

# CAE SHIFTING TECHNOLOGY GMBH

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## INSTALLATION MANUAL

FOR

### CAE ULTRA-SHIFTER

GOLF 4,5,6 SCIROCCO 3 AUDI A3 & TT

SEAT LEON SKODA OCTAVIA

**VW CABLE SHIFTED GEARBOX 02M MQ350**



The shifter is intended for racing cars without interior equipment.

If center console is mounted, it must be dismantled or modified to achieve an acceptable space for the cables.

The new unit should be mounted directly on to the floorboard, so part of the carpet must be removed.

**Never bend the shiftcables!**

**To avoid rust film, clean the steel parts with oil ever so often.**

**To clean the aluminium parts use ethyl alcohol.**

#### **Disassambling:**

- Raise the vehicle safely on car lift, expand underbody paneling and exhaust heat shield, unhook the exhaust out of the rear rubber and allow to hang secure with rope or wire
- Disconnect and remove battery and battery bracket
- Remove the original shifter and shift cables completely
- Remove the transmission cable abutment and gearshift and selector lever



mount our Lever kit 10145KIT to  
<<< the Gearbox



If you have not ordered the 10145KIT, the existing gear lever have to be reworked. Drill out the bolts and mount the ball studs to the Levers, cut of the weight from gear shift lever as shown >>>

mount both levers back to the gearbox,  
cable bracket not yet

### **Bodywork: Cable ducts**

For duction of the shift cables drill two 18mm holes in the tunnel sheet. The measurements in the following picture are regarding to the front line of the tunnel hole. Stuck a matching tube or solid material from downside into the holes and push it to the front. You will produce perfect cable ducts:



### **Bodywork: Mounting holes**

For mounting the shifter you have to drill two Ø 6,5mm holes into the middle tunnel. Stand the shifter on his place and mark the position of the both rear mounting threads, drill and deburr the holes.

### **Cover plate:**

- Stick foam rubber strips on the cover plate, it will be mounted later with the shifter.



### **Installation**

**Before assembling the Balljoints lubricate the seat with good grease. After completing the shifter, secure the ballstud with a cotter pin. All screws and nuts on the shifter must have Lock-Tite or anything that keeps the screws or nuts from coming loose. Never bend the shiftcables!**

### **Preparing the shift unit**



Remount all on parts on the outside of the cables S & W. The longer shift cable (S) have to be mounted to the middle hole of the shift tower. Accordingly, the shorter cable (W) left side (to L-Lever) The cable must stand out as far as possible from the shift unit, inside is not thread visible:

### **Shifter mounting**

- Move the shifter with mounted cables into the interior and introduce the cables through the holes in the center tunnel.  
To protect the cables push the two black pieces of tubing in the field of sheet metal ducts the shift cables.
- Lead the shift cables immediately in the direction above the gearbox
- Stand the shifter on the tunnel and screw from below together with the cover sheet and glue the screws.



### ***Attention!***

***Protect shift cables with the blue heat protection tubes protected from the heat necessarily.  
Also the protected cables must not contact the exhaust !!  
In vehicles with turbocharged engines must be additional shielding with honeycomb plate to protect the cables by overheat***

- Slide blue hoses from the engine room to the shift cables and mount one M16 nut, large washer and the centering
- Install now the cable bracket
- Again grow ever a large washer, M16 nut and sealing caps on the cables
- Install cable ends and ball joints put it on the ball heads
- Tighten the M16 nuts on the bracket, ensure that no tension is on the cables



### **Checking Cables for End position:**

At **selected gear** the cables don't have to go into the end position. Required are about 3mm space in each gear

