



**Phenom 100**  
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**MANNED CONVERSIONS**

# Vehicle could echo telemetry role

Derivative of Colyaer Martin light sports aircraft under development to play a part in supporting USAF weapons trials

**A**erocross Systems has unveiled a large payload capacity unmanned air vehicle being developed for the US Air Force as a potential airborne telemetry relay asset.

The UAV, designated Echo Hawk, is expected to make its first fully autonomous flights during the first quarter of 2008, although it has already flown in a manned configuration.

Echo Hawk is being developed on behalf of the USAF's 46th test wing at Eglin AFB in Florida as a potential replacement for manned telemetry relay aircraft and mobile ground stations in supporting weapon system trials. In that role it will carry a 1m (3ft)-diameter steerable tracking antenna in its forward payload bay.

Development of the type has been under way since 2003. Texas-based Aerocross unveiled its prototype aircraft on 6 August at the USN – Association for Unmanned Vehicle Systems International UAV flying demonstration at Webster Field, Maryland.



**Echo Hawk could take over some air force functions from manned aircraft**

The UAV is derived from the Spanish Colyaer Martin 3 S100 light sports aircraft. Key configuration changes include the closing over of the cockpit bay, addition of a lower fuselage blister to facilitate

antenna movement and the addition of winglets. Wingspan is 12.6m, compared with 10.3m in the standard manned Martin S3 kit configuration, while the fuselage length remains 5.85m.

Its Rotax 912 engine has been replaced by a Rotax 914 constant speed model, which also drives an alternator providing 2,800W of power. The modified aircraft has an endurance of 10h, with a typical mission expected to require at least 8h on station. Total fuel capacity is 190 litres (50USgal).

Maximum take-off weight is 670kg (1,475lb), with a total payload capacity of 192kg.

The type is remotely piloted with limited autonomy assistance provided by an Athena Guidestar system supporting navigation. The piloting station incorporates a synthetic vision support system and a head-up display.

Funding for the development has been provided via the US Department of Defense's small business innovative research programme, with initial funding worth \$94,000 awarded in October 2003. Phase two awards for the research programme worth \$600,000 were secured in August 2004, with a follow-on award of \$150,000 in December 2005. ■

**COUNTER-UAV OPERATIONS**

## US Army looks to fight unmanned threat

**T**he US Army is exploring potential requirements for an anti-radiation missile for carriage by its larger unmanned air vehicles to counter hostile UAVs.

The concept calls for the anti-radiation missile to target a hostile UAV system's ground control station by following its command datalink. The option is one of a number of new weapon concepts being studied by the service as it prepares for the introduction of its new General Atomics Sky Warrior and Northrop Grumman RQ-8B Firescout UAVs.

The studies are also examining potential weaponisation of the AAI RQ-7B Shadow 200 UAV.

Lt Col Keith Hirschman, man-

ager of ground manoeuvre unmanned air systems for the US Army UAV programme office, says no current requirement exists to weaponise Shadow.

Hirschman says: "We have several studies going on. Several platforms have the requirement for weaponisation. Others don't, like Shadow. There is currently no requirement for Shadow to carry weapons, but we are doing studies in anticipation that somebody will want to put something on it."

The development of an anti-UAV capability by the service anticipates that US systems will become an important operational target, Hirschman adds. ■

**TACTICAL UAV**

## BattleHog continues its evolution

**A**merican Dynamics has unveiled plans for an evolved tactical version of its BattleHog 100x vertical take-off and landing unmanned air vehicle as a potential contender for emerging US Navy and Marine Corps Tier III requirements.

The new UAV, designated the AD-150, would feature twin, independently steerable gimbaled lift fans mounted on the wingtips, with these driven by a turboshaft engine. It would feature a highly streamlined fuselage with low observable features, including an overhead intake for the engine.

A full-scale model of the air vehicle configuration was displayed

for the first time at the exhibition.

The type would be all composite, with a span of 5.3m (17.5ft) and a length of 4.4m.

American Dynamics executive Stefan Amrally says design work began last year with a third-party computational fluid dynamics analysis conducted to validate its characteristics.

He says development lead times are being correlated to potential US military programmes such as the USN Tier III schedule, but with ongoing testing being carried out using the BattleHog 100x demonstrator, unveiled in August 2006.

BattleHog development is continuing, with tethered flights being carried out to map the characteristics of American Dynamics' high torque aerial lift system.

Free flight of the demonstrator is in planning says Amrally: "We need to do this safely." ■