Futuristic 'air mobile' in works at Bell

By BOB COX
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FARNBOROUGH, England - Bell Helicopter will team with an Israeli company in an attempt to develop a futuristic, vertical-takeoff-and-landing flying vehicle that would allow soldiers and police far greater mobility in urban environments.

Bell unveiled a mockup of what the company has dubbed the X-Hawk on Monday at the Farnborough International Air show, one of the world aerospace industry’s major events for demonstrating technology and marketing aircraft and related products and services.

The X-Hawk, as envisioned by Bell, would be an aircraft that could hold a pilot and up to 11 troops. It would be capable of navigating congested urban areas by flying above narrow streets and in between closely-spaced buildings.

Propelled by two jet turbine engines that drive both pusher propellers and downward thrust lift fans, similar to the design of the short-takeoff-vertical-landing version of the F-35 Joint Strike Fighter, the aircraft - or air-mobile - could operate in far more confined spaces than a helicopter.

A Bell official said the X-Hawk was far more realistic than something out of science fiction or Hollywood.

“People look at this and say Star Wars, but they’ve been building these since the 1950s,” said Mark Gibson, Bell’s vice president of advanced concept development.
The concept of flying vehicles that are either airplane or helicopter isn’t a new one. Gibson said past attempts - including by Bell and helicopter pioneer Frank Piasecki - showed that while the concept was viable, the technology wasn’t available. Modern, more powerful jet engines and digital fly-by-wire flight controls have made what was once a nearly impossible concept far more likely.

Such an aircraft would be a significant advantage to troops in an environment like Iraq, a Bell official said, enabling them to reduce vulnerability to the roadside bombs and rocket-propelled grenades that have taken such a toll on both humans and vehicles.

The craft would be able to hover next to buildings and at angles a helicopter cannot, giving soldiers or Marines more options to go after enemy fighters. Troops and police would no longer have to storm a building from the ground up or, with helicopter transport, from the roof down.

"With this you can go in at the same level the insurgents are on and take them out," said Mark Gibson, Bell’s vice president of advanced concept development.

The project demonstrates Bell’s commitment to exploring new technology in its quest to become the world’s leading vertical lift aircraft company, said Bob Fitzpatrick, a Bell senior vice president.

Bell expects to receive a $500,000 contract soon from the Office of Naval Research to further study and refine the concept. That in turn could lead to additional funding for early design and concept testing.

If all goes well and the Pentagon funds development, Gibson said, by 2010, work could be under way on a prototype.

Bell has entered into a working relationship with Urban Aeronautics, an Israeli company, to develop the aircraft. Rafi Yoeli, an engineer who is president and chief executive of Urban Aeronautics, developed and flew a crude version of the aircraft in 2003 that was powered by piston-engines.

The aircraft made 10 hover flights, Yoeli said, that while difficult to control produced reams of data.

Yoeli began looking for a U.S. partner that could help secure funding and provide technical assistance. He first met with Bell executives about 18 months ago and found them very open to the concept.

“They knew what we had,” Yoeli said. “It was a matter of diving into the details.”

Bell envisions building a prototype at its XworkX research and development facility in Arlington. Yoeli would likely take the lead in designing the air vehicle, with Bell adding its expertise at integrating electronics, controls and engines.

Gibson said if the project eventually makes it into production both Bell and the Israeli company would likely participate in the manufacturing.

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