

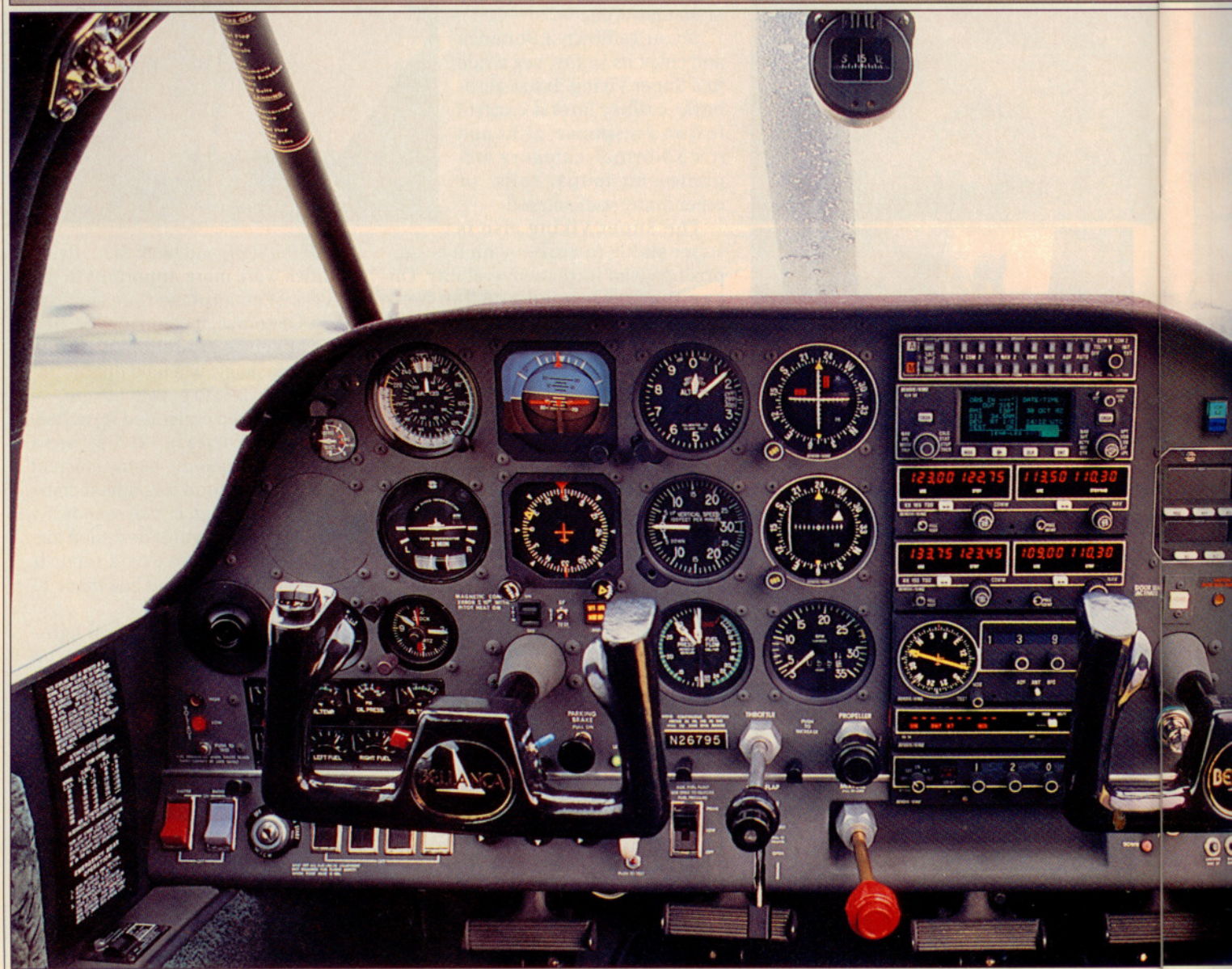


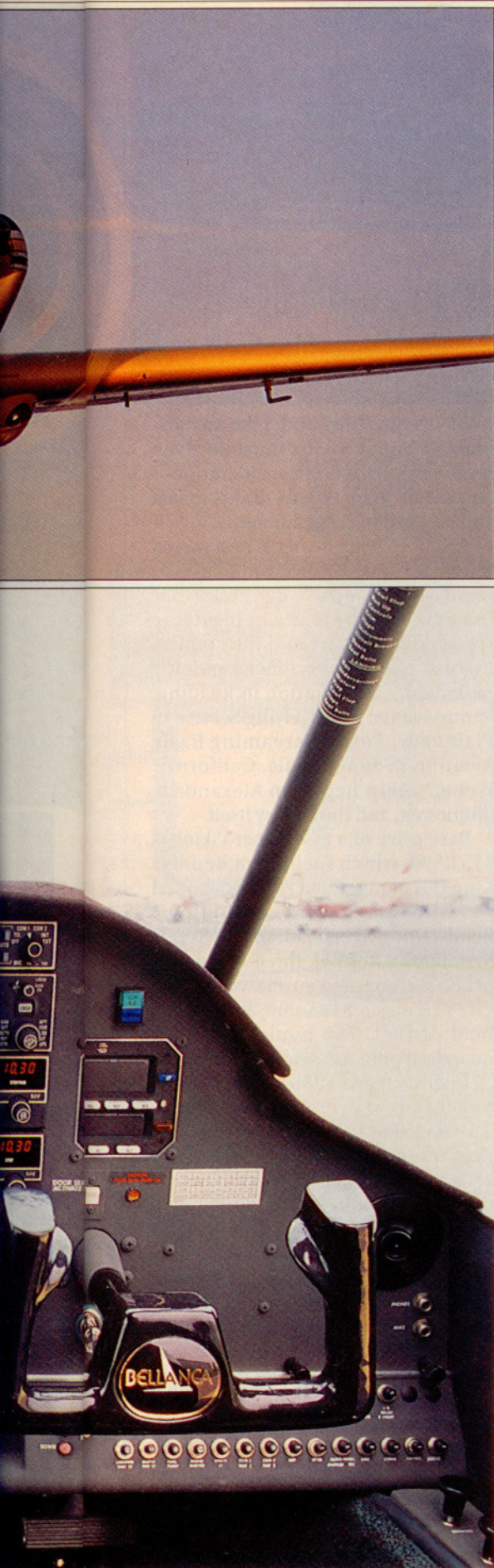
BELLANCA *Super* VIKING

Thumbing a nose at convention

BY MARK R. TWOMBLY

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





Super Viking.

The Cruisair was followed in 1950 by the 190-hp Model 14-19 Cruise-master, 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 nose-wheel 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.

Most buyers of new Super Vikings are previous Bellanca owners. "Fanatics" is a word that's often used. 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 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. 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.

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.

Down low, the power has to be used conservatively to avoid blowing past the 190-mph V_{NO} and into the yellow caution range. (The airspeed indicator's primary markings are in miles per hour.) At higher cruise altitudes, 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, with an 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 fully extended 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.

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.

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 condi-

tions 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 wings, but that's not always easy to come by. There are at least five 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; Weber's Aero Repair in Alexandria, Minnesota, and the factory itself.

