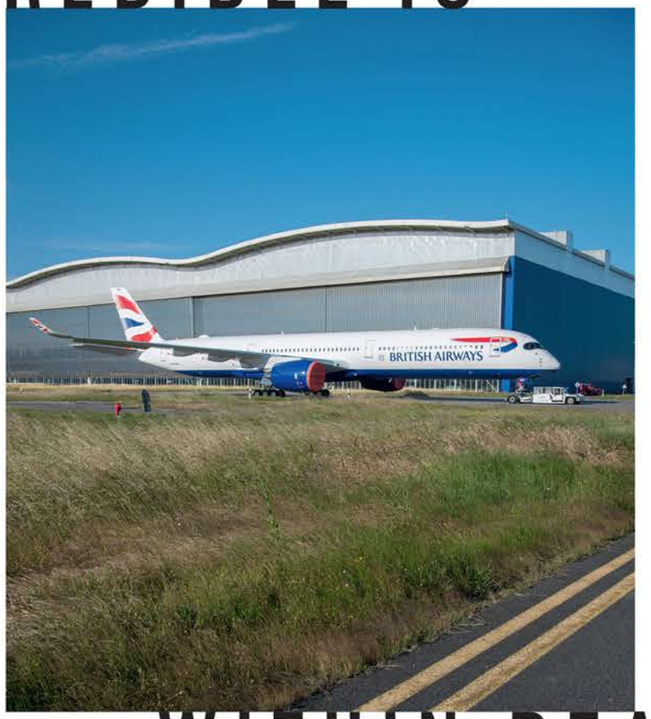
**POWER TOOL**
The Airbus A350-1000's turbine. Right: the aircraft leaves the paint bay at the manufacturer's Toulouse factory

# INCREDIBLE IS WITHIN REACH




Who better to talk about the technological advances set to be made by British Airways in the *next* 100 years than one of its pilots? Senior first officer Geri Moore tells us why the latest planes to join the fleet – the Airbus A350-1000 and the Boeing 787 Dreamliner – exemplify the future of flight

From artificial intelligence to self-driving cars, the last 100 years have witnessed an exponential boom in what was – once – almost unimaginable technology. Although this has taken place across all industries, the journey through aviation offers a fantastic summary of human endeavour. On 25 August, 1919, Aircraft Transport & Travel Ltd – a predecessor company of today's British Airways – operated the world's first scheduled international flight. The single-engined, two-seater biplane – weighing in at just over one-and-a-half tonnes – carried a single passenger from London to Paris. A century later, British Airways flies to all six inhabited continents and carries close to 50 million people per year on a range of ultra-advanced aircraft that includes super jets weighing more than 650,000 tonnes.

I began my career with BA in 2011 and now fly the Airbus A320 around Europe and parts of the Middle East and North Africa. As I look back over eight years of flying, it's remarkable how huge a step in aviation I've already witnessed. Reams of paper, which used to be stuffed into every nook and cranny of the flight deck, have been replaced by a single iPad, and the latest navigation systems now allow us to fly so accurately that once-complex approach procedures, requiring a great deal of capacity, can be flown in more restrictive weather with ease. Although many people might consider the biggest jump into modern-day aviation took place with the advent of the Boeing 747, or when Concorde touched down for the first time in JFK, these both happened 50 years ago. In fact, in just eight years, I can already say: "Back when I started flying..."

For those of you who have ever peered into the flight deck of a BA Boeing 767 – an aircraft that retired only last year, remember – and registered all its flight displays and its mind-boggling number of navigational equipment and gauges, it may be difficult to comprehend that modern aircraft, with just a handful of screens, are actually a great deal more complex. Now in this, its centenary year, BA is welcoming the world's most technologically advanced aircraft, the A350-1000, to its fleet. Indeed, an A350, ⊛

**BRITISH AIRWAYS CARRIES CLOSE TO 50 MILLION PEOPLE PER YEAR ON A RANGE OF ULTRA-ADVANCED AIRCRAFT**

**THE JET SET**
The Dreamliner Boeing 787-9 joined BA's fleet in 2015

Photographs (previous page): Frederic Lanoblo/Masterfilms/Airbus; (this page): Christofer Rudquist

with its six huge, futuristic LCD screens, is how I envisage a state-of-the-art space shuttle. It's a world apart from its predecessors at BA.

