

Bushing inspection and replacement

Busing kit from Oregon Performance Transmissions



Omega Machine bushing kit, partial



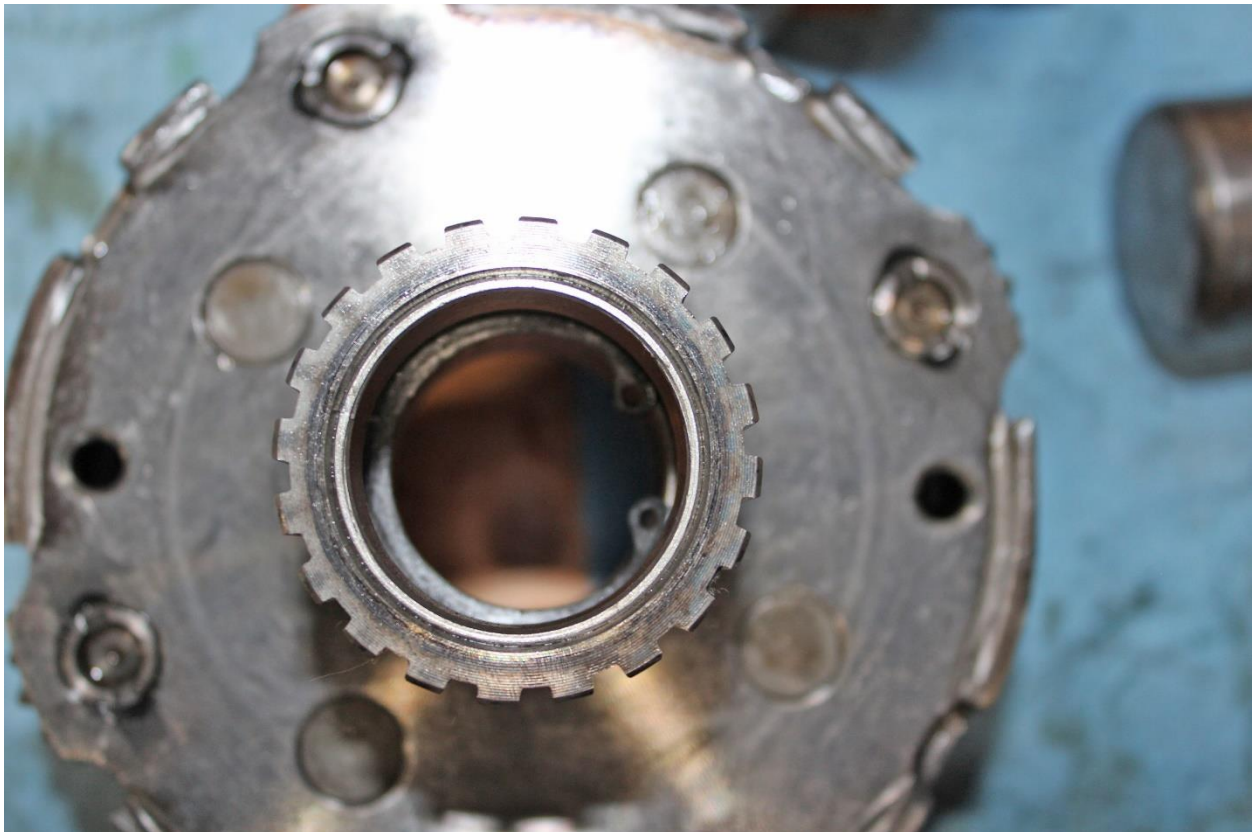
<https://www.omegachine.com/pdf/AW55-50SN%20Bushings.pdf>

ABN Driver kit



Bushings are used in many locations and all should be inspected and replaced if worn. I'm not an expert at bushing removal but I found that using properly sized snap rings were very useful during bushing removal. Many of the shafts are bored out for the bushing and then the shaft inside diameter narrows down making it difficult to drive out the bushing from inside the shaft outward. I used sized snap rings by compressing them and inserting them behind the bushing. This provided a better lip for the driver to drive out the bushing.

The rear planet has two bushings and shown in the photo is an inserted snap ring ready for the driver to drive out the bushing. It's best if two snap rings can be inserted with the snap ring eyelets 180 deg from each other to better distribute the drive load on the bushing. Once the snap ring is compressed and inserted through bushing it expands in the space behind the bushing. The driver can then be used to drive out the bushing from inside out.



