

Engine Mount Warning

by Nat Puffer
Co-Z Dev.

Along similar line to the engine loss in a VariEze that as reported in your Canard Pusher #89, I would like to relate the experience we had, which might be of benefit to other builders.

When we decided to evaluate the Franklin engine in our Cozy Mark IV, we simply unbolted our Lycoming from the firewall (it has a conventional engine mount which bolts to the corners of the firewall, not to extrusions on the centersection spar), because the Franklin engine requires a completely different bed-type mount. While the Lycoming O-360 was out of our airplane, we decided to have it rebuilt. So we delivered it to the licensed engine shop on our field with it still mounted on the engine mount. They did a very thorough job of rebuilding our engine, installing new Superior cylinder assemblies, regrinding the crank, remachining the cases, complying with all the ADs, replacing all of the hardware, and checking it out with a brief run-in. After a years evaluation of the Franklin, when we were ready to put the Lycoming back in, the engine shop delivered the rebuilt Lycoming to our hangar mounted on the engine mount, same (we thought) as when we delivered it to them. We reinstalled it by bolting it to the firewall and reconnecting all the controls, lines and wiring. We put 9 hours on the rebuilt engine locally, and it broke in nicely with the CHTs dropping down nicely, so we changed the oil, checked the installation one more time, and felt confident starting out on a 5-week trip, going first to Arlington, WA, then on to Minnesota, then to Oshkosh, and finally home again.

At Duluth, Minnesota, when I was doing my preflight, I reached in the lower engine cowl through the NACA scoop, felt a large object, and pulled out a Lord mount bushing, and an engine mount bolt and nut. The nut was the standard AN-7 lock nut specified for use with the Lord mount bushings used in the dynafocal mount, but it was worn out and could be spun freely on the bolt. At that point I took off both cowlings, and found that the Lord mount bushing had come from one of the lower dynafocal doughnuts, the other lower one and one of the top ones were about ready to come apart. *There was only one tight Lord mount bushing on the top holding our engine on!* I requested the assistance of a mechanic at the local FBO. He

said he never saw anything like it. He had some new AN-7 locknuts and helped me reinstall the bushing which came apart and replace all of the other nuts.

It was interesting to us that we did not feel any increase in vibration as these nuts loosened during the then 25 hours on the engine, nor did we feel any reduction in vibration after we installed new nuts and tightened them up. Reflecting on this matter, we decided that we were very fortunate, not only to have discovered the problem and fixed it, but to have a pusher rather than a tractor engine installation. If our engine had been pulling, rather than pushing, I am sure the problem would have been much worse.

When we returned to Mesa, I visited my engine shop, and showed them the junk nuts they had used to install the engine on the engine mount. They thought it was humorous! They disclaimed any responsibility. They said that installing the engine mount on the engine before returning it to me was airframe work, for which they were not responsible. They admitted they had used junk hardware, and it was up to me to disassemble the dynafocal mount and reinstall it with new hardware. It was all my fault!

The lesson I learned was not to trust anyone, even a very reputable shop, but to check everything myself! Even though I am incriminating myself to publish this, I think the greater good is to let other know, to avoid a similar experience, with perhaps a less satisfactory outcome. ●

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