

MACH 2

Concorde magazine

Fit for the future
*Project Rocket – the interior
design for the BA fleet*

Fox-Fox's last flight
*Displaying F-BVFF at Paris
Charles de Gaulle*



Concorde Watch
*News from around
the world*

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INTRODUCTION

For the last two years of Concorde's life in service, the British Airways fleet was equipped with its last and most elegant cabin re-fit – the interior design known as Project Rocket. The smart carpet and luxurious seating, though, were only part of the refurbishment that had been planned to take the BA Concorde well into the 21st century. Paul Evans has interviewed members of the design team responsible for Project Rocket, and he tells the full story of the project here.

Following Concorde's retirement, most of the aeroplanes were sent to museums for display. Just one from each fleet was left at their "home" airports: Heathrow and Paris–Charles de Gaulle. We bring you the story of Air France Concorde F-BVFF, and how this aircraft was saved from the scrap-heap to become an icon at CDG.

We also have a review of Sonic Boom, the new memoir by Fred Finn – who holds the Guinness World Record for the most flights ever on Concorde.

Following Concorde Watch reports from around the world, we end with an obituary to an aviation legend: Michel Rétif, flight engineer on the very first Concorde flight, by prototype 001.

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PROJECT ROCKET

At the turn of the 21st century, British Airways planned a redesign of the interiors of their Concorde fleet. This work, known as Project Rocket, fascinated Concorde aficionado Paul Evans. He found and interviewed the team responsible, and tells their story here.



G-BOAF
This Concorde, now on display at Aerospace Bristol, was one of the five aircraft to be fitted with the new Project Rocket seats and carpet.
Photo: Paul Evans

MOST CONCORDE ENTHUSIASTS have believed that the final refit/upgrade of the interiors for the British Airways (BA) Concorde was the unfinished “Conran upgrade” – which, due to the premature retirement of the fleet, was only installed on five of the seven British Airways (BA) aircraft, with only the seats and carpets ever being fitted for commercial service. This “missing piece” of the Concorde story has always intrigued me and left me saddened that the upgrade was never fully installed. If you like, this was my “Holy Grail” of the Concorde story.

The designers

Earlier this year, I posted an article about the Project Rocket upgrade on social media and identified this upgrade as a Conran design. Three people who read my article were Adam White, Creative Director at Factorydesign; Adrian Berry, Co-Founder of Factorydesign; and Stefan Bridges, former product designer at Factorydesign, now head of Creative Design at Red Bull Advanced Technologies.

These gentlemen all reached out to me both individually and collectively to set the record straight and, in the case of Adam, spent considerable time on the phone going through the project timeline: the first meetings with BA, the idea for the Speedbird

marque on the seats, the concept for the cradle design of the seat, and visiting the completed project with the bathrooms, galleys, Machmeters and blue wave light effect.

It is my intention to finally tell the true story behind Project Rocket from the very men who designed it and who, along with Britax Contour, manufactured it for the BA Concorde fleet. This is their story: Project Rocket, the final missing piece of the supersonic story of Concorde.

The genesis of the project

Back in 1997/98, British Airways were starting to look into what would be the fifth and final upgrade to the interiors of their Concorde fleet. The existing interior was approaching six years old at that point; while still elegant, it



1990s style
The previous BA Concorde interior; it can still be seen on board Concordes G-BOAA and G-BBDG.
Photo: Dotonegroup / Wikimedia Commons (CC BY-SA 3.0)

was starting to look its age. It did not provide you with the ‘wow’ factor upon first viewing, unlike the aircraft’s awe-inspiring exterior, which was still so elegant and futuristic – a thing of beauty even after more than 20 years in service.

The airline had already approached Sir Terence Conran and his company Conran and Partners about revamping the Concorde Rooms at London Heathrow Terminal Four and at JFK New York. For this upgrade, however, something rather special was proposed.

Multi-award-winning design company Factorydesign, a creative design agency with studios and workshops in west London, were approached to lead the project with responsibility for the design, concepts, scale models/mock-ups and, along with Britax Contour, the manufacturing of the interior. The refit would become known as Project Rocket.

Conran and Partners would be responsible for all the soft product on the aircraft, such as the new cushions, blankets and dining service, while the new seats, galleys, cabin displays, bulkheads, bathrooms and lighting would be the creations of Factorydesign.

For Factorydesign, who had only set up their studio that year, one phone call would mark a defining moment: it was British Airways telling them that they had been selected to create the new interior for the world’s most iconic commercial aircraft. The voice at the end of the line was Paul Wylde, then design manager at the airline, who was responsible for the overall creative

direction and design management of the new Concorde interior.

“Are you sitting down? I have some good news...”

*Paul Wylde, Design Manager,
British Airways*

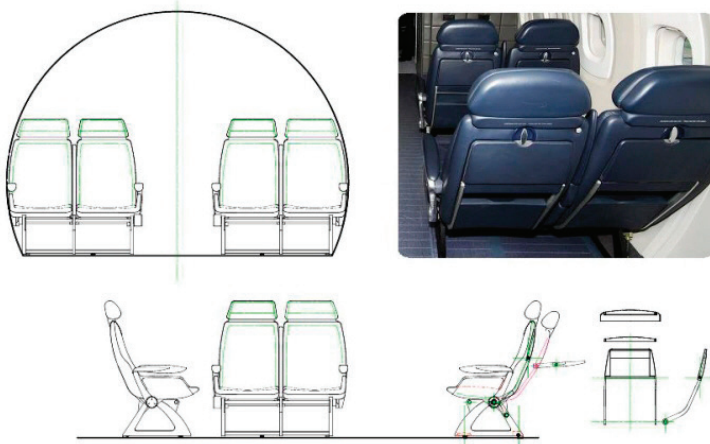
The team was, of course, tempted to make the interior feel a little futuristic, but brand, product and perception research showed that ‘classic contemporary’ was a more appropriate design idiom.

In the words of Adam White, “Both of us (Factorydesign and Conran), without having any prior contact, said: what we want to do for BA is bring the outside in. The interior had to reflect the beauty of what you saw outside, which is why I stand by ‘it wasn’t change, it was completing the picture’. It still has the verve, spirit, and aerodynamics, nearly 21 years on from its retirement.”

The cabin seating

Adam White recalls how they carried that ethos into the design of the bespoke double seats. “To match a philosophical approach we coined, if a visible part is not adding function, we don’t want it on the seat.”

The seats were constructed with carbon fibre, titanium, and aluminium, richly upholstered in ink-blue Connolly leather and fabric, with a footrest and contoured headrest.



Seating layout

The initial plans for the seating, and (top right) a pair of completed seats fitted in the cabin. The section through the fuselage at top left shows the space constraints imposed on the design.

Photo and artworks: Factorydesign



The evolving design

A sketch of the seat design together with a selection of possible colours to be considered for the leather and fabric.

Image: Factorydesign



The innovative cradle design in action

Unlike most airline seats, the new Concorde seats were designed to recline backwards and tilt forwards as a whole, as shown in the images above.

Photos: Factorydesign

The design was inspired by the “lounge chair” of Charles and Ray Eames, and was one of the most significant contributions to the project’s ambition of bringing the external elegance of the aircraft inside.

The seats were manufactured by Britax Contour, and cost £14,000 for each pair, which translates to around £28,000 in today’s money. As Adam White recalled, “We visited Britax Contour to inspect every seat prior to them being shipped to British Airways. A total of 800 seats were manufactured: seven sets for the aircraft and one full set for spares.”

