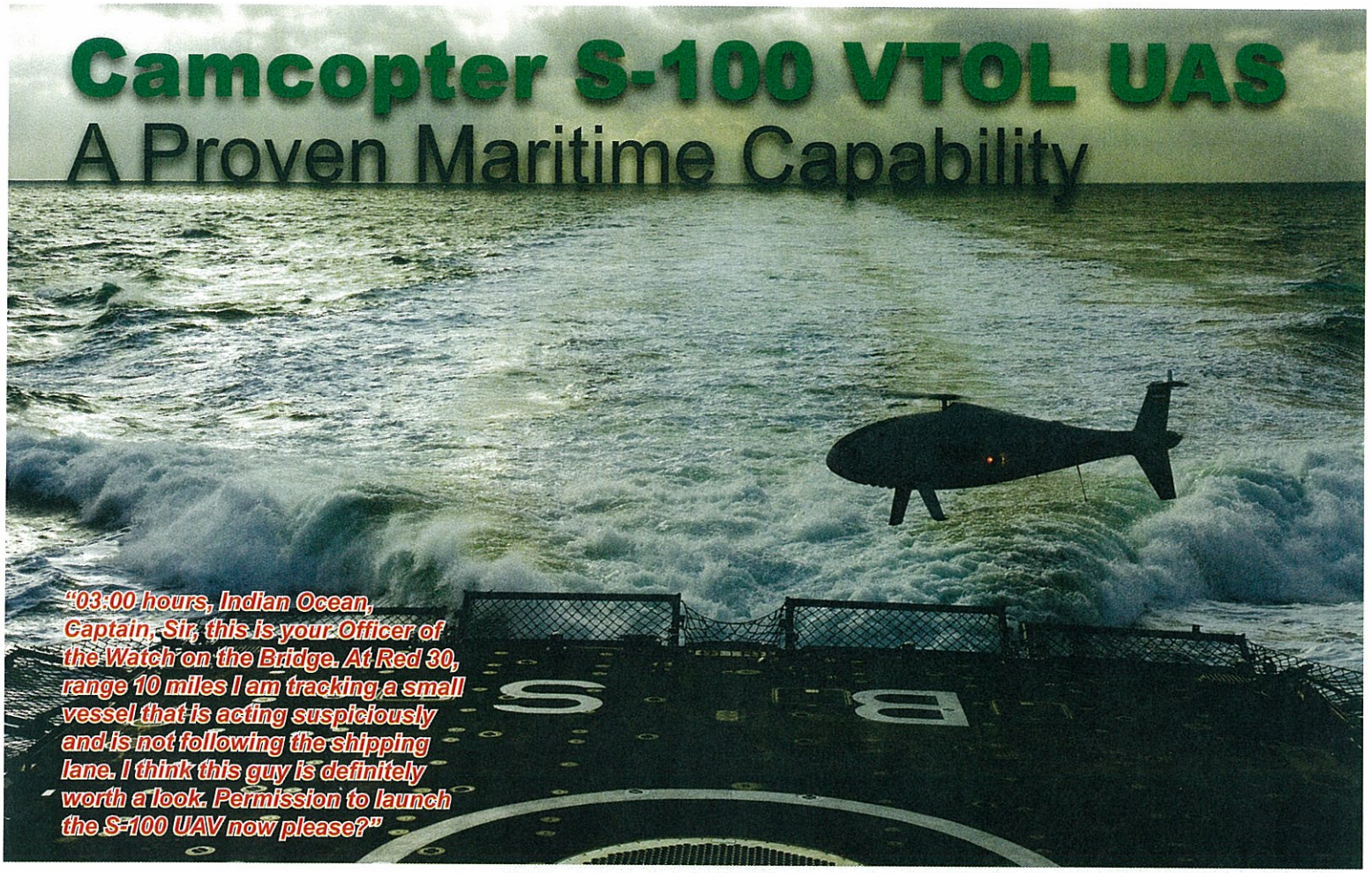
Camcopter S-100 VTOL UAS
A Proven Maritime Capability



To some this may sound like a futuristic statement, but actually it is reality today; this proven UAS capability is in production and ready to complement the maritime environment in either the civilian or military market. The future is now!

Indeed, it is not just Schiebel making this claim as the *Armada International* 1/2009 magazine recently reported that: "The first successful shipboard drone helicopter designed for the surveillance role was probably Austria's Schiebel Camcopter 5.1....The second generation Camcopter S-100 (bigger at 200kg MTOW) is a more advanced system with many improvements that is now in full scale production...".

