20 YEARS EXPERIENCE

CAE SHIFTING TECHNOLOGY

Installation instructions

10024

Peugeot 306; Citroen XSARA
5 & 6 speed cable gearbox

PEUGEOT 306

XSARA

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)
- 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

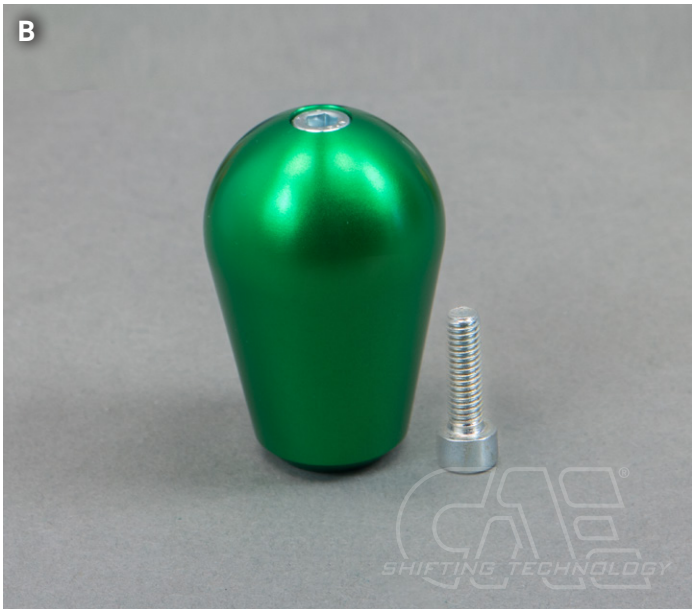
The question arises again and again: "Does a CAE shifter puts more strain on a gearbox than a standard gear lever?" The answer is clear: “No!” The things that are most stressful for a synchronizer ring in a transmission are excessive shifting forces or a wrong shift in gear. Basically, the shift travel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

A

B



C

D

E

ⓘ The shifter is designed for vehicles without interior equipment. If the center console is installed, it must be removed or cut out until appropriate clearance is ensured.
The shifter should be screwed directly onto the sheet metal of the center tunnel, any existing carpet must be cut out.

The removal

- Completely remove the original shift lever including shift cables and deflectors.

