



# The *Seawind* Flyer

## Fall 2005

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### TALK ABOUT SUCCESS

The Seawind 300C has established a presence in the general aviation market. Our EAA Oshkosh show was the best ever, exceeding the success we had at Sun'n Fun. We sold sixteen aircraft during and just after EAA, which results in a grand total of forty-six customers for the Seawind 300C! Our estimated delivery schedule is now extended out to August 2007. As a result of the increase in sales we are planning to ramp-up production to speed up deliveries. We'll provide more information later about how you can become #047 or #048 and beyond.

We are busy in Kimberton finalizing options and avionics, working out the details on the insurance program and talking to potential customers. We're looking forward to next spring to begin conducting demonstration flights with our production Seawind. We're also excited about the prospect of Sun'n Fun 2006 when we launch our "Big Splash" (pun intended).

### SALES

Forty-six Seawind 300C airplane sales! The Seawind has wide appeal with a base of customers that include; airline pilots, lawyers, doctors, dentists, electricians, business owners, financial planners, etc. etc.

Our pre-production price of \$309,900 will be in effect until we sell the 60<sup>th</sup> aircraft or until the end of the year. We still have the 'no-risk' Estimated Delivery Date (EDD) program that will also end at the beginning of the New Year. First deliveries will take place in the first quarter of 2006.

Here is a reminder of how the 'no-risk' program works: Reservation of an EDD on the Seawind takes a \$9,000 'no-risk' down payment that is deposited into the Phoenixville Federal Bank and Trust. An escrow account will be established and accrue interest each month. You will be given an EDD in 2007 and be put on the list for a demo flight in the production demonstrator in early 2006. After the demo, if you decide not to take delivery of the airplane, for any reason, the deposit is returned with interest, minus a \$300 demo fee. What could be fairer?

### OSHKOSH 2005

EAA Oshkosh was terrific! The Show started with Dick Silva's press conference, the first of the entire week. We had a steady stream of customers visiting our display and set a record, for us, on the number of contracts signed during and after the week.

We have been watching other sales figures and believe that we

sold more airplanes than several of the 'big boys'. We are most proud of the fact that our airplane is compared to the Cirrus and Columbia relative to performance specifications, roominess, comfort, etc., yet we're the only aircraft in this class that can land on the water or on snow ... and take off again! By the way, the Seawind costs less.



*The Seawind Team at EAA Oshkosh*

We're convinced that the Seawind 300C is the best and most versatile aircraft in the market..

### AVIONICS

We have finalized Garmin VFR and IFR avionics. We are still evaluating the glass cockpit configuration. The following is a slight change from the summer flyer listing.

#### Garmin

##### VFR:

1. GMA 340 Audio Panel with intercom
2. GNC 250XL GPS/Comm
3. GTX 327 Transponder

##### IFR:

1. GMA 340 Audio Panel
2. MX 20 Standard
3. GNS 430
4. GL 30 Comm
5. GTX 327 Transponder
6. Lightning protection.

There will be options for Traffic Information Services (TIS, with the GTX 330 Mode S transponder), lightning detection, weather (XM, with the GDL 69), radar, entertainment (XM, with the GDL 69A) and Automatic Dependent Surveillance – Broadcast (ADS-B) service (with the GDL 90).



Garmin VFR Stack



Garmin MX20 Stack

We are finalizing our glass cockpit configurations and will announce our decision as soon as it is made. There are some new developments that are to be released at the end of the year and we need to evaluate them to make sure that we select the best and most cost-effective systems.

### CUSTOMER SURVEY

We conducted a survey about a year ago in order to determine the experience and preferences of our potential customers. We have just finalized a new survey to canvas Seawind 300C order holders for their preferences and selection of Avionics and other options for their certified Seawind. From the FADEC option to the GPSS autopilot, we have asked our customers to provide us their feedback on which items they would like to have offered on their airplane. If any of you would like to participate in the new survey, call or contact [bpoirier@seawind.net](mailto:bpoirier@seawind.net) and we will be glad to mail or e-mail the survey to you.