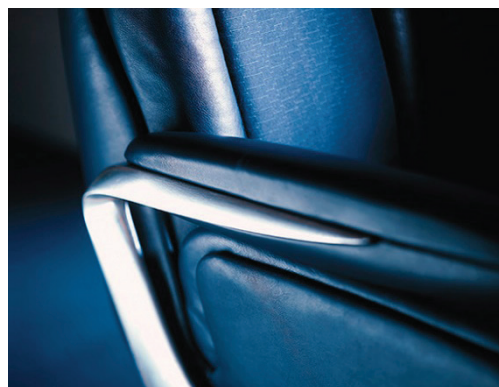
The radical rethink of the seat design, multiplied over 100 passenger places (40 in the forward cabins, 60 aft), meant that a significant weight saving was made overall. It would enable BA to continue carrying 100 passengers following the 2001 safety modifications, while Air France were restricted to 92 seats. As Adam White recalls: “When we presented our designs, there was lots of arm waving from the excited design team from BA.”

The seats had three unique features. First was the cradle design: when you recline the seat, the entire seat reclines rather than just the rear. The idea for this concept came from Adam. Sitting in his design studio one day, he was mulling over the seat design whilst leaning back in his chair – and remembering being back at school, leaning right back on the hind legs of his chair while attempting to avoid the black board rubber launched at him by the teacher! “This is when the cradle idea for the seat came to me,” he recalled in one of our telephone conversations.

The second unique feature was the three-dimensional BA Speedbird marque cast in

aluminium and incorporated into the armrest of each seat. The idea for this beautiful design came after Adam and Adrian visited the new BA headquarters at Waterside, which was still under construction. While they were there, they noted a large two-dimensional Speedbird marque cut out of steel mounted on display. Adam then contacted a friend who usually specialises in moulds for Formula One concepts to create a 3D mould of the BA Speedbird marque in solid aluminium. The result fitted beautifully with the dimensions of the seat armrests.

BA wanted everyone to know that this was a British Airways Concorde, but without logos being prominent everywhere. If you visit any of the five BA aircraft that were in service at the time of the retirement, you will see these beautiful seats fitted. If you get the opportunity, stand at the rear of the forward cabin, get down on your knees or lie down if you can, and look down the centre aisle at the seats. You will see a 3D effect Speedbird marque running down the entire length of the cabin; just beautiful.



Integrated logo

The armrests incorporated the BA Speedmarque – a uniquely elegant form of promotion for the airline.

Photo: Factorydesign

Central armrest

The central armrest was designed to lift up and turn to lie flat between the seats.

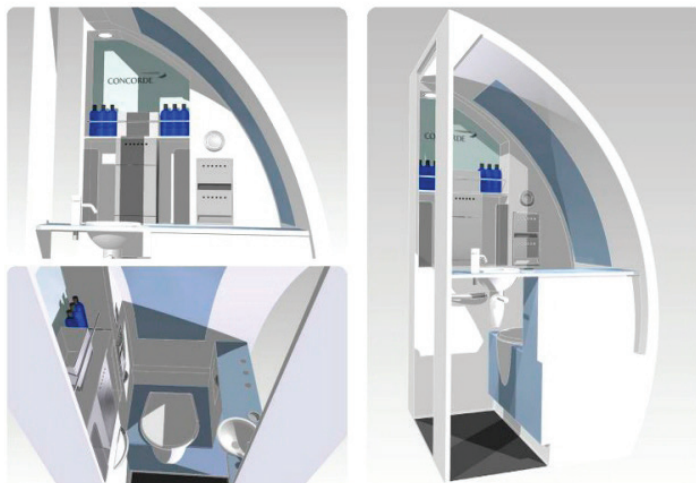
Photo:
Factorydesign



“By building this into the armrest, it was the most reinforcing use of a brand device (logo) that I’ve ever had,” said Adam White.

The third innovation involved the central armrest. The previous seat models had a feature whereby the centre armrests could be pushed down to the seat pan to turn a double seat into a single, for the wider passenger or to afford extra comfort. However, the mechanism was deemed a little clunky and difficult to operate. Instead, a twisting device was created in the mounting, so that as the passenger pulled the armrest up and out of the way, it automatically turned through 90°, which allowed it to slide between the seats.

Adam White found that working on Concorde’s interior was a challenge, but even more so when they realized it was seven individual projects. “Every aircraft was different, and BA had seven of them,” he recalls. “They were essentially handmade, and the drawings existed in bank after bank of wooden plan chests, all drawn on thick vellum paper. So, at times it felt like we were working on restoring a very fine classic car, rather than working on a commercial aircraft.” In addition, “the entire design process was done by hand, not digital with lots of photographs and scaled models.”



The bathrooms

Factorydesign found a small amount of previously unrecognised space within the cabin and saw it as an opportunity to completely redesign the bathrooms. As Adrian Berry says, they were “manufactured and ready to go and looked fabulous”. Unfortunately, these never made it onto the aircraft, due to the premature retirement; the existing bathrooms remained on board six of the seven Concorde. (G-BOAB was going through testing of the new vacuum flushing loos and had one of these new washrooms installed at the time of the retirement announcement, where it remains to this day!)

Factorydesign transformed the utilitarian toilets into bathrooms, bringing on board some of the refinement expected of a bathroom in a high-class hotel or restaurant. Their innovations included doing away with the standard paper towel dispenser and introducing a stack of neatly folded, white flannel hand towels, and specifying fittings such as the tap from the best the domestic retail market had to offer. The use of high-grade finishes and materials gave a premium feel in a tight space. The bathrooms also featured an innovative blend of three different light types to provide both illumination and ambience.

These new washrooms really were a thing of beauty, and created a sense of space, simplicity, and quality, within the space restraints of the aircraft. As Adam White said, “I’ll never forget the BA design team’s expression when we advised them we had found a spare 6 inches of additional space when designing the bathrooms”.

Utilising clever uplighting, and mirrors with a gorgeous, brushed aluminium theme, they oozed high quality and class! The single basin tap, for example, cost over £1,000.



Design for the new washrooms

Factorydesign created 3D models to check variations of fittings, layouts and colours prior to design sign-off.

Images:
Factorydesign



Subtle sophistication

Above: The three lamps in the glass work surface were added by Adam to “soften” the light aesthetics and provided a candlelight glow effect, as the main lighting was fluorescent.

Images: Factorydesign

The National Museum of Flight at East Fortune, West Lothian, where aircraft G-BOAA is retired to, is currently the only museum anywhere in the world that has one of these stunning pieces on display.

There was one tense moment, according to Adam White: “The first completed bathroom, which we were going to show to BA, very nearly didn’t make it! We loaded it up onto a flatbed lorry from the studio and en route we went around a bend a little too sharp and heard this bang from the back. The bathroom had toppled into the rear cab of the lorry. I was almost afraid to take the covers off when we arrived as I imagined the glass would have cracked/smashed; fortunately no damage.”

New galleys

Although Concorde’s galleys were some of the smallest in the air, they managed to produce almost Michelin Star-standard meals for some of the most demanding diners. Factorydesign upgraded them from functional kitchen areas to welcome zones. This was part of the holistic thinking about the customer experience from home to destination.



The completed washroom

Above left: The finished design for the washroom.

Above: The only example of a completed washroom, displayed with Concorde G-BOAA at the National Museum of Flight, Scotland.

Images: Factorydesign



Galley designs

The designs for the forward galley (left) and the rear galley (below left) show how they would be transformed into inviting “welcome zones”.

Images: Factorydesign



From these original design drawings, you can see the interior of the aircraft was certainly going to bring the grace, shape, and style of the outside in.

A glass pier

Factory's role went beyond the interiors to extending the Concorde experience for both regular and once-in-a-lifetime passengers.

