RACE-DEVELOPED COMPONENT

Turner Motorsport Inc. 207 Elm Street, Amesbury, MA 01913
978-388-7769 / www.turnermotorsport.com

PART # TSU9980020

TMS Trailing Arm Race Bushings

TMS Trailing arm race bushings replace the stock rubber bushings, and were developed in conjunction with the TMS SPEED World Challenge Racing Team. Over time the stock bushings rip and tear and need to be replaced, and this is a bigger issue when the car is driven on the track. Our bushings allow no toe movement due to rubber deformation. When the toe is set, it stays there, which creates better driver feel. Additionally, your car's suspension geometry stays in the desired position eliminating another variable affecting the car's setup. The less rubber there is to deform, the more the setup stays the same the more accurately your car can be tuned to different driving styles and tracks.

TMS bushings are a combination of high grade aluminum alloy and steel CNC machined out of billet by an ISO 9001 certified manufacturer. Each piece is then either hardcoated or nickel plated. A high performance wide race bearing is also implemented to handle maximum axial and radial loads.

While multiple manufacturer's offer two piece designs, our research showed that a one piece bushing is a better option due to several factors. The casting of the rear trailing arm varies by over 2mm in certain dimensions; high forces on the suspension can be easily detected; during a collision, the arm will have a place to go, which means you won't have to buy and assemble an expensive new trailing arm. This piece results from years of experience with our E36 and E46 racing programs.

Parts list for kit: 2 Assembled casings
4 Extensions

Install time: 2 hours with proper tools

Directions:

1. Properly lift and support the car to access the rear trailing arms

2. Mark the rear toe position.
   - Use paint marker and draw a circle around the bolts on the toe plate.

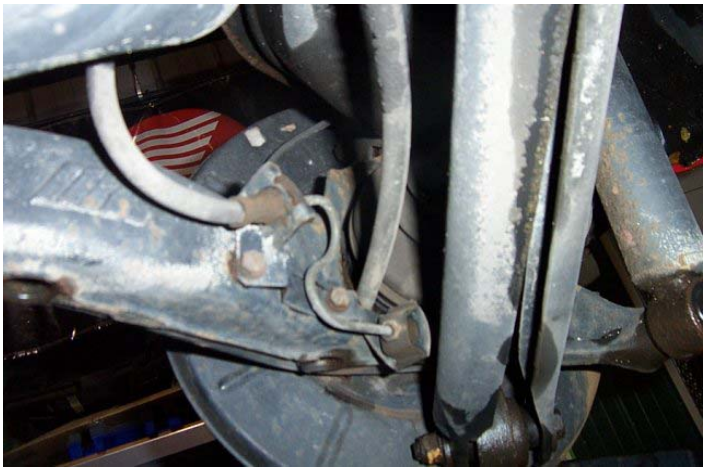
- Wait for paint to dry

NOTE: This is to reset the toe as close to original as possible during reinstallation. We do recommend having a professional alignment done if not confident on the reassembly position of the toe plates

3. Remove brake line bracket from rear trailing arm

- Remove 2 10mm head bolts from brake line bracket, each side
- Do not disconnect the brake lines.

NOTE: This allows the brake lines to move freely while the trailing arm is lowered. If not removed damage may occur to the brake lines



E36 brake line bracket

E46 brake line bracket

4. Remove the 3 bolts that connect the toe bracket to the chassis

NOTE: We recommend that the trailing-arm is supported during this step. This allows the spring pressure to be removed slowly and safely. Repeat for both sides of car.

5. Remove the stock trailing arm bushing
- Remove toe plate
- Use proper tooling or press bushing out of trailing arm

6. Install TMS trailing arm bushings.

- Clean any corrosion out of trailing arm/bushing surface
- Carefully line up the bushing and using a tool or press start to insert slowly
    - The beginning is very important, if the bushing is not lined up properly and not adjusted as it goes in, damage will result to the part.
    - Slide in all the way until the flange is sitting flush against the trailing arm.
- A pin can also be added to help keep the bushing in place if any problems should arise. A press pin or 5mm bolt can be used.
    - If pinning we recommend a 1/8" diameter x 7/16" slotted steel roll pin, or drilling and tapping a 5mm hole

7. Reinstall trailing arm (or refer to the optional chassis reinforcement at this time)

- Reinstall toe plate
- When raising trailing-arms into place make sure the spring is seated correctly.
- Align to original marked spots and torque down the three chassis bolts to connect each toe bracket to the chassis.
- Torque to 77 N*m (57 ft*lb)
- Reconnect brake line brackets

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Suggested Chassis Reinforcement

Many times trailing arm mounts become cracked and can actually start to pull out of the chassis. If not properly taken care of they *WILL* pull all the way out. This is especially common in E36 3-seris chassis. The reason for this is that the welds did not go all the way around the mounting points to the chassis.

Warning: Only a professional welder should perform this. Welding is done very closely to the gas tank. So if any fumes or fuel leaks can be detected do not weld until checked out and deemed safe. The ECU, alternator, and battery should all be disconnected before welding to prevent electrical damage. The welder should be directly grounded to the chassis, not to any suspension parts.

1. -In the area that the mounts are not fully welded around, remove all the paint. (A die grinder with wire wheel works well)
   NOTE: This is because any paint on the welded surface will cause defects in the weld and weaken it.

2. -Finish the weld around each of the mounting studs.

3. -Prime and paint welded or exposed areas.
4. Return to step 7 to finish install