



E38, E39, E53, E60, E63, E65, & E83 Front Control Arm Monoball Upgrade

Introducing the new Turner Front Control Arm Monoball Upgrade! The Turner engineering team set out to design a no-compromise solution that requires no modification and offers instantaneous cornering and braking response. This upgrade offers a considerable improvement in both precision and durability compared to other unsealed poly and Delrin® bushing inserts previously available, which can wear prematurely due to contamination. The bearing assembly utilizes the highest quality materials, precision machining, and components to ensure a perfect fit and longest lasting component life possible.

This is the perfect upgrade for exceptional steering precision, turn-in response, and direct braking feedback with a minimal increase in NVH. These spherical bearings are a must have for any track car, but they can also be a great upgrade for any enthusiast that enjoys spirited driving in their daily commute.

Installation time: ½ hour with the control arms removed



These installation instructions have been broken up into several sections:

Section 1: The Bearings

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Section 2: Bearing Installation

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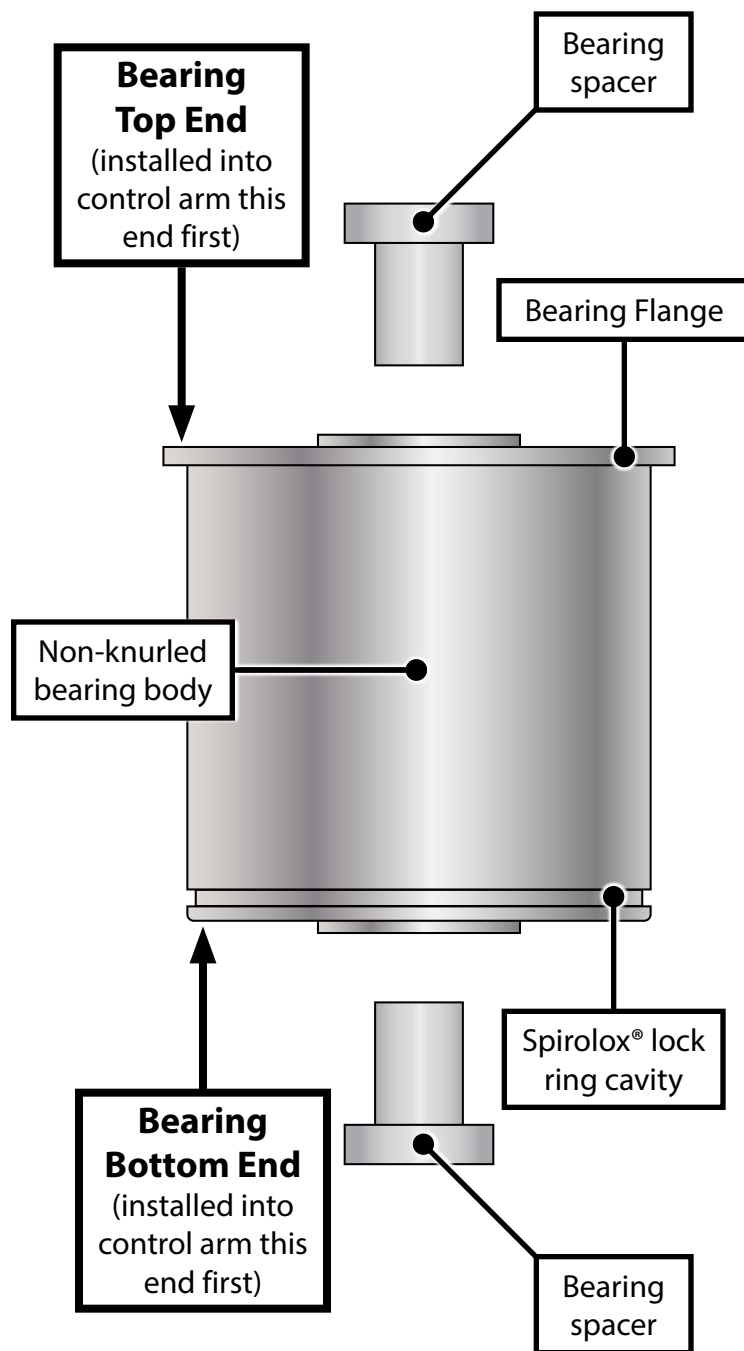
Section 3: Control Arm Installation