From Heathrow Terminal 4's Concorde lounge, as passengers passed through the gate on the way to boarding, they would get a tantalizing glimpse of the waiting aircraft. But shortly afterwards they were in the comparative darkness of a passageway and tunnel arrangement, before getting on board. It was not the fanfare celebration it deserved to be.

Factorydesign's solution was to create a clear pier – described as a catwalk with glass walls. This allowed passengers to see the preparation of the plane as they approached for boarding, adding glamour and romance to the moments of anticipation.

A wave of blue

Factorydesign introduced a discreet wave of blue light into the ceiling lighting, which, at the moment of passing Mach 1, would send a 5-second pulse of light from the front to the rear of the cabin, creating a 'wave' effect. This

understated but dramatic display rewarded any passengers watching for 'change', without disturbing commuters who wanted to work or rest. However, its inclusion was to remind passengers of the marvel they were flying in, especially when the party piece of breaking the sound barrier occurred.

"Given that every flight had 'once in a lifetime' on board, we wanted to give them a signal, some sort of sign that Mach 1 had been reached – but not something that would disturb the regulars," stated Adrian Berry.

To create this effect, the team decided on blue LEDs incorporated into the ceiling lighting. "I visited a specialist cabin lighting company based in Farnborough with Paul Wylde from BA to view the full-length completed LED lighting," says Adam White.

The consultancy also wanted to introduce a sense of theatre to the breaking of the sound barrier. In previous Concorde, the event was only marked on a digital display on the front bulkhead. When designing the new cabin displays, though, Factorydesign wanted to incorporate the look of the dials and gauges seen on the flight deck. Whilst there would still be the traditional digital display announcing the Mach number, always a focal point for photo opportunities for the excited once-in-a-lifetime flyer, this would now be accompanied by dials, which would constantly move during the flight. One each for airspeed, altitude and outside air temperature, these would have added to the anticipation of approaching and then going through the sound barrier. These new cabin displays were backlit and were about 50 cm wide; they were manufactured ready to be fitted to the new blue bulkheads at the front of each of the two cabins.

A truly incredible project, marrying technology with comfort, a slightly cramped cabin with some of the world's most demanding and highest-paying passengers. But as they all remember fondly, "We all knew it was a once-in-a-lifetime project and giggled throughout the programme. Just like kids at school."

Final thoughts

The vision, drive and collaboration between Factorydesign, Britax Contour, Conran & Part-

Going supersonic

Above left: The graphics for the Mach number, altitude, and air speed to be shown in the cabin. Left: An impression of the blue wave effect.

Images: Factorydesign



ners and British Airways created something unique, elegant, and timeless – like the Anglo-French visionaries who, back in the 1960s, created the greatest flying machine that man has ever seen, the design icon of the 20th century, the undisputed Queen of the skies.

From the future, operated in the past.

Concorde

The legacy of Project Rocket

The seats and carpet were the only elements fitted when Concorde returned to service, but still gave an air of classic yet contemporary elegance.

Photo: Jeroen Stroes Aviation Photography / Wikimedia Commons (CC BY 2.0)



In conversation with Stefan Bridges

The Head of Creative Design at Red Bull Advanced Technologies, formerly junior Product Designer at Factorydesign, shares some of his memories of the project.

1. Getting the job at a meeting with Paul and Neal from BA Design Management. As the junior I was sent down the end of Slaidburn Street to the off-licence with a handful of petty cash to get a bottle of champagne, which was promptly popped in the office (by Adam) and plastic cups of bubbly all round! A brilliant moment

2. Captain Jock Lowe coming in for meetings at the studio; he was the most senior Concorde pilot at BA and had a reputation for being no-nonsense and slightly fearsome. Didn't suffer fools gladly! He turned out to be very supportive and had very strong – and correct – views about what the Concorde experience should offer. After all, under his guidance BA had turned it into a profitable area of the business, more than Air France ever did!

3. Going to Heathrow maintenance area on our motorbikes to see the aircraft in various stages of 'undress' – one was in deep maintenance and almost back to the greenish airframe being rewired. Totally devoid of any

fixtures and fittings inside. One was also being painted and wrapped almost from nose to tail in brown paper whilst colour was being applied! Amazing to think of such a low-tech method being employed on such a piece of tech.

4. Working on the lavatory model mock-up in the downstairs workshop with Tom. You appreciate how restricted the space is!

5. Creating graphics for the cabin machmeter in Illustrator with Adam and infographics for the bathrooms with Adrian.

6. Sitting in 'that left-hand seat' in the cockpit in one of the hangars. I used to visit Duxford with my

Anticipation

The glass air-bridge, seen here in Stefan's drawing, would give passengers an exciting glimpse of the aircraft before boarding.

Image: Factorydesign

grandparents as a child, and G-AXDN there always had a glass panel preventing you from going too far. To cross that mythical boundary and touch things – carefully – was a childhood dream realised.

7. The smell. Concorde didn't smell like any other plane. Somehow old but kind of electrical and technical. I really can't describe it!

8. Late nights, lots, and lots of sketching. I even did all the drawings for an end-to-end customer experience plan including chefs, dedicated staff and a glass-walled airbridge so you can actually see Concorde when walking out to it, rather than the closed-off ones almost omnipresent at airports ...



Interview with Adam White

In July 2024 Paul Evans spoke to Adam White, Creative Director at Factorydesign, about his recollections of working with Concorde.



1) Did you ever visit the complete finished upgrade – seats, carpets, washrooms, galleys etc, either on a mock-up or on one of the aircraft?

“Yes, I visited with Adrian one of the aircraft at BA Engineering LHR, with the new seats/carpets, a very proud moment for us both. (The aircraft was G-BOAF.)”

2) How do you now feel, over 25 years since you began this project, which turned out to be the final upgrade of the BA Concorde fleet?

“I remain incredibly proud that we were privileged to be trusted with the “crown jewels” of British Airways. It was an almost unique and unbelievable experience. The superlative leading world aircraft – it was a bit like being asked to put an extension onto St. Paul’s Cathedral.

We were very aware there were only a few icons in the world that were that unique; it was with great reverence that we approached this icon of 20th-century technology.”

3) Did you get the opportunity to fly on any of the refurbished aircraft, to experience your work?

“I had a call days before the final flight, inviting me to join one of the final three flights into LHR, but the invitation was for me alone, so

The chance of a lifetime

Adam White standing on the wing of Concorde G-BOAF, during the “unique and unbelievable” experience of working on Project Rocket.

Photo: Factorydesign

I declined as it was a joint project with Adrian. It had to be either both of us or not at all.”

4) Would you have done anything differently?

“No, absolutely not.”

5) Did any of the completed new galleys, Mach/cabin displays, or bathrooms survive the retirement?

“Yes, I was offered a bathroom for sale many years ago.

Adrian and I inspected all the new bathrooms prior to them being ready to be shipped!

The new cabin displays were manufactured along with the new blue wave lighting filters.

The new galleys – no, we never saw those.”

6) How would you like Project Rocket to be remembered/exhibited as part of the legacy of Concorde?

“I would like it to be remembered as the truth – a collaboration between supportive and enthusiastic design management at BA, the team at Factorydesign, Britax Contour and Terence Conran and his team.”

Acknowledgements

Thank you to Adrian Berry, Stefan Bridges and a very special thank you to Adam White for spending so much time online and on the telephone over a period of several weeks to make this definitive account of “Project Rocket”, plus for the very kind invitation to visit the Factorydesign studios.

A brand-new exhibition of the history of Project Rocket, including the original designs, scale models, components, all remaining spares, and seats is planned to be provided on loan to Aerospace Bristol in the coming months.

