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Mike Newell checks the propeller of his Lancair Super ES before a flight Friday afternoon. The planes high speed can leave some pilots behind if they dont have enough training. Newell, of Redmond, has about 90 hours of flight time in his plane.

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Many Lancair crashes are due to lack of pilot training

Review of recent accidents points to problems with amateur pilots and high speeds, not the homebuilt planes themselves, Redmond-based company and experts say

Peter Sachs / The Bulletin

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REDMOND — It only takes Mike Newell's Lancair Super ES about 30 seconds to fly from one end of Redmond Airport's 7,000-foot Runway 10 to the other.

With the plane flying at 185 mph as he makes a circuit over the airport — with the Cascades, from Mount Hood to Mount Bachelor, as backdrop — it's clear this is a plane that likes to go fast.

It's like driving down a narrow, tree-lined street at 65 mph instead of 25 mph.

The Super ES, a homebuilt plane made by Redmond-based Lancair, can make the flight from Central Oregon to Seattle in about an hour, only about 20 minutes longer than a commercial turboprop flight. And it uses only a little more fuel than a car for the drive.

"You really have to stay on top of it," Newell said. He typically has to start descending 80 miles before he reaches his destination. On a trip to Portland, that means starting down almost as soon as the plane passes the crest of the Cascades.

The speed and complexity of Lancair planes can get pilots in trouble.

A review of National Transportation Safety Board records for all crashes of homebuilt Lancair planes shows not all pilots who fly the high-performance planes have the extra training they need, said Lancair officials, pilots and industry experts.

The problem more often isn't the company's planes themselves, but the fact that they are so fast that pilots without enough experience can have a hard time juggling everything they have to do in the cockpit.

And, pilots agree, the planes hold a certain appeal to people who might be willing to take more risks.

The official cause of the crash of a Lancair ES similar to Newell's near Albany on Feb. 8 likely won't be known for a year. But already pilots are talking about how it likely could have been prevented, said Gary Miller, the president of the Central Oregon chapter of the Oregon Pilots Association.

Neither of the pilots in that plane had the rating needed to fly through clouds, but the plane was flying through clouds in a region of known icing right before the crash, according to the NTSB's early report on the crash.

"We all want to make sure that we don't make that mistake," Miller said.

It's a situation that Newell says he would not allow himself to get into. Even if he had the rating pilots need to fly in clouds, he would likely avoid them completely.

"I'm super big on safety," he said.

Newell, of Redmond, spent two years building his plane before handing it off to another builder in Central Oregon to finish the work. He had several other pilots and mechanics run it through inspections and flight tests.

Getting it built is just the first big challenge for a Lancair owner.

Joe Bartels, Lancair's chief executive, stressed the importance of pilots sticking to the right speeds for takeoff, landing and cruising when they fly his company's planes.

"I have thousands of hours flying these things. I enjoy them immensely, but you have to fly them by the numbers," Bartels said.

Accident trends

While "certified" planes like those made by Cessna or Piper come assembled and ready to fly, homebuilt kits typically start out as a collection of parts.

Major pieces like the fuselage and engine may be mostly assembled, but owners put everything else together — flight controls, instruments, window panes, fuel tanks, hinges and wheels. The planes go through inspections and up to 40 hours of test flights once they're built, and builders must keep meticulous records of the work they do. Professional builders and Lancair's own facilities can help owners do some of the work.

Typically, Lancair's customers are already pilots looking for something more powerful that can fly higher, faster and farther, Bartels and other pilots said. The planes are like the Corvettes or Ferraris of general aviation.

aviation.

Lancair's line includes a half-dozen single-engine models. Their airframes use composite carbon-fiber materials and a wing design that allows the planes to cruise as fast as 330 mph, depending on the model. The kits range from $65,000 for the two-seat Legacy to $250,000 for the pressurized Evolution. The cost of an engine adds $50,000 or more to the price of the planes.

Buyers can opt to build their planes at Lancair's Redmond facility with the help of the company's staff in a month or less, or work on the plane in a hangar or garage anywhere. It's not uncommon for builders to spend more than 1,000 hours building the plane over several years.

The Bulletin's analysis of Lancair accident records from the NTSB found that there have been 122 crashes in the United States since 1989 among the company's nearly 1,100 homebuilt models. While 92 people were killed in those crashes, there were neither deaths nor injuries in more than 40 percent of them.

For the planes that have crashed, 10 times more are still in the air and have logged at least 200,000 hours of flight time, Bartels estimated.

Lancair's accident numbers are higher than for Central Oregon's other planemakers.

Two-year-old, Bend-based Epic Aircraft, which makes homebuilt planes and is starting to get its models certified so that buyers can purchase a fully assembled plane from the factory, hasn't seen any of its planes in accidents.

Epic has 15 of its planes listed in the Federal Aviation Administration's nationwide aircraft database. More have been sold, but they're still being built. By contrast, there are 70 homebuilt Lancairs in Oregon alone.

Lancair received FAA approval in 1998 to build and sell finished airplanes made in its Bend plant. That part of the company changed its name to Columbia Aircraft Manufacturing in 2005, and Cessna bought Columbia late last year. Lancair International continues to make kits for homebuilt planes at its Redmond facility.

