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2009 Spencer Amphibian Air CAR

Sun n Fun Grand Champion Seaplane, 2015

Price: $175,000.00. ALL OFFERS WILL BE CONSIDERED!

- Serial Number: 261
- Registration Number: N356WB
- Airframe Total Time: 60 SNEW
- Engine Times: 60 SMOH
  Prop Times: 60 SNEW
- Flight Rules: VFR
- Number of Seats: 4

DESCRIPTION
Spencer Air Car N356WB is a four place amphibious aircraft built entirely from plans. It is designed to be operated off of both Land and Water. The Aircraft is constructed of wood/epoxy composite, fiberglass, 4130 steel and aluminum. Landing gear is of a tri-gear design with spring steel suspension. The nose-wheel is steerable. Each main wheel has an independent hydraulic braking system.

Landing Gear retraction is electric with a manual override. When retracted the nose-wheel doubles as a bumper for docking while on water.

The wing is of a high lift airfoil and features Vortex generators, Fowler type flaps and Frieze ailerons. The tail features a balanced stabilator with anti-servo acting trim tab, and a conventional rudder with a built in water rudder
.
The cabin has a standard door on each side in addition to a bow door to aid in docking. The engine is a 300hp six cylinder, fuel injected Continental IO 520 L. A 79” diameter three-bladed MT composite reversible propeller provides excellent climb performance and the reverse helps ease water operations.

Big plane, yet still fits in a standard "T" hangar

SPECIFICATIONS:

Engine – Continental IO520L 300 HP

Empty Weight 2733 lbs.

Gross Weight 3700 lbs.

Useful Load 967 lbs.

Useable Load w/full fuel 405 lbs.

Wing Area: 184 Sq Ft.

Power Loading@ Gross 12.33 lb/HP

Wing Loading@ Gross 20.1 lb/ft

Wingspan 37.5 ft

Length 26.75 ft

Height 11.75 ft

Cruise: 115 Kts @ 70% Power
Stall: 27 Kts with Flaps
Lift Off Water: 47 Kts

Fuel Capacity – Main Tank 43.6 gal – 34.6 usable

Fuel Capacity – Wing Tanks 25 gal each

Range 65% Power (w/ 30 min reserve) 600 Miles

Avionics

Grand Rapids EFIS coupled to Tru Track Autopilot & Alt Hold JPI 700 engine analyzer Stormscope slaved to heading indicator Becker comm and Mode S transponder AOA Mitchel gauges

Airframe

WEST Epoxy saturated Wood/glass composite Composite cabin, doors cowling and floats.
60 Hours Total Time

Engines

Continental IO-520-L 300 hp
60 hours since overhaul Pacific Continental Engines

Prop

MT 3 blade reversing w/ zero pitch startup .
60 hours since new

Interior

Varnished Mahogany floors and side panels, Faux Bois finished fiberglass trim
Mercedes Benz MB-tex seat covers done in tuck & roll style. Molded headliner w/foam vinyl fitted carpet mats rear seats fold up, large baggage box holds 120lbs

Exterior

Painted with Awl Grip linear polyurethane and clear topcoat Cream base w/ Blue/Gold stripes

Equipment

Cradle to lift hull; Anchor and lines
Spare parts and raw materials

Modifications

Vortex generators on main wing, stabilator, and cabin sides.

Remarks

This is a virtually new airplane with test flights complete and is now proven to be reliable and docile to fly. Excellent water performance.

DESIGN

If there were such a thing as a Seaplane Pedigree, the Spencer Air Car would have it. Designer Percival Hopkins Spencer. At age 14 in 1911 he built a glider and installed stovepipe floats and was towed behind his fathers powerboat. In 1914 he made his first powered flight in a Curtis Flying Boat on the Connecticut River.

Spencer was President of Amphibians Inc. for 3 years, and worked for Sikorsky Aircraft in the 1930's during the time they built all of their famous amphibian aircraft designs.

Spencer and another Sikorsky employee left and started the Spencer Larson Aircraft Corp in 1937 to design their first and only amphibian the SL12C. Spencer left to start his own company and the resulting design was the Spencer S-12 Air Car Amphibian. The small 2 seat prototype NX29098 made it's first flight

August 8 1941. The S-12 was a fabric covered amphibian with a unique boxlike forward cabin, high wing with a 2 blade pusher propeller with a slender aft hull and twin tail booms.

Spencer put the Air Car in storage and became a test pilot for Republic Aircraft Corporation. By 1943 Spencer had flight tested 134 P-47 Thunderbolts for the company.

Spencer left Republic and built a new egg shaped cabin for the Air Car, and patented the split opening bow door design. Seeing the potential of the Air Car for pilots returning from the war, Republic bought the rights for the Air Car, the patent for the bow door design, and the prototype.

They immediately started work on an all metal prototype RC-1, which led to the RC-3 Seabee. Spencer was the test pilot for both.

In 1968, Spencer and retired USAF Colonel Dale L. "Andy" Anderson built a four place amphibian.

The S12D Air Car was an improved and larger four seat aircraft, which retains the basic layout of the Seabee and Trident Trigull, which Spencer had been working on at that time, and where the Air Car cabin mold was splashed from.

Spencer was involved his entire life with seaplane design and construction. He was involved with NASA when they worked with Grumman and EDO in the late 1930's to determine the best hull shapes for aircraft floats and hulls.

The study ended in a report that identified the best forebody shape, tail post angle, step height, deadrise angles and other critical information to make a seaplane with good water handling.

