

CAE SHIFTING TECHNOLOGY GMBH

INSTALLATION GUIDE CAE ULTRA SHIFTER FOR TOYOTA GT 86; SUBARU BRZ; SCION FR-S



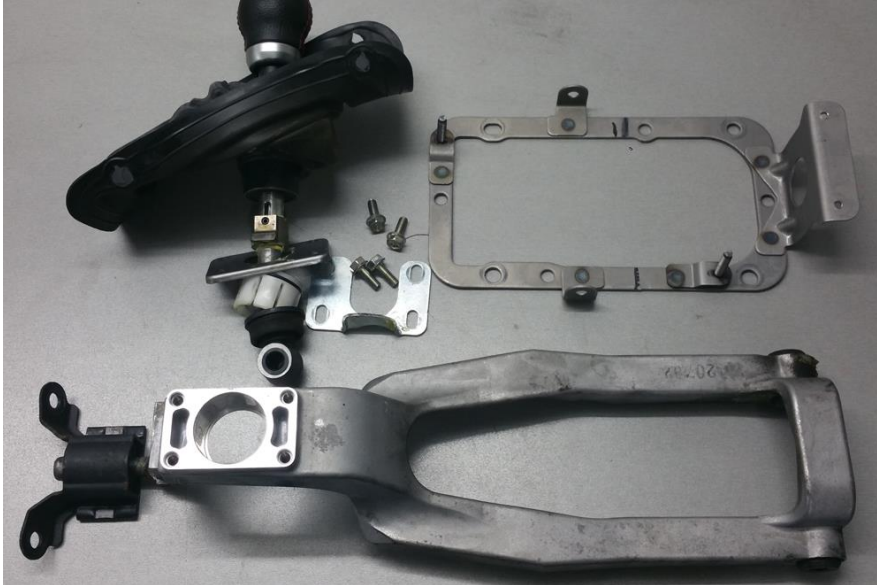
This unit is designed for racing vehicles without interior and center console. Retained Center console must be modified to allow the necessary free movement and installation for the shifter. The base of this unit must be screwed directly onto the sheetmetal of the center tunnel.

READ ALL INSTRUCTIONS CAREFULLY BEFORE INSTALLATION

All nuts / bolts require LOCTITE or similar product during assembly. Prior to installation, clean all aluminum parts with alcohol or Brake cleaner. All moving parts need to be lubricated periodically to ensure proper movement.

ASSEMBLY

- Shift the transmission to neutral position.
- Remove the center console and any other surrounding interior panels.
- Remove the stock shifting unit, including the pivot bearing



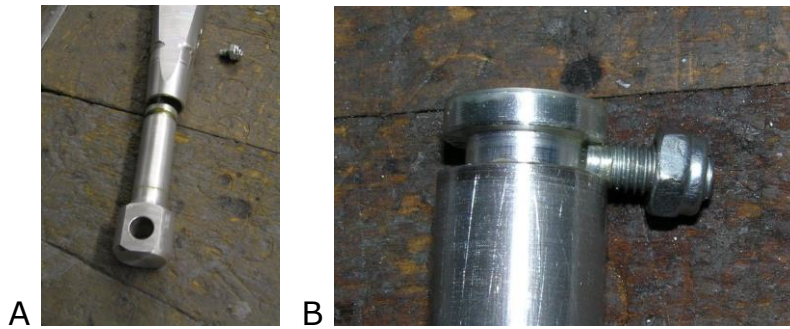
- Raise the car off the ground to access the underside. Support with jack-stands if a reliable lift is not available.
- To gain access to the shifting mechanism, it may be required to remove or loosen the exhaust system. The center support may need to be removed. Be sure to support the transmission taking care to not let the drive shaft slip out of the transmission entirely.
- Using a transmission jack, carefully lower the transmission to allow the engine and tranny to tilt back until the area is accessible.
- The shift rod itself does not need to be detached from the gear input shaft.

Locate the shift selecting mechanism on the gearbox which is clipped into the gearbox housing.

With a long screwdriver, push the clip-latch upward to release, then gently pry to pull out the bolt.

SEE PHOTO which illustrates the clip-latch mechanism:





Inspect the lower, rotating end of the CAE gear selector lever. (photo A)
This will connect to the stock selector rod.

IT IS POSSIBLE TO INSTALL WITHOUT FULL DISASSEMBLY OF THE SELECTOR ROD FROM THE GEARBOX.

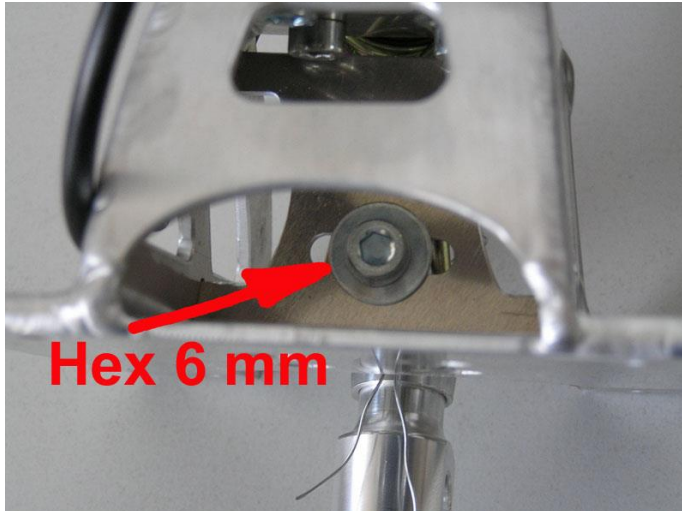
The retaining screw in the shifter lever MUST fit into the groove on the lower rotating end. DO NOT OVERTIGHTEN. The shift lever end MUST BE ABLE TO ROTATE. LUBRICATE.

