



# The Seawind Flyer

Spring 2007

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*"The evolution of an intelligent design."*

## FLIGHT TESTING

I wish I could report that the flight testing was successfully completed. No such luck. Like everything else in certification of an aircraft, nothing goes smoothly or fast.

Mother Nature has not been kind to us this winter. We planned to move the Seawind to the midwestern area of the U.S. only to arrive at the same time as one of the worst ice storms in recent years.

The decision was then made to relocate flight operations to the southeastern or the southwestern U.S. Both areas are normally flyable almost every day. I need not remind you of the severe tornadoes in Florida or the snow in Malibu, California. Although worse than previous years, the weather here has still been better than trying to test in Canada or in the northeastern U.S.

Because of the unusual configuration, the flight test team has very cautiously expanded the flight envelope, even though the experimental version has been flying for years.

Obviously the testing has been going more slowly than expected. On the brighter side, we still have made substantial progress and there have not been any show stoppers.

## PROPELLER

While in the Midwest, we conducted performance tests on the Hartzell propeller and a similar McCauley three-blade propeller. The performance was virtually identical in take-off, climb, and cruise. However, the flight test team found the McCauley propeller to be noticeably quieter. McCauley performed a complete vibration survey and analysis for certification with Transport Canada and, prior to our leaving, they performed a dynamic balance of the installation. The entire McCauley network will be available to Seawind owners for warranty and service and dynamic balancing. So, for that reason, we have settled on the McCauley propeller as standard equipment.

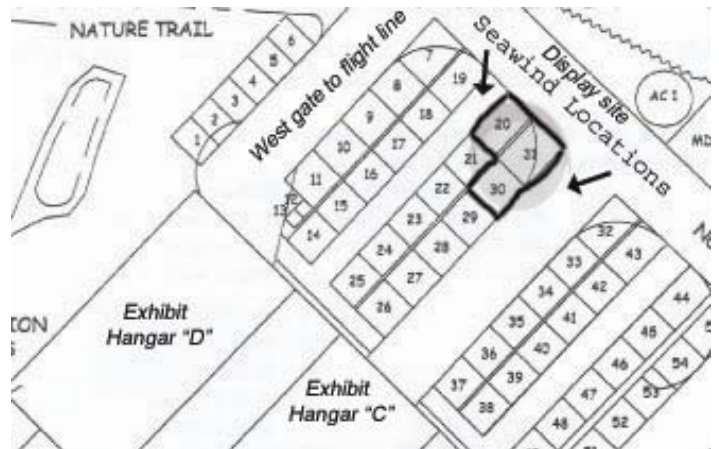
*Continued on page 76.*

## SUN-n-FUN 2007

The arrival of spring starts the beginning of the 2007 air show season. Our first air show event will be the 33<sup>rd</sup> annual Sun n Fun Fly-In at Lakeland Linder Regional Airport in Lakeland, Florida. This year's event is being held on Tuesday, April 17 through Monday, April 23.

This year's annual celebration of flight brings together all segments of the aviation community from all over the world. The show will feature a static aircraft display, over 500 commercial exhibits, and over 450 educational forums and hands-on workshops. There will be daily demonstration flights featuring light sport aircraft, general aviation, and very light jet aircraft. The Seawind will be flying daily in the general aviation group. This will be followed by a daily air show from 2:00 to 5:30 p.m.

Make sure your plans include a visit to the Seawind exhibit. The exhibit will be at our usual location at the Outdoor North Exhibit spaces N-020, N-030, and N-031. We have a new, expanded display for the 2007 air show season. This year our exhibit will feature the first production Seawind 300C flight test aircraft.



*Seawind exhibit area.*

*Continued on page 76.*

**FLIGHT TESTING** *continued from page 75.*

## MAINTENANCE & INSPECTION

The Seawind maintenance and inspection period has been expanded to the 50 hour procedure and has proven to be snag free. We expect a further expansion to the standard 100 hours (i.e., normal annual) after the next inspection.

