MIKE FIZER

Near the nest

Lancair sells its first production Columbia 300 to a local pilot

BY STEVEN W. ELLS

Lance Neibauer, president and CEO of the Lancair Group, handed the keys to the first production Columbia 300 to Collins Hemingway at the Bend Municipal Airport (S07) in Bend, Oregon, on February 24. ■ Hemingway, a writer and owner of Escape Velocity Ventures in Bend, chose the airplane because his extensive research kept indicating that a Columbia 300 would suit his needs better than any other new airplane on the market. He is a 200-hour private pilot working on his instrument rating. ■ Most of Hemingway's previous flight experience had been in rented 1998 Cessna 172s. Despite this, Hemingway says that the transition to the Columbia 300 has been smooth. The main adjustment has been learning sophisticated engine management procedures, adjusting to the speed of the Columbia 300, and learning a new landing technique. A quick study, Hemingway recently took advantage of a 20-knot tailwind to achieve a 180-kt groundspeed with 172-like fuel burn. ■ Hemingway's flight instructor, Mary Schu of Wings of the Cascades in Redmond, Oregon, has been through the two-day Columbia 300 ground school and is shepherding Hemingway toward his instrument rating. Schu, a 10,000-hour flight instructor and charter pilot, believes the Columbia 300 is so well mannered that buyers will feel comfortable in it after they've completed the ground school and five hours of flight training that is included with each aircraft purchase. ■ On March 13, Sam Houston III, director of flight operations and training at Lancair, supervised my 1.1-hour flight in Hemingway's airplane. My impressions are that certifying the Columbia 300 under the "new" FAR Part 23 regulations, especially in regard to stalls, will lessen the incidence of low-altitude stall/spins accidents. Power-off stalls, with both feet on the floor and the sidestick held in a full-up elevator position, never resulted in a sharp stall break. The airplane merely mushed down at

about 700 feet per minute. Pushing the left rudder pedal all the way to the stop with the stick full back resulted in the airplane's smoothly entering a descending left turn. When the airplane rolled out of level flight in the stall, the low wing could be lifted with aileron input. Using ailerons to lift a low wing in a stall, although instinctive, will usually lead to aggravating the stall and/or spin entry in other aircraft.

The Columbia 300 wing didn't show any tendency to abruptly stop flying or become unpredictable during an extended power-off stall. To comply with the spin-resistant definition in FAR Part 23 certification rules, Lancair extended and drooped the outboard section of the wing leading edges forward of the ailerons and limited up-elevator travel. These modifications guarantee aileron control in the stall and prevent the wing from completely stalling. As a further safeguard against crossed-control stall/spin accidents, left rudder travel is limited from 20 degrees to about 12 degrees deflection by an automatically deployed electrical solenoid when the stall vane is activated and engine power is above 12 inches of manifold pressure. This "rudder limiter" function, as part of the spin-resistant certification package, must be tested before every flight. If the preflight test shows that this system is inoperative, the airplane cannot be flown. The power-off "stall" was such a nonevent that I wondered to myself whether a paragraph should be added to the Columbia 300 pilot's operating handbook stating, "Caution—review stall recovery procedures when transitioning to other aircraft."

With power settings of 2,500 rpm and full throttle (21.5 inches) at 8,000 feet msl, the engine was leaned to 50 degrees Fahrenheit rich of peak, and the autopilot was engaged for straight-and-level flight. With an outside air temperature of 3 degrees Celsius and a pressure altitude of 7,880 feet, 169 KIAS translated to a true airspeed of 189 kt. Figures in the POH showed that our power setting translated to approximately 70-percent power. According to the POH, this power setting and altitude should result in a true airspeed of 178 kt at 15 gallons per hour.

Mike Schrader, Lancair's head of sales in North America, explained the speed discrepancy as the result of conservative book figures and the airplane's light weight. Estimated weight during this flight was 3,030 pounds, 370 pounds below the 3,400-pound gross weight. Hemingway said that he thinks of his plane as a 180-kt airplane.

Hemingway said the biggest hurdle with his new airplane was to learn to land it consistently, since the best approach and landing technique in the Columbia 300 is to fly the airplane down final at 80 to 85 kt before pulling the power off after the airplane is in a flat pitch attitude above the runway. This technique is more commonly associated with high-performance twins than singles. With 18 hours of Columbia 300 time in his logbook, he feels comfortable in VFR conditions and is using his new airplane for instrument training.

The differential brake-controlled nosewheel steering system exhibited no evidence of nosewheel shimmy or any difficulty maneuvering during taxi. One advantage of the free-castoring nosewheel is the airplane's tight turning radius on the ramp. After lifting the nosewheel off the runway at 60 KIAS, the airplane flew off the runway at 75. Houston suggested 115 KIAS for cruise climb. V_X is 80 KIAS and V_Y is 106.

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The side stick was easy to get used to. After a climb to 8,000 feet msl and retrimming for cruise, one of the first things evident was that this airplane had outstanding visibility in all directions. Pneumatic door seals are inflated during flight to seal the large top-pivoting cabin doors.

The Teledyne Continental Motors (TCM) IO-550-N engine is rated at 310 continuous horsepower at 2,700 rpm and features cross-flow heads and a tuned induction system.