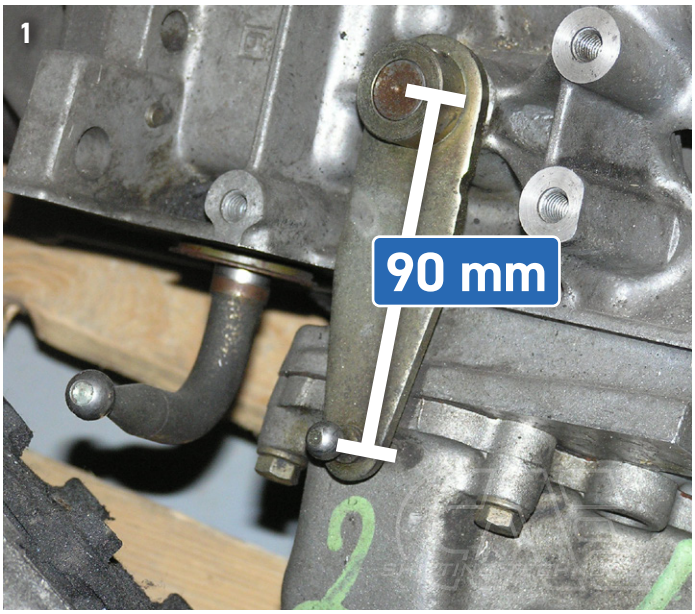
Installation of the CAE shifter

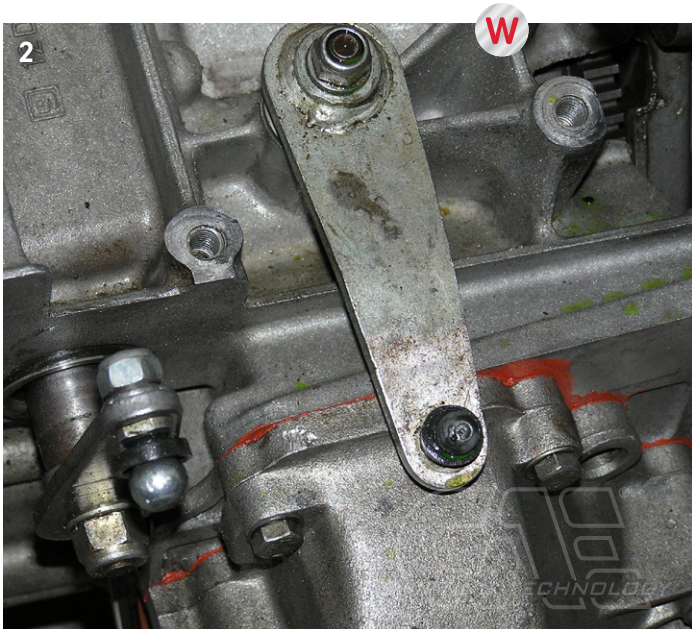
- Generally, fit a sealing collar on each ball and grease the ball cups.
  After complete assembly of the shifter, secure the ball heads with the cotter pins.

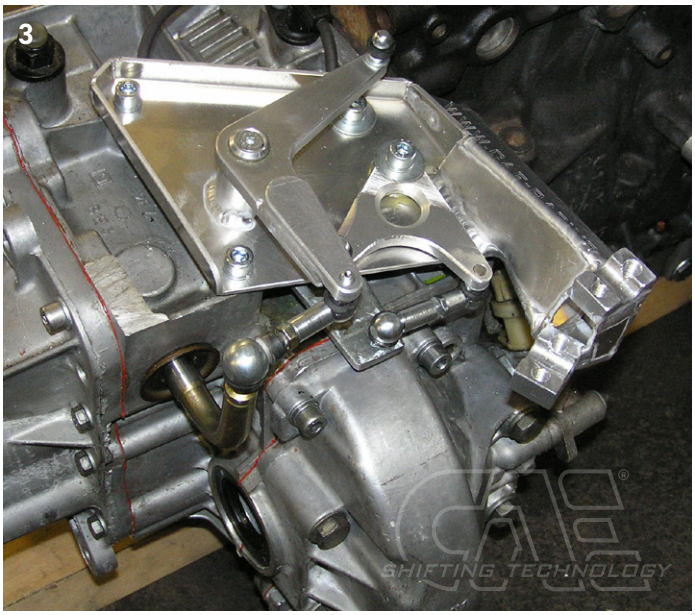
- Glue all nuts / screws during assembly! Never kink shift cables!
  Lubricate all bearing points regularly, we recommend Würth HHS2000.

- **Standard version:**
  Shift lever: Ball head 13mm is not used.The selector lever for the lanes must be bent straight if this version is not installed.

- **Peugeot Sport:**
  Screw in ball head 13mm as shown and turn ball socket from connecting bone 90 degrees accordingly.
  Tighten the cable holder/guide unit to the gearbox.
  Clean threaded holes in gearbox, glue screws in place during assembly.
  Press ball bones onto the corresponding balls and secure later with cotter pins.
  The picture shows the cable pull holder ready mounted on the gear unit.