Bill Poirier

### CERTIFICATION

I knew that certification would be difficult, time consuming and expensive. I was half right. It is twice as difficult, twice as time consuming and twice as expensive. However, I must admit that the process fosters discipline. The key word is CONFORMITY. As much as we get tired of hearing the term conformity, it is the most important aspect of certification. We must make every part exactly the same in design, strength and reliability.

Having spent many years with the experimental kit company, we have learned the importance of conformity. Once the parts left the plant, the company had no control over the accuracy of the assembly, the quality of the workmanship or what changes the builders decided to make.

During certification, we have had to spend endless hours responding to questions and 'what if' scenarios. As exasperating as it is; in the end, the Seawind will be better for all the effort.

### SEAT TESTING

The seats of all new aircraft certified in the past 10 years, which are very few, must meet very stringent rules. Aircraft such as Cessna, Piper, Beech and Mooney certified under the old CAR3 rules do not have to comply. They are grand-fathered. The new seats must withstand a forward crash of 26g (26 times gravity), with a 10 degree yaw to either side, and with a 10 degree vertical distortion of the floor tracks.

The test results must demonstrate that the seats do not fail, and that they absorb sufficient energy so that seat belt loads and reactions on the anatomical dummy do not exceed the prescribed limits. Both the forward and rear seats have successfully endured these tests.

The second requirement is a 19g impact at a 60 degree up angle on the front seats. The rear seats are subjected to a 15g impact. The reaction on the dummy cannot exceed 1500 pounds on the spine. Our seats were too strong during the preliminary tests and did not absorb enough energy. We made the seat structure less rigid. We were surprised to see that they were still too strong during the official tests, so, back to the drawing board! We will be making both the forward and aft seats even softer so as to absorb more vertical energy. The tests will have to be rescheduled.

Why all this emphasis on seats? Two reasons:

First, the Seawind seats are unique. The forward seats travel the full length of the cabin for complete cabin flexibility, i.e., full forward positioning for camping and easy entry to the aft seats and full aft positioning for fishing or swimming with ease of entry to the forward seats.

Second, the Seawind also has a lift-open canopy. The shoulder belts have to anchor to the structure. Most new aircraft connect the shoulder harness to the roof and/or door frame. In the case of the Seawind, we had to choose between connecting to the forward seat back or to the side structure longerons. We elected the seat upper back frame because it reduces clutter and makes the aft seat entry easier and more comfortable during flight.

### CONTINENTAL ENGINE

We have computer modeled the new Continental IO-550-N 310 HP engine. It has, almost, identical dimensions to the Lycoming, so we assumed the cowling would work for both engines. Wrong! The Continental engine uses a top induction air inlet for the engine combustion air; and it requires more height above the propeller center line and less below. We have to make new molds for the top two cowling sections. The 5" extended hub of the Hartzell Scimitar propeller is available only for the Lycoming engine. The extended hub for the Continental is 1.6 inches shorter. The change in length requires that we shift the engine and cowling forward.

We no longer need the bottom scoop, therefore, we need to make a new mold for the bottom aft section. The cowling shape has been finalized and we will begin making the molds in October. The engine mount for the Continental engine has been designed, and the test article has been ordered. We have made very good progress with the engine exhaust system. It discharges up and aft as did the previous system for the Lycoming. That is the secret to the Seawind being exceptionally quiet. The Seawind is noise friendly to your lakeside neighbors, and that is very important.

### FADEC & 28 VOLTS

We thought the FADEC option would be easy to certify because a number of companies are in the final stages of approval and the engine with FADEC is certified. Wrong again! What we did not realize, was that it is certified for 28 volts, and to recertify to 14 volts would take a long time at great expense.

Consequently, we are changing the electrical system to 28 volts. The compliance plan is being changed and we have selected all the 28 volt equipment. Since a few items are available only in 14 volts, a 28 to 14 volt converter will be required.

## SCHEDULE

These three events have cost us some time and will shift the rollout of the first test article aircraft to the middle of December. Fortunately, many other things have gone well. We are trying very hard not to extend the schedule or make any changes, but these changes are so positive that it is worth a four to six week delay.

