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**But Will They Work for You?**

**Choosing a school LSA**

**By Art Tarola and Helen Woods**

**W**ith more than 100 models of special light-sport aircraft (S-LSA) on the market today, choosing the right aircraft for your flight school can seem overwhelming. However, flight schools have specific needs and requirements, and the number of LSA that meet those narrows down the choices to just a handful.

The fact is that flight schools are tough on airplanes. Airplanes in this environment need to be rugged, be easily repaired, and fit a wide range of customers—and they need good flight characteristics on top of all three.

These aren't necessarily the requirements for a personal aircraft, so you'll need to keep that in mind. By doing so, you can make a smart choice for your training program.

### Size and Shape

A flight-school airplane should fit your customers, and students pursuing sport pilot training span a wide range of sizes and shapes. Fourteen-year-old teenagers, whose parents see sport pilot training as an affordable way to explore aviation as a potential career, aren't uncommon. Neither are 70-somethings who have "obtaining a pilot's certificate" at the top of their bucket lists; they're attracted by the simplicity of the rating and no need for medical certification. The younger end of this spectrum may not yet have attained their full height, while the older end has often put on a few pounds, so it's important to find an airplane with a good useful load that fits a large range of body types.

You'd be surprised by the number of LSA that have unusable useful loads; ASTM certification standards only require a minimum useful load of around 430 pounds (190 pounds, times two seats, plus one-half the engine horsepower), and many LSA come in at, or near, that number. The older side of our client base tends to average some-

and balance of the demo plane—not the brochure. And know that, if you are looking for a plane with a good useful load, there's probably a Rotax engine in your future; it's *significantly* lighter than any of its competitors.

As for size, be sure to take your largest and smallest customers shopping with you. Can your smallest reach



Photo: Jason Blair

where between 200 and 230 pounds, and a fair number of clients go a good deal more than that. You can see how an LSA with a 200-pound instructor, 230-pound student, and a 430-pound useful load isn't going to work—unless it's a glider. Useful load itself will significantly narrow your LSA search.

A couple of notes: Some LSA manufacturers have been accused of inflating their performance figures for marketing purposes. This is especially true for useful load. When you're shopping for an LSA, check the actual weight

the rudder pedals and see over the panel in front of her? Does your tallest have enough legroom and headroom with his headset on? On a recent LSA shopping trip, a tall pilot illustrated these issues; he couldn't even get into one airplane because his legs wouldn't swing under the panel; in another, a seaplane, he yelped in pain when the clamshell canopy came down on his feet—this, after wading barefoot through the lagoon to climb into the plane. The manufacturer simply had not left room for feet as large as his



under the panel. By comparison, we found several aircraft without seat or rudder-pedal adjustments that had rudder pedals nowhere near a shorter pilot's feet.

Consider your less-flexible clients when you're shopping, too. Sport aviation attracts quite a few older students and renters who may not be as nimble as they once were, so a number of LSA will be difficult to get in to for someone who can't climb up into the cockpit while maneuvering around the control stick.

### **Maintaining the Aircraft**

The level of factory support you'll receive to maintain the aircraft is probably the single most important factor

and there are a couple of major things you need to keep in mind.

1. The plane is only an S-LSA (as opposed to an experimental LSA, which can't be used in a flight school) as long as the company is still in business or some other entity is providing support for it. Hence you want to be sure that whatever company you go with is going to stay in business.

2. Almost any change to the aircraft—including a brand change for the battery or tire—requires a letter of authorization from the factory. It's important to talk to other owners of that aircraft and find out what type of support they've received; one company that Helen has dealt with refused to authorize the installation of higher-

same type told her that the factory required him to purchase batteries from it, while technically identical batteries were available at a local battery store for much cheaper. She's also heard stories of owners of other LSA who were unable to order parts—or even find a factory person who spoke English they could work with.

