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the global airline scene

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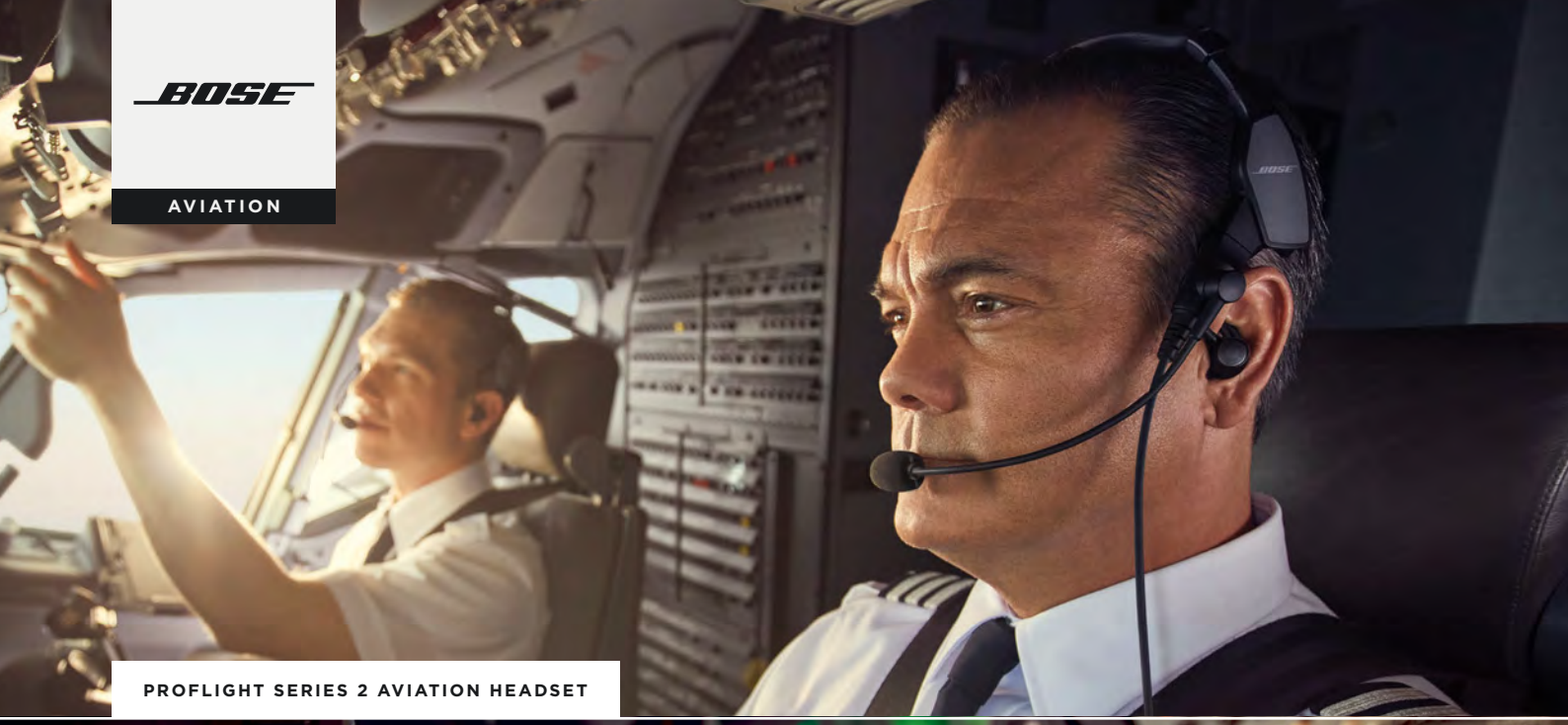

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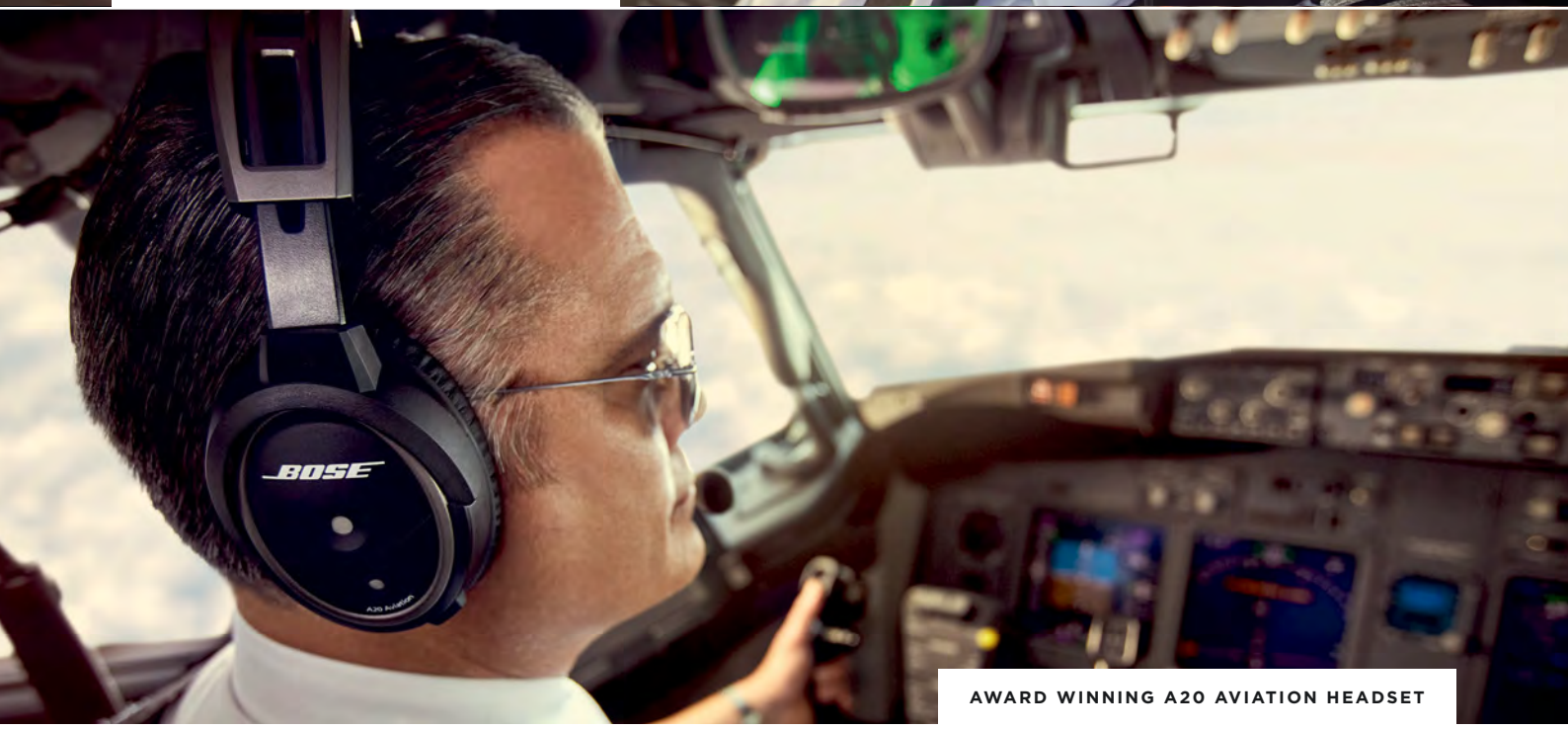

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Welcome

Hello and welcome to your November 2020 edition of *Airliner World*.

From the pioneering Avro 504K through to the next generation of supersonic passenger aircraft, we've certainly got you covered this month. As you'll no doubt have noticed from our stunning cover image, we're marking the centenary of Qantas with some truly spectacular special content. We kick things off with a comprehensive retrospective, charting the airline's humble origins from Queensland and Northern Territory Aerial Services in the Australian outback through to the global airline we know and love today. Following painstaking research, these fascinating insights are illustrated with rare archive photography, publicity material and timetables.

That's not all – in true Kangaroo Route fashion, we have a second leg for you to savour in the shape of a remarkable report from Owen Zupp. As one of Qantas's most experienced 747 pilots, Zupp was in the cockpit for the final departure of the jumbo from Sydney in late July. In his own words we learn about the importance of the 'Queen of the Skies' to him and the wider Qantas family.

As if that wasn't enough, I'm also delighted to welcome back the immensely talented Rolando Ugolini, who has spent the past few months studiously designing our special Qantas centennial poster that highlights the breadth and width of the airline's fleet over the past 100 years.

Elsewhere in this edition, Bruce Hales-Dutton explores the development and legacy of the de Havilland Dove, Sebastian Schmitz examines the important role the Ilyushin Il-62 played for East German carrier Interflug, and Khalem Chapman offers us a taste of the future with the latest on NASA's X-59 QueSST programme.

As always, we're keen to know what you want to see in the magazine, as well as hearing what you've enjoyed or thought needed improvement. As the vast majority of the team continue to work from home, digital means are the most efficient way of getting in touch.
Email airlinerworld@keypublishing.com, @_AirlinerWorld on Twitter or search 'Airliner World' on Facebook.

Wherever you are in the world, I hope you enjoy your November issue,

Gordon Smith
Group Editor

COVER PHOTO: ***Qantas' Boeing 747-438ER, VH-OEJ (c/n 32914) departs Sydney for one last time*** SETH JAWORSKI

Airliner World

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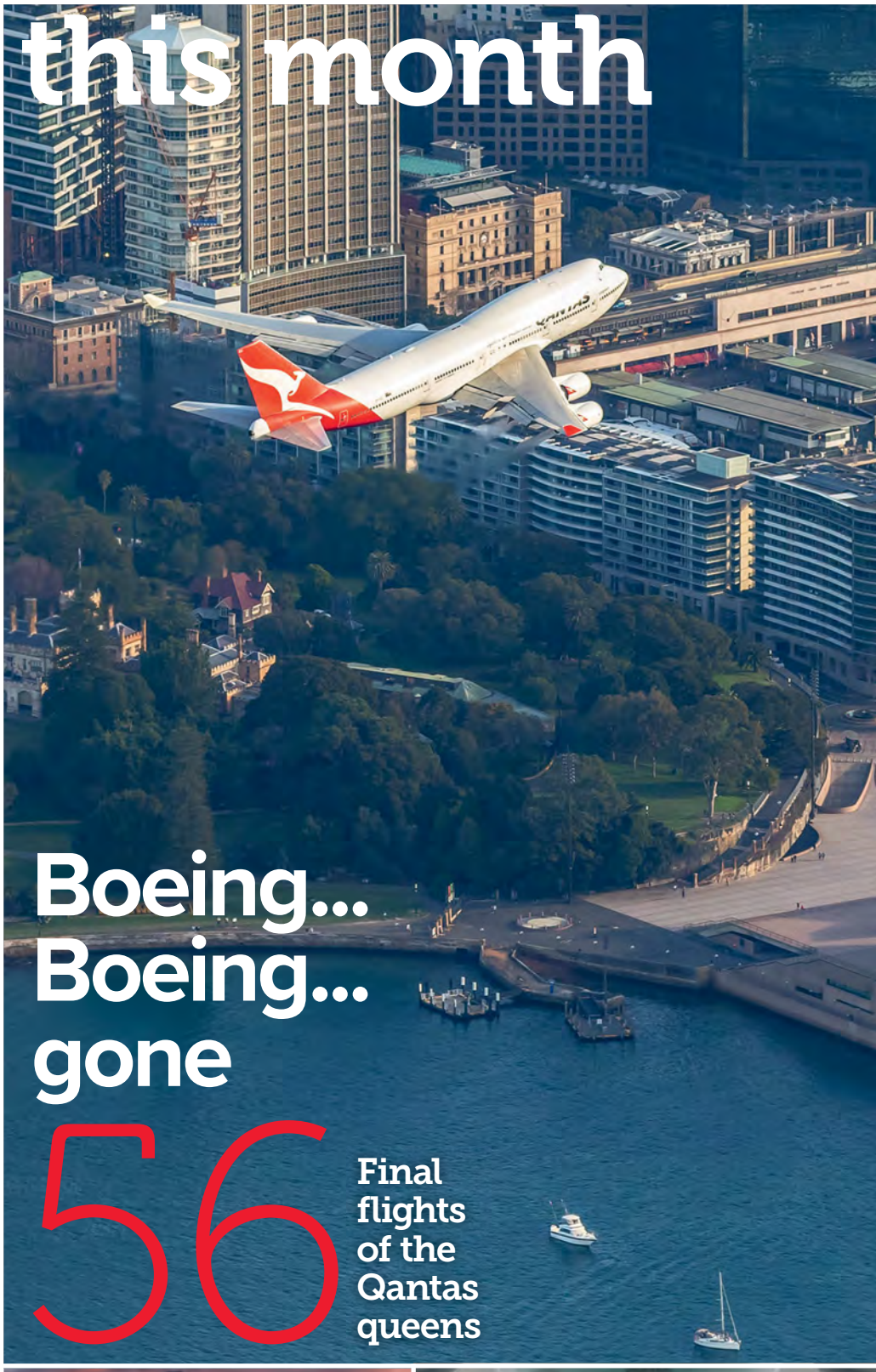
THIS PHOTO: ***Boeing 707-138 VH-XBA (c/n 17696) taking off from Southend on a ferry flight back to Australia in December 2006 following extensive restoration work*** SIMON MURDOCH

this month



Boeing... Boeing... gone

56 Final flights of the Qantas queens


KJR
G-AKJR
G-A
96


X-59 QueSST
18


24


QANTAS
AUSTRALIAS OVERSEAS AIRLINE
QANTAS
VH-EBA
42


34

News Review

AIRLINER WORLD'S **COMPREHENSIVE COVERAGE** OF WORLDWIDE NEWS

Boeing joy at new 737 MAX order

POLAND'S ENTER Air has become the first operator this year to place a new order for the Boeing 737 MAX.

The deal at an undisclosed price consists of two firm orders for a pair of 737 MAX 8s, with options for two more. It currently remains unclear when the aircraft from this contract will be delivered.

Grzegorz Polaniecki, general director and board member of Enter Air, commented: "Despite the current crisis, it is important to think about the future. To that end, we have agreed to order additional 737 [MAX 8] aircraft. Following the rigorous checks that the 737 MAX is undergoing, I am convinced it will be the best aircraft in the world for many years to come."

The charter firm had placed an original order for six 737 MAX 8s in 2014. Before the type's subsequent grounding, it had received two examples of the CFM International LEAP-1B-equipped aircraft, SP-EXA (c/n 64295) and SP-EXB (c/n 64296), in December 2018.

Ihssane Mounir, senior vice president of commercial sales and marketing, The Boeing Company, added: "[The] order for additional 737 [MAX 8s] underscores their confidence in the airplane and the men and women of Boeing. We look forward to building on our decade-long partnership with Enter Air and working with the airline to safely return their full 737 fleet to commercial service."

Enter Air is based in Warsaw, Poland and has a contingent of 22 next generation 737-800s.

(Photo AirTeamImages.com/Yochai)

Virgin Atlantic to Pakistan

CRAWLEY-BASED VIRGIN Atlantic has announced plans to launch services to Pakistan for the first time. From December 10, a four-times-weekly service is due to start between Manchester and Islamabad, joined two days later by a thrice-weekly London/Heathrow link. Then, on December 13, Virgin Atlantic plans to commence a four-times-weekly flight to Lahore from the West London hub. All services are confirmed to be operated by the firm's 17-strong fleet of Rolls-Royce Trent 1000-equipped Boeing 787-9s.

Juha Jarvinen, chief commercial officer at Virgin Atlantic, commented: "Pakistan is an extremely exciting opportunity for us – it boasts one of the largest foreign-born populations in both the UK and the US.

"[With the] significant opportunity to increase competition in the US-Pakistan market, using the strength of our transatlantic services, we're able to offer customers the shortest journey to and from destinations in the US such as New York, Los Angeles and Washington by connecting through [Heathrow]."

Furthermore, the carrier has stated with both Pakistan cities being "popular year-round destinations", demand for business and leisure is expected to increase despite the pandemic. Management are also confident the new connections will offer a fast and efficient cargo service, presenting new opportunities for companies looking to export and import goods such as fresh produce and textiles between prime markets.

Meanwhile, Virgin Atlantic has unveiled a range of steps it will take to protect the business. This includes cutting 1,150 more jobs following the completion of a £1.2bn recapitalisation plan which it says will secure its future for at least the next 18 months.

The restructuring proposal has now been sanctioned by the English High Court and a US court. This final step of the legal process paves the way for the company to continue its efforts to weather the COVID-19 crisis and emerge on the other side as a profitable airline.

(Photo Flickr Commons/Tomás Del Coro)

Restriction frustrations for Wizz

HUNGARIAN LOW-COST firm Wizz Air has said that travel restrictions imposed around its network could force a slowdown in its anticipated capacity ramp-up. The carrier now expects its 2020 second-quarter capacity to be at roughly 60% of 2019 levels, while its third-quarter capability is now projected to remain at the same level, as opposed to 80% as previously thought.

Wizz Air has been one of the most aggressive carriers in resuming its flying schedule, attempting to ramp up faster than most other airlines while also announcing new bases and routes across Europe in the recent months.

In a statement, the operator commented: "Further capacity reductions remain a possibility and, as a result, Wizz Air may park parts of its [aircraft] fleet throughout the winter season to protect its cash balance. The company remains focused on safeguarding its strong balance sheet and excellent liquidity position."

It has been revealed that Wizz Air is set to base an aircraft at London/Gatwick in October and offer flights to Greece, Italy, Spain, and Malta, with options to expand in the future.

AirBaltic pushes back deliveries

AFTER RENEGOTIATIONS with Airbus, airBaltic will now receive its final A220 jet from an original 50-strong order by 2024 instead of the planned 2023 timeframe. Currently, the Riga-based firm has accepted 22 A220-300s since its maiden example, YL-CSA (c/n 55003), was delivered in November 2016.

By the end of the year, three 145-seat, Pratt & Whitney PW1500G-powered airframes are expected to be handed over, leaving the remaining 25 A220s to be shipped by Airbus over the following two years. Additionally, the Latvian company holds options for a further 30 aircraft, if required.

Martin Gauss, CEO of airBaltic, commented: "The recent crisis enabled us to push forward our decision to introduce an Airbus A220-300 single-type fleet. It allows us to minimise complexity and benefit from the additional efficiency provided by the aircraft. We will continue our growth and add more capacity provided by additional jets in the future, as outlined by the Destination 2025 CLEAN business plan."

(Photo Flickr Commons/Marvin Mutz)

Slot waiver extension mooted

FACING THE most difficult winter season in the aviation industry's history, airlines and airports have agreed to abide by a set of conditions together with slot co-ordinators for the extension of the "use-it-or-lose-it" waiver rule that could be applied for the entire 2020-2021 winter season.

Continued uncertainty about a second wave of COVID-19 and "haphazard travel restrictions" have caused passenger demand to plummet, said the Airports Council International (ACI) in a statement. "This has led to a slower recovery in European air transport and [made] the need for an extended slots waiver more urgent than ever."

To facilitate a prompt decision by the European Commission, ACI EUROPE, Airlines for Europe (A4E), Airlines International Representation in Europe (AIRE), the International Air Transport Association (IATA) and the European Association of Slot Coordinators (EUACA) have agreed on specific conditions to ensure a timely return of slots not planned for use this winter.

Without the waiver, airlines would be required to use their slots at European airports 80% of the time to ensure fair utilisation. As a result of the coronavirus pandemic, this has become increasingly difficult to achieve. In the past, some airlines have gone to extreme lengths to protect their slots while they have been unable to use them. Among other things, the waiver is designed to remove the need for airlines to operate empty flights. (Photo London Luton Airport Operations Limited)

Low loads for low-cost giant

LONDON/LUTON-BASED EASYJET has revealed it expects to operate at less than 40% of planned capacity in Q4 of 2020. This comes after recent changes by the UK government on quarantine rules, which easyJet bosses say has "negatively affected" customer confidence.

In a statement to investors, the firm said: "easyJet will continue to focus on delivering a flying schedule that drives a positive contribution while maintaining focus on minimising cash burn through our cost out programme that will drive down costs in all areas of the business."

Johan Lundgren, the company's CEO, hit out at the government, saying he and his customers were "frustrated [about the] unpredictable travel and quarantine restrictions.

"We are closely monitoring customer behaviour and amending flying to ensure our schedule is aligned with demand. Following the imposition of additional quarantine restrictions to seven Greek Islands and the continued uncertainty this brings for customers, demand is now likely to be further impacted and thus lower than previously anticipated," he added.

This comes after the airline announced it would be closing three of its UK bases: London's Stansted and Southend and Newcastle (see *Europe News*, October 2019).

An Ernest return?

FORMER ITALIAN low-cost operator, Ernest Airlines, could be revived by the end of the year.

According to data by *ch-aviation*, management at Ernest plan to procure an all-turboprop fleet comprising 16 ATR 72-600s. Five bases – Ancona, Bari (both on the Adriatic coast), Milan/Bergamo, Rome/Fiumicino and Parma (northern Italy) – have already been stipulated, with more than 70 routes anticipated. The move comes after the carrier ceased operations in January after losing its operating licence (see *Europe News*, March 2020).

in brief

The maiden Airbus A321neo for **Swiss International Air Lines** took its first flight from Airbus' Hamburg/Finkenwerder facility on September 8. The airframe, HB-JPA (c/n 9417) *Stoos*, is powered by Pratt & Whitney PW1100G engines and was handed over to the flag carrier on September 18. A second example, D-AZAN (c/n 10115), set to become HB-JPB, is due to follow shortly. Swiss has another six A321neos on order. It currently operates a pair of the smaller re-engined A320neo, HB-JDA (c/n 9246) and HB-JDB (c/n 9379).

Privilege Style is due to take delivery of its first Airbus aircraft in November. The Palma de Mallorca-based wet-lease specialist has acquired former Sri Lankan Airlines and Qatar Airways A321ceo, 4R-ABR (c/n 3636). The IAE V2500-powered airliner is due to take up the registration EC-NLJ with the Spanish carrier, which currently operates two Boeing 757-200s alongside sole examples of the 767-300ER and 777-200ER.

KLM Royal Dutch Airlines is set to temporarily consolidate some of its Asia routings over the coming months. From October, the flag carrier's Jakarta (Indonesia), Manila (the Philippines) and Taipei/Taoyuan (Taiwan) rotations, followed by Kuala Lumpur (Malaysia) the day after, will all route via Bangkok/Suvarnabhumi until early December, according to *routesonline*. Then, from December 7 and 8, Denpasar (Indonesia) and Jakarta, respectively are due to route via Singapore. At the same time, the Manila connection is then switched via Taipei/Taoyuan. All services are scheduled to operate using KLM's 29-strong fleet of Boeing 777s. (Photo Flickr Commons/Oliver Holzbauer)

Rotterdam-based **APOC Aviation** has acquired a relatively new airframe for scrapping. The Airbus A319ceo, N636AC (c/n 3450), is an ex-Volaris example (formerly XA-VOK), that was delivered to the Mexican carrier in March 2008. Leasing, trading and aircraft part-out specialist APOC procured the A319 from lessor Aircastle. According to Jasper van den Boogaard, vice president, airframe acquisition and trading at APOC Aviation, younger parts such as the landing gear are more desirable for the in-service fleet of airlines and MRO providers. The A319 was sent to Marana, Arizona, for part-out where two recent examples, B-MAK (c/n 1758) and B-MAL (c/n 1790), were scrapped.

Cargolux Airlines has decorated eight-year-old Boeing 747-8F, LX-VCF (c/n 35811), with a giant surgical facemask on the aircraft's nose. The cargo firm is supporting the Luxembourg government's initiative to prevent the spread of COVID-19. After the jumbo's scheduled maintenance in Taiwan, the markings were applied. On its return to Europe, the jet was welcomed back by Luxembourg's prime minister.