***A hard metallic noise while entering the gear is ever a bad signal for missing rest way.***

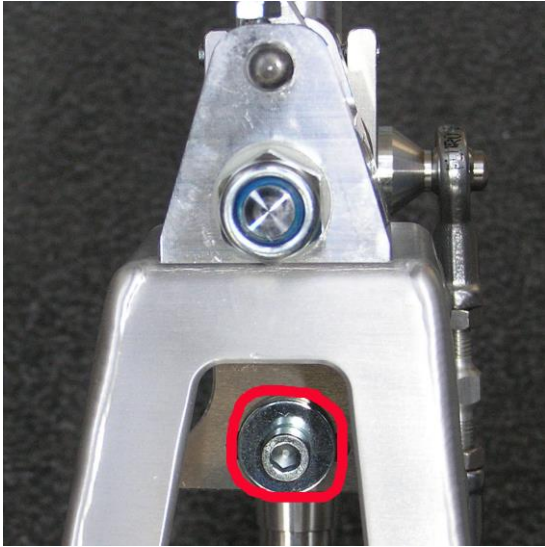
#### ***You have to check:***

While **selected** 3rd or 4th gear pull off the pan from the Gearbox lever and check that the cable is not in end position.

Do it for the „front“ gears R,1,3,5 with retracted cable and also for the „rear“ gears 2,4 with extended cable.

If necessary adjust it by screwing the pans at the cables.





### **Adjusting Middle Position**

Adjust the Spring stop under the Shift unit: The Shiftlever hat to stand slightly to the left side (about 3-5 deg)

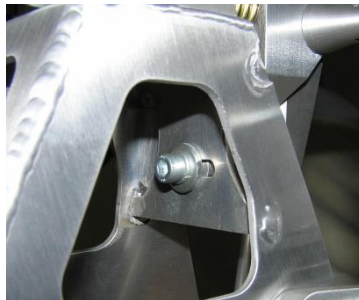
- Select 3<sup>rd</sup> or 4<sup>th</sup> gear by using the gearlever. Therefore pull or push the lever for/back without moving to the side.
- Now adjust the (W) pan at the Gearbox for perfect fitting to the ball at the Gearbox Lever

#### **Check:**

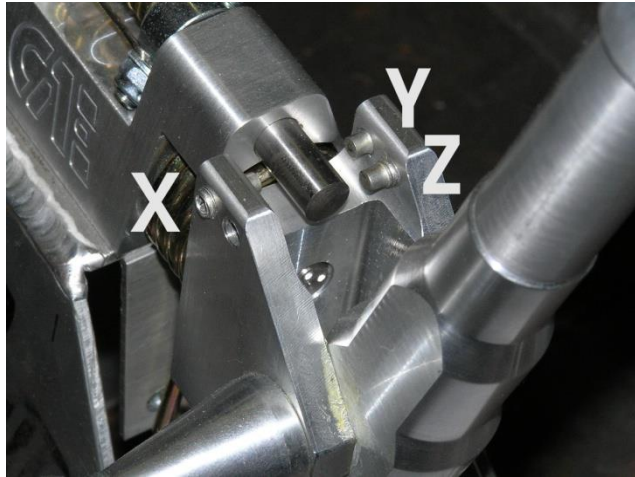
At selected 3.or 4. gear the play at the Shiftlever has to be equal to both sides.

### **Tune the shifting range 5&6 Speed**

- Pull the connector rod from the side of the shift unit
- Select the 3<sup>rd</sup> or 4<sup>th</sup> gear manually. To select it, pull the gearlever easy forwards/ backwards .
- Now select the wanted middle position of the gearshift and adjust the lower spring stop under the unit with Allen wrench. In middle position the gearshift should be slightly turned to the left.



- Push the connector rod back to ball pins on the left side of the shift unit and adjust the connector rod (right/left spindle) for pushing on without moving the lever.  
Now the 3rd /4th gear have to be moved clearly.
- Select level 1<sup>st</sup>/ 2<sup>nd</sup> gear with lever and turn stop screw Z until the gears 1/2 can be selected well.



Now select gear 5 / 6 by the gearlever and turn stop screw X until the 5<sup>th</sup>/ 6<sup>th</sup> gear can be selected clearly.

Press rear stop bolt and enter rear gear. Turn stop screw Y until the reverse gear can be selected clearly.

Refit the exhaust, all trim parts, battery and bracket and check for tightness

**Check out all functions of the shifter by road test and if necessary readjust  
Incorrect settings may destroy your gearbox**

**CAE SHIFTING TECHNOLOGY  
WISH YOU A GOOD TRIP**