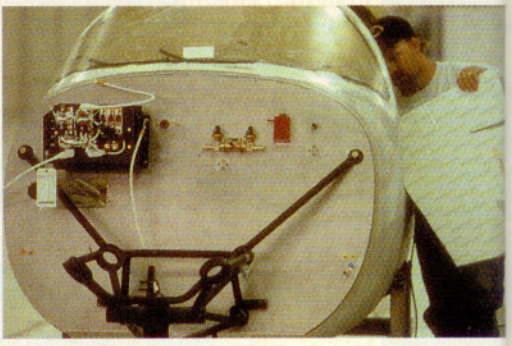
Continental continuous-flow fuel injection systems are simple, using an engine-driven pump to supply fuel for the engine. One safety feature designed into the airplane fuel system is a rocker switch in the cockpit labeled Back-Up Pump. The checklist requires that this switch be on during takeoff and climb. This arms a fuel pressure-sensing switch circuit in the electrically driven fuel boost pump circuitry. If the engine-driven fuel pump fails, the armed fuel pressure-sensing switch will automatically turn on the boost pump and provide fuel to the engine. A Vapor Suppression rocker switch is used to purge vapor that may occur in the fuel system during high-altitude flight. The boost pump, fuel selector valve, and fuel strainer are all located under one belly access panel, making access for fuel system maintenance easy. In fact, ease of maintenance may be one of the Columbia 300's best features. Under-wing aileron system inspection panels are clear, making inspection of the rod ends and bellcranks simple. When the cowling is removed, engine access is easy.

After engineering studies showed that no real advantage was gained from a 28-volt electrical system, a 14-volt electrical system featuring a 60-amp alternator and 25-amp-hour battery was installed. This system distributes electrical power through a three-bus electrical system. The battery bus is always connected to the battery, supplying continuous power to the entrance lighting and to keep-alive memory circuits in the avionics suite.

A sealed standby battery is installed and connected to the emergency bus. When activated by the pilot in the event of either a total power loss of the main electrical system or loss of the alternator, this battery has enough capacity to power the GPS, number one com, instrument floodlights, the turn coordinator, the HSI, the transponder/encoder, and the environmental control system (ECS) servo motor for at least 30 minutes. The ECS servo motor controls the heater on-off valve of the airplane's cockpit ventilation and heating system. If an engine fire occurs that renders the main electrical system inoperative, emergency power

can be used to close the heat valve, sealing the firewall. The standby battery was developed by ELT battery specialist Artex and has a four-year life if not used. If used it must be replaced.

The elevator and aileron controls are connected through pushrods to the pilot's and copilot's side sticks. The left aileron has a servo tab to lessen roll stick forces, and the right aileron and elevator have electrically controlled trim tabs. The elevator trim tab has two actuating rods—this is for redundancy; either rod can safely run the tab. The rudder is cable actuated and has a



ground-adjustable trim tab.

Each wing sports a 10-foot-long Fowler-style flap. These flaps are extended to 12 degrees for takeoff and 40 degrees for landing by a two-position switch on the right side of the instrument panel. The flaps can be deployed to the 12-degree position at 119 KIAS and to the 40-degree position at 112 KIAS. Should the need for an emergency descent ever arise, pulling the power off, deploying the flaps to 40 degrees, and holding the nose-down deck angle required to maintain 105 KIAS results in a 2,500-foot-per-minute-plus descent.

The state-of-the-art Premium avionics package in Hemingway's airplane is factotum-like in its efficiency. Avionics supplied by UPS Aviation Technologies include a GX50 IFR approach-approved GPS and two SL30 nav/coms. There's a Bendix/King KCS 55A HSI and an S-Tec System 55 autopilot. An Avrotec 10.25-inch multifunction display screen fills a portion of the right side of the instrument panel. An Avidyne software package drives the display. While not part of either the standard or the premium avionics packages, this $15,000 option is impressive. The capabilities of this moving-map display are varied, always informative, and lots of fun.

The Lancair Columbia 300 appears to be a safe, fast, well-equipped economical New Age flying machine. The rigors of Part 23 certification for new aircraft and

the fact that Lancair chose to certify the Columbia 300 to the more stringent Utility category requirements bodes well for buyers, especially with regard to safety.

Lancair plans to establish a nationwide system of dealers, and will provide specialized training for maintenance personnel. The TCM engine is well-known to maintenance providers, and some shops are already comfortable with inspection and repair of composite materials. The Internet will allow any owner or his maintenance facility immediate access to the Lancair engineering staff should airframe damage occur.

The airplane design has been FAA certified and Neibauer said that FAA certification of the manufacturing facility was expected by the end of April. Plans are to produce 12 to 15 more airplanes this year, then ramp up production to deliver between 60 and 90 airplanes in 2001. Lancair's manufacturing facility in Bend, Oregon, is capable of eventually producing one and a half to two airplanes a day.

Today, the new manufacturing facility appears to be almost empty, with only a couple of airplanes coming down the line. Why isn't Lancair producing more planes right now? Neibauer says part of the slow growth is planned. "We've all seen it with Cessna, Cirrus, and even Boeing; pushing aircraft through to make another news release compromises quality, wastes money, and does not truly serve the customer." It's a fact that a partner in the business, affected by the Asian financial crisis, has been slow to deliver promised cash. Cash delivery commenced in mid-March. If cash was slowing progress, this infusion should help Lancair.

Future plans include a fixed-gear model with a turbocharged engine and speed brakes, and a retractable-gear model with normally aspirated and turbocharged engines.

The company has more than 100 firm orders on the books. Securing a delivery spot requires a $15,000 nonrefundable deposit. The Lancair 300 costs $285,500 for the standard IFR avionics package and $299,700 for the Premium avionics package. For more information visit the Web site (www.lancair.com) or call Mike Schrader, head of North American sales, at 541/318-1144.

For more information about the Columbia 300, visit AOPA Online (www.aopa.org/pilot/links.shtml). E-mail the author at steve.ells@aopa.org