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LIGHT-SPORT EXPO 2009



Cape Town: A New Aircraft from FPNA



By
SHAWN OKUN

It is not unexpected that Floatplanes and Amphibs, FPNA would come up with something new for the water environment as our name and mantra indicates we should. What is exciting is the quality that we really came out with and the ultimate response to it at our first showing of the aircraft at the 2009 Sebring Expo.

First, about the Amphibs and straight floats that we offer. Waterborne Float systems is the brand of float that FPNA manufactures. We have two series of floats, the 1300's and the 1600's. In both series the actual

displacement is 1350 and 1650.

What does that mean? Well, this is the total weight that each float is capable of displacing. Like a boat it is the load that can be carried.

On the Surface this seems like an easy thing to do, but it's anything but. With all things, one has tradeoffs; in the case of float planes it is weight and flight characteristics, as well as handling characteristics on the varied surfaces. Beyond the floats one has to consider the plane that is attached to them, plus the ultimate usefulness both in useful load and ease of flight.

Our decision was to make a composite float for the reason that corrosion is always an issue. Water will cause tremendous destruction over time from use and of course for the oxidation that occurs with metals. Speaking of the metals, we have matched all metal so as not to create a "battery" which can occur when water is mixed metals. These materials are aircraft grade, then anodized, (this is a special application to the metal), chromated, a paint that helps protect against oxidation (rust), and finally epoxy painted, sealing these two other treatments from the

direct submersion with the water.

The composites are a combination of E-glass and Kevlar, with Corecell foam for structural strength. Additionally, we have sealed bulk heads which provide not only greater strength to the float but also provide added security should one hit and rupture the float itself, this way you won't sink!

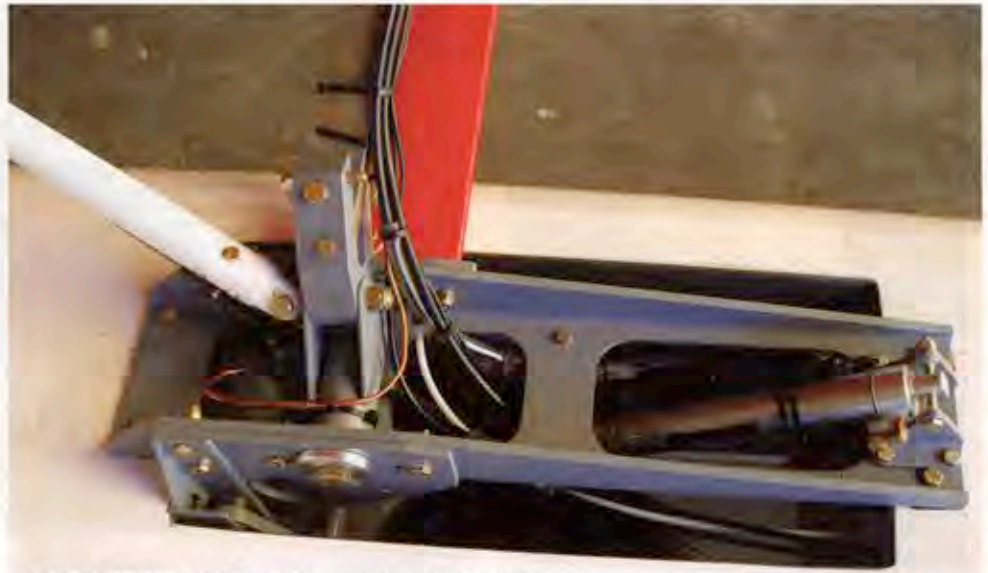
Our design has taken quite some time and a total of 4 different design concepts before arriving at the one we decided to produce. Much time and effort to reduce weight without compromising strength and integrity was needed. The shape was also an important consideration; we wanted a system that would allow for use as a straight float, (no landing gear other than the floats themselves) and two forms of amphibious floats, that is they may be used for land and Sea operations.

For sea operations we needed the landing gear to retract, and this was achieved by having the landing gear retract into the floats themselves. Creating a rectangular box was the solution, which is open from top to bottom. Then landing gear then bolts into place. One version of the amphibious float is made to have nothing else attached



SHOWN HERE IS THE UPPER BOW.

Creating a rectangular box was the solution, which is open from top to bottom. The landing gear then bolts into place.



MAIN GEAR ATTACHMENT ALLOWS GEAR TO RETRACT.

to the float, and a third leg located at the nose was designed, which will retract as well. The other form of amphibious float has a wheel at the nose of each float, making a 4 wheel system. Nose wheels are free castoring. Each style has its own merits. The 4 wheel system is generally used with aircraft that are designed for tail wheel and converting them to a float system requires different mounting and other considerations.

