

IAC ONE DESIGN NEWSLETTER

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Intro; Welcome to the very first One Design Newsletter. I have been so busy answering questions about this project that I feel it is necessary to start a monthly Newsletter to keep everyone informed.

Whats new; Since the January Sport Aerobatics article was written in late September '92 much has happened. This article was actually the proposal to the IAC Board of Directors to approve the sanctioning and selling of plans for the One Design. Since that time Lewis Shaw from Dallas, Texas has stepped forward to Sponsor the building of the prototype aircraft. Lew brings a wealth of aerobatic experience (IAC number 600) and knowledge to the project and I already have greatly enjoyed working with him.

Design evolution; The attached drawing shows that the aircraft has changed a little from the 3-view in the January Sport Aerobatics. The wingspan remains at 18 feet but the wing area is now 72 sq. ft and the length is now 17 feet. Lew has opted to use a 150 HP Lycoming engine. I feel that this engine will probably become the engine of choice, many of the letters and phone calls I have received seem to confirm this. When I looked at the cockpit size it became necessary to add a little bit more depth to make a more comfortable cockpit. Also, the rudder really didn't need to have an aerodynamic counterbalance so this was removed.

Building begins; Jon Staudacher from Kawkawlin, MI and Doug Dodge from Bay City, MI have been hired to build the prototype. Jon is building the wing and Doug is building the welded components, (fuselage truss, tail surfaces, engine mount and controls). I'm sure that most of you have either seen their handiwork or heard of these two craftsmen. I know that with a team like this the first airplane will be stunning. I can't wait to start working with them.

Detail design; The fuselage truss design is complete, it took 7 iterations and a full size mockup of the cockpit to get it just right. A full 3 dimensional finite element stress analysis has been performed and I assure you it is really stout. I now know the load in pounds and percent of yield for every piece of tubing in the truss. The load criteria was +/-10g's and not allow any tube to see more than 50% of its capable yield strength. The wing is using an all new airfoil designed by the noted aerodynamicist Barnaby Wainfan. Barnaby designed and studied 19 airfoil shapes and also compared the standard NACA airfoils before choosing the airfoil which best fit the One Design. Yes, it is symmetrical, it is similar to an Extra 230 airfoil, flat sided and with a conical leading edge shape. I think that aerobatic pilots will really love the handling characteristics and builders will love the ease in which it can be built. The wing is all wood and is stressed for limit load of +/-10g's and an ultimate load of +/-15 g's. To keep the cost down the prototype is going to be built with a Douglas Fir Spar, this wood is stronger and heavier than Spruce but you use less of it. I have designed the wing to accept either type of wood and it turns out that the weight of the complete spar is about the same for either wood. The difference in cost is about 2/3rd's less for Douglas Fir.

Good friends; Two of my very best friends have been a big help these last few months. Doug Jardine, fellow IAC'er, and Pitts builder/pilot came to my rescue when I needed help building the full size cockpit model out of PVC tubing. I already mentioned Barnaby Wainfan for his help in designing an airfoil but he also was instrumental in doing the fuselage truss analysis. Barnaby is also a co-worker and car pool partner; he listens to me talk about the One Design more than anyone else, at times his patient ear is more help than any computer. For those of you who want to read a really good magazine column about aircraft design I suggest you subscribe to Kitplanes and read Barnaby's monthly column titled Wind Tunnel. Thanks Doug and Barnaby, you guys are the greatest!!!

R/C Model; Another good friend Matt Mrdeza who happens to be an avid Radio Control model builder and pilot is building a 30% scale model. This is very big, 6 foot span and 5.1 feet long. This model is progressing very well and really looks great. With any luck Matt should be flying soon and he is planning to display the model at the IAC Pavilion this year at Oshkosh. A big thanks to you too Matt.

Props; Steve Morris called me recently and informed me that Sensenich will sell propellers to IAC One Design owners/builders at a very reduced price (O.E.M.).

Questions; If you have any questions concerning this project please write me, please don't call. I can answer letters better and at my convenience. Please let me stay at my computer designing and not at the telephone. Thanks.

Two Place; I have received several requests to design a two place One Design. Although I don't think it is in keeping with the spirit of the One Design concept, I do think it is important to have a good aerobatic trainer. Having said that, I feel there are several good trainers already available. Perhaps I will reconsider at a later date.

Next Newsletter; If this Newsletter becomes popular I will try to convince the IAC to distribute it. Bob Scherer from Santa Fe, NM has already volunteered to write it.

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