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Seaplanes

Lake Aircraft

LA-4 and LA-4-200 Buccaneer

A Lake LA-4-200 Buccaneer at Oshkosh, WI. Photo by Michael Volk.

Specifications:

Source: G.R. Hamilton
Parentheses for LA-4-200 if different from LA-4-180
Engine: Lycoming O-360A1A (Lycoming IO-360A1B)
Hp. and RPM: 200 HP at 2,700 RPM
Propeller: Hartzell forged dural, Two blade, Constant speed
Crew/Passengers: 1/3
Gross weight: 2,400 pounds (2,690 lbs.)
Empty weight: 1,570 pounds (1,600 lbs. equipped)
Useful load: 830 pounds (1,090 lbs. equipped)
Wing span: 38 feet
Wing area: 170 square feet
Length: 24 feet, 11 inches
Height: 9 feet, 4 inches
Wing loading: 14.1 lbs per sq. ft. (15.2 lbs per sq. ft.)
Fuel Capacity: 40 gallons (plus optional 7.5 gal in each tip float)
1996 average FMV: $32,000 ($41,000)

Performance:

Source: G.R. Hamilton
Parentheses for LA-4-200 if different from LA-4-180
Takeoff (land): 650 feet (600 feet)
Takeoff (water): 1,125 feet (1,100 feet)
Landing (land): 475 feet
Landing (water): 600 feet
Max Cruise (sea level): 135 mph (150 mph)
75% Cruise: 131 mph (146 mph)
Stall: 51 mph (45 mph)
Rate of Climb: 800 fpm (1,200 fpm)
Cruising Range: 625 miles (650 miles)
Fuel Consumption: 9 gph
Optimum Cruise Altitude: 6,500 feet (8,000 feet)
Service Ceiling: 14,000 feet (14,700 feet)

Comments:

All specifications were provided by G.R. Hamilton and have not been verified by SPA.

The following is an excerpt from the late G.R. Hamilton's book, Flying Boats for Recreation. Republished with permission, copyright 1997 G.R. Hamilton, all rights reserved. Special thanks to G.R. Hamilton.

Colonial, and subsequently Lake, decided to improve the three place Colonial C-1 Skimmer into a four place amphibian. It was powered with one of the most reliable and efficient aircraft engines available, the Lycoming O-360 A1A of 180 horsepower. The result became available in 1958 and it was called the Colonial C-2 Skimmer. It retained the exposed nose wheel of the earlier Skimmers that acted a bumper for docks. Important hull strength improvements were made in 1959 and it was called the Tach IV. The LA-4P (for Prototype) was similar to the C-2 and Tach IV and it flew in 1959. The LA-4A was a C-2 with four more feet added to the wing. Wing tip extension kits were available later for the C-2 Skimmer. They helped the Skimmers perform more like the Lakes. The LA-4 that was available in 1960 was essentially a C-2 with a much stronger hull and four more feet added to the wing. One and a half feet were also added to the bow that enclosed the nose wheel. By 1970 the fuel injected 200 horsepower O-360A1B was added, which improved takeoff performance and increased the maximum allowable gross weight by 200 lb. This Lake was called the LA-4 200 and it can be identified from its siblings by the box shape of its lower engine cowl. This excellent amphibian evolved through the late eighties with other less significant changes as the LA-4 200, Buccaneer, and LA-4 200EP (Extra Performance). There are approximately 600 Lake series seaplanes in use. The LA-4 200 is one of the most practical cost effective used seaplanes available today.

An exterior inspection of Lake series amphibians will reveal the most obvious design peculiarities. The pusher powerplant is cleanly mounted on a pylon above and aft of the cabin. The horizontal stabilizer is mounted mid-rudder with large hydraulically actuated trim tabs mounted outboard of the elevators. The Lakes wide gear tread of 11 feet 2 inches contribute to great stability on land operation but preclude utilization of narrow boat ramps for ramping. A 40 gallon gas tank is located aft of the passenger compartment.

The amphibian is entered through a windshield door that is hinged in the center. Either

half can be raised up and over until it lays on the other half. With a door open one can stand up straight in the cockpit and step to the bow for access when afloat to a dock. The bow also has a hatch for the storage of a seaplane anchor and line. The cabin floor-to-ceiling height is 47 inches at the rear and 43 inches in front. The width is 44.5 inches and the length is 62.5 inches. The back of the rear seat folds down to reveal a baggage compartment located under the fuel tank. A boat paddle is usually stored in this baggage compartment.

