

## PILOT FLIGHT CHECK:

# The Lake Buccaneer

... wherein it is proved that amphibians need not be either homely or a handful

by BUD CORBAN / AOPA 320301

■ Amphibians aren't everyone's bag. They are, in many instances, slow and inefficient, light on payload and heavy on the controls. By their very nature, amphibians must compromise aerodynamics for hydrodynamics, often to the detriment of both. While there's no questioning their utility, planes that can operate from land or sea are sometimes tricky on water, clumsy on land and unforgiving in flight.

Somehow, the Lake Amphibian has managed to avoid virtually all these ills. Since the introduction of the updated LA-4 in 1963, the trim little flying boat from Texas has been a constant reminder that amphibians don't have to be slow, heavy, tricky or unforgiving. The LA-4 and, more recently, the Buccaneer, have stood the test of time well. Sales have climbed slowly but consistently, from one a month to two a week, and the people at Lake think they've only begun to tap the potential market.

For most land pilots, however, Lake Amphibians have remained an untested quantity, though rare is the pilot who hasn't watched a Buccaneer or an LA-4 settle gracefully onto the local pond and wondered in fascination at the joys of skipping a seaplane.

Despite the awe and envy of the land-bound, the mystique of water flying has taken 60 years to catch on. Though the number of water-rated pilots has increased sevenfold in the last dozen years, a major restraint has been the lack of true waterplanes. Discounting a few half-hearted attempts by Siai-Marchetti and Schweizer, Lake has offered the only serious amphibian in America since the demise of the Seabee.

The Lake has made significant inroads in this country and overseas as well. Nearly 35% of Buccaneer production was exported in 1974, an understandable fact when you consider the various missions a Buccaneer can perform. Many of the airplanes that leave the states are destined for backwoods operation in Canada or missionary work in South America. Others may wind up in the hands of park rangers on game patrol in Africa or shuttling doctors around the Outback of Australia.

While most foreign Lakes are working airplanes, the majority of the domestic inventory sells to pilots who'll use the airplane for just plain fun. In this respect, the Lake has found a permanent niche in the lightplane market.

While it's true that the Buccaneer has no direct competition, it does fall into a general price class that matches it against a well-equipped Arrow, Cardinal RG, Mooney, Sierra or 112. Coincidentally, all five landplanes and the Lake use the same engine, but there the similarities end. Base prices on the competitors are at least \$9,000 lower than the tab for a bare-bones Lake. This is the result of an attempt by the major builders to keep the base price down, letting a customer "build" his own airplane, starting with a very basic machine and adding "extras."

For better or worse, Lake's off-the-shelf Buccaneer comes virtually complete except for radios. Standard equipment includes: full gyros, a paddle, electrical provisions and wiring for dual navcoms, ADF and transponder, plus VHF and ADF antennas. (Lake assumes everyone will want an ADF, because Buccaneers often go where runways and VORs don't.)

In standard trim, the Buccaneer sells for \$38,950. After you add the cost of all the Buc's standard features to the competition's airplanes, the price disparity diminishes to a less significant, but still considerable, \$6,000. What it boils down to is that amphibians cost more to build than landplanes, and each pilot must make his own decision as to whether the trade of dollars for utility and fun is worth it.

For those who do opt for a Lake, the list of extras is short and to the point—nine items long to be exact—and none of the options could be considered a frill. Besides the usual plethora of radio gear, an EGT, strobes, aux tanks (in the floats), right-side brakes, an external power plug and an hour meter are all fairly normal extra cost items.

