CAE Ultra Shifter

SHIFTING TECHNOLOGY

10014 / 10013 ST

Installation instructions

Porsche
996, 997

with CAE shift cables 10115 GT3

WWW.CAE-RACING.DE

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 AND MAINTENANCE

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 (often seen on various YT channels), which looks "important", but in no way makes it faster - but it puts a disproportionately high strain on a transmission and in the worst case causes a fatal wrong shift in gear!

SHIFT CABLES

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

Exhaust systems generate unbelievable temperatures, which are several 100 degrees, especially under full load! Therefore, the shift cables must be protected against the extreme heat with the blue-gray protective hoses! Also the protected gearshift cables are not allowed to touch the exhaust. For turbo engines, please take additional measures, such as aluminum honeycomb sheets, heat protection tape or foils.

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

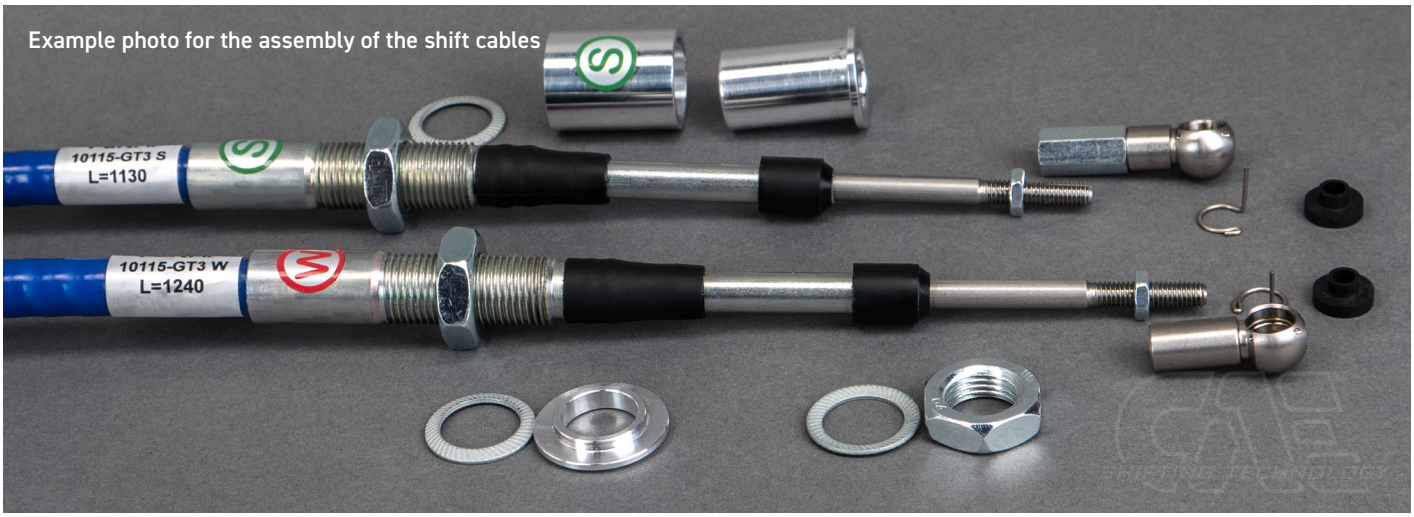
ⓘ ORIENTATION FOR INSTALLATION

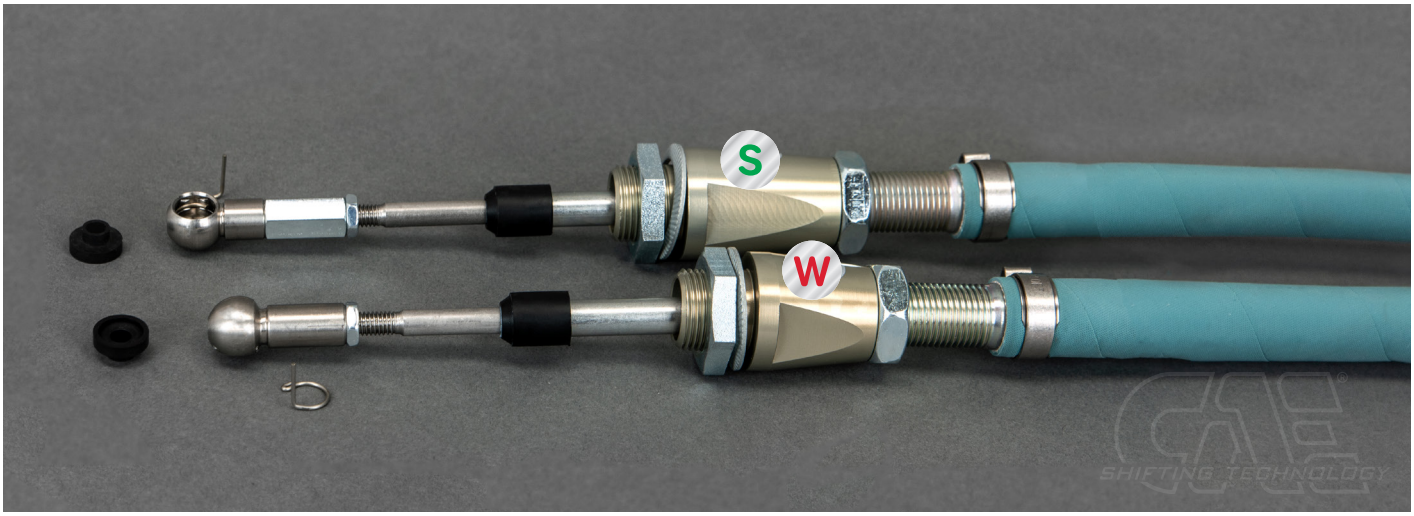
Our shift cables are marked with different stickers at the ends. The connection to the shifter comes with a circular contour, the connection to the gearbox is made without a circular contour (S = Shift / W = Choose).

S W Connection shifter

S W Connection gearbox

ⓘ The cables do not need to be disassembled for installation, the pictures are for information only.





