The Seawind Flyer

Spring 2009

"The evolution of an intelligent design." ™

Seawind LLC

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WE ARE BACK

After 18 months, I am thrilled to announce that we have raised the funding needed to complete the certification of the Seawind. In our fall 2007 Seawind Flyer, we reported the cessation of operations after running out of money and the mysterious crash of the flight test aircraft.

A year later in the fall 2008 Flyer we published our fundraising effort and details of the work remaining for our recovery plan. Many people saw little hope that we would succeed, especially in these troubled economic times.

WELL, WE DID IT!

When I say WE, I mean the entire Seawind community, which includes:

~ The nearly 1,000 people who visit our web site each week;
~ The 2,000 people who for years have subscribed to the Seawind Flyer;
~ The 94 customers who placed a deposit on the Seawind;
~ The 56 customers who have stayed with us over the past 18 months; and
~ Most importantly, the customer/investors who invested almost half the funds needed to complete the certification.

All these factors made the Seawind project attractive to the investment community that provided the balance needed to complete the certification effort.

Finally, we separated the funding needed for the ramp-up of production from the cost of development of certification. We have the tooling to produce 20 to 24 aircraft per year. The cost of ramping up to 60 and then to 100 Seawinds per year can be funded by sale of equity or bank loans since there is minimal risk. The strategy worked. In fact, we have a "letter of intent" for the ramp-up phase 4 funding. These negotiations should be completed in about 60 to 90 days.

WHY WE ARE POSITIONED FOR SUCCESS

On a much smaller scale than Eclipse, we made some mistakes. Eclipse based its entire program on innovation and a totally new aircraft. They selected a new engine that was to be developed for them, a new aluminum stir welding process, a glass cockpit that was to be developed for them, and manufacturing processes that had never been used in aviation. In addition, all of this was for a new, clean sheet designed aircraft.

Whereas we had to get a new composite process tested and approved. It took us over three years and about 2,000 tests, but it is now approved. NASA, under the AGATE program with a consortium of two aircraft companies and three suppliers, spent multi millions of dollars to obtain a database for composite general aviation aircraft.

We developed a totally new process on our own with limited funding. We have been successful and now can make composite parts for other aircraft. In addition, we have a competitive edge over other composite aircraft companies. Unfortunately, we were under funded for the tasks at hand, but THAT'S ALL BEHIND US NOW.

We had to design and test crashworthy seats. It took almost two years, but it is now complete and approved.

We changed only the main landing gear from a bent leg to a trailing link design. It took us over a year, but now it's approved.

We changed from a Lycoming 300 HP engine to a Continental 310 HP. Both are certified engines, and yet it took almost a year to work out the details. Fortunately the Seawind was a tried and true aircraft with over 80 kit versions flying.

WHAT IS LEFT TO BE DONE?

We were so close to certification when the *Perfect Storm* struck:

~ About 60% of the flight testing was complete;
~ Only one more lifetime of damage tolerance (fatigue) testing was left to do. It will take three months of in-house testing.
~ The firewall burn test needs to be done;
~ All the interior upholstery burn tests remain (all the fabric materials are FAA approved);
~ A few electrical drawings need to be completed;
~ Three to four months of effort is needed to complete all the remaining reports on the test data, which had been previously recorded.
~ The pilot operating handbook and maintenance manuals need to be completed.

The second aircraft was two-thirds complete when we shut down. Work will be started immediately to finish and instrument the second Seawind for flight test.

The parts for the third Seawind have been made, and the assembly had just started when we shut down. We also have the composite parts for the fourth Seawind.

THE RECOVERY PLAN

The recovery plan is to finish the remaining tests and test reports, while completing the second Seawind test aircraft. As soon as the flight tests begin, we will resume assembling the third Seawind, while the engineering group is submitting the final documentation to Transport Canada.

The third aircraft will be used for certifying and testing for IFR approval, autopilot approval, and for the FADEC engine option approval.

As soon as the flight testing of the second aircraft is complete and there are no changes to be made, we will start to produce aircraft for customers.

We are all anxious to resume operations. We have started recalling employees and plan to be up to speed in May.

Again, I would like to thank all of our supporters for your encouragement. If you would like to participate in making the Seawind a success, please feel free to contact us.

LAST SNAIL MAIL SEAWIND FLYER

Please note this will be the last snail mail version of the Seawind Flyer. We must give in to better technology. You may view the newsletter in color on our website. Send us your email address, and we will notify you as soon as the newsletter is posted. Your privacy is our top priority. We will not sell or share your name with anyone.

