

**2014 PSRU MODS, Nov 29, 2014 follow up, RV-9A N678RA
Egg 2.5L SOHC Subaru, MT Prop**

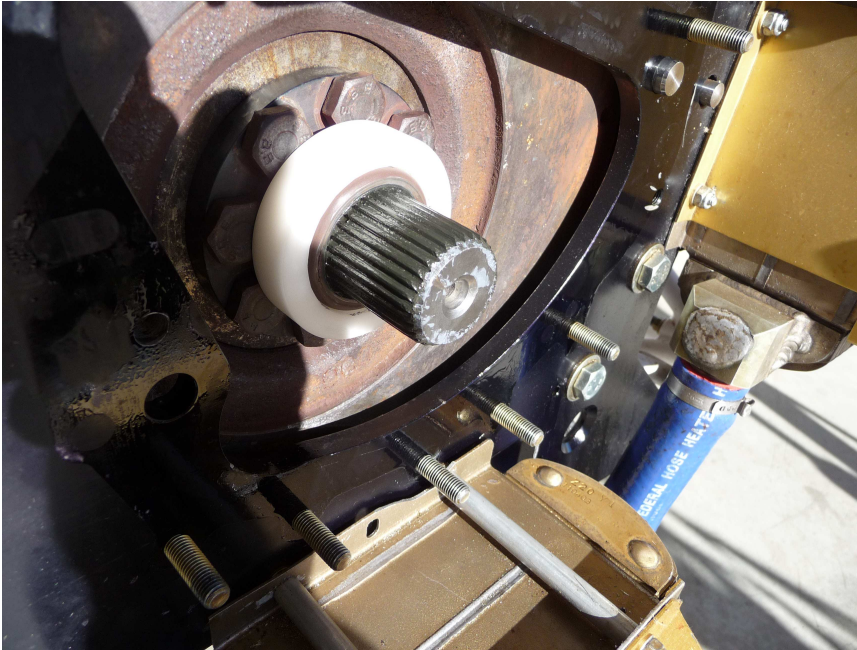
Introduction

This document is a follow up to “2014 PSRU MODS, RV-9A N678RA” dated Sept 11, 2015.

Initial findings

Upon disassembly of the gearbox from the engine mount plate I found that the added seal has functioned as intended. No Moly 60 has been lost. Note that the O-ring only has Moly 60 on it inside of the sealed area.

The first photo shows the spline shaft with gearbox removed from the airplane. Still completely coated with Moly 60. Note the complete absence of Moly 60 on the black mounting plate. This is a big change.

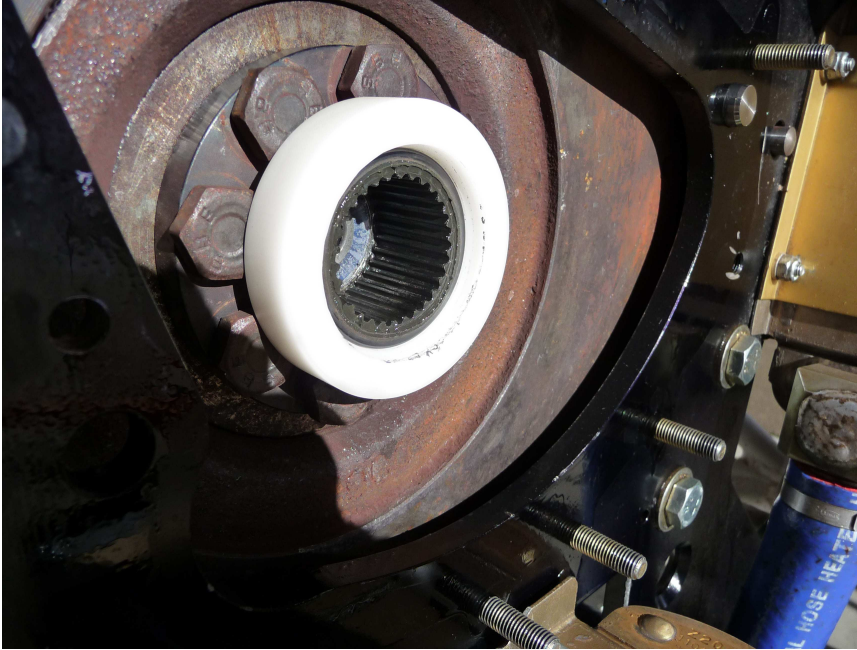


Here is the gearbox as removed. Also completely coated with Moly 60.

