

BELLANCA SUPER VIKING

THUMBING A NOSE AT CONVENTION

January 5, 1993

If nothing else, the Bellanca Super Viking provokes reaction. During several weeks spent with a brand-spanking-new Super Viking, I heard people describe it as everything from an anachronism to just about the best thing flying with four seats.

The polarity of opinions is just one more interesting characteristic of this unique airplane. No way is the Super Viking your run-of-the-mill high-performance single. What other new-production airplane would dare fly toward the twenty-first century as a 285-horsepower (300 hp for takeoff) tube-and-fabric retractable? How has it even survived this long? The answers lie in a maverick personality and, most importantly, superb flying qualities.

The Super Viking appeals to the pilot who isn't put off by the fabric-covered fuselage and tail, and who has an artisan's appreciation of the craftsmanship and beauty of the wooden wing structure. Whose eye is drawn to the unusual — a paint scheme juxtaposing dark, metal-flaked green with a sunset shade of yellow, for example, or the chutzpah of a cabin swaddled in crushed velour. (Buyers have a choice of exterior colors and interior fabrics and leathers.) The Super Viking is for someone who enjoys thumbing their nose at convention.

Pilots will argue the merits and demerits of wood wing and fabric skin, but a discouraging word can't be said about the Super Viking's handling qualities. The first time you roll into a turn, you realize this is something special. Aileron deflection takes just the right amount of effort, and the response is instant, crisp, and smooth. Adverse yaw is minimal because of the directional stability of the oversize vertical fin. The rudder is small and the forces somewhat stiff, but it doesn't take much to keep the ball centered while climbing or maneuvering.

If you've flown a Bonanza and covet its agility, beg a ride in a Super Viking. It has aerobatic-caliber lateral control feel and response, although it's a Normal-category airplane — no loops, rolls, or other funny stuff allowed. Years ago, the factory retained Debbie Gary to tour the air-show circuit in a stock Super Viking specially approved for aerobatics. Bellanca hasn't been the only manufacturer to make a

BECOME AN AOPA DRONE MEMBER TODAY



statement about the performance and strength of its product by having a professional aerobat put it through its paces. But Gary probably had more fun in the nimble Bellanca than her peers flying other, more pedestrian production airplanes.

The Super Viking also is super-stable in cruise, which is surprising given its maneuverability. On one flight, I leveled at 6,500 feet, trimmed as the airspeed settled, then released the controls. For the next 45 minutes, all I had to do to maintain straight-and-level flight and stay on course was to dab at the rudder pedals. The engine was feeding from the 15-gallon fuselage tank aft of the baggage bay, so I had to tweak the pitch trim a couple of times to account for the gradual forward shift in center of gravity as the gas was consumed. I even descended to pattern altitude and leveled off using only the throttle. The next time I laid hands on yoke was to enter the downwind leg at the destination airport.

At the end of the 75-minute flight back to home base, I wasn't ready to land and park the Bellanca. Flying it was just too much fun. I felt the need for some yanking and banking, so I headed south to a practice area for a round of slow flight, steep turns, and stalls. When it was over, I had an even greater appreciation for the Super Viking's remarkable combination of stability and maneuverability. An eye-opening exercise is to bank 60 degrees and dial in some nose-up trim, then take your hands off the yoke and watch the airplane fly around in circles by itself, maintaining that 60-degree bank. Holding the yoke full aft in a stall leads to some bobbing of the nose as the wing alternately stalls, regains lift, then stalls again, but the airplane is controllable throughout using the rudder.

Playing around like that in the low end of the performance envelope does a lot to instill confidence when flying in the clouds, especially on an approach. A moment's inattention to the controls won't lead to unusual attitudes. Configuration changes — flap and gear extension — don't upset the power/pitch/trim balance, other than what is to be expected from a reduction in airspeed due to the increased drag.

