

## Muffin's Axle Part 2 - Differential Nose Seal Replacement:

To avoid complications the axle needs to be refurbished in a set order and the sequence of these articles takes that into account.

Rear axles need a pinion bearing pre-load which is normally achieved in two ways; a) by spacers and shims or b) by a collapsible collar.

Perhaps the easiest way to think of this pre-load is to consider the difference between a tight and loose wheel bearing, a tight wheel bearing will have pre-load; the greater the pre-load then the more resistance there will be to turning the wheel.

On our MGB axles the pre-load on a 'Banjo' axle is adjusted by shims; on the 'Tube' (Salisbury) axle it is adjusted by the use of a collapsible collar/spacer.

Changing the differential nose seal on a Banjo axle is simple and just requires you to undo the nut, remove the propshaft and coupling flange, replace the seal, grease the seal lips, refit the coupling flange, refit the washer and nut, and torque the nut to 135 to 140 lbs ft, refit the propshaft and change/top up the oil.

Changing the differential nose seal on a Tube axle is a little more involved and can be carried out the easy or the hard way. The hard way involves special tools and a reasonable amount of expertise.

### **Note.**

*I was also refurbishing my axle cosmetically, which means de-rusting and painting. Before renewing the nose seal I cleaned the exterior of the differential housing then went over it with a knotted wire brush in a small angle grinder, getting into tight areas with a selection of wire brushes in a hand drill. Once de-rusted it was cleaned and given a coat of Palatine Carboxide Red Oxide. The tube parts of the axles will be dealt with in the same manner later. When the whole of the exterior is refurbished I will apply a second coat of red oxide all over followed by two coats of 'Palatine Agricultural Gloss Black' topcoat.*

### **The easy way to replace a Tube axle nose seal:**

This method is acceptable if the axle is running reasonably well and you only want to cure a leak. This is the method I employed on my axle. For a successful result it is essential you use the original propshaft coupling flange, washer and nut. Follow the procedure below.

1. Drain the oil.
2. Lock the rear brakes on or apply the handbrake if the axle is still fitted to the car.
3. Remove the propshaft if the axle is still fitted to the car.
4. Mark the position of the nose nut compared to the end of the pinion shaft.
5. Remove the differential nose nut using a 1-1/8" AF socket, counting the number of turns required to remove it. (Counting the number of turns is not essential but helps boost your confidence when you replace the nut).
6. Remove the washer.
7. Remove the propshaft flange by pulling and rocking, if that doesn't work use a puller; do not hammer it off as you will be hammering against the inner pinion bearing.
8. Remove the oil seal by levering it out with a pry-bar etc. I keep a big old robust screwdriver for jobs like this; use a piece of plywood etc. to prevent damage to the differential casing.
9. Fit the new oil seal so it is flush with the surface. (Tapping it in **evenly** with a hammer is a perfectly acceptable method of replacement).
10. Grease/oil the seal lip.
11. Clean the flange oil seal contact surface and replace the flange, washer and nut.\*\*

12. Count the turns as you tighten the nut stopping half a turn short. (If you didn't count the turns when you removed the nut stop when it gets tight when using an ordinary 12" extension bar, if you now remove the socket you will find the marks are around half a turn out).
13. Check the marks previously made.
14. Continue tightening the nut until the marks are in line.
15. Tighten just a smidgin more; i.e. just so the marks are barely noticeably out of line.
16. Fit the propshaft etc. as necessary.
17. Refill with new oil.

**Notes.**

*This is not a textbook method but we used to employ this method when I was a young army mechanic and it works.*

*\*\* For accuracy you need to use the same Nyloc nut, a Nyloc nut is a one-use-only-item so apply something like Loctite 243 to the threads.*

*I've left the brake pipe in place to avoid oil draining out until I remove the brake parts.*

*I've painted the end of the flange to stop it going rusty as it may be some time before I fit this axle. Prior to fitting I will scrape the paint off the coupling flange where it meets the propshaft.*

The next article will describe the next process in the overhaul of the tube axle.

To be continued.