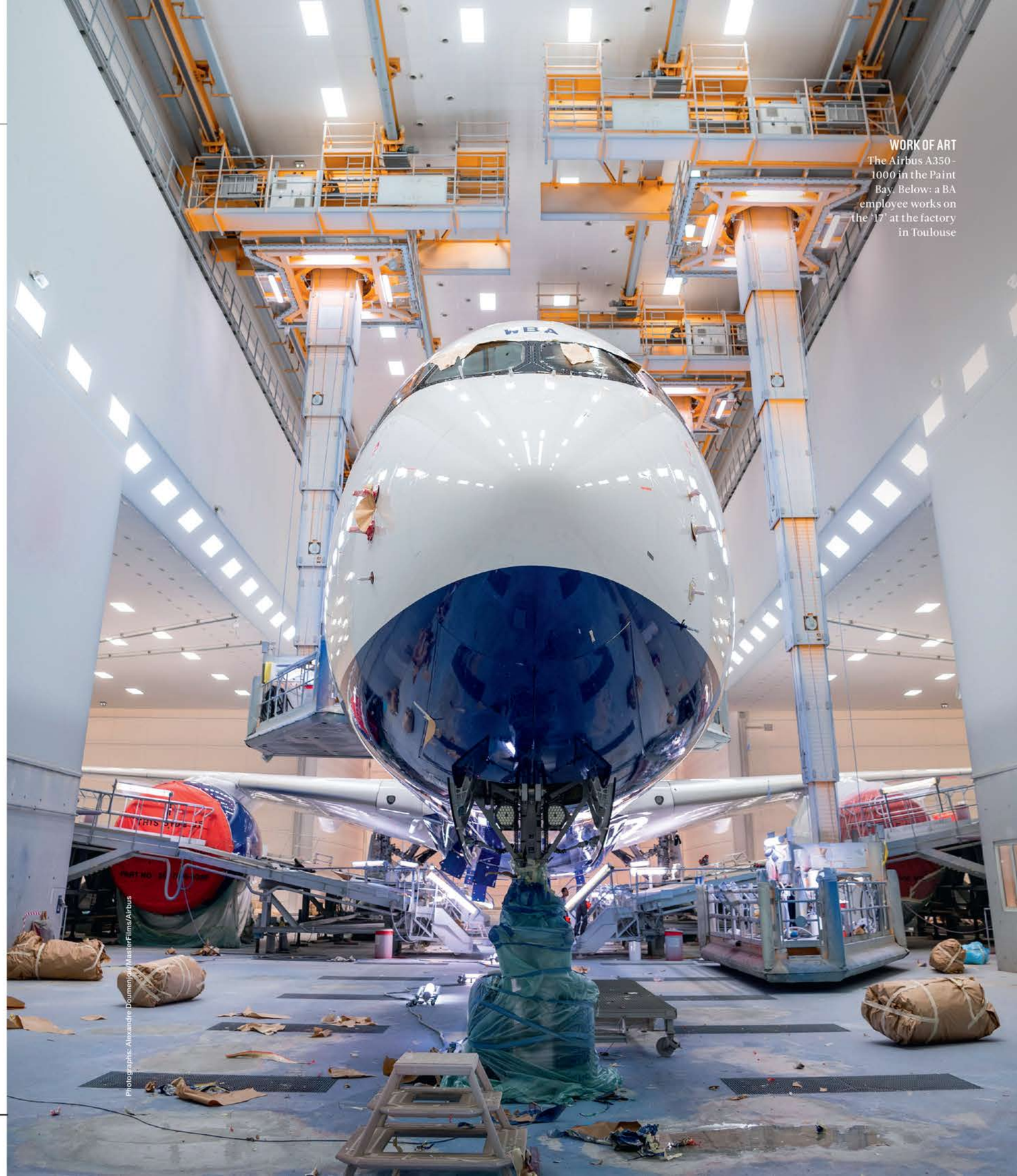
The A350-1000 will impress aviation enthusiasts and passengers alike, and it is also one of the most eco-friendly commercial aircraft in our skies. Its structural features are both revolutionary and little short of amazing. Inspired by the aerodynamics of a bird's wing, for example, engineers have designed the A350 wing to modify itself at altitude, which it does by slightly transforming the position of its flaps to fine-tune the aircraft's centre of gravity, depending on its weight at that exact point in time. Doing this increases the effectiveness of the flight controls, reduces drag and decreases fuel consumption which, all in all, is a far more efficient way of flying.

