

# **CAE SHIFTING TECHNOLOGY GMBH**

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## **INSTALLATION MANUAL CAE ULTRA SHIFTER FOR BMW (GETRAG & ZF) 5 & 6-SPEED GEARBOXES**



The Shifter is intended for racing cars without interior. Center console needs to be removed or in so far as be cut up to a corresponding free movement for the shifter is guaranteed. The Unit must be screwed on the bottom plate of the transmission tunnel.

**All screws and nuts on the shifter have to be fixed by loctite.  
To avoid rust film, clean the steel parts with oil ever so often.  
clean the Alu-parts using ethylalcohol.**

## Disassembling:

- 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
- Remove all parts are required to install the shifter
- Remove the original shifter completely
- For remounting of the stock shift rod loosen the Gearbox bracket and let the gearbox hang a few centimeter (support it secure !!!!)  
By this the accessibility of the shift rod is much better.
- Don't lose the washer of the shift rod



These photos show the principle of the turnable lower lever part. The fixing screw engages in the groove of the lower lever and fix it axially.

The fixing screw must NOT be tightened in any way.

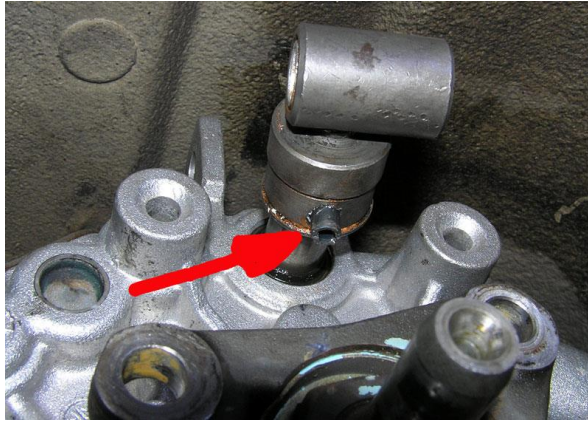
The lower part of the shift lever must be rotateable

Secure this screw absolutely with the included wire and note the lubrication instructions!



Spray periodically oil into the lubrication hole  $\varnothing 2, 5\text{mm}$  above the fixing screw. This is absolutely necessary for proper function

## INSTALLATION



Replace the bolt from sleeve thru the delivered; it makes the sleeve asolutely free from backlash

Take the sleeve out and press the new bolt in by using a vice for 5 mm  
Then put it back onto the Gear rod and press the bolt in completely  
Grease is good

- Loose the spring stop under the Unit .



- Lay the cover sheet ( without rubber bellow ) and stand the shifter on the middletunnel, hang in the shift rod provisionally
- Fix the spring stop again
- Align the coversheet-eye center to shift lever lower part, the lever will stand slightly backwards
- If it is wanted that the shift lever stand a little more vertical you have to machine slots in the sheet, and the entire unit can be pushed forwards, lever will became vertically
- Mark the holes  $\varnothing 6$ ,and drill them;

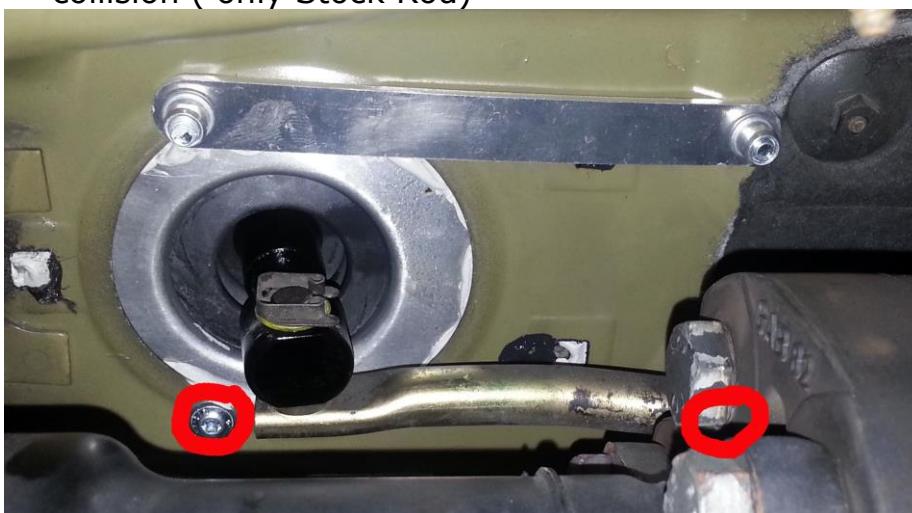


- Mount the below to the cover sheet
- while mounting the sheet seal it with rubber stripe or body sealant to ensure gas tightness