Why does the Super Viking fly so well? One interesting theory is that the basic design pre-dates modern times (the beginning of which coincided with the creation of the Federal Aviation Administration and its "parts," as in FAR Part 23), and back then, flying qualities were more important to the success of an airplane than they are today. Of course, it could also be true that Guiseppe M. Bellanca simply spun some magic when he put his talented design pen to paper.

Bellanca, who emigrated from Italy to the United States in 1912, earned a reputation for creating highly efficient airplanes with good low-speed characteristics and high cruise speeds. By 1936, various Bellanca-designed airplanes had set more world records than any other make and had made 11 transatlantic crossings.

Bellanca's first production lightplanes were the three-seat 90-hp retractable, conventional-gear 14-9 Cruisair and its fixed-gear sister ship, the 14-7 Crusair Junior. The Cruisairs were instantly recognizable by their triple tails, a characteristic of Bellancas until 1963. A later postwar version, the 14-13, was powered by a 150-hp Franklin and had a larger, 161-square-foot wing, the same basic Bellanca B wing used today (airfoil and planform, at any rate; the internal structure is different). Except for the tail, there is a distinct physical kinship between the 14-13 and the Super Viking.

The Cruisair was followed in 1950 by the 190-hp Model 14-19 Cruisemaster, which later gained in power to 230 hp and, in 1957, 260 hp. It also became a tricycle-gear aircraft that year. In 1964, the triple tail was changed to a single, large, swept vertical stabilizer.

The 300-hp Continental IO-520-powered 17-30 Viking, a direct descendant of the 260-hp Cruisemaster, was certified in 1966. Then came the 17-31 with a Lycoming IO-540 engine and a turbocharged Lycoming variant. One disadvantage of the Lycoming is that the design of the engine makes it impossible to fully retract the nosewheel into the cowl. The nosewheel on Lycoming-powered Vikings protrudes into the slipstream. The main gear wheels on all Vikings only partially retract but are covered by gear doors. Today, the Continental engine is the only one offered in the Super Viking.

To keep pace with the times, many changes have been made to the Viking over its nearly 30-year history: gross weight increases, aerodynamic cleanups, electric instead of hydraulic flaps, larger instrument panel, and new fuel systems. Until 1973, a Viking could have been ordered with as many as five fuel tanks and two fuel selectors. That confusion gave way to the present configuration, one 34-gallon tank in each wing and an optional 15-gallon fuselage tank, all controlled by a four-position selector between the two front seats.

Surprisingly, some customers order their Super Vikings with only the standard 68 gallons of fuel — no fuselage tank. That isn't much endurance for an airplane that downs about 16 gallons of gas an hour.

Most buyers of new Super Vikings are previous Bellanca owners. "Fanatics" is a word that's often used to describe owners of Bellanca aircraft. After living with a Super Viking for several weeks, one can begin to see why. Mike Pinckney, who liked the Super Viking he owned so much that he ended up buying the company, provided *AOPA Pilot* with the first 1993-model Super Viking, with all of 26 hours on the

tachometer, for an extended evaluation.

Several AOPA staff members initially looked askance at N26795, probably because of what they perceived as the incongruity of a wood wing and fabric skin on a new-production, high-performance single. "I thought all the talk about composites for general aviation meant carbon fiber and Kevlar, not wood and Dacron," they may have been thinking. Some were put off by the bold yellow paint and crinkly interior. The few who had experience in Bellancas couldn't wait to go flying.

Like them, everyone came away a fan, won over by performance, handling, and the Super Viking's plucky, odd-man-out personality. You flew it, you liked it. After awhile, the crushed velour even begins to grow on you.

Down low, the power has to be used conservatively to avoid blowing past the 190-mph VNO and into the yellow caution range. (The airspeed indicator is primarily marked in miles per hour.) At higher cruise altitudes, we came to expect true airspeeds approaching 205 mph or nearly 180 knots. Even At 14,500 feet, the Super Viking clocked in at 192 mph true, 174 knots, on just 12 gallons per hour. With all the tanks full (84 gallons usable), count on just over four hours' endurance to land with a comfortable hour's reserve.