With the exception of two minor warranty items, the Continental engine has performed very reliably indeed.

## FLIGHT PERFORMANCE

We are continuing to explore and expand the envelope in all configurations, i.e., heavy weight forward CG, heavy mid CG, and heavy aft CG. The envelope is then tested light forward CG, light mid CG, and light aft CG.

This procedure applied to stability and control, controllability and maneuverability and trim checks. It also applied to static longitudinal stability, longitudinal control, and static lateral direction stability as well as to dynamic longitudinal, lateral and directional stability.

We have completed stall speed determination, stall characteristics and warning margins for wings level, turning and accelerated turning stalls.

The spin chute has been tested and deployed in high speed taxi and in flight without any difficulty. The actual loads were less than half the design load. The spin and flutter testing is expected to take place just after Sun n Fun unless everything goes flawlessly between now and then.

## FLIGHT TEST AIRCRAFT ON DISPLAY

We plan to have the flight test vehicle at the Sun n Fun air show. It will be flown in from the Southwest and put on static display for the week, warts and all. More than likely the spin chute will still be in place as well as the articulating boom on the nose. The highly sensitive boom sensors will be protected for obvious reasons during the show. The aircraft has been flying without the final finished upholstery and exterior paint. When you see it, you will understand why.

This will most likely be the last major show with the original proof-of-concept Seawind on display. Thereafter we plan to display and demonstrate only the certified Seawind.

After Sun n Fun, the test aircraft will resume the balance of the VFR certification testing, which is estimated to be the last 30 percent. In the meantime, the second certified test aircraft will be completed and ready to use for the IFR, autopilot, and FADEC certification testing.

## MANUFACTURING

We have received approval from Transport Canada to produce five certification compliant aircraft in addition to the two test

aircraft, or seven total for now. We will request more as we progress.

The assembly of the second flight test aircraft scheduled for the FADEC engine and advanced avionics is continuing. The tooling is being finalized during this assembly with final proofing to be completed on the third aircraft.

The fiberglass parts for the third aircraft are done and the parts for the fourth aircraft have been started. This milestone event has started us on the road to production and is a credit to our production department. We are far enough along in our flight testing to be confident that there will be no significant changes resulting from the remaining flight testing.

We are grateful for the many positive responses we have received and the continued support you all have shown. Like the tasks at hand, your support has exceeded our expectations. Thank you.

Dick Silva

## **SUN-n-FUN** *continued from page 75.*

The flight test aircraft is well on its way to certification. Unfortunately, it will be filled with computers and instruments and has not been signed off yet for us to give demonstration flights. Also on display will be the proof-of-concept experimental Seawind N46SW and our Seawind 300C cabin mockup. The proof-of-concept Seawind will be doing the fly-bys.

We invite you to join us on Friday, April 20 from 5 to 7 p.m. for a reception at our new, expanded display area. We expect a large gathering of customers, future customers, and Seawind enthusiasts. Our casual reception will be prior to Sun n Fun's traditional night air show. Plan on joining us for refreshments. Don't miss this opportunity to renew friendships and cultivate new ones. For more information on Sun n Fun, go to [www.sun-n-fun.org](http://www.sun-n-fun.org).

### Other Upcoming Events:

**AOPA Open House:** The 17<sup>th</sup> annual Fly-In and Open House in Frederick, Maryland on Saturday, June 2, 2007. For more information, go to [www.aopa.org/fly-in](http://www.aopa.org/fly-in).

**Canadian Aviation Expo:** Oshawa, Ontario, Canada, June 22-24, 2007. For more information, go to [www.canadianaviationexpo.com](http://www.canadianaviationexpo.com).

**EAA Airventure:** The 55<sup>th</sup> annual event in Oshkosh, Wisconsin, July 23-29, 2007. For more information, go to [www.airventure.org](http://www.airventure.org).

