



## **E46 World Challenge/Grand Am Cup Sub-frame Bushings**

### **PART # TDR4680001**

TMS E46 solid sub-frame bushings are designed around current World Challenge/Grand Am Cup regulations, derived from, and currently used in TMS racecars. They are legal for both series. Thick delrin casings are used as the non-metallic solid bushing. High quality aluminum sleeves, with increased surface area, are then pressed into each of the casings with washers integrated into each one. The washers are employed to add an extra safety factor for securing the sub-frame into position. One front bushing is slotted to allow for compliance between manufacturing standards as BMW specifies

*Note: Each part of this kit can be installed using only a press and a little ingenuity. No special tools required. Make sure to go through the instructions and sort the pieces in the kit prior to install.*

**Parts list for kit:**

- 2 - Rear Sub-frame Bushing Casing (Delrin, large inner diameter)
- 2 - Rear Sub-frame Bushing Sleeve-1
- 2 - Rear Sub-frame Bushing Sleeve-2
- 2 - Front Sub-frame Bushing Casing (Delrin, small inner diameter)
- 1 - Front Sub-frame Bushing Sleeve-1 (non-slotted)
- 1 - Front Sub-frame Bushing Sleeve-1 (slotted)
- 1 - Front Sub-frame Bushing Sleeve-2 (non-slotted)
- 1 - Front Sub-frame Bushing Sleeve-2 (slotted)

**Install time:** 2 hours (if sub-frame is already removed)

#### **Directions:**

1. Install rear sub-frame bushings (can be done one piece at a time if desired.)
  - Press in either the top or bottom aluminum sleeve into the delrin casing first.
  - Press into the subframe in appropriate direction.
  - Make sure to press them in until the casing is flush with the sub-frame surface.
  - Press in the aluminum sleeve for the other side.
  - Check to make sure both washers on top and bottom are flush and have no interference.



Figure 1: Finished Rear bushing- Sleeve with shortest length is installed on bottom of sub-frame. Sleeve with longest length is installed on bottom of sub-frame

2. Install driver side front sub-frame bushing (can be done one piece at a time if desired.)
  - Test fit the aluminum sleeve with a radius around the washer and no slot.
    - Place it on the top side of the front subframe mount. If the weld around the mount does not allow it to fit flush, file off some of the washer material where it hits. Do to the subframe being welded, we cannot make the piece to match each subframe.
  - Press in either the top or bottom aluminum sleeve with no slot into the delrin casing first.
  - Press into the subframe in appropriate direction.
  - Make sure to press them in until the washer of the aluminum sleeve is flush with the sub-frame.
  - Press in the aluminum sleeve with no slot for the other side.
  - Check to make sure both washers on top and bottom are flush and have no interference.



Figure 2: Finished front bushing- Sleeve with radius and no slot is installed on top of sub-frame. Sleeve with no radius or slot is installed on bottom of sub-frame



3. Install passenger side front sub-frame bushing
  - Same process as driver side, but with the slotted aluminum sleeves.
  - Make sure the slot is aligned perpendicular to the car's longitudinal axis.



Figure 3: Finished front bushing- sleeve with radius and slot is installed on top of sub-frame. Sleeve with no radius and slot is installed on bottom of subframe.

*Note: As with all race equipment, this part should be checked, maintained, and replaced immediately if any wear is detected for safety purposes.*