All the bushings except the oil pump bushing either need a sized driver to remove the bushing or a snap ring can be installed behind the bushing in a groove opening between the bushing and an edge in the internal shaft opening. The ID of the shaft behind the bushing is smaller than the OD of the bushing only a portion of the bushing edge is available to drive it out.

Purchased various size of snap rings to insert behind bushing for driving it out

23mm ID internal snap ring for input shaft bushings .876 large shaft McMaster Car [98455A123](#)

Or 7/8 inch inside diameter .971 OD expanded McMaster Car part number [99142A450](#)

30mm ID internal snap ring for planet bushings McMaster Car [98455A127](#)

36mm ID internal snap ring for 4-5 clutch drum bushings: requires kit with steel bushing (Omega Machine), steel bushing must be driven out to replace bronze bushing and will likely get damaged, this steel bushing is not included in many bushing kits

McMaster Car part number for 30mm ID internal snap ring [98455A134](#)

Or 1 3/8 ID McMaster Car

[99142A520](#)

[99142A520](#)

With the rear planet and if using the snap ring method to drive out bushings it's important to note there's a support edge lip for the bushing where you can't keep driving the snap rings to remove this bushing. In the photo you can see this edge lip that supports the bushing. You can drive out the bushing most of the way and pull it out the remaining way but don't drive the snap rings against this edge lip. This edge lip is there to provide a space between the bushing and planet for oil flow to the planet gears.

Bushings removed, support edge visible, important to not drive snap rings against this edge lip. Drive out bushing most of the way then pull out bushing.



For the planet bushings there is a one piece bushing offered by Omega Machine that is supposed to offer better support and more secure retaining in the planet but requires the planet to be sent in and machined for bushing installation.

<https://www.omegachine.com/db/Volvo-AW-55-50-SN-planetary-repair-bushing.asp>

Omega machine describes case wear that can cause the planet bushings to spit out from the side loading caused by the case wear. They offer a case repair service.

<https://www.omegachine.com/db/Volvo-AW-55-50-SN-case-repair.asp>

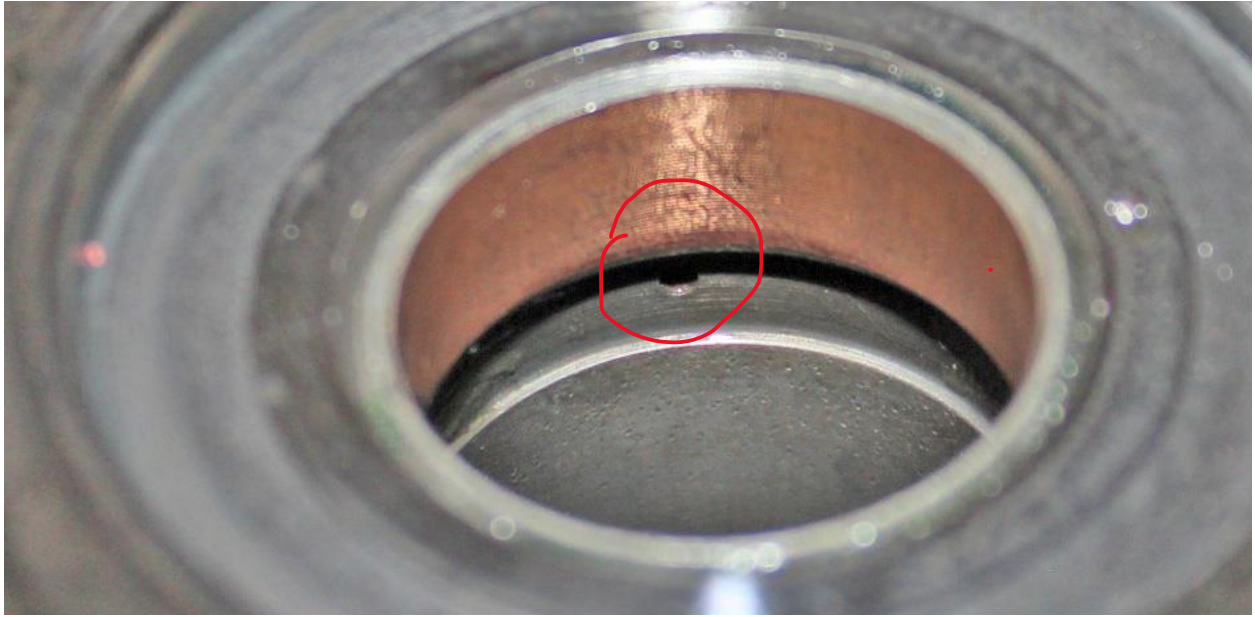
Driver in planet with receiver socket on bottom.



