



BMW E70 X5 Front Thrust Arm Monoball Upgrade

Introducing the new Turner Front Thrust 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 thrust 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: Thrust Arm Installation

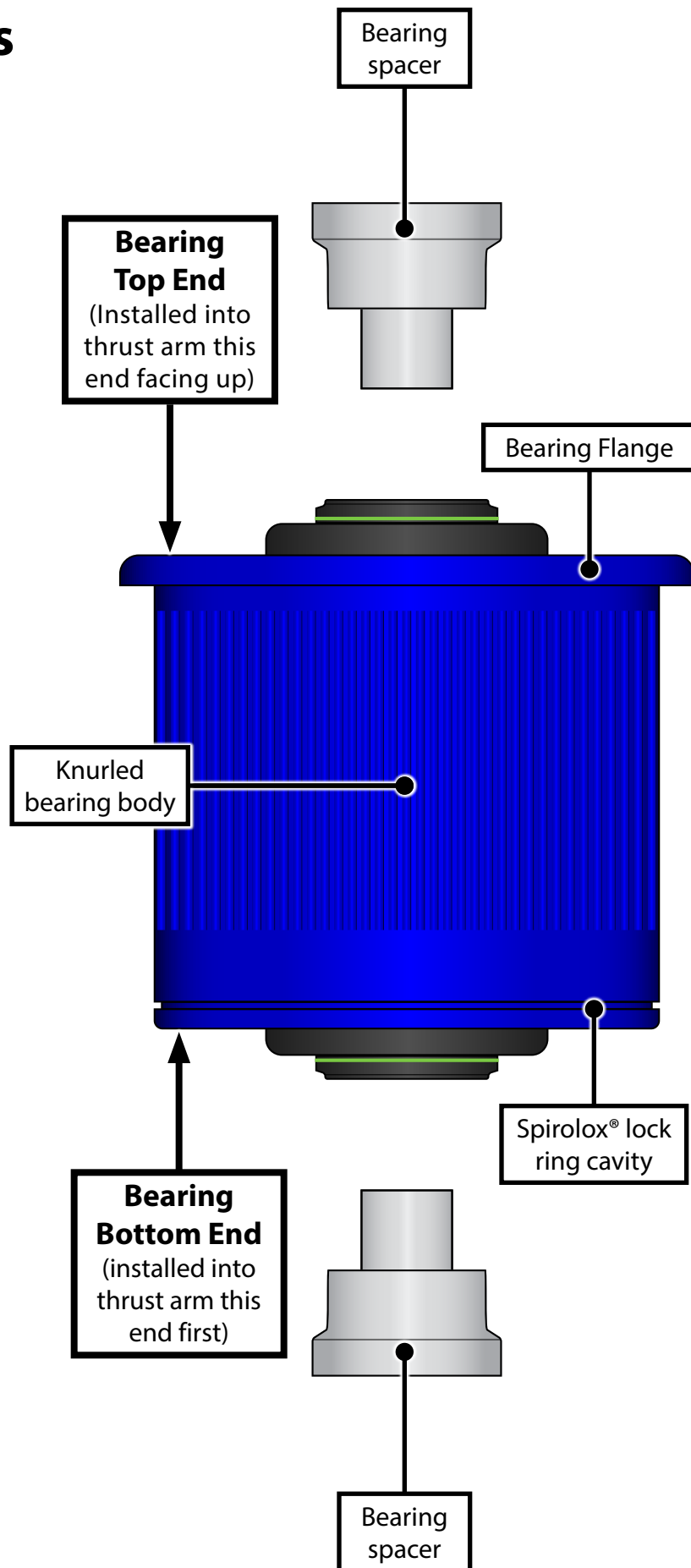
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Proper service and repair procedures are vital to the safe, reliable operation of all motor vehicles as well as the personal safety of those performing the repairs. Standard safety procedures and precautions (including use of safety goggles and proper tools and equipment) should be followed at all times to eliminate the possibility of personal injury or improper service which could damage the vehicle or compromise its safety.