Factorydesign is a multi-award winning, creative design agency with studios and workshops in West London, delivering strategic solutions for consumer products and transportation.

Our work is driven by our high standards for detail and innovation, guided by a strong sense of how products and people interrelate.

From strategic front-end thinking to detailed design, we have developed effective and measurable programmes for global players across the industry.

We have won many prestigious awards, including Crystal Cabin and Design Business Association awards.



A supersonic passion

A Concorde enthusiast for many years, Paul Evans was a volunteer and fund-raiser at “Concorde at Filton” from 2004 to 2010. He describes his new ventures, from co-ordinating tours of G-BOAF at Aerospace Bristol to visiting Concorde around the world – all to keep the memory of this iconic aircraft alive for future generations.

MY ASSOCIATION WITH Concorde goes all the way back to autumn 1977, when I, along with thousands of others, witnessed the very first visit to Cardiff Wales Airport, by an Air France charter flight. From that point on I was hooked on its beautiful, almost mythical shape, like a visitor from the future that you only seldom caught glimpses of if you happened to be at Heathrow at the right time.

Fast forward 26 years to April 2003, and the dreaded joint announcement from British Airways and Air France that the entire fleet was to be grounded due to rising maintenance costs (something of which I was never 100% convinced). The clamour for tickets for the last six months of commercial service began, and fortunately I managed to get a seat for September 21st on aircraft G-BOAG, luckily fulfilling one of my life's ambitions.

Concorde at Filton

After the commercial flights had concluded and the museum delivery flights had been completed, there was a lull of several months until the fleet went on display in their respective museums around the world.

I was one of the very lucky few chosen to be part of the team to look after British Airways Concorde G-BOAF, the last Concorde built and also the last ever to fly, after she came back 'home' to Filton. This was a role I undertook from October 2004 to October 2010 at the 'Concorde at Filton' facility, taking members of the public on pre-booked guided 90-minute tours. We raised more than £450,000, which went towards the construction of the

Aerospace Bristol museum, where the aircraft now resides.

Since December 2022 I have been involved with G-BOAF once again, working with the new team at Aerospace Bristol, devising new initiatives and conducting after-hours guided technical tours of the aircraft.

Foxies' Filton Flyers

When 'Concorde at Filton' closed in October 2010, for Airbus to carry out restoration work on the aircraft, I put together a small group of us former volunteers from Filton to meet up once or twice a year and start visiting the rest of the Concorde fleet in the UK. Our very first visit was to the flagship, G-BOAC, at the Runway Visitor Park, Manchester Airport, followed quickly by G-AXDN at Duxford.

After our first few visits to the UK-based Concorde, I found many of the volunteers and staff from the museums who had Concorde as part

of their collection either inviting us to visit them or asking to join the group on one of our visits. It was then that the group really 'took off', if you'll pardon the pun! And 'Foxie's Filton Flyers' was created.

After establishing British Airways as our preferred airline/holiday company, I started looking at the fleet outside the UK. Our overseas trips began with a group of over 35 people flying to Toulouse in 2018 to visit the new Aeroscopia Museum; we were the first outside group to be granted access on board Air France Concorde F-BVFC, along with a private tour of the A380 production/assembly line.

There followed a large group tour to the USA in June 2019, to mark the 50th anniversary of Concorde. After being invited to BA Waterside prior to departure, we visited Seattle, Washington and New York. Three states, three Concorde and two Space Shuttles in one trip!



Visit to Aeroscopia, Toulouse

The first overseas trip for Foxie's Filton Flyers was to Toulouse, in April 2018; the group is seen here gathered under Concorde F-BVFC.

Photo: Paul Evans



The most distant Concorde

The group has travelled as far as the Museum of Flight in Seattle, to visit G-BOAG. *Photo: Paul Evans*

Later that 50th anniversary year we were honoured to be invited, as guests of NATO and the UK Ambassador to France, to visit the Ambassador's residence in Paris to celebrate this milestone. We also visited the memorial at the crash site of Air France Concorde F-BTSC outside Gonesse, before heading to Paris CDG for a photoshoot in front of F-BVFF.

In between, there have been several champagne days at Brooklands Museum with G-BBDG and former crew members, including Captain Mike Bannister and Captain John Tye.

The elusive Alpha Echo

After visiting F-BVFB in Germany and G-BOAA in Edinburgh, I just had one more Concorde left to see: G-BOAE at Grantley Adams International Airport, Barbados, to which British Airways retired her on November 17th 2003. The only problem is that this Concorde has been inaccessible to the public since the Barbados Concorde Experience closed several years ago.

In November 2023, however, a small glimmer of hope arose, when a press release announced that the aircraft was going to form part of the new Air & Cruise terminal at the airport later in 2024. I just had to put together a trip to visit the final one of the remaining fleet.

Gathering with F-BVFF

In the front row with Paul Evans (centre) are Fred Finn (just right of Paul), who helped organise the trip, and Captains John Hutchinson (third from right) and Jacky Ramon (second from right).

Photo: Paul Evans



In January of this year, after reaching out to Grantley Adams International Airport, a trip was put together through British Airways and British Airways Holidays to visit Barbados in September/October for a week's holiday, with the goal to visit Concorde G-BOAE. Many museum staff in the UK and former Concorde engineering staff will be joining with us on this last supersonic adventure.

Concorde may not have flown for over 20 years but the interest, passion, sense of wonder and popularity still exists, and my sincere wish is to see British Airways support and promote these supersonic fan trips and still play a pivotal role in the Concorde story going forward.

Commemorating Concorde

In the past 20 years, Concorde super-fan Paul Evans has visited almost all of the Concordes in their final resting places around the world. His abiding love of the aircraft has also led him to organise the Aerospace Bristol technical guided tours team and publish a book, *The Last Concorde*, a photographic history of G-BOAF during the 'Concorde at Filton' years.

Paul also compiled a detailed list of the surviving Concordes for the film *Concorde – First To Last*. This is now available as a DVD and HD stream, priced £14.95, from Bellevue Films, at the link given below. Mach 2 readers can save 20% if they enter the code **Mach24** at check-out.

bellevuefilms.co.uk

Concorde – First to Last

The first complete film history of the supersonic airliner, this film includes 150 minutes of archive footage, with insights from test pilots and engineers and captivating behind-the-scenes stories, plus 90 minutes of extras.

Photo: Bellevue Films



Fox-Fox's last take-off

The following article, written by Hubert Protin and translated from French, is published here courtesy of APCOS (the Association of Concorde and Supersonic Professionals), the French association for former pilots, engineers, cabin crew, and others who worked with Concorde.

ONCE THE LAST commercial Concorde flights had ended on 31 May 2003, Concorde F-BVFF stayed confined in Maintenance hangar H3. At this point he was in the process of undergoing a Grande Visite (major check) lasting five months. His technical condition was not compatible with flight because he was in the middle of the process – immobilised and totally stripped to enable detailed inspection of his structure and systems.

Saved from the scrap-heap

Although Fox-Fox's fellow fleet members still in flying condition had already found their final landing places, the future of F-BVFF was still very uncertain, and this worried many employees of Air France. Everyone was well aware that many millions of euros' worth of maintenance would be necessary to make the aircraft fly even one more time. The spectre of F-BVFD, scrapped in 1994, haunted the corridors.

BVFF was to be dismantled by a specialist firm just in front of his hangar. On arriving at work one day, I found that the engineers had hung banners from the ceiling of the hangar and had attached notices to F-BVFF's fuselage, saying "We must save BVFF from the scrap-heap!".