Sky Gates adds **Moscow capacity**

RUSSIAN freight firm, Sky Gates Cargo Airlines, has introduced rotations to Moscow/Zhukovsky – the city's fourth-largest gateway. It currently operates a trio of thrice-weekly links from Zhukovsky to Baku (Azerbaijan). Frankfurt/Hahn and Zhengzhou (China). These destinations are complemented by existing flights from neighbouring Moscow/Sheremetyevo and Novosibirsk (Siberia).
Alexander Khmelevskikh, Sky Gates general director, commented: "This service is unique. Through modern technologies and online customs clearance proceedings we can offer a truly integrated product, be it through Moscow/Sheremetyevo and now as well through Zhukovsky, covering a dedicated last mile delivery.
"We truly appreciate the efforts and partnership we have developed with Zhukovsky Airport, which is located near the Eastern municipal borders of Moscow. With our scheduled operations to Moscow Sheremetyevo we complete our product portfolio to and from Moscow, offering a very interesting alternative air cargo gateway to the Russian capital."
The introduction of flights by Sky Gates comes after a 99,000sq ft state-of-the-art cargo complex was opened at Zhukovsky earlier in the summer. The facility includes storage space for temperature-sensitive goods, live animals and customs infrastructure. The airport's 968,000sq ft apron can handle either four Boeing 747-400s or six mid-size widebodies simultaneously. (Photo Sky Gates Cargo Airlines)

Sunshine State **dreams for Azur**

MOSCOW/VNUKOVO-BASED AZUR Air has revealed its intentions to commence a nonstop twice-weekly service between Russia and Miami, Florida from December. In a US Department of Transportation (DoT) filing, the link would be operated by either Azur's 336-seat Boeing 767-300ERs or its four General Electric GE90-powered 777-300ERs from Vnukovo.
Following its request, the DoT will deem if the carrier will be allowed to begin such flights soon. While Azur has not previously flown to the US, it has operated charter flights worldwide including to the Caribbean according to the filing.
Before the onset of COVID-19, the Russian flag carrier, Aeroflot, was the sole operator on the Moscow-Miami route. It was understood at the time of writing that it is to resume the Miami link in October on a thrice-weekly service using Airbus A330-300s.

Germany calling for Astana

NOT DETERRED by the coronavirus pandemic, Air Astana is set to launch a service to Frankfurt on October 2.
The initial twice-weekly route will link Germany with Kazakhstan's second largest metropolis, Almaty, before increasing to thrice weekly by October 26.
The link has been timed to provide adequate connections for travellers from UK cities including London, Birmingham and Manchester as well as wider European and North American destinations in conjunction with partner Lufthansa.
Air Astana will deploy its current three-strong contingent of Pratt & Whitney PW1100G-powered Airbus A321LRs, P4-KGA (c/n 8837), P4-KGB (c/n 8980) and P4-KGC (c/n 9080) – with a fourth, P4-KGD (c/n 9432) joining soon. The type features a two-class, 166-seat layout, with 16 lie-flat seats nicknamed 'thrones'.
Following its introduction, the route will complement its existing service from Kazakhstan's capital, Nur-Sultan. Before the onset of coronavirus, the flag carrier flew to Frankfurt from two other Kazakh cities; a twice-weekly rotation to Atyrau and a weekly link to Uralsk. (Photo Airbus)

Uzbekistan resumes scheduled **international links**

Uzbekistan Airways, has restarted regular international flights following their suspension by COVID-19.
Initially, five routes have resumed during September from its Tashkent base, comprising: Almaty, Bishkek (Kyrgyzstan), Dubai, Frankfurt (all weekly) and Istanbul (four times weekly). It's understood the Uzbek flag carrier will roll out more international destinations over the following months.
All customers flying to the Central Asian country must provide a negative polymerase chain reaction (PCR) COVID-19 test at least 72 hours before departure. Additionally, passengers are subject to mandatory temperature screening and are required to fill out a contact form.
Meanwhile, the carrier has operated a series of temporary flights to New York/John F Kennedy and Tokyo/Narita. As *Airliner World* went to press, Uzbekistan Airways was expected to deploy one of its five Boeing 787-8 to the Big Apple on September 27.
Additionally, at the time of writing, the one-off Tokyo link was scheduled for September 24, mooted to be flown by one of its six, two-class 767-300ERs.
Prior to COVID-19, both cities featured on its regular scheduled network.
The firm currently has a fleet of 29 jets, encompassing: 11 Airbus A320s (nine CEOs and a pair of NEOs), five 757-200s, eight 767-300s (including two cargo configured examples) and five 787-8s. (Photo Flickr Commons/Kārlis Dambrāns)

Comair rescue plan published

CREDITORS AND shareholders of South African carrier Comair approved its business rescue plan on September 18.

The proposal was published earlier that month by financial solutions practitioners Shaun Collyer and Richard Ferguson and aims to save the carrier from entering liquidation.

The British Airways franchisee is targeting a December 1 return to operations but the document suggests it could be earlier if the South African company can recapitalise sooner.

According to the plan, initiatives to monitor and reduce costs, continued retrenchment, capitalising the company with investment prior to recommencing operations and securing post-commencement financing from its lenders/lessors for fleet storage, maintenance and insurance costs are being considered.

If successful, the practitioners state the business rescue process "should be concluded by March [31] 2021, if not sooner", with 1,800 jobs saved. Beyond this, it is expected that Comair will have a contingent of 17 737-800s and a trio of classic 737-400s.

Shortly before the document's publication, Comair was negotiation with "a preferred investor" for a fresh equity injection of ZAR500m (£23.6m) in return for a 99% shareholding.

A website statement from the airline read: "The first ZAR100m [£4.7m] will be paid in two equal tranches in September and October as secured post-commencement finance. Additional funding from lenders of ZAR1.4bn [£66m] is required in order to successfully implement the adopted plan... with capital payments deferred for 12 months and interest for six months. Comair will be de-listed from the Johannesburg Stock Exchange and a new board constituted in due course."

Many factors have contributed to the airline's troubles, namely debt from fleet renewal and high operating costs, grounding of its 737 MAXs and onset of the COVID-19 pandemic. It has not operated scheduled flights since March. (Photo Flickr Commons/Alan Wilson)

African advancement **for Qatar**

DOHA-BASED QATAR Airways is due to launch a new service to Accra in Ghana on September 29. As *Airliner World* went to press, the four-times-weekly link is scheduled to be deployed by the Qatari airline's two-class, 254-seat Boeing 787-8s.

Flights QR1415/1418 will route via a stopover in Lagos, Nigeria, and operate on Mondays, Tuesdays, Thursdays and Saturdays.

Akbar Al Baker, Qatar Airways Group chief executive, commented: "We first announced our intention to launch flights to Accra in January, and while the pandemic has slightly delayed these plans, it has not stopped us from fulfilling our commitment to passengers in Ghana. We look forward to working closely with our partners in [the African nation] to steadily grow this route and support the recovery of tourism and trade in the region."

The carrier estimates it will serve 14 cities on the African continent from 46 weekly rotations by mid-October.

Latest humanitarian **jet takes-off**

Africa's largest carrier, Ethiopian Airlines, has dedicated another Boeing 767-300ER for use by the United Nations Humanitarian Air Service (UNHAS) and managed by the World Food Programme (WFP). The 17-year-old Pratt & Whitney PW4000-powered widebody, ET-ALJ (c/n 33767), had a UN-themed livery applied in August. According to the UN, the jet will be used for transporting passengers and freight to "areas of crisis and intervention." Previously, an Ethiopian 767-300ER, ET-ALH (c/n 30565), had been used in the role since 2012, but this has now been phased out.
V1IMAGES.COM/SHREY CHOPRA

Dubai carriers revive partnership

AFTER THE introduction of further flights, Emirates and flydubai have restarted a partnership – initially established in 2017 – following the impact posed by COVID-19. It allows Emirates customers the option of 30 codeshare flights on flydubai to cities including Belgrade (Serbia), Sofia (Bulgaria) and Zanzibar (a semi-autonomous region of Tanzania). Conversely, 70 reciprocal destinations are available for flydubai customers on the Emirates network.

Adnan Kazim, Emirates' chief commercial officer, said together Emirates and flydubai gave access to an enhanced network of cities on a single ticket. They offered an integrated loyalty programme and a safe and stress-free transfer through Dubai with baggage checked through to their final destination. Passengers, arriving/transiting at Dubai, must take a DNA COVID-19 test and transiting customers are thermally screened on arrival at the UAE gateway. (Photo flydubai)

FedEx's largest ATR variant soars

THE FIRST ATR 72-600F for parcel giant, Federal Express (FedEx), has broken cover at Toulouse's Blagnac Airport. The Franco-Italian-built turboprop, F-WWEX (c/n 1653), made a first flight on September 16.

FedEx became the launch customer for the ATR 72-600F in November 2017 after making a commitment for 30 examples, with options for 20 more. According to the turboprop manufacturer, the type will become the first from its portfolio to be handed over directly from the factory in a freighter configuration.

The ATR 72-600 has a windowless main fuselage with two doors, a forward large cargo door (LCD) – measuring 116in x 71in – and a smaller hinged example at the rear. The Pratt & Whitney PW127M-powered airframe will have a maximum structural payload of 19,600lb and a range up to 900nm.

Speaking at the time of the deal, David L Cunningham, president and CEO of FedEx Express, said the freighter would play an important role in its global network, providing a "fast, economical service to small and medium sized markets".
(Photo Eurospot)

JetBlue London launch update

JETBLUE AIRWAYS has confirmed a delay to the start of its highly awaited UK transatlantic service. Speaking to *Bloomberg*, Robin Hayes, the airline's CEO said the launch would be later in 2021 than originally thought.

Asked about when connections will begin, Hayes commented: "I don't want to put an exact date on [the flights]. We don't even have the [aircraft] yet – that's coming early next year – but I think my expectation is that at some point in quarter three we'll launch."

The New York/JFK-based operator will deploy the Airbus A321LR (Long Range) on the rotations between Boston and New York to London. In anticipation of the service, the airline was expected to accept the jet this year but delays at the European manufacturer have pushed the handover back into 2021.

Once the narrowbody arrives, Hayes explained that before it can begin flights, the carrier will need to complete its ETOPS (extended-range twin-engine operational performance standards) certification and that JetBlue has already partnered with the Federal Aviation Administration on that matter.

The specific London gateway that JetBlue will fly into remains unannounced, although the airline will confirm this closer to time: "We have a number of options... we expect to load selling schedules usually several months before we start flying and that's when we'll share the exciting news of which airport we're thinking about launching with," Hayes said.

JetBlue announced in April last year that it would begin services between the US and UK. The move will be the company's first foray into Europe, it currently operates services throughout the US, Caribbean, Central and South America.

JetBlue has 13 A321LRs on order and in June of last year converted some of an existing larger A320neo Family contract into the A321XLR (Xtra Long Range) variant. Meanwhile, having cited "strengthened demand potential", JetBlue will launch an unprecedented 24 routes in November and December this year to destinations including Florida, the Caribbean and Latin America.
(Photo AirTeamImages.com/ Mathias Dueber)

Amazon primed for wholly owned jet

Pictured at Tel Aviv's Ben Gurion gateway on September 6, this 29-year-old Boeing 767-300ER will become Amazon Prime Air's first completely owned jet. Still wearing the markings of former operator, WestJet, C-FOGJ (c/n 25274), it has since been re-registered as N503AZ. The widebody – originally delivered to Qantas – was ferried from Lake City Municipal Airport, South Carolina to Israel via a stopover in Philadelphia, Pennsylvania between September 3-5. Three other WestJet 767s have also been taken up by Amazon: C-FWAD (c/n 25363), C-COGN (c/n 25576) and C-FOGT (c/n 25246), as N563AZ, N521AZ and N569AZ, respectively AIRTEAMIMAGES.COM/YOCHAI

Skiing its way to success?

A NEW operator called AspenJet, which has described itself as a luxury, semi-private charter-jet service, has been launched. The airline's management are confident that nonstop flights between Aspen, Colorado – taking advantage of the popular ski resort – to the major US markets will be a reality in 2021. Some of its main target cities include: Chicago, Fort Lauderdale, Los Angeles, New York, San Francisco and select Texas destinations. The fledgling firm, founded by Phoenix 500 Air Race creator Patrick Dial, plans to use a specially configured, executive-class 30-seat Embraer E175.

Patrick Dial, president and CEO of AspenJet, commented: "Having been a frequent visitor to Aspen since the mid-1970s, I believe we've identified the perfect solution at just the right time. The current trend of consumers crowd-sourcing semi-private air travel is not just about [COVID-19] social distancing or saving money. Rather, it's more about enjoying an elevated travel experience that begins the minute you hand the valet your keys, bypass [the] TSA lines and quickly get on board a private jet, [instead of the] tiring beat-down you experience in getting to your destination.

"It's also about making new friends, ones you might hike, ski, dine or possibly do some new business with, as well as enjoying an eco-friendly way to fly. Think carpool for the jet-set crowd," he added.

AspenJet's aircraft will also feature what's been dubbed a SkyKennel for customers' pets, as well as a walk-up SkyLounge "reminiscent of the grand old days of aviation". Bosses at the carrier say these modifications, including the lower passenger capacity, give the narrowbody additional weight and fuel reserves, allowing for longer-haul trips.

The company has confirmed it will not operate its own aircraft but instead plans to contract Jet Aviation Flight Services (a General Dynamics subsidiary) or other certified air carriers to conduct the flights. (Photo AspenJet)

Boomerang swings into view!

Viva Air Colombia has applied a stunning 'Boomerang' scheme to its first Airbus A320neo. The single-aisle aircraft, set to become HK-5352 (c/n 10136), was photographed on its maiden sortie from Toulouse/Blagnac on September 11. The airliner, fitted with CFM International LEAP-1A engines, formed part of a 50-bulk A320 Family order in December 2017. This comprised 35 of the re-engined variant and 15 of the current-engined model EUROSPOT

in brief

Air Transat has temporarily merged its Toronto/Pearson to Manchester and Glasgow services into a single triangular routing. Operating between August 29 and October 29, the twice-weekly link departs Toronto for Glasgow, before continuing to Manchester. The route is plied by the Montréal-based operator's six-strong fleet of Airbus A321neos. As we went to press, Air Transat's international operations consisted of ten links from Montréal and five from Toronto, in addition to domestic rotations. The charter airline resumed rotations on July 23 following a 112-day grounding due to COVID-19.

Brazilian operator, **Azul Linhas Aéreas Brasileiras**, has supplied a pair of Embraer E195s to TrueNoord following a purchase by the Dutch lessor. The single-class, 118-seat jets, CS-TTW (c/n 19000407) and CS-TTX (c/n 19000429), are currently on lease to Portugália (operating for TAP Air Portugal). Alex Malfitani, Azul chief financial officer, said: "This transaction shows that there is interest in the market for assets such as the Embraer E195 even with the challenges that the aviation industry [faces]... TrueNoord [came] to us with creative and practical alternatives that generate value to our business."

Edmonton, Alberta-based **Flair Airlines** has withdrawn the last examples of the venerable 737 Classics from its fleet. Since the Canadian low-cost carrier's inception, it has boasted seven, 158-seat 737-400s. The final trio withdrawn, C-FLHJ (c/n 25104), C-FLRS (c/n 28888) and C-FLHE (c/n 28889), were acquired by Automatic LLC and subsequently stored in Tampa, Florida. It's understood C-FLRS (re-registered as N288AU) has since departed to San José, Costa Rica for conversion into a dedicated freighter. (Photo Flickr Commons/BriYYZ)

Low-cost carrier **Southwest Airlines** has revealed it will start a year-round service to Miami "later this year". While details remain scarce as we went to press, it's a big move for the Dallas-based airline, which has never served the Sunshine State's second busiest airport on a scheduled basis, although it currently sends Boeing 737s to the Florida hub for maintenance. Gary Kelly, Southwest Airlines chairman and CEO, said Miami will complement existing services to neighbouring airports at Fort Lauderdale and West Palm Beach.

Ultra-low-cost firm, **Volaris**, has confirmed it intends to start a new service between Mexico City and California's San Jose International Airport. The thrice-weekly connection is earmarked for a November 9 launch and will become the fifth route for Volaris at the US gateway following: Guadalajara, León/Guanajuato, Morelia and Zacatecas (all in Mexico). The airline will deploy its 59-strong fleet of Airbus A320s on the service. John Aitken, San Jose director of aviation, said: "Mexico is an important business and leisure destination for many South Bay Area travellers and Volaris [recognises this market]."

Qantas A380 plans revealed

AUSTRALIAN FLAG carrier Qantas has disclosed plans for its 12-strong contingent of Airbus A380-800s. Speaking on CNBC's *Squawk Box Asia* programme, Alan Joyce, the group's CEO, said international traffic would take the longest time to recover and, by the 2022 financial year, it is expected Qantas would only operate 50% of such rotations. This, he said, means it could take "three years before we can get our A380s back in the air". Qantas' fleet of super jumbos are currently in long-term storage at the Mojave Air and Space Port. The carrier also recently retired its last Boeing 747, VH-OEJ (c/n 32914), as it continued its plan to streamline its fleet in a bid to reduce costs (see Asia Pacific News, September edition).

Meanwhile, Qantas' full-year financial results have revealed that it made a loss of AUS$2.7bn for the year ending June, as it continues to deal with the impact of the COVID-19 pandemic. Despite having a strong first half of the financial year, during which the firm posted an AUS$800m profit, the Australian carrier's last six months have been plagued with a AUS$4bn hole in revenue and a AUS$1.4bn write-down of assets, including its A380s and AUS$600m in expenses relating to redundancies.

Yet Joyce remains confident about the future. In a statement, he said: "We know that travel is at the top of people's wish lists and that demand will return as soon as restrictions lift. That means we can get more of our people back to work." (Photo AirTeamImages.com/John Kilmer)

Peach is hungry for Airbus

The first Airbus A320neo for Japanese carrier, Peach Aviation, was seen on finals for Toulouse/Blagnac on September 14. During its successful maiden sortie, the re-engined narrowbody sported French test registration, F-WWIJ (c/n 10131), and will take up JA201P upon delivery. This airframe is powered by CFM International LEAP-1A engines and will be followed by an eventual nine more on order. The Osaka/Kansai-based airline has 32 180-seat A320ceos which are deployed across Japan, in addition to destinations in South Korea and Taiwan.

V1IMAGES.COM/CLÉMENT ALLOING

Prolonged groundings for Cathay Pacific

HONG KONG-BASED Cathay Pacific Group has revealed intentions to keep placing aircraft into long-term storage due to a lack of demand. The group, which comprises Cathay Pacific and Cathay Dragon, is set to move around 40% of its 153-strong fleet into storage, reflecting its continued substantial capacity reductions in response to the ongoing pandemic.

During August, the group released its traffic figures, which showed that the two airlines together carried a total of 35,773 customers, a decrease of 98.8% compared with 12 months earlier. The month's revenue passenger kilometres (RPK) fell 98.1% year-on-year, while passenger load factors dropped by around 60% to 19.9%.

Ronald Lam, Cathay Pacific Group chief customer and commercial officer, said: "It is clear that we are facing a long and uncertain road to recovery. The entire aviation industry has been hit hard by [the] COVID-19 [pandemic] and the environment will continue to be extremely challenging for many years."

Despite taking actions to reduce its costs, the group is still burning cash at a rate of HK$1.5bn (£150m) to HK$2bn (£200m) per month and is expected to do so until the market starts to recover.

Lam went on to add: "Given that we will be operating just a fraction of our services in the foreseeable future, we will continue to transfer some of our passenger [aircraft] fleet – approximately 40% – to locations outside of Hong Kong in keeping with prudent operational and asset management considerations."

Pacific performs repatriation rotations

THE RECENTLY rebranded Pacific Airlines, formerly Jetstar Pacific, has performed several coronavirus repatriation flights across Asia to return Vietnamese citizens. It deployed a pair of Airbus A320ceos, including, VN-A573 (c/n 7809), which sported the carrier's latest livery (pictured), to Singapore from Ho Chi Minh City on September 14.

The Vietnam Airlines Group subsidiary brought back 360 passengers who wore "protective suits, including full-body clothing, eyewear, masks, medical gloves, and shoe bags". The airline group operated the flight at the highest alert rating, level four, to prohibit the spread of COVID-19. After de-boarding, both Airbuses involved underwent a strict disinfectant regime. A week later on September 21, Pacific Airlines flew another mission, this time to Taiwan.

The Vietnam Airlines Group announced Jetstar Pacific's rebranding to Pacific Airlines in June (see Asia Pacific News, August edition). (Photo Vietnam Airlines)

Korean boosts freight capacity

SEOUL/INCHEON-BASED KOREAN Air has roped in extra cargo support after converting its first passenger-configured Boeing 777-300ER into a temporary dedicated freighter. The widebody, understood to be HL8208 (c/n 37645), operated its maiden cargo service on September 8 between Incheon and Columbus, Ohio in the US.

The former three-class, 291-seat configured airframe had 274 seats taken out in order to carry a combined 32.8-ton freight capacity – comprising 22 tons in the hold and 10.8 tons in the cabin. The conversion is a complex process that required the removal of "in-flight electric wiring and installing standardised locks" on the cabin floor to secure loads.

According to the airline, the move stemmed from an increased "demand for air cargo to and from Columbus" as the airport is home to several logistic centres. Items being transported include clothes, electronic devices and automobile parts.

During the pandemic, Korean Air utilised grounded passenger widebodies including the 787-9 and Airbus A330-300 to carry personal protection equipment (PPE) in the belly holds. Between April and September, it operated 420 cargo-only rotations transporting more than 12,000 tons of goods per month.

Meanwhile, according to *The Korea Herald*, the flag carrier posted a profit of US$125.2m in Q2 this year – becoming the world's only major operator to do so – thanks to its cargo operations during the height of the pandemic. (Photo Korean Air)

Fiji 737-700 bows out in style

FOLLOWING THE retirement by Fiji Airways of its sole Boeing 737-700, DQ-FJF (c/n 28878) *Island of Koro*, the two-class, 122-seat jet was sent for scrap – more than 11,396 miles away in the UK.

The aircraft departed the Fijian capital Nadi for the last time on September 18. Over the course of the next two days, the 737 routed first via Honolulu, Hawaii before making two stops on the US mainland at Los Angeles, California and Bangor, Maine. The narrowbody eventually arrived at Teesside International in the northeast of England on its last ever flight on September 20.

DQ-FJF was delivered to the South Pacific firm under its former branding, Air Pacific, in September 1998 after acceptance from Boeing.

First A321P2F nears delivery

The world's first Airbus A321P2F (passenger-to-freighter) was spotted on a test flight at Singapore ahead of its delivery to Qantas Freight. The pioneering jet, D-ANJA (c/n 835), has since taken up Australian registration VH-ULD. The airframe was originally delivered to British Midland in 1998 as G-MIDC. In August 2019, a seven-year, AUS$1bn agreement was signed between Australia Post and Qantas, allowing the former take advantage of the flag carrier's fleet of dedicated cargo aircraft for transport, illustrated by the A321P2F's titles. According to Qantas Freight, the A321P2F is mooted to add ten tons of capacity, an increase of more than 50% over its Classic 737 freighters. SIN WEN HAO

in brief

STARLUX Airlines has placed an order for eight Airbus A330-900s. The announcement – made via the European manufacturer on Twitter – stated that all the re-engined A330s will be leased from US-based Air Lease Corporation. At the time of writing, no further details were provided by either party on the delivery timeframe or powerplant choice. The new order complements STARLUX's existing widebody deal with Airbus for 17 A350s, encompassing nine -900s and eight of the larger -1000s. Currently, the Taiwanese carrier fields just a trio of two-class, 188-seat A321neos, B-58201 (c/n 9208), B-58202 (c/n 9314) and B-58203 (c/n 9147).

India-based firm, **Vistara**, has operated its inaugural scheduled European link. The rotation departed Delhi's Indira Gandhi Airport on August 28, arriving at London/Heathrow the same day – with an apt flight code, UK15. Vistara deployed one of its pair of General Electric GEnx-powered Boeing 787-9s, VT-TSD (c/n 66526). The current schedule shows that the operator will be flying between the two cities until October 24 at a thrice-weekly frequency, although as we went to press it's reported to be increasing this to four-times-weekly by September 27, under a bilateral 'transport bubble'.