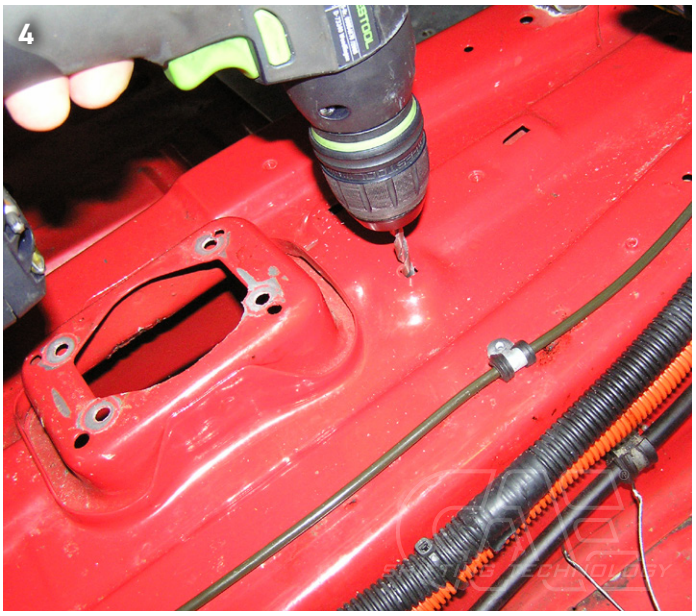




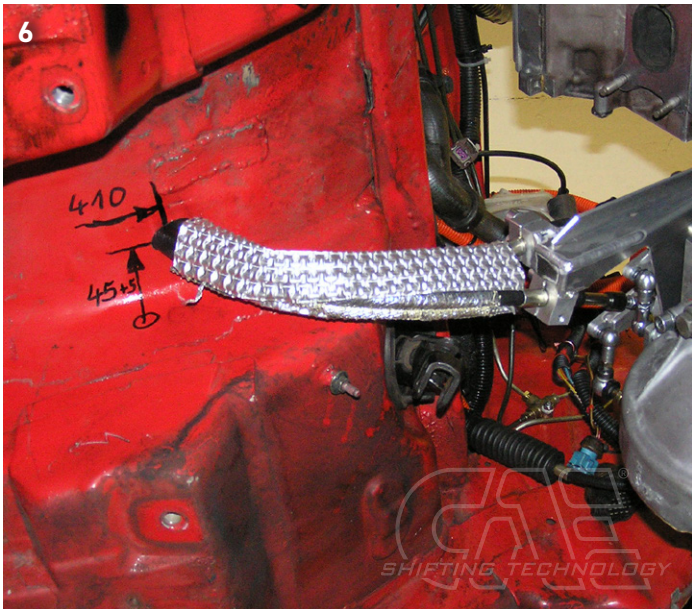


Metal sheet work

- Drill 2 6mm holes in the middle of the two 4kt holes in front of the gearshift attachment of the tunnel; drill this from below through the lower tunnel plate to 10.5mm so that the Allen heads of the supplied screws fit through.



- Drill a hole according to the marking in this picture for the passage of the shift cables to the engine compartment in the tunnel:
- The hole must be big enough for both shift cables incl. protection hose: approx. w = 18mm l=40mm
- The 410mm refers to the front two fixing screws of the tower, the 45 +5mm to the left tunnel wall.



Installing the Shifter

- Screw in the shift cables before installing the tower. The threads of the shift cables must protrude as far as possible from the shifter tower, no thread is visible inside:

- The selector cable is the one with the shorter ends and is installed on the left.
  To remove and install the nuts, pull off the rubber sleeves, the nuts can then be slipped over them.

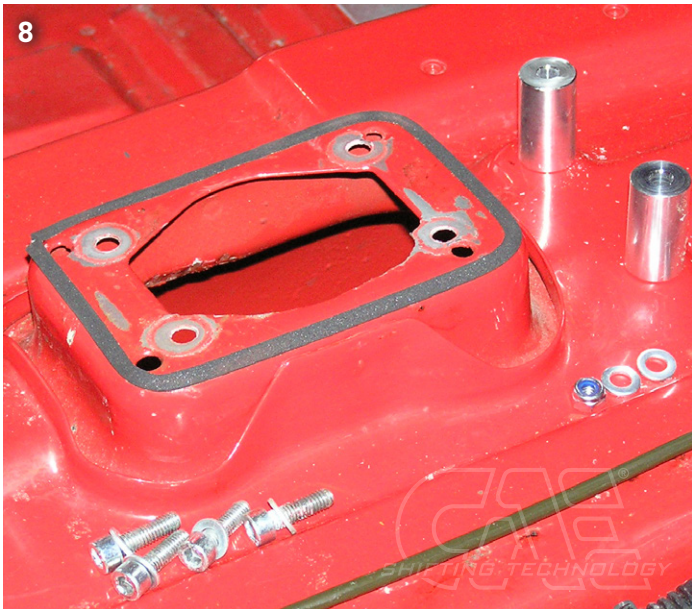
- Then screw on the ball heads and press them onto the shift and L levers and (will be adjusted later).

- Before screwing on the shifter, glue the enclosed foam rubber strip onto the tunnel so that it later seals the tunnel opening.

- Guide the shift cables through the drilled holes and over the axle/steering gear and mount the shift bracket on the center tunnel.

- To protect the gearshift cables, cut open the two pieces of hose with an inner diameter of 12mm and place them over the shift cables in the area of the sheet metal bushings.


