ULTRA SHIFTER

SHIFTING TECHNOLOGY

10067

Mazda MX5 NA
only for 6-speed transmission

Installation instructions

MX5 NA

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 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!

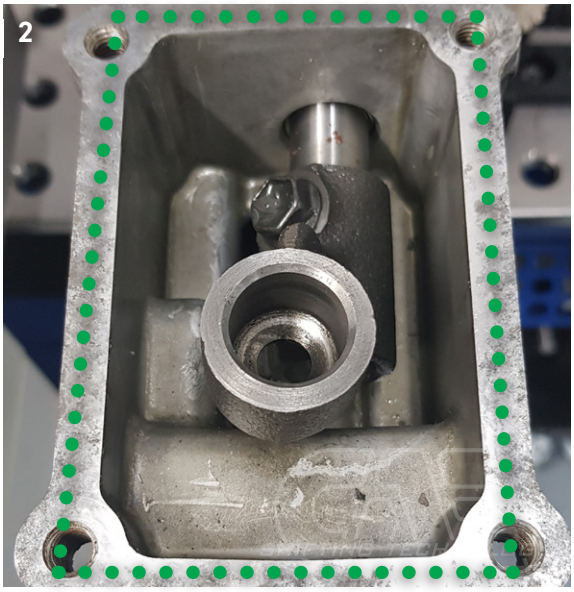
ⓘ The shifter is intended for vehicles with interior equipment. The center console must be cut out until appropriate clearance is ensured.

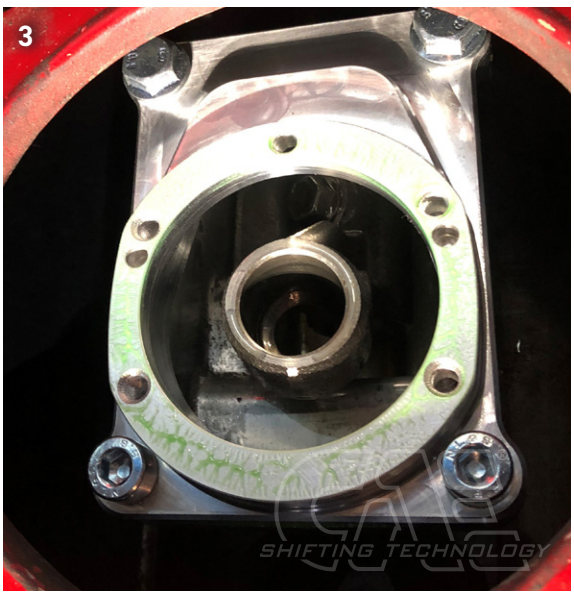
Deinstallation

- Remove center console completely.
- Remove original shift boot.
- Remove original shift lever.
- Remove the housing cover from the gear unit.
  (The gear unit may have to be lowered slightly for this purpose). (Picture 1)
- At the latest NOW check if the correct ball for the gearbox has been ordered. (19 or 22mm)
- Clean and degrease the flange surface.

The installation

- Apply a thin layer of the green sealing compound supplied to the sealing surface on the gear unit. (Picture 2)
- Apply threadlocker to the front outer hex bolts and insert them into the holes before placing the base, then align the base and screw in the bolts.
- Place a toothed lock washer under each of the rear Allen screws.
- Tighten all 4 fastening screws. (Picture 3)





- Now mount the transmission tunnel sleeve.
  Carefully pull the sleeve over the neck of the shifter foot and screw it tight to the transmission tunnel. (Picture 3a)

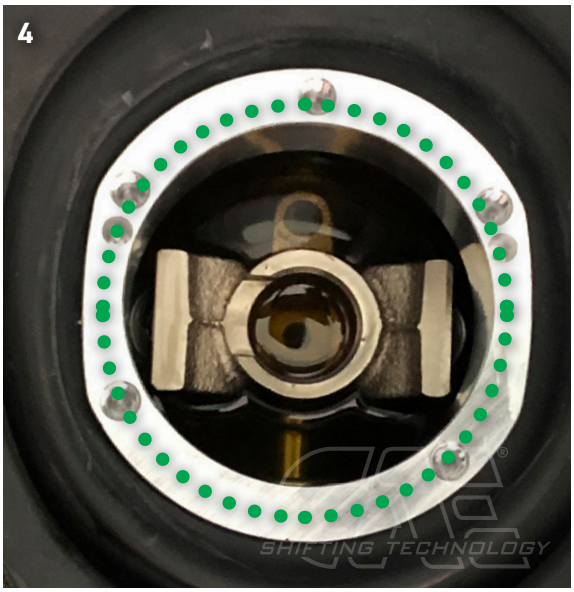
- Now apply a thin layer of the supplied green sealant to the upper the upper sealing surface of the shifter foot. (Picture 4)