*Continued on page 81, see SALES.*

## BEACHING AND DOCKING

Over the years many people have asked us for information on ramps, docks and other methods of getting their Seawind from water onto dry land. First, let's discuss the case of an outing to a lake or a beach. Three methods are:

### BEACHING

If you are uncertain of the firmness of the beach, then play it safe and beach your Seawind. Leave the landing gear up and slide in on the hull. Yes! Right on the bottom of the hull. The Seawind is not the kind of aircraft that you keep under a dust cover. You will use it in all kinds of rough environments. You will hit rocks, trees, and docks. It will forgive you because it is a very rugged aircraft, designed to take loads all over its bottom. The center keel shape is for hydrodynamics and is non-structural. It is sacrificial to the extent that it can easily be repaired. When beached, you will be in knee high water when you step out.

### DRIVING UP ONTO A BEACH

It will have to be a good, firm, stable beach for you to lower the gear and taxi out of the water. A gravel beach is ideal. Small stones make a good base. Simply lower the landing gear and roll up onto the beach. While still in motion, make a 180° turn and park in the direction you intend to proceed later. That way, if the tires start to settle in, you do not have to push the plane backwards into the water. You can power into the water instead. The new trailing link landing gear is much better suited to these maneuvers than the original landing gear design.

### DOCKING

During an outing there may be a dock available where you can leave your Seawind in the water while you disembark on a dry dock. This is the only time a float plane has an advantage over a flying boat. With high wings, float planes are easier to dock.



*Float planes are easier to dock, but...*

You will find docking a flying boat is a new experience each time and having a good sense of humor will help. The biggest

help is having the Seawind water motor. It enables you to throttle your approach speed down to zero.

I have found that: "Life is a headwind unless you are docking." Then, Mother Nature will give you a tail wind. Here again, the water motor is the answer. You can rotate the propeller head 180° to give reverse propulsion and hold your Seawind off or to back it away from a dock.

Your next question should be: With the low wing, how do you get on the dock?

Answer: For water operations, the Coast Guard requires a mandatory throw line. The Seawind has a number of removable mooring pins. I also carry an old fashioned tub mat that is used to prevent slipping while taking a shower. The bottom surface has suction cups to hold it to a wet surface. The Coast Guard requires that you have an anchor on board. I carry an aluminum Danforth anchor to which I have attached a bungee cord between the anchor chain and the line. All of that said, now here is a procedure:

1. As you approach the dock, have your combo paddle/boat hook (also Coast Guard required equipment) and anchor handy.
2. Gage the wind speed and direction, water speed, if any, and your approach speed.
3. Shut down the 310 hp propeller so that approach speed reduces to zero right at the moment the nose of the Seawind touches the dock. Fortunately a rubber nose bumper is standard equipment. Or, slow the optional water motor to zero.
4. If there is a wind or current that will swing the airplane around, then play out the anchor as you approach the dock and have two mooring pins handy.
5. Toss the throw line to a dockhand and tie it to the nose mooring pin. Pull up on the anchor line bungee and tie it off to the mooring pin aft of the canopy.
6. Roll out the tub mat on the nose deck and nose deck door. The suction cups will hold on the fiberglass skin. All passengers disembark by stepping onto the longeron (canopy sill), then onto the glare shield and onto the nose deck, then to the dock. Yes, all these pieces are structural and you can walk on them.
7. After you disembark, slack off the bow line and the bungee will pull the Seawind away from the dock.

If you do not have the water motor, the anchor can be used to pull you away from the dock and you can paddle to a location suitable for starting the big fan. If you have the water motor you can motor out away from other vessels and then start the big engine. As I said earlier, have fun, a good sense of humor, and be ready to laugh at yourself when you make a mistake. Don't worry – you won't hurt the Seawind.

## USING A BOAT RAMP

The Seawind has a nine-foot wheel track and can power up a boat trailer launching ramp, providing there are no obstacles to the wings. Boat trailer ramps are generally 12 to 16 feet wide.



