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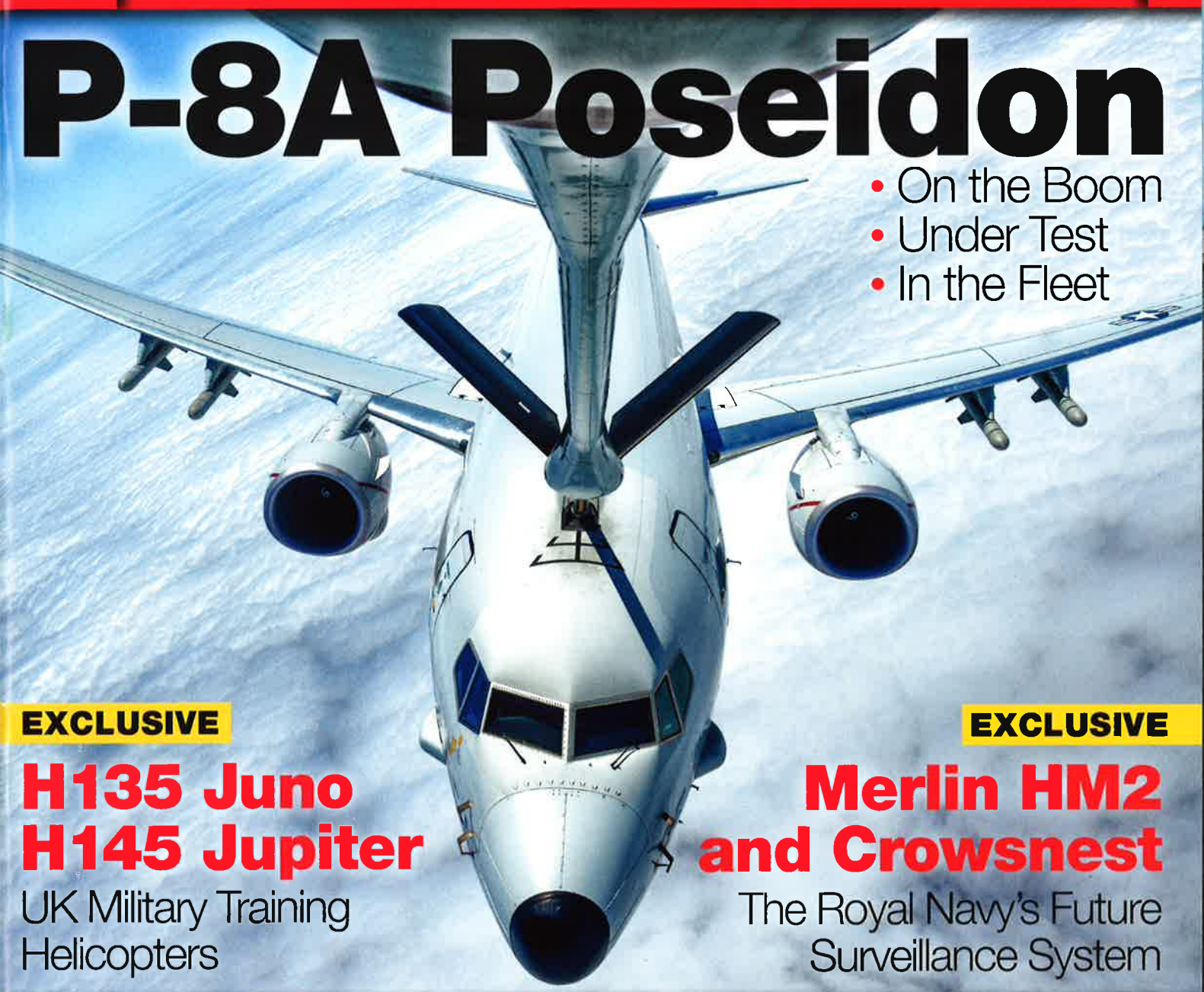
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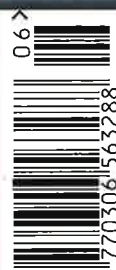
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Interior Innovations

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The aircraft interiors industry is set for huge growth. Last year, the market for outfitting the cabins of passenger aircraft was worth \$16.8 billion, according to one report. Forecasts say this value will rise to \$29 billion by 2021.

France plays a major role in the sector, as shown by the presence of many companies from the country at the Aircraft Interiors Expo in Hamburg in the spring.

Clematis

The interiors sector is changing. As technology has advanced and tech-savvy consumers have become more demanding, airlines are having to improve the in-flight experience to respond to fliers' demands for greater comfort and connectivity.

This is evident from some French companies' products. SELA has a new version of its Clematis system, initially developed as a RGBW LED mood lighting system offering billions of different colour combinations for cabins. The company has developed Clematis so the colours and brightness it generates can be controlled by smartphone or tablet using the aircraft's on-board Wi-Fi, but as Frédéric Relea, Sales and Marketing Manager at SELA explained to AIR International, the company has gone further.