A plane that crashed Saturday at Portland International Airport was an FAA-certified plane, not a kit plane.

Regardless of maker, pilot error is the single largest cause of general aviation crashes.

The majority of homebuilt Lancair accidents, nearly 60 percent, resulted because of pilot error, the NTSB's data indicate.

About three-quarters of all general aviation accidents were due to pilot error in 2005, according to a report prepared by the nonprofit Air Safety Foundation. The group is an arm of the pro-general aviation Aircraft Owners and Pilots Association.

Many of the Lancair crashes due to pilot error could have been avoided with better training or more common sense on the pilot's part, experts agreed.

In June 2006, a pilot and both passengers were killed when their Lancair IV-P Propjet crashed as it approached the airport in Provo, Utah. It was night, and there were thunderstorms in the area and layers of broken clouds that would have made lights on the ground come in and out of the pilot's view, the NTSB found.

While the pilot had more than 1,700 hours of total flight time and several advanced ratings, he had only 18 hours in the IV-P. And the day before, the instructor who was helping the pilot learn how to fly the IV-P told him not to fly at night or in clouds until he had at least 30 more hours of flight time in the plane.

Bartels said crashes like that should never happen.

The reasons for pilot error in Lancair crashes are similar to the causes of thousands of other general aviation crashes in the past 20 years: flying into clouds without the training to do so, flying the plane too slowly on takeoff or landing, which can cause the plane to stall, spin and crash, flipping the wrong switch in the cockpit, or forgetting to lower the landing gear.

"Whatever you fly, there's always the baseline of good piloting that comes into play," said Dick Knapinski, a spokesman for the Experimental Aircraft Association, a nationwide nonprofit for pilots and airplane builders.

New Lancair pilots often get as much as 20 hours of training when they first step up to one. Even still, there are noticeable differences in accident rates.

"For those higher performance airplanes in the homebuilt area, there is a slightly higher accident rate and fatal accident rate" compared with other homebuilts, Knapinski said.

Miller, the president of the regional chapter of the Oregon Pilots Association, speculated that the type of person who wants to build, fly and own a high-performance plane like a Lancair may also be the same kind of person who tolerates more risk.

"There's a continuum of risk-taking behavior, from those who won't go near any airport ... to those who are flying around in a powered parachute," Miller said.

Bartels said his company is trying to discourage pilots from taking more risks than they can handle. Lancair's newest plane will include an emergency parachute that pilots can use to get out of life-threatening situations. The parachute won't work for everything, like if the plane is already in a high-speed dive. But dozens of pilots and passengers have walked away from what could have been deadly crashes thanks to similar parachutes installed in every Cirrus plane.

Building and testing

Greg Tanner, a Bend pilot since 1998 who is rebuilding his Lancair 235 and has also built a Vans RV-9A, said building his own planes gives him an intimate knowledge of how they work.

"If you know how the plane's built and you understand aerodynamics ... you learn a lot when you're building it," Tanner said. "You're going to know what to look for when you do a condition inspection."

That's the yearly inspection he must give his own plane, or else pay another mechanic to do it.

Doing your own inspection keeps costs down, Tanner said, since an inspection from another mechanic can easily cost $2,000.

"The good thing about an annual inspection is that, at the very least, you've got another pair of eyes looking over the plane," Bartels said.

Among all Lancair accidents, about 25 percent were due to engine failure or errors made in building or modifying the plane. That's higher than the 16 percent of all general aviation crashes due to maintenance issues, according to the 2006 report from the Air Safety Foundation.

While Lancair gives builders a 500-page manual for assembling their planes, builders are free to make modifications or install other features or equipment, whether a different engine, wingtips or lighting systems.

One pilot whose plane crashed in 2001 was using a marine engine. Another installed a crucial counterweight upside-down. Others reinstalled engine parts incorrectly, didn't add a required fuel tank vent or didn't tighten down nuts enough.

A handful of crashes happened on the maiden flight of a plane or immediately after significant engine work.

Bartels said Lancair requires builders to submit their finished planes to the company for a thorough nose-to-tail inspection if they want insurance on their planes.

"That doesn't mean we're perfect; it doesn't mean the builder is perfect," Bartels said. "It means that at the time we inspect, it's safe enough and good for flight."

And builders can call Lancair or consult groups like the Experimental Aircraft Association or other Lancair builders for help. Just like all other planes, Lancairs must get yearly inspections. But builders who make their own planes can do their own inspections, Tanner said.

Ultimately, the plane's safety record may come down to the attitude, training and experience of builders and pilots.

Lancair partners with another company to provide training to new Lancair pilots. The Experimental Aircraft Association also has a mentoring and training program for high-performance planes.

Miller, Knapinski and Bartels agreed that more regulation of the industry won't make it safer. But more training and a pilot community that polices itself to discourage unsafe behavior will.

"When done properly, the statistics show (flying) is about as unsafe as driving while talking on your cell phone," Miller said.

Tanner said with the right training, flying a Lancair is exhilarating.

"There's not a lot of planes out there that are as fast as a Lancair," Tanner said. "They're almost as close to a fighter plane with a prop as you can get."

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