To date, the engines are also the most powerful ever developed for an Airbus. Producing a maximum thrust of 97,000lbs – that's over a quarter of the thrust that the engines on the space shuttle use to launch into outer space – and with a range of more than 8,000 nautical miles, these new engines mean that a direct flight from London could comfortably reach Perth (or fly back and forth between London and New York two-and-a-half times) before refuelling. In addition, by utilising optimal fan technology in the engine's core, fuel consumption is much lower. This, combined with the other efficiency improvements, means that the A350-1000 will use 25 per cent less fuel than any other aircraft, thereby playing its part in global efforts to reduce toxic carbon emissions. The engines produce the least amount of noise, making the A350 the quietest aircraft in its class, with a 40 per cent noise footprint reduction. (In fact it's so quiet that when pilots head to the bunks for a rest, there's a button for 'white noise' to help them sleep!)

The ability to fly such long distances means that flight times could reach in excess of 17 hours. To assuage this, Airbus has focused on cabin design features that enhance the experience of customers and crew. New 'mood' LED lighting now controls the ambience of the cabin, omitting a bright or pitch-black cabin. The lighting can even mimic sunrise and sunset, minimising the effects of jet lag. The interior walls are less curved than those on other aircraft, reducing the feeling of being on board a plane.

The wellbeing of customers and crew alike is also improved, with a more humid, passenger-friendly cabin pressure. Unlike its predecessors, which traditionally used aluminium, the airframe on the A350 is made from a ⊙

**THE A350-1000 WILL IMPRESS AVIATION ENTHUSIASTS AND PASSENGERS ALIKE**




**WORK OF ART**
The Airbus A350-1000 in the Paint Bay. Below: a BA employee works on the '17' at the factory in Toulouse

Photographs: Alexandre Doumenjou/MasterFilms/Airbus

**KEEPING THE CABIN ALTITUDE AT 6,000 FEET MAKES THE AIR MORE LIKE THAT AT GROUND LEVEL**

titanium combination and is stronger than ever before. Not only does this make the aircraft lighter, but it also means it can withstand a stronger differential pressure between the air inside and outside the cabin. Keeping the cabin altitude at 6,000 feet – much lower than in most other aircraft – makes the air more humid and more like that at ground level. (The good news is that a long flight will no longer have us disembarking with static hair and itchy skin!)

However, BA isn't stopping there. The Champagne will also be flowing at 40,000 feet in the new, highly praised Club Suite being introduced on the A350. The 1-2-1 seating configuration will allow all customers direct access to the aisle – no more awkwardly stepping over the feet of a sleeping neighbour – and one of the best things is that the new seats come equipped with a sliding door to ensure passengers can enjoy the enhanced privacy of a suite, rather than just a seat. In addition, the seats recline fully to form a 79-inch-long bed, the fixed TV screen is almost ten per cent bigger (you'll be able to watch films from the aircraft pushing back until fully parked), and there's 40 per cent more storage space and all the electronic charging ports you could possibly need. The dark material with which the walls of the suite are covered was also chosen not only because it looks chic and feels great, but because it has been specially designed to absorb sound. In short, the chances of you getting a really good night's sleep are high.

But moving into the 21st century isn't solely about brand-new jets. By heavily investing its time and employing the greatest minds in tech startups, BA intends to make your journey as painless as possible. Innovative ideas it has introduced include the advanced biometric boarding machines now appearing throughout Heathrow's Terminal 5, and the new driverless aircraft pushback vehicles. More recently, it's been working to develop software that targets specific issues encountered by customers, whether that's flight disruption or changing flights.

BA is also leading the fight to make fuel more sustainable. In collaboration with Cranfield University, BA 2119: Future of Fuels is an innovative project to find ways to decarbonise aviation, and a nationwide campaign was launched that challenged UK universities to develop a sustainable fuel. The solutions devised by the final three teams include transforming organic household waste into sustainable aviation fuel – they estimate being able to deliver up to 3.5 million tonnes of fuel and consume almost ten tonnes of $CO_2$ annually, effectively producing negative emissions. IAG, BA's parent company, will invest $400m in sustainable fuels over the next 20 years, while BA, being the first European airline to have invested in its own fuel production plant, aims to start sustainable fuel production in the UK by 2024.

As British Airways celebrates its centenary year, I'm delighted to be part of an organisation that is not only able to look back over its first 100 years with pride, but is already working hard towards how it would like to be remembered in the next 100. ■

**@_GeriMoore**

For more of Geri's writing, visit *mooreexploring.com*

**FIND IT AT BA.COM**

Airbus A350 flights from Heathrow to Toronto and Dubai commence this October, and to Bangalore and Tel Aviv in the winter season

**THE DREAM**
The 787-9, pictured here, was the first BA Dreamliner to carry first class. Right: The A350-1000's wing design is inspired by birds

Photographs: Christoffer Rudquist; Sylvain Ramadier/Airbus