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COLYAER GANNET: SEABEE LIGHT

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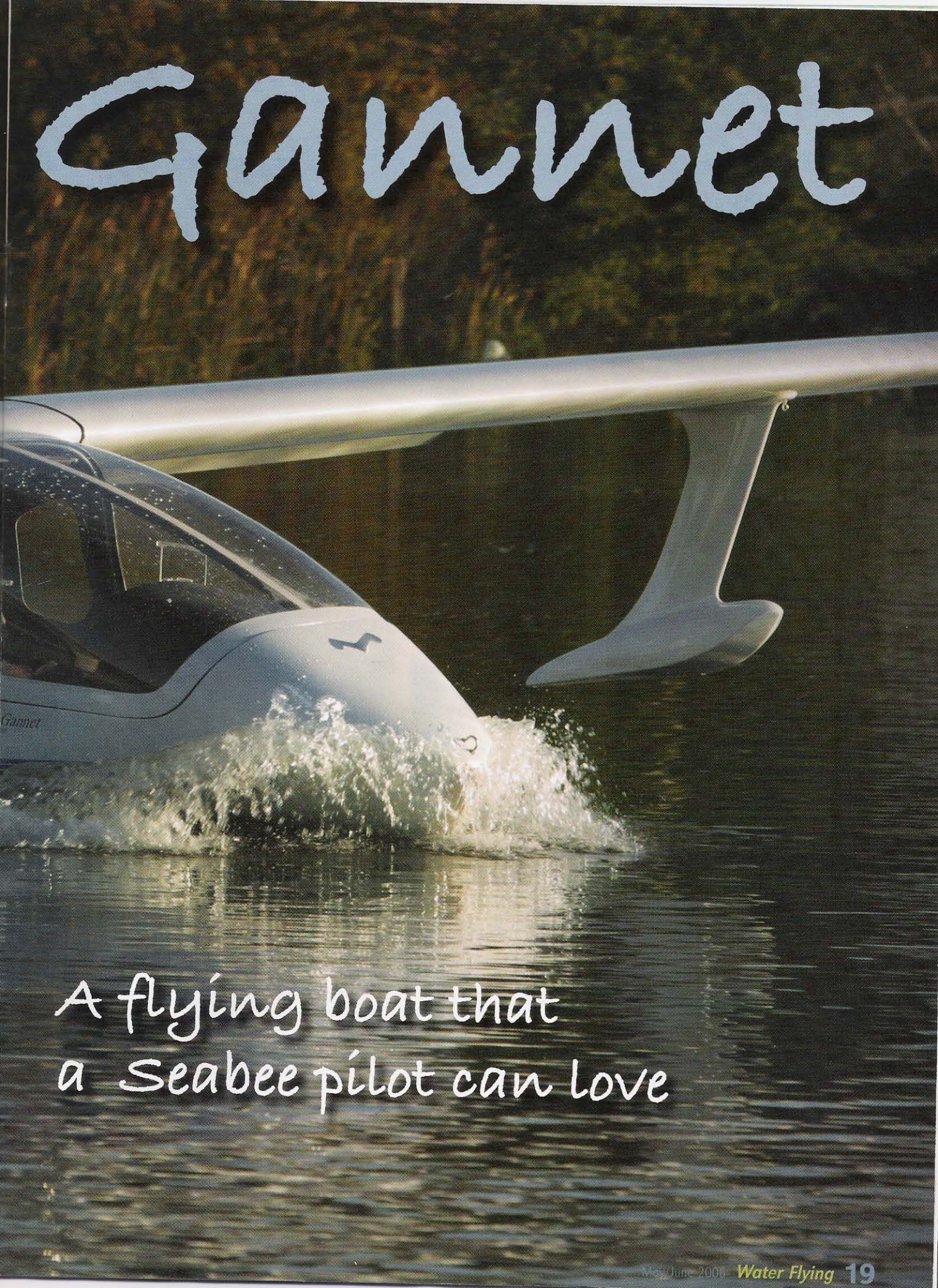
A white flying boat, the Colyaer Gannet S100, is shown on the water at dusk. The aircraft has a sleek, modern design with a large cabin window and a propeller visible at the rear. The background shows a dark, silhouetted shoreline with some trees. The overall mood is serene and adventurous.