7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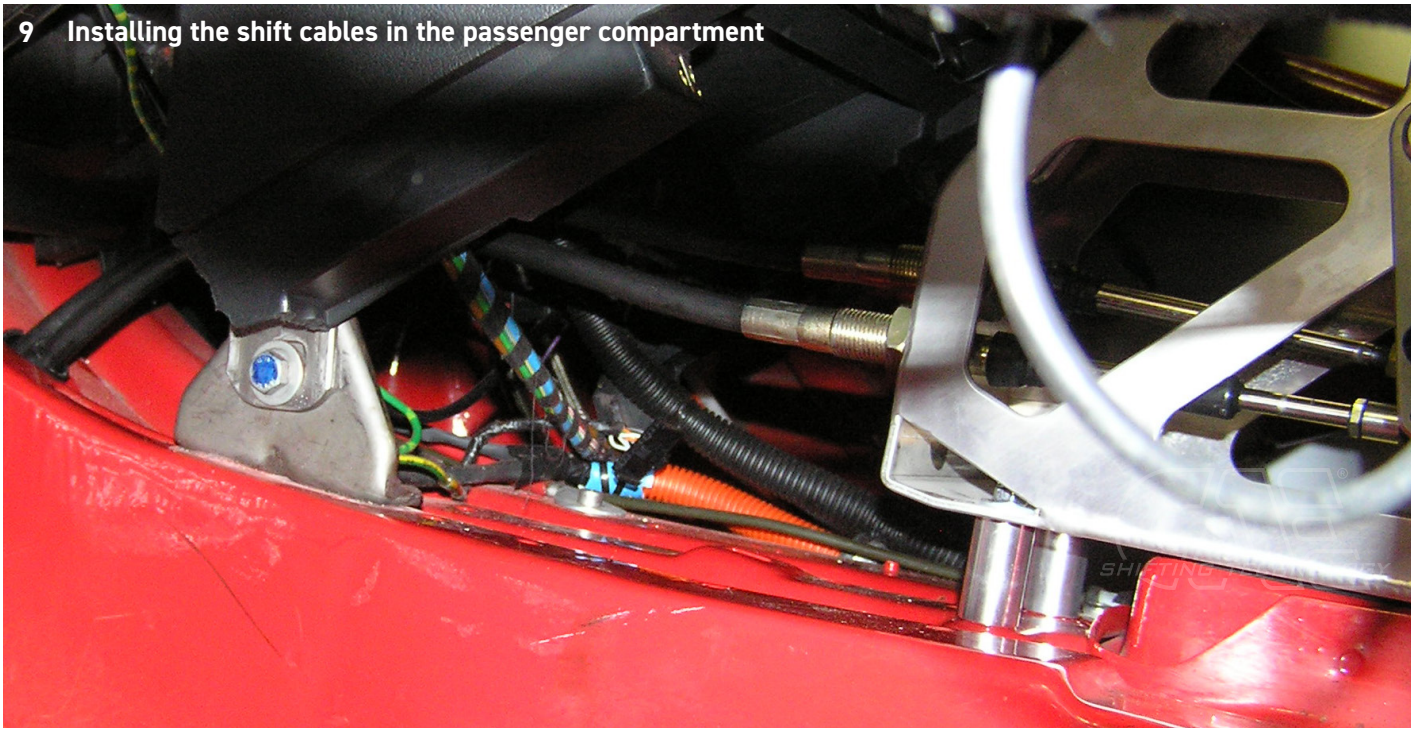
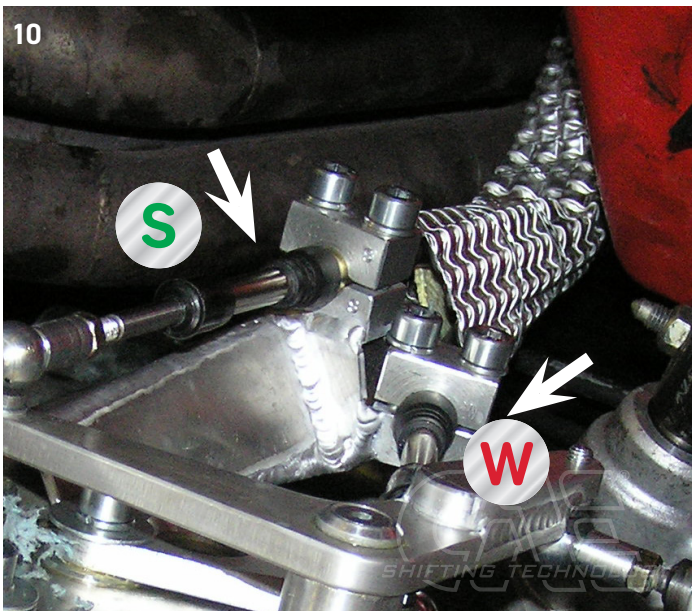

9 Installing the shift cables in the passenger compartment

- Screw the switching and selection cables into the clamps of the retaining plate. The cable with the shorter end goes into the clamp with the W marking.