A bilge pump capable of cycling 300 gallons an hour is available, though the Buccaneer doesn't really need it. The hull is strong and practically leakproof. After every flight into water, the pilot pulls seven drain plugs in the hull and

## LAKE BUCCANEER\*

### Specifications

Engine	Lycoming IO-360-A1B
Propeller	Hartzell 74-inch, constant speed
Empty weight	1,545 lb
Useful load	1,055 lb
Gross weight	2,600 lb
Baggage	200 lb
Wingspan	38 ft
Wing area	170 sq ft
Length	24 ft 11 in
Height	9 ft 4 in
Fuel capacity	40 gal (54 gal optional)
Oil capacity	8 qt
Wing loading	15.2 lb/sq ft
Power loading	13 lb/hp
Basic price	\$38,950

### Performance

Cruise, 75% power	150 mph
Range, 75% power	650 mi
Service ceiling	14,000 ft
Rate of climb	1,200 fpm
Takeoff distance on land	475 ft
on water	1,100 ft
Landing distance on land	475 ft
on water	1,100 ft
Stall, gear and flaps down	45 mph
gear & flaps up	52 mph

\* Lake Aircraft, Hooks Memorial Airport, Tomball, Tex. 77375.

floats, and I've never seen more than a shotglassful trickle from any compartment.

Rajay turbocharging is a sensible option for an airplane that may spend much of its time splashing into, and hopefully back out of, high-altitude water. The Rajay system is one of the twin-throttle types, capable of maintaining sea level manifold pressure to 16,000 feet. The blown Buccaneer's climb at gross holds 800-1,000 fpm all the way to 15,000 feet, and cruise peaks at 175 mph at 20,000 feet.

One final option worth mentioning is a heater. It may seem incongruous that an airplane so well-equipped lacks such a basic comfort item, but designers of



*In the Buccaneer, long legs, rugged hull, and elevated, aft-mounted engine somehow meld into a remarkably graceful looking amphibian.*

pushers always have had problems figuring how to feed hot air to the cockpit. Without a warm engine hung conveniently on the nose to radiate plenty of heat three feet back into the cabin, keeping Lake passengers comfortable is left to a Stewart-Warner gasoline-powered heater, independent of the airplane's systems and capable of generating 20,000 BTUs.

No matter what the choice of equipment, the Buccaneer is an almost dainty package of airplane in contrast to its hulking amphibian predecessors. The Lake perches proudly on its slim gear, its long wings outspanning a Baron's. The fuselage is uninterrupted by doors. Instead, the windshield unlatches and

swings to the center in halves, a nifty way to load passengers who don't mind climbing over the cabin wall.

Inside, accommodations are adequate for four fair-sized travelers. Buccaneer interiors look durably utilitarian and, in fact, are spartan compared with a Bonanza's or a Viking 300's. Remember, though, that the Lake doubles as a boat part of the time, so its upholstery has to be almost totally impervious to water-soaking. Considering what the fabric must endure, it's amazing the interior looks as attractive as it does.

After a few moments of bewilderment, most pilots discover the engine controls mounted conveniently on the cabin roof. I say "conveniently" because

it's amazing how fast a pilot acclimatizes to the overhead controls. The roof is, after all, the most logical place to hang the throttle, prop and mixture on an airplane that houses its passengers below and in front of its powerplant.

Actually, the unusual engine position is one of the very reasons for the Lake's success. Tucked inside the tight aluminum cowling is a lightweight, four-cylinder Lycoming IO-360-A1B, capable of pumping out 200 hp at 2,700 rpm. Because of the elevated engine position, cooling is remarkably efficient—so good that Lycoming recommends a 2,000 hour TBO on the Lake Lyc, but only 1,600 hours on tractor airplanes. A fringe benefit of free-flow cooling is the

THE LAKE BUCCANEER *continued*

engine's ability to idle for hours on water without overheating.

Service is a mechanic's dream. The entire front of the cowl hinges at the top for easy access to all engine accessories. Fuel injection eliminates one of most seaplanes' Achilles heels: carburetor ice. In addition, the high pusher configuration protects the prop from water damage and makes people/prop accidents virtually impossible.

In theory, the combination of a high thrust line and 200 hp might seem to guarantee severe pitch problems with abrupt power changes. In practice, it just ain't so. The Buccaneer will nose down slightly if you stab the overhead throttle from idle to wide open in flight, but the attitude change is more of a gentle sag than a violent plunge.