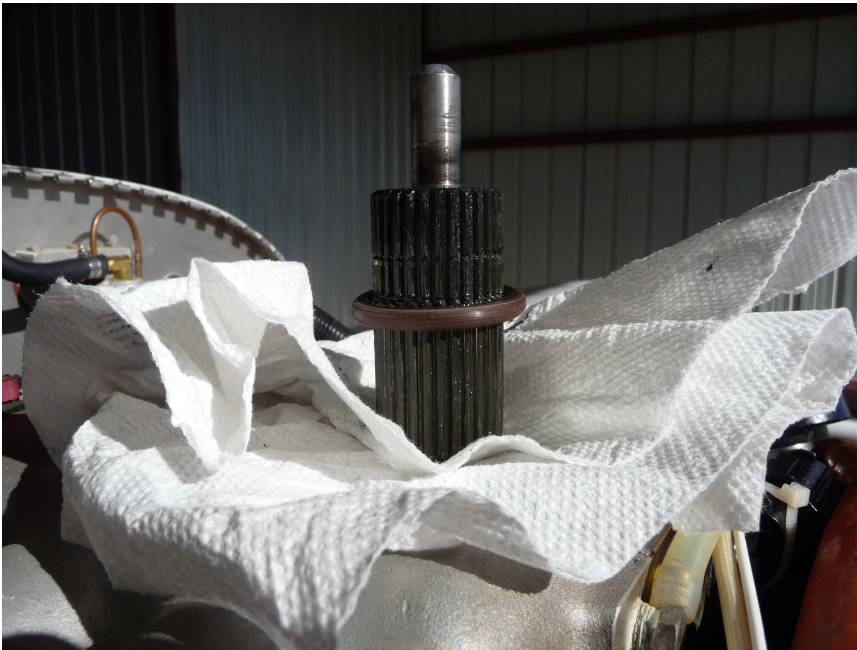


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And the flywheel adapter with the spline removed. The spline area is fully coated with Moly 60. Note the dry area where the O-ring sealed against the end of the flywheel adapter.



And the spline shaft itself as removed. Still fully coated with Moly 60.



The spline shaft cleaned up with only lacquer thinner and a paper towel compared to using a dremel tool with a wire brush prior to the seal mod. Hondy Moly 60 was reapplied and the airplane reassembled and test flown with no change in operation noted.

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Dimensional Data

On June 22, 2014 measurements were made of the spline shaft and mods made to the PSRU system to add a seal to retain the Hondy Pro Moly 60 spline shaft lubricant. Below is a comparison of the dimensions obtained on November 29, 2014 after approximately 30 hours of flight versus those taken on June 22nd. A column is included indicating the differences. Accuracy of the digital calipers used is plus or minus 0.001 inches. The dimensions highlighted in yellow are the dimensions that changed more than 0.001 inches.

2014 gearbox end			2014 flywheel end			2014 mid shaft		
22-Jun	29-Nov	difference	22-Jun	29-Nov	difference	22-Jun	29-Nov	difference
1.3700	1.3695	0.0005	1.3720	1.3705	0.0015	1.3730	1.3725	0.0005
1.3700	1.3700	0.0000	1.3715	1.3705	0.0010	1.3730	1.3725	0.0005
1.3700	1.3700	0.0000	1.3705	1.3710	-0.0005	1.3735	1.3725	0.0010
1.3700	1.3700	0.0000	1.3700	1.3700	0.0000	1.3730	1.3725	0.0005
1.3695	1.3695	0.0000	1.3705	1.3695	0.0010	1.3730	1.3725	0.0005
1.3695	1.3695	0.0000	1.3705	1.3700	0.0005	1.3730	1.3705	0.0025
1.3700	1.3695	0.0005	1.3705	1.3700	0.0005	1.3730	1.3725	0.0005
1.3705	1.3700	0.0005	1.3705	1.3710	-0.0005	1.3730	1.3725	0.0005
1.3700	1.3700	0.0000	1.3705	1.3695	0.0010	1.3730	1.3720	0.0010
1.3700	1.3700	0.0000	1.3705	1.3695	0.0010	1.3730	1.3725	0.0005
1.3700	1.3700	0.0000	1.3710	1.3695	0.0015	1.3730	1.3725	0.0005
1.3700	1.3705	-0.0005	1.3705	1.3695	0.0010	1.3730	1.3725	0.0005
1.3705	1.3705	0.0000	1.3710	1.3705	0.0005	1.3725	1.3725	0.0000
1.3705	1.3710	-0.0005	1.3705	1.3705	0.0000	1.3730	1.3725	0.0005
1.3705	1.3695	0.0010	1.3710	1.3700	0.0010	1.3725	1.3710	0.0015
1.3700	1.3700	0.0000	1.3710	1.3700	0.0010	1.3730	1.3725	0.0005
1.3705	1.3700	0.0005	1.3710	1.3700	0.0010	1.3735	1.3725	0.0010
1.3705	1.3700	0.0005	1.3705	1.3700	0.0005	1.3730	1.3705	0.0025
1.3700	1.3695	0.0005	1.3705	1.3695	0.0010	1.3730	1.3705	0.0025
1.3695	1.3695	0.0000	1.3705	1.3695	0.0010	1.3730	1.3725	0.0005
1.3700	1.3695	0.0005	1.3705	1.3695	0.0010	1.3730	1.3705	0.0025
1.3700	1.3700	0.0000	1.3710	1.3700	0.0010	1.3730	1.3710	0.0020
1.3705	1.3695	0.0010	1.3705	1.3695	0.0010	1.3720	1.3695	0.0025
1.3705	1.3695	0.0010	1.3705	1.3700	0.0005	1.3730	1.3725	0.0005
1.3705	1.3695	0.0010	1.3705	1.3695	0.0010	1.3730	1.3720	0.0010
1.3695	1.3700	-0.0005	1.3700	1.3700	0.0000	1.3730	1.3715	0.0015
1.3710	1.3700	0.0010	1.3705	1.3695	0.0010	1.3730	1.3725	0.0005
1.3705	1.3695	0.0010	1.3710	1.3705	0.0005	1.3730	1.3715	0.0015
1.3705	1.3695	0.0010	1.3710	1.3700	0.0010	1.3735	1.3725	0.0010
1.3700	1.3700	0.0000	1.3705	1.3700	0.0005	1.3730	1.3720	0.0010

The dimensions seen seem to indicate little to no wear at either end of the spline shaft with some wear occurring at the mid shaft location. This may be due to the repositioning of the spline shaft by the spacer and spring added along with the removal of the snap ring or it may be measurement tolerance. Next planned inspection will be at the next annual condition inspection or 50 hours of operation, whichever comes first.