- Press the ball cups onto the corresponding balls on the levers and secure them later with cotter pins. In any case, protect shift cables against the effects of heat:



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

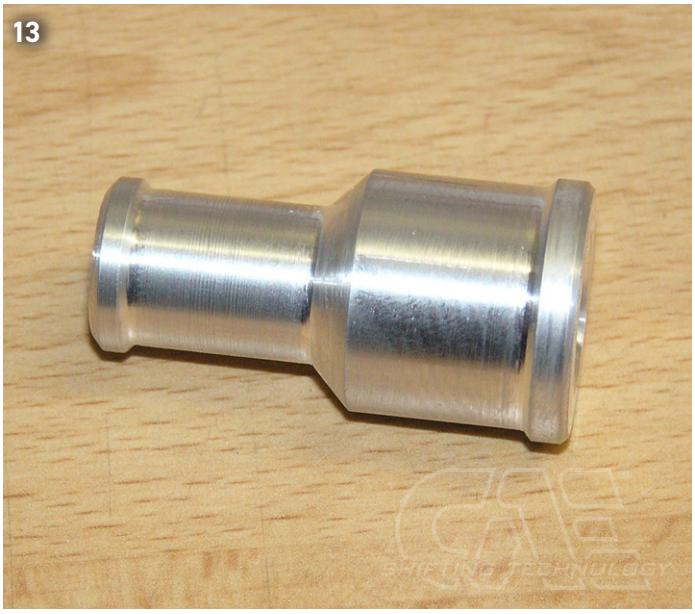
Exhaust systems generate incredible temperatures, which can be several 100 degrees, especially under full load! Therefore, the shift cables must be absolutely protected with the blue-gray protective hoses against the strong heat effect!
Also the protected shift cables must not be in contact with the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

Modification of the water supply to the heater radiator

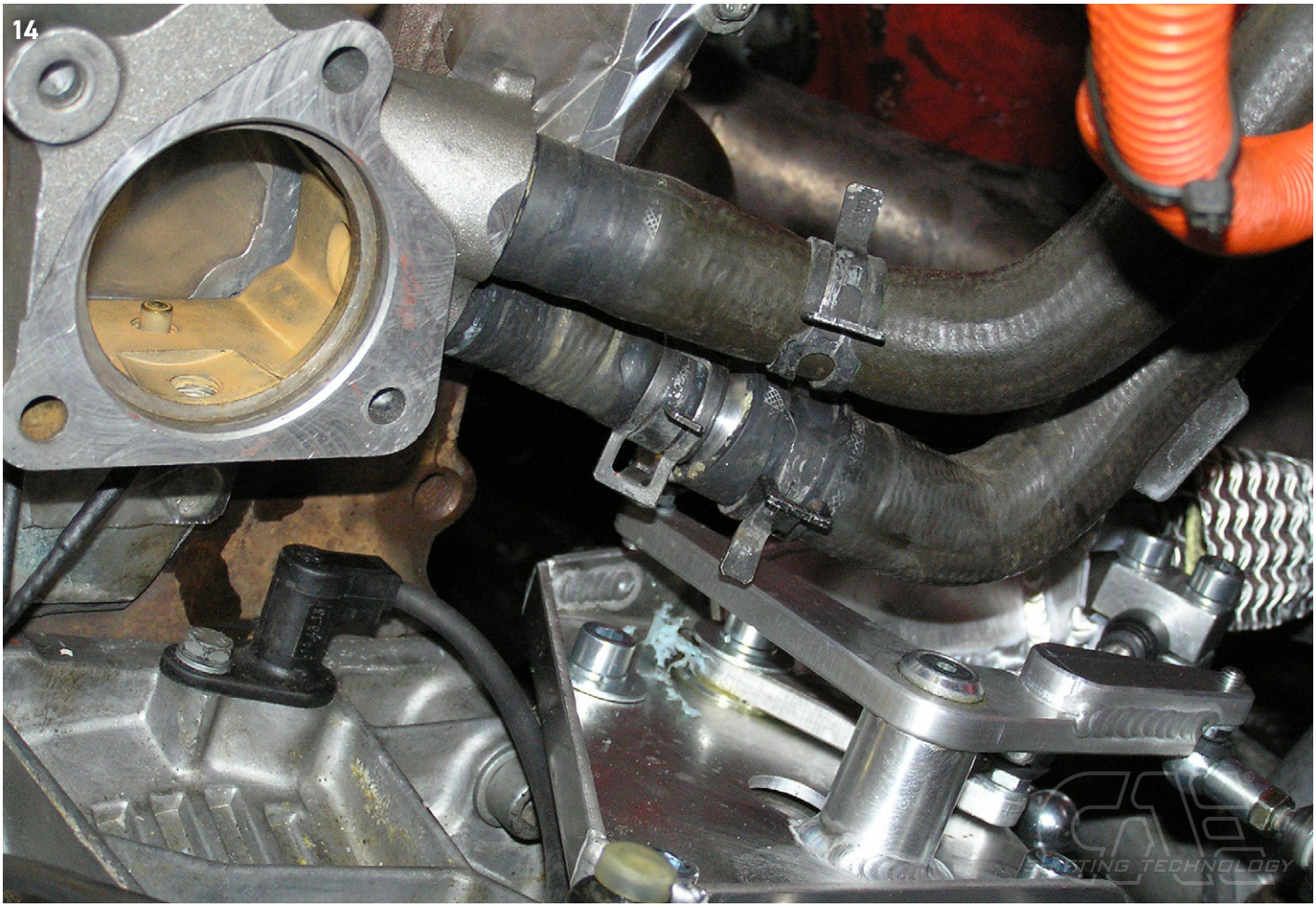
- The cross pipe behind the engine below the manifold is used to supply hot water to the heater cooler when the thermostat is closed.

