1, 2)





- Pay attention to the assignment of the cables. (Picture 1, 2, 7)
  S W the stickers with border belong to the shifter, S W the stickers without border belong to the gearbox.

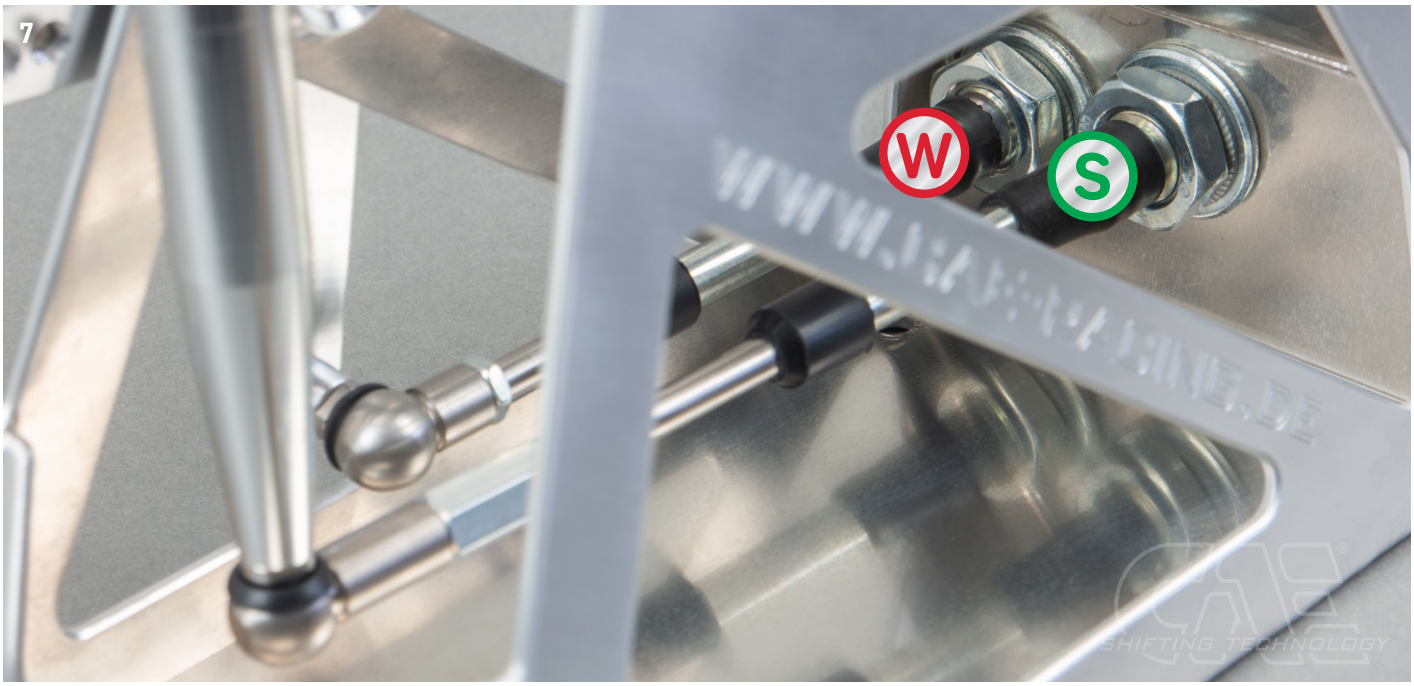
- The original hole in the frame triangle of the bulkhead (automatic) can be used to feed through the shift cables; this must be extended accordingly: (Picture 3, 4, 5, 6)



- Attach shift cables to the shifter and pass them through the holes in the bulkhead, installing the black protective hoses in the bulkhead.

- To remove and install the nuts, pull off the rubber sleeves, the nuts can then be slipped over them.

- Tighten nuts until lockwashers are on block. Do NOT glue in place. No M16 thread is visible inside. (Picture 7)
  Slide rubber caps into position, install ball cups.
  The short ball socket belongs on the selector cable (W) to the L lever below.



- The position of the shift knob can be varied using the hexagonal extensions supplied. Always make sure that the lever does not touch anything in the end position. The following applies: The longer the pan/hexagon, the further the knob moves forward. (Bild 8) This change can be made later at any time; no further adjustment is necessary.