*The Seawind on a wide boat launch ramp.*

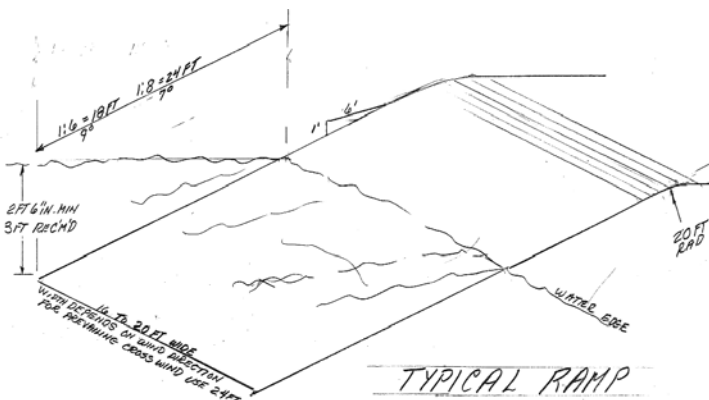
## BUILDING A RAMP

Many of our customers either live on a lake or have a summer home by the water. There are many options available to you.

The easiest way to come up out of the water is on a ramp. We published ramp criteria in April 1999. Basically, you need 26 to 30 inches of water at the deep point to clear the landing gear over the edge of the ramp. Allow for lake level variations and, in salt or brackish water, allow for tide. The slope should be between 1:8 and 1:10 (1 foot rise per 8 feet of run). It can be as steep as 1:6, and the Seawind can easily handle it. Do not go steeper than 1:5, even though the Seawind has the power to navigate 1:4.

Poured concrete or pre-cast concrete ramps are the best if you have a choice. You can easily order four- to eight-foot-wide pre-cast concrete slabs that are four to six inches thick and almost any length you want. You can interlock the units for a 16- to 20-foot-wide ramp, which is perfect for the Seawind. The Seawind wheel track is nine feet wide and a 16-foot-wide ramp gives some margin for cross wind drift.

Environmental regulations may rule out concrete ramps, so a number of people have used stone-filled gabion baskets or wood planks on pilings to accomplish the same objective.



If your shoreline is rocky beach, then gabions could be your best bet. Stone makes a good, firm base but, unless the surface is reasonably smooth, you can get bogged down.

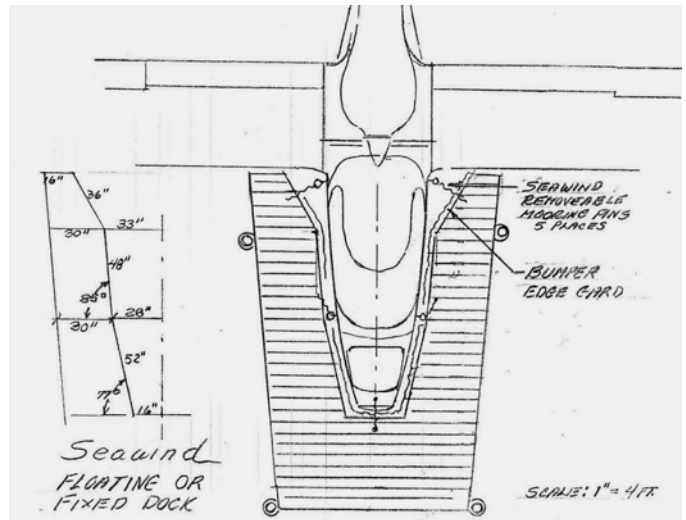
Gabions are wire baskets that are used for river and highway construction to keep stones in place. Twelve-inch-deep baskets can be purchased up to six feet wide and 12 feet long. The wire, which is the typical chain link, can be purchased with a PVC coating to prevent corrosion.

The baskets have a lid and interior dividers. They must be placed on a smooth bed. Then fill them with stones and close the lid. After all the units are closed, the same PVC coated wire is available to wire the lids and units together. Water creatures that live in the rocks are at home in gabions.

## BUILDING A DOCK

There are a wide variety of docks and many factors that affect the design, i.e., prevailing winds, water currents, and wave action. Another important consideration is whether you have the Seawind water motor (see Summer 2004 Flyer). With the water motor, you can slowly approach a dock with complete maneuverability, or you can back out and away from a dock easily. If not, you may want to read on about lift docks or tram platforms because your options are a bit limited.