The Super Viking can be difficult to manage on descents and in the terminal area because there is little to aid in slowing down. Maximum gear extension speed is 160 mph, some 20 to 30 mph below typical cruise speeds. Flaps can't be deployed above 120 mph. The gear incorporates a mechanism that will automatically extend it when slowing below about 100 mph if the selector has not been placed in the Down position. It also prevents the gear from being retracted below about 100 mph, unless full power is applied. Once you've got the gear down, it's easy to fly an orderly, stable approach or pattern. With the flaps at half and the power at 15 inches, the Bellanca will motor down final at 100 mph. It takes concentration and a good tug on the yoke to get the nose up high enough to avoid a three-point touchdown. The Super Viking sits at a healthy positive angle of attack on the ground, a reminder of its conventional-gear heritage.

Andy Vano, Bellanca's chief (and only) engineer and also the production test pilot, checked me out in the airplane. He is especially proud of 795 because it is one of the first Super Vikings built with the new main-gear doors he designed. The doors are smaller and less complicated (three doors for each main wheel compared to four) than earlier versions and incorporate a landing light on each side. The right light doubles as a taxi light. On earlier Vikings, the lights are mounted in the leading edge of the left wing, where moisture can seep through gaps in the light fixture and into the wing structure.

Controlling moisture contamination and fungi in the wing is the key to maintaining the Super Viking. It's no more difficult than controlling corrosion on an aluminum airplane. The spruce in the wing is dried to a moisture content of from 8 to 12 percent. As long as the moisture content of the wood fibers does not

exceed about 30 percent, decay-producing fungi should not pose much of a problem. An airworthiness directive issued in April 1976 (AD 76-08-04) requires that the wing be inspected for decay at least annually. The procedure involves a fairly simple exterior inspection as well as a look through inspection ports at the internal structure.

A Bellanca service letter, 87A, explains that humidity alone will not lead to significant decay but could cause mold to form. Long-term exposure to rain, condensation, and contact with wet ground, however, can lead to trouble, according to the service letter. Then again, long-term exposure of aluminum to those conditions is equally as bad. Like any airplane, a Super Viking must be given reasonable care and consideration — and needs to be flown — if it is to last and perform to expectations.

A Super Viking owner is best served by a maintenance shop familiar with wood, but that's not always easy to come by. There are at least four shops scattered around the country that have long experience servicing Bellancas: CAP Aviation in Reading, Pennsylvania; Miller Flying Service in Plainview, Texas; Screaming Eagle Aviation in Santa Paula, California; and Weber's Aero Repair in Alexandria, Minnesota. CAP Aviation conducts service clinics for owners. Tom Witmer, the director of maintenance, encourages owners to bring their FBO mechanic to a clinic to learn the fine points of inspecting and caring for a Super Viking. Witmer pooh-poohs critics of the Bellanca's fabric and wood. His shop services some 25-year-old and older all-original Vikings that Witmer says are in fine shape.

Base price of a new Super Viking is \$153,500, which includes a Bendix/King IFR panel. Pinckney had loaded 795 with lots of extras, including a Bendix/King KLN 88 loran and S-TEC System 60 autopilot, three-blade propeller, ski tube, and the auxiliary fuel tank. List price was \$196,000. With a full load of fuel, 795 could carry 509 pounds of pilot, passengers, and bags.

Beginning in 1980, Super Viking buyers could order their airplanes with the communications and navigation antennas buried in the wing. It adds about a knot in speed, but mostly the airplane looks better without porcupine antennas. However, we had occasional trouble communicating with controllers. We could hear them fine, but they could not always hear us. It was an intermittent but nettlesome problem. Bellanca goes easy on the silver content in the dope they apply to fabric on the underside of the wing to minimize interference with radio reception. Regardless, a buyer should think carefully before opting for hidden antennas.

Some other things we noticed during our evaluation: The optional electric door seal does a great job of eliminating annoying slipstream hiss; the metal instrument panel is nicely shaped, organized, and lighted; cabin heat is very effective, and there's even a heat control for the rear seats; fresh-air vents abound and are well paced; a plunger in the door jamb turns overhead cabin and baggage lights on when the door is opened; and the overhead pitch trim crank is fun to use.