Relea said: "Now Clematis is a cabin management system. The passenger can easily control the lighting but [now] they can

also control all the electrical equipment, the Wi-Fi, the air conditioning, the outside cameras, if they want to call the crew, the menu selection, everything. The latest innovation is video projection. You can project on the ceiling any movie, any picture [or] the weather at the destination."

A smartphone or tablet can connect to Clematis and enable the wireless management of all these systems and equipment. An integrated clock monitoring system allows actions to be scheduled for specific times during the flight.

Touchscreen Panels

There is a trend for giving passengers a more personalised experience: the ability to control things for themselves. Further proof of this is the touchscreen smart control panels developed by SMS (trading as Cobham Aerospace Communications).

Olivier Boutray, Cobham Aerospace Communications Sales and Marketing Director, told AIR International: "The panel can be used to control the internal lighting in the cabin or the cockpit but also to control air conditioning systems, so any kind of secondary system without any critical function."

"We can adapt the size of the panel; we can add different functions to turn on and off lights for example. We can have a bar graph if we need to display information like the temperature aboard."

The touchscreen panels additionally control LED lighting systems (which the company also manufactures), from full

systems and spotlights to the lights for security and passenger information signs.

Efficiency

In addition to improving the in-flight experience, the introduction of Wi-Fi aboard aircraft has also resulted in a focus on how the technology can help improve efficiency by replacing the hardware previously required to operate cabin systems and, in turn, generate weight and fuel savings for operators.

Explaining how Cobham's touchscreens contribute in this regard, Boutray said: "You have a simple interface with no complex hardware such as microprocessors, so [it is] very easy to integrate within the aircraft. [It is] two wires to power supply the panel and to connect to the network of the aircraft."

Innovation to create savings takes many forms, as the varied work of different French companies in the interiors market shows. Equip' Aero produces epoxy sandwich panels, the curved panels made from foam cores and epoxy face sheets and reinforced by carbon fibre or fibreglass designed to make cabin fittings lighter.

Team Plastique specialises in thermoforming, or making plastic parts for interiors. At the Aircraft Interiors Expo, it presented new vacuum and pressure forming machinery, which it says provides greater freedom in product design, faster prototyping, better shape definition and improved dimensional stability.

Part of the focus on cutting weight and reducing fuel burn has involved making cabin

Mark Broadbent reports on the French companies that supply a wide variety of products in the aircraft interiors market

1 Greater control of lighting systems, such as SELA's Clematis pictured here, is a major trend in interiors. SELA

2 Cobham's touchscreen panels do not just control LED lighting systems, but also the lights for security and passenger information signs. Cobham Aerospace Communications

3 On-board Wi-Fi enables cabin systems, such as these touchscreen smart control panels, to operate without extensive hardware. Cobham Aerospace Communications

4 Daher, whose work on interiors ranges from the laying of floor coverings to full cabin fittings, is one of many French companies in the interiors sector. Daher

seats lighter by using new slimline designs and materials such as composites and titanium. Equally, however, the market still wants quality.

This task to balance performance and quality has led to another supplier, Boris, which produces leather materials for cabin seats, to develop a range of design, prototyping and manufacturing services for aircraft seats. The latter involves perforation, quilting, coating and digital or mechanical cutting of material, automated sewing, component making and part or full assembly.

Increasing Demand

Despite this wide variety in the products and services provided by French interiors specialists, one factor unites them all: growing demand.

As Tony Thoma, Head of Strategy Marketing and Communications at Daher – a French company whose work on interiors spans everything from the laying of floor coverings to full cabin fittings – told AIR International: "The operating fleet of commercial aircraft is supposed to double in the next ten years from 20,000 aircraft



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today up to about 40,000. The demand for everything concerning aircraft interiors will grow at the same pace."

Coping with the ramp-up in production required to meet rising demand isn't the only factor affecting the market, according to Thoma. He said: "The cabin is becoming less standardised. Each airline is willing to differentiate its offer and cabin layout. The way to answer that demand is to be more of an architect."

Cobham Aerospace Communications' Boutray believes manufacturers working with their clients during the design-build process to customise their products is becoming more important – so much so that this guides the company's approach. He explained: "In general, the customer doesn't have a complete specification so we bring our expertise and experience to the customer to build a specification."

"We have simulation tooling to check the feasibility of the [customer's] concept and, depending on the project, we can build some mock-ups. Step-by-step we get a prototype and we perform assessment with the customer to freeze the specification."

Digital Capabilities

Thoma echoed the importance for suppliers to be close to their customers and to be "tight on timing and quality" and respond quickly to market needs. He believes using new digital software to design products and visualise them for customers can really help.

He said: "To be able to have digital capabilities in the way you imagine your cabin, the way you manufacture your products and the way you maintain or propose services, is key. It is a way you could do engineering around cabin configuration [more] easily and much more rapidly than you can do today. It's not only about innovating in your product, but innovating in your process to make quality and to deliver in time."

Building to shorter timescales and ramping-up production while making products the market wants – it's a challenging time for interiors, and for the variety of French companies involved in the sector, the next few years are clearly ripe for both growth and innovating to meet the challenges that growth presents.

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