BELLANCA SUPER VIKING

Silky Anomaly

Sensuous, flowing lines truncated by hard corners and the hint of tubing under fabric. Smooth skin . . . and struts. Modern materials and old combined.

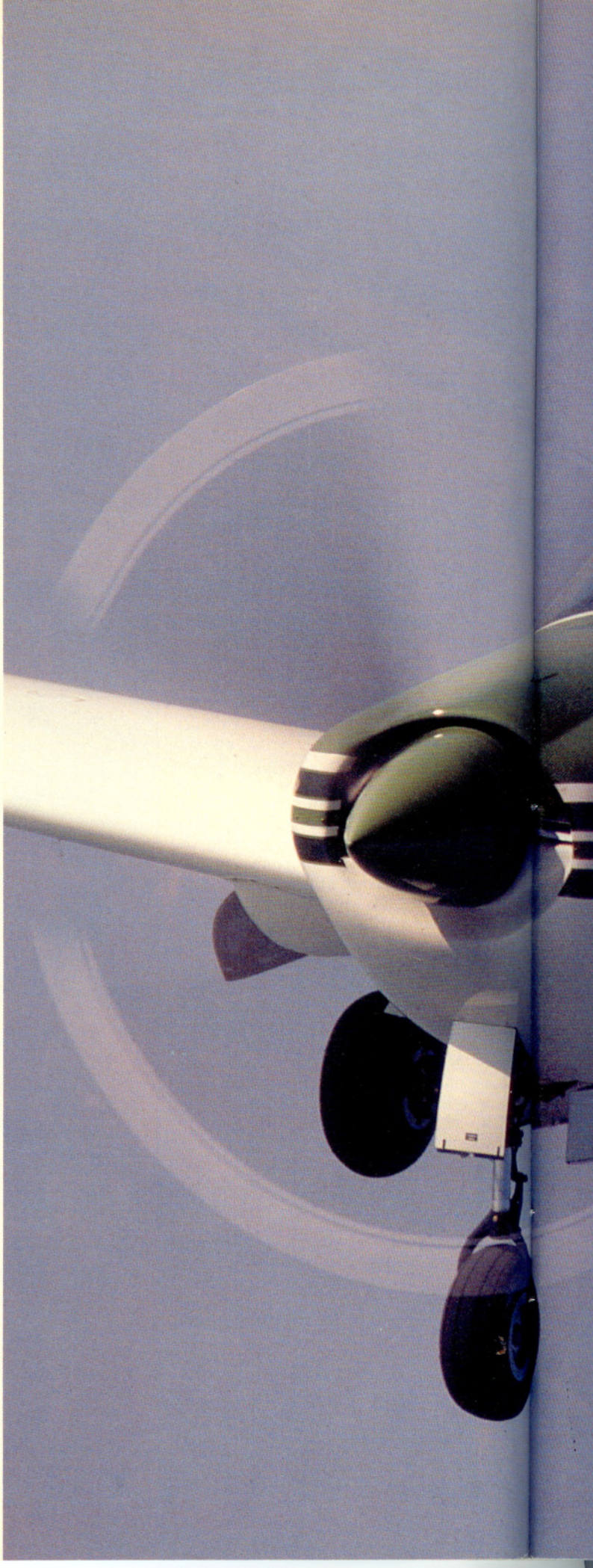
The wing is rivet-free. The finish is like glass, as slick as modern wings should be. But the design and the construction method were first combined 41 years ago. The current tail was developed in 1963 for the 1964 model year, but the horizontal surfaces look like a rib stitcher's art form and are supported by—glory be—struts. The port side stabilizer has a too-thick looking, aluminum trim tab appended to it.

For those who complain about the relative lack of progress in light aircraft since the thirties, the Bellanca Super Viking is both a supporting argument (its predecessor was rolled out in 1938) and an opposing one. The first 14-19 series Bellanca had a round engine and was a three-seat, conventional gear aircraft of modest performance. While other aircraft of similar vintage are still in production in some form, such as the Taylorcraft and the descendant of the J-3, the Super Cub, none have been developed to try to keep pace with the market as has been done with what is now called the "Super Viking."

The 14-19 series was converted from conventional to tricycle gear in 1959. At the same time, it was fitted with a 260-hp Continental engine. In 1964 the Constellation-like triple tail was exchanged for a single vertical fin. In 1967 the series was fitted with a 300-hp Continental, the fuselage was lengthened, the series designation was changed to 17-30 and the aircraft was marketed as the Viking. In 1968 two engine options from Lycoming were added: a normally aspirated 300-hp version and a turbosupercharged model, and the name became Super Viking.

