

Saildrive Shaft Servicing

Last summer Flash was hauled in Georgetown Yacht Basin, Georgetown Maryland. I took on the project of an extensive servicing of the saildrives, including new boot seals and clamp rings, shimming bearings to take up for bearing wear, and servicing the seals and output shafts.

After removing the lower end bearing and seal housing, close inspection of the output shafts showed they had wear grooves where the seals had made contact. At that stage Flash was 13 year old, and the engines had 2,800 hours on each. Replacing the shafts would run about \$800 each, with a long lead time as these were not available in the US at the time.

So I opted for use of a simple fix that has been used extensively in a lot of industries over the last 10 years. That is to install very thin metal sleeves over the worn area so the seals could make a nice contact with a clean shaft area. The thickness of the sleeve is minimal, and would not affect performance or life of the seal appreciably. The product I selected is called SpeediSleeve. It is made by SKF and is readily available.

SpeediSleeve is a stainless steel product that comes in numerous sizes. I measured my shaft diameter and found the size SpeediSleeve specified to cover that diameter. For reference the Speedi Sleeve part number I found appropriate for my shafts was #99125. That is probably the size for other 471's with an S120 saildrive, but you should check to be sure. SpeediSleeves are made in a full range of sizes, so they can cover all size shafts. You'll need to measure your shaft diameter with digital calipers before ordering sleeves. SpeediSleeve comes with a metal cup shown in the above picture to help drive on the sleeve. However, it is not long enough for our application, and you'll need to use a longer tubing section that fits over the sleeve and against the SpeediSleeve collar.



The #99125 size fits shafts of 1.247 in. to 1.253 in. The SpeediSleeve is sized slightly smaller than this range, and the soft stainless steel stretches slightly when installed with an interference fit. I use Loctite blue on the



Repaired shaft with 2 SpeediSleeves,

shaft when sliding the SpeediSleeve in place to make sure I have a good seal under the sleeve. The sleeve is driven on using a piece of tubing just slightly larger than the sleeve, using a press or a mallet and block of wood. The tubing rides against a small, rolled collar on the end of the sleeve when driving onto the shaft. After the sleeve is placed carefully in the right location, the collar is peeled off, tearing away at a machined groove in the sleeve. This leaves a smooth sleeve over the damaged shaft area for the seal to ride on.

In our case with two seals, you will need to install two SpeediSleeves, one in the area of the shaft where each seal rides. This size SpeediSleeve is about 5/16 in. width when finished – not wide

enough to cover both locations of our seals.

For the S120 saildrive shaft, the first sleeve installed can be pushed all the way up against the gear, with the rolled collar going on first. Once in this location, you can leave the collar on this first sleeve. It is out of the way and helps position the sleeve in the right place. The second sleeve can then be slid into place at the proper location, and the collar removed. Measure carefully where the sleeves need to be placed before installation. You'll want to get the sleeve centered as best you can over the damaged area.

Here is a YouTube video that gives you an idea how this works:

<http://www.youtube.com/watch?v=09LiVbqL6ss>

In the future if one finds they have a wear groove in the sleeve, it can be removed by applying heat to the sleeve or by cutting it off, and new sleeves installed. The grooves I found on my shafts could have been a source of oil leakage or water intrusion. Just replacing seals without addressing the shafts would not have solved that problem.

After a season of motoring using the new SpeediSleeves and seals, I have experienced no water intrusion in the saildrives or loss of oil. So the SpeediSleeves have worked well.

Hank, s/v Flash, 2001 C471, H#29

May 2015