In our case the aircraft was designed for the float system directly. Our Cape Town aircraft is a joy to fly. Based on the Valor

which was designed for flight schools, and recreational flying the Cape Town shares the same great visibility and handling characteristics, but much has changed. Focusing on our goals of safety, ease of use, ease of maintenance and cost effectiveness, we came up with a system built totally by FPNA. When taxiing on land one has the sense of a well



TAXIING ON LAND, ONE HAS A SENSE OF A WELL-BUILT, HEAVIER THAN MOST AIRCRAFT.



NOTE THE WHEEL EXTENSION, MAKING THE PLANE SOLID ON TAXI.

built, heavier than most aircraft, pleasing the staunchest of GA pilots.

What strikes one immediately is the great visibility and direct link steering system. The rudder pedals directly control the nose wheel, thus immediate taxi response is available. With a tricycle gear

format, rough terrain taxiing is simple. The take off is smooth and rapid. The Cape Town definitely wants to fly, and is off the ground in less than 300 feet, even at a massive load of 1430 Lbs. The climb is also quite impressive at 750-1000 feet per minute. Cruise Vc is 106 MPH, however we suggest a more conservative speed of 100 MPH due to the greater fuel economy that one gains from this. It is a difference of 4 gallons per hour vs. 6 gallons per hour. Using only the Rotax 912 (100 HP) engine, fuel management is easy and with our Fuel Flow Indicator one can plan and accurately track fuel usage.

Retraction of the landing gear is then simple, move a switch to up, and the electrical system powers a



FORWARD ATTACH FOR 3 AND 4 WHEEL SYSTEMS.

The Cape Town drew eyes of not only visitors but the vendors as well.



pneumatic pump, which will retract the landing gear. Three lights in the cockpit indicate each gear position for up or down. Blue lights indicate up, and green lights indicate down.

A 60-65 mph approach speed gives one a nice sense of comfort, time to enjoy the approach and a wonderfully smooth touchdown. Even in rough waters, the craft seems to have a solid feeling. Our aim was to have a pilot feel comfortable with all aspects of the operation. There is nothing worse than having to really work at an approach or worry about what do I when I land. All around the flight, taxi, and parking of the aircraft should be smooth and easy.

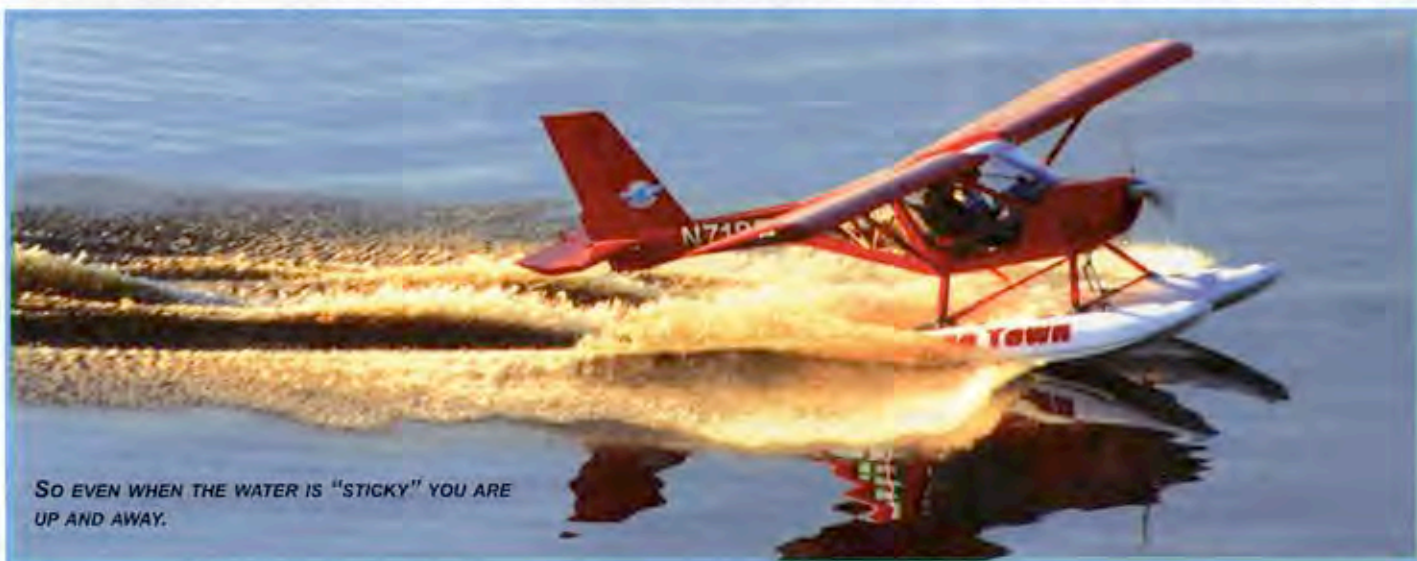
While on the water, the buoyancy of the float system allows one to walk along the floats without the aircraft shifting and bobbing out of control. So to dock or fish off the floats is easy. Shallow water operations are easy as well, since the draw is roughly 4 inches.