Section 1: The Bearings

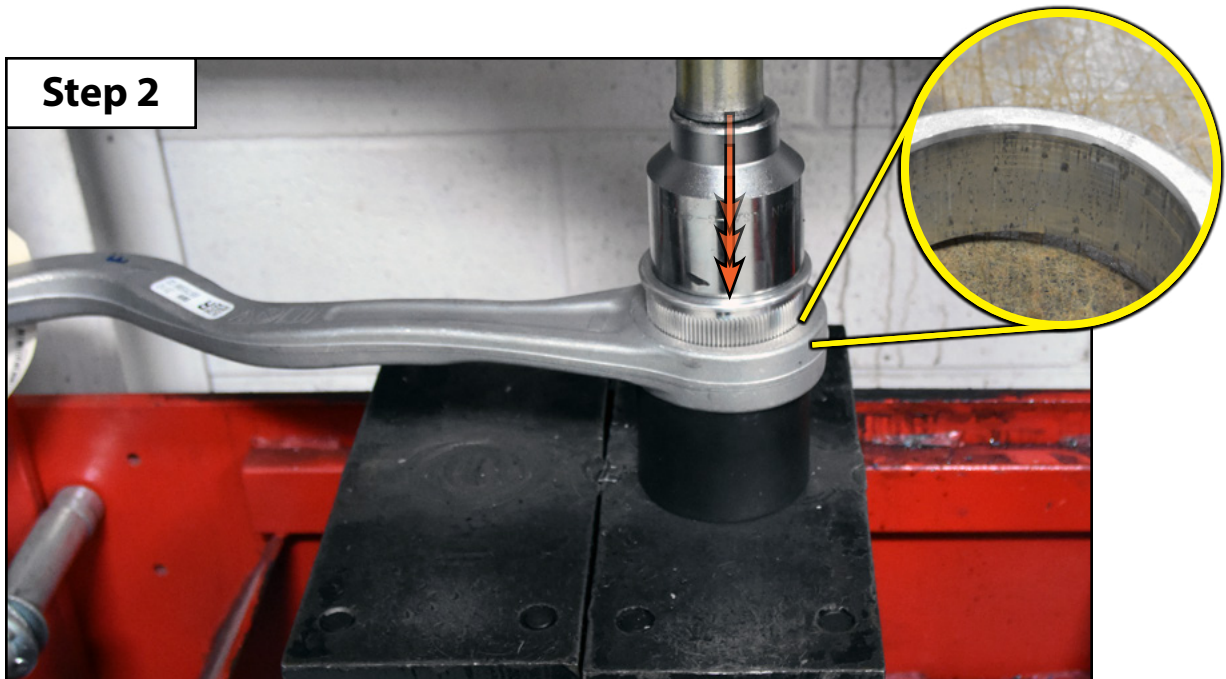
- Take a moment and familiarize yourself with the bearing assemblies and their components.
- The side view of the bearing (shown on the right) illustrates where the bearing flange, knurled bearing body, Spirolox® lock ring cavity, and the two bearing spacers are located. Be sure to note that the two 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 thrust 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 thrust arm onto the press and completely remove the bushing and discard it.
- Step 2**
- Align the bottom end of the bearing with the tapered side of the thrust arm bushing bore (inset photo).
 - 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**
- Ensure that the bearing flange is seated against the thrust arm in at least one area.
 - Due to differences in manufacturing, you may find that the entire flange bottoms out on your thrust arm, or only part of the flange may bottom out. Either of these possibilities are acceptable.
- Step 4**
- 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 thrust arm.
 - The bearing housing is a tight tolerance part which should not move in the thrust arm once pressed into place.



Section 3: Thrust Arm Installation

Install the monoball upgraded thrust arms in the reverse order of removal. Each thrust arm is secured to the subframe by an 18mm bolt (arrow) and nut which can be accessed through an opening in the fender liner. It is secured to the spindle housing by a 27mm 12-point nut (circled in **YELLOW**). Be sure to consult your service manual for torque specifications and 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 thrust arms into the vehicle.

The photo below shows the monoballs thrust arm installed onto the RH (passenger's side) of an E70 X5. This photo is to be used for reference when installing your new thrust arms.