Air Macau has phased out its last example of the Airbus A319, ending an 18-year association with the type. The two-class, 122-seat A319ceo, B-MAO (c/n 1962), was returned to the lessor, Carlyle Aviation Partners, and has since been placed into storage at St Athan in Wales, UK. During its time, the airline operated four other examples of the A319, with one leaving the fleet in 2014, two in 2019 and one at the start of this year. Air Macau has undertaken a fleet modernisation programme. Currently, it fields 12 jets, including the re-engined A320 Family model, comprising four Pratt & Whitney PW1100G-powered A320neos and a single A321neo example. (Photo Flickr Commons/Kentaro IEMOTO)

Serene Air has entered its maiden widebody into fare-paying service. The Airbus A330-200, AP-BNE (c/n 733), was delivered to the Pakistan-based carrier at the end of August after being stored at Châteauroux, France, where its livery was applied (see Asia Pacific News, July edition). On September 11, the General Electric CF-6-equipped airframe flew its first service on a domestic rotation between Karachi and Islamabad. Currently, the aircraft plies just the single route, operating one of the thrice-daily links in conjunction with the Serene's four-strong contingent of Boeing 737-800s.

Local media reports suggest that Taiwan-based **EVA Air** has pushed back the launch date for two routes. The Taipei/Taoyuan connections with Milan/Malpensa (four-times-weekly) and Phuket (thrice-weekly) are both slated for a July 1, 2021 start. Originally, the cities were scheduled for February 1 and March 30, respectively.

Airbus's fello'fly gains traction

The airframer has confirmed flight testing will begin this year using a pair of A350s, while the programme's newest members will participate in oceanic airspace tests in 2021. If successful, fello'fly is mooted for a middle-of-the-decade entry into service AIRBUS

MULTIPLE COMPANIES have signed an agreement with Airbus for its emissions-reducing fello'fly programme. These include two airlines, low-cost Paris/Orly-based French Bee and Scandinavian Airlines (SAS), and three air navigation providers, France's Direction des Services de la Navigation Aérienne (DSNA), UK-based NATS and EUROCONTROL.

The fello'fly initiative aims to reduce aircraft emissions by decreasing energy consumption. According to Airbus, this can be achieved through 'wake energy retrieval', where aircraft fly in formation like birds. Estimates suggest that a commercial airliner trailing behind another would reduce fuel consumption between 5-10% as it flies through the smoother updraft of wake air.

Both French Bee and SAS will offer the European manufacturer "airline expertise" in operations and flight planning procedures. Meanwhile, the air navigation providers will work solely on working out how two separate jets can be flown in proximity without comprising safety. At the same time, Airbus is working on a "technical solution" for the cockpit, to provide aircrews with assistance during such manoeuvres.

Management at Airbus has hinted how fello'fly would be used in normal operations. For example, on a transatlantic route, two flights would arrive at the same designated oceanic clearance point, albeit with a minimum separation of 1,000ft. The trailing aircraft would then manoeuvre to a 1.5nm distance behind to receive the wake energy retrieval. Once a flight needs to break off, the other aircraft would reposition and acknowledge to air traffic control that it is no longer part of a formation.

Vital vaccine transportation preparation needed

IATA, based on Montréal, Canada represents 290 airlines, comprising 82% of global air traffic FLICKR COMMONS/BILL ABBOTT

THE INTERNATIONAL Air Transport Association (IATA) has said that delivering COVID-19 vaccines will be "the mission of the century for the global air cargo industry", and that it won't happen without careful advanced planning. The global airline trade body also urged governments to begin preparing for vaccine distribution as it warns of potentially severe capacity constraints in transporting by air.

IATA calculated that the potential size of the delivery to provide a single dose to 7.8 billion people would fill 8,000 Boeing 747F aircraft. That's just under 211 million cu ft, equivalent to two-and-a-half times the size of the Great Pyramid of Giza or 2,500 Olympic swimming pools.

Alexandre de Juniac, IATA's director general and CEO, said: "We urge governments to take the lead in facilitating co-operation across the logistics chain, so that the facilities, security arrangements and border processes are ready for the mammoth and complex task ahead."

Vaccines must be handled and transported in line with international regulatory requirements, at controlled temperatures and without delay to ensure the quality of the product.

As a result, the level of planning is considerably higher than standard cargo shipments.

Capacity is another major concern, as the trade body is calling on governments to consider the current diminished cargo capability of the global air transport industry. The pandemic has forced many airlines to put their larger widebody aircraft into long-term storage, thus reducing the global belly freight volume.

EASA Concludes **737 MAX Tests**

THE EUROPEAN Union Aviation Safety Agency (EASA) has finished its series of tests on the Boeing 737 MAX in Vancouver. The organisation says it has been working "in close co-operation" with the Federal Aviation Administration and Boeing to return the embattled jet to service "as soon as possible, but only once it is convinced it is safe."

The statement continued: "While Boeing still has some final actions to close off, EASA judges the overall maturity of the redesign process is now sufficient to proceed to flight tests. These are a prerequisite for the European agency to approve the aircraft's new design."

After the test sorties, EASA held a Joint Operations Evaluation Board (JOEB) at London/Gatwick on September 14 to "analyse the data gathered" during the flights.

EASA is the latest international aviation safety regulator to announce plans to recertify the 737 MAX. Earlier in August, Transport Canada revealed similar proposals.

The inspection forms part of a global effort to return the aircraft to service following a worldwide grounding initiated in March 2019 after the 737 MAX was involved in two fatal crashes.

The jet's Manoeuvring Characteristics Augmentation System (MCAS), a piece of technology designed to mimic pitching behaviour, was found in preliminary reports to be a contributing factor in both accidents.

Speaking to the *Seattle Times* in June, Janet Northcote, head of communications at EASA, said that MCAS "absolutely needs to be fixed for the [aircraft] to be recertified as airworthy".

Other foreign aviation regulators have been scrutinising the suggested software and training modifications for the MAX, which is thought will return to service during 2021.

Airbus Deliveries

Orbest received its maiden Airbus A330-900, CS-TKH (c/n 1963), in August. The 388-seat, one-class jet is the first A330neo for a Grupo Barceló-owned airline. V1IMAGES.COM/CLÉMENT ALLOING

Airbus delivered the following aircraft in August:

A320ceo	1	Chengdu Airlines
A320neo	21	AerCap (HK Express), BOC Aviation (Azul), CALC (SaudiGulf Airlines), GECAS, GECAS (Air Malta), Gulf Air, Iberia, IndiGo (4), Lufthansa, Shenzen Airlines (2), Sichuan Airlines (2), SMBC Capital (Air Astana), SMBC Capital (S7 Airlines), Spirit, Volaris, Wizz Air Hungary
A321ceo	2	Delta Air Lines (2)
A321neo	11	Air Lease Corporation (Air Arabia), Air Lease Corporation (Air Astana), Avolon (Beijing Capital Airlines), China Southern Airlines, Gulf Air, IndiGo (2), JetBlue, Wizz Air Abu Dhabi, Wizz Air Hungary (2)
A330-900	1	CIT Leasing (Orbest)
A350-900	2	Air Lease Corporation (French Bee), Cathay Pacific Airways
Total	**38**	

Boeing Deliveries

Volga-Dnepr's AirBridgeCargo has received an initial Boeing 777F, VQ-BAO (c/n 66625). The aircraft is the first from the company's letter of intent (LOI) for 29 examples signed at the 2018 Farnborough Airshow. Commitments for nine of the widebody freighters have been firmed up thus far. AIRTEAMIMAGES.COM/DIPANKAR BHAKTA

Boeing delivered the following aircraft in August:

767-300F	2	FedEx Express (2)
777F	3	AirBridgeCargo, FedEx Express, Lufthansa Cargo
787-9	4	All Nippon Airways (ANA), United Airlines (2), Vistara
Total	**9**	

V1: Rotate!

***A full feature-length article on the Flying-V will appear in the December edition of* Airliner World.** IMAGES: HENRI WERIJ AND DELFT UNIVERSITY OF TECHNOLOGY

A SCALE model of the revolutionary Flying-V concept, developed by the Delft University of Technology (TU Delft) in collaboration with Dutch flag carrier KLM, has completed its maiden sortie. The test flight followed 18 months of development, which saw engineers at the university conduct extensive wind tunnel and ground tests with the uniquely designed model, mooted as the energy-efficient aircraft of the future.

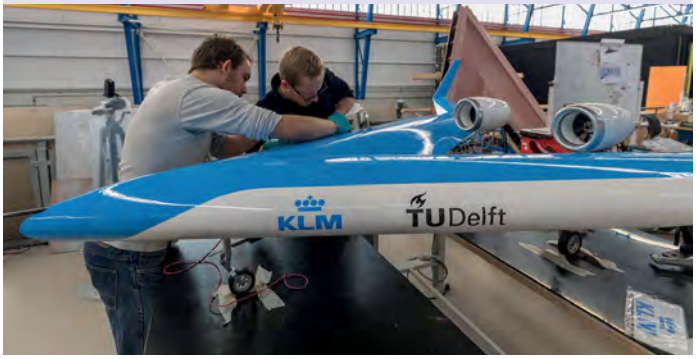
The Flying-V is being developed for the long-haul market and will be a similar size to the Airbus A350 in terms of passenger capacity and wingspan. The Flying-V design integrates the passenger cabin, cargo hold and fuel tanks in the wings to create the unique shape. However, this layout results in just one side of the cabin featuring windows, with none on the inside of the V.

Representatives from KLM have stated that computer calculations predict the improved aerodynamic shape and lower weight of the airframe will reduce fuel consumption by 20% compared to today's most advanced aircraft.

Pieter Elbers, president and CEO of KLM, said: "We were very curious about the flight characteristics of the Flying-V. The design fits within our 'Fly Responsibly' initiative, which stands for everything we are doing and will do to improve our sustainability. We are therefore very proud that we have been able to achieve this together in such a short period of time."

The Dutch flag carrier presented the scale model for the first time during its 100th anniversary celebrations in October 2019. Several partners are now involved in the project, including manufacturer Airbus.

Elbers added: "You can't make the aviation sector more sustainable on your own. Collaborating with partners and sharing knowledge takes us all further. That's why we will further develop the Flying-V concept with all partners. The next step will be to fly the Flying-V on sustainable fuel."



First dual HUD-equipped Global 7500 shipped

BOMBARDIER HAS delivered the maiden Global 7500 aircraft fitted with dual head-up display (HUD) capability to an unnamed customer.

The baseline Global 7500 design already features enhanced and synthetic vision systems. Bombardier stated that the dual HUD system option permits increased contribution from the first officer during HUD-assisted flight operations, which facilitates easier switching of control between the pilot flying and the pilot monitoring. Furthermore, it provides a greater level of redundancy during low-visibility approaches when the workload is high.

Michel Ouellette, Bombardier Aviation's senior vice president of programme management and engineering, said: "The delivery of the first Global 7500 aircraft with a dual HUD showcases our outstanding commitment to safety. This cockpit is designed to put technology and automation at the service of the crew, rather than creating technology that the crew has to manage."

The Global 7500 made its first flight in November 2016 and entered service two years later.
(Photo Bombardier)

Jetfly accepts more Pilatus airframes

LUXEMBOURG-BASED FRACTIONAL operator Jetfly Aviation accepted its fifth Pilatus PC-24 business jet from the manufacturer. In a dual ceremony at Pilatus' facility in Stans, Switzerland, Jetfly also took delivery of its maiden business turboprop, the PC-12 NGX.

Jetfly is the largest operator of Pilatus aircraft in the world, with 47 examples currently in its fleet. The previous four PC-24s delivered to the company have since accrued a total of more than 2,400 hours in service.

Jetfly CEO Cédric Lescop said: "The handover of our fifth PC-24 within two years marks the end of a successful phase of expansion. We are proud that our PC-24 fractional ownership programme has already attracted no fewer than 50 part-owners. Everyone is very happy with the super versatile jet's performance and extremely appreciative of the generous cabin. Firmly convinced of the qualities of this unique aircraft, we are already looking forward to taking delivery of our sixth PC-24 towards the end of this year." (Photo Pilatus)

BUSINESS NEWS BY NIGEL PITTAWAY

F1 team receives Honda jet

JAPAN-BASED HONDA Aircraft Company has handed over a HA-420 HondaJet Elite very light business aircraft to the Red Bull Formula 1 racing team, Scuderia Alpha Tauri.

The example, OE-FAA, (c/n 42000192), was first used to transport Alpha Tauri team members to the Italian Grand Prix, held at the Autodroma Nazionale Monza, north of Milan, on September 6.

Helmut Marko, Red Bull F1 racing team advisor, said: "We are pleased to welcome a new member of the Flying Bulls fleet with the HondaJet Elite, which marks another step in the great co-operation between Honda and Red Bull. The HondaJet is ideal because it's particularly efficient on short- and medium-distance routes. It will be used by Red Bull Racing and Scuderia Alpha Tauri as part of our Formula 1 co-operation."

Honda and Red Bull have been partners since 2018, when the Japanese company began supplying engines to the Red Bull Formula 1 team. More than 155 HondaJets are currently in service globally and, according to the manufacturer, it was the most delivered light jet in its class in 2017, 2018 and 2019.
(Photo Honda Aircraft Company)

Citation Latitude milestone

IN AUGUST, Textron Aviation, manufacturer of the Cessna 680A Citation Latitude mid-size business jet, celebrated the fifth anniversary of the delivery of the maiden example to a customer.

In that time, the company has delivered around 240 Latitudes, which Textron said represents more than 40% of all deliveries of business jets in the mid-size segment of the market. It's been revealed that the global fleet has now accumulated more than 320,000 fleet hours.

According to a Textron statement, US-based private aviation company NetJets has taken delivery of more than 120 Citation Latitudes, representing half of the total deliveries to date.

Rob Scholl, Textron Aviation senior vice president, sales, said: "Five years since its introduction, the Citation Latitude is now an industry icon. Business travellers were the first to appreciate the versatility and comfortable cabin which makes the jet ideal for business productivity and leisure alike. Today, the jet's innovative design has enabled its deployment in a variety of applications, from European air ambulance operators to the Japan Air Self Defense Force, which in April took delivery of two Citation Latitudes configured for flight inspection." (Photo Textron Aviation)

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A quiet supersonic quest

NASA and Lockheed Martin Skunk Works have teamed up to develop the X-59 QueSST – an X-plane that uses low-boom technology designed to replace the famous sonic boom with a quiet thump, as ***Khalem Chapman*** *explains*

Supersonic passenger flight could make a quiet return if NASA's Low-Boom Flight Demonstration (LBFD) successfully revives capabilities that were lost with Concorde's retirement 17 years ago.

The X-59 Quiet SuperSonic Technology (QueSST) – a specifically designed, one-off demonstrator – is currently being manufactured by Lockheed Martin Skunk Works. It will be NASA's first manned supersonic X-plane in decades, reminiscent of the famed Bell X-1 exploits, but with a very different mission to its bullet-like forerunner.

Peter Coen, mission manager of the LBFD at NASA's Aeronautics Research Mission Directorate, outlined the ambitious undertaking: "We're trying to use [the X-59] to prove that the sounds from supersonic flight can be made quiet enough for overland supersonic flight, to make them acceptable to the public and the international regulatory community."

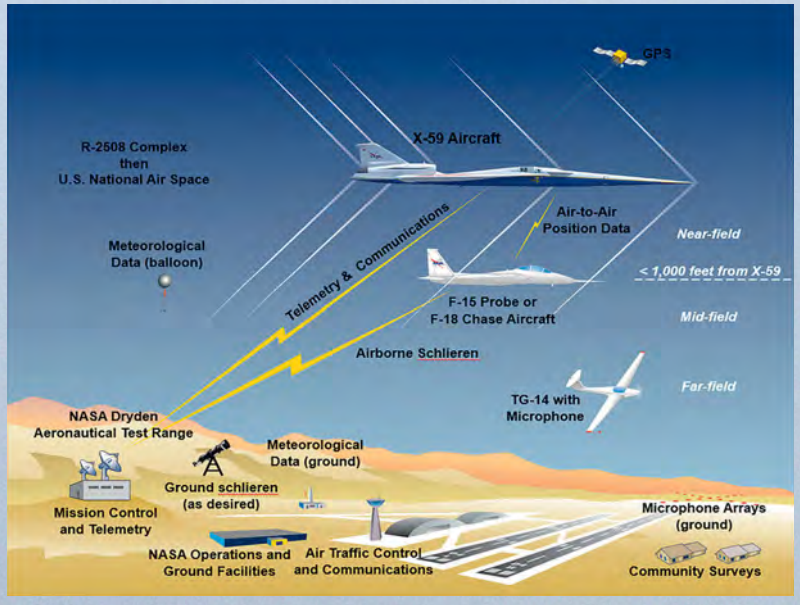
To prove its low-boom theory, NASA will fly the X-plane over several US cities from late 2023 in a series of community overflight tests. For around a month different levels of sound will be generated before people are surveyed to gauge their responses.

"We expect to fly multiple times per day and generate anywhere from two to six sounds over the community," said Coen. "That's kind of representative of what a typical community might hear when supersonic operations become more commonplace. Each day will be a different sound level. So, we fly the airplane at slightly different speeds, slightly different altitudes [and] slightly different weights to create a variation in the sound."

Restrictions surrounding Concorde's faster-than-sound capabilities led to it being banned from supersonic flight overland, but its limitations highlighted the need for cheaper, more efficient and quieter alternatives: cue the LBFD and the X-59.

At present, national and international regulators – such as the Federal Aviation Administration (FAA) and the International Civil Aviation Organization (ICAO) – have set 'speed limits' for overland commercial air travel because the boom of passing the sound barrier exceeds acceptable noise levels and disrupts populated areas. An aircraft cruising at the speed of sound travels at Mach 1, but above that

BELOW • ***The programme patch worn by teams working on the pioneering X-59 mission***
NASA. ALL OTHER IMAGES LM SKUNK WORKS UNLESS STATED



ABOVE • ***The X-Plane is nearly 100ft long from nose-tip to tail*** LM SKUNK WORKS

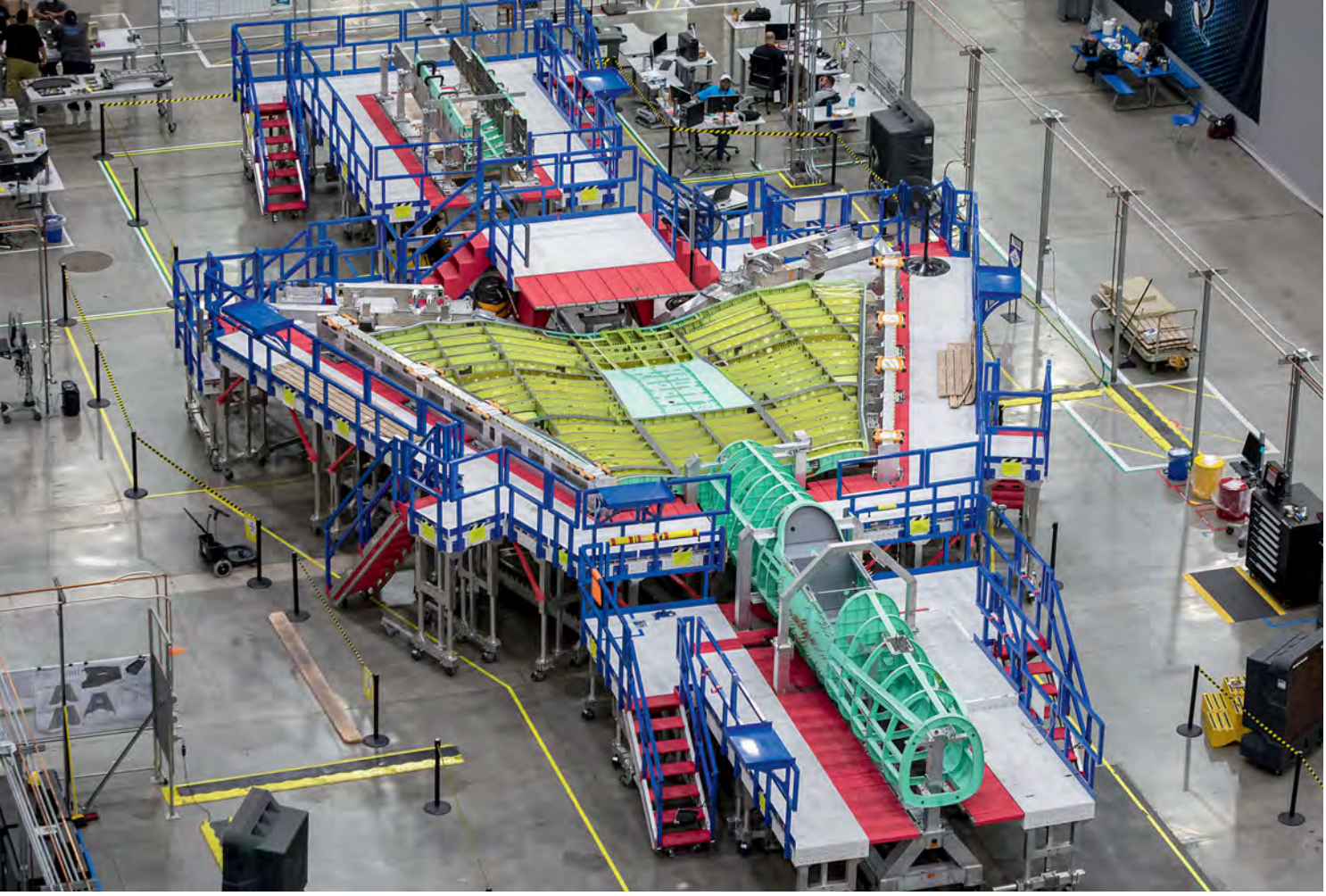
LEFT • ***The X-59 will provide the data needed by regulators to change the current rules surrounding overland commercial supersonic air travel*** NASA

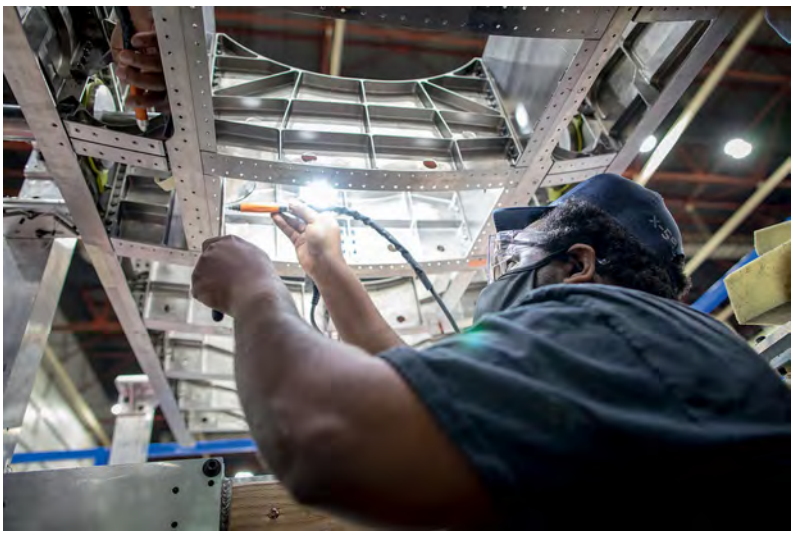
speed it can no longer push a pressure wave out in front of it. As an object travels faster towards the speed of sound, the waves build up and coalesce into a single shockwave.

Michael Buonanno, the lead engineer for the X-59 at Lockheed Martin Skunk Works, referenced some of the science: "[If] you design a supersonic airplane for performance, like an F-22 or a Concorde, those shockwaves that come from the individual features will inevitably coalesce – they'll join together into one very large shockwave, which results in a very loud bang. We've carefully designed [the QueSST] to keep those shockwaves separate...The result is a soft thump."

Shaping the future

David Richardson, Lockheed Martin's X-59 programme director, explained how bringing back commercialised »





faster-than-sound air travel has been in the corporation's interest since the late 1990s, early 2000s.

That interest, research and investment led to the company being awarded a US$247.5m contract by NASA in 2018 to design, develop, build, test and deliver the X-59.

Lockheed Martin Skunk Works and NASA are attempting to 'lower the boom' via several innovative design features on the X-59.

The QueSST's impressive length – nearly 100ft from nose-tip to tail – is a key attribute, according to Buonanno. Combined with its slender shape – or outer mould line – the aircraft has been optimised to spread out the shockwaves generated when approaching Mach 1 speeds.

