Autopia
Planes, Trains, Automobiles and the Future of Transportation

It's Not a Flying Car — It's a Driveable Airplane

By Dave Demerjian ✉ April 6, 2009 | 9:00 am | Categories: Uncategorized

A Boston startup is confounding naysayers with a plane that combines the ease of driving with the thrill of flying, and it could shake up the industry by ushering in a new wave of recreational aviation.

Terrafugia's unusual aircraft just made a 30-second test flight as historic as it was brief, proving that flying cars aren't as outlandish as you might think. But as much as people might want to call the Transition a flying car, Terrafugia insists it's actually an airplane you can drive.

"We're excited by the reality of what we're doing here, but this is not the start of the flying car," company CEO Carl Dietrich told Wired.com. "This is a light sport plane that can be driven home after a day of flying and parked in the garage. It's designed for pilots. That's our target market."

Inventors, engineers and crackpots have been promising promising flying cars since the 1920s. The Aerocar is perhaps the most famous and successful attempt, but it is hardly the only one. All of the Big Three automakers have considered them at one time or another. Boeing toyed with them. And everyone from the Naval Air

Warfare Weapons Division to guys in their garages have pitched ideas for flying machines we can drive to the airport.

They've all been beaten to the punch by Terrafugia, which has already received 49 orders for a $194,000 plane it won't start delivering until 2011.

Dietrich is a self-professed airplane geek — "I was saving money for my pilot's license when I was 8 years old," he says — who started thinking about the Transition when he was working on his doctorate at MIT. Composite materials, advanced avionics and relatively lightweight engines made his idea succeed where others have failed.

Hatching an idea is one thing. Selling it is another, and Dietrich finally saw the market opportunity in 2004 when the Federal Aviation Administration created a new classification called light-sport aircraft. Such planes fall between the small private planes you see parked at every small airport in the country and the ultralight "experimental" often cobbled together in garages. More importantly, the training required to fly light sport planes isn't as stringent.

The FAA created the classification to open the skies to more people, and Dietrich figured those new pilots would want a plane that they could drive home after a day of flying. Dietrich says the company isn't trying to revolutionize transportation. It simply wants let more people fly by developing a relatively affordable plane to compete with the the Cessna SkyCather and Icon A5 currently under development.

Wired.com recently visited the startup's headquarters in suburban Boston. Here's the story of that experience:

When I get to the warehouse that houses Transition, engineer Marc Stiller walks me around the plane. It's about the size of a Ford F150 pickup. It's white and shiny with racy blue stripes and huge windows. Even with the wings retracted, it looks and feels more like a plane than a car.

Until you get in.

Inside the cockpit, you've got rudder controls at your feet and a control stick between your legs. The throttle and choke are on the right. Turn the key and a display similar to what you'd see in any other plane lights up. But there also are some car-like features, including a gas and brake pedal and a steering wheel. The seats look and feel like they were taken from my 1997 Volkswagen Jetta. I've never flown a plane, but I've driven a car, and this feels like something I could drive around town without any trouble.

As a plane, the Transition is 19 feet, 2 inches long; 6 feet 3 inches tall; and has a wingspan of 27.5 feet. Fold the wings to turn it into a car — Terrafugia says it takes less than 30 seconds — and it's only 80 inches wide and 6 feet, 9 inches tall (the folded wings add a bit to the height). Don't think you can take off right out of your driveway though: The Transition can take off or land at any airport with a runway at least 2,500 feet long.

Power comes from a Rotax 912S four-cylinder engine, and Terrafugia says the Transition will do 80 mph on the ground and 115 in the air. It runs on regular unleaded gas, and with a range of 460 miles, delivers 30 mpg in the air. Tool around town and you'll get 27 mpg — roughly what a Honda Civic gets in city traffic.

At $194,000, the Transition is significantly more expensive than other planes in its category, but Stiller argues it's a cost-effective option because you can park it in your garage — eliminating the need to rent hangar space.

"At Hanscom (a general aviation airport outside of Boston), you're dealing with a five-year waiting list to get into a hanger, and then you're paying $1,200 a month," he says.

He also makes a strong environmental case for the plane, saying that while many general aviation planes still fly on leaded gasoline, while the Transition uses the same unleaded you put in your car.

One of the challenges in building the plane was making sure it's as smooth on the road as it is in the air. That made suspension design an important part of developing the plane.
Although airplanes are well-suited to absorb the impact of landing, their suspension designs don't lend themselves to sporty driving.

"We want it to be as comfortable a driving experience as any car and as comfortable a flying experience," he says. "That's the end goal. The fact that the Transition is also designed for the road means we had to make the ground handling very, very car like.

"You might think a bump is a bump, but there's a big difference between a pothole and coming in for a landing," Stiller says.

The Transition also has to be as safe on the ground as it is in the air. A canard wing doubles as a bumper, and the company says the Transition will meet all FAA and federal crash safety standards when the first planes are delivered to customers in 2011.

"We didn't have too many problems with the FAA," Dietrich says. "The Federal Motor Vehicle standards were more challenging. There's a huge book of them."

Dietrich says now that the aircraft has successfully completed a test flight investors are starting to come out of the woodwork, but he's not sure if that will translate into more cash. He also isn't promising to radically change how we get around.

"Look, it's an airplane that can fold its wings and park in your garage," he says. "It runs on unleaded gas, and yeah, it's a little James Bondish. We're excited by its potential, but right now we're not promising anything more than that."

Photos and video: Terrafugia

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