The flip side of this is that a reasonable factory can authorize you to use domestic parts found locally; we've saved quite a bit of downtime and money by buying fuel hoses, fuses, spark plugs, throttle cables, landing lights, and electric switches from local sources. Check with other owners to see how reasonable the company is to work with (and any fees it might charge) to obtain the letter of authorization (LOA) you'll need to make changes to the aircraft.

3. Major repairs must be conducted under the guidance of the factory. A flight-school plane is likely to have to undergo major repairs periodically, so you'll need to determine whether the factory provides specifications and technical advice. Will it allow you to use domestic materials to conduct the repair—and if not, how easily can you get materials, as well as technical guidance, for a repair?

4. The FAA does not put out airworthiness directives (ADs) for LSA; instead, it leaves the responsibility of issuing mandatory service bulletins to the factory. Some companies aren't

very good at this. They apparently fear that admitting to problems in their design will open them up to liability, or



Photo: Helen Woods

for selecting an LSA. These aircraft are maintained under a different set of rules than type certificated aircraft,

quality aircraft tires on an airplane unless she mailed one to Italy and paid them to test it. Another owner of the

they simply don't wish to incur the expense of repairs—especially for aircraft that are still under warranty, which can be a large percentage of the fleet. It's worth checking into how well the company owns up to problems and how well it support owners who must fix them.

5. Manufacturers can require specific initial and recurrent training for individuals who work on their aircraft. Rotax requires a certain level of training with two-year recurrent training even to change oil, although a recent legal interpretation may relieve A&P mechanics from this requirement for all but warranty work. They will still need to receive training on procedures or components that are new, regardless of their level of certification. Several major airframe manufacturers are discussing the same requirements. Find out what level of training is required to work on the airplane—and whether the manufacturer offers that training to your mechanic as part of the sale—and don't forget, if the airplane is European, your shop may need to tool up in metric.

6. Much of Europe takes vacation for the entire month of August, one of the busiest flight training months in the United States. Check to see if you will be able to get parts and support then.

### **Metal Versus Composite**

Flight school aircraft take a lot of abuse. No matter what type of plane you purchase, it's a good idea to talk to other flight school owners with that