The aircraft was considered an anachronism back then, as most production aircraft were monococque aluminum. Bellanca stuck with the complex wooden wing, built with two laminated Sitka Spruce spars, spruce and mahogany plywood ribs covered with mahogany plywood skin, and tube and fabric fuselage and tail. But it had loyal supporters, several of whom came to the rescue of a succession of companies that foundered trying to produce and market a hand-made (read expensive to produce), one-

PHOTOGRAPHY BY AARON KILEY



continued

product line airplane in the face of expanding choices (and dealers) offered by major competitors.

Bellanca lovers always managed to pull the aircraft through, and the company along with it. When one considers the many other designs that intrepid would-be aviation businessmen tried to preserve or revive, the Bellanca is notable for the many scrapes it has gotten through.

In 1970 another survivor of early light aviation was merged with Bellanca. The union with Champion Aircraft seemed logical because of the similarity in construction techniques and because of the broadened product line prospective dealers would have to work with. The times of troubles weren't over, however, and production was actually stopped for a period of time. New capital and management was provided by Anderson-Greenwood Aviation Corp, a Houston company that had designed and certificated a new, efficient high-performance single: the Aries T-250.

Viking lovers feared the T-250 would finish the Bellanca design once and for all. But it has received support, some detail refinement and an attempt to realistically position the Super Viking as a limited-production, almost custom-built specialty airplane for a select market of pilots who want something different and special.

The Viking has had its share of detractors. The wood wing has been called archaic and weak; in answer, the company produced pictures of the structure and of hordes of Texas cheerleaders stacked on the wing. Some said the fabric was less desirable and weaker than metal; at least one enthusiastic salesman we knew carried a large ball bearing, which he would throw at the fabric with all his might to show it would bounce off without even harming the finish, let alone the fabric. When pilots pointed out that the gear would not fully retract, the company claimed it was so that damage would be minimized in the event of a gear-up landing.

BELLANCA SUPER VIKING

You don't have to worry about finding its twin on every ramp

For every detractor, Viking supporters would develop an answer. For what were aeronautical or marketing shortcomings, the company would try to develop whatever improvements its always-limited capital would permit.

In the 13 years since the first Viking was introduced, more than 1,600 have been produced and delivered.

The Viking has benefitted from the Anderson-Greenwood ownership, which funded detail refinement of the airframe which has resulted in a claimed 10-knot (12 mph) increase in cruise speed at 75% power to get over the 174-knot (200 mph) mark.

The major part of the performance increase comes from a complete redesign of the engine mounts, cowling and nose gear system, which permits the nose gear to be fully retracted and enclosed. The new cowling arrangement also required the addition of cowl flaps. There is a new, square-tipped three-blade propeller which weighs 8 pounds less than the previous one. The changes up front have also reduced vibration and noise.

The beacon has been removed from the vertical stabilizer, and the wingtip lights have been enclosed in fairings to smooth drag-inducing airflow.

The Viking design is visually pleasing and generally belies its vintage, and the high quality finish supports the company's claims for its quality and, it appears, its durability.

Prospective customers have a great variety of exterior colors and interior fabrics and colors to select from. Now that the Viking is considered a limited production design, with an annual run of from 70 to 85 aircraft considered realistic and profitable, the emphasis on personal selection will increase.

This is all to the good. Our evaluation aircraft, N28193, is well equipped and luxurious. But the interior was a

bit controversial: four shades of green, including a plush, velvet-cut headliner the color of bright pea soup. It made a couple of people complain of nausea, particularly when IFR. The eerie green glow combined with the tunnel effect long-legged pilots have looking through the windshield is unique. Lovers of green were highly enthusiastic.

The quality of interior fabrics is very good: closer to a cabin-class turbine than a light single engine.

The cabin is not very wide: 40.5 inches in front and 42 inches in the rear. But there is plenty of room on the well-arranged panel for full instrumentation and a healthy stack of radios. The only cumbersome control, aside from the front seat adjusting rods, is the cowl flap lever, which tends to get hung up on the bottom lip of the panel.

There is ample if cozy room for four, and visibility from all the seats is very good.

The baggage area is smallish for its 186-pound load limit, but an optional tube, which can hold another 20 pounds, can be fitted to hold skis or fishing rods or other long light objects that wouldn't otherwise fit.

The seats are comfortable for long periods of flight. Although large people in the rear seats don't have a lot of room in which to stretch, we did carry an over-200-pounder back there for a two-hour flight in bumpy air. We turned to ask about noise level and comfort a couple of times, but he slept throughout the flight. It was a graphic comment on comfort.