Its hollow nose is 35ft long, full of air and weighs just 300lbs. The aircraft is split into three subsections: the empennage; the main-wing body and the forebody fuselage. Its principle structure is made from aluminium, but high-temperature areas of its rear end are built from titanium. It also utilises composite control surfaces and wing skins.

Chief engineer Buonanno noted other key features of the X-59's shape and their importance in maintaining low-boom capabilities: "One example is the [three] air data probes in front of the canards on the forebody.

"We had to go through some design studies to carefully position them and shape the fuselage around their location to create a bit of an inverse effect to cancel out their impact on [the] sonic boom.

"The canards are really important to meet the overall trim of the airplane. It's important that the airplane [is] balanced in steady flight and, for low boom, we have to carry lift on the back end of the airplane. So, the tail – we call it the 'stabilator' – is lifting at cruise conditions, which would tend to make the airplane pitch down. The purpose of the canard is to provide pitch up movement to counterbalance those lifting stabilisers.

"You can see some other pretty distinctive features, like the vortex generators that are immediately behind the repurposed T-38 canopy. Those are added to help improve the quality of the airflow to the engine inlet, which is located further aft... We've got that highly-swept delta wing [and] we've used a lot of advanced

TOP • ***In June, engineers and technicians at Skunk Works attached the QueSST's wing to the cockpit section***

ABOVE LEFT • ***The X-59's cockpit section, shown here in production, is a unique feature of the aircraft***

ABOVE RIGHT • ***Production of the X-59 has continued despite the global spread of COVID-19 with adaptations made to remain on schedule. Note the engineer is wearing personal protective equipment (PPE) while working on the QueSST's fuselage***

manufacturing techniques on that to both reduce the amount of money that we have to spend on fabricating it, but also [to] improve quality and make it lighter weight."

The X-59 will be powered by a single, modified GE Aviation F414-GE-100 afterburning turbofan engine, which will provide 22,000lbf (98kN) of thrust and is located on top of the rear section of the aircraft's fuselage to meet its low-boom goals.

The QueSST will employ all-moving horizontal stabilisers, similar to those used by F-15 and F-16 fighter aircraft and features a T-shaped tail, which unusually is not used for flight controls but to tailor the shock – the pressure signature behind the aircraft.

Another key design feature of the aircraft, its original V-shaped tail, was changed.

After detailed analysis, the team opted for the T-shaped tail, which was still able to meet NASA's 75 PLdB (perceived level of noise) requirement. In comparison, Concorde's sonic boom was 105 PLdB.

The X-59 is a 'Frankenplane'. To curb costs, the Skunk Works has reused parts from military aircraft stored at the famous Boneyard at Davis-Monthan Air Force Base (AFB) in Tucson, Arizona.

The aircraft's landing gear comes from an F-16 Fighting Falcon and its control stick originated in an F-117A Nighthawk.

The heat exchanger used in its environmental control system was sourced from a Korea Aerospace Industries T-50 Golden Eagle jet trainer. Its canopy and Martin-Baker Mk.16 ejection seat hail from a former NASA-operated Northrop T-38 Talon that had been used for astronaut transportation and training during the Space Shuttle programme.

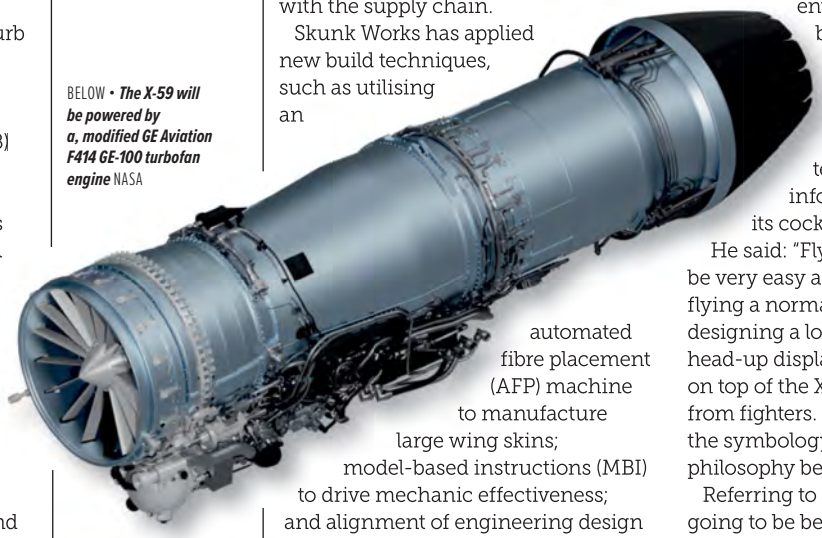
People and places

This one-off demonstrator is being manufactured at Lockheed Martin facilities across the US.

Mission manager Peter Coen

Programme director David Richardson

Lead engineer Michael Buonanno



BELOW • ***The X-59 will be powered by a, modified GE Aviation F414 GE-100 turbofan engine*** NASA

The empennage of the aircraft was designed in Marietta, Georgia and most of the structures and dynamics, flight controls and vehicle management systems are being produced in Fort Worth, Texas.

The majority of the final assembly work is taking place in Palmdale, California. The X-59 is scheduled to be rolled out and initially ground tested by the firm in late 2021, before handover to NASA in 2022.

Four NASA aeronautical research centres are involved with the project: NASA Langley in Hampton, Virginia is managing the Low-Boom Flight Demonstration (LBFD campaign; NASA Glenn in Cleveland, Ohio deals with the propulsion work; NASA Ames in Silicon Valley, California oversees engineering and logistical support; and NASA Armstrong at Edwards AFB, California will be the initial flight testing location.

Around 750-800 people are working to produce the X-59 including personnel from Skunk Works, NASA and the 60 to 70 companies involved with the supply chain.

Skunk Works has applied new build techniques, such as utilising an automated fibre placement (AFP) machine to manufacture large wing skins; model-based instructions (MBI) to drive mechanic effectiveness; and alignment of engineering design through the build process.

It also combines operations, for example by using a mobile bolting and robotic autodrill (COBRA) to match and drill precision holes through the vehicle skin and underlining structure for later fastener installation.

Flying 'Thumper'

Among leading unique features of the X-plane is the absence of a forward cockpit window for the pilot, though it has side windows. A 'front windscreen' would have created strong shockwaves that would prove problematic in achieving the desired sonic thump.

To enable the pilot to see ahead, the aircraft will use NASA's eXternal Vision System (XVS). This innovative suite uses a combination of sensors, computers, high-definition cameras and displays to ensure safe navigation. It will also provide visual aids during approach, take-off and landing, along with informing the pilot of other aircraft in the X-59's vicinity. For safety reasons, the XVS has built-in redundancies in case of system failures.

Dan 'Dog' Canin is the Lockheed Martin test pilot for the initial flight test phase of the Low-Boom Flight Demonstration (LBFD mission. His job will be to perform the first flights and then, along with two additional NASA test pilots, open up the X-59's flight envelope. He has a rich background of testing many aircraft, including the F-16 and F-35, and the experiences of the QueSST's flight test team have directly informed the design of its cockpit.

He said: "Flying the airplane should be very easy and no different than flying a normal airplane... we're designing a lot of the displays. The head-up display, which is an overlay on top of the XVS, is taken right from fighters. We've taken a lot of the symbology, the layout and the philosophy behind those."

Referring to the XVS, he added: "It's going to be beautiful! I fully expect that after a short while flying this airplane, we're going to forget that it's not a window. This is the perfect platform for us to get introduced to this environment because, unlike a fighter, the dynamics are relatively low. It's limited to two-and-a-half Gs and ≫

BELOW LEFT • ***Precision engineering on the wing section***

BELOW RIGHT • ***The Combined Operation: Bolting and Robotic AutoDrill (COBRA) system at work***

18+

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AVAXHOME-

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relatively low high-roll rates. It's going to be interesting. It's a fighter cockpit, but kind of a business jet flight envelope."

The X-59's airframe will be limited to 400kts at lower altitudes due to its dynamic pressure limit – limitations on its flight envelope. "At high altitude, where the air is thinner, that same dynamic pressure gives us a much higher speed,"

Canin said that take-off speeds will be between 170-175kts and approach speeds will be slightly less, at between 155-160kts. It's designed to go to [Mach] 1.5 and 60,000ft.

The X-59's pilot life support system (LSS) is another distinctive feature. It provides pilots with an oxygen breathing supply during missions and is designed to ensure their safety, protecting against any physiological effects that may occur due to exposure to potentially hazardous conditions during flight, such as hypoxia and decompression sickness.

ABOVE • ***Lockheed Martin test pilot, Dan 'Dog' Canin, will be at the controls of the X-59 during its early days of flight testing***

Data is key

Creating the X-59 is a significant feat, but this aircraft is merely the vessel that will provide data needed by aviation regulators.

Programme director David Richardson elaborated: "[That data] will be presented to the FAA [and] to ICAO to do the evaluation on regulation reform, as well as the requirements for any sort of supersonic aircraft in the future. That's really the big-picture purpose of the programme."

ABOVE RIGHT • ***A concept shot of the X-59. Dan Canin will be responsible for flying the aircraft, expanding its flight envelope and proving that the QueSST's unique design generates a thump and not a sonic boom***

TOP • ***The X-plane will tour the continental US, flying tests over communities to collect data from public surveys***

The programme is split into three phases. The first and current stage is to verify performance and safety; the second will ensure the quiet supersonic technology works as its designed to and the third will involve community overflight testing for sound-level data in late 2023.

From there, NASA will hand-over the data to the regulators. Following its roll-out, ground trials and initial flight tests, the X-59 will be scrutinised by the space agency to see if its innovative low-boom design meets the capability requirements ... and works.

During phase three, the X-plane will tour the continental US. Six individual community tests are planned with the first identified to take place near NASA Armstrong in California.

NASA will record sound-level data generated by the sonic thumps during the tests, by collecting public surveys and using a network of sophisticated acoustic sensors (low frequency detecting microphones). Computer analysis and testing looks promising for the QueSST to complete its mission successfully, whether it will work in real life is still to be determined and those results will not be available until the aircraft is flown.

There is no doubting this X-plane's unique looks, mission and its innovative low-boom and in-cockpit technologies.

Boasting the potential to inform change in supersonic flight regulations overland, the X-59 could create commercial aviation waves in aircraft design and the future of passenger-carrying flights beyond the sound barrier. AW

For more in-depth insight into the X-59 Quiet SuperSonic Technology (QueSST) story – including exclusive interviews and images – see September's edition of our sister magazine *AIR International* or check out the Key.Aero website.

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A second lease of life

Ian Harbison sits down with key players from across the sector to discuss the surge in interest for passenger-to-freighter conversions

A modified Boeing 767-300 takes flight IAI

Earlier this year, the world witnessed a sharp increase in demand for cargo capacity to transport medicines and protective equipment to help in the fight against COVID-19. This surge was compounded by the grounding of passenger aircraft, with the loss of a significant amount of 'belly' space on these jets.

It's easy to forget, but before the onset of the pandemic, the air cargo industry was going through a pretty tough patch, with overcapacity and stagnant growth in many regions. In time, once the COVID-related operations eventually decline, many analysts expect the cargo sector to return to somewhere closer to pre-pandemic levels of supply and demand.

However, one possible legacy is that the events of 2020 will generate vast numbers of new e-commerce customers, with many seduced by the convenience continuing to order online long after society returns to normal. In brief, this could result in increased demand and a need for more freighters to support the immense logistic operations involved.

For a great example, look no further than Air Transport Services Group (ATSG), which announced a deal in June to lease 12 additional Boeing 767-300 freighters to Amazon.com Services for ten years. The first of the dozen examples was delivered in May, with the remainder due to follow next year. That will take the Amazon fleet to 31 by the end of 2020 and to 42 by the end of 2021. Meanwhile, the ATSG 767 roster is due to reach 78 jets by the end of this calendar year. Also, in May Israel Aerospace Industries (IAI) picked up orders from DHL for an additional three 767-300 conversions, with options for a fourth available. »

A Boeing 737-800SF undergoing modification at Commercial Jet's Miami facility AEI

Passenger-to-freighter (P2F) options have become more affordable since the onset of the COVID-19 crisis EFW

Status quo

The vast majority of aircraft in the current freighter fleet are conversions, rather than brand new examples, straight off the production line. That means they have generally been in passenger service for some time and their residual value has fallen to a point where maintenance costs associated with airline flying has become prohibitive. By making a relatively small investment, the owner can often get another ten years of profitable life from the airframe thanks to the much lower utilisation rates in cargo operations – sometimes as little as one return flight each day.

Despite the impressive potential, a number of factors within the wider commercial aviation sector have limited the supply of suitable aircraft, often referred to as 'feedstock'. The booming worldwide airline business before the pandemic and delays to the Boeing 737 MAX programme meant that jets were not only maintaining their value but were staying in service longer than previously planned.

Many of the freighter aircraft out there are 737-300s and -400s, but with China cracking down on aircraft that are more than 20 years old and a booming e-commerce market in the region, replacement examples are now being sought, increasing demand for newer types.

Aeronautical Engineers Inc (AEI) is in a unique position to understand the market, having carried out more than 500 conversions and with five types in its STC (supplemental type certificate) conversion portfolio. In essence, an STC allows for changes and modifications to be made to an aircraft outside of its original type certificate – a document that proves it meets the necessary safety requirements by regulators.

The newest, and most popular, is the 737-800SF (Special Freighter), with nine active conversion lines and an ever-growing backlog. In second is the 737-400SF, followed by the McDonnell Douglas MD-80SF and Bombardier CRJ200SF and finally, the 737-300SF. The firm currently has four active authorised AEI conversion centres, including Commercial Jet, in Miami, Florida; Commercial Jet Services in Dothan, Alabama; KF Aerospace in Kelowna, British Columbia; and STAECO in China's eastern Shandong province. In August, it added Taikoo (Xiamen) Aircraft Engineering, also known as HAECO Xiamen. The first conversion from this facility, a 737-800SF, is due to begin in January 2021, followed by second line in April that year. At that time, AEI will have an impressive 14 simultaneous lines, nine of which will be dedicated to the 737-800SF.

Robert Convey, senior vice president of sales and marketing at AEI, told *Airliner World* that this reflects a dramatic change in the market in the last few months. He explained that from 2013 to 2018, the company averaged more than 20 deliveries a year. In 2019, this dropped by half and the same number was anticipated this year. However, from January to mid-March 2020, only a single aircraft was in work. This, combined with a very small backlog meant the prospects for the year were looking very grim.

The outlook was further dampened as demand for passenger aircraft remained strong, keeping feedstock prices high. Then, as COVID-19 really took hold in late March, everything changed almost overnight. "It was as if someone flipped a switch and suddenly aircraft by the hundreds were available," said Convey.

"The initial demand came from companies that either owned or managed the aircraft as they had a problem on their hands, and converting aircraft was one of solutions available to them." Five months later, he says cargo airlines

Among the most visible modifications made to P2F airframes is the removal of most of the windows in the former passenger cabin
IAI

The US-built narrowbody continues to be a hugely popular model for passenger operations
IAI

Vallair has played an important role in the development of the first Airbus A321P2F example
VALLAIR

are actively seeking conversion slots and looking to buy 737-400s and -800s at potentially reduced prices.

Among these firms is Florida-based GA Telesis, which added a former Pegasus 737-800, TC-CPP (c/n 32903), that started its conversion in August 2020 at Commercial Jet for delivery this coming December. The company also took an option on a second aircraft of the same type for early 2021 and delivery in May that year. These are expected to be available for lease. A further July order came from Bulgaria-based cargoair, which added a 737-400SF freighter conversion to its current AEI fleet of three 737-300SFs and seven 737-400SFs. As *Airliner World* went to press, the aircraft, LZ-CGY (c/n 28882), was scheduled to start modification in mid-September 2020, also at Commercial Jet.

Looking further afield, Nauru Airlines, the flag carrier of the tiny South Pacific nation, has ordered a second 737-300SF freighter conversion, complementing a previous order placed in March 2020. This example, VH-YNU (c/n 25607), is projected to arrive at Commercial Jet in mid-January 2021 and is scheduled for redelivery in May. Both will be used for charter flights in and around Micronesia, transporting fresh food, mail, medicines, and other freight around the scattered island nations in the region.

Additional players

KF Aerospace of Canada is another 'surge customer' following the changing landscape amid the pandemic. It's due to acquire a fourth 737-400SF conversion for its leasing business – the first three were ordered in April this year, reinforcing the current buoyancy of the market. Having been a customer since 1994, with a pair of 727-200SFs, it became an authorised AEI conversion centre in 2017. As such, it will carry out the work at its Hamilton, Ontario facility with ex-Merpati example, N129AC (c/n 26280), starting in December.

For Convey, the 737-800SF is the current market leader and he believes it will continue to dominate the narrowbody fleet globally for the next 40+ years. Speaking of its European competitor, he argued that the Airbus A320 Family will – if it ever gets certified – have a limited life span. The A321 will be a good replacement for the 757, he added, but strong demand for the passenger version will make feedstock hard to come by. Without going into any further detail, he confirmed to *Airliner World* that AEI will be making an announcement in early 2021 on its next freighter conversion project.

Speaking of the A321, someone who knows more than most about the aircraft is Alistair Dibisceglia, chief leasing and trading officer at aviation solutions firm Vallair. His company has selected the EFW A321P2F conversion package (the Dresden-based company is jointly owned by Airbus and ST Aerospace, so has a deep understanding of the aircraft).

The prototype first flew in February 2020 after a two-year development programme and is expected to be delivered to Qantas before the end of the year as part of its Express Freighters Australia operation. That example, since registered, VH-ULD (c/n 835), was modified in Singapore/Seletar and it will be the first-ever converted A321 freighter to enter »

The first Airbus A321P2F landing following its maiden flight
AIRBUS

the market after obtaining all the necessary approvals. Vallair is also set to become the launch lessor for the upcoming Precision Aircraft Solutions A321PCF conversion.

Dibisceglia said there has been strong interest from the market, and especially during the pandemic, adding that typically for airliners, it takes a fleet of around five aircraft to establish a new cargo division. Vallair certainly has confidence, as it has a contract with EFW for ten conversions over the next two years alone. When it comes to securing more feedstock, he revealed the company has been actively sourcing assets and is expecting to see a significant drop in prices due to the crisis, perhaps by as much as 30%.

Airbus focus

The biggest market advantage of the A320/321 is that it can take standard freight containers in the belly hold, unlike the 737. The A321 payload is much higher, hence it is not broadly comparable with the Boeing example. The ability to carry everything in a container means turnaround times are often much more efficient – this is especially important at a hub where there are transfers between aircraft going to different destinations. The fuel efficiency of the A321 means it can operate sectors of up to four or five hours, but Dibisceglia noted that fitting an additional centre tank could give way to transatlantic operations.

From the EFW side, Thomas Centner, director of sales and technical marketing noted that the company has delayed the A320P2F project slightly because of interest in the A321P2F. The demand is coming from fast-growing e-commerce firms worldwide and also in regions with economies that have significant industrial work shares with other countries and a huge dependency on external trade exchanges – both of which are impacted by the lack of belly space due to fewer passenger aircraft movements. Conversions have also become a sound 'exit solution' for owners to avoid the long-term storage of good-quality jets.

Centner added that the company also has an Airbus A330P2F programme, which has been quiet recently, but he expects demand to pick up for larger aircraft in due course. As a result, EFW is looking to expand its operations. The company had planned to start work at other

Many analysts believe widebody P2F aircraft will become a more common sight in the coming decade
IAI

The upper frame shell of an A330-200P2F
EPW

locations but has postponed this, preferring to open new lines at its existing facilities first. This builds on efficiencies already in place, making it easier to increase the number of conversions per year, with a target for an A321P2F of just four months.

IAI insight

Rafi Matalon, executive vice president of marketing at IAI Aviation Group, confirmed his company is carrying out work on two examples of the 737-800 Bedek Designed Special Freighters (BDSFs) for Russian airline S7, which will lease them from owner GECAS. Like the others, IAI is experiencing a rise in demand from airlines and owners, with particular interest from China, Europe and Russia for examples of 737-700/800s. Those two, along with the 767, are the market leaders. Matalon also anticipates a small number of annual orders for the 747-400 over the next few years. Amid a subsequent series of high-profile retirements by carriers, such as British Airways and Virgin Atlantic, spare 747 airframes are now plentiful and available at a far lower cost than before the pandemic.

That said, IAI has the 747's replacement already in the workshop, the prototype 777-300ER, a former Emirates jet, N557CC (c/n 32789), arrived at the company's facility in Tel Aviv in June for conversion. Dubbed 'the big twin', it's a joint venture between IAI and GECAS, with the main attraction being its payload capability and range, while the General Electric GE90 engines give it 21% lower fuel burn per tonne than the 747-400F. STC approval is expected at the end of 2022, with further expansion of the portfolio also due with the regulatory green light for the A330-300 forecast a year later.

With an increase in business, the company is expanding the number of facilities to meet demand. For the 767, it has opened two additional conversion lines, one each in Israel and Mexico, for a total of eight lines. Meanwhile 737 work is based in China and Mexico, and IAI is also looking for another site in Europe.

While belly hold cargo continues to have an important role in global air freight, the COVID-19 crisis has highlighted the benefits of bespoke cargo operations
BOEING

Manufacturers, such as Boeing, continue to develop new-build cargo jets for customers around the world. This example, VQ-BLR (c/n 37668), was the second 747-8F to be delivered to AirBridgeCargo Airlines
BOEING

What's next?

EFW's Centner shared concerns that it will take two to three years to reach pre-COVID passenger levels, which means airlines are probably looking at acquiring dedicated freighters again. Belly freight carried on scheduled civilian aircraft offer cost advantages, but it has now been shown to be vulnerable to disruptions.

However, AEI's Convey wondered whether operators which are now entering the narrowbody freight sector for the first time, such as S7 and US-based Sun Country Airlines (the latter now operating for Amazon), will make this a long-term strategy or if they will go off the idea in a few years and return to more traditional passengers operations.

In the 1950s and 1960s, he noted, there was rapid growth of dedicated freighter fleets with large passenger carriers, such as Northwest Airlines, United Airlines, KLM, Air France and Lufthansa. Over time, many of these companies sold off their freighters and focused on their core business. Will history repeat itself again? As the only certainty is uncertainty within the aviation business at the moment – only time will tell. AW

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Manning the tours

With decades of globetrotting under his belt, including 16 years working as a tour manager for *Ian Allan Aviation Tours*, **Gerry Manning** has a wealth of images in his personal archive. In this first instalment from a new series, Gerry recalls a visit to China in the final days of the 20th century

One of eight Yakovlev Yak-42Ds operated by China General Aviation Corporation (CGAC), B-2754 (c/n 4520423116579) retains the livery of its former employer more than 12 months after the carrier had been acquired by China Eastern Airlines

ABOVE RIGHT • *A China Postal Airlines Yunshuji Y-8F-100, B-3102 (c/n 1002), touches down at Guangzhou in the south of the country. The Tianjin-based carrier now operates a 28-strong all-Boeing fleet of 737 and 757 freighters*

China Xinjiang Airlines Ilyushin IL-86, B-2018 (c/n 51483210099), gets airborne from its Ürümqi base in northwest China

The end of the last millennium was an ideal time to visit China's airports. Around a decade earlier, the Far Eastern country was served by one indigenous airline – CAAC Airlines, a branch of the Civil Aviation Administration of China. However, by 1999 the Beijing-based giant had been divided up into a host of carriers each named after the geographic region it served – Air China, China Southwest Airlines, China Eastern Airlines, China Northwest Airlines, China Southern Airlines and China Northern Airlines. Within four years of my visit, these six operators had consolidated into China's 'big three' while two crashes within four weeks, with a combined loss of 241 lives, brought about more stringent safety regulations. As a result, the retirement of Soviet airliners along with their licence-built counterparts was hastened. During a fortnight-long journey, we travelled from Beijing to Shanghai, Guangzhou, west to Xian, Lanzhou and Ürümqi before returning back to the capital. AW

A row of nine Xinjiang General Aviation Harbin Y-11s at the company's Shihezi, Xinjiang base in the far west of the country. Around 50 examples of the Huosai-6A-powered Y-11 were produced between 1977 and 1985

Sichuan Airlines Tupolev Tu-154M, B-2629 (c/n 919), taxies out at Guangzhou for departure to its Chengdu base

BELOW LEFT • *This China Northwest Airlines Airbus A310-200, B-2303 (c/n 419), flew for a trio of Chinese carriers before joining Myanmar's (Burma) Air Bagan in October 2006. The two-class, 228-seater spent five years with the Yangon-based operator before a brief stint with Thailand's PC Air. It was scrapped earlier this year at Bangkok's Don Mueang Airport after eight years in storage at the facility*

OPPOSITE • *China Eastern Airlines received this McDonnell Douglas MD-11, B-2174 (c/n 48498), in 1992. The Pratt & Whitney PW4460-powered jet was converted to a freighter in 2000 and later served with China Cargo Airlines and SkyLease Cargo*

China Northern Airlines was merged into China Southern Airlines in 2003. Based at Shenyang/Taoxian, in the country's northeast it had previously operated a fleet of Airbus A300s and A321s and McDonnell Douglas MD-80s and MD-90s on domestic links and routes to North Korea, South Korea and Japan

This British Aerospace BAe 146, B-2718 (c/n E3222), was delivered to China Northwest Airlines in January 1994 and was transferred to China Eastern when the two carriers merged in 2003. It's now stored alongside sister ship, B-2719 (c/n E3218), in a field in Henan Province. The pair were due to have become part of a hotel and restaurant complex

A Shenzen Airlines Boeing 737-300, B-2933 (c/n 25788), taxies on to stand at Beijing/Capital. The jet was leased from Bavaria Fluggesellschaft (later Bavaria International Aircraft Leasing) and spent its entire working life with the firm before being scrapped in 2011

Microsoft Flight Simulator Returns

After 14 years out of the industry, Microsoft is back with a new edition of its popular and long-running Flight Simulator franchise. **Thomas Haynes** evaluates the American tech giant's latest offering to see how it stacks up against its predecessors and rivals

First released in November 1982, Microsoft Flight Simulator is one of the best-known home flight simulator programmes on the market. At 37-years-old, it is the longest-running software product line for Microsoft, predating Windows by three years.