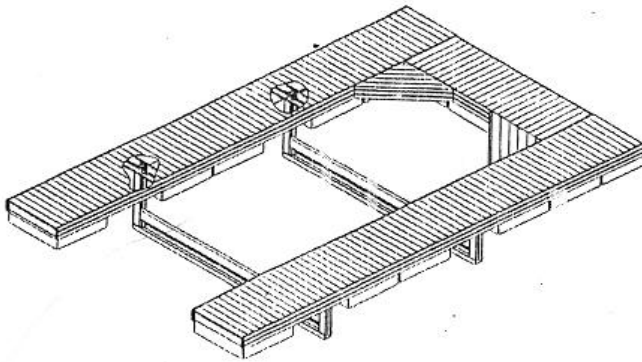
**Horseshoe:** With the water motor, we recommend a horseshoe-shaped dock, which has 12-foot-long sides. You can tie off at four points with the standard Seawind mooring pin system. The surfaces next to the hull sides should be padded with non-scuff material. If necessary, you can use small boat fenders (air filled bumpers).



*Seawind Floating or Fixed Dock.*

**Lift Dock:** If you want to bring your Seawind out of the water and a ramp is not feasible, consider a lift dock. The above horseshoe dock can also be a lift dock. However, it is not suitable for a turntable, so a water motor would be advantageous for backing out of the horseshoe.

A platform lift dock like this could be quite suitable for a Seawind. It can lift 4200 lbs. It is available from P2 Inc., which carries a full line of floating and lift-type docks.



*Lift Dock.*

**SpinLift Dock:** These lift docks are designed for float planes but can be used for the Seawind with the gear down. They can be made into a turntable type, providing the stationary dock is clear of the wings on the way up and back down.



*The SpinLift™ Dock is available from Sunstream Corp.*



*The Sunstream SpinLift™ Dock.*

**Tram Rail System:** P2 also has a tram rail system. A tram or railway system can travel out some distance in shallow water with only pier or piling supports for the rails. You can set an aircraft with the landing gear down on a flat, underwater platform. The aircraft can then roll up the tram rails onto dry land.



*Tram rail with a Lake Aircraft on the lift.*

Once on dry land, you can roll your Seawind off into a hangar or you can use a turntable. The turntable can be set up as a “drive off” and “drive on land” unit. All of these features add to the base price of the tram rail system. The basic system with a 40-foot railway, seaplane (open frame) dolly, two-way winch and galvanized cable was \$3,600 in 1999. For more information, contact Steve Petrich at 612-572-2577 (phone/fax).

**Jet Dock:** We were asked our opinion of the new plastic, modular dry dock that you skid or slide up onto while it floats in the water. It is manufactured by Jet Dock.

The question in my mind is how much power is needed to get up onto the floating pad and how quickly you can stop once on it. The disadvantage I see is that a floating dock itself could be vulnerable in rough water on a large lake. It looks like an interesting but pricy concept, suitable for a protected lake.



*A modular dock by Jet Dock.*

For additional information: The FAA publishes an Advisory Circular AC150/5395 dated 6/29/94 on Seaplane Bases. I suggest you order one. If you have any questions, don't hesitate to call.

## FOR YOUR INFORMATION

This segment is devoted to answering your questions.

**Question:** Can you explain how the hydraulic assist nose wheel steering works and what are the advantages?

**Answer:** Just a little bit of history first. Many years ago, I had a Lake amphibian LA4-200. Like all flying boats, it has a castering nose wheel and you steer by applying the brake in the direction you wish to turn.

I lost the left brake while taxiing. The taxiway was downgrade and the aircraft was drifting right due to a crosswind. To make it worse, there was a steep drop-off on the right side. If I applied the brake I would turn directly into the drop-off, and if I didn't apply the brake, I was still headed on an angle to the drop-off. My only choice was to apply full left rudder and apply full power. I avoided disaster by inches and resolved to have a nose wheel steering system in the future.

