## The Preventive Maintenance Series

## Leaks at Differential Side Sleeves

Corvair differentials have a potential leak at either the side seal that the stub axle runs in or from the large O-ring that seals the adjusting sleeve to the case. Early models are more prone to leak from the side seals due to the swing axle design than the late models but all years can began leaking from the aging O-rings. Side seal replacement is pretty straight forward so this article will address the O-ring replacement.

Clean the differential case (car wash) and you may need all of the following tools so be prepared: A side sleeve tool; the best is a donor sleeve with a  $\frac{1}{2}$ " drive socket welded to it for turning the side sleeve in the case (borrow a tool from another member?). You may need an impact wrench to get the sleeve started and then a ratchet to continue. Also useful for Powerglide cars is a 12" piece of  $\frac{1}{4}$ " by 1"+ steel stock for turning the sleeve behind the dipstick tube once it is loosened. Vendors sell tools for turning the sleeve but if you have a 50 year old sleeve that is stuck you will need the donor sleeve tool mentioned above, operated with an impact. Use of a hammer and chisel on the lugs will most likely break them off.

You can remove the side sleeves and replace the O-rings one at a time without disturbing the ring and pinion match by raising the car and supporting it in a completely level position and indexing the sleeves with a mark that you don't wash off. Start with the passenger side.

**For early models**: Remove the entire axle and unhook the speedometer cable. Drain the differential for '63 and earlier. For '64 either use a suction gun or simply put a pan under the area when you unscrew the first sleeve. Good time to change gear lube anyway.

**For late models**: Either use a suction gun for removing gear lube or just put a pan under the case when removing the first sleeve. Remove the inner U-joint and you may want to drop the lower strut although you can work around it. Bend over the French lock and remove the bolt and stub axle from the differential.

All models: Remove the lock tab and bolt from the passenger side and use chalk, a marker, or a chisel to index the sleeve at the 12:00 position. The mark needs to survive any cleaning you do. Then remove the sleeve, change the O-ring and side seal, clean the chamfer area on the case where the O-ring makes contact, clean and lube the threads, lube the O-ring, replace the sleeve and tighten back to zero. Then try to go past zero. If you can go past zero, count the number of notches and back up by half. When you do the other side you will add the remainder of the notches to the zero point. This will put your ring gear in its original position.

When you remove the driver's side sleeve the differential unit may drop slightly. If it does, simply use your left thump through the sleeve to raise it while screwing the sleeve

into the case. The bearings require a pre-load so tighten the last sleeve to 20 ft.lbs. and back off two notches. Peaks and valleys each count as a notch.

**Note:** Early model manual transmission positraction units have a history of breaking the plate cover in numerous pieces. The differential still works but if you remove the right side sleeve the pieces all fall out and complete removal and repair will be necessary. Before starting work on an early model that is supposed to have positraction you could jack up the car and try turning one wheel (neutral, no parking brake) while someone holds the other one. If the opposite wheel can be held without difficulty then the positraction plate cover may be broken. However, there is the possibility that you do not have positraction or the slip plates may be completely worn out, so investigate further. Late models have a stronger positraction plate cover and do not break.