Interior cooling air is sufficient for all but the muggiest days at low level. There is a cabin air exhaust located in the baggage bay. When loading the compartment, care should be taken to avoid covering it or the efficiency of the overall system will be reduced. The heating system is also effective. Cool air can be blended with hot to regulate temperature.

The lighting arrangement is good for night flight. There are adjustable lamps in the overhead, which can be used for map reading or for panel flood lights.

We like the optional ($69 per seat) inertia reel shoulder harness, which made wearing a harness all the time


N28193

continued

comfortable and not restricting.

The single cabin door, which is fiberglass, closes easily, and the seal seems good with little air noise in flight. The latch is a single lever mounted in the arm rest. There is no additional locking mechanism, and the arrangement could permit the door to be opened in flight if passengers are not carefully briefed and playful little children kept in back. A popped door in flight should represent nothing more than a surprise and increased noise level (so long as no one panics), since it doesn't affect flying characteristics.

All systems and controls are conventional. As the Viking has been developed, some of them, such as the location of the fuel selector, have been improved.

The 12-volt electrical system includes a 60-amp alternator and a 35-ampere/hour battery. In addition to an ammeter, the monitoring system includes high and low voltage warning lights. The battery is inconveniently located in a compartment beneath the baggage bay.

The wing flaps are electrically actuated. There are three positions, which are indicated by lights rather than a mechanical indicator: up, half (23 degrees) and full (45 degrees).

There are two features of the Viking we dislike: the fuel drains and the automatic gear extension system (Auto-Axtion).

The fuel strainer drain control is conveniently located within an access door on the cowl. The tank sump drains, however, are located on the belly of the fuselage. To properly check and drain them requires lying on one's back, opening an access plate with a screwdriver and reaching up inside to drain. It is a messy, inconvenient task we suspect many pilots will overlook.

The gear system is hydraulic with an electric pump. To retract the gear in flight and to keep it retracted requires that the throttle be fully opened, or the airspeed be in excess of 91 kias (105 mph). If the throttle is retarded to less than 14 inches mp, the warning horn will start blowing, and if the airspeed decays below 91 the gear will extend whether one wants it to or not. There are many times when the system defeats the pilot's purpose. The only way the pilot can defeat the system is to turn off the master switch. Slow flight and stalls in the clean configuration are, to say the least, a pain in the neck.

Emergency extension is achieved by releasing a lever below the fuel selector between the front seats which releases hydraulic pressure and allows the gear to free-fall.

The gear system is the only complaint we have about the airplane in flight. The Viking is generally considered one of the best handling airplanes available. Control response is good and input pressures are fairly well balanced, with the elevators being the heaviest. The ailerons respond smoothly, and the airplane responds to aileron movement in the same way.

The aircraft is stable for all its responsiveness. It has good manners in all configurations and is a highly confidence-building aircraft to fly on instruments. There is a tendency to hunt about in pitch, but hand flying it for long periods of time is not at all taxing.

The Super Viking we flew has the optional auxiliary fuselage fuel tank, with 15 gallons usable capacity. As fuel is burned from it (the tank is approved for use in level flight only), the CG change produced pitch changes that

required frequent retrimming.

Operating procedures, from preflight to shutdown, are straightforward. There are no peculiarities, aside from the inconvenient fuel drain arrangement, which require special attention or increased workload over similar performance aircraft.

Ground handling has been improved as a result of the change in nose gear geometry. Earlier Vikings required a bit of practice to avoid overcontrol and lurching while taxiing. Steering through the rudder pedals is reasonably light, although some planning is needed in close quarters because of the relatively large turning radius.

The only other change pilots of earlier Vikings will have to be aware of is the introduction of cowl flaps on the Continental-powered version. The two Lycoming variants, by the way, do not permit fully enclosing the nose gear.

