

Power Steering Upper Shaft Seal Replacement

This is the procedure for replacing the seal who's symptoms when failing is power steering fluid leaking from under the steering wheel. This seal replacement was performed on a 3 cylinder model 2600. Your model may be different but the same principals probably apply. For detailed instructions, follow along with the appropriate I&T shop manual.

Remove the steering wheel, throttle shaft, and sheet metal exposing the steering column.

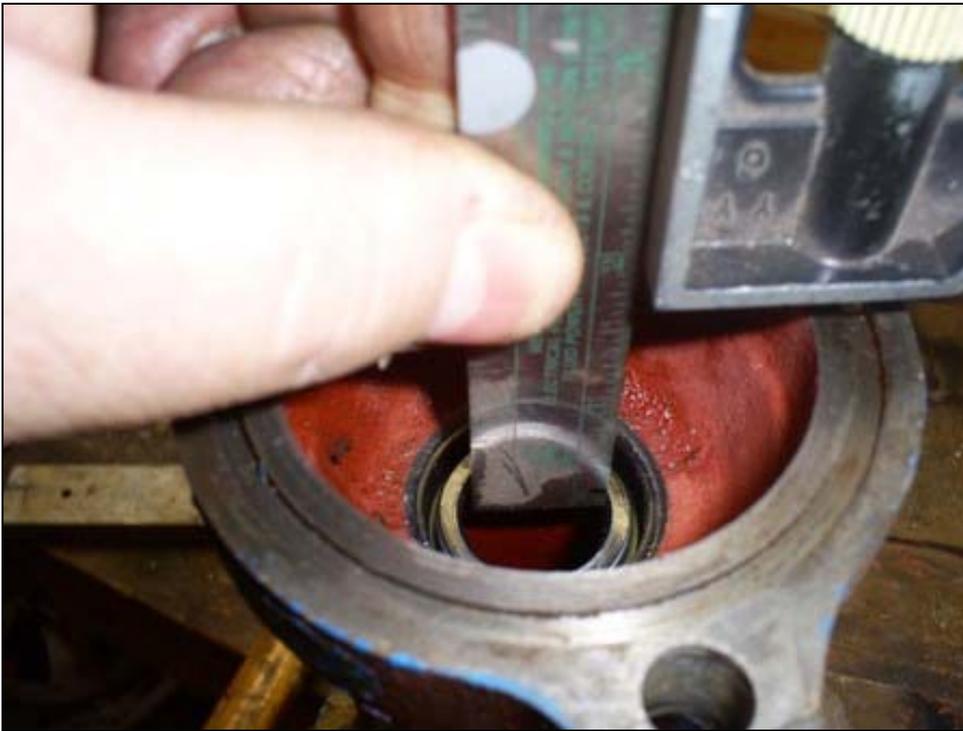
Remove the dash support and finally the 3 bolts holding the steering column upper casting on exposing the lower steering assy.



Once the upper casting is removed the lower steering assembly is visible along with the steering shaft that the seal runs against.



By measuring the depth of the seal in the casting, you can determine where the seal runs against the shaft. With the old seal removed you can also measure the casting and subtract for the area in the seal. In my case the lip of the seal is located $1 \frac{9}{16}$ from the base of the casting. We will use this dimension for locating the Speedi-Sleeve later.



