

| OPINION |

LSAs: Who's guarding the henhouse?

The new crop of factory-built LSAs is impressive and exciting, but the maintenance rules are—different

BY MIKE BUSCH

THIS YEAR FOR THE FIRST TIME I attended the U.S. Sport Aviation Expo in Sebring, Florida, the foremost aviation event devoted to Light Sport and ultralight aircraft. I accepted an invitation to speak not because I had any expertise in this lightweight corner of the general aviation envelope, but because I sensed this would be a great opportunity to learn about an exciting and rapidly growing segment of GA.

In 2004, the FAA approved new regulations that created sport pilots and Light Sport aircraft. I recall wondering whether this would amount to much. I needn't have worried. There are now more than 6,000 sport pilots and nearly 4,000 registered LSAs, making this the fastest-growing segment of GA.

Ten years ago, the term "LSA" conjured up images of small, tube-and-fabric designs that always struck me as a lot more "sport" than "airplane." But progress over the past decade has been astonishing—especially compared to the glacial pace we're used to in the certified world. Today's top-selling factory-built LSAs, called Special Light Sport aircraft (SLSAs), are sleek, sexy, high-tech designs with sophisticated powerplants and glass cockpits.

A lot of this progress in the LSA world has been spurred by two component suppliers: Dynon Avionics and Rotax Aircraft Engines. The Dynon Skyview seems to be the *de facto* standard avionics suite for the current crop of SLSAs, and it has capabilities that put to shame most of the TSOed glass cockpit suites I've seen.

The 100-horsepower Rotax 912ULS powers about 80 percent of new SLSAs. Rotax started out building two-stroke engines used in snowmobiles, personal watercraft, ATVs, and outboard motors, as well as in go-karts and ultralights. Those engines were famous for being cheap and light, but in aviation applications a



bit cantankerous and dismally short-lived (three-digit TBOs). Rotax created its four-stroke 900 series as a clean-sheet design specifically for the aviation market, employing Nikasil nickel-carbide cylinder barrels, liquid-cooled heads, and electronic ignition. The original 500-hour TBO has been increased to 2,000 hours, accompanied by a record of impressive durability and reliability.

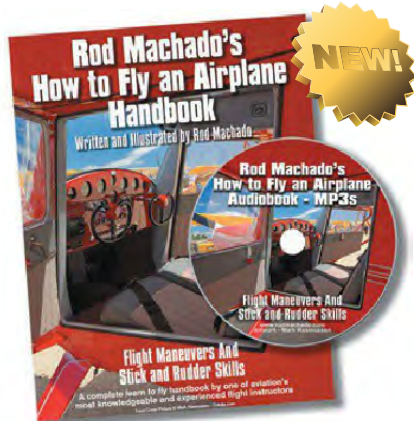
WHO'S GUARDING THE HENHOUSE?

The FARs treats LSAs very differently from either certificated or amateur-built aircraft in ways that are sometimes good, sometimes bad, and sometimes bizarre. LSAs are not certified by the FAA in the traditional sense: They don't have a type certificate and don't need to meet FAA certification standards the way Normal-category airplanes do. Instead, LSAs are required to conform to something

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called “FAA-accepted ASTM Consensus Standards.”

Members of nonprofit ASTM International, a voluntary standards development organization, create and maintain 12,000 consensus industry standards in such diverse areas as metals, textiles, petroleum, construction, energy, consumer products, medical services, and electronic devices. ASTM Committee F37 on Light Sport aircraft develops standards for LSAs. About 200 members represent manufacturers, suppliers, distributors, and industry alphabet groups. Seven technical subcommittees have jurisdiction over 24 consensus standards, ranging from minimum safety

Part 91 must comply with service bulletins only if the FAA issues an AD compelling compliance. In essence, LSA manufacturers can issue their own “ADs” without having to jump through the statutory hoops that protect owners from unreasonable action by the FAA.

It gets worse. FAR 91.327(d) requires that SLSA pilots “must operate the aircraft in accordance with the aircraft’s operating instructions.” If this rule applied to Normal category aircraft, it would be an FAR violation for me to operate my engines lean of peak, because that’s not what the pilot’s operating handbook says to do. Nor could I purchase GAMInjectors to make lean-of-peak

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and performance requirements to quality assurance, flight testing, and maintenance.

In essence, the FAA has stepped back from its traditional regulatory role and allowed LSA manufacturers and ASTM F37 to run the show. This strikes me as a mixed blessing. It has clearly been a boon to the LSA industry, facilitating technical progress that I doubt would have been possible in a conventional, FAA-regulated certification environment. It also has put LSA owners in a situation in which everything the manufacturers do or say has the force of law, and that seems a bit like having the fox guard the henhouse.

FAR 91.327 imposes a laundry list of operating limitations on SLSAs, many of which sound reasonable. For example, it prohibits the use of SLSAs for compensation or hire except to conduct flight training or tow gliders. It requires condition inspections every 12 calendar months (every 100 hours if the SLSA is used for hire). It requires owners to comply with applicable airworthiness directives—all commonsense stuff.