A problem we encountered twice during our evaluation was failure of the gear to retract after takeoff. The trouble was traced to the wire cable that stretches from the wing to the main gear strut. The wire, which prevents the gear strut from overextending after liftoff, had hung up on a fitting on the squat switch, preventing the strut from extending enough to break the squat switch's electrical contact. Bellanca subsequently came up with a simple fix by reversing the offending bolt and nut on the squat switch.

Other quibbles: The baggage area is a bit small, the cabin is narrow, the nosewheel steering is stiff, and the cowl flap lever protrudes from the bottom of the panel where it can snag a kneecap. Seat track adjustment knobs and fresh air louvers below the front seats are flimsy, and the cap on the aux tank is difficult to remove and screw back on. Also, the main fuel tank sumps are located in the middle of the very wide wing roots. You end up crawling on the ground to reach them — not a pleasant task in the rain or when wearing fancy clothes.

Enough grousing. The Super Viking's strengths — handling and performance, primarily — far outweigh the foibles. If your house is round in a square neighborhood and you order fish when others get steak, if you enjoy being just a little bit different than everyone else, Bellanca may have an airplane for you.

The Bellanca Way

Forty years ago, a group of business and civic leaders from the small Minnesota lake region town of Alexandria (where some believe the Vikings roamed long before Christopher Columbus arrived in the new world) sought to boost the local economy by bringing some manufacturing activity to town. That activity turned out to be building Bellanca Cruisemasters.

Tooling and parts were shipped from New Castle, Delaware, where Guiseppe Bellanca had originally established his factory. A shop was set up in a former creamery in town. Essentially, it was a woodworking shop where the wings, flaps, and ailerons were built. A portion of the creamery was used to weld the steel tubing used to construct the fuselage and tail. Final assembly of the Cruisemasters took place in a hangar at the local airport.

It's still done pretty much the same way today at Bellanca, Incorporated. The wings, flaps, and ailerons still are painstakingly built by hand in the same old creamery, then loaded onto a trailer and hauled the few miles to the airport for mating to the tubular fuselage and tail.

When you walk through the side door into the wing shop, it's like passing back through time. Some of Guiseppe Bellanca's original tooling is still used to piece together wing ribs. A fine dust from constant sanding hangs in the air, and stacks of Sitka spruce planks stand ready for the laminating process that will

turn them into wing spars.

The Super Viking's wing is a work of industrial art. Each side is composed of an estimated 1,800 pieces of wood, each one stamped with a part number and shaped and glued to take its exact place in the intricate structure.

The wing begins to take shape when nose ribs are attached to the front spar and tail ribs are attached to the rear spar. The two spars then go into a master jig where the middle ribs are attached. Aluminum fuel tanks, fuel and hydraulic lines, wires for lights, and antennas are installed. The plywood leading edge, shaped by steaming, is fitted, and the entire wing is skinned in mahogany plywood. A sealer is applied.

The plywood is in turn covered with Dacron cloth, and 16 to 18 separate finish coats of dope and paint are applied. The finished wing, which has taken about three weeks for two men to assemble, weighs about 500 pounds total — 250 pounds a side.

At the factory, the steel-tube fuselage is welded together and the fabric ironed on to shrink it to size before the doping process begins. Each side of the wing is bolted to a tubular steel fuselage carry-through structure. There are two attach bolts in the forward spar, two in the rear spar. About 85 percent of the individual pieces and parts that go into the airplane are made by Bellanca. It takes the company an estimated 3,600 man-hours to build a Super Viking. The skills required to construct the Super Viking are not easily acquired. Not many people possess them. Bellanca, Incorporated, is fortunate in that turnover among employees is minimal.

Mixed in with the new airplanes going together in the shop are older Vikings being refurbished by the factory. Parts support for an estimated 1,300 to 1,400 Vikings in the fleet is a big boost for the company.