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

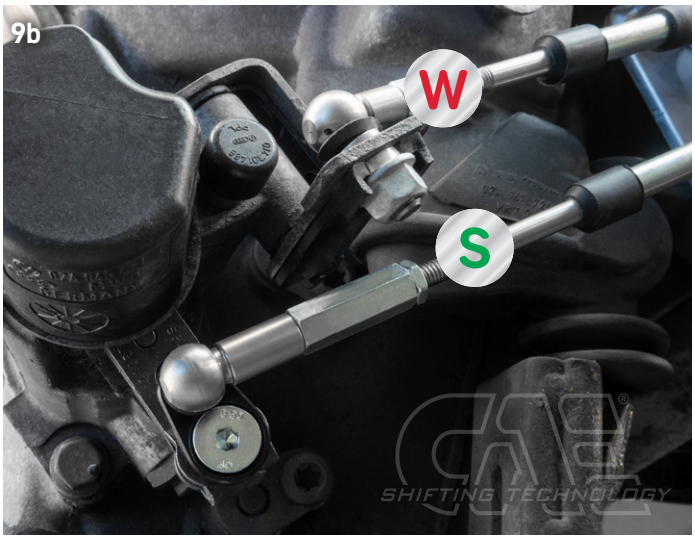
Exhaust systems generate incredible temperatures, which can be several 100 degrees, especially under full load! Therefore, the shift cables must be absolutely protected with the blue-gray protective hoses against the strong heat effect!
Also the protected shift cables must not be in contact with the 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!

Installation of the shift travel reducer:

- Before installing the shift cables on the "Shift" transmission lever, screw on the supplied reduction. The new pivot point points in the direction of the gearbox input and thus shortens the effective lever by approx. 14mm (Picture 9a, 9b)

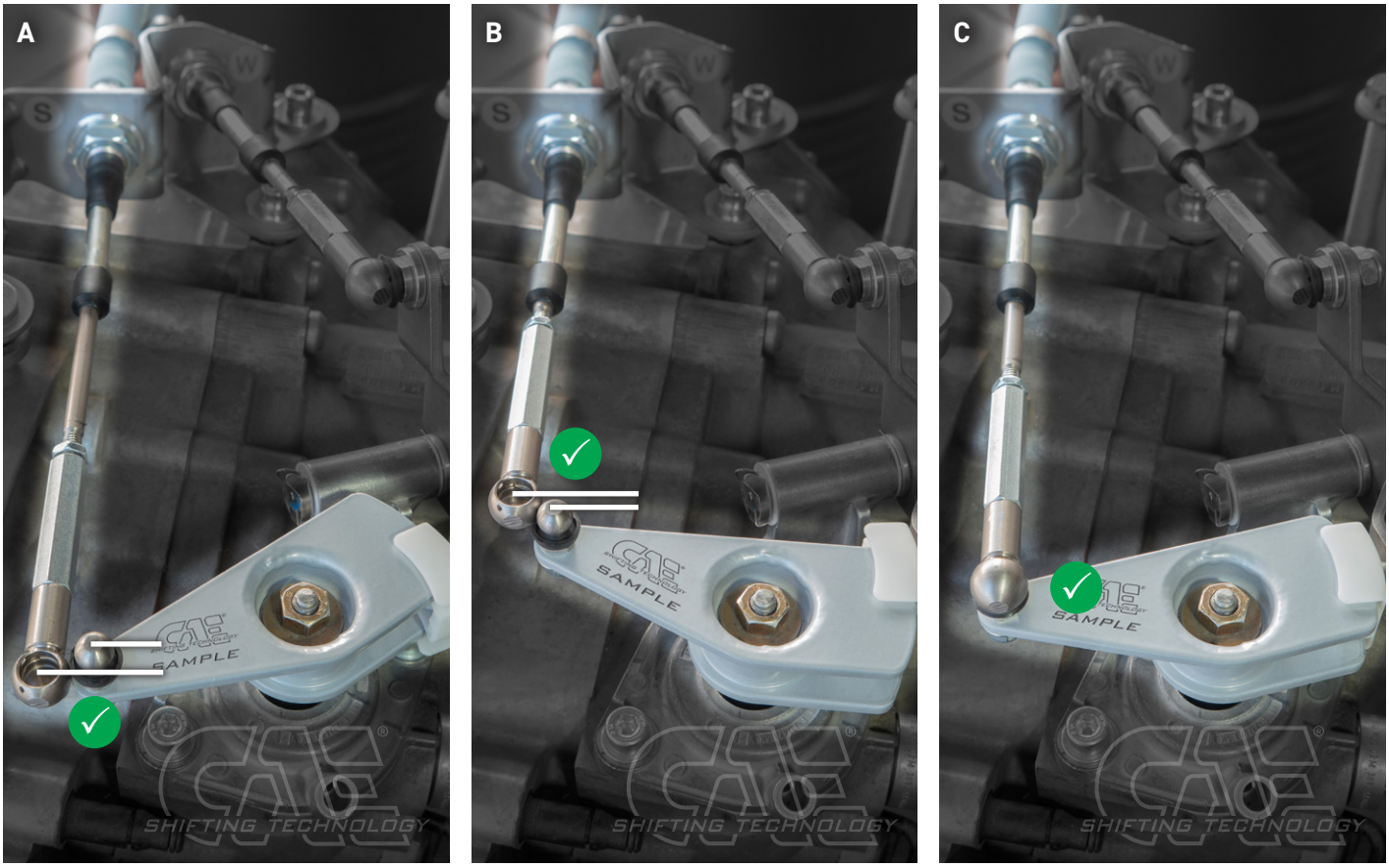
- On the standing "selector lever", screw the supplied ball head with Ø 10mm ball and M 8 thread with 1 washer in front of the lever with the original nut. This can be adjusted if necessary as well as the reduction can still be adjusted for adjustment.



