

TSUE9080QIS

E82 1 Series/E89 Z4/E9X 3 Series (NOT XI) FRONT UPPER CONTROL ARM BEARING KIT

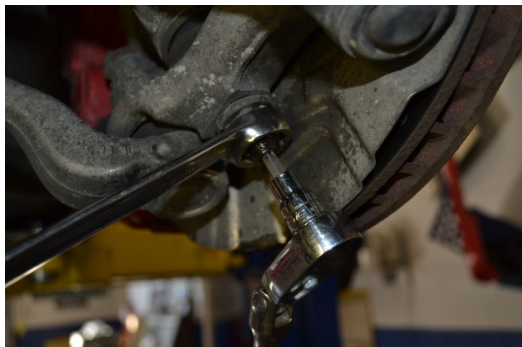
Parts list for kit:

- 2 Bearings assembled in aluminum housings
- 4 Stainless steel bearing inserts
- 2 External spiral-loc rings (pre-installed)
- 2 M12 Bolts



Note: BMW recommends that the upper control arm bushing only be replaced once. If your bushings have already been replaced in the control arm we recommend using new upper control arms.

- 1) Properly lift and support the car to access the front suspension
- 2) Remove large plastic under tray
- 3) Remove front tires
- 4) Spray upper control arm nuts with penetrating fluid
 - a) Nut on outer ball joint
 - b) Captive nut at control arm bushing
- 5) Clean off a spot on the control arm facing the front and mark the control arm FL (front left) and FR (front right) with a permanent marker. It is important to know which side of the control arm is facing the front of the car. This will be important during installation of the new bushings
- 6) Remove outer ball joint nut
 - a) Use a 21mm box-end wrench to loosen the nut
 - b) Insert T-40 torx into ball joint pin to hold ball joint from spinning while loosening the nut
 - i) NOTE: Only use the torx to keep the bolt from turning - do not turn the torx bolt
 - ii) NOTE: Depending on the manufacture of the upper control arm the torx maybe a different size and possibly a hex. Please check and use the appropriate tool.
 - c) A ball joint puller should not be necessary as this is the newer style non-press fit type joint



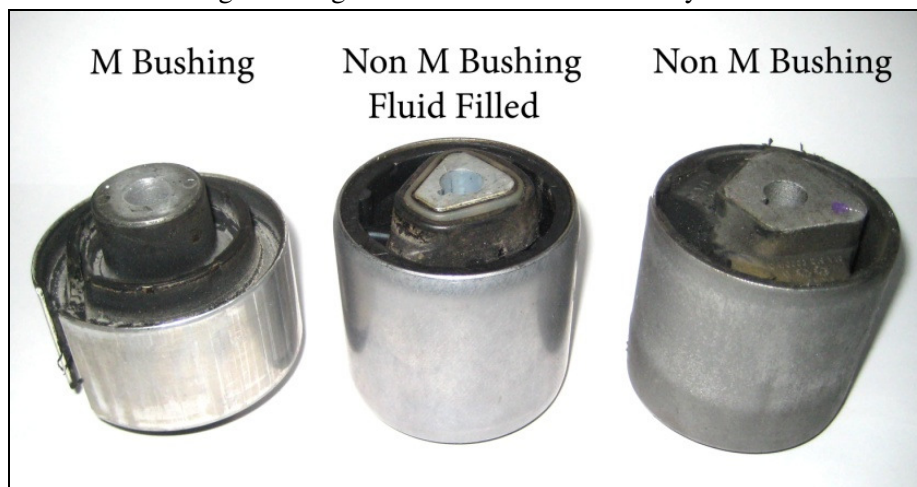
- 7) Remove inner control arm bolt
- a) Un-fasten bolt for upper control arm with 18mm hex socket
 - b) The nut is captive on the back-side and does not require a wrench
 - c) Remove bushing bolt
 - d) pull bushing-end of the control arm out of the subframe
 - e) lift ball joint up and out of spindle to remove the control arm



- 8) Using a wire brush or piece of scotch-brite thoroughly remove any dirt, grime and corrosion from the bushing that sticks out of control arm casting.



- 9) M3 control arm bushings have a thin aluminum casing and are easier to remove (via press) than the non-M bushing. Non-M bushings have a steel casing - we suggest removing the tension on the bushing prior to removal if the arms are not new. Old arms and Non-M bushings fuse together over time with a thin layer of corrosion.

