



### Industry – UAV-based In-Service Support

## UAV-based In-Service Support

Unmanned aerial vehicle manufacturer Delair is co-developing a drone with Naval Group and the French Navy's Fleet Support Service (SSF) to carry out In-Service Support (ISS) of surface vessels. A first in France.



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It's still a prototype, but it's showing great promise. In fact, two of them are due to be delivered in July — one to Naval Group and another to the SSF. Designated P.A Drone until now, it will be called the «Shipdrone» when it goes onto the market.

Its purpose is to carry out different types of mission to optimise the ISS of French warships. «This is the first sovereign French solution», explains Stephan Guérin, Head of Sales Navy Defence & Civil Market at Delair. «Equip-

ped with LIDAR and photogrammetry technology, this drone is capable of creating one digital twin with a point cloud and a second with a set of photos. And it will be possible to work on both at the same time thanks to SEEBYL, a software package specially developed to support warship ISS. Shipdrone therefore combines hard and digital data: one tool to capture data, another for 'data-visualisation' and AI to optimise it.» In continuous development, the UAV can automatically re-



calculate its flight plan to avoid passing too close to personnel working on board at the same time.

«Delair will not become an ISS operator in the military naval sector. But it will be the first building block enabling ISS specialists to optimise data analysis and help the experts to save time», explains Stephan Guérin. «Structural algorithms will detect, for example, whether there is corrosion. If so, what type? If there is deformation, what type? In the future, if we want to upgrade the boat's structures, we will be able to simulate them on orthofaçade drawings: it will be easier to integrate a new gun turret into the digital twin, for example.»

It will be possible to optimise all the ship's optronic systems. For example, the three DALAS laser landing aid systems for the Rafale were tested and qualified for the first time in a single day by the Shipdrone. Stephan Guérin explains that the sea trials will continue, «but with the certainty that the DALAS units work, there are no nasty surprises for the final tests with the Rafales.» This would mean much higher cost and a lot more time. UAV-based ISS can also be used to look at the radiation pattern of an onboard radar, to check that it has no weak points along the antenna axis or that it still meets its initial commissioning specifications.

«It's a real Swiss Army knife in support of the boat's performance», and inspections can be carried out at the quayside, in dry dock or at sea. It can also be used for verifications. The Shipdrone will ultimately be equipped with eight motors and will be able to carry payloads of between 5 and 10 kg. These payloads will be both passive and active (camera, LIDAR, etc.). The camera payload is covered by a specific development, undertaken by SONY, to optimise geo-triangulation





of the photos to the nearest centimetre, and eventually with millimetre accuracy.

This UAV does not yet feature in Delair's catalogue. Once in production, the solution could be exported as a service, marketed either by Delair or by Naval Group, but still operated by Delair.

In addition to the Shipdrone, Delair also offers the SeaSam Hullscan, a remotely-operated vehicle (ROV) that inspects the hull to check for buildup of foreign matter and the condition of paintwork. This system also offers a high degree of precision, so it saves fuel and considerably reduces costs. Equipped with a lithium battery, available in several sizes, the Hullscan can perform a detailed inspection of the hull in 4 or 5 hours. Already on the market, notably in the commercial maritime sector, its success story continues. Around forty units will be sold in 2024, with around sixty expected next year. Unlike the Shipdrone, this ROV was originally a civil product included in the company's catalogue. It has also enjoyed success on the export market.

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