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 Ioran and S-TEC System 60 autopilot, three-blade propeller, ski tube, and 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 elec-

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	161.5 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	172 kt/4.5 hr 7,500 ft (94.2 pph/15.7 gph)
@ 65% power, best economy	165 kt/ 5.3 hr 10,000 ft (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

V _X (best angle of climb)	65 KIAS (75 mph)
V _Y (best rate of climb)	96 KIAS (110 mph)
V _A (design maneuvering)	129 KIAS (148 mph)
V _{FE} (max flap extended)	104 KIAS (120 mph)
V _{LE} (max gear extended)	139 KIAS (160 mph)
V _{LO} (max gear operating)	
Extend	139 KIAS (160 mph)
V _{NO} (max structural cruising)	165 KIAS (190 mph)
V _{NE} (never exceed)	196 KIAS (226 mph)
V _{SI} (stall, clean)	66 KIAS (76 mph)
V _{SO} (stall, in landing configuration)	57 KIAS (66 mph)

For service and parts information, contact Bellanca, Inc., Alexandria, Minnesota 56308; 612/762-1501. For sales in the southern United States, contact Pinckney Aircraft, 904/456-7655; in the northern United States, 612/762-1339.

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.

tric 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; fresh-air vents abound and are well placed; 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 pre-

vents 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 contact. Bellanca subsequently came up with a simple fix by reversing the offending bolt and nut.