ⓘ The shifter is intended for use with the original center console. No modifications need to be made to the center console itself. The shifter bag cannot be mounted, the cover frames and the storage compartment must be booth slightly modified for mounting.

ⓘ **PLEASE NOTE: Due to the motorsports design and therefore missing rubber damping element, engine and transmission noise & vibrations can be transmitted to the interior.**

The scope of delivery

- 1 x Shifter completely pre-assembled
- 1 x Ball socket for selector cable (long) (not in use for CAE cables)
- 1 x ball socket for shift cable (short) (not in use for CAE cables)
- 2 x cotter pin clamps to secure the ball cups

Shift cable

- 1 x shift cable 1130mm
- 1 x selector cable 1240mm
- 4 x cotter pins and rubber caps

The removal

- Remove all center console trim parts (Picture 1)
- Remove lower storage tray from instrument panel
- Remove lower switch panel from instrument panel
- Unscrew side parts of center console
- Detach switch cables from stock shift unit
- Remove the original stock shift unit completely
- Disconnect the shift cables from the gearbox and remove them including the rubber grommet in the center tunnel.
- As a lubricant for removing and installing the rubber grommet, we recommend brake cleaner as it evaporates without leaving any residue.

The installation

Grease the ball cups before mounting them on the ball heads. After complete assembly of the shifter, secure the ball heads with the cotter pin clamps.
Glue all nuts / screws during assembly!

Never kink switchcables!