Most modern aircraft floats from EDO and Wipline have incorporated this information, as well as some flying boats like the Grumman Mallard, the Gweduck, and of course the Spencer Air Car. The Air Car is a very highly evolved aircraft, and the water handling is highly regarded for being both docile with excellent performance.

CONSTRUCTION

The Spencer Air Car is primarily built of wood. Wood has been a primary material in aircraft construction since the beginning of flight because,
as an engineering material it is difficult to beat. The stiffness to weight ratio is better than almost anything except in some cases very expensive carbon fiber composite. In the past, wood suffered from two shortcomings... the availability of strong adhesives with gap filling properties, and the potential for brown rot. It is also time consuming to construct in a production environment.

In the early 1970's, the brown rot and adhesive issue was eliminated by Michigan boat builders Meade and Jan Gougeon.

They knew that wood must remain dry in order to retain it's strength, and that in order for brown rot to happen three elements had to be present:

1. First, the temperature must be above 50 degrees.
2. Second, the wood must be at the fiber saturation point (very wet).
3. Third, the food source (the wood) cannot be contaminated.

Most wood preservatives like pressure treating work by poisoning the food source. Keeping wood dry using paint and varnish has never been a perfect solution because they have solvents, evaporative thinners that leave microscopic holes in the paint film that can be penetrated by water vapor, which is a gas. This is why wood can rot even with what is seemingly a nice paint finish.

The Gougeon brothers began experimenting with epoxy resins for both adhesives and coatings for wood. They developed a proprietary resin that was thin enough to be applied with a brush or roller, yet it had no evaporative thinners and was 100% solids.

They found by applying two net coats of the base resin to wood, they could nearly eliminate the penetration of water vapor in the harshest conditions and keep a nearly constant moisture content in the wood.

They also found that by using various additives into the base epoxy resin, glues with excellent gap filling properties and light weight surface fairing compounds could be "made to order" on site by the builders.

This system became known as the WEST System for Wood Epoxy Saturation Technique.

It has been used successfully by boat builders, aircraft builders and others to build wooden structures that have the potential to last indefinitely, with no weakening over time if maintained properly.

What the WEST System has done is essentially create a Wood/Epoxy composite. It is in every way as sophisticated as the most “high tech” carbon fiber composites.

One of the best properties of wood is it’s ability to be cyclic loaded indefinitely without weakening the wood. Metal will work harden and break, as will many composite parts in cyclic loading stress.

Composite propeller blades have wood cores with various high modulus fibers on top to take advantage of the wood’s cyclic loading performance.

A Wood/Epoxy airplane does not have to be post cured or be painted all white like a pure glass or carbon composite.

Lastly, a WEST System constructed aircraft is easily maintained and repaired. Damaged wood can be cut out, new wood can be scarfed in, and the surfaces restored with WEST epoxy and fiberglass.

These materials are available at any Marine Chandlery and the work can be preformed by and marine technician or the owner familiar with the materials.

The wood/epoxy composite is immune to corrosion from salt water, which makes it an ideal material for an aircraft that will be flown into salt water regularly.

Salt should still be washed off the exterior and flushed out of any of the watertight compartments that it manages to get into, and all the remaining metal parts must be maintained carefully. But at least the airframe will remain unaffected.

Spencer Aircar N356WB has been constructed using WEST System resins and fillers.

All surfaces, both external and internal have received a minimum of 2 net coats of WEST base resin to provide a barrier to water vapor.

The finished surfaces have been primed with Awl Grip 545 Epoxy Primer, Painted with Awl Grip 100% linear polyurethane topcoats, and a final clear coat of Awlcraft 2000 has been applied to make repairing scuffs, hangar rash, dock rash, easier to repair and blend/buff out.

BUILDER

William Burtis is the builder of Spencer Air Car N356WB. Burtis is a professional boat builder, having built his first boat as a professional at age 18, a 24' MORC class racing sailboat.

The boat won its division at the 1975 MORC International Championships as well as Block Island Race Week.

Burtis bought a boat yard the following year in Glenwood Landing NY, on Hempstead Harbor, part of Long Island Sound. Burtis continued building racing sailboats in several racing classes and has built over 20 boats that have won World Championships.

Additionally, Burtis was an early adopter of WEST System epoxy boat building, having done both cold molded cedar and ply on frame style using the WEST technique. Burtis also was a pioneer in developing self bailing cockpit designs, and very lightweight foam cored composite structures in both fiberglass and carbon fiber.

Burtis was well known for doing race prep to rudder and keel foils, underwater surfaces, Awl Grip paint refinishing, refits and repairs.

He managed large yacht repairs, including a $500,000.00 major refit of a Tripp 54, and the rebuild of the top section of a 160’ tall carbon fiber mast from a 125’ sailing yacht.

During the restoration of the carbon fiber spars from an 80’ sailing yacht, Burtis learned the faux bois painting technique that was used to make the carbon spars look like varnished spruce. Burtis later incorporated that technique into the fiberglass interior trim of his Spencer Air Car.

Burtis built the Spencer Air Car to be the “ultimate” single engine amphibian. The design was a known quantity, it outperformed everything, was rugged and could withstand bigger waves and salt water better than other piston single amphibians.

Burtis built N356WB to the same standards that a boat builder would apply to finishing a yacht.

The goal was to achieve a level of detail, fit and finish, and adherence to a tasteful, understated elegance, as you would see in a aircraft from the Golden Age of Amphibians.