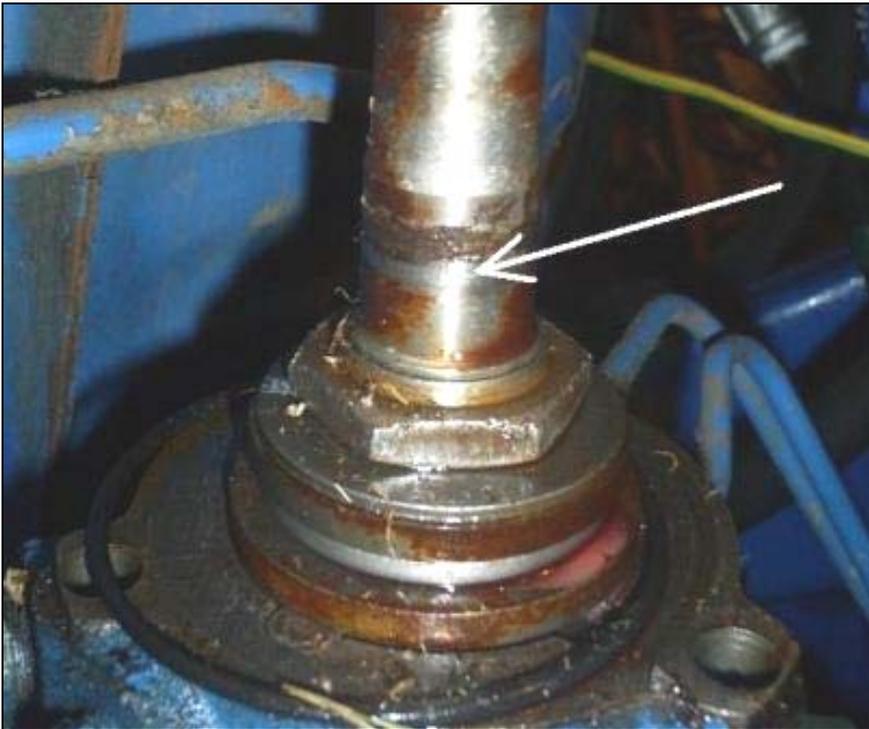
This is a measurement of the casting with the old seal removed. We need to subtract the distance from the surface of the seal to the lip.



Here's a picture of the new seal. Note the bottom of the seal goes towards the lower steering assy.



In this picture, the area where the seal mates to the shaft is indicated with a white arrow. It's easy to see the pitting and rust just above the seal area. It's important to note that the steering shaft moves up and down approx 1/8" from center during normal operation. It's likely that in this case when the shaft drops the seal lip is on the pitted area which is responsible for premature seal failure.



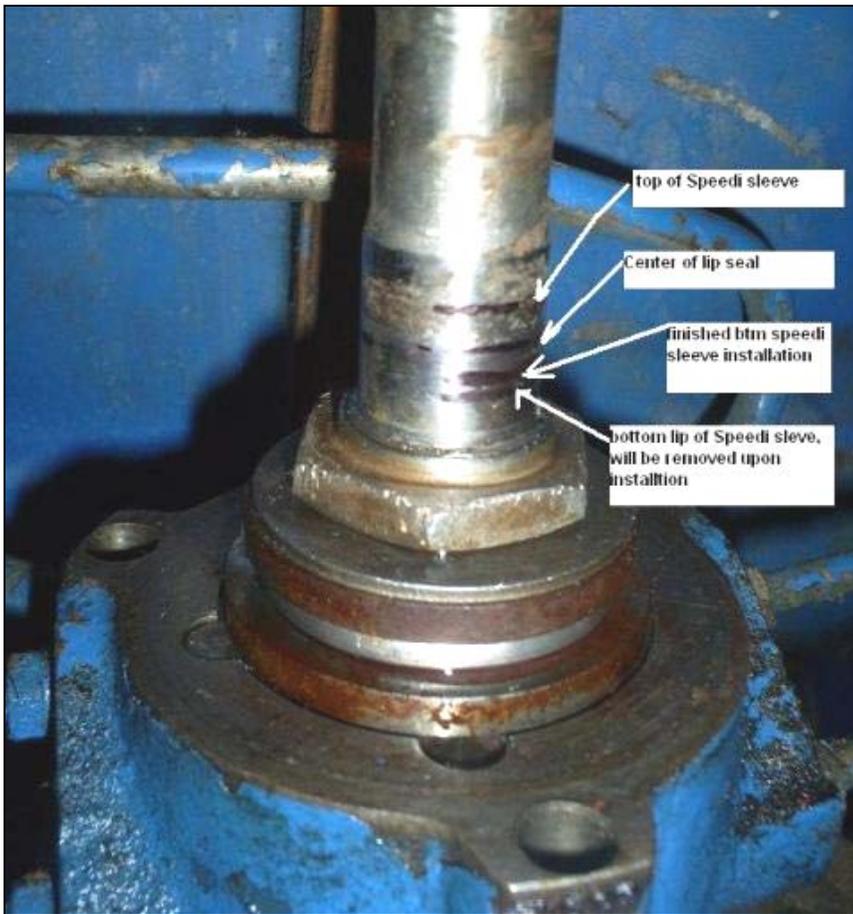
At this point polish the mating surface with 400 grit emery cloth. This is the result of cleaning mine. Notice there is pitting remaining, this is not a good sealing surface. I have also measured the distance to the lip seal area and marked with a pen. The replacement seal kit I ordered came with a Speedi Sleeve which we will use. The pitting is from water entering the top of the steering column and lying on top of the seal area promoting rust and corrosion.