An uncertain future

Following the retirement of the Air France fleet, F-BVFF was left in limbo. Clockwise from top left: F-BVFF in the middle of a Grande Visite (major check), with the cabin and flight deck stripped; the placards and banners that the engineers placed on the aircraft and hung from the hangar ceiling, pleading for F-BVFF to be saved from the scrap-heap.

Photos: Hubert Protin



Nobody dared to imagine such a drastic ending, but I shared this anxiety and dread that this would be the aircraft's probable outcome.

A chance for BVFF

A major occasion within the company quickly brought us some hope with regard to preserving BVFF. October 2003 would see the 70th anniversary of Air France, and the General Management had expressed the wish to put Concorde in the spotlight – and given that all the other Concorde had departed to their various museums, there was only BVFF to fulfil that request.

The Concorde maintenance department was placed in charge of approving and costing this project, with the strictest and lowest budget. The only requirement was thus to replace any parts necessary to restore mobility and give the aesthetic appearance of a complete aircraft. This decision heartened the maintenance teams, who brought their ingenuity into play to save every last euro – going so far as to re-fabricate some structural parts themselves.

However, one major technical problem remained: painting. After every Grande Visite the paintwork has to be re-done, and the specialist workshops for the task were situated at Orly. Yet a miracle took place within just a few days. At the request of Maintenance Director Philippe Vallet, I contacted M. Christophe Cador, Director General of a company called STTS, which was a sub-contractor for Air France used for certain aircraft painting projects. I arranged to meet him at Paris Charles de Gaulle (CDG). Immediately he expressed his passion for the beautiful white bird. He spontaneously proposed a solution for re-painting BVFF at Roissy in hangar H3, with his own personnel and pared-down industrial equipment. Air France would take responsibility for blocking off the area to protect other Airbus activities taking place nearby.

Imagine my surprise when M. Cador announced a symbolic cost for this service of ONE euro, not including painting and equipment! And, because good news never arrives alone, AKZO, the specialists in aeronautical paint products, offered us a free prototype paint, an innovative product combining a base coat and finishing varnish, not yet approved for flight. Banco – let's go!

The preservation project

BVFF would be ready for Air France's anniversary on 7 October 2003, and would be majestically enthroned, gleaming, beside his friend the DC3 in hangar H3. He was the star; flashes snapped constantly and reflected in the varnished paintwork, making it sparkle. And yet, the future was still not secure for our beautiful bird. What would become of him once the spotlights were turned off?

Throughout the restoration phase, this question often gnawed at me – accentuated by my maintenance teams, always anxious to see BVFF preserved. I had previously had the honour of attending the installation of F-BVFB on the roof of the museum at Sinsheim, and I was captivated by their idea of mounting the aircraft on pylons. So, thanks to frequent meetings with M. Guy Tardieu, Chief of Staff for Air France President Jean-Cyril Spinetta, for planning the end of the work with Concorde, I had the chance to present a plan for install-

ing BVFF on pylons at CDG. He was very receptive to this idea and offered to arrange a meeting for me with President Spinetta under the aircraft on 7 October in order for me to put forward this plan.

The dread moment arrived. What was I going to say to the President to convince him? On the spur of the moment, I started to draw his attention to the beauty of the aircraft. "This aeroplane is beautiful, isn't it? One could never imagine it being destroyed!"

"What is your plan?" he replied. (I have no doubt, today, that M. Tardieu must have prepared the ground thoroughly.)

After I had given him some technical information, the President turned to Guy Tardieu and said, "I agree – we must do it!" And so was born the project "Exhibition of BVFF at CDG".

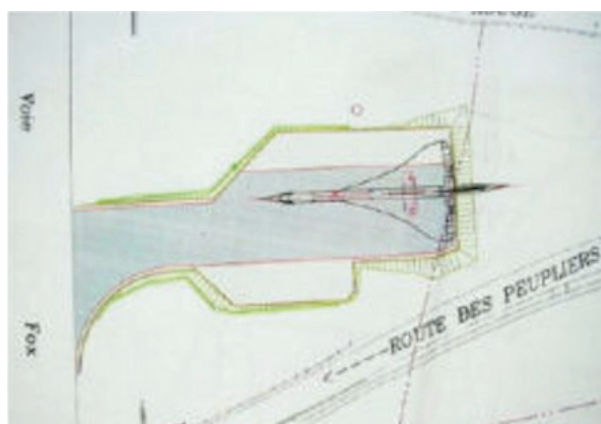
The work begins

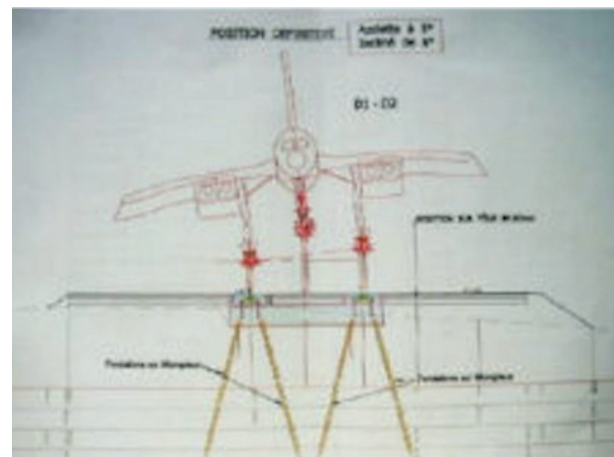
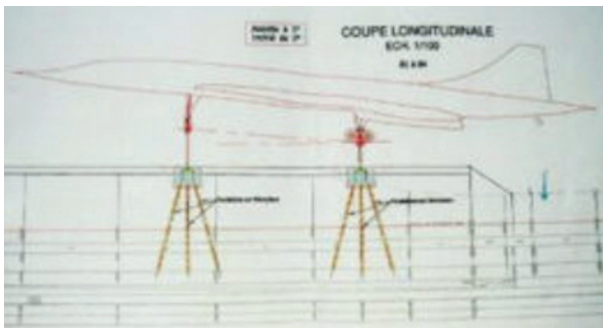
From the point when President Spinetta approved the project to display BVFF on the platform at CDG, everything happened very fast to bring us to the implementation phase. First was a high-level meeting between Air France and Aéroports de Paris (ADP) to initiate official cooperation between the two companies and determine the objectives and responsibilities. Following that, a working group was set up with representatives from the general management of Air France, the Real Estate department of ADP, the

The plan for moving BVFF

The location beside the "Fox" taxiway was selected as the display site; plans were drawn up to define Fox-Fox's position in relation to the taxiway and the nearby road.

Image: Hubert Protin





The positioning of the pylons

A front view and side view of F-BVFF mounted on the pylons, including the piles sunk into the ground.

Images: Hubert Protin

Air France Real Estate department, and Concorde Maintenance.

Before any technical study could begin, it was necessary to identify and approve a display area on the airport site. This was a complex strategic undertaking as the constraints were so intense. The following three sites were identified:

- **Close to the Memorial** This site was quickly rejected as it was too far from the airport and too close to the runways, not easily visible to those using the airport, and too exposed to potential malicious damage (witness the experience of F-WTSA at Orly, which suffered graffiti attacks from activists).

- **On the CDG airport ring road, overlooking the A1 at the airport entrance** This site was not selected because moving the aeroplane there would have been too complex and expensive. The platform for installation comprised a mound of earth that was not stable; mounting the aircraft on pylons would have been impossible here, and BVFF would have been authorised only to stand directly on the ground. In addition there was the risk of disruption from accidents on the A1 motorway (due to motorists' lapses in concentration as they viewed the aircraft).

- **Beside the "Fox" taxiway, overlooking the CDG2 exit road** This site was approved as the aircraft would be visible to the greatest number of people using the airport, and it would be sited within the

airport's high-security area, giving the greatest guarantee of protection. Access to the aircraft would be direct from the Fox track.