The company's 12th and final release before its 14-year hiatus was Flight Simulator X, which debuted in October 2006. Just under three years later, the Redmond-based firm decided to close Aces Game Studio, which had been the department responsible for creating and maintaining the platform.

In the years since, Microsoft sold the entertainment rights to Dovetail Games and the commercial-use rights to Lockheed Martin. The latter has created a successful series of training simulation software called Prepar3D, while the former attempted to create new platforms that ultimately failed to achieve commercial success. As a result, the Train Simulator maker handed back the entertainment licence to Microsoft in 2018.

In June of last year, the American software giant surprised the world when it announced a new instalment at the gaming conference E3, simply titled Microsoft Flight Simulator. Many in the community thought the company had abandoned the simulator market for good and were delighted to hear of its looming return.

A lot has changed since Microsoft produced its last instalment back in 2006. Computers have become markedly more powerful and the technology in the background of

the platform has improved in its capabilities. As a result, the tech giant took a different approach when developing this latest generation.

Instead of making the end-user's computer do all the work, Microsoft is leveraging cloud technology through its Azure service. In addition, the base imagery comes from Bing Maps and this all means that some of the scenery generation is completed in the cloud and streamed down to a user's computer over the internet.

On August 18 this year, the simulator was released and immediately garnered a lot of attention from what seemed to be a much wider audience than just the aviation and flight simulation communities. The platform appeared to have gone mainstream, which is not something most in the industry would have thought possible for such a niche game.

So, what is it like to use? Compared with other versions of the simulator, this new iteration couldn't be more different. Microsoft has developed it almost from the ground up meaning that very little remains the same. The user interface takes on a modern look with a block-based design that wouldn't look out of place on an Xbox – which makes sense because the simulator is soon coming to the gaming console.

The world is recreated using two petabytes (two million gigabytes) of data from Bing Maps, this includes elevation and satellite imagery covering more than 45,000 airports and two million cities. This information is then processed by Microsoft's Azure AI cloud system using algorithms and computer vision programmes to determine where to position trees and the colour, shape, size and placement of buildings. All this data is then streamed down to the user, but adaptive streaming and cached offline options are also available for people with slow, or no internet connections. Ultimately though, the better your bandwidth, the better your experience will be.

One of the most notable features of the platform is the inclusion of a complete air mass simulation. The game calculates the movement of the air across the ground surface and how it interacts with the aircraft in flight. Consequently, if a runway is positioned next to terrain, it has an impact on the movement of the air making a challenging approach, like that at Madeira Airport, difficult in the simulator as well.

Microsoft has taken advantage of techniques developed within the gaming industry over the last ten years to make the atmospheric simulation as realistic as possible. The way that light is managed in the simulator is truly beautiful and its scattering is informed by the air density, humidity and pollution levels.

The number of aircraft included with the game depends on which version the customer buys. The top of the range Premium Deluxe edition provides users with 30 aircraft, while the Standard offering comes with 20.

Textron Aviation features heavily in the line-up with ten different airframes ranging from the popular Cessna 172, up to the Cessna Citation Longitude. The Airbus A320neo is present in all editions of the platform, along with the Boeing 747-8 Intercontinental. Upgrading to the top version adds the 787-10 Dreamliner.

While the list of commercial aircraft is not very extensive, the three main examples are more than enough to keep most people happy. The level of detail included with the trio could leave something to be desired for some hardcore simulator enthusiasts but they can conduct the majority of basic tasks, such as flying routes using proper flight plans, as well as standard instrument departure (SID) and standard arrival route (STAR) procedures. Some of the system depth is not there and a large number of buttons and switches were labelled as 'inoperative', but generally the aircraft do what they are supposed to.

Despite this, for most users the included types will be fine and very soon, third party add-on developers will have caught up and be able to offer paid downloadable content for additional aircraft with deeper complexity and modelling.

Microsoft Flight Simulator is the result of the convergence of numerous technologies that have enabled the developers to create an amazing platform. The representation of the world is indisputably the most accurate recreation in a home simulator ever. The atmospheric modelling is truly remarkable and as a result, the release of Microsoft Flight Simulator represents a new and exciting era for the simulator community. AW

ABOVE • ***The Airbus A320neo is the only offering in the flight simulator from the European manufacturer***
ALL IMAGES VIA AUTHOR

ABOVE LEFT • ***The simulator features a real-world weather option which depicts the atmospheric conditions of anywhere on the planet***

OPPOSITE • ***The Boeing 747-8 Intercontinental is included in all versions of the new Microsoft Flight Simulator***

Opposite •Some of the aircraft cockpits were generated using 3D design files from the manufacturers

Regional Resilience

As airlines downsize and seek to 'right fit' their fleet, **Gordon Smith** speaks with **Zuzana Hrnkova**, vice president of marketing at ATR, to discuss the manufacturer's proactive approach to these most challenging of times

Not all aircraft are made equal – that's the main message from Zuzana Hrnkova, vice president of marketing at ATR, as the Franco-Italian manufacturer navigates one of the most turbulent periods in aviation history.

While the notion of airline bosses matching the right equipment to the mission is nothing new, Hrnkova argues that the ATR family of turboprops – the 42-600, 42-600S, 72-600 and 72-600F – is better positioned than most to help carriers brave the storm.

Speaking exclusively to *Airliner World*, she shared research findings that suggest the turboprop sector as a whole has fared better than the industry average for maintaining ASKs (that's the total number of available seat kilometres between all airlines) during the traditional summer peak period. Drilling down a little deeper into the global data, sourced via industry analysts OAG shows that routes operated by ATR models experienced a delayed decrease in ASK, a shallower decline and a faster recovery from the painful nadir of late March and early April of this year.

Hrnkova highlighted three key drivers of the resilience within the turboprop market, namely its focus on essential lifeline services, redeployment in single-aisle routes due to a lower break-even load factor, and the leveraging of tactical opportunities for cargo, medevac and repatriation flights.

"To help with the crisis, we've offered support to customers 24/7 to find practical solutions, such as technical documentation and guidance. We [have] also created a multi-functional ATR team designed to prepare airline customers for restarting operations, as we are aware that not all of them have been able to keep their entire fleet in service," noted Hrnkova.

The manufacturer may have its base in Toulouse, but the pandemic has illustrated the company's global reach. From the peaks of Nepal and tropical jungles of Papua New Guinea to the tundra of northern Canada, the ATR fleet has proved to be a fairly versatile workhorse throughout the COVID-19 pandemic.

Hrnkova shared more than a dozen case studies of ATR aircraft going beyond the call of duty as the coronavirus crisis intensified. On March 26, a chartered Buddha Air ATR 72-500, 9N-AMU (c/n 759), operated a special service to Pokhara, Nepal, to rescue 58 French nationals stranded in the Himalayan city. Three weeks later, another ATR 72-500, 9N-ANC (c/n 754), of Yeti Airlines carried 38 medical personnel to Dhangadi for their journey to the far west of Nepal to help diagnose cases of COVID-19 and control the spread.

While the turboprops are well suited to passenger transport, the models have also developed a niche as a cargo solution. Fiji link, a subsidiary of the national carrier Fiji Airways, converted one of its pair of ATR 72-600s by removing seats and installing floor-to-floor nets to help ensure safe and reliable deliveries of medical products, mail and food. The switchover, which offers the airline flexibility to go from all-freight back to a regular passenger configuration overnight, resulted in up to eight tonnes of cargo capability.

It is almost impossible to overstate the impact of the coronavirus on the commercial aviation industry, but Hrnkova emphasised that there are nuanced approaches within ATR's global markets: "We have noted different behaviour between various countries and regions in terms of their management of the pandemic. Take, for example, Mandarin Airlines in Taiwan, who continued to operate all of its seven ATR 72s throughout the crisis and are even due to expand their fleet further this year, with an additional pair of ATRs. [Then there's] Hi Air in South Korea, which also continued passenger service, [which] are growing their fleet with an additional two secondhand aircraft this year. Elsewhere, we've also seen a quicker recovery in markets including Japan and New Zealand."

Looking beyond the immediate crisis, Hrnkova said that agile decision-making is essential in such a fast-changing environment, with the adaptability to shift networks being key to longer-term success. OAG data suggests that of the 1,957 routes operated by ATR equipment in 2019, only 36% existed in 2010. Of the remaining 64%, approximately 23% were routes already in operation but 'captured' from other airliners, while 41% were brand-new links created over the previous decade. Placed in context, ATR operators snapped up 83% more routes from other manufacturers, compared to services lost to bigger jets over the period between 2010-2019.

By gatecrashing the boom years in the most apocalyptic style, few aviation executives would describe COVID-19 as anything other than a very unwelcome visitor. That said, the team at ATR appear more resolute and tenacious than some of their counterparts. The company's lack of exposure to vulnerable intercontinental long-haul markets, plus its innovative approach to adapting to the needs of airlines, should put it in decent stead to weather the worst of the storm. AWW

South Korean carrier Hi Air has actually expanded its fleet portfolio during the COVID-19 crisis

OPPOSITE • ***Zuzana Hrnkova is vice president of marketing at Franco-Italian turboprop manufacturer ATR***
BOTH IMAGES ATR

Airbourne Colours' chairman **Steve Darbyshire** reflects on the firm's first decade and a journey that has taken the company from South Coast start-up to East Midlands-based market leader

Fusel-art

AN EMERGING AIRCRAFT PAINTING POWERHOUSE

It is ten years since Airbourne Colours set up shop in one of the old BAC One-Eleven hangars at Bournemouth Airport – the company's first job, a Boeing 737-300, painted for next door neighbours European Aviation Group. In the following decade, the firm has grown from what chairman Steve Darbyshire described as "the new kid on the block" to the UK's market leader.

A veteran of the aircraft painting world, having worked his way up from sweeping hangar floors for what is now one of the company's competitors, Steve cited his prior experience in the industry as a factor in the company's success: "We've got aircraft painters in upper management, so we know what the customer wants and that's exactly what we offer."

He continued: "At the start, if an airline couldn't get a slot with a competitor, it gave us an opportunity to show what we could do and they never went back to their old supplier. We gave the customer exactly what they wanted, and we still give them the quality that they ask for, but we've also got industry-leading downtimes – we paint around 150 aircraft a year. A lot of it is based around personal service, too. We try to support the airlines whichever way they want us to, even down to the little things like arranging hotels and taxis. We make it easy for them."

It's this combination of attention to detail and personal touch that has seen the company not only expand its client base, but keeps airlines coming back time and again. Earlier this year, the company was tasked by first customer European Aviation Group to apply now-famous NHS titling to a trio of its ex-Virgin Atlantic Airbus A340-600s responsible for transporting personal protective equipment (PPE) to the UK. Other carriers to have sent their aircraft to Bournemouth in the paintshop's first few weeks and months include Jet2.com and Aegean Airlines, both of whom continue to send their jets to Airbourne Colours. The latter recently chose the company to paint the maiden aircraft for its new Romanian subsidiary, Animawings, in its red and white corporate identity (see Europe News, August edition).

After several years' solid growth developed by increasing the efficiency of its original Dorset base, expansion at East Midlands came almost out of the blue, as Darbyshire explained: "It was an airline that recommended this facility to us.

Brussels Airlines' Amare livery, which promotes the Tomorrowland electronic dance music festival, is among the Airbourne Colours chairman's favourite projects. The striking colour scheme was applied to one of the carrier's 16 Airbus A320ceos, OO-SNF (c/n 2810), in 2017
BRUSSELS AIRLINES

They called me up for a meeting and said we didn't have enough hangars for the number of aeroplanes they wanted painting. That was a huge confidence boost."

The first of two bays at the Castle Donington airfield was opened in January 2014 and is capable of handling aircraft up to and including an Airbus A321. The second – able to accommodate aircraft up to the size of a 737-300 – came into operation in November 2015.

Not just paint

Explaining the shift from the South Coast to the East Midlands, Darbyshire said: "This facility can provide a lot more scope than we have in Bournemouth, so it made sense to move our headquarters here."

Alongside expanding, the company has also taken on more executive work and offers business jet painting at both its East Midlands HQ and at Bournemouth, where it leases a hangar from JETS – a local MRO specialising in Bombardier, Hawker and Embraer Phenom 300 business jets. The diversification into the executive aircraft sector has also led to the creation of a specialist off-site painting department which offers post-maintenance paint correction and 'brightwork' detailing to ensure an exterior finish free of flaws and gleaming like new. Having been built predominantly on word-of-mouth recommendation, the company has gone on to attract repeat business, including from the likes of Bombardier, Gulfstream, Inflite and Gama Aviation. Following the COVID-19 outbreak, the off-site team's remit has been expanded to incorporate cabin disinfection services.

Born out of a need to create short-term visuals, such as temporary registrations and airline titling for leased jets, the graphics department has expanded beyond the confines of the aviation industry to catch the eye of businesses as diverse as Premier League football teams and housing developers.

BELOW LEFT • ***Czech Airlines Boeing 737-500, OK-XGB (c/n 26540), emerged from Airbourne Colours' Bournemouth site in this retro 1950s-inspired livery in November 2011***
AIRTEAMIMAGES.COM/ JAN OSTROWSKI

BELOW • ***This European Aviation Group-owned Boeing 737-300, N470AC (c/n 24570) was the first jet to receive attention from the company***
KEY COLLECTION

Pride in their work

When asked which aircraft he's most proud of being involved with, Darbyshire is quick to mention the two special liveries the company has painted on Brussels Airlines »

Airbourne Colours' off-site team has applied titles to a trio of European Aviation Group's ex-Virgin Atlantic Airways Airbus A340-600s in support of the NHS's efforts during the ongoing COVID-19 pandemic
MARTIN NEEDHAM

Airbus A320s: "Tomorrowland was my favourite. Simon [Cracknell, Airbourne Colours' sales and marketing director] and I went to the launch of that aircraft... We were blindfolded and put on a bus with a lot of other people and taken across to a hangar. There was a DJ playing electronic dance music and a big countdown. Then they lifted this curtain and this A320 was there all lit up. Even I stood there and said, 'Bloody hell, that looks fantastic.' It was real job satisfaction. I get really proud when I see them.

"A lot of work goes into a special colour scheme like that. It takes six days to do an easyJet and that's just two colours. The Pieter Bruegel and Tomorrowland jets took 18 days. It's three times as long, but just one aeroplane. Our business is mainly driven by easyJet, TUI, Norwegian Air Shuttle, Loganair and Lufthansa Cityline but they're great to do, it spreads a good vibe throughout the company and morale is really high."

Also high on the chairman's highlights are Czech Airlines 737-500, OK-XGB (c/n 26540), which was painted in a retro livery in 2011, and a Danish Air Transport (DAT) McDonnell Douglas MD-83 and a Titan Airways 737-300, repainted for Coca-Cola's 2014 and 2018 FIFA World Cup Trophy Tours, respectively.

Future plans

Looking ahead, Darbyshire cited the wisdom of the company's managing director, Neil Osborne: "Controlled growth... We won't take gambles, nor will we bite off more than we can chew." Osborne added: "It's not been about how we can get more facilities to paint more aeroplanes, it's been about maximum utilisation of facilities we've already got, and I don't think there's a lot more room to improve there. There's going to be a need to expand the business through new [paint bays] but it's about timing. You see a lot of companies growing for the sake of growing."

While optimistic, Osborne has an understandable air of COVID-induced uncertainty. "Airlines don't know whether they're coming or going at the moment – not long ago they were all saying 'great, we can go to Portugal' and now no one wants to go to Portugal because they don't want a fortnight's quarantine... We expect to see a lot of aircraft going back to lessors and normally you would paint it into the next operator's colours, but there's no next user, so they're just going to be painted white."

No one could have predicted the coronavirus and its shocking impact on the wider aviation industry, but Airbourne Colours' record of repeat business and its pragmatic approach to expansion could well ensure it weathers this particular storm on the road to a bright future. AW

The firm has twice painted aircraft for use as part of the FIFA World Cup Trophy Tour by Coca-Cola. Danish Air Transport McDonnell Douglas MD-83, OY-RUE (c/n 49936), visited 88 countries ahead of the 2014 FIFA World Cup held in Brazil
AIRTEAMIMAGES.COM/
JAN OSTROWSKI

Airbourne Colours

The Home of Aircraft Painting

As the CEO and owner of Airbourne Colours, I am extremely honoured and take great pride in what has been achieved as we approach 10 years in business. A huge thank you to all my customers, employees and suppliers for being part of my journey. Here's looking forward to the next 10 years with the same determination and enthusiasm.

S.Darbyshire

For all your paint and graphics requirments please contact us on the below

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Outback to the Future

A pair of World War One veterans vied to be the first Australians to fly from England to their home nation, but in their failure created an airline that has pushed boundaries and blazed trails for a century. ***Airliner World*** charts the history of Qantas – the southern hemisphere's biggest and most senior carrier

From its humble beginnings in the Australian outback, Qantas has grown into the southern hemisphere's largest airline. Formed in 1920, it is the world's third oldest continuously operating carrier after KLM Royal Dutch Airlines and Avianca Colombia and the oldest in the English-speaking world. Australia's geographic position has meant it has been necessary for Qantas to pioneer long-distance international air travel, developing over-water routes to Europe and North America. Not content with stopovers on longer routes to the UK and US, prior to the COVID-19 pandemic the carrier had continued to blaze a trail, pursuing nonstop links between Sydney and London and New York as part of Project Sunrise.

Ready to start

The Qantas story can be traced back to March 1919 and two former Australian Flying Corps officers – both World War One veterans who had fought at Gallipoli – lieutenants Hudson Fysh and Paul McGinness. They learned of a Federal Government prize of £10,000 (AUS$20,000), used as an incentive to encourage the expansion of air travel to the country, that would be awarded to the first nationals to fly from England to Australia in less than 30 days.

They decided to have a go and, with the financial backing of Sir Samuel McCaughey of New South Wales, they started planning their adventure.

Sadly, Sir Samuel suddenly died before the deal could be signed, so the money dried up. Unable to find an alternative source of finance, the pair reluctantly abandoned their challenge. The prize money would eventually be claimed that December by a Vickers Vimy crew headed by Keith and Ross Macpherson Smith.

This major setback for Fysh and McGinness was ultimately to prove fortuitous for Australian aviation. Instead, both men accepted a Department of Defence contract to survey the northern section of the air race's route across the sub-continent, the 1,350-mile section between Katherine, Northern Territory and Longreach, Queensland. The pair showed great determination and »

More than 30 747-400s served with Qantas from 1989 until 2020 AIRTEAMIMAGES.COM/JOHN KILMER

Hamilton Island
Hamilton Island
EXIT

successfully finished the task in 51 days. However, the slow progress over extremely rough terrain strengthened their conviction that regular air services were the much-needed solution to the problem of linking outback settlements.

After completing the survey, Hudson Fysh prepared a landing strip in Darwin for the Defence Department and then stayed on to watch the air race pass through. Keen to further their ideas and establish regular outback air services, Fysh and McGinness were reunited and were able to persuade graziers Fergus McMaster and Ainslie Templeton plus several other local businessmen to back them. The group of investors provided the finance for Fysh and McGinness to purchase two war-surplus biplanes: an Avro 504K G-AUBG and a Royal Aircraft Factory BE.2E, on August 19, 1920, under the company name of Western Queensland Auto Aero Service Limited. A short time afterwards, the name was revised to 'Queensland and Northern Territory Aerial Services Limited', soon abbreviated to QANTAS. It was formerly established on November 16, 1920 in Winton, Queensland with Fergus McMaster appointed as its first chairman. The Avro 504K was flown from Sydney to both Longreach and Winton during February 1921 and started flying 'joy flights' to help raise capital for the new airline. The same month, Qantas moved its headquarters from Winton 110 miles south to the outback town of Longreach.

The initial 18 months of operations were tough for the fledgling carrier, so much so it undertook barnstorming and charter work to supplement its few passenger rotations.

Its first major contract was the state-sponsored airmail service that started on November 2, 1922, flying from Charleville via Blackall to

ABOVE • ***Queensland and Northern Territory Aerial Services (Qantas) moved its headquarters from Winton, 110 miles south to the outback town of Longreach in February 1921***
ALL IMAGES VIA QANTAS UNLESS STATED

TOP RIGHT • ***The carrier's first aircraft, a Sunbeam Dyak-powered Avro 504K, G-AUBG, was initially used to provide air experience flights around Winton and Longreach that would help raise funds for the fledgling airline***

ABOVE RIGHT • ***Qantas opted to build additional de Havilland DH.50s to increase capacity***
STATE LIBRARY OF QUEENSLAND

De Havilland DH.86 Express, VH-UUA (c/n 2306), was one of six examples used by Qantas Empire Airways. It was delivered to the company's base, then at Archerfield Aerodrome, Brisbane, on March 28, 1935

Longreach. It continued the following day with one passenger on board to Winton and Cloncurry. McGinness left Qantas around this time to tackle fresh challenges.

The airline grew steadily in the 1920s and 1930s by adding larger and more up-to-date aircraft to its fleet, the first of which was the four-seat de Havilland DH 50A, which had an enclosed passenger cabin. The arrival of the DH.50A coincided with the 250-mile extension of its airmail service to Camooweal, via Mount Isa. In 1926 Qantas began building its own DH50s from kits supplied by the British company, the first time an airliner of this size had been produced in Australia under licence from an overseas manufacturer.

Unlike the carrier's earlier Siddeley Puma-powered DH.50As, the kit-built examples – known as DH.50Js – were equipped with Bristol Jupiter radial engines.

Qantas also helped with the formation of the Australian Aerial Medical Service at Cloncurry on March 27, 1928, when it signed a year's contract to fly medical flights on behalf of Reverend John Flynn's Australian Inland Mission using a DH.50A. It held the contract for four years, operating over an area larger than Great Britain and laying the foundations for the now famous Royal Flying Doctor Service of Australia. In April 1929, the carrier acquired two DH.61 Giant Moths and used them to launch the 441-mile link between Charleville and Brisbane, its first link with the coast.

Close ties with the UK's Imperial Airways were forged when Qantas took part in a trial flying airmail from Brisbane to Darwin as part of an experimental England to Australia service. The relationship strengthened and on January 18, 1934, Qantas Empire Airways Limited was formed, combining the interests of Imperial Airways and Qantas, each holding a 50% share, with Hudson Fysh appointed as managing director. By 1934 Qantas had already flown its first one million miles and as expansion continued it was decided to move its headquarters from Longreach to Brisbane on June 16, 1934, where it established workshops, hangars and flight operations at Archerfield Aerodrome.