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Section 1: The Bearings

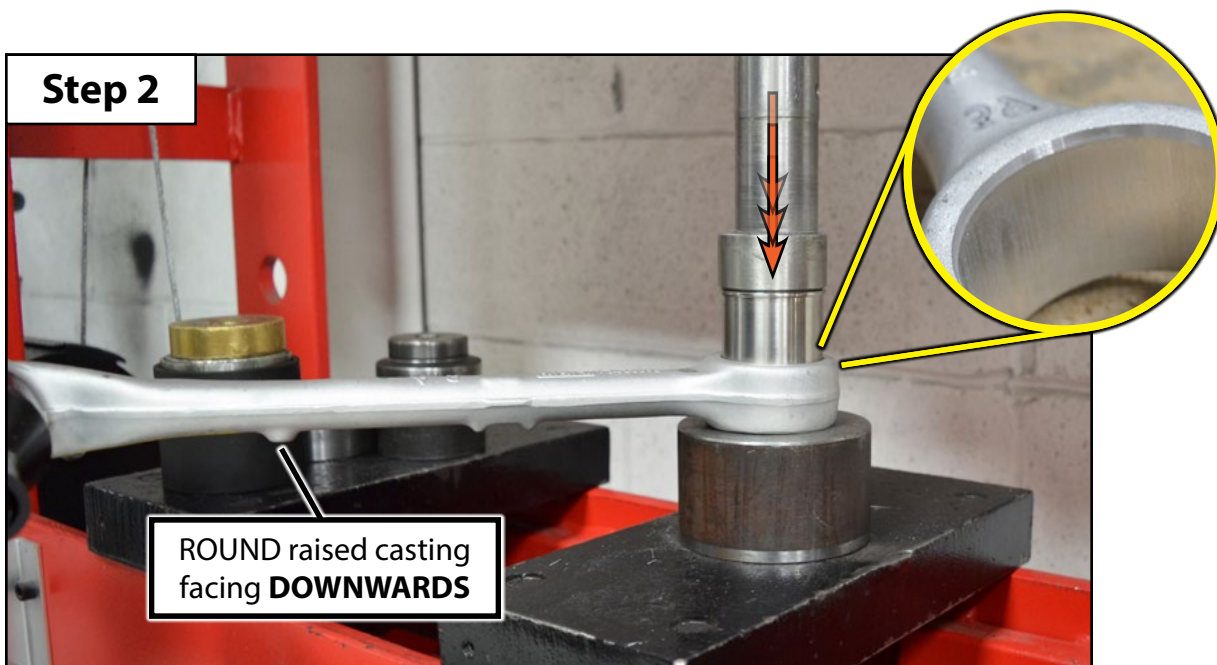
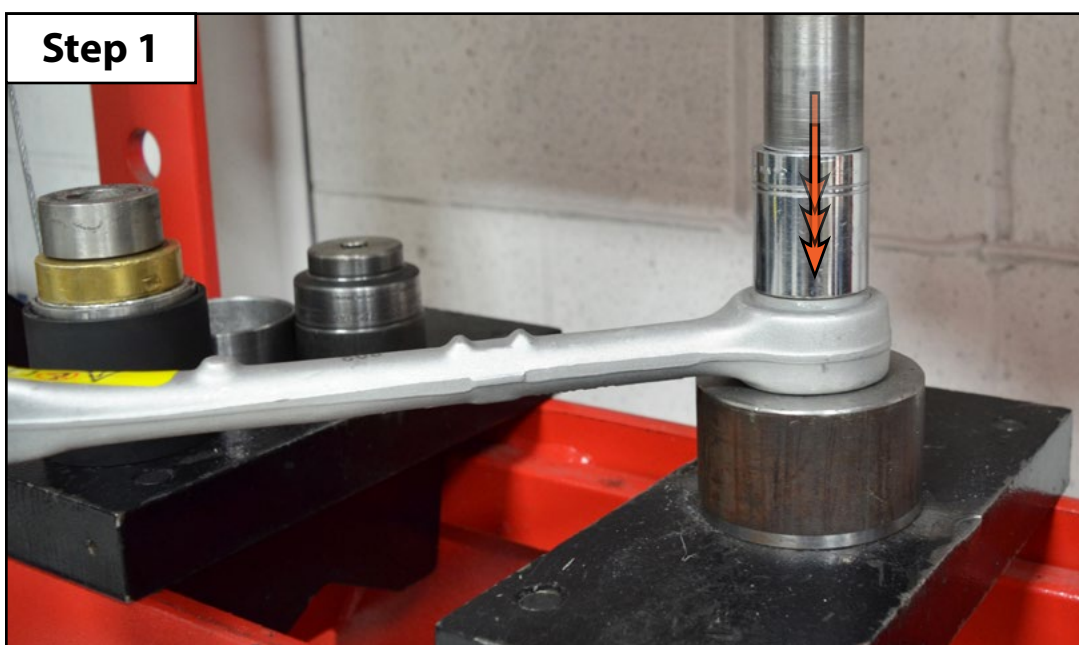
- Take a moment and familiarize yourself with the bearing assemblies and their components.
- The side view of the bearing (shown on the right) illustrates where the bearing flange, non-knurled bearing body, Spirolox® lock ring cavity, and the two bearing spacers are located. Be sure to note that the two bearing spacers are the exact same size and length, they are not side specific.
- Take note of the top end and bottom end of the bearing assembly. The top end is the flanged end, and the bottom end is where the Spirolox® lock ring cavity is located. The bottom end will be pressed into the control arm until the flanged end bottoms out, then we'll add a Spirolox® lock ring for added security.