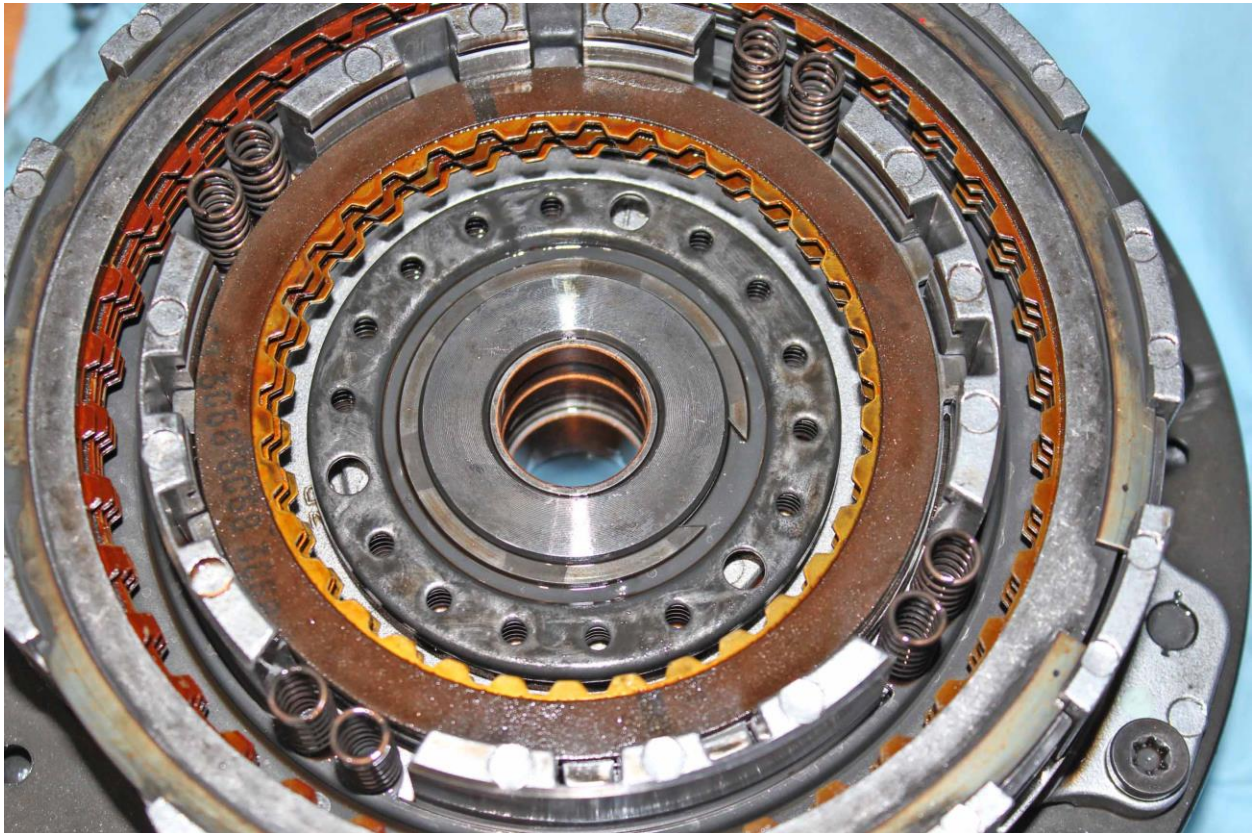
The 2nd gear shaft has two bushings and one bushing needs to be recessed some for a bearing thrust washer that protrudes into the shaft a short distance. The bushing needs to be deep enough not to interfere with this thrust washer. There's also an oiling hole that could be covered up if the bushing is driven in too deep.



