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SHOW ISSUE

Your guide
to the world's biggest
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SUPERSONIC TRAVEL

WE ARE ON THE BRINK OF A SUPERSONIC RENAISSANCE:
WHAT DOES THIS MEAN FOR AIRCRAFT CABIN DESIGN?

MATERIALS

Lighter, stronger and with new possibilities –
take a look at tomorrow's exciting cabin materials

CABIN NOISE

How do you create the right noise levels in the complex
cabin environment without increasing weight?

BIG DATA

Facebook and Google share the secrets
of leveraging big data for big profits



See the Articles section of our website for analysis of twin-aisle narrow-bodies

THREE'S A CHARM?

A Russian company is working on introducing an interesting new cabin configuration to the market: a triple-aisle mid-haul wide-body

1. THE UNUSUAL SHAPE OF THE FRIGATE ECOJET COULD BRING CAPACITY AND FUEL EFFICIENCY BENEFITS TO MID-HAUL ROUTES

2. WITH SO MANY MIDDLE SEATS, SOME INNOVATIVE DESIGN THINKING TO IMPROVE THE EXPERIENCE WOULD BE WELCOME

The concept of twin-aisle short-haul aircraft has been explored many times, with recent projects including the Portuguese NewFace concept on page 34. It's an interesting proposition, but what if the idea were taken a step further to create a triple-aisle aircraft for mid-haul missions of up to 2,200 miles (3,500km)?

Russian aviation conglomerate Rosavia proposes just that with the Frigate Ecojet design, a short wide-body with an elliptical 7,750mm-wide fuselage that could open up interesting new cabin configurations. Initial plans indicate that the cabin could accommodate 358 passengers in a 2-3-4-2 LOPA at a 32in pitch for low-cost carriers, with various other LOPA options available, all the way up to the most generous 276-seat configuration, with a 24-seat business class (1-2-2-1 at a 40in pitch) and a 232-seat premium economy class (2-3-3-2 at a 32in pitch).

Aside from potential efficiencies in boarding, the triple-aisle layout does

not seem to offer much in terms of an enhanced passenger experience; instead its value lies in its potential for operators. The purchase price is expected to be competitive with both narrow-body and wide-body rivals, at around US\$120m, and its relatively short fuselage (around 45m) is claimed to give it the lowest maximum take-off weight in its capacity class. On routes of up to 2,200 miles, Frigate claims 25% higher fuel efficiency than an A310; 30% higher on routes of up to 1,500 miles; and 15-25% higher on routes of around 1,000 miles.

Rosavia predicts potential demand for 600 of the aircraft from 2020 to 2030, mainly from carriers replacing their narrow-body fleet and seeking to increase passenger capacity on high-intensity or mid-range routes. R&D activities are being conducted by Tupolev, Sukhoi and UAC, and Rosavia has stated that the first flight tests are expected to take place in 2018 or 2019, with entry into service in 2021. ☺

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DUAL ACTION



BRIEF

The notion of twin-aisle narrow-body aircraft still intrigues us. We'd like to see a fresh idea for this aircraft type, bringing some new passenger and operator benefits – go on, create something exciting.

DESCRIPTION

Meet the new face of twin-aisle narrow-bodies: the 150-seat NewFace, a boxwing design with a 4,000 nautical mile range, intended to reduce passengers' ecological footprints while also enhancing their comfort.

Step aboard through one of the three doors and the interior is just as interesting as the exterior. The 2-2-2 layout in the 4,275mm-wide cabin makes for efficient boarding and deplaning, with times brought down further as the flip-up seats mean that passengers do not block the aisles as they settle in, while also eliminating the 'pain point' of the middle seat. Passengers will also appreciate the spacious cabin architecture, with the 2,125mm vertical space enabled by the elimination of overhead bins, the stowage instead being located under the seats.

Another major passenger experience feature is the bar area at the central entrance – something almost unheard of in the narrow-body sector. This bar serves as an onboard destination space, complete with vending machines so passengers can serve themselves whenever they wish, freeing-up crew time and eliminating the need for galley carts, while also creating a source of ancillary revenue for the operator.

NewFace is the result of a collaboration between Portuguese partners Embraer Composites Portugal, Almadesign (a design house), INEGI (a research and technology organization), SETsa (a tooling company) and the University of Lisbon, as well as Embraer Brasil. The partners are aiming to launch NewFace in 2030.



VERDICT

As mid-haul routes are expected to grow in the future, especially in Asia, and with passenger expectations of the flight experience growing, new ideas for the narrow-body market are of great interest. In theory, the NewFace concept is sound – and exciting – and if it can make good on its promises, we might just see some of its features in the successor to Embraer's E2. ✪





THE EXPERIENCE

Join James Tanner from Factorydesign as he imagines the supersonic flight experience on Airbus's recently patented supersonic concept, being hailed as 'Concorde II'.

"A flight from London to New York would start pretty much like any other. You would board the aircraft and take your seat, which would be comfortable and lightweight, but stripped back to the bare essentials.

"Take-off would be like on any other aircraft, as conventional jet engines ease you into the air. Once airborne the captain will announce that your arrival time in New York will be in just under one hour, and to prepare for supersonic flight. The rocket engines will be deployed and the aircraft's nose will

be lifted into a vertical ascent, taking you through the sound barrier while minimizing the effect of the sonic boom at ground level.

"Ramjets take over from the rockets as the aircraft levels out at an altitude of 19 miles [30km] – higher than a U2 spy plane. As the aircraft accelerates up to 4.5 times the speed of sound [3,500mph], your seat will rotate toward the window, revealing spectacular views of the Earth below. At this height you can see the line between day and night, and the only people higher than you will be the astronauts in the ISS. You will have just enough time for another glass of champagne while enjoying the amazing view, before starting your descent into New York."

a cocooned and dedicated environment for the passenger, creating the illusion that the window, sidewall and facing seatback are truly 'theirs' – exclusively designed elements of their living space."

Harcup also suggests having seats that can rotate to enable face-to-face dining, and can also face the window so that one enjoy a cocktail and an incredible view with a travel companion – even if the view is virtual.

Peter Knapp, global creative officer at Landor, is also keen to offer flexibility in the seating arrangements to give passengers liberty, with rotating seats giving them options to face forward on take-off, look out of the window when landing, and turn and face each other for dining.

"This might not afford the freedom found in some formats where a bar offers respite on long-haul routes, but it would easily redefine modes of traveling and offer a much needed variation, the uniqueness of which could command a premium. This simple system could offer social, work, sleep and sightseeing options in one design within the physical restraints."

Ugur Ipek, founder of the Ugur Ipek Design agency, predicts a visually interesting cabin with an asymmetric LOPA of slightly differently styled seats, a layout that is flexible enough to offer reconfiguration options for passengers who want to make the experience their own.

This sense of personalization is also predicted by John Tighe, design director at JPA Design, who wants to combine technologies to make an ultra 'smart' product that enables an airline to offer a space tailored to suit customers' needs for that specific journey.

"It would redefine modes of traveling and offer a much-needed variation"



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