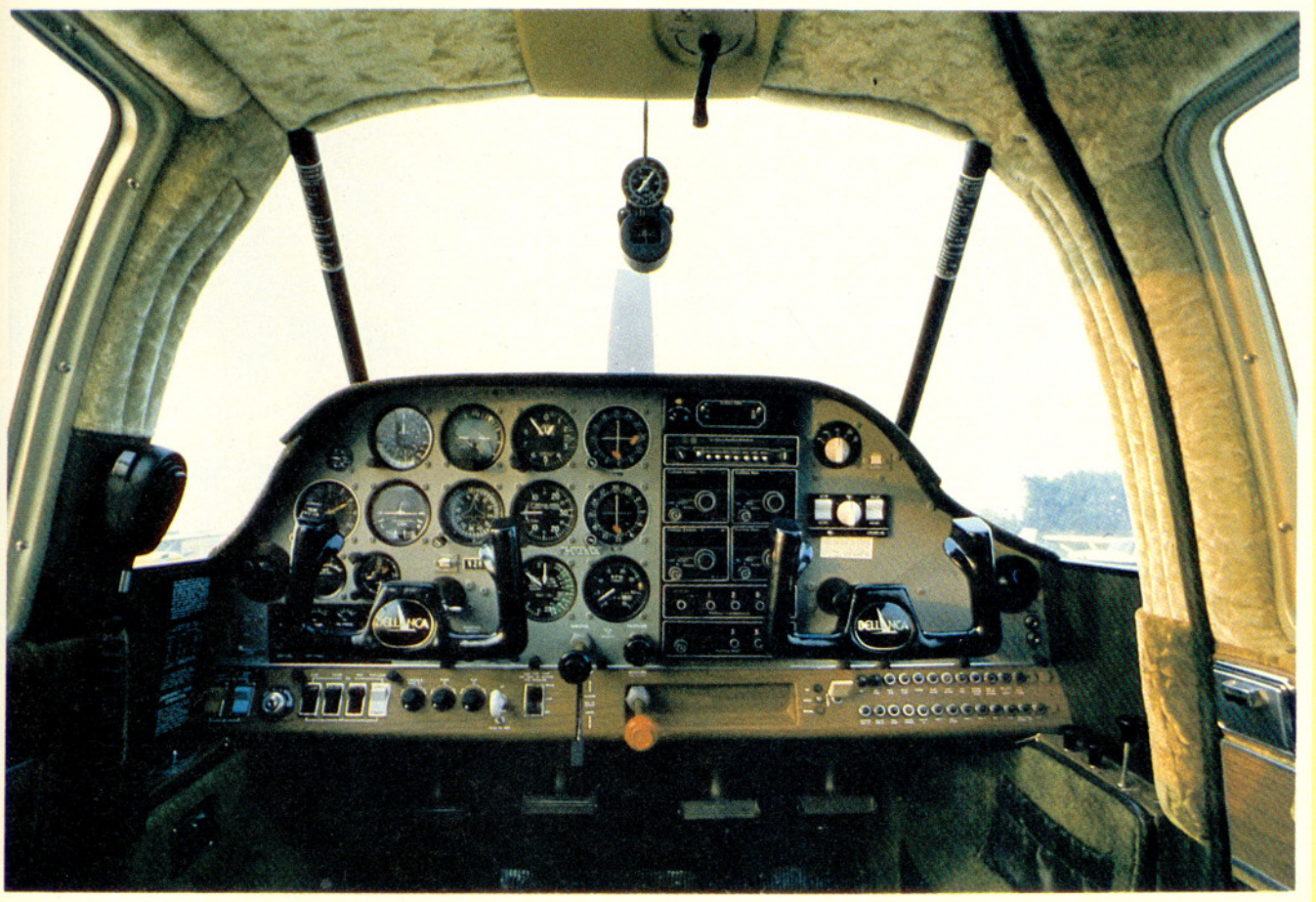
Half flaps are recommended for takeoff to reduce the ground run and the amount of back pressure required for rotation. A good bit of right rudder is called for, too. The airplane is solidly flying in short order, even on days when the density altitude is on the high side.

One has to watch airspeed after gear retraction before the initial power reduction. Initial climb rates at 92 knots, above which speed the gear will stay retracted, were in excess of 1,100 fpm in our normally loaded runs, which averaged 150 pounds below gross. Best rate of climb speed is 96 knots (110 mph), but we usually climbed at 110 knots (127 mph) for better cooling and visibility at an average climb rate slightly better than 500 fpm.

We made quite a few cross-country flights in 28193 at altitudes of from 7,000 to 12,000 feet. Power settings of 70% regularly produced 168-knot (194 mph) true airspeeds with fuel flows averaging just under 14 gallons per hour. Power at 65% produced average speeds of 160 knots (184 mph) with fuel flows at 13 gph. This is slightly less than book figures, but the performance charts note that external antennas will reduce speeds by 2.5 knots.

Flight conditions ranged from solid VFR to murky, bumpy IFR. In addition to being responsive and stable, the Viking handles heavy turbulence with aplomb and without any tendency to upset.

Slow flight, of which we did quite a bit, produces no reduction in the stability experienced at cruise. Stalls are



continued

straightforward and recovery conventional. It takes a great deal of cross-controlled hamhandedness to produce any tendency for the airplane to get away.

