



National Transportation Safety Board

Memorandum

From: Michael Huhn
Date: October 22, 2009
Subject: Sample User-Group Information Regarding Eggenfellner Propeller Speed Reduction Unit (PSRU) Gearboxes

The following pages contain excerpts from Eggenfellner user-group internet discussions and newsletters regarding PSRU reliability and other flight safety related information. All information was published prior to the accident involving RV-9A N362TS, which occurred on August 23, 2009. Certain names or sources were intentionally excluded for privacy purposes.

Source: User Group "Newsletter Number 2"

[A pilot] reported having two Gen2 gearbox failures...none of which resulted in a forced landing. He discovered the problems and grounded his aircraft before any in-flight failures. He says he attempted to share the details on Jan [Eggenfellner]'s Group list but was edited off the site and has never returned. ... Many of you might ask why I continue to dwell on the problems with these old Gen1/2 drives. Well, the fact is that many of you have not changed over to Gen3 yet. The \$3K is a large sum of money. Some of you wanted to see proven reliability out of the new drive before buying it. This case was proven in point since the Gen3 drives have seen a few upgrades. Still others like dd believed that nothing was wrong with the Gen2...it worked well in his plane... and when he got his Gen3 he had to go to another Gen3v4 upgrade...very discouraging. Until we collect and share actual field data with each other we are really in the blind regarding reliability.

My Gen2 Gearbox temps always ran hotter than the engine and the oil temps. (Normal temps for me were 205 - 210F with climbing temps for any power above 2100 rpm) In retrospect I have learned that this was probably a warning sign. After the failure, I used a loaner gearbox to get the plane home and it ran significantly cooler (15-20F) than my original gearbox so I speculate that there was something amiss with my original gearbox. The day of the failure, it was very hot and my GB temps were running about 215, this was probably another warning sign that I did not notice. Failure was in flight, after cruising for about 1 ½ hours on the day of failure. There was a sudden appearance of loud squealing noise and the gearbox failed about 3 minutes later. (gears stripped and engine raced, I shut the engine down in flight) Pure speculation on my part is that one of the bearings failed and after the bearing seized, it led to a failure of the gears. Again, in retrospect, I think the high temps were telling me about a problem that I did not recognize. The dramatic difference in the loaner Gearbox (much cooler temps) tells me that this was an issue associated with my gearbox that may or may not be present in other units. The new Gen2 gearbox is much cooler running in my plane.



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The following text was excerpted from responses posted by Mr. Eggenfellner on his user forum on November 25 and 26, 2007:

If you are flying a G1 or G2 version of our reduction drives, they are not as strong as the new generation 3 units and hence should be monitored more closely. Drain and check the oil on 25 hour intervals to verify that the internals are clean. Listen for unusual noise on the ground that could indicate an internal problem. These drive units served the engines well for many years but an improved version is now available.

- * All G1 and G2 drives are to be grounded at the end of 2008 and replaced with a generation 3 unit.
- * A oil inspection and change is due now
- * A oil change is due every 25 hrs
- * The drive should be removed and replaced with a G3 unit before the end of 2008

Since the decision was made to exchange all earlier drives for the G3 units, we will still do these at cost and not retail.

All G1 and G2 drives are usable until January 1st 2009 by carefully checking the oil and monitoring temperatures.

We cannot, in good faith, allow anyone to use a drive that we now have a superior replacement for. The drive unit is the #1 item to be concerned of in an auto conversion. Allowing everyone to upgrade at cost is the proper thing to do.

Nothing is mandatory in experimental aviation. All I can say is that if it was my airplane, I would use the G3 since it was specifically designed to improve on the earlier drive units and also that the G3 unit is less likely to have a problem.

A black rectangular redaction box covers the signature of Michael Huhn. A small portion of the signature, including the letters "H" and "U", is visible below the redaction.

Michael Huhn
Air Safety Investigator