Preparations for the assembly of CAE cables

- Carefully remove the sealing rubber from the original cables using a sharp cutter knife.
  To do this, cut the rubber along the sides of the cables until the cables can be removed.
- Expose one cables from each side.
- Insert the CAE cables into the rubber as shown in the following picture. (Picture 2)

  Assignment of the rubber: (In direction of travel)
  Left: Exposure for positive battery cable
  Middle: Shift cable
  Right: Selector cable

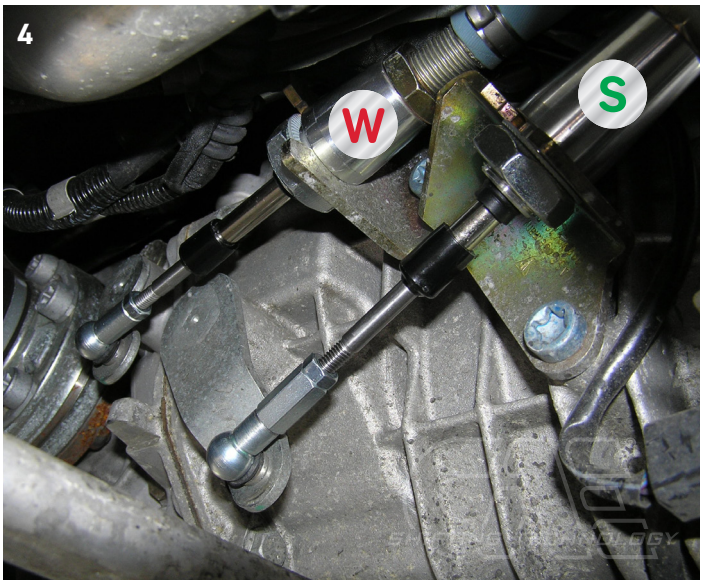
The length of the cables is preset, do not unscrew the aluminum adapters on the gearbox side !

- Spray the rubber seal for assembly with brake cleaner as a lubricant; this will evaporate without leaving any residue.
- Insert the shift cable and the rubber seal into the body grommet, inserting the positive cable into the rubber seal.
- Press the sealing rubber back into the tunnel bushing as far as it will go.

Laying the shift cables

- Press the supplied rubber caps over the ball of the gear levers, a little grease makes it easier. (Picture 3)

- Attach the shift cables to the transmission as follows:
  Insert shift cables incl. rubber grommet from below into the center tunnel and attach to the transmission:
  Attach shift cable "S" (40mm alloy adapter & long ball socket) to lower bracket
  and selector cable "W" with 30mm adapter and short socket to upper bracket. (Picture 4)



- Grease the ball cups before pressing them on and then secure them with the cotter pin clips. (Picture 5, 6)
  Lightly lock the M6 nuts of the ball socket necks.

