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Gobosh G-700S: A Luxury LSA

- **Pre-Flight
Powerplant Inspection**
- **E-LSA or Lawn Ornament?**
- **A Homebuilt Ultralight**

going
big with the
G-700S



Are luxury and light-sport aircraft (LSA) compatible terms? Why shouldn't they be? Some automobiles are basic transportation machines while others are luxurious, high-end cruisers. That same variety can and should exist in the world of aircraft, offering owners choices in both price and "finish" of an airplane.

To Gobosh, LSA means "luxury sport aircraft"

Dan Johnson

With luxury in mind, one of the newer entrants into the LSA field, Gobosh Aviation, introduced the Gobosh G-700S to the U.S. market at EAA AirVenture Oshkosh 2007. Built in Poland by Aero Ltd. (see sidebar) the G-700S is modified from Aero's AT-3, which has been produced under European Joint Airworthiness Requirements-Very Light Aircraft (JAR-VLA) since 1999. About 30 AT-3s are flying in Europe

What's with Gobosh? What kind of company name is that, you ask? Well, Gobosh stands for "go big or stay home." One of Gobosh's investors hails from the high-tech computer industry, and that's his slogan in that fast-paced, breakthrough-focused

world. For a new airplane company in an exploding new market segment, the name seemed a good fit.

Are you getting the idea that Gobosh principals Dave Graham and Tim Baldwin are doing things differently than others in light-sport aviation? Yes, they are. With some 59 approved special light-sport aircraft (S-LSA) from 47 companies currently available, a relatively new entry like Gobosh *needs* to do things a little differently to set itself apart. Dave and Tim were formerly associated with Symphony Aircraft Ltd. Wanting to continue to use their business experience to pursue an aviation enterprise, they developed Gobosh and sought investors and U.S. distribution rights for the AT-3.

AT-3 to G-700S

The AT-3 was certified under the European Union's Very Light Aircraft (VLA) standard, which Dave feels is equivalent to FAR Part 23, though JAR-VLA does not permit flight in instrument conditions. Gobosh and Aero Ltd. evolved the design to comply with both JAR-VLA and the ASTM S-LSA consensus standards.

Some changes were made to the wing and cockpit. The most obvious is a vertical wingtip that adds a modern look. Additionally the G-700S wing has 80 centimeters (31 inches) more span to assure the airplane would meet the required LSA stall speed and have enough wing area for the LSA category's 1,320-pound maximum gross weight. "The wing changes required a lot of work, as the handling and stability



Michael Steineke

Gobosh principals Tim Baldwin, right, and Dave Graham like to call the G-700S a *luxury*, rather than *light sport aircraft* (LSA).



Jeff Miller

Gobosh airplanes feature a "six-pack" of standard instruments, plus a radio, transponder, and GPS.



Jim Koepnick

Swept wingtips and 31 inches of additional wingspan not only add eye appeal, but also bring its stall speed to within LSA limits.



Michael Steineke

This image shows the split flaps, the large horizontal stabilizer, and forward-tilting canopy, which can be removed completely for emergency egress.

required by the ASTM standard needs to be positive, that is, tending back towards equilibrium," Dave said.

An all-new instrument panel for the G-700S model comes with the "sacred six" instruments—airspeed, altitude, and rate of climb indicators, turn rate coordinator, artificial horizon, and directional gyro—normally used in an instrument flying scan. Toe brakes were added to appeal to American general aviation (GA) pilots, and other small modifications were made for American tastes.

"The AT-3 and G-700S are different aircraft," Dave emphasized. "The G-700S is based on the AT-3, but there are a lot of differences between the aircraft. The panel and cockpit layout is substantially different; it has different avionics, and switch positions are different, as is the layout of the center console."

Dave continued, "We paid a lot of attention to detail on the aircraft: large access panels for maintenance; easy seat removal for access to control parts; and seven tool-free panels, which reduces paint chipping, lost screws, and misplaced panels during maintenance."

The seven access panels permit inspection of the aileron pushrods in the wings, the elevator pushrod under the baggage compartment, the rear bulkhead, the elevator pushrod (access at the tailskid), and two flap torque tube inspection points under the fuselage. The spring-loaded latches require no tools to open.

Access to the engine and/or instrument panel was also made easy for maintenance purposes. Simply remove the upper cowling, made of lightweight carbon and Kevlar, and a secondary cowl aft of the engine cowling near the fuel fill point. There are a lot of screws, but once the cowls are off, you can access the engine and all panel instruments much easier than many designs that require you to twist under the panel from the inside.