An agreement was signed between ADP, owners of the site, and Air France to put the aircraft on display at that site free of charge, for a period of 40 years.

The plan takes shape

From this point, the technical design for the display took wing. The principle of arranging the aircraft on the three pylons was established, and there was no great debate about the attitude to give BVFF – it would be the take-off configuration for the AF002 flights, facing west, attitude 5°, banked 6°. A specialised design office was responsible for calculating the loads that would be applied to each of the fixtures for the installation (pylon, ground and pylon, interface with the aircraft) in order to calculate the necessary size for each design element. The structure would have to withstand forces resulting from gusts of wind reaching up to 200 km/hour. Although the aircraft had been lightened to its maximum extent (engines dismantled, cabin fittings removed, flight deck empty), it would still be subjected to considerable forces.

The stand that would hold the aircraft comprised a fixed structure of concrete and metal. The design of the pylons included micro-piles sunk several metres deep to provide

general stability on the hard ground. The three docking points, each of around 200 tonnes, were made from strongly reinforced concrete and equipped with steel tie rods which would hold the pylons. The three pylons were derived from the same manufacturing source as the supports for the bridges of the taxiways – a reference to the existing airport structures.

The interfaces where the landing gear would join the pylons gave rise to some difficulties in design, because the pylons needed to be integrated with the existing components of the landing gear, which had to remain unmodified, in order to preserve their mechanical strength. Let us pay tribute here to AMLOR, the small metallurgy company from the Vosges, which overcame this challenge with success.

At the end of September 2005, the phase involving preparation of the site was completed. All of the compliance and certification checks had been passed. Now, we needed to establish the procedure for lifting the aircraft and moving him into position on the pylons. It was a procedure that had not been planned for in the manufacturer's technical documentation. Luckily, we benefited from the experience that the Germans, with Air France Concorde engineering, had gained in positioning F-BVFB on the roof at Sinsheim. Fox-Fox would therefore be suspended at three points: two



Final journey

F-BVFF in motion for the last time, as he makes his poignant journey under tow to the display site.

Photo: Hubert Protin

passing through the upper surface of the wing at the level of each main landing gear, and one at the strongest point of the forward fuselage.

18 October 2005

Fox-Fox left hangar H3 for the last time to travel to the display site. This would be the last time a Concorde would ever be moved under tow at CDG. Before letting him go, the maintenance teams – their hearts broken, tears in their eyes – would give him some tender attention for the last time. As if for a last farewell, they wanted him to be beautiful, so they took pains to polish him, cleaning the windscreen and the cabin windows, and even went so far as to add a coating of black wax to the tyres ... it was so touching.

19 October 2005

The great day! The armada gathered at dawn. The specialist machines came to life in a ballet to take up their allotted positions. The tension was apparent among all of those who attended the briefing at the start of the operation. It was a unique event, and everyone was thinking about what kinds of hazards could interfere with the task.

The cranes were in position; the cables connecting them to the aircraft were put under tension. The communications network between the crane drivers and the chief coordinator were established. The stability of the aircraft during the lifting phase would depend on a

perfect balance of loads between the three cranes.

- **Stage 1** The aircraft was lifted until the wheels left the ground, so that the Concorde engineers could fit the interfaces between the landing gear and the pylons.
- **Stage 2** The aeroplane was lifted vertically and then moved horizontally from its parking position on the ground, to suspend the landing gear interfaces over the pylons.
- **Stage 3** The aeroplane was adjusted to its final 5° nose-up attitude and 6° angle of tilt before being lowered to meet the pylons.
- **Stage 4** The most delicate stage of the operation – the interface assemblies had to be aligned together

so that there was less than 0.1 mm between them. The crane drivers manoeuvred their mammoth machines without a single hiccup. Everything was aligned perfectly on the first try.

- **Stage 5** The connecting rods were fitted into place without any difficulty, dispelling our fears of mis-alignment. The cranes relaxed the tension on the cables; BVFF did not budge.

Mission accomplished; bravo to everyone involved!

Completion

After the removal of all the material cluttering the area, we could more easily appreciate the work. Fox-Fox



A delicate operation

The three cranes lift Fox-Fox and move him into alignment with the pylons.

Photos: Philippe Noret / AirTeamImages



The docking procedure

Above: The interfaces between the landing gear and the pylons are carefully aligned.

Photo: Hubert Protin

was there, suspended in the universe for which he was designed. With a little imagination and at a distance one could almost recreate the “actual” AF002 flight. On this autumn evening, the rather inquisitive sun invited itself to the party and bestowed its most beautiful rosy glow on the aircraft, giving us exceptional photographs.

The next morning, a mantle of fog enveloped Fox-Fox, for further fabulous photos. There were even several birds that came to pay homage to their big brother, the beautiful white bird whose talons were stuck to his perch.

Stars need light to show them at their best when evening comes. The lighting arrangement was entrusted to a firm that specialised in lighting works of art. The space under the aircraft was to reproduce the effect of clouds, with variations of blue reflecting on the underside to give an impression of movement. The simulation of lit reheats at the rear of the engines would reveal the power of the machine and recreate the unique view of Concorde at take-off. Finally, lighting in the cabin and cockpit would give a sense of constant life and activity.

Every day, hundreds of travellers and airport employees pass by Fox-Fox. Some still regret that they can no longer take a flight on board the aircraft; others had dreamed of a flight but had been unable to do it; still more never even had the chance to see him fly.

To read the original article, and find out more about APCOS, see their website: concordereference.fr

F-BVFF on display

Below: A dramatic night-time shot of Fox-Fox; the aircraft is visible to everyone using the airport and surrounding roads.

Photo: Kevin Colbran / ABPix



The ultimate Concorde passenger

In a life packed with adventure, businessman Fred Finn was the world's most frequent flier on Concorde, making a total of 718 flights. Mach 2 Editor Katie John reviews his remarkable memoir.

FRED'S FIRST Concorde flight was on G-BOAC on 25 May 1976, on the inaugural return flight between Washington, DC and Heathrow. He would become the aircraft's most dedicated passenger, travelling on Concorde until the fleets were retired in 2003.

The 'Wow' factor

The first two chapters cover Fred's experience of flying on Concorde, "the world's most outrageously beautiful, fast and characterful passenger aircraft".

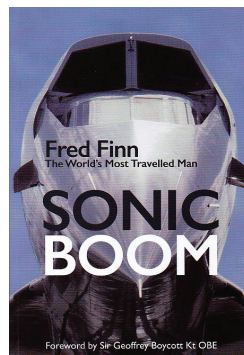
Fred conveys the delight and pride in the aircraft felt by the pilots as well as the passengers. Yet Concorde was more than just a toy for the rich and famous. The fact that the aircraft travelled so high and so fast meant a lack of turbulence and none of the jet lag experienced on subsonic flights, enabling people to connect with ongoing flights the same day and do a full day's work after landing without feeling tired. Fred even managed three transatlantic Concorde flights in a single day, to get a document signed for an urgent deal.

History and background

Fred takes the reader through the history of Concorde's development and life in service, from the very beginning of the project in the 1950s to the "premature end" in 2003 and on to the present day.

He considers the commercial, financial and political challenges that Concorde faced along the way. These included the oil crisis of 1973 and the difficult financial environment for airlines at the time, and – at the other end of Concorde's service life – the Paris crash in 2000, followed by the terrorist atrocity of 11 September 2001. These difficulties, though, were offset by the public's admiration of and affection for Concorde, as well as the prestige that Concorde gave the airlines and nations that operated the fleets. Fred quotes BA Chief Concorde pilot Jock Lowe as saying, "The politicians of all parties for once agreed that Concorde would serve as an inspiration ... for the entire country".