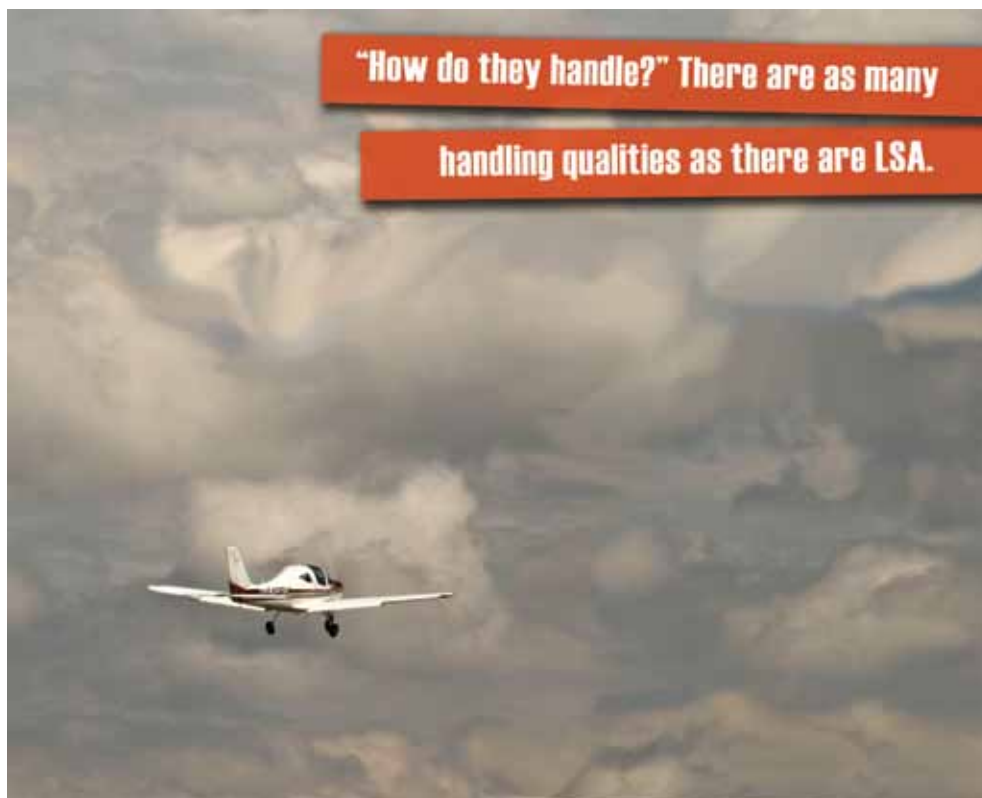


Photo: Karen Helfert.

model in their fleet to see how sturdy the design—especially the landing gear—has proven to be.

With that said, you must still answer the critical question of metal or composite construction.

Composite aircraft look good; there's no question about that. They are sleek and attractive to customers, and they're also very strong—that is, until they reach their breaking point, at which point they shatter.

How's that different from a bent airplane, given that both aren't airworthy? A shattered composite airplane is a pain in the petunia to fix. Trust us; Helen has had three of them. In each case, the composite landing gear broke, the repair was very expensive—the airplane had to be trucked out of state—and it was out of service for a year.

No one in Helen's state was willing to touch the airplanes, and most didn't

have composite structural repair experience. Of those who did, most were unfamiliar with—and uncomfortable working under—the light sport repair rules. The one shop that would work on it couldn't come to an agreement with the factory about how to repair the airplane, or even whether he could use domestic repair materials.

Mind you, not every manufacturer is difficult to work with, but since it must approve all repairs, you'll need to find a dealer with a good line of communication with the engineering department at the factory. That's how you'll get repairs accomplished.

Metal, on the other hand, is easy to fix. In contrast to Helen's issues with composite landing gear, she often stocks replacement metal gear, and her mechanic has the landing-gear swap down to half a day's labor and downtime.

### **The Mysterious Rotax**

The Rotax 912-series engines enjoy a well-deserved reputation for quality and reliability, and parts are readily available. Art compares the Rotax engine to the modern technology of today's automotive engines, and he wouldn't want to drive a car with an engine using 60-year-old technology.

As with all appliances installed on S-LSA, the manufacturer's recommendations are mandatory if you want to keep your airworthiness certificate. Currently Rotax requires its engines to be maintained by factory-trained maintenance personnel; it offers three levels of training: service, maintenance, and heavy maintenance. Find out if your mechanic is willing to go to school for a couple of days to qualify to work on your engine.

### **Flight Characteristics**

People new to light-sport aircraft often ask, "How do LSA handle?" With more than 100 different approved LSA on the market, there are more than 100 different sets of handling qualities. In general, they have lighter wing loading and require a higher level of stick and rudder proficiency in the pilot than a traditional, heavier general-aviation trainer. As such, it is really imperative to put an LSA through its paces during a test flight.

One model of LSA we use is the sweetest trainer Helen's ever trained in. Stalls are so gentle that a gradual power-off stall won't even break—meaning that an overly high flare simply results in a gentle mush to

the ground. While the demonstrated crosswind limit is listed at only 15 knots, one of her instructors, recognizing that his airplane had so much more to give, took it to a crosswind field and came back reporting the actual crosswind capability was 24 knots.

While this airplane is spin-certified, it's difficult to even get a wing to drop on a fully cross-controlled stall, and fully developed spins are impossible to

through its paces. Do a full stall series, including cross-controlled and falling-leaf stalls. Spend some time in slow flight. Take it out on a bumpy day, and take it to a field with a stiff crosswind. See what the plane is really made of.

### **Glass or Steam?**

Glass or steam gauges is really a personal decision; at Helen's school, the bulk of the renters and students prefer



Photo: Helen Woods.

achieve as the plane goes right back to flying, no matter what the pilot does. Stability and susceptibility to turbulence is much better than a heavier Cessna 150. That said, there are also quite a few less-capable LSA on the market. One aircraft Helen's school previously owned had a demonstrated crosswind listed at 15 knots, but it ran out of rudder with anything greater than 9 knots.