- Remove this pipe completely. Insert the supplied sealing plug into the water hose at the engine outlet and fasten it with the appropriate hose clamp.



- Connect the 14mm hose from the thermostat with the reducer and the 22mm hose to the heater-cooler.

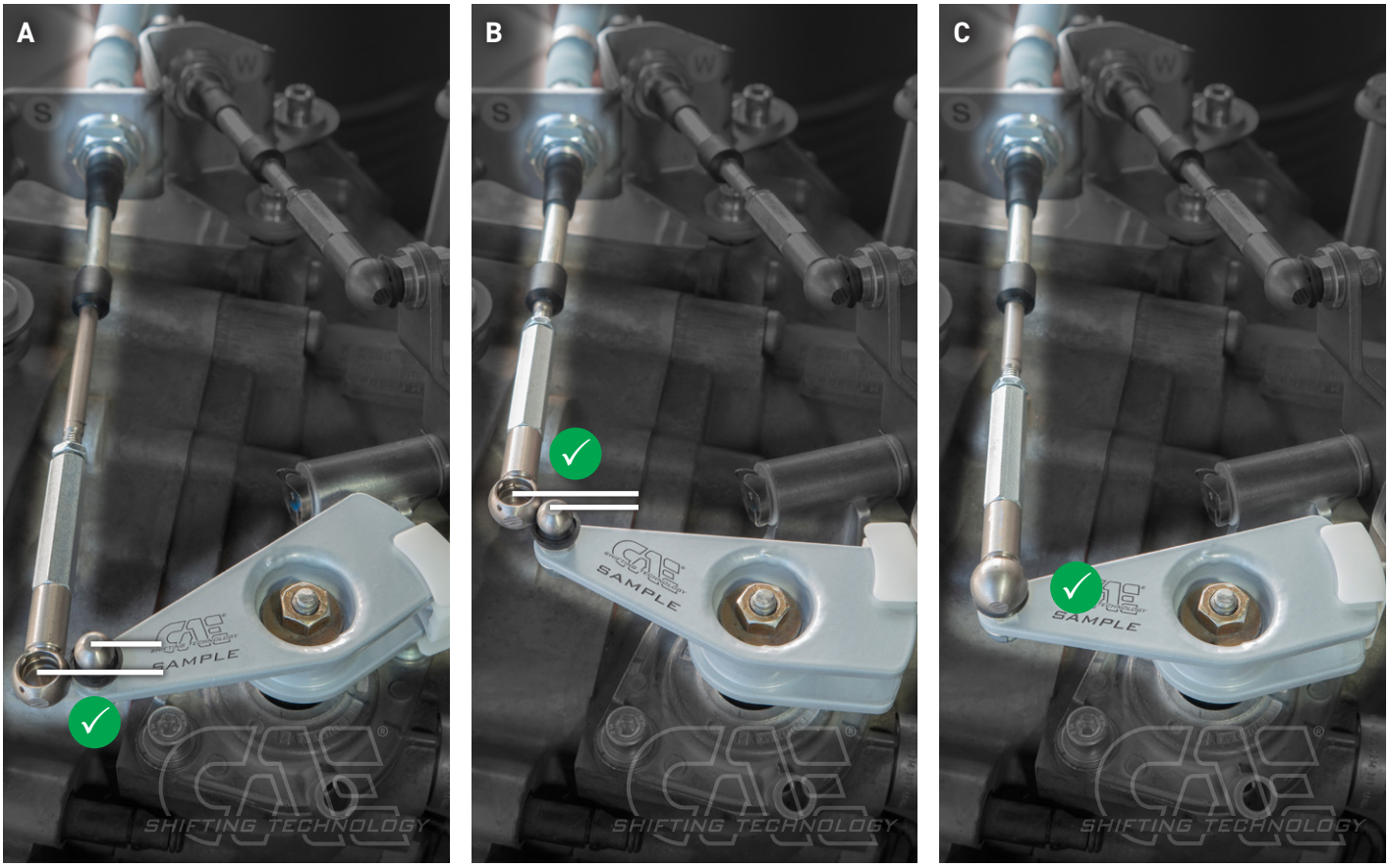
- Route the hoses so that they do not collide with the switch mechanism.



