

Replacing the Differential Pinion Seal in a Morgan Plus 8

Up until fairly recently we were staunch Jaguar people. This changed for us when we encountered all the Morgans at the 2019 All British Day at the Kings School. We came away from the event convinced that our next classic would be a Morgan.

After an irregular internet search, I happened upon our 1979 Morgan Plus 8 at a dealer in Rozelle. The car could best be described as a “brumby” with many surmountable mechanical and apparent cooling issues and a few problems in the body department. Best of all for us was the livery: Royal Ivory over red, which is similar to my wife Rosanne’s cherished 1972 XJ6 Jaguar (purchased in 1987).

The deal done, I drove the Morgan home to Kogarah Bay taking all the backroads, one late weekday evening, to avoid the traffic. The car ran dreadfully, pulled savagely to the left under brakes and had limited lighting – both for illumination and signalling.

To cut a long story short, after a few years, much of the mechanical work and some of the body work has been completed with the improved performance and reliability meaning that we’re happy to drive the Plus 8 long distances, just as a Morgan should be enjoyed! Given that most of the Plus 8 is sourced from other English cars not much of the mechanical work is particularly noteworthy: the differential pinion seal was, however, rather an unusual job for me.

Differential Pinion Seal replacement

Perhaps for many years the differential pinion seal on the Plus 8’s Salisbury rear axle had been leaking. Last year I decided to replace the seal as the drip had become incessant and ever visible as the car sits on a hoist in our garage, usually with another car beneath it.

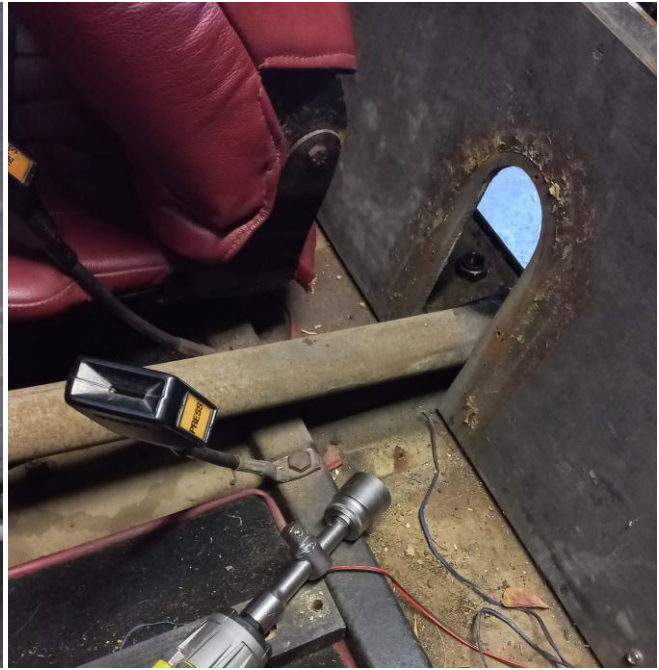
On the other occasions that I have carried out this type of job it has been relatively straight forward, whether at the transmission end or the differential end of the tailshaft and all work has been completed under the car, aided by excellent access.

The Morgan complicates the job as the tailshaft is contained on all sides by the interior tunnel and the timber floor. What might usually take me a couple of hours on a “regular” car extended to beyond one day on the Morgan. This was primarily due to my unfamiliarity and my reluctance to dismantle too much of the interior and the floor.

I managed to limit the “remove and refit” of body elements to the passenger’s seat, minor carpets and underlay, the tailshaft tunnel, and the luggage deck. As shown in the below photos, the rear section of floor continues under the differential pinion towards the rear and obstructs access to the differential pinion from underneath. Additionally, the angled timber panel (behind the seats) denies easy access to undo the highly tensioned pinion nut from within the car.

The answer was to work from inside the car on either side of the angled timber panel, through the hole made for the tailshaft. Once the four tailshaft-to-pinion fixings were removed, I could tackle the big pinion nut. The “heavy lifting” was done with a $\frac{3}{4}$ ” drive compressed air impact driver and a socket extension, through the hole in the angled timber panel. The usual amount of cajoling and prising saw the old, original, leather oil seal on the bench. I was pleased to see that there was no wear or even a “witness mark”, where the old seal might have abraded the pinion.

It seems that this particular Salisbury axle is a bit of an orphan with no suitable seals being available locally through my regular bearing and seal sources and the potential English import proving expensive and remote in both distance and time. In the finish I contacted Triumph and Land Rover specialists TR Spares in Padstow (Sydney). The helpful team there took the dimensions and offered a Viton type seal, for \$38.00, to the original sizing. I did take the pinion with me to check when I picked up the new one!



I had little confidence that I could evenly press and refit the seal given the encumbrances of the Morgan body, as far as I had it stripped. In the finish I 3D printed a substantial drift to help drive the seal into its journal, fixing the drift at the differential using zip ties. Two free hands then permitted the usual careful persuading with a length of 30mm square sectioned pine and a dead blow hammer.



3D printed drift

The remaining refit was routine, noting that the impact driver effectively retensioned the big pinion nut in the reverse direction. I note that there are now no squeaks and rattles in the cabin given the replacement of the tailshaft tunnel and other parts using the *full complement of bolts, nuts and screws!* Also, pleasingly, no more oil leaks from the pinion flange.

Subsequently, I removed the pressed steel differential cover which was also leaking to find an abundance of "All Clear" type silicon and no gasket. I was unable to find a suitable gasket but was able to make one up with gasket paper. On refitting there are now no leaks from the rear axle at all.