Similarly, poking the throttle full forward for a land takeoff produces a deceptively mild reaction. The airplane doesn't feel all that excited about flying until airspeed touches 55 mph; then it comes off and up in a hurry. All take-

offs are with full flaps, and climb at the best-rate speed of 65 will easily nudge 1,000 fpm after the gear is up.

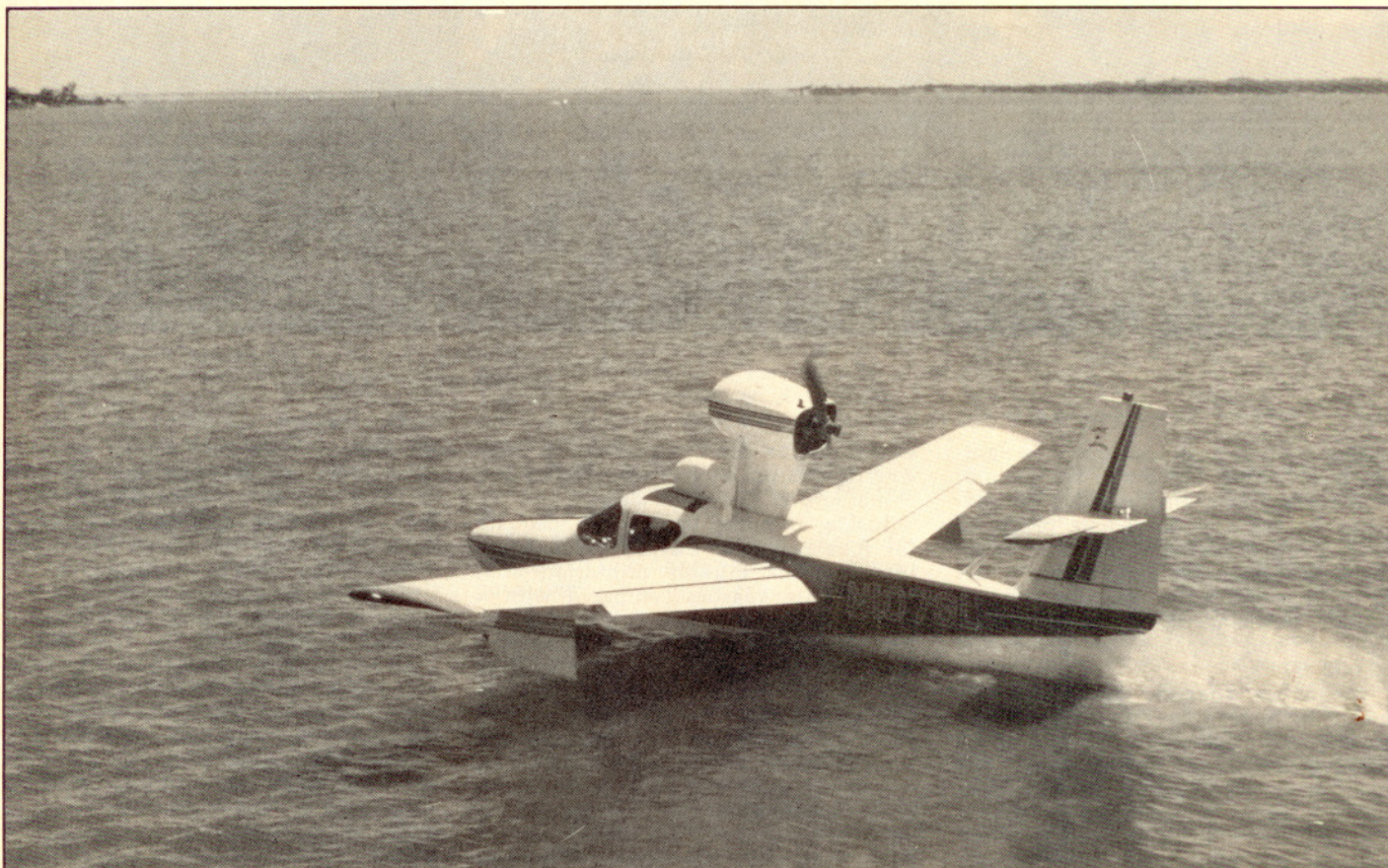
Water takeoffs are more fun; also more lengthy. The Buccaneer will leap up onto the step by itself if properly trimmed, and slight back pressure will lift the amphib into the air after only an 1,100-foot run. If there's no straight 1,100-foot section of water available, the Lake can be step-taxied in a 600-foot circle to build up speed for takeoff.