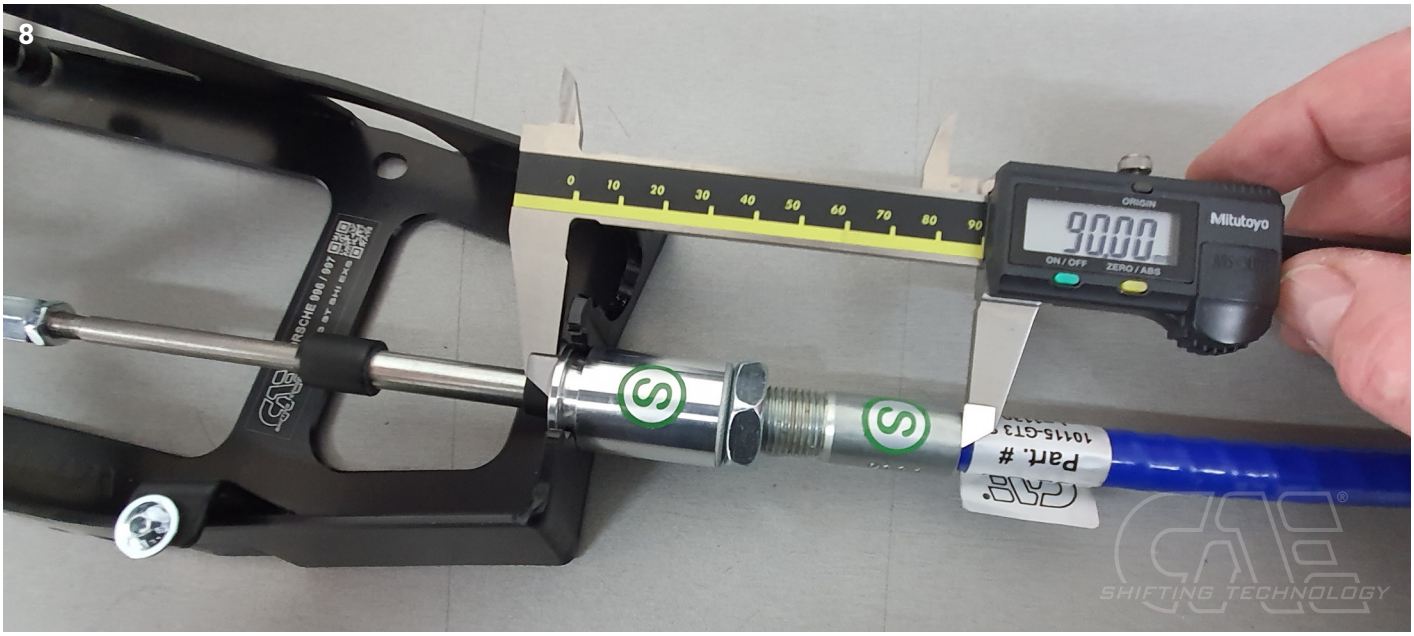
- The selector cable (W) must arrive in the interior on the right, the shift cable (S) on the left. (Picture 7)

Assembly of the CAE Shifter

- Screw the CAE shifter onto the center tunnel using the original nuts.
  When mounting the shifter, insert the cables already inside the shifter.

- When the shifter is screwed down, insert the cables into the brackets and tighten the nuts.

- Pay attention to the dimension 90mm of the aluminum sleeve on the shift cable. (Picture 8)



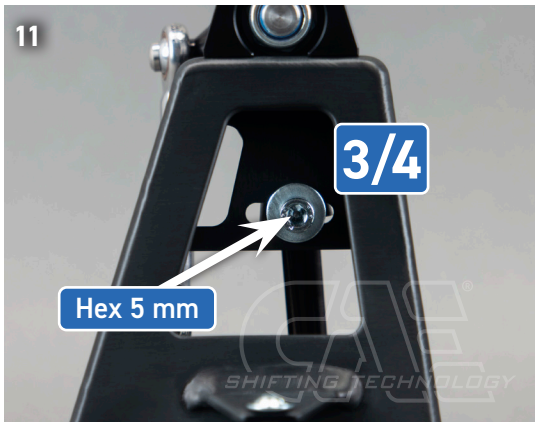
- No M16 thread is visible on the inside of the selector cable. (Picture 9)

- Press the greased ball cups onto the ball heads of the shift and selector levers.
  Then attach the cotter pin clip to the selector cable (W) ball socket and install. (Picture 10)
  (not yet on the shift cable ball socket)

Reinstalling the handbrake lever

- To hook in the brake cables under the lever, push the tensioning device backwards and hook in the cables individually.

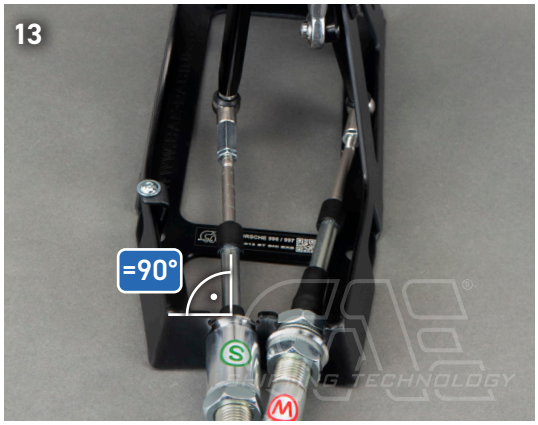
Adjusting the shift travel of the 6-speed gearbox and function test