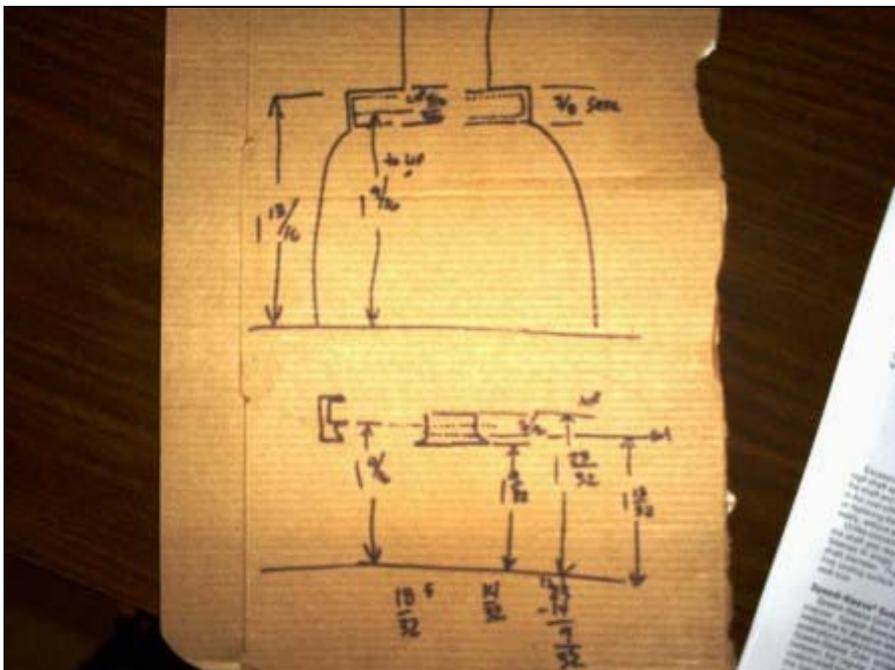
This is a picture of the Speedi Sleeve that came with the kit. It's a very thin machined piece of Stainless steel that provides a new sealing surface without having to re-machine the shaft. It has a flared collar to aid installation that will be removed when completed. The kit comes with a bigger sleeve that fits over this one that you drive against to move the Speedi-Sleeve into position. Notice the groove on the left side near the flair; this is where the flair breaks away when installed.



After doing some math I determine where the Speedi Sleeve needs to be installed. The photo shows the marks for the installed top of the sleeve, center of the lip seal, the bottom of the usable Speedi Sleeve and the bottom of the Speedi-Sleeve prior to removing the lip.



You may find it easier to do your figuring on a piece of paper, I do.



Install the new seal into the upper casting. I used a socket of the same O.D, a short piece of heavy bar stock, and a hammer. Drive carefully and its ok to lube the seal to aid installation. Make sure the seal is completely bottomed out in the casting.



At this point I measured the actual lip of the new seal to verify the math was right. Apparently I did ok as it matched what I expected.



In the following picture, I have driven the new Speedi Sleeve down to just above my marks. From this point on I use a square and a machinist ruler to locate the sleeve. I have also installed the 3 bolts temporarily to hold the bottom block down tight. The photo shows me checking to see if the lip of the new seal lands in the middle of the Speedi-Sleeve.



After driving the Speedi Sleeve to the proper location, I removed the flared lip and did a final check, if I've done the math right, the lip on the new seal will land exactly in the middle of the new Speedi Sleeve. Instructions for installing the Speedi-Sleeve were in the seal kit I purchased through YT.



From here I lightly lubricated the new seal and reinstalled the upper casting with the new seal. It dropped onto the shaft and stopped at what I believe is the Speedi-Sleeve where it required just a little force to go on down.



John Korschot - 1/3/2009



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