Stability during climb is excellent. Despite the low climb speed, full flaps allow the Buccaneer to ascend in a fairly level, elevatorlike attitude, and the twin floats act as a poor man's wing leveler.

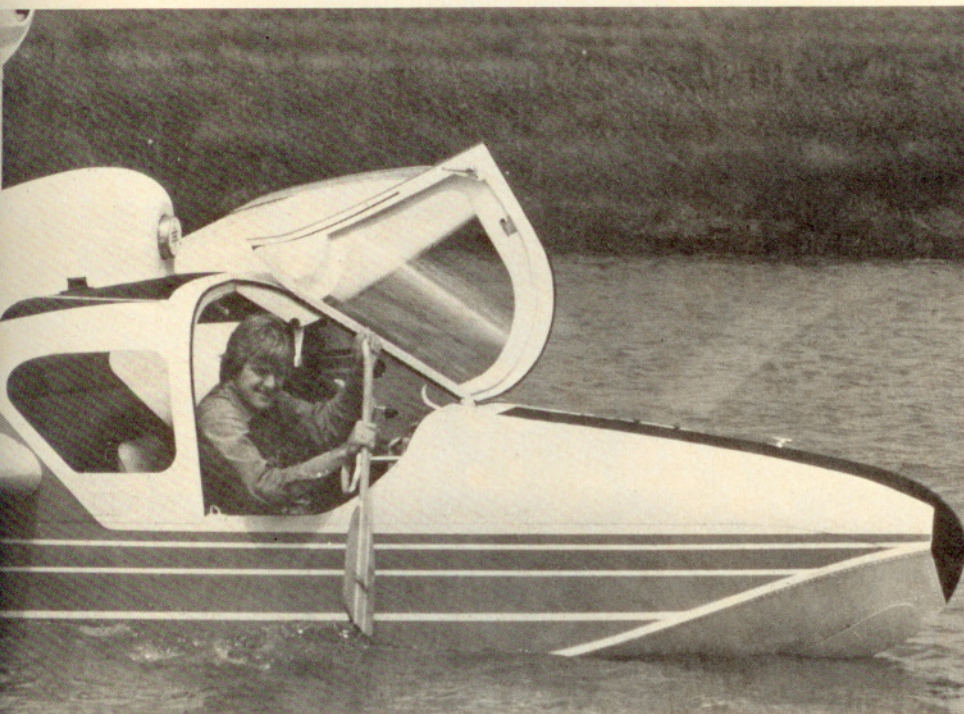
Visibility is similarly impressive in all directions, especially to the rear. The mid-wing design places the leading edge two feet behind the pilot and about even with his shoulders. This position allows a good view above and below the wing, and the triangular rear windows make it easy to watch the elevator trim tabs run up and down during trim changes.

The Buccaneer's spring-loaded hydraulic trim lever, mounted between the

Lake Buccaneer on water takeoff. Slight back pressure will put the amphib in its other element after an 1,100-foot takeoff run. Photos by the author.



Padding room (and access to the cabin) can be had by unlatching a Buccaneer windshield half and swinging it to the center.



seats, seems awkward at first but becomes friendlier with experience. Trimming the airplane for any flight attitude becomes second nature after a few hours. Trim is positive and fast, with the large double tabs displacing nearly half of the horizontal stabilizers. Left untrimmed, the elevators take considerable strength to use, more than you might expect for a 2,700-pound airplane.