*Story by Stephen C. Mestler
Photos by Michael Volk*

The plan from *Water Flying* magazine was for a Seabee pilot to review the Colyaer Gannet S100 flying boat, imported from Spain by LSA-Aero, Inc. of Decatur, Alabama. Fly a boat? What a deal—I am there!

As a Seabee owner I may be viewed as less than objective, but it seems to me the Republic Seabee is the standard to which other civilian flying boats aspire. Way ahead of its time, the Seabee is still a modern marvel against which the Gannet will be measured. That's a tough challenge for any airplane, but with its new materials and technology the Gannet may just have an advantage over the venerable Seabee.

Gannet

A photograph of a Gannet flying boat on a body of water. The boat is white with a dark cockpit area. It has a long, slender hull and a large, curved wing. The boat is moving through the water, creating a splash. The background is a dark, wooded area.

A flying boat that
a Seabee pilot can love



The Gannet (named for a large seabird that soars high to look for fish, then dives for its prey) is a modern-day design that incorporates many state-of-the-art composite materials and construction techniques. One of the airplane's unusual features is that after a day of flying, you can disassemble it and trailer it home to your garage.

Designed and manufactured by Colyaer SL, the Gannet is sold in kit form only. Some 40 examples are flying worldwide, but the only one in the United States is operated by LSA-Aero. According to LSA-Aero President Don Langford, the Gannet is serving as a test bed for LSA (Light Sport Aircraft) certification of the amphibious version, called the Freedom. Langford said there has been little interest in a seaplane-only LSA, so certification and marketing is focused on the Freedom.

The Freedom was not available to fly for this report, however, because the prototype was still in Spain undergoing final development. The two designs are identical other than the Freedom's amphibious gear and therefore some additional weight, according to Langford, so it made sense to check out the Gannet to find out what to expect when the Freedom arrives on our shores. Langford says that should be late May, with LSA certification expected in June.

Langford sent me all the manuals and information on the Gannet which included a CD and a DVD. The DVD showed the Gannet in flight and presented a good introduction to the airplane. I made the mistake of calling it an ultralight. Sorry, Don. Make no mistake, this is no ultralight.

I rendezvoused with Don and the Gannet at Lake Guntersville, Alabama, home of the Lake Guntersville Splash-In held (at Wally's Place) every May. The Gannet first impressed me as a sharp-looking high-tech flying boat. Don says it's a cross between "a powered glider and a jet ski." That's a good description.

OVERVIEW

The Gannet is a two-place seaplane that has the lines of a European competition sailplane, and rightfully so—Colyaer's designers have much experience with sailplanes. The design, much of which is evident in a landplane version called the Martin3, lends itself beautifully to an LSA watercraft.

The Gannet's sailplane characteristics are evident in its performance. Colyaer claims a 20:1 glide ratio—good by any standards—and I can attest to its gliding ability. The Seabee, on the other hand, soars more like a 50-pound sack of Russet potatoes!