But 91.327 also requires SLSA owners to comply with “each safety directive applicable to the aircraft that corrects an existing unsafe condition.” These safety directives are issued by the manufacturer, so in effect they’re mandatory service bulletins—owners of certificated aircraft operating under

operation practical, because FAR 91.327 says that any major alteration to an SLSA must be approved by the manufacturer.

The absurdity of this situation really hit home when I learned that SLSAs are prohibited from flying in IMC. I’m instrument-rated and current. My new quarter-million-dollar SLSA is equipped with wall-to-wall glass, synthetic vision, highway-in-the-sky graphics, and a fancy autopilot—and you’re telling me I can’t fly through clouds?

I looked for the regulation that prohibits SLSAs from operating in IMC, and discovered something interesting: There is no such regulation. It’s actually the LSA manufacturers that have decided not to allow their airplanes to be used this way.

Originally, it was perfectly legal for an appropriately rated pilot to fly an appropriately equipped SLSA in IMC. The original ASTM consensus standards were silent on the subject of IFR. Then, in 2010, the ASTM F37 Committee voted to amend the consensus standards to prohibit flight in IMC. Every SLSA manufactured since then has had operating limitations prohibiting IFR operations. At the time, the committee said this was intended to remain in effect only until it could develop an appropriate set of safety, performance, and equipment standards for IFR operation. That was

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six years ago, and according to folks who serve on the committee, the prohibition is unlikely to be lifted anytime soon.

REGULATION BY ROTAX?

Why do you suppose LSA manufacturers, distributors, and suppliers voted to prohibit these aircraft from flying in IMC? The odd tale of the Rotax 912ULS engine may offer some insight. Earlier versions of the Rotax 912-series operator's manual stated that the 912ULS was prohibited from being used under IFR, but the current manual is silent on the subject, probably because it no longer needs to say anything. You don't suppose Rotax had any influence on the ASTM F37 Committee's decision in 2010 to prohibit operations of SLSAs in IMC?

Here's another oddity. Rotax also builds a certified 912S version for use in Normal-category airplanes such as the Liberty XL. When your certificated Rotax 912S reaches its 2,000-hour TBO, you can keep flying as long as the engine remains in airworthy condition, because TBOs are not compulsory for noncommercial operators of certificated aircraft. However, if you own a Van's RV-12 SLSA powered by a Rotax 912ULS, you are required by regulation to overhaul it at the 2,000-hour mark—because that's what Rotax says to do.

The fact that SLSAs must be maintained strictly in accordance with the manufacturer's instructions, and on the manufacturer's timetable, makes me profoundly uncomfortable—in my experience, manufacturers' maintenance guidance almost always involves gross overkill, and I'm a maintenance minimalist. In contrast, FAR 91.327 is very lenient about who is allowed to maintain and inspect SLSAs. All it takes is an FAA repairman certificate with a Light Sport aircraft maintenance rating, which anyone can obtain simply by passing an FAA-approved three-week course. So an SLSA owner who wants to perform his own maintenance, and even his own annual condition inspections, can do so with only a modest investment of time and effort. And if he wants to swing wrenches on his buddies' SLSAs, he can do that, too.

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over ADs and maintenance requirements, if I have to be regulated, I'd much rather it be by the FAA than by the manufacturer of my aircraft or engine. We all love to complain about the FAA, but at least it is primarily motivated by a concern for safety, and is subject to numerous laws intended to protect us from overzealous regulation. In contrast, my experience with aircraft and engine manufacturers is that they primarily are motivated by concerns about being sued, and frequently act in ways that are harmful to those of us who own their products.

One evening over dinner in Sebring, I was talking to a staff member of the Experimental Aircraft Association about my concerns over the seemingly unfettered powers of coercion granted to LSA manufacturers. With a twinkle in his eye, he said, "Mike, that's why we got the FAA to include the great escape clause."

He explained that the owner of an SLSA who doesn't care for how he's being treated by the manufacturer of his aircraft has the ability to "opt out" by surrendering the aircraft's SLSA airworthiness certificate and applying for an Experimental Light Sport airworthiness certificate to replace it. Then, he can basically ignore the manufacturer's instructions and operate and maintain his factory-built LSA as he sees fit, almost as if it were an amateur-built Experimental.

By doing this, he probably gives up any remaining warranty and factory support to which he might have been entitled. He also gives up the ability to use his aircraft for compensation to give flight instruction or tow gliders. But what he gets in return is the ability to operate and maintain his LSA pretty much as he sees fit. Engine and propeller TBOs would become mere suggestions, the way they are for certificated aircraft. If the LSA is appropriately equipped, it probably can become legal to fly in IMC, assuming the designated airworthiness representative who approves its new operating limitations allows it.

Seems to me that if I bought an LSA, this might be one of the first things I'd do. **AOPA**

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