

Flying car takes wing: MIT alums' invention makes its first test flights (w/Video)

March 19th, 2009 by David Chandler

The Terrafugia Transition flying in formation with the chase aircraft.

Photo courtesy / Terrafugia

(PhysOrg.com) -- A prototype of what is being touted as the world's first practical flying car took to the air for the first time this month, a milestone in a project started four years ago by students in MIT's Department of Aeronautics and Astronautics.



At 7:40 a.m. on March 5, the winged car taxied down a runway in Plattsburgh, N.Y., took off, flew for 37 seconds and landed further down the runway -- a [maneuver](#) it would repeat about a half dozen times over the next two days. In the coming months the company, a Woburn-based startup called Terrafugia, will test the plane in a series of ever-longer flights and a variety of maneuvers to learn about its handling characteristics.

[Aviation enthusiasts](#) have spent nearly a century pursuing the dream of a flying car, but the broader public has tended to view the idea as something of a novelty. Still, such a vehicle could have more practical appeal now that the [Federal Aviation Administration](#) has created a new class of plane -- Light Sport [Aircraft](#) -- and a new license category just for pilots of such craft, including Terrafugia's two-seater Transition. The "sport pilot" license required to fly the Transition takes only about 20 hours of training time, about half that required to earn a regular pilot's license.

The street-legal Transition is powered on land and in the air by a recently developed 100 hp Rotax engine that gets 30 mpg on the highway using regular unleaded gasoline. As a plane, its 20-gallon tank gives it a 450-mile range with a 115 mph cruising speed. The pilot can switch from one mode to the other from the driver's seat, simultaneously folding up the wings and shifting the engine power from the rear-mounted propeller to the front wheels in about 30 seconds.

Speaking at a March 18 news conference in which the Transition's first test flight was announced, Terrafugia CEO and co-founder Carl Dietrich '99, SM '03, PhD '07 said the FAA rule change and the Transition could help transform the way people move around the country -- especially in rural areas. "One of the biggest problems pilots have right now is that most of the 5,000 general aviation airports in the U.S. don't have any car rental facilities, or even a cab stand," he said, noting that the Transition could open many of these underused airports to easier, more practical use by private pilots.

The vehicle may also lead to improved safety. "One of the largest causes of accidents is pilots flying in bad weather," he said. With the Transition, a pilot who spotted bad weather ahead could simply land at the nearest airport, fold up the wings, drive through the weather on local roads, and take off from another airport once past the storm.

The first testing of Terrafugia's car-plane concept took place with a one-fifth scale model in MIT's Wright Brothers Wind Tunnel in 2005, while Dietrich and his wife, Anna Mracek Dietrich '04, SM '06, now the company's COO, and VP of Engineering Samuel Schweighart SM '01, PhD '05, were all students here, as were two of the other company principals.

The full-sized version being tested now is a proof-of-concept vehicle, to be followed later this year by a production prototype. The company is taking deposits now and hopes to start delivering its first Transitions -- or "roadable planes," as the company calls them -- in late 2011.

Test pilot Phil Meteer, who was at the controls in Plattsburgh, said that the short and simple first flight was both "remarkably unremarkable" and vitally important: "Ninety percent of the risk in the total program comes in the first flight, and now we're past that."

A retired U.S. Air Force colonel, Meteer said the plane handled so smoothly in the test flights that all of the possible contingencies he had practiced became irrelevant. "You're in a hypervigilant state" during the initial takeoff, he said, but as he saw how smoothly the flight was going he had a "wahoo moment: none of this is happening!"