The Camcopter S-100 UAS built by the Austrian company Schiebel has successfully proved its shipboard decking capability on six different classes of vessel so far in three oceans. Its most notable success to date was the extensive and challenging trials for the German Navy onboard their new *K130*-class corvettes *Magdeburg* (F260) and *Braunschweig* (F261) during the summer of 2008. However, it has also successfully operated and performed for a number of other maritime agencies, namely: the Indian Navy on the offshore patrol vessel *Sharda*; for the Pakistan Navy on the *Type 21* frigate *Shahjashan*; the Spanish *Guardia Civil*, from a 60m patrol vessel of *Gran Canaria*; and for the French Navy from their anti-submarine frigate *Montcalm*.

The Unmanned Achiever

To date, the Camcopter S-100 UAS has achieved hundreds of flight hours that include more than 200 takeoffs and landings on both military and civilian vessels at relative wind speeds of up to 40 knots from all possible directions, roll angles up to 8^0 in sea states up to 3. Equipped with emergency floats and with a deck locking harpoon device, the 3m long, unmanned helicopter can safely land on all vessels equipped with the NATO grid or similar for securing helicopters on deck in rough seas. Although not yet tested beyond sea state 3, all simulation and testing up to date suggest that the S-100 should be able to routinely operate around the clock in conditions similar to that of its manned equivalents in sea states up to 5.

Of importance in the modern era of UAS, the S-100 is capable of fully autonomous missions—from takeoff to landing—for both night and day operations. The Camcopter is able to fly out to a radius of 180km from its controlling vessel on missions lasting up to 6 hours and with external fuel tanks this can be extended up to 10 hours. It can carry multiple payloads (4) including multi-role sensors up to a total weight of 50kg. Although the most requested sensors are high-resolution electro-optical/infrared gimbal cameras including laser range finding and designation, it is fully appreciated that radar is a must in the maritime environment. To meet this need, Schiebel and Selex have come together to deliver the PicoSAR capability on the S-100, which has already flown, is currently ready for final flight trials and will soon be available as a suitable lightweight maritime Synthetic Aperture Radar (SAR).

Another crucial point for the ongoing success of the S-100 in the maritime marketplace will be the advent of a heavy fuel engine that will meet the long-term goal of many navies. Schiebel's new F44 heavy fuel rotary engine is presently being extensively tested, will be installed into the first S-100 prototypes later this year and thus be built into the Camcopter S-100 from mid-2010 onwards.

With two-thirds of the world's surface covered by water, our seas and oceans will continue to provide us with many challenges and surprises. Maritime aviation has developed steadily over the last 100 years and UAVs are but no more than the latest addition. They are certainly not the ultimate answer or the panacea of requirements, but they are an important addition that will complement the manned world of aviation. Whether it be search and rescue or fishery protection in the civilian sector to force protection, projection, surveillance or anti-piracy work in the military sector, UAVs have a great deal to offer and the Camcopter S-100 UAS is ready to play its part.

Schiebel's latest Camcopter S-100 UAV system has been developed to carry various sensors for both military and civilian applications. The Aerial Vehicle is launched automatically via Vertical Takeoff and Landing (VTOL), eliminating the need for a prepared area or additional launch and recovery equipment. It navigates via pre-programmed GPS waypoints, or can be operated manually through a simple, yet highly stable, flight control system. The Camcopter S-100, like its predecessor, is capable of landing on helicopter deck-equipped ships without the use of additional landing equipment. Its AV fuselage is a carbon fibre monocoque providing maximum capacity for a wide range of payload/endurance combinations. In a standard configuration, the AV is capable of carrying a 55-pound payload for up to 6 hours.

Founded in 1951, the Vienna-based Schiebel Group of companies focuses on the development, testing and production of state-of-the-art mine detection equipment and the acclaimed Camcopter S-100 Unmanned Aerial Vehicle System. Schiebel has built an international reputation for producing quality defence and humanitarian products, which are backed by exceptional after-sales service and support. All products are quality controlled to meet ISO 9001 standards. With headquarters in Vienna, Austria, Schiebel now maintains production facilities in Wiener Neustadt, Austria, and Abu Dhabi, United Arab Emirates, as well as offices in Warrenton, Virginia, USA, and Phnom Penh, Cambodia. ■