

## **PROGRESS CONTINUES ON RV-12**

*From the 6<sup>th</sup> issue of the 2007 RVator, written about Jan. 4:*

In the Experimental Amateur-Built category, there is no requirement for structural test or performance testing. A designer can build, kit and sell an airplane without showing that it meets any standard at all. At Van's we've taken a more conservative approach, designing and testing to standards similar – but not necessarily identical – to those used in certified airplanes. As testing techniques (for instance, ground vibration tests for flutter) become available and practical, we've adopted them.

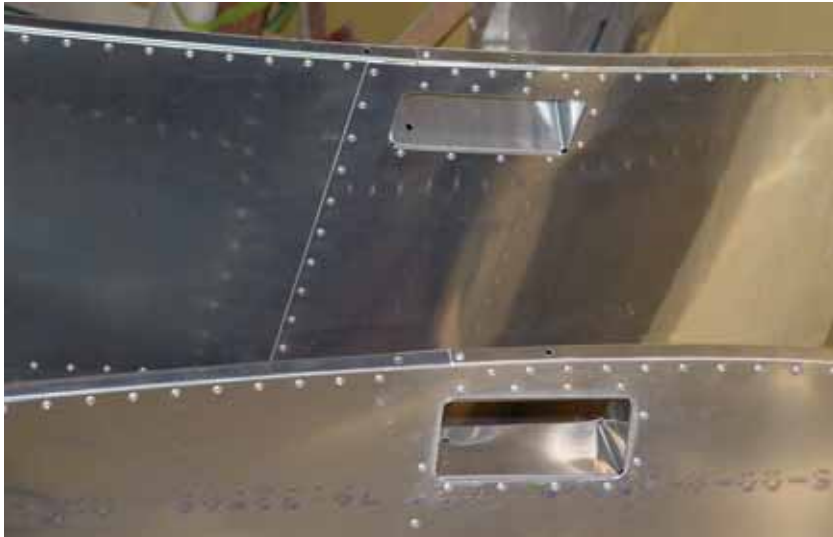
The RV-12 is a little different story. There are several advantages to qualifying for E/S-LSA and we've always intended that RV-12 should do so. To be eligible for the E-LSA or S-LSA categories, the airplane must comply with a set of structural standards. The standards chosen for these categories were not the traditional FAR Part 23 requirements. Instead, standards set by the American Society for Testing and Materials (ASTM) were adopted.

Perhaps surprisingly, LSA regulations provide no method for demonstrating compliance with these standards and no independent testing or auditing body was ever established. Since there is no independent testing body, anybody developing a new design could just say their airplane qualifies and sit back. Who's to say it doesn't?

That's not the way it happens here. The RV-12 *will* meet the standards and we will be able to *show* anybody who needs to know that it meets the standards. If the prototype's stall speed is two knots too fast to qualify, and we find that it needs a different wing to get it down to the required speed, then a new wing will be built. This is one of the reasons that it's taken as long as it has to bring the airplane to market. While ASTM airframe standards exist, the methods of demonstrating a test item actually complies with the standard are not defined. That means that not only do we have to test, we must design the tests themselves. An example: Suppose the landing gear standard was something like: "must withstand 6G vertical load with no more than 2% deformation." (I just made that up.) All well and good, but exactly how do you arrange to load the landing gear to 6G and measure the deformation? That requires the engineering folks to design a test that the shop guys can actually perform, and delivers the required knowledge. Sometimes it's simple, but often it's not. And it all takes time.

As the final tests are conducted, and we know we have an airframe that meets the standards, we can proceed with construction of the "conforming" prototype airplane. In fact, construction of airframe components is well along, and we'd like to think the second RV-12 will be flying by Valentine's Day.

But we ain't painting it pink!



### ***And another note on Jan. 17:***

The wings for the Proof-of-Kit airplane are done and the rest of the airframe is under construction. Remember the odd little "winglet" handles on the yellow prototype? Here's a better idea (circa 1928) that we incorporated on the new airplane. The slot is big enough for two hands (or hands with gloves if you're assembling your airplane on a freezing day) and is easier on the finger than the thin grips we tried at first.



Currently, landing gear tests are underway (there are several tests required). These are the last tests necessary, and once this hurdle is cleared, progress on the new airplane ("flight article" in engineer-speak) should accelerate.