They Keep Flying In

Ruag's latest: the Super Ranger

One could have expected that the development of new drones and their related systems and payloads would have reached a point at which their manufacturers or users would turn towards upgrades, but the truth is that new models keep turning up at an amazing rate.

Eric H. Biass

Quite naturally a number of manufacturers, particularly those from Israel, waited for the Paris Air Show to lift the veil off their latest drones – which incidentally allowed the event to showcase new aircraft – but other companies did announce their new projects before the show.

One such manufacturer was Ruag with the Super Ranger the existence of which was revealed in May (the Paris Air Show taking place in the second half of June). As the name tends to suggest, the Super Ranger is intended to provide a capability that is superior to the existing Ranger, but without stepping too far into male territory; as the drone's cost and logistics would imply. Seen here in our title photo, its twin boom design and general configuration could mislead one into believing that it is a somewhat jazzed-up Ranger. It in fact is an entirely new design. To provide a scale, the Ranger is a 274-kg aircraft, whereas the Super Ranger will be a 500-kg affair, while wingspan will grow from 5.70 metres to virtually ten. However, the new craft retains some of the features of the Ranger; such as catapult launch capability and skid landing gear to enable it to land on rough terrain, although a standard retractable landing gear can be fitted for more conventional runway operation.

The aircraft will be compatible with the Opats electro-optical landing system although, should a customer require, Ruag has the capability to adapt it for microwave landing systems. On the compatibility theme, the latest types of Ranger ground control systems (such as the ones used by Finland) will be able to monitor the new bird with a simple software upgrade. Perhaps more importantly, says Ruag, the Super Ranger is the first such system to have been developed around the new international UAV Systems Airworthiness Requirements (Usar).

As for the driving factor behind this development, Ruag very simply told the author that the company had lately responded to a number of requests for information that very clearly indicated that there was the need for more capability, particularly in terms of endurance, and that newer types of payload gave the possibility to carry out missions from higher altitudes.

Entirely made of carbon and glass-fibre composites, the Super Ranger will be powered by a super-quiet 28-kW flat-four engine. Although the exact engine type has not yet been defined, Ruag mentioned that the choice has boiled down to two manufacturers.

The Super Ranger also features de-icing and obstacle avoidance systems as well as two payload bays enabling it to carry the typical gimballed chin-mounted electro optical suite as well as a belly-mounted synthetic aperture radar. Concerning the latter, there are currently six available radars that match drone size and power requirements. A Ruag official said that this gives a potential customer a broad choice.

Ruag will probably start the assembly of a prototype by the end of the year with a first flight target of fall 2008.

As said above, the Paris Air Show brought its crop of new drones, which will be featured in either next issue's Drone Update or in our Paris Air Show report. These include the IAI Heron TP, the Elbit Hermes 900, the Eads counter-rotating Sharc rotorcraft, the Alenia Sky-Y and the Hydra Technologies (Mexico) Ehecatl, to name but a few.

Super Ranger Specifications

Datalink Range:	LOS (line-of-sight): up to 200 km BLOS (Satcom): up to 1300 km
Engine:	28 kW, 4-cylinder, 4-stroke, fuel injection
Speed:	max. 130 kts
Service ceiling:	20,000+ ft
Endurance:	up to 20 hours at 120 kts
Wingspan:	9.48 metres
Length:	7.11 metres
Height:	1.50 metres
Take-off weight:	up to 500 kg
Payload:	up to 150 kg

Hermes 450 not Watchkeeper

The announcement that the British Ministry of Defence had placed an order for an unspecified number of Hermes 450 systems for the armed forces has lead to

There are notable differences between the new Hermes 450-based Watchkeeper (seen on left as a montage involving a mock-up) and the original drone developed by Elbit. Not only does the Watchkeeper have two payload bays, it has a faired wing root and nose wheel strut. The engine radiator scoop also seems to have received attention, but one may legitimately wonder whether the sensor under that scoop will remain there. (Thales)

much confusion. This is an entirely different contract that is not related to the Thales-led Watchkeeper programme that indeed uses a similar airframe base – hence the crossed wires. This order for a virtually off-the-shelf system (to be supplied by Elbit's subsidiary U-Tacs) is to fill an urgent need to support the British forces 'on current operations'. The Watchkeeper, for its part, is scheduled to enter service in 2010 (to make things worse, Thales released an artist's impression of the Watchkeeper with Hermes 450B 'stencilled' on the fuselage and more recently another set of illustrations labelled 'WK450'). The Hermes 450s involved in the new contract, by the way, are the property of Thales UK, which will lease them to the army.

In the meantime, Thales announced that it had been able to unveil the final configuration of the Watchkeeper following a critical design review with the Ministry of Defence. The air vehicle, which is basically the Elbit design, has been adapted to accommodate a dual-payload capability (as is now the trend), offer all weather operation with deicing system, easier access to sub-systems for faster maintenance and automatic take-off and landing.

Gull Goes Fishing

As the link provided here shows (http://www.centaurseaplane.com/gull/video.htm) the Gull 36 being developed by Warrior Aero-Marine has matured into a tangible asset for naval applications. The unmanned flying boat is intended to be dual mission capable: as an intelligence and surveillance drone but also as a surface vessel underwater intelligence gathering system, as it is able to deploy sonars, marine markers or small underwater vehicles through a hatch in its bow. The aircraft is said to be of robust construction that, in view of its water-landing method (deep stall above the water surface), would appear to be mandatory. A feature that should whet the curiosity of naval operators is the fact that the base ship will not need to stop to launch or recover the craft. This will be done with a towed 'sled garage' from which the Gull is released (upon which it deploys its backward folded wings) or sailed into while the mother ship is underway.

Gull 36 Specifications

Wingspan:	4.05 metres
Length:	3.485 metres
Max.take-off weight:	70 kg
Max level speed:	82 kts
Economy speed:	60 kts
Stall speed:	28 kts
Sea conditions:	state 3 full capability
	state 4 to 5 reduced capability
Range:	with 8 kg payload 600 nm
	with 22 kg payload100 nm

NB: the aircraft seen here is the similarly configured Gull 24

The Northrop Grumman MQ-8B Fire Scout has reached the Department of Defense's Milestone C, by virtue of which it is eligible for low-rate initial production. The rotorcraft is expected to complete its initial operational capability tests in 2008. All nine Fire Scouts ordered by the US Navy will be delivered by the end of that year. (Armada/EHB)

Puma Likes Hydrogen

Whereas the standard electric hand-launched Aerovironment Puma has an endurance of 2.5 hours, a prototype of the Puma recently managed to stay aloft for nearly five hours fed as it was by a hybrid fuel cell. This development was achieved under a $ 4.7 million US Air Force Research Laboratory contract and with Protonex, which developed the fuel cell battery hybrid energy storage system that itself included hydrogen generation technology licensed from Millennium Cell. The five-year contract also covers the development of improved electric motors and the integration of solar cells into the wings. The standard Puma has a wingspan of 2.6 metres and weighs 5.67 kg.