- Apply a little gear oil to the ball on the lower part of the gearshift lever and fit the upper part of the shifter from above. Hold the shift lever vertically and carefully insert the ball into the gearbox. Now tighten the upper part with the 5 pcs M6 Allen screws. (12NM)
  (picture 5)

ⓘ **Place one toothed lock washer under each.**

ⓘ **PLEASE NOTE: There must be a gap of approx. 4-5 mm between the shifter and the transmission tunnel. (Fig. 6) If there is not enough air, loosen the 3 connecting screws of the PPF carrier on the gearbox and lift the gearbox slightly. Then tighten the screws again and check if there is enough space between shifter and gearbox tunnel.**

ⓘ **Generally grease each bearing regularly. We recommend Würth HHS 2000.**
Secure all nuts / bolts during assembly with toothed lock washer or glue in!



Adjust the shift range 6 speed gearbox

- Adjust center position gear 3/4
- Release spring stop (allen key 5mm) (Picture 7)
- Shift gearbox to 3rd or 4th gear. The 3rd and 4th gear are in neutral zero position. To engage them, simply move the shift lever forward or backward without load.
- Retighten spring stop.
- Check
- When 3rd or 4th gear is engaged, the lateral play oft he shift lever must be the same. Otherwise. Readjust the spring stop.

ⓘ THIS SETTINGS ARE THE BASICS FOR ALL OTHER SETTINGS

- Then shift the gearbox to gear 1 / 2 using the shift lever and adjust the stop screw until the gears in level **(1/2)** can be changed cleanly. The adjusting screw should have space of approx. 0.5 mm. (Picture 8)
- Now shift gearbox to **(5/6)** gear level using shift lever and screw in stop screw until 5th gear can be engaged cleanly. Screw has approx. 0.5mm play (Picture 8).
- Actuate reverse gear lock pin via pull and shift transmission to reverse gear level. **(R)** Screw in corresponding stop screw until it has approx. 0.5 mm play. (Picture 8)

FINALLY! Check all functions and settings during the test drive and readjust if necessary!

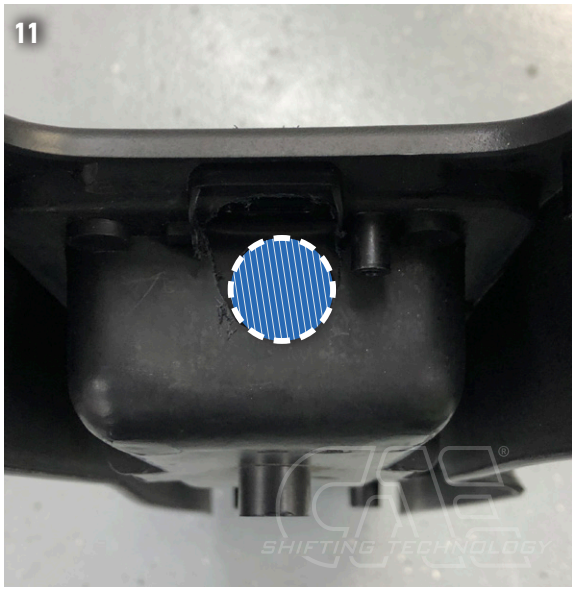
Incorrect or inaccurate settings can cause damage to the gear box and consequential damage!

Machining the center console

- Modify the center console according to the following pictures so that it can be mounted above the shifter:

- Remove the lightning from the ashtray. Cut out the center console in the marked area. The shifter must have some space to the center console as it moves with the transmission during load changes. (Picture 9, 10)

- Drill a hole about 15 mm in the front of the ashtray to ensure the clearance for the reverse gear locking pin (Picture 11, 12)



- If desired, you can also reinstall the shift bag. For this you must cut out the plastic frame in the area oft he ashtray and the bag at the top. The original shift bag can be left or to be used.

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.

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