A year later Qantas Empire took over the Darwin-Singapore mail run for the first time on February 26, 1935 and less than two months later – on April 20 – it launched its inaugural overseas passenger link from Brisbane to Singapore. It took four days to complete, with the onward journey from Singapore to London/Croydon taking another eight-and-half days. The new service was dubbed the 'Kangaroo Route' and the name has been used ever since on all Qantas flights heading west from Australia to the UK.

By the late 1930s, Qantas' fleet was struggling to keep up with the demand for seats, so it introduced the Short C Class Empire and established a flying boat base at Rose Bay, Sydney.

Six Empire flying boats were initially acquired and its inaugural flying boat rotation left Sydney on July 5, 1938, bound for Southampton. Four more Empires joined the fleet later.

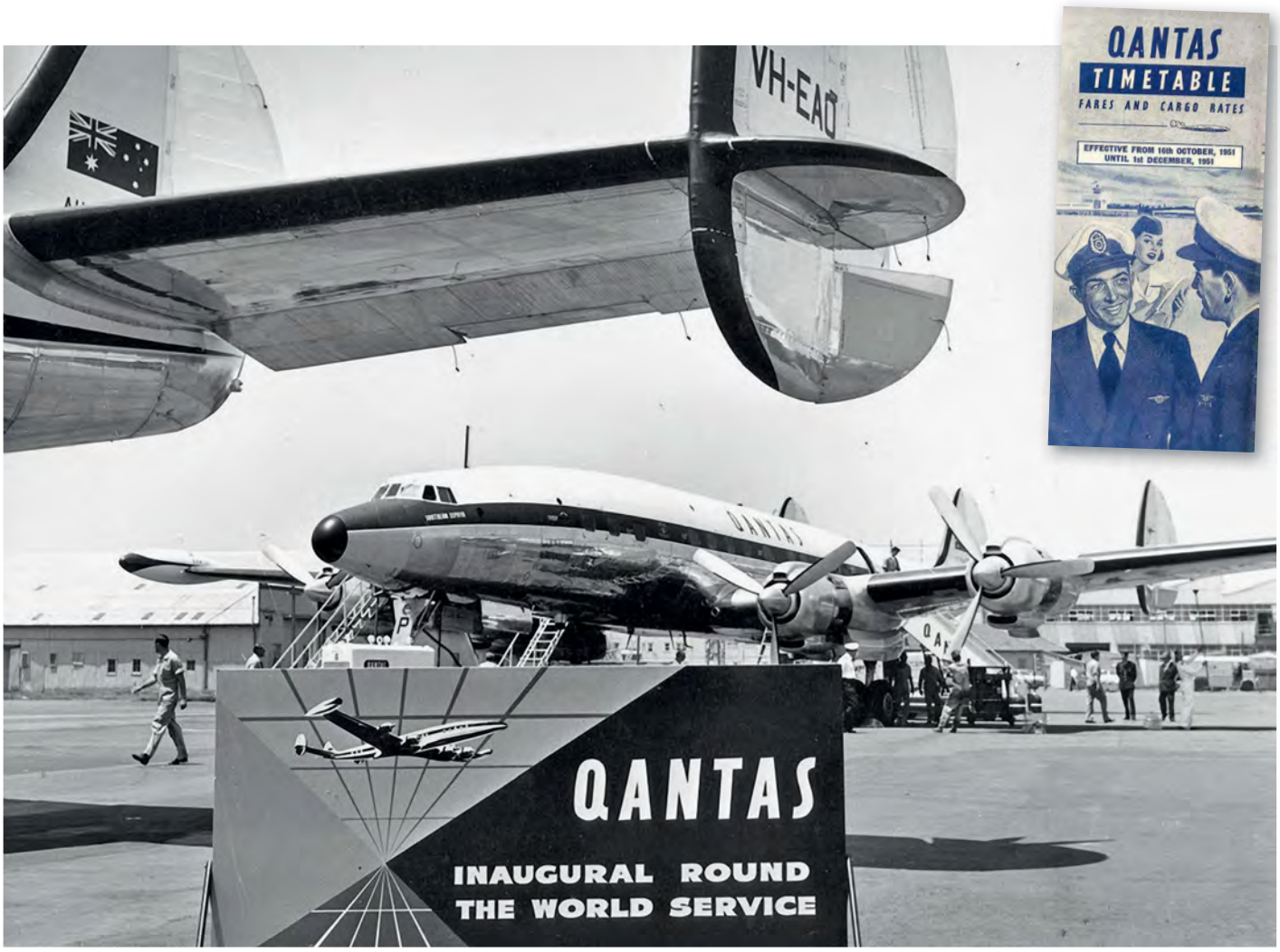
These aircraft flew the entire distance between Australia and the UK with the Qantas flight crews swapping with their Imperial Airways counterparts during the stopover in Singapore. The Short C Class ushered in a new era of travel, having been built for comfort and safety rather than speed. Each was fitted out with 15 luxurious saloons, while night stops were spent at the finest hotels along the route. With the popularity of its flying boat services growing, the carrier decided to move its entire headquarters operation to Sydney on May 23, 1938.

Two modified Consolidated B-24 Liberators were introduced in 1944. They were the first Qantas aircraft to wear the airline's now iconic flying kangaroo logo

BELOW • *In 1943 the Australia-to-UK air link was re-established. To avoid attracting attention from Japan's military forces, its Consolidated Catalinas flew nonstop over the Indian Ocean from Perth to southern Ceylon – 3,512 miles – in radio silence*

Front-line airline

Qantas played a vital role during World War Two, continuing to fly its thrice-weekly link to Singapore until its capture by Japanese forces in February 1942. The company's flying boats flew throughout the war years, although by March 1942 three had been destroyed by enemy action and a further two were lost in accidents, »



leaving just five of the original ten that had been delivered. By mid-1942, overseas passenger services ceased for the duration of the war, although flights continued between Brisbane and Darwin as well as maintaining several minor Queensland links.

In 1943 Qantas, the British Air Ministry and British Overseas Airways Corporation (BOAC) agreed to a daring plan to re-establish the Australia to UK link, using Consolidated Catalinas leased from the US government. To avoid Japanese forces, the Catalinas would have to fly directly across the Indian Ocean, from Perth to southern Ceylon (now Sri Lanka).

Illustrating the skills of its pilots and navigators, the 3,512-mile journey, then the longest nonstop passenger link ever attempted, was also flown in radio silence.

The flights were vital to the war effort and transported much-needed items, mail and VIP passengers, with each trip taking an average of 28

Two Qantas Super Constellations took off on a pioneering round-the-world service on January 14, 1958. One travelled westward via India, along the 'Kangaroo Route', while the other flew eastward on the 'Southern Cross Route', via the US

LEFT • ***Captain Ian Ralfe carries airmail aboard Boeing 707-138, VH-EBC (c/n 17698), at Honolulu prior to departure to San Francisco during the airline's maiden jet service on July 29, 1959. The flight, EM774, connected Sydney with Nadi, Fiji; Honolulu, Hawaii; and San Francisco, California in 14hrs 57mins***

RIGHT • ***A line-up showing the Douglas DC-4, Boeing 707 and 747 highlights the dramatic increase in airliner size between 1942 and 1969***

hours to complete, although one took more than 32 hours. The duration of the flight entitled all passengers to be presented with a certificate admitting them to membership of the 'Secret Order of the Double Sunrise'. The first service took off on July 29, 1943 and by the time the operation ended on July 18, 1945, 271 crossings of the Indian Ocean had been made, with 648 passengers carried and more than 932,050 miles flown. From June 1944, the Catalinas were supplemented by a pair of Consolidated B-24 Liberators.

The converted bombers could fly the route in 17 hours and offered a much greater payload – more than five times that of the Catalina. The Liberators were also the first aircraft to wear the now iconic flying Kangaroo logo designed by German-Australian artist Gert Sellheim. At the end of the war, the five Catalinas were scuttled at sea, under the terms of the USA's Lend-Lease agreement. When Qantas returned to commercial flying in 1945, it acquired seven former Royal Australian Air Force Catalinas and flew them on rotations to New Caledonia, New Hebrides, Fiji and Lord Howe Island. The Catalina remained with the carrier until November 1958, when the last two examples were sold.

Post-war rebuilding

Qantas rebuilt its fleet after the end of the war, initially with Avro Lancastrians, however an AUS$5.5m order was placed with Lockheed for four new long-range, pressurised L-749 Constellations. In the same year, it introduced the Douglas DC-3 on its New Guinea link and on some Queensland domestic services. These were quickly followed by the DC-4 »

Qantas was the first airline outside the United States to receive a Boeing 707, accepting its initial example on June 26, 1959

Skymaster, while more Catalinas and Short Sandringham flying boats were purchased for its Pacific Island rotations. After a lengthy debate about Qantas remaining in private ownership, the Australian government decided in 1947 it would take control of the airline and acquired all its shares.

Shortly afterwards, the nation's air transportation was reorganised, with Qantas retaining its role as the nation's principal overseas carrier, while its domestic network was gradually transferred to the state-controlled Trans Australia Airways (TAA).

The first Constellation service flying along the 'Kangaroo Route' departed Sydney on December 1, 1947 and arrived in London four days later. In October 1953, Qantas was granted permission to fly to North America instead of the incumbent carrier British Commonwealth Pacific Airlines. To operate links to San Francisco and Vancouver, Qantas purchased L-1049 Super Constellations and these crossed the Pacific via Fiji, Canto Island and Hawaii.

By 1956, Qantas had a fleet of 34 piston airliners, but this was to be a momentous year for the carrier as it made the landmark decision to purchase seven Boeing 707-138 jets at a cost of AUS$28m. Two years later – on January 14, 1958 – two of its Super Constellations took off on a pioneering round-the-world service.

One travelled westwards via India, along the 'Kangaroo Route', while the other flew eastwards on the 'Southern Cross Route' – named after Charles Kingsford Smith's Pacific-crossing Fokker F.VIIb – via the US. Circumnavigating the globe in opposite directions, they both arrived back in Sydney six days later.

These proved very popular with passengers and, before long, it was operating up to eight services every week.

On June 26, 1959 Qantas became the first non-American airline to take delivery of the 707 when VH-EBB (c/n 17697) arrived at its Sydney base; this was one of seven 707-138s, a longer-range variant unique to the carrier. The following month it launched its initial jet services across the Pacific to the US, later extending them to London via New York.

Direct Sydney to London flights via India started three months later. The airliner became the backbone of the Qantas fleet – by 1964 it had 13 examples – while its older piston types were gradually retired.

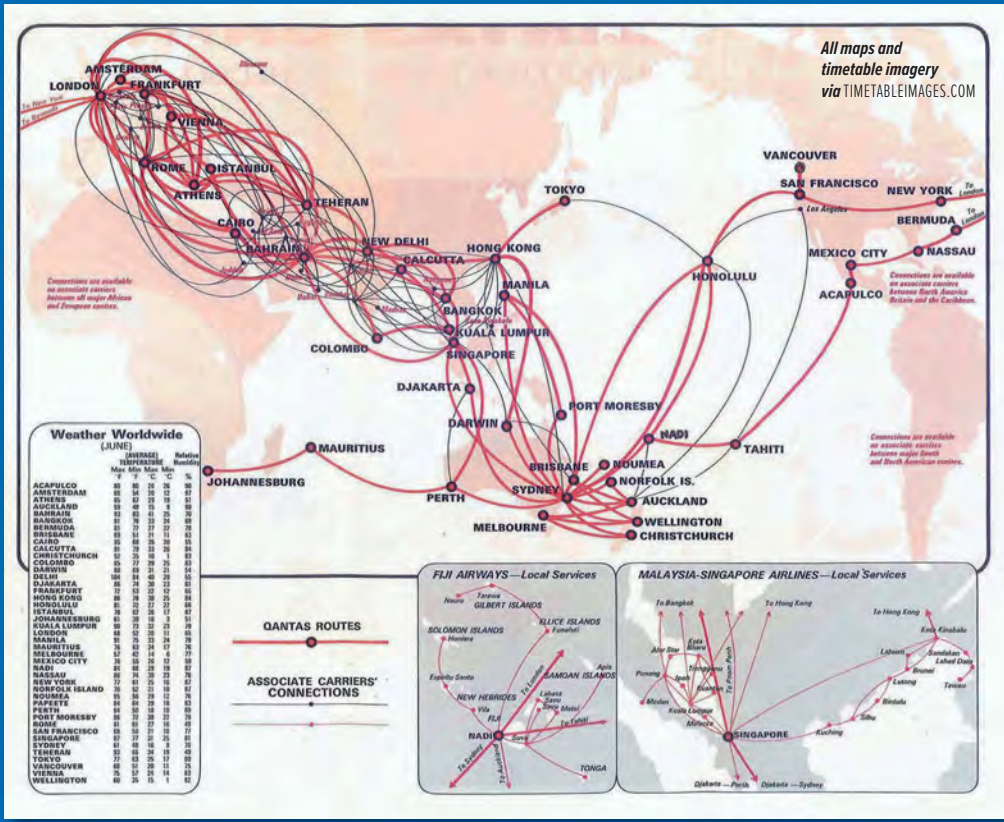
By March 1966 it had a fleet that included 19 jets, six of which were the larger 707-338C model, with a further five examples on order.

The Sydney-based airline operated 35 examples of the 707 between 1959 and 1979.

BELOW RIGHT • ***Qantas operated a pair of Hawker Siddeley HS 125s, VH-ECE (c/n 25062) and VH-ECF (c/n 25069) as Boeing 707 trainers between 1966 and 1972. The latter example competed in the 1969 BP London to Australia Air Race, winning the Executive Jet class with a time of 27hrs 30mins 29secs***
AIRTEAMIMAGES.COM/ THE SAMBA COLLECTION

BELOW • ***Qantas cabin crew member Pat Tudor provides a sense of scale as she sits in the inlet of a Pratt & Whitney JT9D, mounted on the wing of 747 prototype, N7470 (c/n 20235), during the widebody's September 1968 roll-out ceremony***

BELOW RIGHT • ***Examples of the Pucci-designed cabin crew uniforms worn by Qantas employees between 1974 and 1985***



LEFT • *Two examples of the 747SP were delivered in 1981 and served until 2002. The jets briefly flew for Australia Asia Airlines, a wholly owned Qantas subsidiary, between March 1994 and June 1996, as national airlines serving the People's Republic of China were not permitted to fly to Taiwan*

Jumbo delivery

On August 1, 1967, Qantas Empire Airways changed its name to Qantas Airways Limited. Later that month, following a period of evaluating the Boeing 747, it placed an initial order for four 747-200Bs – the B series featured modifications that better suited the carrier's long-haul requirements. The first 747-200B, VH-EBA (c/n 20009) was delivered on July 30, 1971 and it made its inaugural passenger flight two months later. With more and more international carriers flying to both Sydney and Melbourne, competition for selling seats was fierce and the airline's finances were put under enormous strain. In addition, the burden of paying for its new 747 fleet forced Qantas to report its first-ever financial loss, as its debts mounted to AUS$6m. In a bid to turn its fortunes around, the management decided to sell at least one 707 for every Jumbo delivered. This alleviated the problem and it returned to generating profits.

The first of 62 Boeing 747s to be operated by the Australian airline was handed over by the manufacturer on July 30, 1971

Qantas' 'can-do' pioneering spirit came to the fore again in late December 1974, when it set a world record for carrying the most passengers on a single flight, evacuating 674 passengers and 23 crew on a 747-200 from Darwin in the Northern Territory. A 707-300 also carried 327 evacuees on a single flight between Darwin and Sydney. The city had been devastated by Cyclone *Tracy* and the carrier went on to rescue 4,852 people from the area using 747s and 707s between December 26, 1974 and January 4, 1975. This record was held until 1991 when an El Al Israel Airlines 747 transported at least 1,088 Ethiopian Jews during Operation Solomon.

After 20 years of service, 707 operations finally ended on March 25, 1979 following a flight from Auckland to Sydney. Once the last example of the type had been sold, Qantas had the world's only all-747 fleet, with 17 aircraft. Over the next few years, it continued to take delivery of more 747s, including several different variants – the shorter SP (Special Performance), the Combi (passenger/cargo configuration) and the EUD (Extended Upper Deck) versions. During the 1980s, Qantas played a leading role in the development of Extended Twin Operations (ETOPS) when it introduced the 767-238ER (Extended Range), dramatically improving twin-engined reliability, fuel burn and reduced flight times. The larger -338ER model joined the fleet later and both were used on services to New Zealand, Asia and throughout its Pacific network. With the arrival of the 767, the carrier »

adopted a new livery that was rolled out across its fleet. Qantas continued to modernise its fleet and in 1987 ordered the 747-438, complete with its distinctive 6ft 6in-high winglets, which helped to improve the aircraft's aerodynamic performance and range.

The first 747-438 was delivered on August 11, 1989 and to demonstrate the advances that had been made on this variant, Qantas flew VH-OJA (c/n 24354), named *City of Canberra*, nonstop from London to Sydney. The 11,185-mile journey took 20hrs 9mins to complete, establishing a new world distance record for a commercial airliner. By comparison, 54 years earlier when Qantas started its famous 'Kangaroo Route' in 1935, it had taken five different aircraft types, three different airlines, 42 refuelling stops, two railway journeys and up to 14 days to cover the same distance. It named the -400 series 'Longreach' – not only conveying the jet's exceptional range but also commemorating the Queensland town where it was based during its early years.

Qantas has operated five variants of the jumbo jet, comprising the 747-200, SP, -300, -400 and -400ER
RUTGER SMULDERS/AVSTOCK

Going domestic

Following a disastrous strike over wage demands in the late 1980s that nearly resulted in Qantas' demise, the company very slowly recovered to its pre-strike level. In 1992 the government approved an AUS$400m bid for Australian Airlines and its subsidiaries. After Australian's operations had been fully integrated, it once again had a domestic network – its own having been transferred to TAA in 1947. Around the same time the Australian government announced that it was planning to privatise Qantas within two years. In fact, the privatisation process began in March 1993 with British Airways among the investors. The UK flag carrier acquired a 25% stake for AUS$665m. A Public Share Offer was launched in June 1995 and the privatisation was completed the following month.

In the mid-1990s the pace of change

became more rapid. The airline sharply increased the capacity it was allocating to its domestic operations in order to meet market growth and help win back lost market share.

New intra-state rotations were launched in Western Australia by its subsidiary AirLink, which later became QantasLink. The latter has been further strengthened by the acquisition of two of its regional rivals, Eastern Australian Airlines and Sunstate Airlines, while National Jet (now called Cobham) also flies on its behalf. In 1988, Qantas became a founder »

ABOVE • ***Two indigenous liveries, Nalanji Dreaming and Wunala Dreaming, were worn by a trio of Boeing 747s from 1995 until 2012. Two Boeing 737-800s and a 787 Dreamliner have since worn similar colour schemes***

LEFT • ***The Boeing 767 was introduced in 1984 for use on thinner long-haul routes*** AIRTEAMIMAGES.COM/GABRIEL SAVIT

Qantas Group Fleet

Current fleet	
Airbus A330-200	18
Airbus A330-300	10
Airbus A380-800	12
Boeing 737-300F	4
Boeing 737-400F	1
Boeing 737-800	75
Boeing 767-300F	1
Boeing 787-9	11
Total	132
On Order	
Airbus A320neo	73
Airbus A321XLR	36
Airbus A321P2F	2
Boeing 787-9	3
Total	114

Qantas Info	
ICAO	QFA
IATA	QF
Callsign	Qantas
Headquarters	Sydney, Australia
Main hub	Sydney/Kingsford Smith
Bases	Adelaide, Brisbane, Melbourne/ Tullamarine, Perth
Average fleet age	12.5 years
Website	www.qantas.com.au

Qantas became only the third operator of the Airbus A380 on September 19, 2008 when it accepted the first of an eventual 12 superjumbos, VH-OQA (c/n 014)
AIRTEAMIMAGES.COM/ JOHN KILMER

member of the oneworld alliance, joining fellow carriers American Airlines, British Airways, Canadian Airlines (now no longer part of the group) and Cathay Pacific Airways.

It was launched in February 1999, with Iberia and Finnair joining later that year.

At the turn of the millennium, Qantas began looking for a future replacement for its 747 fleet, with the major manufacturers, Airbus and Boeing, battling for the order. After deliberating over the respective bids, it eventually selected the Airbus A380, subsequently signing a contract for 12 A380-800s, with options for a further 12 examples. The carrier exercised eight of these options on October 29, 2006, bringing its firm commitments to 20. Qantas was one of the few international airlines whose profits continued to rise despite the September 11, 2001 terrorist attacks on the US. However, storm clouds were gathering from another direction to threaten its future.

Low-cost competition

In response to the worldwide demand for lower ticket prices, Qantas' main domestic rivals Ansett Australia, Impulse Airlines and the recently launched Virgin Blue introduced the low-cost, no-frills concept to the Australian market. Budget travel, coupled with an economic downturn in the Asian market and soaring fuel prices, had a huge negative effect on Qantas' financial forecasts, forcing it to match the lower fares in a bid to maintain market share. In May 2001, the first casualty of this price war was ailing 717-200 operator, Impulse, which was acquired by Qantas. Eighteen months later, Ansett also collapsed, leaving Qantas and Virgin Blue alone in what had quickly become a domestic two-horse race.

In October 2002, Qantas launched a new international subsidiary reviving the historical name of Australian Airlines. Established at Cairns International Airport, Queensland it operated independently of its parent company using 767-300ERs on routes catering for the international leisure market. It remained in business for nearly four years until flights ceased at the end of June 2006 and its 767s were transferred back into the Qantas fleet. Throughout the early 2000s the airline continued to strengthen its fleet with orders for 15 737-800s, four additional 747-400s plus the introduction of the Airbus A330 on domestic and regional services. To improve its competitiveness in the budget market, the Qantas Board decided to establish a new domestic carrier in June 2004 called Jetstar. Operations began a short while later »

Qantas has named its Airbus A380s after Australian aviation pioneers. Nancy-Bird Walton, Charles Kingford Smith, Reginald Ansett and black box inventor David Warren are among the famous names to have been honoured.
AIRTEAMIMAGES.COM/ ADAM TETZLAFF

using ex-Impulse 717s, but it has since transitioned to an all-Airbus A320/A321 fleet and used A330s leased from its parent company on an expanding international network before entering the Dreamliner era in September 2013.

Superjumbos and sunrises

A landmark for Qantas' long-haul operations came amid much pomp and ceremony when the Australian national carrier took delivery of its first A380-842, VH-OQA (c/n 014) named *Nancy-Bird Walton* on September 21, 2008. After a period of training for flight and cabin crews, the airliner entered service on the Melbourne-Los Angeles (LAX) service on October 20 and this was followed four days later by the launch of the Sydney-LAX rotation. Qantas' A380 fleet has been named after Australian aviation pioneers and as the Aussie superjumbo fleet grew, Nancy-Bird was joined by Charles Kingsford Smith, Reginald Ansett, Hudson Fysh, Paul McGinness, Bert Hinkler and the inventor of the Black Box Flight Recorder, David Warren. The fleet would peak at 12 examples, the carrier quietly cancelling its eight remaining orders in February 2019, just a week before Emirates dealt the superjumbo a final blow, reducing its outstanding orders in favour of smaller A350-900s.

Qantas' relationship with Boeing has been rather less straightforward over the past 15 years. On December 13, 2005, Qantas announced that it had agreed with Boeing commitments for up to 115 787-8s and 787-9 Dreamliners, initially signing for 45 aircraft, 20 options and 50 purchase rights. However, the blockbuster deal which almost increased the widebody's order book by 50%, has been revised on five occasions – initially in June 2009, the commitment was reduced from the 45 + 20 order to just 50 aeroplanes (15 787-8s and 35 787-9s) plus the 50 purchase rights – and first deliveries were pushed back to 2014. Just six months later it brought forward the deliveries of eight 787-8s to mid-2012 – the Jetstar-destined airliners enabling the subsidiary to return A330s to Qantas, expediting the 767-300ER fleet retirement. In 2012, the Australian flag carrier went back to the manufacturer once more, cancelling its 35 Boeing 787-9s due to losses and in a bid to conserve capital. In the eight years since, Qantas has twice reaffirmed its commitment to the 787, ordering eight 787-9s in August 2015 and a further six in May 2018 to hasten the retirement of its ageing 747s.