- Grease the lower shift lever end and sit on the Unit, while this push the ent through the rubber bellow , ensure that the collar comes into the groove



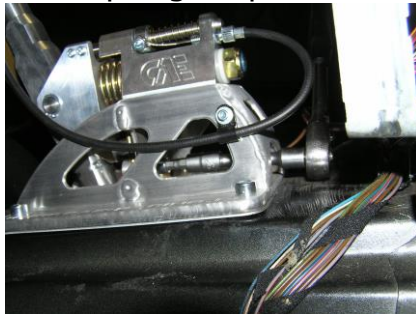
- Screw the shifter to the Middle tunnel ( 2persons required)
- Optionally you can use the both brackets, check left side for collision ( only Stock Rod)



- Mount the shiftrod again
- Fix the gearbox bracket and the exhaust
- Tune the shift ranges

## TUNE THE SHIFTING RANGE 5 SPEED DOG LEG ( RACING-H)

- Loosen the spring stop under the Shift Unit



- Select the 2<sup>nd</sup> or 3<sup>rd</sup> gear manually. It's the neutral range, to select it, pull/ push the gearshift-lever easy backwards or forwards
- In this neutral position the lever should stand slightly to the right for reaching all ranges from R-5<sup>th</sup> gear, then fix the sprig stop again



- Now 2<sup>nd</sup> and 3<sup>rd</sup> gear have to be changed perfect by lever now, otherwise readjust once more
- Select level 1<sup>st</sup> Gear Shiftlever and turn stop screw Z until the first gear can be selected well, if not, readjust

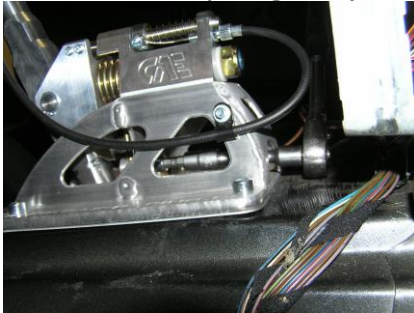
THE ADJUSTMENT SCREWS CAN BE  
TURNED STRONG FOR NO LOOSEN  
WHILE OPERATION

### USE 2.5mm INBUS

- Now search 4<sup>th</sup>-5<sup>th</sup> gear by Shiftlever and turn stop screw **X** until these gear can be selected clearly.
- Pull the Reverse lock and search the Reverse gear by lever turn stop screw **Y** until these gear can be selected clearly.
- NOTE:Reverse and first gear are not on the same range

## TUNE THE SHIFTING RANGE 5 & 6 SPEED (STREET -H)

- Loosen the spring stop under the Shift Unit



- Select the 3<sup>rd</sup> or 4<sup>th</sup> gear manually. It's the neutral range, to select it, pull/push the gearshift-lever easy backwards or forwards
- In this neutral position the lever should stand slightly to the right for reaching all ranges from R-5<sup>th</sup> (6<sup>th</sup>)gear, then fix the sprig stop again
- 
- Now 3<sup>rd</sup> and 4<sup>th</sup> gear have to be changed perfect by lever now, otherwise readjust once more
- 
- Select range 1<sup>st</sup>/2<sup>nd</sup> Gear by Shiftlever and turn stop screw Z until the first gear can be selected well, if not, readjust  
**THE ADJUSTMENT SCREWS CAN BE TURNED STRONG FOR NO LOOSEN WHILE OPERATION**  
**USE HD 2.5mm INBUS**
- Now search 5<sup>th</sup>-6<sup>th</sup> gear by Shiftlever and turn stop screw X until these gear can be selected clearly.
- Pull the Reverse lock and search the Reverse gear by lever turn stop screw Y until these gear can be selected clearly.
- NOTE:Reverse and first gear are not on the same range



**After complete installation, check all the essential functions of the Shifter while driving and adjust once more if necessary.**

**Wrong adjustment will destroy your gearbox**

**If shifter don't work "smooth" readjust the whole unit**

**CAE wishes having a good trip**