The Lakes engine controls, throttle, propeller, mixture and carburetor heat, are located overhead in true flying boat style. The hydraulically actuated gear, trim tab, and flap handles are center mounted below the instruments as well as the emergency hydraulic pump. The hydraulic pump is electrically powered and it comes on when the pressure drops below 750 psi. to charge an accumulator up to its normal pressure of 1,100 psi. They are equipped with a cable actuated water rudder that retracts into the aircraft's aerodynamic rudder.

The Lake flight characteristics

The Lake series of flying boats enjoys one of the most forgiving of stall characteristics. There is no clear break or fall-away on power on stalls. It is rather a combination of buffeting-hovering that result. It ceases when the nose is lowered. Altitude loss is nil and lateral control is good. The power off stall is preceded with buffeting and the break is preceded by an aural stall warning. The recovery results in a loss of about 250 feet. Such docile stall characteristics bode well for rough water operations where seaplanes are often slammed airborne prematurely.

It is important to maintain the center-of-gravity within limits on any aircraft. It is easy to get the CG too far aft when the Lake is flown solo by a light weight pilot. In this case it is hard to get the nose down in the event of an engine failure. One should be alert for the requirement to add ballast in the bow.

Many pilots who are unfamiliar with the Lake assume that the high mounted engine will cause the nose to pitch down excessively when power is added. Lake corrected this problem starting with the C-2 Skimmer. Large hydraulically actuated trim tabs were mounted outboard of the elevators. These tabs are deflected up when Lake aircraft are properly trimmed for slow flight. The addition of power will direct increased air flow on these upward deflected tabs and the elevator thus mitigates the expected nose pitch down reaction. Trimming so an aircraft will fly without holding pressure on the controls is considered a normal flying technique. The Lake has no undesirable power influenced pitch response when this is accomplished.

Some pilots berate the Lakes for delivering less than advertised cruise speeds. I have found that the Lake responds positively to the cleaning and waxing of the forward half of the top of its wing. This procedure seems to facilitate laminar air flow further back on the wing thus reducing drag. I have also found that it is necessary to adjust the trim tabs to a faired minimum drag position to obtain maximum advertised cruise speed. In this regard there is a similarity between an A-6 Intruder's speed brakes and the Lake's trim tabs when the trim tabs are split from the elevator's position. Some Lake owners visually adjust the trim tabs to be even with the elevators for minimum drag and remove the required control column pressure with a bungee cord. They construct a bungee cord device with a small diameter bungee cord by installing a hook for the control wheel on one end and looping the other end around the seat belt. Adjustments are made by changing the seat belt length. The resulting cruise speed increase is often impressive.

The lake series has always been berated for its poor water performance. Some of its poor reputation is warranted and some of it reflects the inexperience of its detractors. Twenty-three seconds for a water takeoff is not uncommon for a loaded Lake. It has been said that the mark of a good seaplane is what load it can carry. The maximum allowable gross weights for the various Lakes are usually the absolute maximums that they can lift out of the water after an extended takeoff run. They usually perform much better on a land takeoff. The reputation for squirrelly pitch reactions on alighting a Lake on the water can usually be attributed to the poor use of a floatplane pilot technique, that of approaching a stall before alighting. The Lake is extremely docile when it is landed at the proper trim angle that is the relation of the angle of the hull to the water. Landing at a speed faster than stall speed is required to accomplish this. Further, the Lakes outstanding turning ability on the water is unequaled by any other seaplane. They win the slalom turn contests at seaplane rendezvous every time.

The Lake also has a bad reputation with insurance companies. They have had a long record of expensive claims with these flying boats. There were 115 LA-4 and LA-4 200 accidents in the U.S. during a recent six year period. Many insurance companies will not insure Lakes. The problem does not stem from the Lakes flying characteristics. With proper training the Lake can be one of the most docile of seaplanes. The problem with the Lake is with its owner/pilots. Most Lakes are land based and their pilots enjoy infrequent water experience. Accident records show that as a group Lake pilots do some pretty dumb things. Sadly, not all experienced floatplane instructors are safe Lake pilots and non-professionals beget non-professionals. Certified flight instructors should be required to have a minimum of 100 hours of experience in Lake aircraft or factory training in order to be qualified as a Lake flight instructor. It would help if the insurance companies required Lake owners to obtain their biannual reviews from experienced Lake flight instructors as a condition of insurability.

The care and feeding of the Lake

The Lake is one of the most fuel efficient seaplanes available in its class. Some versions of the popular Lycoming O-360 engine have an incredible 2000 hours TBO (Time Between Overhauls). Parts and servicing for the Lakes are readily available from the Lake organization. Corporate Headquarters for Lake aircraft is at Laconia Airport at, 50 Airport Road, Gilford, NH., 03246 and/or 606 N. Dyer Blvd. Kissimmee Airport, Kissimmee, FL. 347714, Phone 407/847-9000, FAX 407/847-4516.

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