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 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)

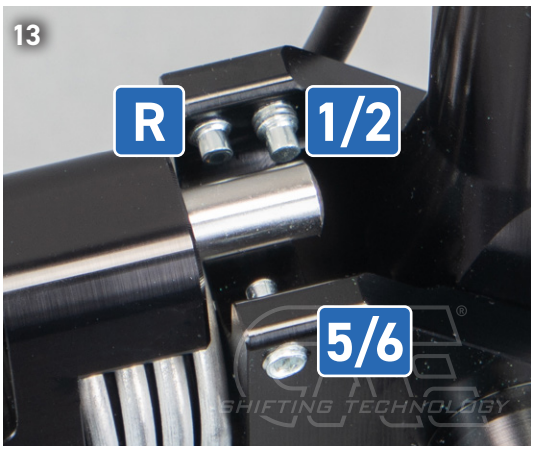
ATTENTION: THIS CONTROL IS VERY IMPORTANT FOR THE FUNCTION OF THE SHIFTER !!!
If the remaining travel on the shift cable is missing, there is an immediate risk of damage to the gearbox. !!!!!

Adjust the shift range 5 speed gearbox

- Loosen spring stop under gearshift tower, release selector cable (inside left) from L lever.
- Shift transmission to 3rd gear. (Pull shift travel reducer on gearbox back in direction of travel).
- Now determine desired center position of shift lever and tighten lower spring stop under shift bracket with Allen key. (Picture 10) In the center position, the shift lever should be tilted very slightly to the right. (Picture 12)
- Adjust the L-lever by turning the vertical coupling rod so that the selector ball socket can be pressed on without any problems.

CHECK: With 3rd/4th gear engaged, the lateral movement of the shift lever must be the same, otherwise readjust the coupling rod. Tighten the lock nuts of the coupling rod only slightly! The coupling rod is made of aluminum!!!! (Picture 11)

- Secure the ball socket on the shift cables in the shift tower with the lock nuts.
- 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.
- Now shift gearbox to 5th gear level using shift lever and screw in stop screw until 5th gear can be engaged cleanly. (Picture 13)
- Actuate locking pin via cable and shift transmission to reverse gear level. Screw in stop screw until reverse gear can be engaged cleanly.
- Test drive/ test run to check settings, readjust if necessary. Press on all cotter pin clamps and retighten all screws.



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

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

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