Use the safety wire to secure the retaining screw as shown here.



REGULARLY USE A QUALITY OIL TO KEEP THE ROTATING END OF THE GEAR LEVER LUBRICATED. USE THE SMALL HOLE OVER THE RETAINING SCREW TO APPLY LUBRICATION. THIS IS ESSENTIAL FOR PROPER FUNCTION.

SHIFTER TUNING



- Slightly loosen the spring stop bolt with 5mm allen just enough to allow it to move to sideways.
- It should not be very loose, just enough.

- PRE-INSTALLATION:
- Separate the rubber shift boot from the plate (without removing it completely from the shifter lever) and position the plate under the car

with the hole correctly positioned above the selector rod. Attach the shifter to the stock selector rod.

- Use original mounting hardware and prepare to attach the CAE unit to the tunnel. DO NOT TIGHTEN DOWN. (The shifter needs to remain "loose" at this time).
- Move the CAE shift lever into 3rd or 4th gear position.
- Tighten the 6mm spring stop bolt. Test if the lateral movement is equal when the shifter is moved left/right. Re-adjust spring stop bolt as needed.
- **THIS WILL SET YOUR DEFAULT/CENTER POSITION.**
- Install the rubber flex boot to the underbase panel. Apply some grease to the upper part of the shift lever where the boot contacts it to allow easy movement. (Do not grease the lower part of the boot where it mounts to the underbase)



At this point, you may want to go back through the assembly process to ensure that everything is correct.

- At this point, you should be ready to position the CAE before tightening the mounting hardware.
- Move the gearbox into the neutral position. Move the CAE body so that the shift lever is tilted slightly to the rear of the vehicle. Make sure that the lever will NOT contact the tunnel or the underbase plate during normal operation.
- Move the gearbox into the neutral position. The position of the knob will change as the entire body of the shifter is moved fore and aft. Move the CAE body so that the shift lever is tilted slightly to the rear of the vehicle. Make sure that the lever will NOT contact the tunnel or the underbase plate during normal operation. Raise your transmission to the proper position to ensure proper alignment.
- Securely attach the gearbox selector rod to the rotating portion of the CAE shift lever. Make sure that this portion will rotate, but is secured by the retaining bolt. Make sure safety wire is installed.
- Use the suppliers spacers on each side of the selector rod bolt and use cotter pin to secure. These spacers MUST be used for proper operation.
- Reinstall the transmission supports and exhaust.



Tighten bolts to factory specified torque settings as suggested by the manufacturer

TUNING THE SHIFT ROD

Sometimes the rod hit the cover sheet under the shifter while entering the reverse gear because big welding seam.

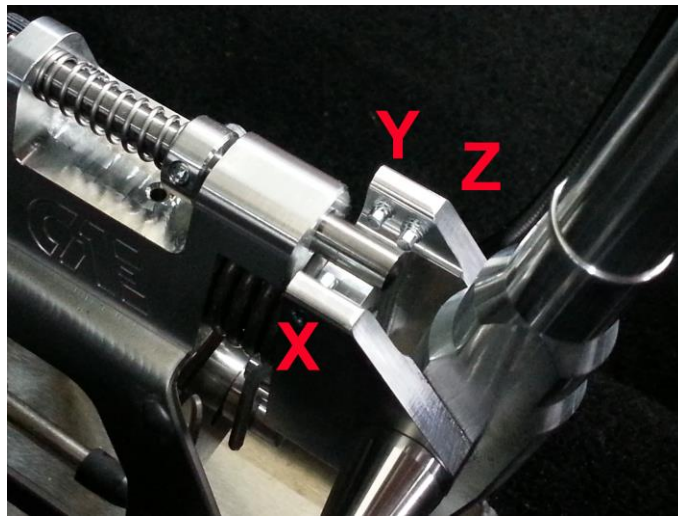
In this case grind the upper part of the rod as shown in the picture, 1-2 mm are enough

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ADJUSTING THE LATERAL SHIFTING STOPS WITH 6-SPEED GEARBOX

- The basic 3rd and 4th positioning should already have been set during previous assembly. If your shifter does not engage these gears cleanly, go back and carefully follow the installation guide.
- For 1st / 2nd adjust **stop screw Z** until 1st / 2nd can be engaged cleanly. You want to set it so that the lever is stopped at the point where the lever can be moved directly into gear.
- For 5th / 6th adjust **stop screw X** until 5th / 6th can be engaged cleanly.
- For Reverse, pull up on the Reverse lock-out collar and adjust **stop screw Y** until the reverse gear can be engaged cleanly.



DO NOT DRIVE JUST YET

CAREFULLY CHECK THAT THE CAE SHIFTER IS SHIFTING IN/OUT OF EVERY GEAR PROPERLY WITHOUT INTERFERENCE. FAILURE TO PROPERLY INSTALL AND ADJUST THE SHIFTER MAY CAUSE DAMAGE TO THE UNIT, GEARBOX, OR OTHER PARTS OF YOUR VEHICLE!!!