Call with a question or parts request, and you're as likely to talk to Chuck Holm, the president, as anyone. With 21 people on the payroll, Bellanca, Incorporated, doesn't cut a very wide swath in corporate America, or even in the general aviation industry. Production averages fewer than 10 airplanes a year, and owner Pinckney does all of the selling himself. Bellanca may be small, but it upholds a proud tradition and turns out a fine airplane. — *MRT*

BELLANCA 17-30A SUPER VIKING

BASE PRICE: \$153,500

PRICE AS TESTED: \$196,000

SPECIFICATIONS

Powerplant	Continental IO-520K, 300 hp (5-minute limitation) @ 2,850 rpm 285 hp maximum continuous @ 2,700 rpm
Recommended TBO	1,700 hr
Propeller	McCauley constant-speed, three-blade, 78-inch diameter
Length	26 ft 4 in
Height	7 ft 4 in
Wingspan	34 ft 2 in
Wing area	61.5 sq ft
Wing loading	20.59 lb/sq ft
Power loading	11.8 lb/hp
Seats	4
Cabin length	9 ft 8 in
Cabin width	3 ft 4.5 in
Cabin height	3 ft 7.5 in
Empty weight, as tested	2,312 lb
Gross weight	3,325 lb
Useful load, as tested	1,013 lb
Payload w/full fuel, as tested	509 lb
Fuel capacity, std	68 gal (68 gal usable) 408 lb (408 lb usable)

Fuel capacity, w/opt tanks	87 gal (84 gal usable) 523 lb (504 lb usable)
Oil capacity	12 qt
Baggage capacity	186 lb
PERFORMANCE	
Takeoff distance, ground roll	980 ft
Takeoff distance over 50-ft obstacle	1,420 ft
Max demonstrated crosswind component	17 kt
Rate of climb, sea level	1,200 fpm
Cruise speed/endurance w/45-min rsv, std fuel (fuel consumption, ea engine)	
@ 75% power, best economy, 7,500 ft	172 kt/4.5 hr (94.2 pph/15.7 gph)
@ 65% power, best economy, 10,000 ft	165 kt/5.3 hr (81 pph/13.5 gph)
Max operating altitude	24,000 ft
Service ceiling	18,200 ft
Landing distance over 50-ft obstacle	1,340 ft
Landing distance, ground roll	835 ft
LIMITING AND RECOMMENDED AIRSPEEDS	
VX (best angle of climb)	65 KIAS (75 mph)
VY (best rate of climb)	96 KIAS (110 mph)
VA (design maneuvering)	129 KIAS (148 mph)

VFE (max flap extended)	104 KIAS (120 mph)
VLE (max gear extended)	139 KIAS (160 mph)
VLO (max gear operating)	
Extend	139 KIAS (160 mph)
VNO (max structural cruising)	165 KIAS (190 mph)
VNE (never exceed)	196 KIAS (226 mph)
VS1 (stall, clean)	66 KIAS (76 mph)
VSO (stall, in landing configuration)	57 KIAS (66 mph)

For more information, contact Bellanca, Inc., Alexandria, Minnesota 56308; telephone 612/762-1501, or Pinckney Aircraft, telephone 904/456-7655.

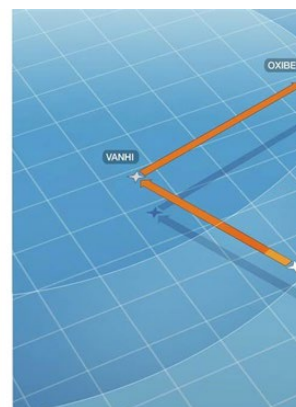
All specifications are based on manufacturer's calculations. All performance figures are based on standard day, standard atmosphere, sea level, gross weight conditions unless otherwise noted.

RELATED ARTICLES



PILOT MAGAZINE

Membership News and Notes March 2019



PILOT MAGAZINE

ADS-B gotchas

[GO TO ARTICLE](#) ▸