The Seawind steers very well with differential braking; you do not need nose wheel steering. At speeds of 13 knots you can steer with the air rudder alone and need not use brakes or nose wheel steering.

The hydraulic nose wheel steering is an independent system that rotates the nose wheel spindle left or right by activating a rocker switch. With the rocker switch in the neutral "off" position, the nose wheel will track back to neutral.

The advantages of the system are:

It steers the nose wheel requiring no extra power as opposed to steering the aircraft by braking one wheel and adding power.

On a long crosswind taxi, you are not continuously applying one brake and heating it up.

The hydraulic actuator can turn the nose wheel a full 90°+. The Seawind can be powered nose first into a normal parking space and turned 180° in place.

The hydraulic actuator also acts as a shimmy damper.

Is it worthwhile? We would not offer it if it were not. It makes a good-handling airplane exceptional. Everyone who has it loves it.

**Question:** Why don't you offer an electric trolling motor instead of gasoline? It is cheaper and lighter.

**Answer:** Just a little bit of history. Many years ago I tried a Minnkota 32-pound-thrust electric trolling motor. It weighed 18 pounds and did not move the Seawind. Then I tried a 54-pound-thrust, which weighed 22 pounds. It barely moved the Seawind. In addition to the weight of the motor, we had to add a second battery, which weighed 30 pounds. The total was 52 pounds, the airplane barely moved, and the duration of operation was uncertain.

The next question should be: Why don't you use a reversible propeller?

**Answer:** Single engine, non feathering reversible propellers are generally designed as pressure reversible. A reversing valve boosts the pressure in the hub to drive the blades to give reverse thrust. The extra reversing mechanism weighs 27 pounds and cannot be removed. Both propellers we tested did not operate reliably or smoothly. The degree of control was very limited. The Seawind moves along at idle RPM at about four knots, so your speed in either direction is four knots minimum. The other disadvantage is the cost, which is \$7,000 to \$8,000 more.

The gasoline motor, in contrast, weighs only 26 pounds including the fuel. It can be removed in about 15 minutes when not required and left at home.

The Seawind trolls between four and six knots, which is ideal for fishing. For docking it can be throttled back and the speed reduced to near zero. The propeller head can be swiveled around a full 360° making it possible to back up with full-range speed control. You can also turn the propeller head sideways and use it as a bow thruster. For trolling, the water motor can be locked in the forward position.

The water motor costs less.

Bottom line is, just like the nose wheel assist steering, you do not need to have the water motor. It just makes the Seawind completely maneuverable on the water as the nose wheel assist steering does on land.

You do not have to make the decision when you get your Seawind. The water motor is retrofittable.

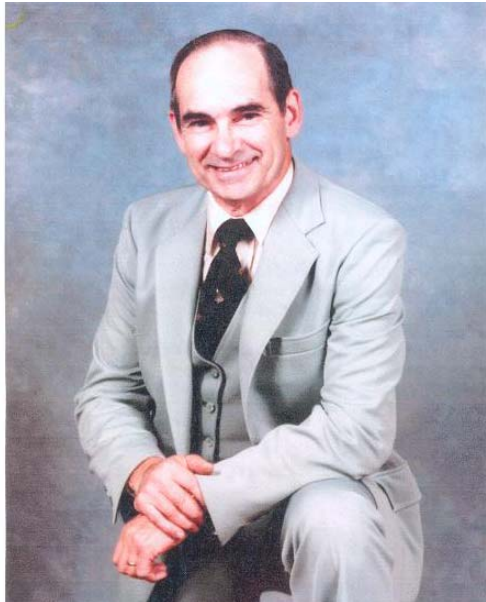


*The water motor stows in the forward storage compartment. Two small doors open, the propeller drops below the hull, and the doors close around it. Of course, the landing gear is up.*

WE INVITE YOUR QUESTIONS AND COMMENTS.