Takeoff can be done with and without Flaperons; the use of the flaperons will allow one to be off the water as slow as 40 MPH! So even when the water is "sticky" you are up and away.

Flight characteristics are surprisingly good. We strove to design a low center of gravity, meaning that the floats are closer to the body than most aircraft for the

purpose of nice water operations, what it yielded was a great flying aircraft as well. Turns are crisp, not like dragging dead weight along, yielding greater responsiveness, even at critical angles. The plane handles like a light aircraft without the negatives of a light aircraft. Climb and descents are predictable. Stalls are the same, in fact at gross weight, the stall speed power off is 36 mph!

From a building side; these floats are production floats; they are not only for our venerable Cape town, but also for any Light Sport Aircraft, as they are Light-Sport compliant, and soon to be for any Part 23 production aircraft as well.



SO EVEN WHEN THE WATER IS "STICKY" YOU ARE UP AND AWAY.

...soon to be for any Part 23 production aircraft as well.

They have been well tested and we continue to test and improve the floats every day.

Price wise we have been able to keep the straight float and amphib pricing to one of the lowest in the industry. It is the lowest in the industry for a certified float. We have done this without compromising safety or fun.

Remember our goal was for safety, ease of use, ease of maintenance, and cost effectiveness

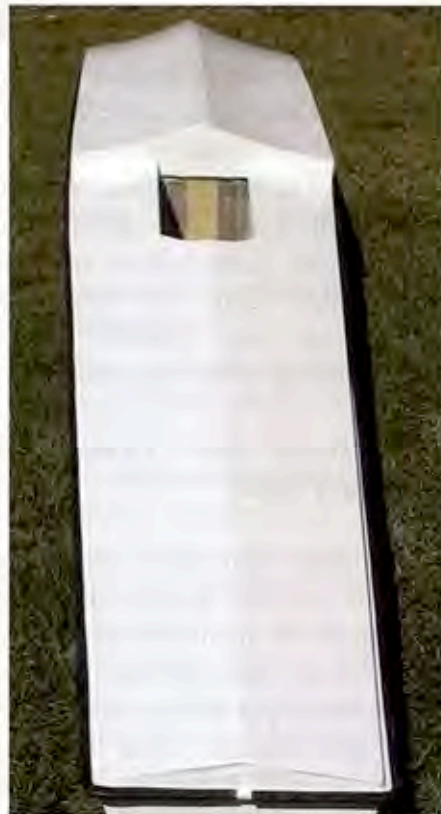


FLOAT COMPARTMENT ACCESS.

which we have achieved.

Second, Sebring Expo; for the past five years in a sleepy town in the middle of Florida, that is directly in the middle of Florida, the first air show of the year takes place, this is the US Sport Aviation Expo. In January, originally in

October, the Expo gives one the feeling of where the next year of aviation is going. Though the Expo is targeted at Light-Sport aircraft, one can see some of the larger



GEAR WELL BEHIND STEP.

aircraft manufacturers there too.

As one of the few "Made In the U.S.A." aircraft companies left, and the hometown favorite, FPNA builds its aircraft in Sebring and we have high expectations! The showing was OK, however FPNA was very busy. With 12 in staff to serve the needs of the visitors at the show, no one was left standing around. The Cape Town drew the eyes of not only show visitors but the vendors as well. Many have



FLOAT SHOWING THE V-HULL.

been waiting to see what FPNA was going to come up with this year, as we always seem to have something new in the market place each year. This year it was the New Waterborne Float systems Series 1600's.

Our bright red Cape Town had so many people looking at it we felt the show was quite busy. Several magazines have photographed the aircraft not only on the ground, but in flight as well and all were impressed with the way it looked, and flew. Several pilot evaluators flew the craft as well, and all were impressed with it. Like the valor as being the "Best handling Aircraft in the LSA market" which by the way is a quote from several of the leading magazines, the Cape Town is getting equal praise.

Please visit our website at www.fpna.com to see what we have done with the floats as well as the Aircraft, or better yet come visit us in Sebring, Florida for a demonstration of the aircraft.

Tailwinds to all of you from all of us at FPNA.