- Adjust the center position of the shift lever according to these specifications under the shift block using a 5 mm Allen key to set the spring stop. (Picture 11)
- The shift lever must be inclined approx. 10 degrees to the right in the direction of travel in 3rd/4th gear. This is the neutral position. (Picture 12)

ⓘ CHECK: The shift cable must now be in neutral position at right angles to its fastening in the neutral position. (Picture 13)

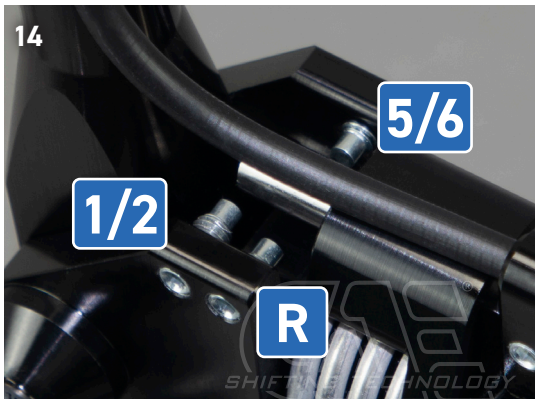
- Adjust the length of the coupling rod of the L-lever by turning the knurled rod in such a way that, with 3rd/4th gear engaged, the play on the shift lever is the same on both sides.
- Slightly tighten the nuts of the connection rod, the top is right-hand thread, below left-hand thread, the threaded spindle is made of ALU!
- In most cases the threaded spindle is now adjusted to the shortest length.



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

- The gear change 3rd / 4th must now already work cleanly, otherwise readjust again.

- Now shift the gearbox to level 1 / 2 using the shift lever and screw in the corresponding stop screw until the gears can be changed cleanly in level **(1/2)**.
  Approx. 0.5mm play between screw and bolt. (Picture 14)



- Then shift gearbox to **(5/6)** gear level using shift lever and screw in stop screw until 5th and 6th gear can be engaged cleanly.
  Approx. 0.5mm play between screw and bolt. (Picture 14)

- Actuate reverse gear locking pin via pull and shift gearbox to reverse gear level. Screw in stop screw until reverse gear can be engaged cleanly.
  Approx. 0.5 mm play between screw and bolt. (Picture 14)

ⓘ **!!!ATTENTION !!! the spring lock in the gearbox must be overcome for the reverse gear!**
Increased force required!!!

- If the selection travel to the right or left is too small to reach all gears, (shift lever bumps) the center position of the shift lever must be corrected and the entire adjustment must be repeated.

ⓘ **After installation, check all functions of the gearshift in driving operation before mounting the center console and readjust if necessary.**

Assembly of the center console

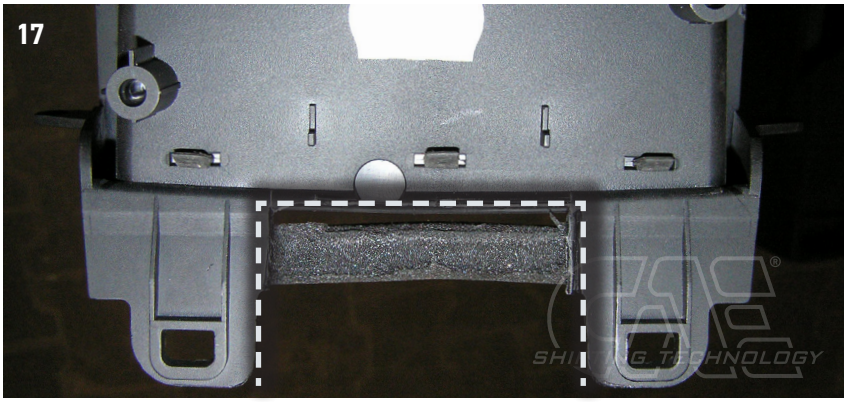
- Remove the ball socket of the shift cable once more from the shift lever to mount the center console.
  To fold over the center console, move the shift lever all the way forward: (Picture 15)

- Then push the ball socket back on and mount the securing bracket. (Picture 16)

- The center console can then be finally positioned and screwed into place.