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



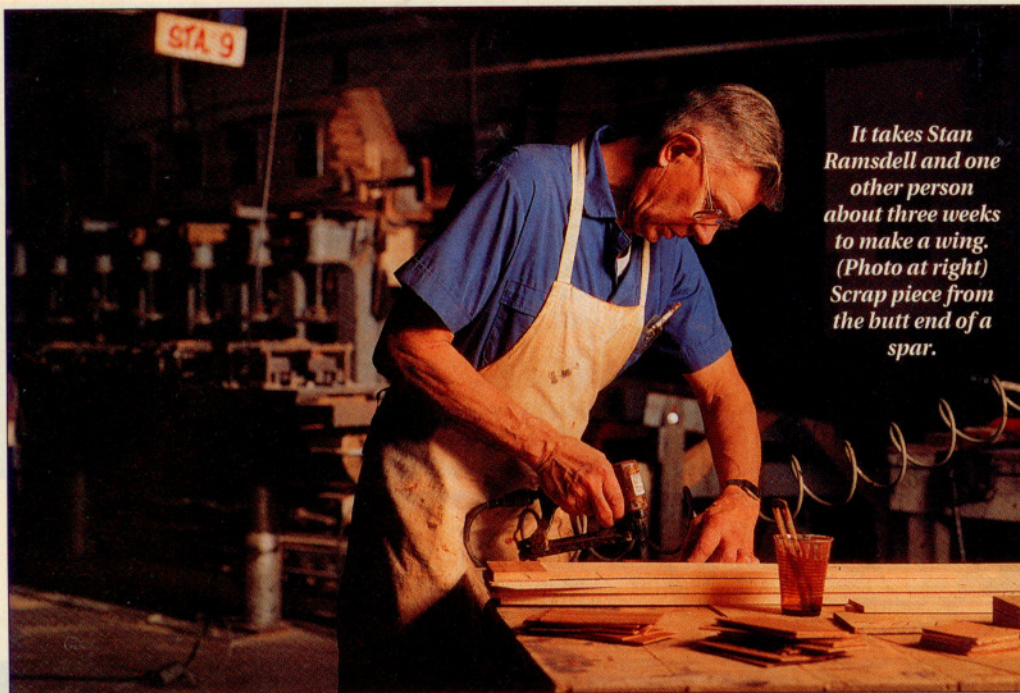
Don Fernow smooths some of the 1,800 pieces of wood that go into each side of a Bellanca Super Viking wing.

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 econ-

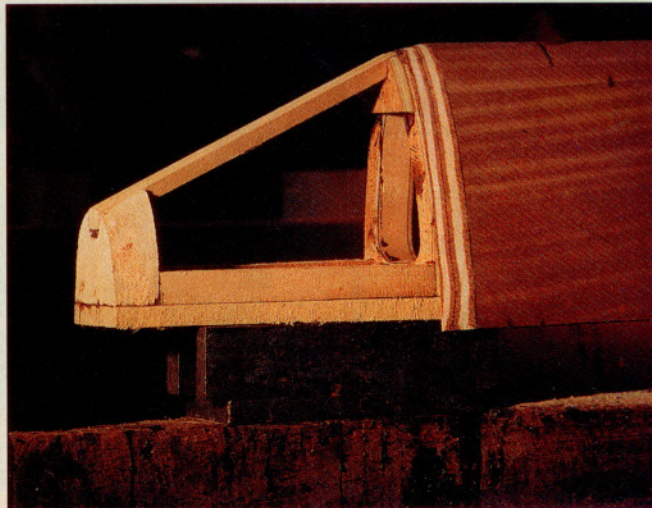
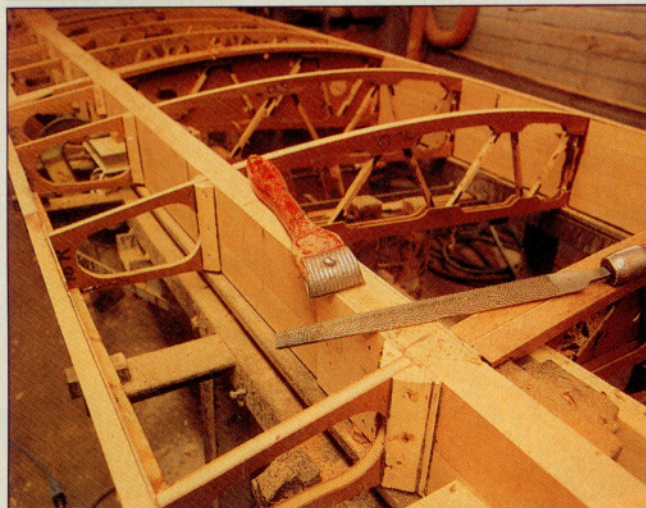
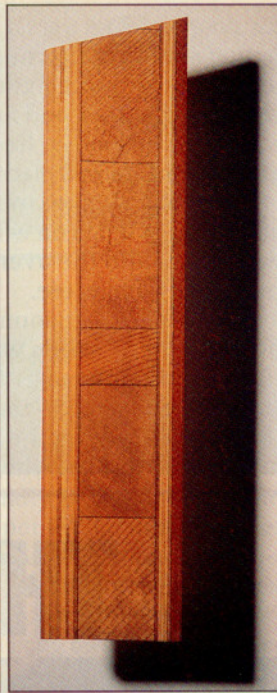
omy by bringing some manufacturing activity to town. That activity turned out to be building Bellanca Cruisemasters.

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



It takes Stan Ramsdell and one other person about three weeks to make a wing. (Photo at right) Scrap piece from the butt end of a spar.



local airport.

It's still done pretty much the same way today at Bellanca, Incorporated. (The facilities are the same but 11-year-old Bellanca, Inc., is not the same company that originally manufactured the Super Viking.) 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.

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, and stacks of Sitka spruce planks stand ready for the



Arlene Olson's ironing job is essential in a factory that turns out fabric-covered airplanes.

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 steam-



ing, 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

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Bellanca doesn't cut a wide swath in corporate America, but it upholds a proud tradition of building fine airplanes.

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