

February 01, 2010

## **Camcopter finds niche among fixed-wing UAVs**

By: Charles Alcock

Helicopters can perform a wide array of useful tasks that cannot be done at all or as well in a fixed-wing aircraft, so it probably stands to reason that an unmanned rotorcraft would soon prove its worth alongside fixed-wing unmanned air vehicles (UAVs). Schiebel's Camcopter S-100 is fast finding acceptance for a variety of applications, such as pipeline surveillance for an undisclosed customer in Malaysia.

The Austrian manufacturer has been producing the Camcopter for more than three years and recently built the 100th example. The vertical-lift vehicle has logged more than 2,000 operational hours, operating from challenging terrains and moving ships in conditions of up to sea state five.

The rotary UAV was one of the stars at the Paris Air Show last June, and is here on display at Singapore. However, it did not get clearance to be in the flying display despite having convinced the demanding French aviation authorities that it could safely fly in the skies above Le Bourget Airport—a far more built-up area than the Changi show site.

### **Military Use**

Following the Paris show, Schiebel made two important breakthroughs in its efforts to advance military roles for the Camcopter. In August, Boeing forged an alliance with the firm to help to market and support the product in the key U.S. market. Then in December, the DGA French government defense agency signed a contract to lease an S-100 during the first half of 2010 for an extensive series of test flights by the French army both in France and at a location outside Europe, as well as for use by the French navy.

Boeing is effectively adding the Camcopter to the product portfolio of its new Unmanned Airborne Systems division, alongside UAVs such as the A160T Hummingbird, the ScanEagle, the SolarEagle and the MQ-X.

Camcopter customers will be able to benefit from Boeing's extensive experience in providing technical support for UAV operations.

To meet the requirements of the French DGA, Schiebel has subcontracted Thales's aeronautical systems division to help to arrange the necessary flight and frequency permits for the trials. The leased S-100 model will be fitted with Thales's Optronics Agile 2 electro-optical and infrared (EO/IS) sensor.

The Camcopter S-100 offers a beyond-line-of-sight range of up to 200 km (108 nm) over land or sea and an endurance of up to six hours. With a maximum takeoff weight of 441 pounds, it can carry a payload of up to 75 pounds and can operate up to 18,000 feet. The UAV's fuselage is made from carbon fiber and titanium.

The fly-by-wire UAV with a triple-redundant flight computer navigates via preprogrammed GPS waypoints or can be operated throughout a flight from a pilot control unit.

Missions are planned and controlled via simple point-and-click graphical user interface and high-definition payload imagery is transmitted to the control station in real time.

The acceptance of UAV operations in civil airspace alongside piloted aircraft continues to be a challenging issue. According to Schiebel managing director Neil Hunter, the company is making progress with certifying authorities, in part due to the increased military use of unmanned vehicles in environments such as Afghanistan. "The military hours have helped with their reliability rating and they are now seen to be safer and safer and more mature by the day," he told AIN.

However, the outlook of civil aviation authorities continues to be that they don't want UAVs routinely operating in their airspace without a search-and-avoid function. Solutions such as traffic collision avoidance systems are not a viable option for smaller vehicles like the Camcopter because of payload limitations. In Austria, the Camcopter routinely flies between its factory and a demonstration area in a designated UAV corridor in civil airspace.

Hunter, a former UK Royal Navy helicopter pilot, said the Camcopter can execute a wide variety of jobs that currently have to be performed by manned helicopters, such as surface search and surveillance, as well as intelligence, target acquisition and reconnaissance roles.

So far, Camcopter has been fitted with five different EO/IR sensors. In addition to Thales Agile family, they include the Pop 200 and 300 units from Israel Aerospace Industries and the Flir Systems unit.

Schiebel recently flew the vehicle with a Selex PicoSAR synthetic aperture radar, which it probably will make available as standard equipment. The trials demonstrated the Camcopter's capability for all-weather, long-range, ground-mapping and moving-target indication tasks. Operating at altitudes of up to 3,000 feet, the PicoSAR was controlled via a datalink from the ground with imagery transmitted back to a ground station.

In addition to its headquarters near Vienna, Schiebel (Stand E67) also operates a production facility in Abu Dhabi and has offices in Warrenton, Virginia, and Phnom Penh, Cambodia.