Lake Aircraft

FAA Type Certificate & Manufacturing Assets

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WHAT IS INCLUDED

Items to manufacture the Lake 250 Amphibian aircraft

- FAA Type Certificate #1A13 (TC)
- Supplemental Type Certificates (STC's)
- Marketing Rights - Aircraft
- Marketing Rights - Spare Parts
- Manufacturing Rights - Aircraft
- Manufacturing Rights - Spare Parts
- Trademark and Trade Name Rights
- Component Tooling
- Assembly Tooling
- Fabrication Patterns, Dies, Jigs and Fixtures
- Engineering & Assembly Drawings (All Models)
- Flight, Maintenance, and Parts Manuals (All Models)
- FAA Certified Production and Quality Control Program Manuals
- Historical Files

WHAT IS NOT INCLUDED

No buildings or real estate.

All assets will be free from any and all liens and/or encumberances

PERSONNEL

Though not included in the sale, a variety of experienced Lake personnel are available for contract discussions. These valuable people provide hundreds of years of Lake experience in:

Production
Quality Control
Production Management
FAA Liaison
Technical Support

EXECUTIVE SUMMARY

Since the Type Certificate was issued , over 1300 amphibious aircraft have been produced.

Continuous engineering design improvements have been implemented throughout its history. Increased load capability, engine horsepower, seating capacity, operating range and electronics sophistication mark the major improvements incorporated over the years. Certified to the highest FAA part 23 standards , the Lake has evolved into a state of the art aircraft.

Type Certificate 1A13 contains design approvals for seven (7) models of amphibious aircraft., The last model in production was the Lake Model 250, with three (3) variations: the naturally aspirated **RENEGADE** and turbocharged **SEAFURY** for the personal/commercial markets, and the turbocharged **SEAWOLF** for the government sectors. Spare parts for all seven (7) models were also being produced.

Aftermarket opportunities continue to exist in spare parts sales, aircraft service centers, pre-owned aircraft sales, aircraft restorations, product improvements, flight training, commercial flight operations, and more.

The **SEAWOLF** market opportunities are growing and gaining momentum. These opportunities are expected to expand even more with the introduction of the **Turbine SEAWOLF.**

With the emergence of off-shore market opportunities, Lake amphibians are positioned well for continued growth into the twenty-first century.

HISTORY

The original founders of the Lake Amphibian came from the design teams of both Republic Aircraft and the Grumman Corporation.

Over 1300 aircraft have been produced under Type Certificate # 1A13.

The design is rooted in such great amphibians as the Goose, Widgeon, Mallard and the Albatross. The first model **C-1 "SKIMMER",** was a two place 150 horsepower aircraft. The Skimmer was later certified as the first in a series of successful boat hulled amphibious aircraft. The **C-2 "SKIMMER"** was certified with 180 horsepower and several design improvements. Forty-three (43) of the original Skimmer design models were delivered.

The next step was the first of the four (4) place series aircraft. The **LA4** was designed with upgraded seating and more design improvements. Next, the 180 horsepower model was upgraded to a 200 horsepower engine creating the **LA-4-200 "BUCCANEER"**. This model was further refined and designated the **LA-4-200 "EP"**. The LA4 series was phased out of production in 1986 with over 900 aircraft produced and delivered.

The **Lake Model 250 "RENEGADE"** was designed under part 23 and introduced as a new state of the art amphibian. One year later, the seating configuration was expanded to six (6) places, and many new product refinements, both aerodynamic and structural, were incorporated. A Turbo version of this model ("**SEAFURY**") was next added to the product line.

Next, a multi-mission version of the **Lake Model 250** was developed. Designated the "**SEAWOLF",** this version was modified structurally to allow for greater gross weight, providing for more fuel, passengers and/or cargo. Options include NVG cockpit, FLIR, Water Sample Collection System, Multi-Spectral Imaging System, etc. Under-wing hard points were also incorporated to allow for the installation of hardware applications for such missions as Search & Rescue, Aerial Surveillance, Maritime Patrol, Law Enforcement, Air Ambulance, and other missions.

The Lake Model 250 is the holder of <u>8 World Records</u> in its class for Speed and Altitude.

SPECIALTY AIRCRAFT MARKET

The specialty aircraft market takes many forms. It ranges from fixed wing acrobatic, agricultural, amphibious, and sport, to rotary wing. However, the market that will be discussed in this forum will be directed at **"Amphibious Aircraft"** only, and how they relate to the GA market.

Amphibious aircraft are a unique subset of the general aviation market. The terms seaplane, floatplane, and amphibian, are used interchangeably by most people. However, for clarity sake we need to re-define the terms.