Qantas in Numbers

132
Aircraft

22
Years as a oneworld member

55,813,000
Passengers during fiscal year 2019

31
Codeshare partners

115
Destinations

23
Countries served

OPPOSITE • ***The first of 28 Airbus A330s – split between 18 -200s and ten -300 examples – arrived in Australasia in 2003***
AIRTEAMIMAGES.COM/ MICHAEL ELDRIDGE

Qantas' – and Australia's – last 747, VH-OEJ (c/n 32914), departed Sydney for storage at Mojave Air and Space Port on July 22, ending a 49-year association between the carrier and the Queen of the Skies
AIRTEAMIMAGES.COM/ MATTHIAS GEIGER

The airline is due to receive a maiden Airbus A321P2F, VH-ULD (c/n 835), imminently. When it does, it will become the first airline to operate a narrowbody Airbus freighter
ANDRE GIAM

While Qantas' relationship with the Dreamliner got off to a rocky start, the carrier has since used the 787-9 to reduce the 'Kangaroo Route' to a single hop between Perth and London/Heathrow – nonstop links between the two cities began in late March 2018.

With the airline's long-held goal of nonstop services between Australia's east coast and London and New York almost tangible, Qantas announced its intention to leverage the endurance and efficiency offered by the Boeing 787 and Airbus A350.

Project Sunrise reinvigorated the company's pioneering spirit as it began monitoring the impact of ultra long-haul flying on the human body. Delivery flights were transformed into marathon route-proving flights – some record breaking – while those on board became globe-trotting guinea pigs monitored by the University of Sydney, keen to study how sleep patterns, movement, and food consumption on an extremely long flight affect health.

The Australian carrier's reaction to the COVID-19 pandemic has been among the most extreme of any airline. Its 747-400ERs were quickly retired and stored at Victorville's Southern California Logistics Airport while the majority of its remaining widebody fleet were grounded, save for use on repatriation flights.

The company's reliance on long-haul flying has meant that once busy A380s have been mothballed for at least three years while a Qantas spokesperson confirmed in August that most of the 787-9 fleet is to join them for no less than 12 months. Project Sunrise – and a new A350-1000 flagship capable of conquering the Kangaroo Route once and for all – were put on indefinite hold despite the carrier being just "a couple of weeks" away from finalising an order with Airbus, according to CEO Alan Joyce.

The storing of Qantas' A380 fleet in the Mojave Desert was neither how the airline wanted to enter its second century, nor how anyone expected it to at the start of this year.

Only time will tell if the company's decision was a masterstroke of future-proofing or a rash reaction which will have engineers scrambling to get Dreamliners out of the desert and back into service sooner than expected. AM

BELOW • ***When Boeing 787-9 Dreamliner, VH-ZNJ (c/n 66074), touched down at its new Sydney/Kingsford Smith base, it had already entered the record books. The jet had operated only the second nonstop flight between London and Sydney, completing the journey in 19hrs, 19mins – 50mins faster than the previous record***
ALAN LIPPITT

Boeing... Boeing... Gone

Former Qantas 747 pilot **Owen Zupp** takes *Airliner World* on board the carrier's final jumbo flights as the Australian heavyweight consigns the Queen of the Skies to the history books

Qantas flight QF7474 is framed against Sydney Harbour as it departs for Los Angeles on July 22
SETH JARWORSKI

A hallmark of the aerospace industry is its dynamic, constantly evolving nature. A little over a century has passed since the Wright Brothers made their momentous flights at Kitty Hawk, in frail machines of spruce and muslin, and today we have private ventures flying to space stations and aircraft that can fly farther and faster than we once dared to imagine.

Conversely, such a rate of advancement results in a sparsity of longevity. Today's technology is often gone tomorrow.

There have been some exceptions to the rule. The venerable Douglas DC-3/C-47, the Boeing B-52 Stratofortress and the Bell UH-1 'Huey' and their many sub-variants are just a few that come to mind to have survived generational changes that have seen their contemporaries and successors long consigned to boneyards and scrappers.

At their core exists a sound design, yet with time such machines develop something more to the extent that these inanimate objects evoke emotion in their operators and enthusiasts alike. »

This emotion was no more evident than in July's retirement of the final Qantas Boeing 747 after nearly 50 years of service with the airline. Spectators lined the runways and various other vantage points to wave goodbye and a lucky few were privileged to take one last flight before VH-OEJ (c/n 32914) was relegated to history.

In a final salute, the 2003-built jet set course for Los Angeles and ultimately the Mojave Desert in a departure that had Sydneysiders craning their necks to the sky, and the world fascinated by what was etched upon their computer screens. It was a farewell to remember for many, and the culmination of incredible planning from a small team.

Long may she reign

Like so many great stories, the Boeing 747 emerged from an unlikely combination of circumstances. Despite Boeing's loss to Lockheed for the contract to build a massive military transport aircraft for the USAF in 1965 – which resulted in the Lockheed C-5A Galaxy – certain design features and technologies from Boeing's bid were refined and retained.

The QF7474 crew pose with Qantas CEO Alan Joyce ahead of the historic ferryflight Qantas. Author Owen Zupp is furthest right
QANTAS

There was the emerging high-bypass engine technology that could be adapted to an airliner and, like their successful 707 line, the military contract had seen the rise of Boeing's swept-wing aircraft as airliner contenders. Additionally, to allow the loading of equipment through the nose, the flight deck was positioned atop the cargo area.

As Boeing redirected its focus to commercial air travel, the industry was witnessing unprecedented passenger numbers and lower airfares. The 707 had generated a revolution of its own, but Pan American World Airways (Pan Am) founder Juan Trippe was keen to see an aircraft of far higher capacity take to the increasingly crowded skies to further drive down fares and significantly increase passenger numbers.

Even so, Trippe ultimately saw the rise of supersonic air travel as the

future for passengers, meaning that his vision of a giant of the sky would need to be able to be converted to a freighter as they were superseded by speed. In December 1965, Juan Trippe and Boeing's Bill Allen signed an initial order of 25 aircraft, in a US$25m deal that had the potential to financially cripple both companies.

From the outset, the Boeing 747 had dimensions that dwarfed its predecessor, the 707. To be offered in both passenger and freight roles, the original 747 was more than 220ft long with a tail height exceeding 62ft, an increase of roughly 50% over the 707 in both aspects. So large was the design that Boeing needed to build a new facility at Everett in Washington state to cater for the 747 and, in doing so, constructed the world's largest building by volume.

Moving from the 737 team, Joe Sutter was assigned the role of chief engineer for the development of the project and history has come to know him as the 'Father of the 747'.

Along with a team of 50,000 at Boeing, they came to be known as 'The Incredibles' as they sought to create a commercial airframe and engine combination the likes of which had never been seen before. But with the backdrop of the United States' space programme, it was a time when anything seemed possible.

In February 1969, the faith of so many was repaid when the prototype 747 first took to the skies, just five months before man set foot on the moon.

The 747 caught the interest of Qantas very early in its genesis, with the Australian airline placing, then changing, its initial order for the 747-100 to four of the longer range 747-200s in 1967. The first Qantas 747 arrived in August 1971, flying its first revenue service to Perth and Singapore a month later. It was the beginning of a relationship between airline and aircraft that would see Qantas operate the 747 in a range of variants. Ultimately the airline ordered 60 747s, from the -100s, which it leased, to the 'Classic' -200s and -300s, the distinctively shortened 747SP or Special Performance version and finally the -400 and -400ER (Extended Range) models.

It was a union that endured for almost half a century and, for a period, marked Qantas as the only all-747 airline in the world. As the landmark of 50 years approached, it was a sunset retirement that the carrier was to celebrate for their airliner that democratised global air travel. That was until the COVID pandemic landed in 2020.

ABOVE • ***A barbecue was held by Qantas' LAX-based staff ahead of the jumbo's final departure. The large piece of metal bearing the letters 'JM' is from a nose undercarriage door of the since scrapped Qantas 747-400, VH-OJM (c/n 25245)***
OWEN ZUPP

ABOVE LEFT • ***Sharelle Quinn – Qantas' first female captain – was among the pilots selected for the historic ferry flight***
OWEN ZUPP

VH-OEJ receives a water cannon salute as it taxies out to Sydney's Runway 16R
SETH JARWORSKI

Best laid plans

The retirement of the Boeing 747 from the Qantas ranks was inevitable. While it was still loved by the travelling public and its crews alike, its generation was being replaced by the efficiency of newer twinjets, such as the Boeing 787 Dreamliner and the Airbus A350. Qantas' ambitious »

Benediction for a Queen

by Geoff Cowell, a now former-Qantas 747 first officer

Aircraft are just metal constructs,
Assembled on a factory floor
But to the lucky few who fly you,
You are always so much more

When you joined us newly gleaming,
Latest in a noble line
Your majesty and graces impressed us,
Now had come your turn to shine

Quickly logging mileage,
Countless wishes granted on the way
Thrilling everyone who flew you,
Hoping you would always stay

Icecaps, oceans, deserts, and forests,
You have overflown them all
Born your subjects safely onwards,
Your reputation standing tall

There were times some pilots cursed you,
Hurts to say it but it's true
If you humbled them the reason,
It's because they disrespected you

You have met our every challenge,
Explorer of the highest skies
Surpassing all who came before you,
Unrivalled in your pilot's eyes

Now, your engines falling silent,
Heralds in your time to rest.
Know that, even as we leave you,
You have simply been the best.

'Project Sunrise' had made its first appearance, aspiring to nonstop flights of a duration that was even beyond the commercial reach of the 747-400ER. The time had come for the jumbo to leave the fleet.

The retirement of an aircraft type is a complex, staged process. For the Qantas 747s, it meant a gradual reduction of the network it was flying as the aircraft were progressively flown to the US where they would be retired to a boneyard and sourced for their well maintained and increasingly scarce components. Or in the case of 747-400, VH-OJU (c/n 25566), reborn as an engine test bed for Rolls-Royce.

Concurrently, the number of crew would be reduced, retrained and assigned to other fleets until the final airframe's departure would see the last pilots relocated through a reduction-in-number, or RIN process.

The plan was in place for a last hurrah in March 2021, offering the 747 for one final season of memorable Antarctica charters and adding the symmetry of 50 years of service from 1971 – 2021. A full schedule of events marking the longevity and loyal service of the 747 in Qantas colours was in the planning when the global pandemic not only rained on the parade but cancelled it. With the initial outbreak, the remaining fleet was removed from service on an accelerated timeframe and ferried to the Mojave Desert.

In the first instance, this repositioning was for storage but, with every passing week and then month, the chance of the 747 ever returning to service diminished rapidly. The final arrivals of aircraft were greeted by news coverage as media and public sensed the end growing nearer.

At the same time, the crew of the final flight had been selected and called to the simulator to confirm currency and proficiency. This included those pilots who would occupy the control seats for the last, unfamiliar sector into the boneyard at the Mojave Air & Space Port, about 85 miles north of Los Angeles.

One by one, the Qantas 747 fleet departed Australian shores, all keenly tracked by aviation enthusiasts around the world. By late June, only one 747-400ER, VH-OEJ *Wunala*, remained on Australian soil.

Media speculation began to grow in about the final departure date with a growing sadness that the last Qantas 747 would disappear from Aussie skies without farewell or fanfare.

With the airline in its centenary year and recognising the significance of

RIGHT • ***The 2003-built jet climbs out of Sydney bound for Albion Park, New South Wales, for a flypast over Qantas' maiden 747-400, VH-OJA (c/n 24354) before beginning its journey across the Pacific on the Southern Cross route*** SETH JAWORSKI

TOP • ***Two Qantas Boeing 747s have been preserved – 747-200, VH-EBO (c/n 22145) at the Qantas Founders Museum in Longreach, and 747-400, VH-OJA (c/n 24354) which is in the care of the Historic Aircraft Restoration Society at Albion Park Aerodrome, New South Wales*** FLICKR COMMONS/JACK CHAMBERS

The Australian flag carrier's last jumbo initially operated in this striking Wunala Dreaming livery AIRTEAMIMAGES.COM/ NATHAN ZALCMAN

the final flight, Qantas' manager of fleet operations – Boeing 747, captain Owen Weaver, successfully sought a stay of execution for the aircraft to provide a more fitting send-off.

The concept was embraced by the executive team led by the then Qantas International CEO, Tino La Spina, and although time was running out, there remained the constant spectre of closed borders preventing any crew from easily returning to Australia.

On June 25, the rumours were confirmed as part of the major announcement outlining its future in the face of COVID – the remaining Boeing 747s were to be retired immediately. Soon after, the airline announced three farewell flights and a final departure to be remembered, and the wheels were set in motion.

Fond farewells

In so many ways, the 747 was the people's aeroplane. It had opened the world to Australians on a scale they had never known, through memories of amazing holidays and emotional family reunions. If there was a poignant moment in an Australian life beyond her shores, the chance was great that the 747 had made that possible. With this in mind, Qantas wanted to share the moment with »

A final flypast over the iconic Sydney Opera House. SETH JAWORSKI

the people, albeit with strict COVID-19 protocols in place.

The plan was drafted to hold three farewell flights, with one each flying from Sydney, Brisbane, and Melbourne. But with the tenuous state of its borders and public health situation, the first casualty was the Melbourne flight, causing the flight to be moved to Canberra.

With the harsh reality of costs hitting all airlines, the flights were brought to life through a skeleton staff being stood up from their relative hibernation to attend to every issue from media relations, to engineering, flight planning, crewing and so much more. Even assigning the flight number of QF747 presented a significant challenge within the airline's IT systems, but it soon became apparent that the flights meant a great deal to staff as well as the Qantas family came together to make the event happen.

A lottery system was devised to allow some of that family to gain a seat on their airline's final 747 flights, while other seats were sold online to offset some of the costs involved and raise funds for two aviation museums. The demand far outweighed availability and the tickets sold in minutes. Many more flights could have been sold, but the timeframe was already in place.

Each of the three flights was blessed by clear skies. The atmosphere was festive, although tinged with emotion as passengers gathered in gate lounges and exchanged memories of the 'Queen of the Skies'.

Past employees in retro uniforms, aviation enthusiasts and current crew mingled and posed for photos. Commemorative memorabilia was a treasured part of the experience, but the flights would prove to be the ultimate memory.

Socially distanced and COVID-conscious, passengers boarded their flights, seen off by pilots offering hand sanitiser in a subtle but visible reminder of aviation and the world's current concerns. But those thoughts quickly melted away each time the 747 pushed back and took to the skies. One hour the aircraft would sweep over Sydney's harbour, while the next Brisbane's skyline and coastline contrasted with the snow-capped ranges and circular roadways of the capital Canberra.

On board, conversation and champagne flowed, while landings were met with applause, and disembarkations with tears. To conclude each event, the crowds gathered beneath her swept wings and towering tailplane for a final photograph, or simply to take in her graceful form in their mind's eye.

Still, the 'Queen of the Skies' had one more statement to make and those plans were well under way beneath a veil of secrecy.

Planning an adieu

When the farewell flights were conceived, so too was the plan to make the departure of OEJ a flight for all to remember. Central to the departure were three key elements – a flypast of Sydney harbour, a salute to the record-breaking and first 747-400, VH-OJA (c/n 24354), which is now in residence at the Historic Aircraft Restoration Society's HARS Aviation Museum at Shellharbour Airport, and 'sky art' in the form of the Qantas kangaroo.

The entire exercise had to be founded on a basis of safety and, to that end, each component was planned, trained for and executed according to a safety plan that needed to gain approval from Australia's Civil Aviation Safety Authority. Far from simply conceiving a route, myriad elements had to be addressed.

Unlike the farewell flights, OEJ would be operating at a significantly heavier weight, and flight margins needed to be considered accordingly. The crew would attend the event before departure and, with substantial flight time, potential fatigue issues needed to be addressed and satisfied. Security considerations and customs

Qantas CEO, Alan Joyce, leades the celebrations ahead on the final 747 flight.
QANTAS

The crew acknowledge the crowds before departure.
QANTAS

Sydney Airport's rescue and fire fighting service mark the end of an era with a water cannon salute.
QANTAS

clearance at the Qantas hangar, rather than the international terminal had to be organised as did calculating the weight and balance of the aircraft and loading it accordingly, with a cargo of many pets bound for the US. The list went on.

Captain Weaver drew together teams from all areas within the airline. Matthew Bouttell, as manager of air traffic management and international compliance, was responsible for organising the complex airways clearances as well as designing the Temporary Restricted Area (TRA) that was needed to safely overfly the HARS Aviation Museum outside controlled airspace.

The navigation team led by Cass Moeller and Jevan Wong were tasked with tailoring the existing flight planning system to incorporate the many complex waypoints involved in drawing the sky art and calculating the fuel requirements.

Catering was needed to provide a non-standard configuration of meals for the crew and the refuellers had to load the aircraft to maximum limits without fuel overflowing through the surge tanks. The airports team and Sydney Airports Corporation (SACL) needed to confirm the pavement strength in the alleyway from the hangar where OEJ would taxi at a weight of 811,300lb.

The QMET (Qantas meteorology) section was consistently providing weather and upper wind forecasts, as the sky art and flypasts were weather-dependent upon predefined parameters – another reason for the secrecy. Furthermore, they were continually organising weather forecasts for Mojave as they are not normally provided.

Among many tasks, the engineering team had to prepare the aircraft for international flying once again, ground testing the autopilot for auto-land capability and configuring the cabin for its ultimate state when finally parked in the boneyard.

The event itself at QANTAS Hangar 96 fell on the shoulders of the »

QANTAS Events Team, while the associated media was managed by the Communications Department, led by Amanda Bolger.

The crew for the flight had been selected weeks before. Sharelle Quinn, the first female Qantas captain, and the airline's most senior 747 captain Ewen Cameron, would fly the initial departure. Also on board would be captains Owen Weaver and Greg Fitzgerald, first officer Quin Ledden, and your author, second officer Owen Zupp. Combined, the crew had more than 124,000 hours of flight experience, including more than 78,000 hours on the jumbo.

The centrepiece of the departure was set to be the sky art kangaroo, yet when captain Weaver first conceived the idea, he wasn't even sure if it was possible. In the first instance, he overlaid the outline in Google Earth Pro and generated a series of waypoints. As these were expressed in decimal points, all 75 had to be converted into latitudes and longitudes. Scaling the sky art was the next challenge. Turns must be of a radius within the heavily laden 747's envelope and of a size and location to be seen by the flight tracking 'apps' without dropping out of ADS-B coverage. Weaver flew a series of secretive simulator sessions with captain Martin 'Marty' Gardiner in a range of configurations to trial the kangaroo. Finally, remaining below 20,000ft so that flaps could be extended and then utilising Flaps 20 and the autopilot, all turns within the 'Roo' could be safely flown.

Boeing 747-400ER, VH-OEJ (c/n 32914), prepares to touch down for the final time. DYLAN PHELPS

The aircraft communications, addressing and reporting system (ACARS) screen ahead of departure from Sydney OWEN ZUPP

With the approval and co-operation of the Royal Australian Air Force, the airspace was made available. The flight crew then made a series of visits to the flight simulator where the various elements of the departure were rehearsed as well as the arrival into Mojave. The scene was finally set.

Farewell to the queen

Qantas' Hangar 96 was abuzz with gathered guests and dignitaries. Chief executive, Alan Joyce, spoke of the significance of the 747 to the airline's history and first officer Geoff Cowell recited a moving poem dedicated to his steed.

Media moved about busily, and all present were invited to sign their names and a message on the belly of *Wunala*. The numbers were scaled down due to Covid-19, but the appreciation of a fitting farewell was not lost amid the excitement.

The crew mingled with the guests, with captains Weaver and Fitzgerald discreetly sneaking away to enter and cross-check the 75 waypoints of the 'Roo' sky art into the Flight Management Computer (FMC).

It had been hoped that the hard work of the navigation and Constellation flight planning teams would allow an automatic uploading of the waypoints, but an earlier trial had shown it to be beyond the capability of the 747's FMC. With the final words and waves completed, the crew took their stations and after pushback and an intermediate stop to finalise loading the aircraft, we were under way.

The initial departure involved a turn to the west before returning to overhead Sydney Airport, so Runway 16R was offered up by air traffic control to maximise separation from the Bankstown Airport airspace. The subsequent taxi out was a tour of water

Qantas' final 747 rolls out on arrival at Mojave to join four other examples – VH-OEE, VH-OEG, VH-OEH and VH-OEI
DYLAN PHELPS

cannon salutes, media helicopters and hundreds of well-wishers gathered at the Shep's Mound spotters' park, in front of which Capt Quinn paused QF7474.

As the thrust levers moved up, the flight deck was focused on the task rather than the emotion. Over the next hour, they managed the 747's extensive radius of turn to cross the coast at the designated points, aware of the gatherings beneath. The sight of the Harbour Bridge and Opera House passing 1,500ft below was spectacular, as a lap along the Parramatta River terminated with a reversal turn and a second overflight.

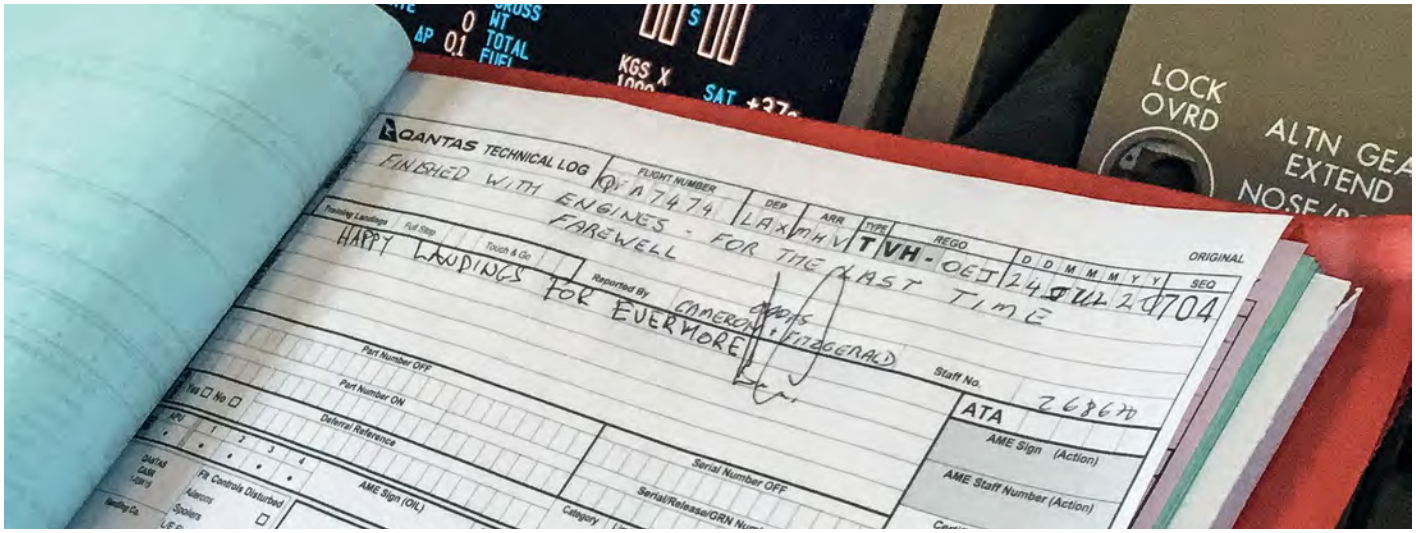
Air traffic control wished them well as the aircraft tracked coastal to Shellharbour, south of Sydney, where OJA and a substantial crowd looked skyward. The radio broadcasts from *Wunala* were met with a response and tribute for those below. A pass along the runway, a left turn out to sea and the final Qantas 747 had departed Australia.

Unknown to the crew, more than a quarter of a million people were watching the track they were flying as they approached the start of the sky art. But only when the various wind and weather parameters were confirmed was the final go-ahead decided upon and the Qantas integrated operations centre advised to release the well-kept secret.