## CHARLIE MORRELL

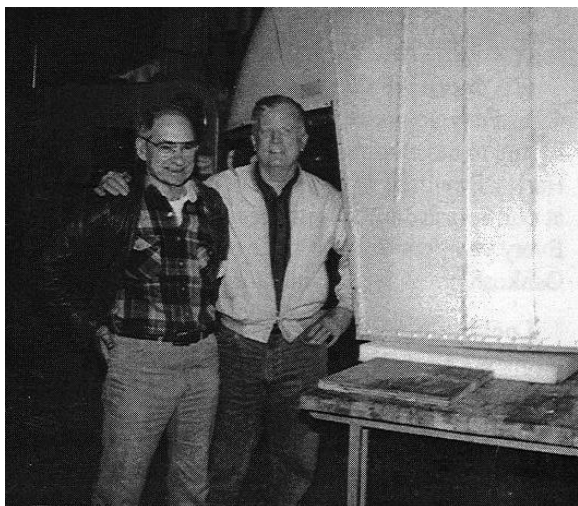
Any company is only as good as its people. No idea can be brought to fruition without the hard work of talented people. Charlie Morrell was one such person without whose talent and devotion we could not be what we are today. It is with great sadness that we announce the passing of Charlie Morrell.



*Charlie Morrell*

Charlie worked for Boeing Vertol for 35 years in the design of V/STOL aircraft and the V22 Osprey. He loved aviation and could not retire for very long. He joined the experimental Seawind team as a chief designer and was responsible for literally every hand drawn design used to bring the early kit version to market.

Charlie and Gus Geissenger stayed with the program after all the other consultants had completed their mandate. They both worked diligently through the 1990s refining the kit Seawind to make it a reliable, buildable aircraft.



*Charlie Morrell, left, with Gus Geissenger.*

Gus passed away many years ago, but Charlie stayed on until he had a stroke a few years back, from which he never recovered.

Charlie's death was not only the passing of a friend, but the end of an era. He is missed by all of us who knew him and loved him.

Dick Silva

*Continued from page 76.*

## SALES

Production of Seawind customer aircraft has commenced. At the end of December, 2006, Air Transport Canada authorized production of the next five Seawind 300C aircraft. This authorization allows for the production of a total of seven aircraft. As a result, production has been started on the first two customer aircraft.

We now have orders for 90 aircraft. This gives us about a two-year backlog in production. A number of potential customers are waiting for certification before placing a deposit to reserve a delivery position number. This is a reminder that you might want to take advantage of our pre-certification "no risk" deposit program. This will ensure you an earlier delivery time for your new Seawind 300C. Once we are certified, we will no longer be offering the "no risk" deposit program. If you are considering ordering a Seawind 300C, contact our sales office to secure the earliest possible delivery date. For more information, contact Dave Arnold at 610-384-7000 or [darnold@seawind.net](mailto:darnold@seawind.net).

## SEAWIND PILOTS' MODEL CODE OF CONDUCT

Seawind is proud to announce the adoption and distribution of the Seawind Pilots' Model Code of Conduct. The Code of Conduct presents broad guidance and recommendations to advance flight safety and responsible airmanship in the seaplane community. It addresses both land and water operations with an emphasis on safety.

The Code of Conduct covers seven general sections: (1) General Responsibilities of Seaplane Aviators; (2) Care of Passengers and People near the Seaplane; (3) Training and Proficiency; (4) Security; (5) Environmental Issues; (6) Use of Technology; and (7) Advancement and Promotion of Seaplane Aviation. It is a living document, periodically updated to reflect changes in aviation practices and in the aviation environment. The Code of Conduct will be included with each new Seawind aircraft delivery.

The Code of Conduct is adapted from the Aviator's Model Code of Conduct, which can be viewed at [www.secureav.com](http://www.secureav.com) and the Seawind Pilots' Model Code of Conduct is available at [www.seawind.net](http://www.seawind.net).

David Arnold



*Beaching & Docking.*



*Seawind* LLC

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