The fuel cap is located in the center of the nose of the aircraft, ahead of the cockpit, and the fuel tank cap comes with a built-in dipstick. The fuel fill location allows convenient access, but it appears to permit any spilled fuel to flow toward the canopy.

More Refinements

Inside, the G-700S has a 41-inch wide cabin, offering more shoulder room

than the benchmark Cessna 172 Skyhawk, which Cessna lists at 39.5 inches, but less than several other LSA designs.

The G-700S has two baggage areas, one of which is lockable and located just aft of the pilot's seat. It is quite deep and was designed to hold a pilot's chart bag and up to 44 pounds. A smaller area can hold 22 pounds, including hat rack items. Every pilot has dropped a pen or something on the floor and groped around for it while flying. In the G-700S, nothing will move aft under the seats as a bulkhead prevents such movement.

The G-700S comes standard with a tinted canopy. Canopy latches on each side allow the canopy to tilt forward, while a canopy release disengages a pin where the gas-assist pistons connect to the canopy, permitting it to be released for emergency egress. It could also be removed to aid control panel access. What appears to be an air inlet at the back of the canopy is actually an exhaust vent.

When entering the cockpit, the G-700S has a number of strong handholds: the aft fuselage bulkhead, the seat back, and the instrument panel are all sufficiently robust. However, you cannot use the canopy for support.

Dave reported that Gobosh surveyed prospective customers and found that most desired a "standard six pack" of instruments. These are *not* gauges with technical standards orders (TSO), though that seems an easy way to make G-700S an instrument-capable airplane. However, Dave doesn't feel the airplane is suited to this usage, so the company doesn't promote this capability. GPS and radios are stacked to the right, separated from flight instruments by a series of engine gauges. "All Gobosh airplanes come equipped standard with the six-pack of instruments, a radio, transponder, and GPS unit," said Dave.

Aero Ltd.'s designers buried the GPS antenna underneath the main engine cowl. You'll discover this when removing that cowling for engine maintenance.

The G-700S uses split flaps. You cannot see their position from the cockpit, but the flap handle is marked for 15 and 40 degrees of extension. The hand lever is a Johnson bar, which allows easy and familiar flap deployment. All Gobosh G-700S are

equipped with carb heat, a cowl door to help control oil heat, and a fuel shut-off. A panel knob controls the volume of air supplied to four cabin outlets, which did a good job on the warm day I flew the airplane. For cold days, the G-700S has a 12-volt access point should engine jump-starting be necessary.

The G-700S undercarriage has a steel spring landing gear. "It's built tough for longevity," reported Dave. Standard aircraft tires are supplied in 5.00-5 dimensions and work well on smooth surfaces, but they may be small for grass/off-field operations.

Tie-down rings are located at the wingtips, and the airplane has jack points inside the wheels. Another clever design is a tow bar that doubles neatly as an interior gust lock. You position it to press down against the rudder pedals and back up against the joystick using a ratchet. Small and light, it appeared to securely hold all movable surfaces. You can place the lower end against the toe brakes to effectively lock the wheels as well.

Let's Go Skyward

During EAA AirVenture Oshkosh 2007, I flew N702GB, serial number 2, with company demo pilot Tony Settember. Gobosh fielded three aircraft at AirVenture 2007, representing 100 percent of its LSA fleet at the time.

On taxiing, I found the G-700S' brakes to be potent. The toe brakes, with directional braking in concert with a castoring nose wheel, allowed tight maneuvering. When we returned to Gobosh's designated parking space on Fond du Lac County Airport, from which Gobosh was making its demo flights, Tony pivoted the airplane smartly into position.

Once cleared by the temporary tower at Fond du Lac, our G-700S accelerated smoothly to a rotation speed of 41 knots. I estimated a 500-foot roll. Climb was performed at 60 knots. Best rate of climb is at 58 knots, which produces about 800 fpm of climb.

I was able to hold steep turns easily at 5000 to 5200 rpm without running out of back-stick range. Though I easily controlled the turns in either direction, I tended to climb a bit when executing to the right, which is normal when flying a side-by-side design from the left seat. I felt the joystick was moderately on the heavy

side, though this may be perfect for many pilots. Rudder pedal pressures felt slightly lighter, though leg versus arm movements differ. Dutch rolls went well at normal cruise speeds, but the maneuver felt a little sluggish at slow speeds, as you'd expect. Maneuvering speed is 92 knots, and the green arc tops out at 110 knots. All these figures put the G-700S in about the middle of the performance range among all S-LSA.

