



WoW (Wonder of Wonders) Ultralight Aircraft

1. **NAME.** We call it the WoW plane because of the amazing paint scheme and the amazing combination of features it has.
2. **AMAZING PAINT SCHEME.** The aircraft is painted in Insignia White from Stewart Systems, with multi-colored dots of various sizes floating off the airframe. I came up with the idea of floating dots. If you think it looks like a bread wrapper, well... hmm.
3. **BASE AIRCRAFT KIT.** This ultralight aircraft is an example of many different ideas, all built into one Belite Aircraft. Any skilled aircraft builder could make this airplane, starting with our base kit.
4. **CARBON FIBER SPARS.** This ultralight aircraft has carbon fiber spars. They are a \$2200 option. They save about 9 pounds and add considerable strength.
5. **HYDRAULIC BRAKES.** The aircraft has been fitted with hydraulic tip brakes from Grove Aircraft. The tip brake design is 'one-off' (not documented in our build manual), but builders are encouraged to innovate and copy what we have done.
6. **COWLING.** The cowl is constructed from fiberglass, and is optional in our kits. The plane flies fine without a cowl. It also flies fine with a cowl. The cowl weighs less than 3 pounds. We do not include it in our flying weight, because it is removable for flight.
7. **AIRCRAFT WEIGHT.** The plane weighs about 275 pounds, including parachute. The legal maximum weight for an ultralight aircraft with parachute is 278 pounds.
8. **ENGINE.** The engine on this plane is a Hirth F33, producing 28HP. It weighs about 47 pounds, including the muffler. It uses premix oil/fuel, at a 90 to 1 ratio.
9. **PROPELLER.** The propeller is a 58 x 22 wooden propeller from Tennessee Propellers. It is very lightweight and sturdy.
10. **FUSELAGE.** The fuselage is constructed from our 4130 chromaloy steel. However, this same airplane could have been constructed from our aluminum fuselage option.
11. **MORE ON THE FUSELAGE SHAPE.** The rear fuselage and the bottom fuselage was 'built up' with a series of angle aluminum longerons to add cross section shape, then covered with fabric. You can see the internal aluminum structure by looking inside the fuselage, from the cockpit. This helps make the airplane look like any other 'real' airplane.
12. **STRUT FAIRINGS.** Notice that the struts are faired, providing a streamlined strut structure. Very nice.
13. **LANDING GEAR 'A' ARMS.** These are also faired and covered with fabric. So is the cross bar, under the fuselage, connecting the landing gear together.
14. **SPRING LANDING GEAR.** The main landing gear use steel springs, replacing bungees. They make hard landings soft and also make taxiing a lot more comfortable.



15. INSTRUMENT PANEL. The panel is made from Belite Electronics instruments and runs off of a single 9 volt battery. Battery life is about 8 hours. Current usage for the entire panel is about 55 milli-amps. The panel could also run off any power source (including ship power) between 9 and 14 volts. You can see the battery velcroed behind the panel. The panel is completely removable by removing the wing nuts on the four corners.
16. PANEL STRUCTURE. Notice that the instrument panel is connected to a classic aluminum structure, built from bent aluminum sheet metal and faired around the cross bracing under the windshield.
17. WING DESIGN. All of Belite's aircraft utilize an expanded span and chord (25' 2" span; 40" chord). As a result, Belite's wing produces more lift at slow speeds, which makes it ideal for ultralight operation. (But the wing in the WOW plane has even greater span, due to the Hoerner wingtips... see below.)
18. FLAPERON DESIGN. All of Belite's aircraft utilize an expanded flaperon, with a 12" chord.
19. HOERNER WINGTIPS. This aircraft was built with a one-off Hoerner wingtip design. This increases span and reduces tip vortices in flight, causing better lift and reduced drag. In other words, better performance low & slow.
20. HORIZONTAL STABILIZER / ELEVATOR. These control surfaces are built with an aerodynamic cross-section. This gives better control and smoother flight characteristics, due to drag reduction. The stabilizer has a 2024 T3 spar; the elevator spar is built from chromalloy steel.
21. RUDDER TAB. Note the ground adjustable rudder tab. This is another 'one-off' feature which I would encourage our customers to copy.
22. ELEVATOR TAB. Note the inflight adjustable manual elevator tab. The control lever is to the left of the pilot's sight. It runs to the rear of the airplane using a single Bowden cable.
23. FLAPERON CABLES. The flaperon cables are very low friction. In flight, the aircraft feels like the control surfaces are on ball bearings.
24. TAIL WHEEL SPRING. Constructed from spring steel, we have them made for us by a local spring vendor.
25. POSITION LIGHTS. We've equipped this plane with position lights. This allows ultralight flight for 30 minutes after sunset. We haven't hooked them up yet, but the wires have been run through the wing.
26. 'Y' CNC MACHINED LIFT STRUT FITTINGS. There are several machined parts which we make at Belit3. On this airplane, the strut lift fittings at the base of the fuselage are a great example. They are hogged out of solid aluminum.
27. LIFT STRUTS. The lift struts are constructed from 2024T3 aluminum, 1.00 x 0.035 wall, on this airplane. This is a builder option. It is lighter than 6061T6 aluminum. (The lift struts are covered with the plastic extruded fairings.)
28. PRICE: As seen, Ready to Fly, \$49,000