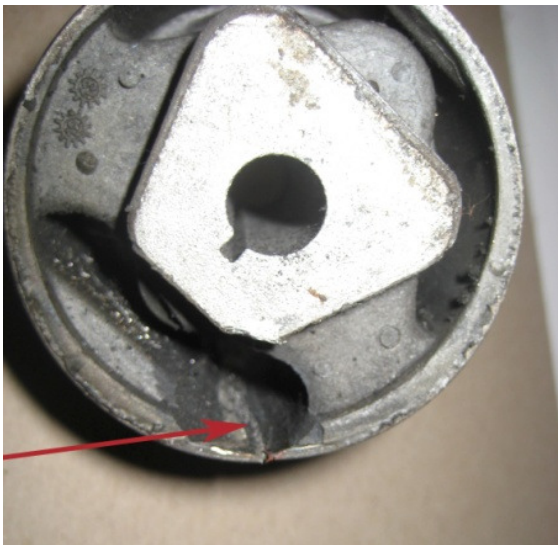


10) Releasing Bushing Tension for Non-M bushings.

- a) Secure control arm in vise (be careful not to damage the control arm - use a rag to protect it and don't use too much tension/pressure)
- b) Fluid filled bushing only - Use a screw-driver to remove the rubber covering around the center portion of the bushing (around bolt hole), this will give you more room to drill. Note there are two different types of non M bushings some have this cover and some don't.



- c) Drill a large hole in the rubber portion of the bushing
 - i) With progressively larger bits drill a hole large enough for a die grinder with a carbide burr
 - ii) Fluid may leak out of bushing during the drilling process - this is normal and, unfortunately, messy. Wear eye and skin protection.
- d) Die grind the inner portion of the bushing shell. **"Use extreme caution"**
 - i) Use the die grinder to reduce the thickness of the steel outer bushing shell. Use **extreme caution** to not grind through the bushing shell and damage the control arm. You just want to thin the casing.

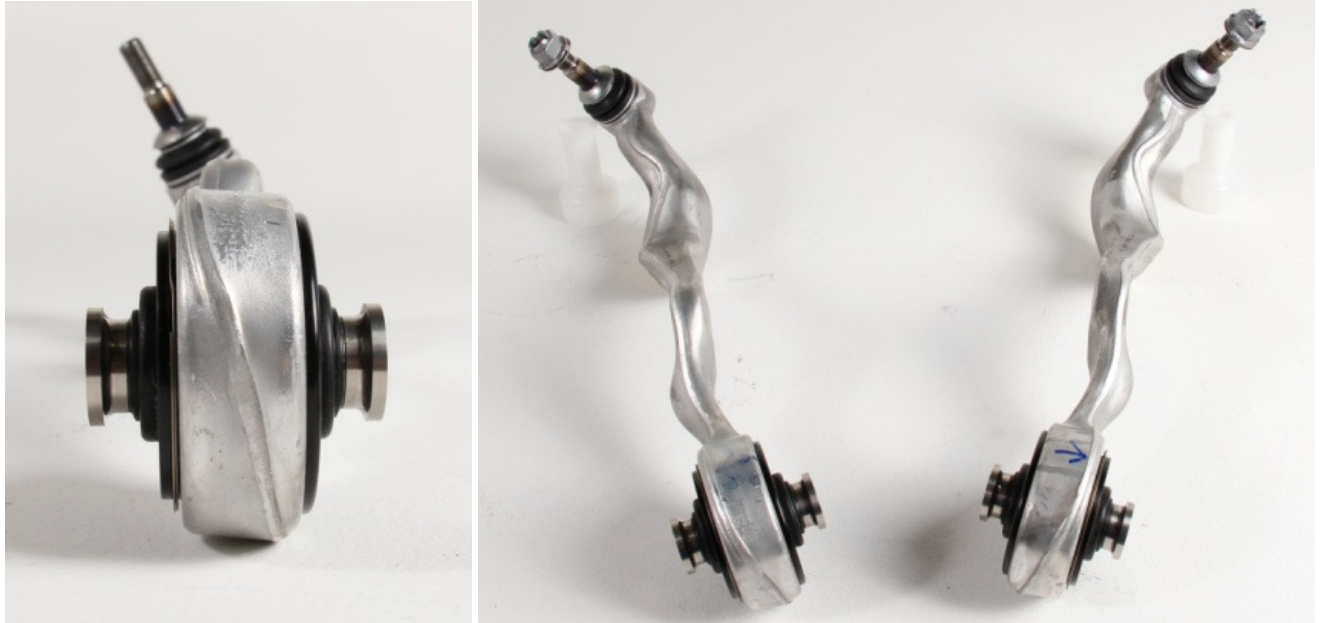


11) Press out bushing

- a) Once you have removed some material from the inner portion of the bushing shell, press the bushing out of the control arm. Use caution - the bushing should press out relatively easily at this point. If it does not, you should remove more material from the bushing shell. Be careful not to remove any material from the aluminum control arm.