Now let's get to it!



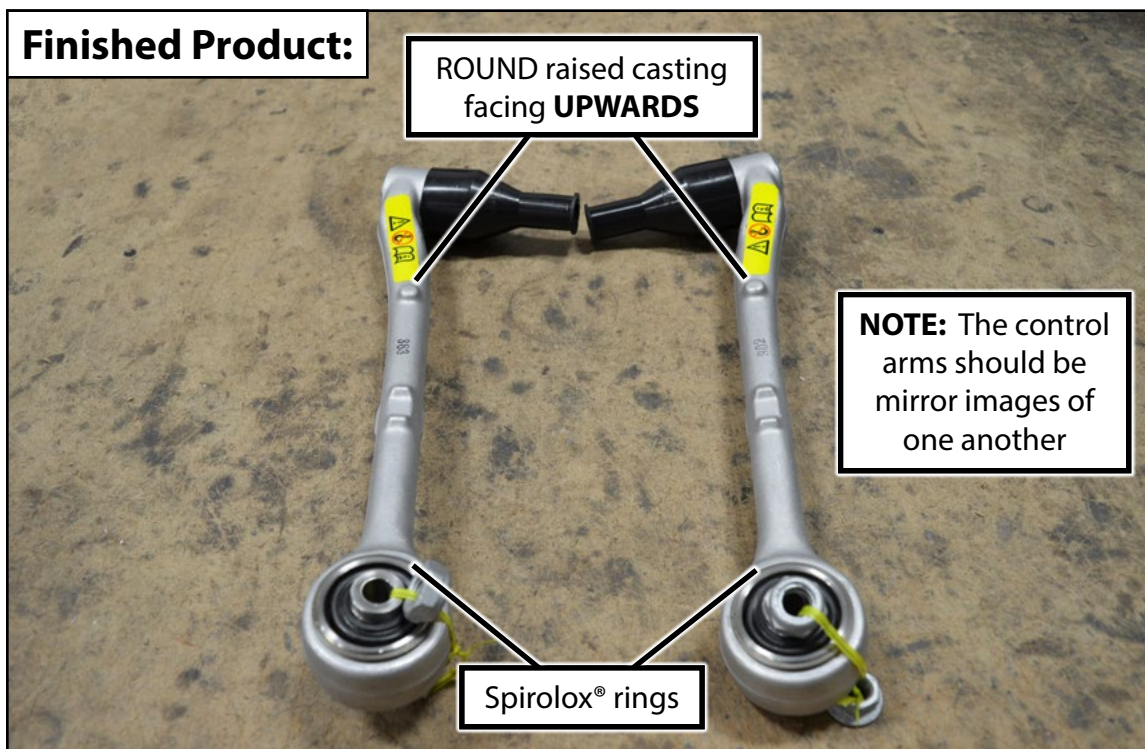
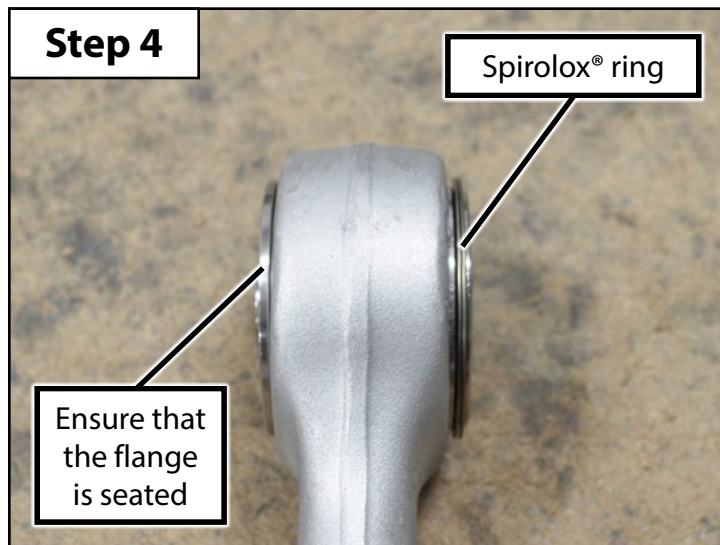
Section 2: Bearing Installation