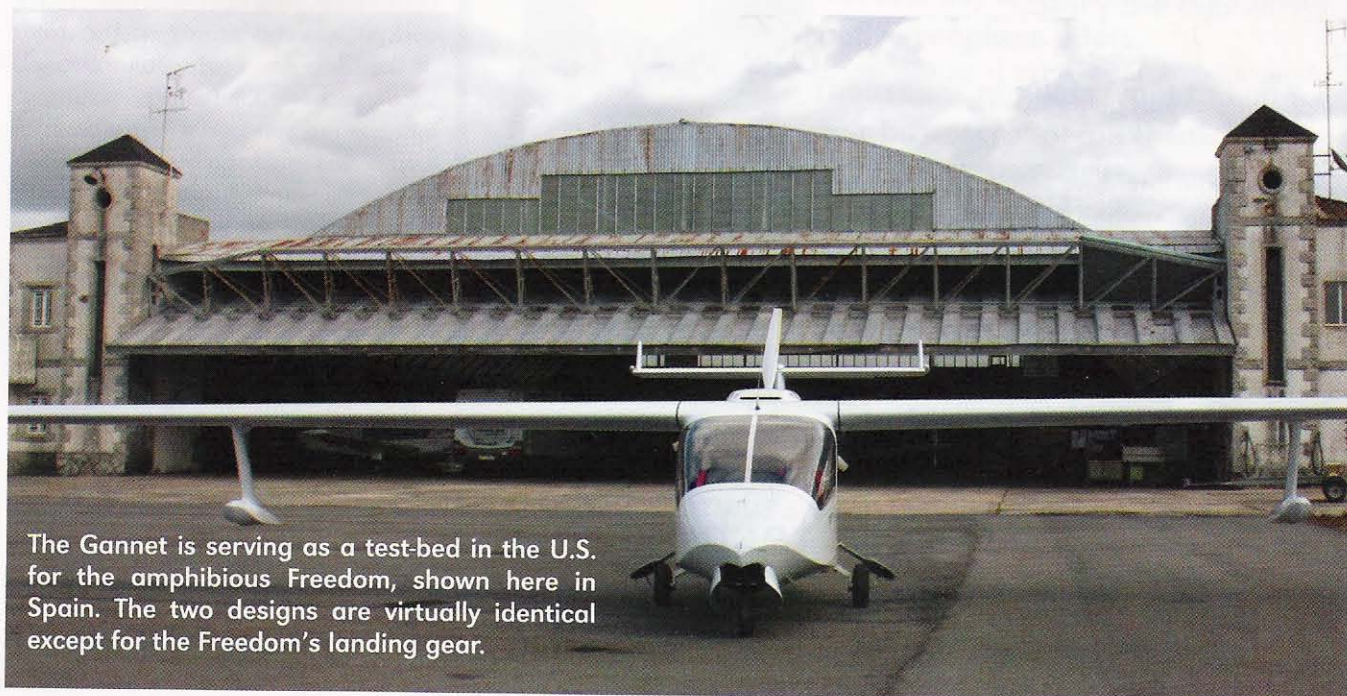
The Gannet's cockpit flight controls are conventional with sticks placed in

the center of each occupant's legs and adjustable rudder pedals—with five settings—positioned straight out in front of the seats. You fly the Gannet with your feet at the same level as your posterior and right at water level. The cabin is roomy, but as I am no small guy I thought it would be difficult for me to "slip the surly bonds" if I couldn't get into the darned thing. It posed no problems whatsoever.

As in the Seabee, the visibility is excellent. The canopy flips forward (for safety reasons) and has a huge rubber grommet all the way around it for reasons to be explained. The cockpit is completely water-tight except for two small vent windows on each side.

ASSEMBLY

The Gannet was housed in a convenient trailer and after about an hour was ready for flight. The construction design was well thought out and allows for simple assembly with just a handful of screws and pins. Everything fit and was machined perfectly. A minimum of two people is required for assembly, but that shouldn't be a problem because a crowd with willing volunteers is sure to form as you get ready for the day's flying. Besides, I'm convinced that some ingenious person will design a jig that will allow one person to assemble the airplane.



The Gannet is serving as a test-bed in the U.S. for the amphibious Freedom, shown here in Spain. The two designs are virtually identical except for the Freedom's landing gear.

Photo courtesy LSA-Aero



Both the Freedom and Gannet are powered by a Rotax 912 engine turning a three-bladed carbon-fiber prop.

The hardest part of the assembly process was getting the horizontal stabilizer on and plugged in—there's a connector for the electric stabilizer trim motor housed in the stabilizer, so a little wiggling was necessary. The rest was easy.