SEAWIND VIDEO ON THE WEB

If you have not seen or ordered from our gift shop the Seawind DVD or video, you may want to take a look at it on YouTube. It is viewable in two parts and will give you a good idea of the Seawind's features, performance and specifications:
http://www.youtube.com/watch?v=jXIFLOk77io
part one and part two:
http://www.youtube.com/watch?v=pUETk5EhrjI

NEW ENGINE DEVELOPMENTS

During the certification process we decided that we would certify with the 310 HP Continental IO-550-N engine, which has become the most popular fuel-injected aircraft engine. It is used in the Cirrus and Columbia aircraft.

Our plan was to complete the VFR flight testing with the standard version. It provides 10 HP more than the IO-540-300 HP that was used in the kit version. The IO-550 also provides installation and maintenance features that make it attractive to the vertical tail mounting of the Seawind.

After VFR certification is completed, we intend to use the second test aircraft for IFR, autopilot, and for the FADEC version of the IO-550 engine. The FADEC provides a 5% boost (15.5 HP) for take-off, which is a plus for water operations and for high altitude airports. It also provides between a 15% and a 20% reduction in fuel consumption.

Then we had planned for the third engine option to be the turbo diesel. It would accomplish three objectives. First, it is turbocharged for high altitude take-offs and mountain flying, which normally burns more fuel. Second, it is a diesel engine, which is more efficient and burns about 30% less fuel. Third, it burns Jet A and/or diesel fuel, which is more readily available than AVGAS, especially outside of North America.

The big drawback was the Thielert diesel engine weighs about 160 to 180 lbs. more than the Continental IO-550. Sadly, Thielert has had serious funding problems, much different than the problem Seawind encountered, and their survival has been questionable.

There have been some recent announcements, which have brightened the horizons for the diesel engine. There is the prospect of reduced weight on a two-stroke diesel, which is "under development." Also, Continental's president Rhett Ross has announced an aggressive diesel development plan to fit within the same cowling as the IO-550 series engine. If Continental puts its mind to it, they can do it.

The plan remains that the Seawind will have a turbocharged engine for mountain flying and a Jet A or diesel engine. We will be re-evaluating what engine to use.

AVIONICS DEVELOPMENTS

During the past 18 months there have been a number of avionics improvements, which will have to be evaluated. After the IFR and autopilot certification, we are scheduled to certify a glass cockpit for the Seawind.

The Seawind's amphibious capabilities require considerations that land planes do not. Take, for example, the AHARS unit, which is at the heart of the glass cockpit primary flight display (PFD). Some avionics manufacturers require the aircraft to be stationary on the ground during the start-up period for the AHARS to establish its references. One popular system cannot perform this function while floating on a mooring, shore line, or at a dock.

Amphibians, because of their numerous landing options, are flown at lower altitudes, which are busier and which contain more obstructions. The trouble with the elaborate big screens is that many pilots are engrossed in the high tech screens and not looking out the windshield. That's why, prior to the shut-down, we were honing in on the Garmin 600. It gives you far more information than you need without the large, distracting screens, and it costs less as well.

THINK AMPHIBIAN CONCEPTUALLY

Eighty percent of our customers did not have a water rating when they decided to buy a Seawind. They would not have considered a slow, utilitarian seaplane. With the unmatched beauty of the Seawind you do not sacrifice speed, comfort, or range.

However with the versatility of the Seawind, you do have to think differently, even when you are on land.

All aircraft designs are a compromise and amphibians are more so, except that we have done it better. Some time ago, we published *What to Look For in an Amphibian*. We also published *Not All Fiberglass is Created Equal*. We will not repeat them again here. You may click on them for background reading to better understand and appreciate "*thinking amphibian"* as well as understanding the compromises and the advantages of flying boats over flying floats. Go ahead. We will wait for you.

Welcome back!

Now you know that mounting the engine on a pylon as a pusher prop would be easier and cheaper, but it would be less efficient, noisier, and less distinctive. The tail design enabled the stabilizer and elevator to be mounted in line with the propeller and directly in the slip stream. As the engine powers up, the slip stream increases and helps counteract the nose down force limiting it to less than 20 lbs. of stick force. As you throttle back, the windmilling propeller blocks the airflow across the horizontal tail, which almost negates the pitch-up forces, which are three to five pounds of stick force. So the Seawind has excellent pitch control, unlike the high forces encountered in Lake and other high thrust line aircraft.

The other distinctive feature of the Seawind is the wing tip sponsons, which act as floats on the water similar to a trimaran. They also act like Hoerner wing tip extensions during climb at high angles of attack. The Seawind is a perfect blend of form and function.

The Seawind has a fantastic, unobstructed view through the wrap-around windshield. The wings are behind the cabin, so you have visibility up and down. For ease of exiting on either side while on land or in shallow water, and for disembarking over the nose onto a dock, the canopy was hinged aft to open as a clam shell.

To be continued...

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