The rest of Fred's book is a look back at his own history. As a "Battle of Britain" baby, born just weeks before that epochal World War II conflict, he survived to witness the extraordinary development of civil aviation from the end of the war to the present day. His lifelong love of aircraft began with his grandmother helping him into an old de Havilland Mosquito, and was kindled by a flight in a Tiger Moth. Fred conveys the pride of seeing the DH106 Comet make the first transatlantic



SONIC BOOM

The World's Most Travelled Man

Fred Finn

Finn Associates Ltd,
2024

www.fredfinn.uk

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£20.00 Paperback

flight by a jet airliner; he also gives us a sense of the very real dangers involved in air travel at the time. In his late teens he joined the merchant navy, sailing all over the world, and experienced his first passenger flight, crossing the Atlantic in a DC4. From then on, travel would become an integral part of his life.

In later chapters, Fred branches out to consider aspects such as American politics and issues such as terrorism; these topics may not seem directly linked to Concorde, but I view them as giving essential background to the challenges facing the aircraft, and aviation in general, during those decades. In an extraordinary career, he meets VIPs including royalty, Hollywood legends, and global figures such as Richard Branson. He is entered in the *Guinness Book of Records* as the passenger who made the most flights on Concorde – a record that will never be broken. He has travelled more than 15 million miles by air and this total is still increasing. This vast experience has led airlines to seek his services as a consultant, and he shares his views on different airlines and the services they offer.

The story ends with Fred's lifelong love of cricket, which has led him to meet and even play alongside some of the legendary figures in the sport, and with the charity work that Fred has undertaken for many years, to give something back to those less fortunate.

Fred's last words are on the importance of being grateful for what we have, and the necessity for forming direct human connections. It is sometimes forgotten that Concorde brought together ordinary people as well as the rich and famous; in his lifetime of travel, adventure, and charity, Fred Finn has expressed the ideal of connection embodied in "the most amazing and most beautiful aeroplane that was ever built".



CONCORDE WATCH

Concorde G-AXDN

British pre-production aircraft

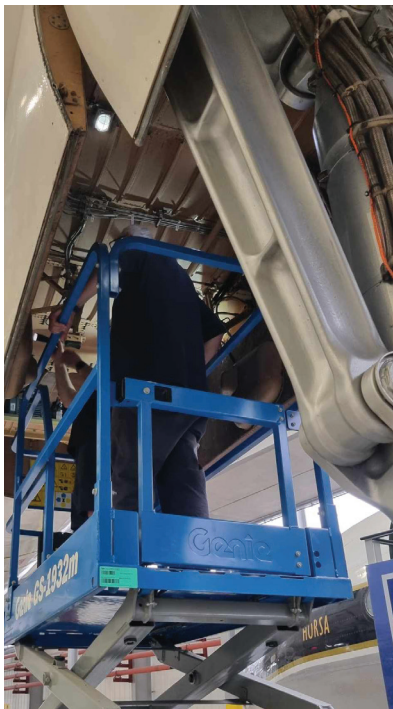
Location: Imperial War Museum, Duxford, UK

Reporter: Graham Cahill **Date:** 24–25 July 2024

We arranged with DAS (Duxford Aviation Society) to visit on 24 July to train a team of dedicated volunteers for Concorde 101 (G-AXDN). We combined this visit with a further day of work on 25 July.

Day one: 24 July

The plan for day one was to share the basics of what we have completed on board 101, with particular focus on the nose system. The attendees from Heritage Concorde were James Cullingham and myself, with around 8 volunteers from DAS.



Volunteer training

James Cullingham shows a volunteer where the power pack is located and how the pipework is routed for the nose system.

Photo: Heritage Concorde

We spent the morning in the classroom and the afternoon crawling around on the aircraft. A really great day; we will spend further time with these volunteers each time we visit now. It's almost impossible to share 12 years of work in just one day, but the idea that DAS can complete basic maintenance on the nose systems will help greatly and ensure future security for operations at Duxford for many years to come.

DAS had provided me with a hotel room for the night, so it was really easy for me to stay over and complete day 2.

Day two: 25 July

The team was Peter Ugle, John Dunlevy, James Cullingham and myself. The plan for the day was as follows.

1 Spill door

Fine-tune the spill door demo (Peter). This is ongoing. Success, as the demo now works well.

2 Ice cameras

Investigate the wiring for the ice cameras (James and Graham). As mentioned in the previous issue, DAS has obtained one original ice camera from the test flight days. The plan is to locate the original camera in one of the original positions and construct dummy (but working) cameras for the remaining positions. This went really well; we have found the correct wiring looms for three of the original cameras and also found where they terminate on board the aircraft. The future plan is to reconnect cameras to the ice desk and



Ice camera

Top: An original ice camera as used during the flight testing.

Above: The camera now connected to the original wiring loom and fitted inside the aircraft.

Photos: Heritage Concorde

show what would have been visible during the test days.

3 Flight observer's panel

Install the instruments obtained by DAS in the observer's panel

(John). DAS had bought several instruments that were from the test days and therefore suitable to fill some gaps in the observer's panel. We are looking for original paperwork so we can re-jig these to their correct positions, but for the time being they have filled gaps where (or close to where) we think they were originally located. We have installed most of the instruments, with just a few more to go.

4 Lighting

General maintenance of bulbs and lighting was also completed by John.

In all it was a really great day; we might look at doing 2-day visits occasionally from now on.

The team really worked hard on this one, especially James, who prepared a very detailed hydraulic drawing of AXDN for the training.

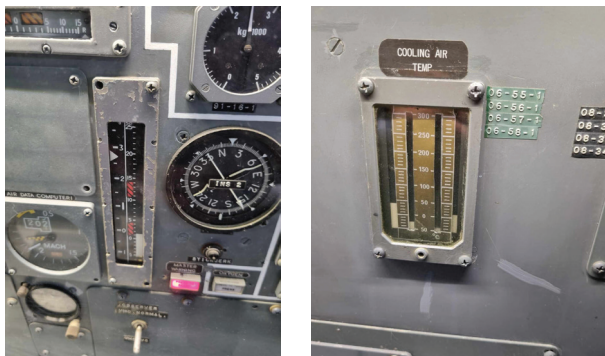
Heritage Concorde thanks DAS for their help and support in this work. For further information on DAS and the airliner collection, please visit their website: duxfordaviationsociety.org



Ready for installation

The flight test instruments that DAS acquired for the observer's panel, ready to be installed.

Photo: Heritage Concorde



Engine and fuel gauges

The replacement gauges were installed in the top and bottom rows here.

Photo: Heritage Concorde



Vertical gauges

Above: Instruments to measure angle of attack (left) and cooling air temperature (right) were also installed.

Photo: Heritage Concorde

Installation work

Engineer John Dunlevy working on the observer's panel.

Photo: Heritage Concorde



Mixed air temperature gauges

The new gauges installed just above the observer's post (second row down).

Photo: Heritage Concorde

Concorde G-BOAC

British production aircraft

Location: Runway Visitor Park, Manchester, UK

Reporter: Graham Cahill

Date: 7–8 June and 16 July 2024

The team was myself with John Hepple representing the Runway Visitor Park (RVP).

These three visits were largely to upgrade the control systems for the nose on board the aircraft.

