

Introducing LAE's Lighter Light Sport

Introduction

Aviator's Hotline "Light Aviation Edition" is a new electronic magazine dedicated to promoting Light Sport Aviation. Light Sport comes in different flavors which includes Special and Experimental Light Sport (SLSA & ELSA); fixed-wing (airplane), weight-shift (trike), powered-parachute (PPC), gliders, gyros, and lighter-than-air; land, sea, and ski, etc. But on a broader scale the industry has two significant divisions: high-end light sport fixed-wing aircraft (airplanes) and lighter aircraft that once qualified as "fat ultralights."



This section, appropriately named "Lighter Light Sport," is dedicated to the aircraft which find their roots in ultralights but have grown up to become Light Sport Aircraft.

Lighter "Light Sport" Aircraft (LLSA)



Much of the publicity surrounding Light Sport Aircraft (LSA) has focused on the high-end airplanes. These aircraft were never legal in the US until the Sport Pilot/Light Sport Aircraft (SP/LSA) rule was finalized. They were way too heavy to be considered "fat ultralights" and were never certified as general aviation aircraft. Now they are not only legal; they are the biggest sellers. They appeal to pilots who want to trade in their Cessnas for something more affordable but

with similar, though sportier, flight characteristics. The high-end airplanes have also had insurance and financing available from the beginning (a big boost to their popularity) whereas LLSAs did not get financing and insurance until April 2008. For pilots buying high-end sport airplanes the most important features are that they look like real airplanes and can be used for transportation. They cost between \$70,000 and \$140,000 (for a general aviation pilot that's a steal – for the rest of us it is a lot of money).

The Lighter Light Sport Aircraft, I'll call the LLSAs, are your trikes (weight-shift control or WSC), powered-parachutes (PPC), and very light airplanes that used to fall under the ultralight rules. All of these were

approved as ultralight trainers and have now transitioned to Light Sport Aircraft. These aircraft have to meet all the same standards as their more expensive brethren in the high-end category but are typically half to a quarter of the price (typically \$18,000-\$70,000) and 300-500 lbs lighter. And now that insurance and financing is available for these aircraft too, buying them has never been easier.

While many of these LLSA aircraft are also cross-country capable the focus of these smaller planes is recreation versus transportation. LLSAs appeal to pilots and pilot wanna-bes that are looking for something different – a flying motorcycle. For these buyers easy flying and off-the-charts fun are the deciding factors. So let's look at the different types of lighter light sport aircraft and talk about the kind of flying you can expect from them.

Weight-Shift Control (WSC) Aircraft or “Trikes”

Although I am also a fixed-wing or airplane pilot I'm going to start with trikes since they are my personal favorites. Trikes are powered hang-gliders. You sit in a carriage underneath a large wing that looks like a hang-glider (though it is MUCH stronger than a hang-glider wing). The carriage has a rear-mounted engine and landing gear. This plane is



controlled by means of a control bar that is directly attached to the wing. Trikes are sometimes called “2-axis” aircraft because they can only be controlled in the pitch and roll axis. Since they don't have a rudder you cannot directly control the yaw axis.

Trikes are easy to fly because you don't have to coordinate rudder and ailerons to turn and the direct connect between the control bar and the wing is very intuitive. They are also very safe in that they do not easily stall and are designed to self-recover. They cannot enter the dreaded stall/spin state that has killed so many airplane pilots. Speed is dependent on the type of wing you get but cruise speeds can range from the low 30s to over 80 mph with top speeds on some models over 100 mph. Trike pilots typically fly between 500-1500 feet above the ground though these aircraft can go well above 10,000 feet.

Portability is another plus for trikes. While some trikes are easier to fold than others there are many models that one person can fold up and store in less than an hour. Many trikers store their aircraft in a trailer or in their garage saving considerable money in hanger fees while allowing the triker to easily take his aircraft away for weekend or vacation trips.

Powered-Parachutes (PPC)

Like trikes PPCs have a carriage for pilot and passenger with a rear-mounted engine and landing gear. Like the trike the wing attaches to the top of the carriage. PPCs tend to be cheaper than trikes by about



10-20%, are more portable, and even easier to fly. They are “single axis” aircraft in that you can only control the roll axis. You have no pitch or yaw control. To climb or descend the pilot uses the throttle and airspeed is largely fixed (typically around 30-35 mph). Something else neat about PPCs is that you fly them with your feet. Your hands are completely free to take pictures or whatever else you want to do with your hands while flying. Another thing trikes and PPCs have in common is that most of them

are purchased from the dealer or manufacturer assembled and ready to go.

Because of their relatively slow speed and low wind tolerance PPCs don’t usually travel cross country (typically staying with 5-10 miles of their takeoff point). PPC pilots tend to fly their aircraft very close to the ground (usually 100-300 feet) relative to other aircraft so for close-up exploring they are really in a class of their own. You could almost think of them as high-flying hover-craft rather than low flying aircraft.

While Powered-Parachutes are the cheapest, most portable, and easiest to fly they are also the slowest and most limited with respect to wind and thermals. Winds and thermals that are easily handled by trikes and airplanes ground PPCs; consequently PPCs are strictly early morning / late evening flying machines. Additionally, they must take off into the wind whereas trikes and airplanes can handle a fair amount of cross-wind. This sounds worse than it is though. But if you are ok with these limitations and are looking for the most affordable and easiest to fly and store aircraft available then PPCs are for you. By the way, even though trikes and very light airplanes can handle quite a bit more wind than PPCs most pilots of these types still fly in the morning and evening because we like smooth flying conditions too.

Very Light Airplanes

These airplanes are represented in type by manufacturers such as Quicksilver and M-Squared to name a few. Like the trikes and PPCs above, these very light airplanes were once flown as “fat ultralights” used for training purposes. In terms of cost very light airplanes are in the same range as the PPCs and trikes depending on the engine selected. The big difference is that most of



these planes require 200-400 hours of assembly. For many of the pilots flying this style of aircraft the assembly is a plus – that is part of the experience they are looking for.

While these aircraft now qualify as Light Sport most are registered as Amateur-Built Experimentals. The rules surrounding Amateur-Built Experimentals are not the same as those for Experimental Light Sport Aircraft (ELSA). Therefore before you decide to go the Amateur-Built path make sure you know what the differences are – they are significant. You can find a comparison of the two categories of registrations at http://www.precisionwindsports.com/lisa_questions.htm. At least one of these manufacturers offers pre-built SLSA airplanes and at least two of them offer ELSA kits in addition to their Amateur-Built offerings.

Registration categories aside these are sound designs with docile handling characteristics. In terms of wind handling these planes handle wind as well as and sometimes better than trikes of equal weight. Unlike PPCs both trikes and very light airplanes can be flown in the middle of the day even though most pilots still prefer morning and evening for smoother conditions. Light plane cruising speeds tend to be in the mid-50 mph range though a few types such as the Titan Tornado cruise 90-120 mph with excellent wind handling characteristics. Unlike trikes and PPCs these planes tend to offer more pilot/passenger wind protection as the cabins tend to be more enclosed.

Summary

So, if you are looking for a fun machine that is in the \$18,000-\$70,000 range that can be parked in your garage instead of an airplane in the \$70,000-\$140,000 range requiring a hanger or a tie-down take a look at the Lighter side of Light Sport Aircraft. That is what you'll find in this section of Light Aviation Edition.

About the Author

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