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. !!!!

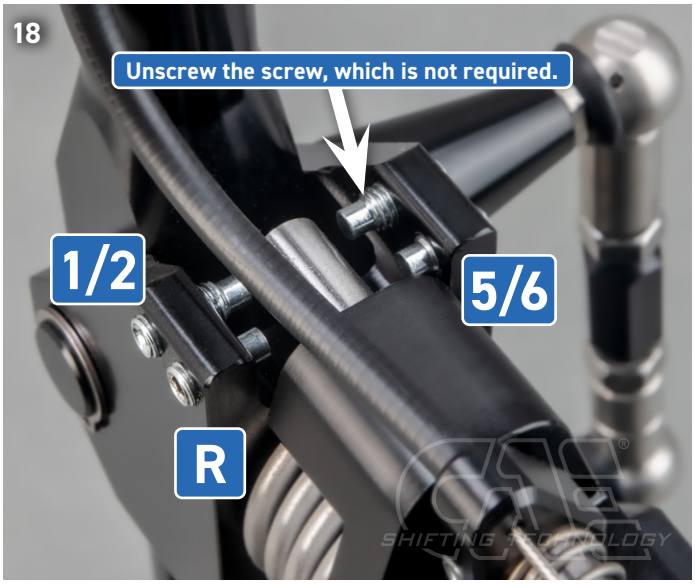
Adjustment of gearshift ranges 5 & 6-speed gearbox BE 1 reverse gear front left.

- Cables are completely mounted and the ball cups of the cables are pressed onto the ball heads.
- Adjust center position of shift lever: (In center position, shift lever should be vertical or slightly tilted to the right).
- To do this, adjust the spring stop under the gearshift bracket using a 5mm Allen key. (0.5 mm lateral adjustment results in approx. 6-7mm at the shift knob)
- Now pull off one ball socket of the lateral coupling rod
- Shift the gearbox manually to 3rd or 4th gear. To do this, simply move the shift lever forward or backward.
- By turning the middle hexagon, adjust the coupling rod so that it fits EXACTLY on the ball head when pressed on and press it back on.
  (The cup with the circumferential groove has the left-hand thread).
- Work very precisely and then lock the nuts. Now 3rd / 4th gear must be able to be engaged properly.

ⓘ **CHECK: With 3rd and 4th gear engaged, the lateral play on the shift lever must be the same.**