On your test flight, put the plane

steam gauges. The renters like the simplicity of using what they learned on, while the students cite larger numbers (which is especially an issue for those who wear glasses) and less sun glare with the gauges. By contrast, Helen's school also sells airplanes, and she finds buyers almost always request glass panels. That probably means you'd have greater resale value with a glass-panel LSA.

Again it's a personal choice, but you



may want to consider both—a glass panel, but some backup steam gauges, such as airspeed and altitude, for those who prefer round instruments.

Within the world of LSA, you'll have lots of choices, ranging from small manufacturers that can survive on making a couple of aircraft a year to large manufacturers that supply aircraft to 40 countries. Do your homework, because not all LSA are created equal.

Don't be fooled by the marketing; the only way to evaluate LSA is to research them for yourself. Get out there and fly them—the U.S. Sport Aviation Expo in Sebring, Florida, is a great place to fly a variety of models—and research manufacturers to make sure you'll get after-the-sale service, and ask about training for your maintenance staff.

Above all, have some fun doing it. After all, that's what this segment of

aviation is all about.

*Art Tarola operates a light sport center in Allentown, Pennsylvania, that specializes in sport pilot training, sport pilot and sport pilot flight instructor examiner services, and LSA sales, service, and parts.*

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## Coverage Clause

### Insuring your LSA

As special light-sport aircraft (S-LSA) gain in popularity among owner-operators and flight schools, insuring the aircraft is becoming less of an issue than it's been in recent years. Even so, there are some things to keep in mind. "The biggest thing is to really do your homework," says Bob Mackey, senior vice president of Falcon Insurance Agency.

The aircraft model is a big factor in whether coverage is even available. "It's got to be the right aircraft that has a proven history in the sport pilot training community—one that can take the abuse," Mackey says. "Unfortunately, that also equates to more expense."

For example, models that skew closer to ultralights than standard-category aircraft will be difficult; underwriters know already they can't take the kind of wear that occurs in schools that do primary training. Similarly, underwriters prefer aircraft that they're confident will have factory support in case it needs to be fixed. Some popular models may cause red flags, too; there may be nothing wrong with the aircraft, yet underwriters may be wary if they've not had a good history with that type. Check before you purchase.

The size and history of your school factors in, too, Mackey says. Insurance is available for single-airplane/single-instructor schools, but you'll have to prove you'll run a tight ship. In particular, you'll set procedures, such as stringent pilot checkout requirements, formal stu-

dent application procedures, and non-owner insurance requirements for students, too. If your school has an unusual accident history, you'll probably face challenges—just as you would have insuring Part-23 aircraft—and if you don't own any of your training fleet, you may scare away underwriters, too, since you'll appear to have much "skin the game."

As for costs, hull insurance on an LSA should run you close to what you'd pay on any other aircraft with similar fair market value, regardless of the category, Mackey says. Furthermore, liability may be slightly lower, since the aircraft have only two seats. To secure that coverage, start by dealing with an agent who's familiar with LSA in the flight school market, Mackey says. That person will be better equipped to put the pieces together and go to the right underwriter. Still, she may need to show the underwriter you have a solid sport pilot training curriculum, qualified instructors with at least 10 hours in make and model, and rigorous requirements for transitioning rental pilots. "The flight schools really need to have good, strong flight and ground transition training," Mackey says.

To find that agent, ask major dealers—they'll often work with a preferred agent—or check with other schools for recommendations. Certainly, if you're in the market, you should attend industry shows. Take your top instructor to Sun 'n Fun, AirVenture, or the U.S. Sport Aviation Expo in Sebring, Florida, and set out on a mission to do demo flights, ask the hard questions about other schools' experiences, and meet with potential agents.

—Greg Laslo