LET'S GO FLYING

As mentioned, the Gannet is part glider and previous glider experience would definitely be advantageous. LSA-Aero is considering incorporating an hour or so of glider time before initial Freedom training. I have no sailplane experience, but Don set me straight in a short period of time.

The conditions on Lake Guntersville were less than ideal initially, but gradually improved as the day progressed. Winds were out of the southwest at 10-20 knots with wind swells of 6-8 inches noted. (They look bigger than that when you are sitting right down on the water!)

As we taxied out for takeoff, the waves cascaded over the front of the windscreen, obscuring our view and threatening to soak the cockpit. That

**Holding
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touchdown
and controlling
the sink rate
with power
is the standard
technique
in the Gannet.**

huge rubber grommet on the canopy lip kept the cockpit completely dry, however. Don reassured me about the Gannet's stability and performance in such conditions, and we continued.

A windshield defogger is installed, and I found it to be required equipment. The launching process made us both sweat, and the steam inside the cockpit was condensing on the inside of the Plexiglas. Due to the relatively small vertical tail surface, taxiing in a crosswind was not as big an issue as I first imagined. Small power inputs easily overcame any weathervaning tendencies.

With the flaps set at 30 degrees for takeoff (max is 50 degrees for emergency landing use only), Don added full power and after two or three porpoises we were on top of the water and off in eight seconds (call it six seconds when flying solo). It seems the Gannet has an inherent porpoising on takeoff that is impossible to avoid. It is not that noticeable, however, and disappears as quickly as it begins.

The 100-horsepower Rotax 912 ULS engine runs beautifully and is very quiet. You do, however, have to

watch the engine instruments as the EGT reached the limit of 1600 degrees F, which forced a power reduction. (The problem was later traced to a faulty thermocouple wire.)

Climb rate was hard to establish due to the bumpy air, but was every bit of 800 FPM—this at partial power due to the aforementioned EGT limit. Power changes had negligible effect on pitch trim in all phases of flight—just like its big brother, the Seabee.

If I had glider time I might tell you that the Gannet feels just like one, but I can't make that claim. I can report that it does respond quickly to control inputs around all axes despite the 40-foot wing span. Much rudder coordination is required to make turns correctly—a glider trait, no doubt.

Slow fly it at about 50 mph and cruise at 105 mph. Stalls are recognized only with the buffet as no stall warning is installed. It is a very easy airplane to fly and moves in the direction that you are thinking about going.

The Gannet has an unusual feature in that when cruising the flaps are set at a negative five degrees. The manual says this increases stability and controllability and is similar to reflex in a flying wing arrangement. I was told this is a common practice in high-performance sailplane circles. After noticing the small distance between the tail and the wing, I can better understand the reasoning behind it. Caution is in order, however, as the negative flap setting cannot be used at specific speeds and configurations.

Landing the Gannet was a little different than your average water flying machine. A flat touchdown is mandatory. The way-above-average glide ratio is self-evident on approach, and I had to go around once because it was flying too well! Holding a level flight attitude all the way to touchdown and controlling the sink rate with power is the standard technique in the Gannet. Don't try to land it in a slow, nose-high attitude. It will surely bite you as the tail hits the water first.

Touch and goes are a no-brainer and are a blast to perform. It appeared to me that the problem of catching a wing float on takeoff or landing was

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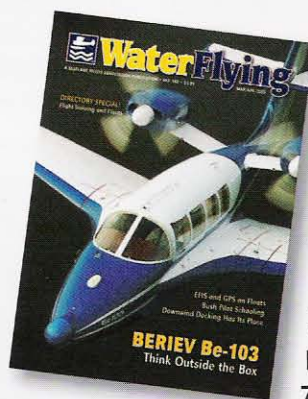
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non-existent. I never noticed the wing floats touch the water above a fast taxi. The wings are made of honeycomb carbon fiber and are hollow, ending the danger of flipping upside down if a wing float is dislodged. You will simply float on the water at a 30-degree lean until help arrives. Try that in a Seabee!