As already mentioned, the airplane's manners in approaches are very good, and pilots can tend to navigating and timing without being terribly busy manipulating the airplane.

Half flaps are used well into final. Application of full flaps produces a great deal of drag and requires higher power settings to maintain approach speed. Full flaps can produce some impressive steep approaches, but great care must be taken, particularly if airspeed is allowed to bleed off below 80 knots. As the handbook states: "With the throttle fully closed and the flaps full down, a high rate of descent develops very rapidly. If airspeed is allowed to decrease below 90 mph, level-off is possible only with an application of power."

Gear extension speed is 122 knots (140 mph), and half flaps can be extended at 104 knots (120 mph). Rapid descents or rapid speed reduction is easily accomplished in the Viking without having to reduce power to the point where supercooling of the engine can occur.

Despite the high drag created with full flaps, it's possible to take off with them full down (although not recommended). The aircraft flies off at a fairly low speed and will climb out. But just don't let the engine stop!

Our time with 28193 also included approaches into high-density airports, where fitting into the mix and performing steep descents while maintaining fairly high speeds was a comfortable, safe operation, as were flights into short, narrow and grass fields. For the latter, the responsiveness at low speeds paid off.

Several staff members have accumulated a fair amount of time in Vikings over the years. Those who have are enthusiastic about the airplane for its flying characteristics and for its uniqueness.

One *Pilot* staff member flew a late-model Viking for 1,500 hours, and was very pleased with the Bellanca's ease of maintenance. A program of 100-hour inspections, oil analysis and annual inspections performed by a shop familiar with the Viking prevented any trip from being cancelled or altered by mechanical problems.

One note of caution, however: Bellanca maintenance costs can run up sharply if an owner finds himself in the position of having to pay "learning curve" costs for shops not familiar with the Bellanca's design and sometimes unique maintenance needs.

The price is competitive with aircraft in the same performance range. With full IFR avionics and accessories, a two-axis autopilot and all the comfort and convenience extras, N28193 has a list price of $84,541. Considering the opportunity to "decorate" the airplane to one's taste, the price is reasonable.

It won't carry the load that some of its competitors will, but its useful range/endurance and speed is in the ball park. And for those who like to be distinctive, you don't have to worry about finding its twin on every ramp.

For the pilot who wants something distinctive but with reasonable performance, the Super Viking is well worth strong evaluation.—EGT □

BELLANCA SUPER VIKING

Bellanca 17-30A Super Viking
Basic price: $56,900
Price as tested: $84,541

Specifications

Engine	Teledyne Continental IO-520K T/O 300 hp @ 2,850 rpm Max continuous, 285 hp @ 2,700 rpm TBO 1,500 hr
Propeller	McCauley constant speed, 78 in
Wing span	34 ft 2 in
Length	26 ft 4 in
Height	7 ft 4 in
Wing area	161.5 sq ft
Wing loading	20.59 lb/sq ft
Power loading	11.8 lb/hp
Passengers and crew	4 (total no. of seats)
Cabin length	9 ft 8 in
Cabin width	40.5 in (42 in in rear seat)
Cabin height	43.5 in
Empty weight	2,264 lb
Equipped empty weight (as tested)	2,316 lb
Useful load (basic aircraft)	1,061 lb
Useful load (as tested)	1,009 lb
Payload with full fuel (basic aircraft)	701 lb
Payload with full fuel (as tested)	559 lb
Gross weight	3,325 lb
Fuel capacity (standard)	68 gal (60 usable)
Fuel capacity (with optional tanks)	83 gal (75 usable)
Oil capacity	12 qt
Baggage capacity	186 lb

Performance

Takeoff distance (ground roll)	980 ft
Takeoff over 50 ft	1,420 ft
Rate of climb (gross weight)	1,210 fpm
Maximum level speed (sea level)	180 kt (208 mph)
Cruise speed (75% power, 7,500 ft)	172 kt (198 mph)
Cruise speed (65% power, 7,500 ft)	162 kt 186 mph)
Cruise speed (55% power, 10,000 ft)	152 kt (175 mph)
Range at 75% cruise (with 45-min reserve)	705 nm (812 sm)
Range at 65% cruise (with 45 min reserve)	770 nm (886 sm)
Service ceiling	20,000 ft
Stall speed (clean)	57 kt (66 mph)
Stall speed (gear and flaps down)	64 kt (74 mph)
Landing distance (ground roll)	835 ft
Landing over 50 ft	1,340 ft