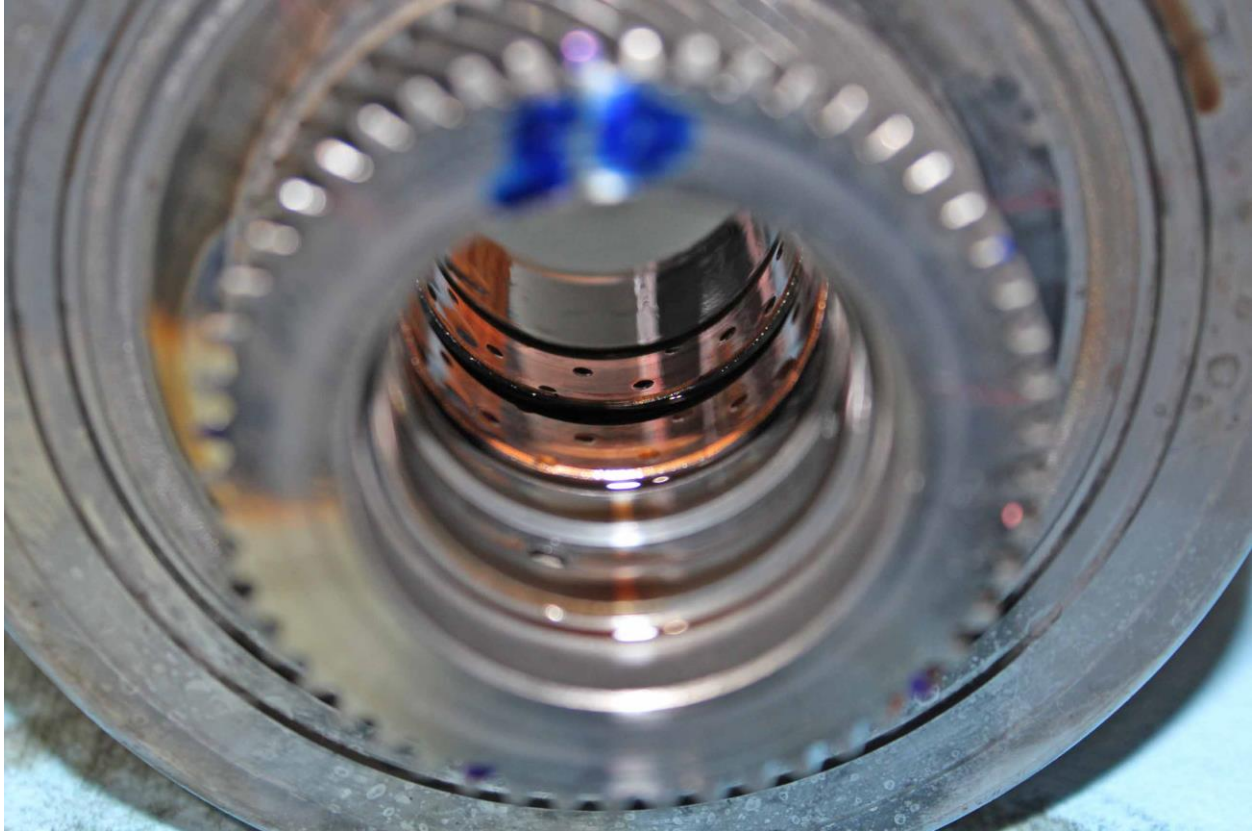
Other end of 2nd gear shaft, not oiling hole and why notto drive bushing in too far.



I've read in the Sonnax tech guides that these two bushings are important for lube flow pressure and torque converter lock-up and release flow control. If worn lube pressure can drop or torque converter lock up control can be impacted. Inspect carefully and replaced if worn. This is the stator and 2nd clutch and 2nd coast clutch carrier.



In the 4-5 clutch drum there are two bushings that support the drum on the shaft and a steel sleeve which 2 sealing rings contact and seal fluid pressure from the shaft to the 4-5 clutch. To replace the two bronze bushings the steel sleeve must be driven out and will likely be damaged in the process. Omega Machine offers bronze bushing a steel sleeve in a kit. The steel sleeve is not included in the other bushings kits I've seen. According to Omega Machines these bushings are typically reliable and don't need replacement but if they do they have a kit.



<https://www.omegachine.com/db/Volvo%20AW-55%2050%20SN%204-5%20clutch%20drum%20repair.asp>

Torque converter/stator bushing in oil pump behind seal. This bushing is easy to remove and install with the stator removed from the oil pump.