Fast and Steady G-700S

Maximum speed runs done on a westerly heading showed 120 knots and 112 knots when done to the east, averaging 116 knots. This was done at about 2,500 feet AGL with the outside air temperature at 75°F. The 116-knot figure is precisely what is shown on Gobosh literature for the G-700S.

Based on my observations, Gobosh's printed performance numbers tend to be slightly conservative. "This is part of the ethos of both Gobosh and Aero, to under promise and over deliver," Dave said. "We also publish our empty weight as a fully equipped aircraft, that is, with radio, transponder, GPS, three gyro instruments (heavy), all instruments, VOR, wheelpants, two-tone paint, and all unusable fluids included. If we published empty weights in the same manner as some of our competitors including only basic instruments, no wheelpants, cloth interior, and unpainted finish, we'd have an additional 45 pounds of useful load. However, this is not our philosophy. Anybody should be able to purchase a fully equipped aircraft at the weight we publish."

Gobosh prides itself on a well-equipped, ready-to-fly special light-sport aircraft. However, that thoroughness and attention to detail comes with some weight penalty. With full fuel (18.5 gallons) the G-700S has a payload of 389 pounds, good for two generously sized occupants without baggage.

Tony likes to do maneuvering work at about 4500 rpm, while we ran about 5000 rpm for much of the flight review flying. At this lower setting, speed drops, of course, but cabin noise was tolerable even without headsets. Heating wasn't an issue, but the day was warm not hot.

I did my full regimen of stalls and found excellent behavior from

AERO LTD.

Based in Poland, Aero Ltd. was founded in 1994. The company's mission is to bring to market an inexpensive two-seat aircraft for basic training and tourism. Tomek Antoniewski founded Aero Ltd. in Warsaw, Poland, and functions as the company's CEO. He is also the lead designer of AT aircraft. He first constructed the AT-1 as part of a master's degree thesis while in the Warsaw University of Technology's Aeronautical Department. The AT-1 is a single-seat low-wing plane that accumulated 2,500 hours of flying time.

In 1996, Antoniewski created the AT-2, using experience accumulated during the earlier project. Both projects led to the present-day AT-3. Aero built one AT-3 for flight testing and another for static testing. The prototype AT-3 has flown 1,500 hours in basic training missions in the Warsaw Aeroclub. The whole structure of the AT-3, which was the basis for the G-700S, was designed in CAD.

To assist with the manufacturing of the AT line, Aero and Antoniewski have attracted several seasoned aviation professionals with years of design, manufacturing, and certification experience. Some have previously been involved in designing and certifying such planes as the Wilga and PZL series. They also created production jigs for structural elements and a full set of molds for carbon/Kevlar-fiber composite parts.

In May 1999, the company received a type certificate for the AT-3. The company claims the model is the first in Poland and the sixth in the world to receive JAR-VLA certification.



Michael Steinfelle

The cockpit is 41 inches wide. Two-tone leather seats are standard in the Gobosh Elite model. A Johnson bar between the seats deploys the split flaps.



Michael Steinfelle

This compartment can hold up to 44 pounds and is designed to fit a pilot's chart bag.



Michael Steinfelle

Seven access panels, such as this one at the elevator push rod assembly, allow easy viewing of critical areas of inspection.

the G-700S. In power-on departure stalls, power-off approach stalls, and steeply banked accelerated stalls, I noted mild characteristics with no break whatsoever. Even when power-off approach stalls were aggravated with a more aggressive pull on the

joystick, I was not able to upset the good manners of the aircraft.

In my longitudinal stability check, the up and down oscillations maxed out at 110 knots and decreased to 75 knots. In each oscillation, about 5 knots came off these extremes in a predictable manner. However, I did observe some wandering of the nose during this exercise. Response to power up or down from level flight was positive in both directions. Mild stalls and conventional pitch behavior reinforce the flight training-capabilities of the airplane.

Later, when we came around for landing, final approach was at 55 knots with full flaps. Tony recommended 60 knots if you deploy only half-flaps.

We flew on a smooth, pleasant day, but even without turbulence, G-700S felt solid and secure in all maneuvers. It's a confidence-inspiring airplane. It should suit a training environment or most recreational flying, though few would call G-700S a fast-responding airplane.