When it comes to covering ground (or water) as rapidly as possible, the Buccaneer is no slouch. Lake President Al Alson swears the normally aspirated Buc will true an honest 150 mph at optimum altitude, and that number seems reasonable, though the best we could get with everything against the stops was 145 mph in light turbulence, 6,500 feet over summer Texas. Smooth air, a perfectly located CG, and a more experienced hand on the controls might have yielded the higher number.

Admittedly, the land-based, midpriced retractables will true 160 mph under the same conditions. Over a typical 500-mile trip length, the difference amounts to a 20- or 25-minute-longer flight in the Buccaneer, a small price to pay for amphibian versatility.

It may be no price at all if the flight doesn't go as planned. One aspect of Buccaneer flying that has to be experienced to be appreciated is the airplane's remarkable safety margin in emergency situations.

Can't get the gear down? No problem. Land on water. Engine failure at altitude? Again, no sweat if you're over water. Overshoots and undershoots are far less scary when the runway may be miles long and equally wide, and crosswinds become less of a factor when you have the option to land in any direction. The water need not be particularly deep, either, since a grossed-out Buccaneer draws only 14 inches at rest.

Should the fan stop over solid but not very level terra firma, a Buccaneer is in better shape than a typical landplane. All 40 gallons of fuel are stored in a single fuselage tank, so wing damage isn't liable to cause a fire. Any damage at all is rare. Lakes have been landed gear up in rough dirt fields with nothing worse than scratched paint on the wing floats. The hull has to be strong enough to absorb violent contacts with water, and any seaplane pilot can tell you that the main difference between water and cement is that water is wetter.

Hopefully, a pilot won't require a gear-up, hard-surface landing to convince him of the Lake's structural integrity. During our visit to Lake's Houston, Tex., delivery center, the local chop never dropped much below two feet, but the airplane didn't seem to object to our rusty technique. Al Alson says he's heard stories of Lakes being landed in the surf off Australia but doesn't recommend such antics for the average water pilot.

By normal aircraft standards, the Lake is constructed like a PT boat with wings. It has to be, because there are no shock absorbers between the hull and the water. The keel is 0.052-inch steel plate, surrounded by a stressed metal skin strong enough to toss aside most water obstacles without damage. Even should the hull be holed by floating debris, there are seven separate watertight compartments to keep the airplane afloat. For obvious reasons, the entire airframe is alodined and zinc-chromated, a feature that comes in as handy in smog-filled air as it does in salt-filled water.

Lake likes to bill its airplane as a STOL machine, and there's certainly justification for such a title during landing. A full-stall splashdown can have the Buccaneer stopped in what seems a lot less than the advertised 600 feet. Hard runway approaches are more impressive, however, especially if final must be flown over an obstacle.

Once gear and flaps are down, descent rate is controlled strictly by power, as in a twin. Final approach speed can be as slow as 60 mph and still preserve a comfortable margin above stall.

Throttle back to idle with the airplane dirtied up and the Buccaneer plummets from the sky at 2,000 fpm or more. The draggy, long-oleoed gear appears to make all the difference, since full-flap, power-off water approaches with the wheels locked safely in the wells aren't precipitously steep. Holding a cautious 17 inches of manifold pressure at 70 mph preserves just the right amount of flare for water touchdowns.

The airplane's tendency to drop like a freight elevator with power back and everything hanging out makes crosswind technique more critical than on some standard landplanes. Dipping a wing into the wind results in a hellacious sink rate, even with power on. The crab technique works well without spilling lift all over the sky, and the rudder grabs quickly to kick the airplane straight for flare.

Such slow-speed flexibility, in combination with all the Lake's other attributes, seems to assure a bright future for the world's only successful hulled amphibian. Under Al Alson's guiding hand, Lake Aircraft approaches the 1980s fat and happy but definitely not dumb. Alson is cautious but curious about expanding the line to include both a bigger-engine model and an extra-engine model—a six-place, push-pull twin.

Such exotic ideas are undoubtedly far in the future. For now, the Lake Amphibian comes in one model, and Alson is content to leave a proven design alone. □