- Step 1**
- Place the control arm onto the press (orientation in this step is not important).
 - Use the press to completely remove the bushing and discard it.
- Step 2**
- Align the bottom end of the bearing with the taper in the control arm bushing bore (inset photo).
 - This will likely mean that the ROUND casting on the control arm will be **FACING DOWNWARDS**.
 - Use a press adapter or socket to distribute the load across the flanged end of the bearing.
 - The tooling **MUST NOT** come into contact with the ball joint inside the bearing body, this could cause irreparable damage to the internals.
 - Press the new bearing into the arm slowly and carefully, ensuring that it remains square to the arm and presses in straight the entire way during installation.
 - STOP IMMEDIATELY** once any part of the bearing flange bottoms out against the arm. Continuing to press on the bearing after it is seated may cause irreparable damage to the internals.



Section 2: Bearing Installation

- Step 3**
- You may notice that some aluminum was removed when pressing the bearing into place, this can happen due to the hardness of the bearing housing compared to the soft aluminum control arm bushing bore.
 - Remove any excess material from around the bearing with a pick or other suitable tool.
- Step 4**
- Ensure that the bearing flange is seated against the control arm in at least one area.
 - Due to differences in manufacturing, you may find that the entire flange bottoms out on your control arm, or only part of the flange may bottom out. Either of these possibilities are acceptable.
 - Install the Spirolox® lock ring into the groove in the bearing.
 - The Spirolox® lock ring is not the primary retention feature keeping the bearing in place, it is added here for extra security and thus does not need to be bottomed out against the control arm.
 - The bearing housing is a tight tolerance part which should not move in the control arm once pressed into place.



Section 3: Control Arm Installation

Install the monoball upgraded control arms in the reverse order of removal. Be sure to consult your service manual for torque specifications, and be sure to replace any one time use (torque to yield) hardware.

The bearing spacers on this application are the same length, so they are not side specific. Simply place them on each side of the bearing assembly, then install the control arms into the vehicle.

The photo below shows the a control arm with a monoball upgrade which has been installed onto the LH (driver's side) of an E39 540i. This photo is to be used for reference when installing your new control arms, various applications will likely differ in appearance/orientation.