A Luxury Sport Aircraft for You?

Perhaps it's shrewd marketing, but Gobosh has positioned the G-700S as a luxury sport aircraft (their own adaptation of LSA). Does that mean you can't afford one? Not really.

Gobosh offers three versions of the G-700S: a Sport Edition, Elite Edition, and Elite Plus Edition. Each one has more stuff, of course, but even the base unit is nicely equipped and includes the tow bar/gust lock, stall-warning indicator and horn, wheelpants, delivery from Europe, and FAA registration. Oftentimes these costs are presented after a base price quote. The Gobosh's prices represent a well-equipped flyaway airplane.

The Sport retails for \$106,900 with a 100-hp Rotax, three-blade prop, six-pack instruments, transponder, intercom, comm radio, Garmin 296, leather seats, two-year or 400-hour warranty, and white with vinyl stripes paint scheme. This is a good value, and financing is available. Put \$21,000 down and pay \$695 a month on a 20-year program based on a 7.6 percent interest rate. The Sport is equipped for day VFR flight only.

The Elite Edition, for \$116,850, adds two-tone leather seats and

custom two-tone paint (red or blue). It also adds night VFR capability.


The Elite Plus Edition, for \$123,900, adds a Garmin SL30 nav/comm with course deviation indicator, Garmin 496 with XM Weather, and Beyerdynamic headsets. Financing starts with \$25,000 down and \$750 a month over 20 years at 6.7 percent interest. As with many finance plans, the loan term is five years, and the interest rate may be altered at that interval.

Each G-700S aircraft should enjoy a long life, as structural parts are anodized aluminum, which Gobosh considers superior to zinc chromate corrosion proofing. Additionally, all steel parts are cadmium-plated.

Dave indicated that Gobosh has a large stock of spare parts coming to its U.S. facility in Moline, Illinois. It will not stock a whole fuselage or completed wings, but a full complement of parts will be available. That's important because owners may need some parts for routine maintenance and non-routine incidents that occur. This is an important consideration when buying any aircraft.

The G-700S may be a new airplane to the LSA field, but it has impressive credentials. Aero Ltd. is a fully certified production company having Design Organization Approval and Production Organization Approval in Poland, and Aero holds type certificates, just like Cessna, Piper, Mooney, or Diamond.

Gobosh's heritage descends from Dave and Tim's work in the certificated aircraft market. "We have the same deposit policy," Dave explained. Gobosh asks a \$5,000 booking deposit that is placed in an escrow account. They ask for an additional \$10,000 45 days before delivery, and the balance is due on delivery, from Moline, Illinois. Aero and Gobosh are working to ensure a good supply of aircraft. "We're receiving four planes per month at the moment," Dave stated.

As much as you like any S-LSA, you'll be happiest with your purchase if the company represents the model in a professional manner. Though Gobosh is a new company, the principals have solid experience and appear to be building a solid company that you can depend on in the future. They may even widen the family of aircraft. 

SPECIFICATIONS

Note: All figures provided by the factory. Figures are unverified except as otherwise stated in article.

Aero Ltd. G-700S S-LSA

DIMENSIONS

Wingspan • 27.3 feet
Wing area • 127.0 square feet
Length • 20.5 feet
Height • 7.3 feet
Seating • Two, side-by-side
Cabin width • 41 inches
Empty weight • 820 pounds
Gross weight • 1,320 pounds
Useful load • 500 pounds
Payload (full fuel) • 389 pounds
Fuel • 18.5 gallons
Wing loading • 10.4 pounds/square feet
Power loading • 13.2 pounds/hp
Powerplant • Rotax 912 ULS2
Power output • 100 hp
Propeller • Three-blade composite
Baggage area • Two areas, 66 pounds

PERFORMANCE

Never exceed speed (V_{NE}) • 129 knots/148 mph
Cruise speed • 110 knots/127 mph
Stall speed (best flaps) • 39 knots/45 mph
Max rate of climb • 850 fpm
Takeoff distance • 380 feet
Landing distance • 656 feet
Cruise duration (economical) • 4.75 hours
Cruise range (economical) • 360
Fuel consumption (economical) • about 3.8 gph

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Gobosh offers three versions of the G-700S: a Sport Edition, Elite Edition, and Elite Plus Edition. Each one has more stuff, of course, but even the base unit is nicely equipped.



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