A seaplane or floatplane is an aircraft originally designed for land based operations but has been modified with pontoons or floats for water utilization. An amphibious aircraft operates from water or from land. This is accomplished by designing landing gear that retracts into either the wing, floats, or a boat hull shaped fuselage. The key phrase to be remembered is **"Boat Hull".** Seaplanes operate on water only and are not amphibious. Floatplanes can be seaplanes or amphibians. Lakes are amphibious, and can be operated on a wide variety of surfaces.

Lake Amphibians are unique in that they are not land planes converted for water use, but were designed and manufactured as amphibious aircraft. **Boat hulled amphibians.**

Today, there is an increasing market demand for smaller aircraft that can operate from water. Both amphibians and seaplanes satisfy that requirement. Depending on customer mission requirements, amphibious aircraft often have a competitive edge. This is due to the fact that amphibious aircraft are designed with conventional tricycle landing gear for land operations and a boat shaped hull for water operations.

The aircraft is certified to stringent Part 23 standards

COMPETITION

The Lake Amphibian is designed and built as a true amphibious airplane.

GENERAL AVIATION MARKET:

Lake Amphibian was the last FAA Part 23-approved single-engine amphibious aircraft in production in the world.

GOVERNMENT MARKET:

Competition for the government market consists primarily of rotary-wing and a few fixed wing aircraft. However, mission focus, task performance, and cost are the most important factors in this market.

The government user has the same option as the GA market regarding aircraft availability or they may have a unique product designed and built for a specific mission requirement. Historically, budget and cost concerns outweighed mission requirement. Consequently, customers in this market often did not evaluate alternative methods or equipment available to meet their requirements. Recent budget cutbacks and force structure down-sizing has forced government users to revise past practices.

This has caused government purchasers to search out less expensive alternatives. This is not only true for the United States, but it also applies to off shore government sales at national and regional levels.

BARRIERS TO COMPETITION

The most significant barrier to competition in the aircraft manufacturing business is the cost of entry, which basically consists of the following steps for new aircraft.

- Engineering Design and Prototype Development
- Flight and Certification Testing
- Hard Tooling Design and Fabrication

The first two phases are required to prove design concepts and to meet the Federal Aviation Administrations (FAA's) requirements for a Type Certificate. Once the first two phases are completed, the manufacturer is permitted to manufacture the aircraft.

For a designer / manufacturer to earn a type certificate, it must be able to substantiate that the aircraft, or product, meets or exceeds all current regulatory requirements. These requirements are set forth in a series of regulations entitled, "Federal Aviation Regulations" (FAR's). These regulations were developed to maximize safety, product reliability and uniformity. Due to the stringency of U.S. requirements, they are recognized as the standard for the balance of the world. The majority of industrialized countries have like requirements. In many cases, bilateral agreements exist between the U.S. and certain countries throughout the world. Most industrialized countries recognize airworthiness certificates issued by a fellow signatory.

FAA TYPE CERTIFICATE

Where a patent is issued with a stated life expectancy, a Type Certificate is issued in perpetuity.

An FAA type certificate, somewhat like a patent, affords protection to the owner. The only entity that can utilize the type certificate to obtain an airworthiness certificate is the owner, or holder, of the type certificate. (The owner of the TC may also license the rights to use the TC to others.)

Unlike a patent awarded for design, the type certificate is awarded only when the developer demonstrates the soundness of the design. An FAA Type Certificate is also different in that a TC never expires.

Soundness of design not only consists of design specifications, drawings and data, but requires practical demonstration through a vigorous flight test program. These requirements assure compliance and conformance to current level of regulations. The certification process usually requires between five (5) and seven (7) years to complete and cost of certification for a similar aircraft would exceed 100 million dollars .

The investment in a Type Certificate becomes the sum total of both man-hours and materials expended in the following areas:

-Engineering design
-Prototype development and build
-Conformity determinations
-Flight test verification
-Data collection and documentation
-Manufacturing / assembly tooling design and fabrication
-Operator's Manual preparation and publishing
-Service Manual Preparation and publishing
-Product improvement and refinement

While it is possible for another manufacturer or designer to copy an existing type certificate holder's design, the entire certification process must be duplicated in its entirety. This is required since governing agencies do not make design and certification data available to third parties.

Type certificates contain a major benefit that provides them with perpetual value. That is **"the sole blanket authority to specify, produce and sell all new, spare and replacement parts for all aircraft manufactured under that type certificate".** The expense to develop and certify competing models given today's limited market, is the largest prohibition to entry into the Lake Amphibian's market place.

A comparable model to the **Lake Model 250** series aircraft would cost upwards of **$100 million** to bring through the FAA certification process and into production.

These estimates do not include inventory or initial capitalization for start up or facility cost.

Includes the CAAC Chinese Type Certificate as well


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