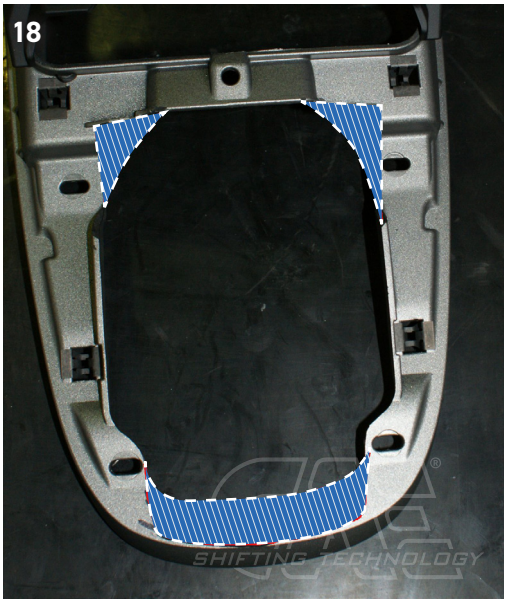
Editing the storage compartment

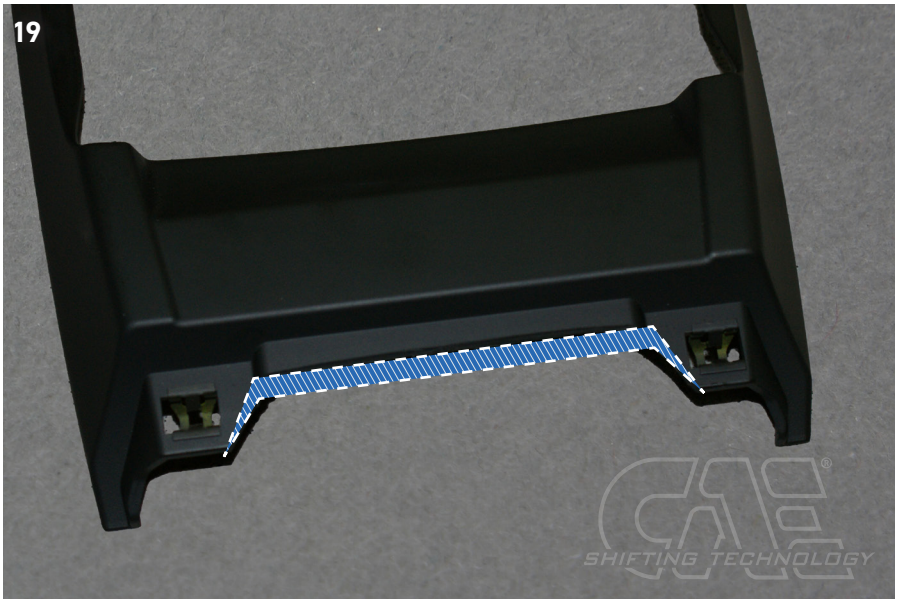
- Trim and install the storage compartment according to the following picture. (Picture 17)



Editing the cover frame

- Trim and install the two cover frames according to the following pictures. (Picture 18, 19)





- Reinstall remaining trim pieces and switch panel and check for proper operation.

We recommend our carbon cover 10013 COVER for a perfect look.

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 any questions or problems please be sure to contact us, we need YOUR feedback to improve our products.

CAE wishes you a good trip.

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