12) Press in new Turner Bushing

- a) Before pressing new bushing into control arm clean inside of control arm with a scotch brite pad
- b) If spiral-loc rings are pre-installed on Turner bushing, remove and set aside
- c) **ATTENTION:** The lip of the Turner bushing should face the rear of the car when installed. This very is important and the reason you marked the control arms in Step 5. Once pressed into the control arm, the forward facing portion of the bushing requires a spiral-lock clip.

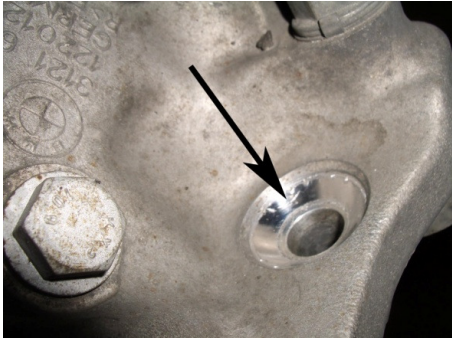


- d) Place some red threadlocker or green sleeve retaining compound on the new bushing before pressing into the control arm.
- e) **ONLY** press on the black aluminum casing of the new bushing, do not press on the monoball in the center!
- f) The bushing should require some force to press into the control arm. If goes in too loosely/easily then it is likely that the aluminum arm has stretched or become damaged and should be replaced
- g) The lip should be flush against the casting of the control arm
- h) Make sure the space where the spiral-lock clip (front side) is free from debris, burs from pressing, etc. Compressed air is useful for cleaning this.

13) All Turner press-in bushings should be periodically checked for fit within the suspension component. We have seen the aluminum BMW suspension components stretch over time. The stretching happens before the aluminum fatigues and snaps. But stretching will loosen the press fit and give you some warning of an impending failure. If a visual inspection reveals a loose fit or you hear clicking sounds then the aluminum suspension component needs to be replaced (but you should be able to re-use your Turner bushings). Other manufacturers use bolt-together bushings instead of press-fit. But the bolt-together design has a major drawback – the control arm can stretch but the bushing stays fixed in place. You won't hear the click or clunk of a loose bushing and it will not have play when checking it with a pry bar. There will be no warning until the control arm fails. A press-fit bushing can provide audible and visual warnings where a bolt-together bushing will not.

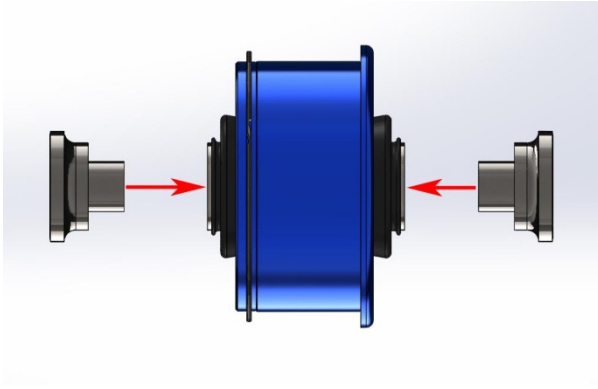
14) Installation of the control arm to the car is the reverse of removal

- a) Clean/wipe out ball joint cup (in spindle)



- b) Install ball joint end of control arm into spindle

- c) Insert stainless steel sleeves into each side of bushing prior to placing bushing end into subframe



- d) Install bushing end into sub-frame and install bolt

- e) Torque bolt - BMW used two different grades of bolts for the bushing end of the control arm

- f) If your bolt is grade 8.8 use a new bolt and torque to 68 Nm (50ft-lbs) plus 90°

- g) If your bolt is grade 10.9 torque to 100 Nm (74ft-lbs) plus 90°

- h) Torque nut on ball joint to 175 Nm (130ft-lbs)

15) Reinstall large plastic under tray

16) Reinstall wheels