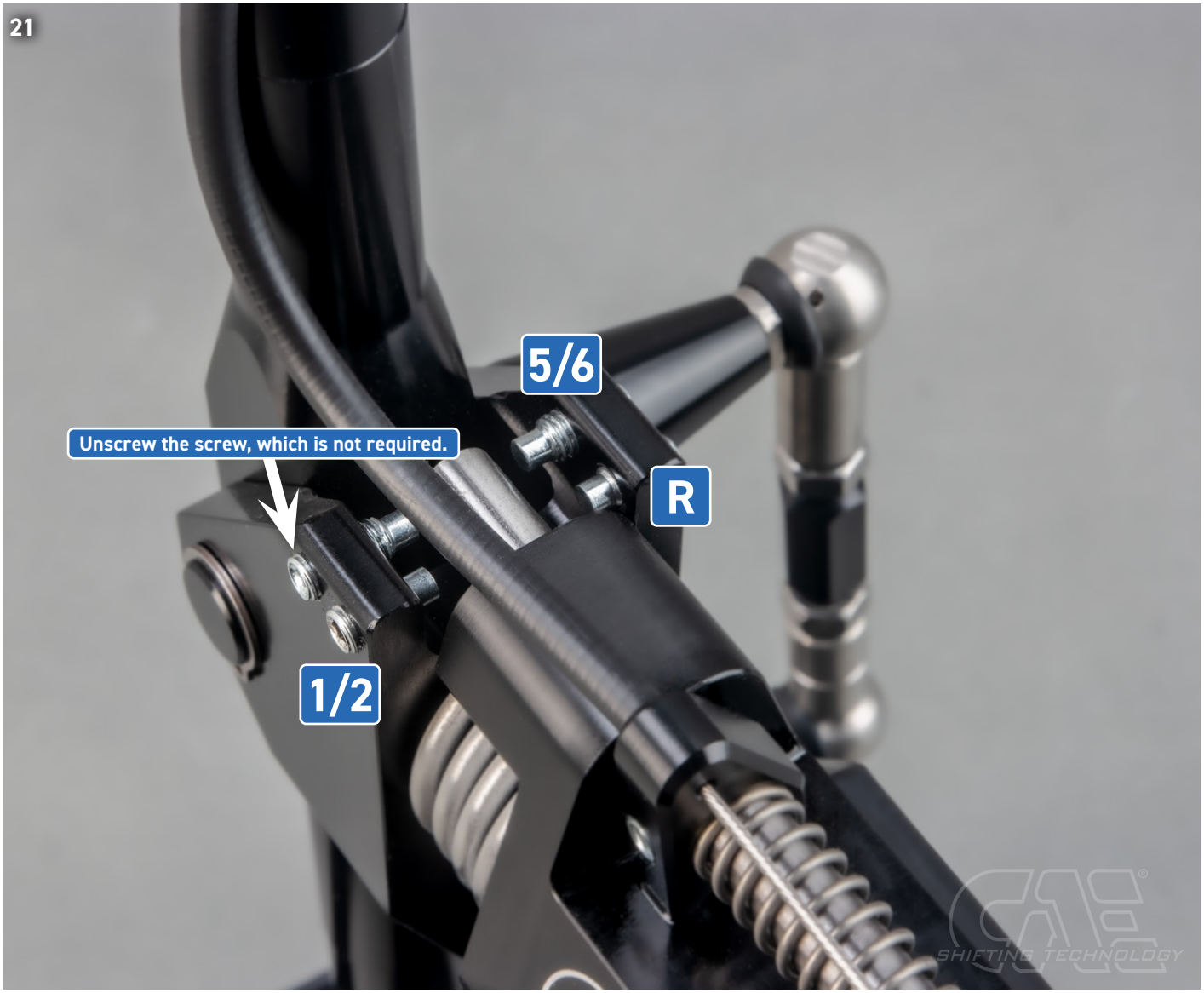
- Now shift the gearbox to level 1 / 2 using the shift lever and adjust the stop screw until the gears in level 1 / 2 can be changed cleanly.
- Now shift gearbox to 5th (or 6th) gear level using shift lever and screw in stop screw until 5th gear can be engaged cleanly.
- Operate reverse gear lock and shift gearbox to reverse gear level. Screw in stop screw until reverse gear can be engaged cleanly.

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



Adjustment of gearshift ranges 5 & 6-speed gearboxes BE 3 Reverse gear rear right

- The stop screw is screwed in on the left side of the BE3 gearbox in a different way to that shown here!



Correction of the selector travel ratio: (for all gear unit types)

- The selector travel (right/left) of the shift lever can be influenced by moving the lower ball joint as shown. This may be necessary if not all gear levels can be reached with the shift lever (selector travel too large) or if the levels are too close together (selector travel too small).
- The bell crank should be in 3rd / 4th gear (center position) approximately as shown in the picture.
- If necessary, omit the lower spring stop on sports gearboxes if the lateral lever force is too great and the tower or tunnel is deformed.

ⓘ **PLEASE NOTE: A non-moving gearbox can no longer be shifted cleanly after several dry shifting exercises!!! Therefore, it is best to readjust while driving.**

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

SHIFTING TECHNOLOGY

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07-2023