

AEROVEL BEGINS FLIGHT TEST OF FLEXROTOR LONG-ENDURANCE ROBOTIC AIRCRAFT WITH VTOL

Husum, Washington
7 September 2010

[Aerovel's Flexrotor](#) miniature aircraft entered a new development phase Tuesday as the first prototype, named *Pandora*, began flight test. The table-top sized aircraft is designed for more than 3000 km range, and endurance exceeding a day and a half. In announcing its first flight, Aerovel's president, [Tad McGeer](#) – who previously led development of the [Aerosonde](#) and [Scaneagle](#) robotic aircraft – said that this time around was a little different. “With [Aerosonde](#) we launched into flight test by barreling down the runway on a [car roof](#), and with [Scaneagle](#) we blasted off with a catapult, so it was a nice change just to lift placidly into the air, and park in a hover a few metres off the ground.”

A genteel entry to flight is possible because *Flexrotor* is a “[tailsitter](#)”: it will fly like a normal fixed-wing aircraft in long-range cruise, but can also hover like a helicopter with its nose vertical. This arrangement allows *Flexrotor* to achieve not only [VTOL](#), explains McGeer, but also fully-automated turnaround. “We’re designing a lightweight base station for automatic retrieval, parking, refueling, and launch. It should be practical for tough spots, like the windswept, heaving deck of a small boat. Automated turnaround should enable high utilisation,



Aerovel's *Flexrotor* prototype

and keep operating costs down.”

“Of course accurate control in hover is essential for automatic turnaround, so on first flight we were most interested to check autopilot performance in this regime. It turned out to be as good as expected. Control was crisp in all modes; station keeping was precise; and we finished the proceedings with a soft on-the-spot landing.”

Upcoming flights will expand the hover-mode envelope. Later in the year AeroVel plans to move on to transitions between thrust- and wing-borne flight, and to evaluation of wing-borne performance. *Flexrotor* is targeted for fielding in 2012.

[AeroVel](#) was founded in 2006 to develop miniature robotic aircraft, primarily for civil applications such as [offshore weather reconnaissance](#) and [geological survey](#). Its offices are in the Columbia River Gorge in southern Washington state. *Flexrotor* was [publicly announced](#) in March 2010. *Flexrotor* development has been sponsored in part by the [SBIR](#) programs of [DARPA](#) and the [US Office of Naval Research](#), through projects done in collaboration with [Hood Technology Corporation](#) and the [University of Washington](#).

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