

Ultraflex4x4 Correction Bulletin 001

Date: 20180201 Ultraflex4x4.com.au

Product: UF-9027 (Pat. Pend.)

STATUS:

Some modifications to this bushing are required under extreme use.

Unlikely danger of failure causing damage to vehicle, property or persons.

BACKGROUND:

The bushes were given to individuals that turn the washers into cones on the OE rubber and Super Pro (2 Types) of bush.

In all cases, the opposition bushing failed in a manner that was dangerous, however the Ultraflex4x4 bush also failed in a way that caused distortion and some tearing. Below is the worst case for the Ultraflex4x4 Bushing (Left) . The Superpro Shown on right. The Arm is a Gwen Lewis 10 Degree Cranked.



1./ It was establish that the damage to the bushes was due to the offset force applied by the use of cranked arms. The force vector from the centre of the diff mount bolt to the centre of the chassis mount was not axial to the designed operation of all bushings.

2./ The Over use of Differential lockers on tight corners added a torque with a lever length approximating the wheel base. This force was found to exceed 7 Tonnes (70,000N) at each bush.

3./ In the case of the Ultraflex4x4 bushing, the offset force applied caused the bushes to "walk" across the rear face. This was due to the force being applied to the cut lip on the washer, and the washer being tilted by the arm crank angle as showing in the SuperPro Picture.

4./ Pre-load: The pre-load was tested for 33" and 2" raised with strengthened straight stock arms, as this is the bulk of most installations. It was found that the extremists selected the Ultraflex4x4 bushes more than the "normal" guys. The reason is simple, they do last longer even in systems that are poorly thrown together and not engineered.

5./ Engineering issues with users suspension.

It's the old story of buying a mish mash of bits without doing the measurements and calculations.

Cranked arms are never a good idea, The chassis mount should be cut and welded back at an angle of 10 Degrees (this may require an engineer's certificate and mod plate) use ONLY TIG or MIG and refer to professional ONLY.

Top shock mounts are lower than is required and fail to tuck a wheel giving the full UP flex, therefore they exceed the design of all bushes having a DOWN length of over 7 " above stock and and UP travel of 2-4" less than stock. The failure of the suppliers of shock absorbers , particularly the pin-pin types to publish the mount to mount closed lengths and specify some arbitrary closed length, with no mounting hardware, exacerbates comparisons and design issues. To take advantage of the Ultraflex4x4 Bushing the suspension should be designed for 5" up and 15" down from ride height, strengthened straight arms are used, the Shock Compressed length should be 390 max, and if longer the top mounts should be adjusted upwards and forwards. Extra Dampening shims or heavier oil maybe required to compensate for the change in angle. Shock travel length should not exceed 12". The user should check the dynamics before roading the vehicle. Common use of an 80 Series +5" Shock requires 2"

raised (longer) top shock mount, and this requires the mount to be positioned further forward, also requiring the relocation of filters, and higher rate shims and oil in the shocks. When the 12" shock is mounted forward of stock it gives around 15" of drop due to the angle.

LIMITING STRAPS in all race suspensions, they use limiting straps, as the car is designed to flex up to 50" or more but the shocks are usually not. Users and designers should install limiting straps to prevent "under run" where the arm can literally go under the car twisting the differential housing and making a real mess. It is HIGHLY recommended with long travel shocks and extreme play, to use limiting straps that are adjusted to be "AT LIMIT" 10-15 mm before the shock is at full extension. Simple Chains can be used but check your legislative requirements.

CORRECTIVE ACTIONS

You are hereby notified that the UF-9027 bushes have design limits.

The Impact limit is: 9 Tonnes (90,000N)

One million Cycles Limit: 3 Tonnes (30,000N)

Max up angle from Plane of base plate: 8 Degrees

Max down angle from Plane of Base Plate : 28 Degrees

Acceptable greases PAO or Silicone

**Grease intervals: Before each extreme use
or 6 months road use.**

Application of force: Axial Only.

Grease Instructions:

Release the rear nut 2 full turns, put 2 pumps of grease in each nipple or until the grease comes out from under the washer. Grip the front washer with multi-grips or oil filter wrench when tightening nut up to 100- 130 Nm.

NOTE: If the Nut does not engage the locking section on the thread you can

1./ Remove 1mm from each side of the inner mushroom “stems”

2./ Remove up to 0.5 mm from each of the outer of the mushrooms.

RECESSED PLATES AND BONDING

RECESSED PLATE:

The method of correcting the bush "walking" and the distortion, is to use a 7-8 mm thick plate with a 3mm recess that covers the outer flange when inserted. The diameter of the recess is 76mm OD and the through hole is 50mm ID in the triangle plate. Alternatively two 4 mm plates can be used, one with a 76mm hole, and one with a 50mm hole. the recessed side is towards the rear. The recessed plate also lowers the pre-load on the bushing.

BONDING:

The contact areas on the rear and optionally the front should be prepared using 80-200 grit wet and dry paper. This burnishing should include the PU bush and the plate in the 50-76mm diameter range. The epoxy needs to be applied, aligned in the vehicle and then installed while curing.

The contact areas need to be washed with Pure acetone (not nail polish remover), brake cleaner and throttle body cleaner, may also be used, then dried thoroughly. Plates and epoxy may be placed in a **air tight** bag(s) (double bagged) and placed in the fridge before using epoxy, to extend working time.

MEGAPOXY 69

Working time 45 Mins @ 25C (15 mins @ 40C)

Set time 24 hours @ 25C (12 hours @ 40 C)

Mixing ratio 1:1

Thickness 0.5 mm thick.

Holding shear force is approximately 13MPa (3 Tonnes or 30,000N)

Volume of each contact area (applied only to the plate or the bush) 3.5mL which is the size of a pea or half pea of Part A and Half pea of Part B mixed.

Use Gloves - Toxic vapours.

Read the Technical and MSDS <http://megapoxy.com/data-sheets/>

Why are the bushes not bonded from factory ? Answer: The alignment of the triangle plate on each LR variant is different.