Fitting safeguards

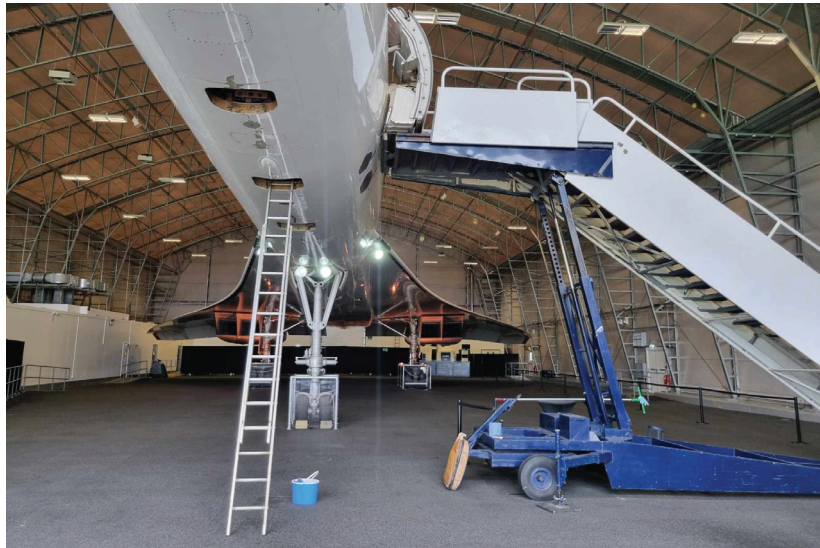
We have now fitted the safeguards installed at Duxford on board G-BOAC. The plan is to make all installs as close to each other as possible at each location. This will give uniformity across the aircraft and ensure that volunteers from one location could, technically speaking, also work at another location.

On day one and day two we worked around tours, meaning the upgrades took a little longer; on day three we had the hangar to ourselves so finished most of the work. We added temperature safeguards so the oil cannot overheat, rewired the low-voltage power pack control systems, and added a more standard box to control the power pack. In addition, a new low-level oil switch was added and we changed the oil. On the next visit we will complete this essential work. We noticed a small fault on the power pack contactor and will replace this on the next visit too; we already have the part. The actual aircraft's systems are working perfectly, and it is important to ensure that surrounding systems support this for reliable nose moves.

Basic maintenance

Light bulbs were replaced as needed. The left-hand direct vision (DV) window was inspected as it required maintenance.

Heritage Concorde thanks the RVP for access to G-BOAC. For details



Inspecting the power pack

Access to under-floor to inspect hydraulic pipes from the power pack.

Photo: Heritage Concorde



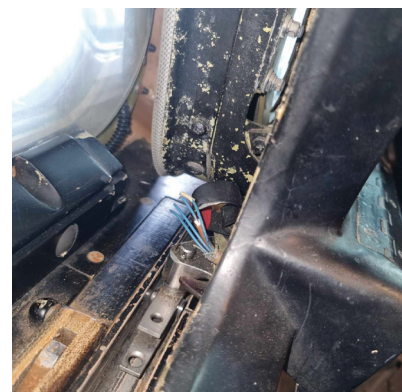
Routine checks

Above: Lights working correctly on the engineer's panel.

Above right: RVP volunteer John Hepple on the flight deck.

Right: The left-hand DV window, with missing runners.

Photos: Heritage Concorde



about the RVP and tours of Concorde, please see their website: runwayvisitorpark.co.uk

Concorde F-BVFF French production aircraft

Location: Paris–Roissy Charles de Gaulle, France

Reporter: Laurent Vialard **Date:** 5 July 2024

At the beginning of July, F-BVFF received a clean from professional cleaning company Vega Conseil Sécurité, specialists in industrial cleaning work. This was the third year in a row that the company had been engaged to carry out the job.

It took the team of three workers approximately five days.

Mach 2 thanks Laurent Vialard for this information. To find out more about the cleaning company's work, visit their website: vegacs.fr/



Nose-to-tail cleaning

The Vega Conseil team at work (above) and having just finished the job (left).

Photos: Laurent Vialard

Concorde G-BOAG British production aircraft

Location: Museum of Flight, Seattle, USA

Reporter: Museum of Flight **Date:** 10 July 2024

In July Alpha Golf was given her annual clean by the Detail Mafia. This group of automobile and aircraft finishers, comprising people from across the USA, has been caring for the museum's aircraft for the last 20 years. They first washed the aircraft, then polished her, and finally added a coating to shield the surfaces from dirt.

The Museum reported that Alpha Golf was still looking "pretty spiffy" after the repaint in 2021.

For more information on G-BOAG, see the museum's website: www.museumofflight.org/

For information on the Detail Mafia's work with the aircraft collection, see the museum's YouTube video: www.youtube.com/watch?v=6KkxUwf0KGk

The Detail Mafia

The cleaning team seen here while working on Alpha Golf.
Source: SM Pfalzer



In memoriam: Michel Rétif

Katie John, Editor, Mach 2

On Tuesday 23 July the Concorde world was saddened to learn of the death of flight engineer Michel Rétif, who passed away at the age of 101. He was the last surviving member of the first ever Concorde flight, carried out by prototype 001.

BORN IN VERSAILLES on 17 February 1923, Michel Rétif had a passion for aviation from his earliest years. In September 1938 he began work with French aircraft manufacturer SNCASO (Société nationale des constructions aéronautiques du Sud-Ouest, later to become part of Sud Aviation). Noted for his talent as an engineer, he worked on the Triton, the first French jet aircraft, as a flight test engineer. He later worked on the development of the Caravelle.

In 1964 he became the Chief Flight Test Engineer at Sud Aviation. It was in this role that he was involved in the Concorde flight test programme. André Turcat, the French chief test pilot for Concorde, highly praised M. Rétif's skill in manually controlling the prototype's air intakes. Then, on 2 March 1969, he was the flight engineer for prototype 001's maiden flight. M. Rétif went on to monitor Concorde's performance in service with Air France and British Airways. He would make a total of 640 flights (1,350 flight hours) with Concorde.

M. Rétif transmitted his passion for aviation to successive generations. He became an instructor at Aéroformation, a training school directed by Concorde test pilot Jean Pinet. He also recounted his lifetime's experiences in aviation in his autobiography, *Le Mecano. Du Bloch 134 à Concorde*.

The crew for 001's first flight

From left: Michel Rétif (flight engineer), André Turcat (Pilot and Flight Captain), Henri Perrier (mechanical engineer), Jacques Guignard (co-pilot).

Photo: Aérospatiale Collection AAMD/DR

A colleague remembers

Michel Rétif was the flight engineer on the first flight of F-WTSS, on March 2, 1969.

We should not forget the contribution these crew members made to this fantastic aircraft. Rétif, a fighter test-pilot, had previously only achieved Mach 1 in dive (piloting a Sud Aviation Vautour), and was thrilled to exceed this in level flight in a passenger aircraft. To hear his words after that flight was inspiring.

I will always remember Rétif for his unbridled enthusiasm in the post-flight debriefings. Whatever the circumstances, whatever had happened, he was wonderfully optimistic and he spread his contagious excitement to those around him.

One Saturday morning, I was called to get into work ASAP; 001 was starting engines ready for a post-chantier flight. Rétif wanted to know what the "four new switches" we had fitted did to the intake configuration... But never frustrated, always smiling, always the happy guy, they were in flight before he got his answer!

I quote: "*On est passé pas loin de la catastrophe*" ("We came quite close to catastrophe"); he refers to Turcat taking 001 to 25 degrees and inducing a stall, but with a smile!

Thank you, Michel Rétif, for your confidence, enthusiasm, and being one of the "less remembered" crew. Your personal contribution to this programme was invaluable.

Rowland White, Senior Electronics Liaison Engineer for BAC (based at Sud Aviation/Aérospatiale, Toulouse, 1969–1976)