## FLIGHT TESTING

We have engaged a test team to conduct the certification flight tests. The team is headed by a Flight Test D.A.R. (Transport Canada designated airworthiness representative). The team includes a back-up pilot who has significant amphibian time, and a flight engineer to record and analyze the data.

The test pilots will be familiarizing themselves with the Seawind performance by conducting preliminary tests with the proof-of-concept aircraft. This effort will not count toward certification because the kit aircraft is not a fully “conforming” article.

The flight test program and procedures for certification are very extensive and rigorous, even for single-engine general aviation aircraft. In addition, we have engaged a flutter specialist D.E.R. from the US. He has already performed a computer analysis of the experimental version. He will perform ground and in-flight vibration tests to verify that the Seawind is flutter-free, not only through the flight envelope, but also to 10% beyond dive speed. There have not been any incidents of flutter with the experimental Seawind, even in a very high-speed dive conducted by an irresponsible kit owner in an overpowered aircraft.

## SPIN CHUTE

As part of the certification flight testing, we will be doing extensive spin testing. The test aircraft will be outfitted with a spin chute. There is no question that the Seawind will not spin “power-on” because of the high thrust line. The primary test objective is to witness the “power-off” characteristics.

## FUSELAGE TESTING

The forty days of conditioning at 85% relative humidity and



*Fuselage test preparation*

140° F have come to an end. The structural testing can now begin. We will be testing all the loads which the hull has to sustain. Due to the change to the Continental IO-550 engine, the engine mount frame will be delayed, and those load tests will be performed last.

The test elevator, rudder and flap are being conditioned. These are relatively simple tests, and will be finished by the end of October.

## MYRIAD OF TESTS

I do not want to mislead you into thinking that these are the only tests that we are conducting, or that these are all the tests that are remaining. In October, we will be conducting the official lightning tests. The elemental and sub-assembly damage tolerance (fatigue) tests are ongoing. They will continue during the flight testing period, and the beginning of production. We will be burning an engine compartment and firewall, and are doing material flame tests almost weekly. We will be conducting brake tests on our specially designed Matco system, and fluid sensitivity tests on our fiberglass laminates.

## MANUFACTURING

This newsletter might make you think that we are involved in a laboratory experiment. Our objective is to manufacture and sell Seawind aircraft. We are continuing to make parts and refine the manufacturing procedures, instructions and documentation. We are pleased to say that Transport Canada has authorized us to manufacture the first two flight test articles and the next five production aircraft, which will carry us through the flight testing phase. We manufacture all the fiberglass composite aircraft parts in-house, and the quality is second to none.



*The wings for the first test articles are being assembled*

## TOOLING STATUS

Tooling is key to production, efficiency and that byword, “conformity”. So far, we have found only a single 1/8<sup>th</sup> inch error in the fuselage fixture. We are not finished yet, but the tooling work has been exceptional. The first two flight test air-



*The vertical tail is being outfitted before closure.*

craft are being used to refine and prove the tooling. It is a tedious process. All our tooling has been made in-house. The last large fixtures to be made are for assembling the distinctive Seawind canopy. They are underway, and should be complete in

October. There are countless small tools and fixtures to be made. That development will continue for some time.

### **BUILDING IMPROVEMENTS**

The first phase of building improvements is nearly complete. The new construction provides special clean areas for fabric cutting and resin mixing on the upper floor. It also includes a dust controllable area for trimming parts on the lower floor, as well as a freight elevator between the floors.

### **NEW DOORS**

Two new 70' wide, 28' high doors have been ordered to replace the 120' wide and 145' wide rolling steel doors. With all of the gaps and seals, it was almost impossible to keep the building warm during the notorious Canadian winter. The doors are due to be delivered by the end of September. No, we are not planning to manufacture a Seawind with a 70' wing span!

The balance of the planned improvements will be scheduled for next spring. The remaining construction will not effect production.

**Dick Silva**



*All those rolling doors will soon be replaced.*

*Seawind inc*

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