Everyone knows that airplane companies usually use a best-case scenario when citing performance data: test pilots, ideal conditions, new airframe/engine, etc. Colyaer is no exception. Considering that it only has 100 horsepower, performance with two full-grown men was spectacular. The Gannet's light weight and clean aerodynamics help overcome the lack of power.

PLUSES

The non-corrosive airframe structure is totally water tight, it uses relatively inexpensive auto fuel at 4 GPH, and it has a 10-hour range (at 60 percent power) with the optional wing tanks. The Gannet has a very strong structure and dings can be easily repaired. It has an excellent useful load for its size—more than 800 pounds!

The Gannet will accept almost any instrument panel you can think of,

PRELIMINARY SPECIFICATIONS

Wing Span	40 feet 8 inches
Length	19 feet 2 inches
Cockpit Width	48 inches
Maximum Height	6 feet 3 inches
Max.Gross Weight	1430 pounds (empty weight: 595 pounds; Freedom 800 pounds estimated)
Wing Area	129 sq. ft.
Takeoff Distance	460 feet
Glide Ratio	20:1
Wing Height	4 feet 1 inch
Cockpit Height	3 feet 8 inches
Airframe Material	Carbon, fiberglass, Kevlar, Nomex
Engine Mount	Aluminum 6082-T6
Engine	Rotax 912 ULS – 95 HP @ 5500 RPM, 100 HP @ 5800 RPM
Propeller	3-bladed carbon fiber, 63 inch diameter, 59 inch pitch ground adjustable**
Fuel	Premium avgas (min. 91 octane) or AVGAS 100LL
Fuel Capacity	21 Gal. Standard, Optional 34 Gal.
Fuel Burn	4 GPH @ 60% power, 5 GPH @ 75% power
Cruise Speed	115 MPH @ 60% power, 125 MPH @ 85% power
Stall Speed	41 MPH Vso
Baggage Compartment	10.5 cu. ft. @ 253 pounds (2 separate compartments)
Price	Freedom \$94,700 without optional avionics or lights

** - Optional electric variable/reversible pitch propeller available



from old fashioned round-dial "steam gauges" to a top-of-the-line EFIS (glass) cockpit. Product support is available from the manufacturer in Spain and from LSA-Aero in Alabama.

MINUSES

Two or three people are needed to help with assembly. Some parts of the user manual were a little hard to understand. The manual is a translation of the original Spanish version and some things were confused in the translation. But this is minor and can be rectified.

The electric flap switch on the pedestal is pretty close to the throttle and I found that even though the flaps never moved inadvertently, my hand was able to contact the switches if I wasn't paying attention.

The horizontal stabilizer was a little difficult to attach due to the electric trim connector (you need three hands). A fix is said to be in the works.

CONCLUSION

This sport-class seaplane is not for the beginner, but what seaplane is? It requires a little attention everyday, but we all love that anyway. Three things are guaranteed: You will get your feet wet. You will have a blast on a budget. And, finally, a crowd will form as you assemble your flying boat. In fact, it may get dark before you have time to fly it if you oblige and answer the myriad questions and comments offered by the throngs.

If you need (read: want) a two-place flying boat that is affordable, lightweight, and performs like a flying jet ski, this may just be your answer. If I wasn't a Seabee fanatic...

For more information about the Gannet, Freedom, or Martin3, contact Don Langford, President, LSA-Aero, Inc., P.O. Box 112, Tanner, AL 35671; e-mail LSA-Aero@att.net; web site www.lsa-aero.com.

Steve Mestler is a Republic Seabee owner (along with his dad, Don) who loves flying boats. He resides in South Carolina with his family, and any chance he gets to fly a "boat" is eagerly taken.

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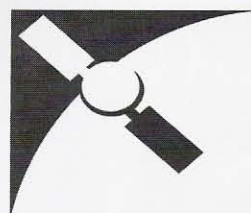
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