Some thought the initial turn was the 747 returning to Australia for some reason, but it soon became apparent there was something special in store. For the next 90 minutes the 'Queen of the Skies' etched her goodbye in the sky, accelerating along the extended lines of the kangaroo's back and tail and decelerating and extending flaps to manoeuvre around the paws and other tighter turns. By the time the art was complete, the sun had set, and so too had QANTAS 747 operations in Australian airspace. Now the Pacific beckoned for one final time.

One last hop

The arrival into Los Angeles for the crew was somewhat surreal. Familiar with the rapid-fire radio transmissions and multiple targets on the Traffic Collision Avoidance System (TCAS), the COVID-affected airwaves and »



The final entry in the aircraft's logbook
OWEN ZUPP

airspace were uncharacteristically and eerily quiet.

When Capt Quinn finally brought *Wunala* to a halt, a walkway was extended, and the crew was met by mask-wearing staff as they fitted their own. At the airport's perimeter fence and LAX's famous but unofficial Imperial Hill spotters' park, another crowd of enthusiasts and expats had gathered to welcome the aircraft and crew, some waving Australian flags.

After nearly 48 hours locked down in their Manhattan Beach apartments, the crew readied for the final 20-minute sector to the Mojave Air & Space Port. Capt Cameron would fly in command with Fitzgerald alongside him in a fitting end to their substantial Qantas careers. Both pilots had rehearsed the sector in the simulator numerous times, aware of the proximal terrain and the nearby airspace of the famous Edwards Air Force Base and other sensitive facilities.

The QANTAS base manager at Los Angeles Airport had something special in mind to say goodbye. An Australian style barbeque of sausages, bacon, and eggs to the accompaniment of *I Still Call Australia Home* being sung by the present staff was a very moving moment. Two dedicated 747 cakes were cut to a backdrop of Qantas banners and the sense of family was as strong as it could possibly be.

One final walkaround inspection, one final engine start and one final taxi out for take-off, this time at a weight of only 502,600lb. Water cannons again signalled their farewell as hundreds of Qantas staff and other airport workers lined the taxiway and emergency vehicles ahead and on the flanks escorted the Boeing 747 to the runway's end. A last goodbye from air traffic control and a clearance to take-off, and the aircraft took to the skies from Runway 25L beneath Capt Cameron's hands as helicopters filmed and the people below waved.

The likely end for Qantas' 747-400ERs – an earlier 400 series jumbo is torn down at Southern California Logistics Airport
AIRTEAMIMAGES.COM/ JOHN KILMER

A trio of the carrier's now redundant jumbos at Mojave
DYLAN PHELPS

A right turn and climb to only 13,000ft, the 747 cut through the clear air, crossing the coast overhead Malibu and set course for the desert and Mojave. Numerous light aircraft populated the TCAS, possibly catching one last look. To stay well clear, the crew brought the 747 into a sweeping left orbit near Mojave airfield until the sky was empty once again. Joining overhead, a visual circuit was flown, and the runway loomed ahead. The long black strip grew larger until Capt Cameron finally eased *Wunala* to earth for the last time.

Aside from the mandatory checks and calls, the flight deck was quiet as the aircraft was taxied and parked line astern to three QANTAS 747 sisters already in residence. The crew each took their turn at shutting down an engine and putting OEJ to bed for the final time. Only then, with the task finally complete, did the focus shift to reflection on what this all meant.

On the ground, the crew were met by more media and answered questions beside the now-quiet 747, although it was impossible to ignore the sad sight of hundreds of scrapped airliner hulks on the far side of the airfield. Perhaps it was those mixed emotions, perhaps it was a weariness, but very few words were spoken during the two-hour bus ride back to their accommodation.

Undoubtedly, it was the realisation that this was the end of an era and, for some, a career. To be part of such an event was a privilege that was not lost upon the crew. And it was an absolute honour to bid farewell to 'the Queen'. AW

Qantas' 61st and final Boeing 747 departs Sydney for the last time, less than a month before the 49th anniversary of the company's maiden 747 touching down at the New South Wales hub.
QANTAS

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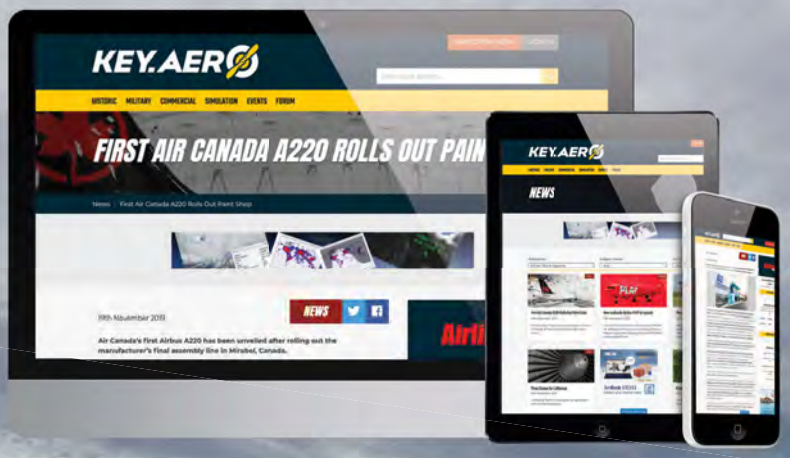

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AMERICA'S SMALL-TOWN giant

Stan Little is the CEO of the carrier, which describes itself as 'your hometown airline to the world'

In just seven years, a carrier founded by an attorney from Mississippi has become the largest commuter airline flying in the United States, as **Matteo Legnani** reports

Cessnas form the backbone of the Southern Airways Express fleet
ALL IMAGES VIA AUTHOR UNLESS STATED

Back in 2013 when Delta Air Lines dismantled the hub it had inherited from Northwest Airlines in Memphis, among the big name carriers to fill the void was a fledgling commuter operator called Southern Airways Express. In June 2013 Southern operated its initial flight to Destin Executive Airport in Florida utilising Olive Branch Airport, a facility situated in the state of Mississippi, just a few hundred yards from the border with Tennessee and some 15 miles southeast of downtown Memphis. University-Oxford, Birmingham Shuttlesworth International, New Orleans Lakefront and Northwest Florida Beaches International Airport all quickly followed suit.

Seven years later Memphis remains a focal point in the airline's network, although operations have moved from Olive Branch to the Signature Executive Terminal at Memphis International. Over the same period, the fleet – which originally comprised three Cessna Caravans – has grown »

The company's mantra, 'Every Passenger, Every Day, Every Flight' highlights the bespoke nature of its product

to 21 examples of the same type, flying to 23 destinations in eight US states.

Following the acquisition of Fort Lauderdale-based Sun Air in March 2016 and Hawaii-based Mokulele Airlines in February 2019, Southern has become the largest commuter carrier in the country with a total fleet of 37 aircraft and almost 1,400 weekly flights across a network including 35 destinations, in addition to high-profile interline agreements with industry giants such as American Airlines, Alaska Airlines and German leisure carrier, Condor.

We meet the boss

The man behind this American small town giant is 48-year-old Stan Little, an attorney and native of Mississippi

Speaking to *Airliner World* at the airline's head office in Pompano Beach, Florida, Little confessed that he didn't start with the goal of opening an airline: "Originally I was looking for a way to help underwrite some of the costs of my personal Cessna 421 Golden Eagle by selling empty seats on our trips to the Gulf Coast. Once I began researching the regulations to do that and gauging the demand out of my hometown Memphis, it became apparent that I would need far more seats than the six available on my personal plane and that the Cessna 208 Caravan was the perfect aircraft for the mission. Once those decisions were taken, the pieces began to fall into place and six months later Southern Airways took off for its maiden flight with nine passengers bound to Destin, Florida. We decided to call it 'Southern' because we started out exclusively in the south, and Southern Airways was an old, venerable airline in our region from

The Cessna Caravan's work-horse turbine engine, belly luggage capacity and interior passenger made it the Southern Airways Express type of choice
GETTY IMAGES

the 1950s to the 1970s."

Asked about the type of equipment utilised, Little stressed the need to operate in the nine-seat space in order to fall within the rules of Part 135 regulations. These are strict rules laid down by the FAA that allow special certification to be given to firms which fly aircraft with nine or fewer passenger seats. "It really came down to four planes: the Caravan, the Pilatus PC-12, the Cessna 402 Utiliner and the Beechcraft King Air. From an economic standpoint, the PC-12 and the King Air are simply too expensive to operate without substantial subsidies and we didn't believe that the general public would accept the [Utiliner] and its limited luggage capacity on primarily leisure flights like ours. The Caravan had everything that we needed: a work-horse turbine engine, plenty of luggage capacity in its 'belly', more interior passenger space than any of its competitors and a simple design that minimises complex systems requiring regular maintenance."

From a pilot supply perspective, it was vital for the new airline to remain within the Part 135 restrictions, as the rules also influence who can fly for what carrier. "In that period, the pilot shortage was beginning to have devastating effects on the industry, and we knew that moving to Part 121 [airlines operating aircraft larger than nine seats] and competing with major carriers was not an option."

As the skills shortage gathered pace, Southern consummated a deal with SkyWest Airlines to 'flow' its cockpit crews. Phil Lefevre, Southern's chief operating officer explained the firm's approach to retaining talent: "We hire co-pilots with 250 flying hours, which is basically what a pilot has after the private-commercial-instrument-multi engine trial. The moment they come to fly with us, they get a US$7,000 (£6,100) bonus and they agree to remain until they reach 1,800 flying hours, 300 more than when they could potentially leave to a Part 121 airline. At 1,200 hours they become captains with us and get another US$7,000 bonus. Then at 1,800 hours they have a position available at SkyWest and receive a third US$7,000 bonus. Through this system, we have easier access to incoming pilots, and we know exactly when they'll leave us, avoiding the risk of shortages. The SkyWest deal is also an incentive for them [the pilots], because they know that after about a year and a half with us and a few years at SkyWest, they could find themselves in the cockpit of a major airline."

The same deal is valid for Mokulele Airline's crew after Southern bought the Hawaii-based operator.

A key step for the financial stability of the carrier was the acquisition in 2016, of Sun Air, which allowed Southern to get its scheduled carrier certificate. This enabled the firm to bid for Essential Air Service (EAS)-funded routes, resulting in a remarkable expansion of its network. As of August this year, the airline's activity is divided into four areas identified as 'Mid-Atlantic' (West Virginia, Maryland, Pennsylvania), »

'Gulf' (Texas, Arkansas, Tennessee and Florida), 'New England' (Massachusetts, Rhode Island and New York) and 'California' where Mokulele-operated flights between Los Angeles and Imperial County Airport will soon be taken over by Southern-branded aircraft.

Talking Caravans

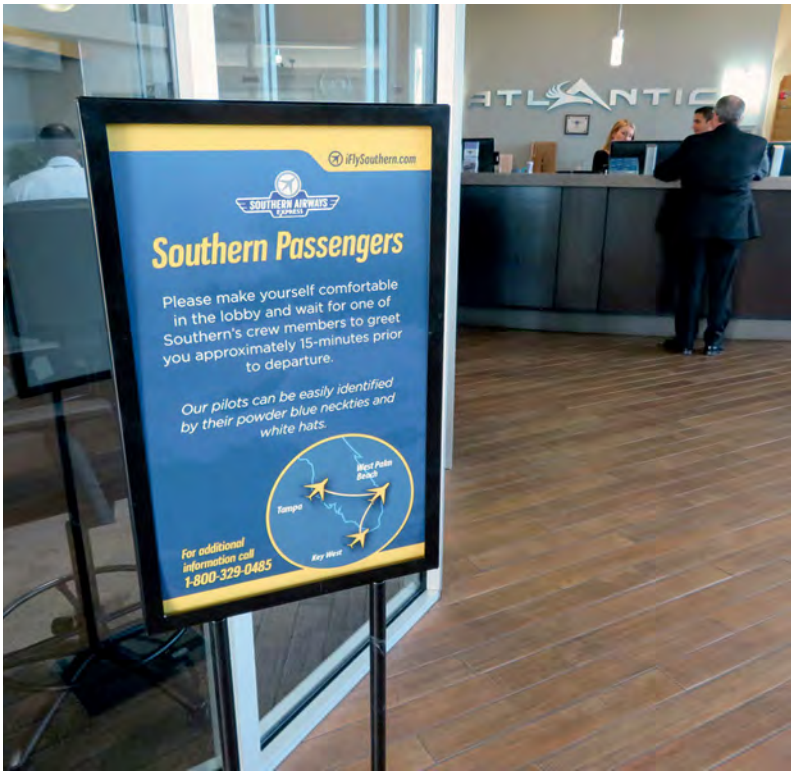
Twenty-three destinations are served by a fleet of 21 Grand Caravans. Around 30% are the newest -208EX series, the others are primarily 2000-2010 examples, but Little confirmed that the airline is not considering any 'new' aircraft types. "We are so pleased with the Caravans. We've been working with a company called Ampaire on an electric version, and I would love to see that come to fruition within this decade. But as long as airplanes like ours are maintained and overhauled on a regular basis, there is no great difference between newer and older ones. Personally, I fly other airlines on a regular basis and the MD-88 was one of my favourite aircraft, although most of them were 30 years old. I think that at Southern we'll be flying the Caravans for many years to come."

Regarding network, all routes in Pennsylvania, West Virginia and Arkansas are EAS-subsidised, along with the Los Angeles to Imperial service. Translated into quantitative terms, 'Mid-Atlantic' and 'Gulf' routes each count for approximately 45% of total income. "At the beginning all of our revenue came from leisure travellers, but as we expanded in different markets, our demographics changed substantially," noted Little. In Baltimore, a majority of our passengers are business travellers going to and from the capital. At West Palm Beach and Dallas, it's a mix of business and leisure. Thanks to our Campus Connection Programme, which involves seven universities whose campuses are situated in smaller communities, we also have a considerable number of students, who enjoy discounts on certain routes. Next summer [2021] we'll launch our Express Perks new frequent flyer programme, and that should widen our portfolio of regular customers even further."

Post-COVID, the airline plans more expansion based on demand for smaller aircraft in less crowded airports. "Our experience has proven that [city pairings], excluding those in the EAS program, need to have a population of at least one million people, need to be an arduous drive by car and need to have little or no existing nonstop service by major carriers. So, Tampa to West Palm Beach has been a great success for us, while Pittsburgh to Scranton just didn't work out. The routes to the islands are very good and I think next summer

Southern Airways Express is based in Pompano Beach on Florida's east coast

Passengers on Southern Airways Express services often use executive facilities instead of the main terminal



The high levels of personal service and attention to detail is made possible thanks to its boutique business model

you'll see additional capacity to Nantucket in New England and to Key West in Florida. But with consumer demands changing post-coronavirus, we may see new routes between smaller markets," the CEO confirmed.

Having such a dispersed set of destinations makes for complexities regarding crewing, ground staffing, aircraft positioning and maintenance. "It's a tough job, and the folks in our system operations control centre in Pompano Beach have got really good at it," recognised Little. "Take as an example our Memphis maintenance centre, which services every aircraft between Key West and Dallas. We rarely have to ferry an aircraft, because our staff plan scheduled aircraft movements so every aircraft touches down at Memphis at least once every 100 hours. The same thing applies at our maintenance bases in Lancaster and Dubois, Pennsylvania and Imperial, California. As for the pilots, we have a crew base in every city in which a morning flight originates and standby crews at the nearest hub. Because we have nine-seaters, our model doesn't allow for hotel rooms every night for every crew member, so they live in all of our 'hometowns'."

Big-name partnerships

While Southern boasts interline agreements with some industry heavyweights, Little and his team have been cautious in their overall approach. "We chose to interline with American, Alaska, and Condor but not to codeshare with anyone because that formula allows us to retain control of the pricing and keep fares low from all our hometowns," explained the CEO. Such agreements help explain why, in some cases, Southern's aircraft use main terminal facilities at big air hubs. "That happens in Los Angeles and at larger airports in the Mid-Atlantic, like Pittsburgh and Baltimore, where most of our passengers are connecting with our partner airlines for continuing travel. The deal with the German airline in particular came when they launched services to both Pittsburgh and Baltimore, and they believed we could serve as a great feeder for their flights to Frankfurt. There is actually a surprising amount of international travel that comes from our communities in rural Pennsylvania and West Virginia."

The airline prides itself in connecting smaller gateways to major population centres

In most other cases, even at large gateways such as Memphis, Nashville, West Palm Beach, and Tampa, Southern operates out of executive terminals and the passenger experience is similar to that of a private flight. Perks typically include complimentary parking, free snacks and drinks and lounge-comfortable seating, plus the all-important 30-minute check-in deadlines and no TSA security hassles.

Taking to the sky

Prior to the COVID-19 outbreak, *Airliner World* tested the Southern experience on one of the airline's most successful (and non-EAS subsidised) routes: West Palm Beach (PBI) to Tampa (TPA), a service that the airline usually operates three times »

a day. The two Florida cities are not connected by any other airline and driving takes more than four hours to cover the 210 miles by road. In contrast, take to the air and you can be at your destination in just 75 minutes.

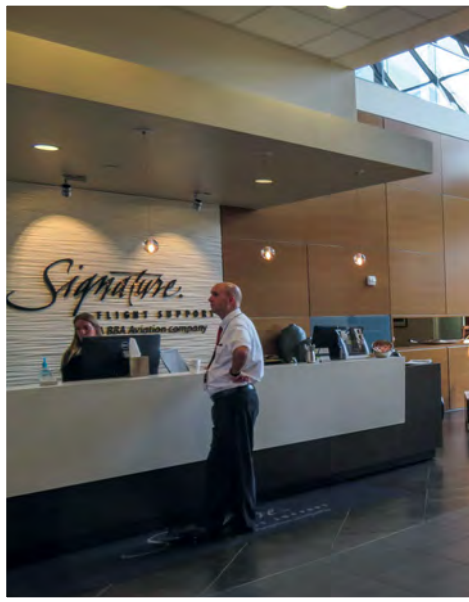
At PBI Southern uses the Atlantic Executive Terminal, situated on the opposite (south) side of the main facility, just a couple of miles away by car. Plenty of parking space welcomed me as I reached the building about 40 minutes before Flight 9X83's scheduled departure time of 1125hrs. Inside, the facility resembled a business class lounge, with ample leather-covered armchairs and sofas, deluxe restrooms with shower, complimentary snacks, drinks and coffee or tea, as well as a selection of newspapers. Southern's office is near the rental car desk. There, I was greeted by one of the pilots, who checked my ID, asked for my weight and then confirmed an on-time departure in some 30 minutes, inviting me to take a seat and relax – after all, there is no TSA control check to endure. Five minutes before our scheduled departure time, the same pilot came to ask if I was ready for boarding and I walked the few yards on the apron to the waiting Caravan, N9536P (c/n 20800090). Two further passengers completed the light load for this midday service.

After the first officer performed the safety briefing and the captain had brought the Pratt & Whitney PT6 engine to life, we quickly proceeded to Runway 10L, and took off at 1130hrs, heading towards the ocean before turning right almost 270° to the northeast. In around 15 minutes we soared over the sparse clouds, levelling at 8,000ft and 150kts. One of my fellow travellers was a Tampa resident at the end of a business trip to Palm Beach.

She said: "I took this flight because it was the only one between the two

BELOW RIGHT • ***Check-in can be completed up to 30 minutes prior to departure for most services, giving passengers extra time away from the airport***

BELOW • ***The flying experience for passengers is a radical departure from more mainstream operators such as Delta and United***



cities, but should a major airline fly this same route, I would equally choose Southern because on such a short flight it would really be a useless stress and a loss of time to have to undergo TSA controls. Also, I am already thinking of my car, parked just a few steps outside Tampa's executive terminal."

As Florida's third largest city by population, Southern uses the Signature Flight Support Terminal at Tampa, on the southeastern side of the airport. Inside, the facility was very similar to the one in Palm Beach, with the addition of a quiet area for those working and a real popcorn machine for anyone feeling peckish.

The flight back to PBI started with the pilots asking: "Are you ready guys?" to the nine of us waiting for the 1325hrs departure. My fellow passengers were all men, with the exception of a woman well into her seventies who, on seeing the plane, exclaimed in what seemed to be pure excitation, "Oh it's been a long time since I flew on such a small airplane!" With a full house, this time we were called to board the Caravan in a precise order by a Southern ramp assistant and I was lucky enough to be seated just behind the captain.

In essence, it was practically a jump seat from which I could follow every manoeuvre and every instrument – a real treat. Once again, the ride was largely uneventful, with the exception of a flock of hawks that we spotted at 3,000ft and surprised the pilots at the altitude they were flying.

Landing was interesting to follow from over the captain's shoulder, the simulator-like approach to 10L ending with a perfect touchdown and the loud congratulations of those on board.

Five minutes later I was in the car park outside the terminal, walking to my car. Feeling like one of the lucky few who regularly fly their own private aircraft – the only exception? My airfare was US$250 for the return trip. I now truly know what the Southern team means by "fly private at the cost of commercial". AW

Facilities for Southern passengers at PBI are more akin to a business class lounge

AIRBUS A350 - A FULL-BODIED TWIN

KEY PRESENTS

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ILYUSHIN IL-62

THE INTERFLUG FLAGSHIP

To celebrate the release of **Sebastian Schmitz's** new book chronicling the history of the East German carrier, we're sharing one of our favourite chapters – a fascinating look at the role of the Ilyushin Il-62

The Ilyushin Il-62, more than any other type it ever operated, catapulted Interflug into a new league, especially due to the jet's 5,000-mile range, which created new long-haul opportunities for the airline – Asia, the Americas, southern Africa. In some cases these ports were previously served, but with multiple stops or higher fuel burn en route.

It also offered unprecedented comfort for passengers used to the noisy (and much slower) Ilyushin Il-18 which operated most of Interflug's longest trips prior to the introduction of the Il-62. And it arrived at the perfect time: in the early 1970s, the two Germanys formally recognised each other, stepping back from a hostile stance to a more pragmatic relationship. Recognition by West Germany paved the way for improved international relations for the GDR (German Democratic Republic), with many new embassies opening abroad, and growing demand for travel, albeit a large portion of the GDR's citizens were excluded.

Enter the Il-62

April 22, 1970 was a big day for Interflug and its employees: the first Il-62, DM-SEA (c/n 00702), was delivered to Berlin/Schönefeld from the factory in Kazan. The airline had only entered the jet age less than two years prior when its first Tupolev Tu-134 went into service in July 1968. Interflug's proud employees were delighted to have finally caught up to some of its fellow airlines not only from the West but also in fraternal Warsaw Pact countries. While the »

RIGHT • *Interflug remains well known for its quirky branding and cabin interiors, which were typical of the era* VIA AUTHOR

Tupolev was a speedy little jet that fulfilled its short- and medium-haul role reasonably well, it did not get close to the glamour and prestige that came with the introduction of a big long-haul aircraft like the Il-62.

Most of the early pilots trained on the new flagship previously flew the Il-18 and thus had the necessary long-haul experience, while others followed from the Tu-134 pilot pool. Only a few weeks after the first Il-62 was delivered, a second ship, DM-SEB (c/n 00704), touched down in Schönefeld on June 2, 1970. And, hard to imagine in today´s efficient world, the first scheduled Il-62 flight was not operated until almost two months later: to Sofia on July 28, 1970. A few days later, it operated on the prestigious and ever-busy Moscow route, followed by a longer haul, to Baghdad via Damascus.

The Il-62 made Interflug more competitive. On the Moscow link, Aeroflot had been offering jet service for a decade with its Tupolev Tu-104s, followed by Tu-134s and their own Il-62s, and became passengers' preferred choice. With the Il-62, Interflug was able to offer not only a similar but an even better experience to travellers and catch up with the USSR flag carrier.

But even though the type was more capable than the Il-18, the Il-62, at least before the upgrade to M standard (a later variant), had its shortcomings, most notably with the Kuznetsov NK-8 engines on the basic version which were noisy, inefficient and left the aircraft underpowered, especially on a hot day out of Baghdad where summer temperatures could reach 50°C. When the Il-62M version became available, powered by Soloviev D-30 turbofans, fuel savings of 15% were achieved, with more efficient thrust reversers, less fuel burn and less noise. Other modifications that came with the M

The Soviet narrowbody jet had capacity for almost 200 passengers and crew in its Interflug configuration
VIA AUTHOR

The only regular Western European port of call for the Il-62 was Amsterdam/Schiphol
INTERFLUG ABTEILUNG WERBUNG

included an extra fuel tank installed in the vertical fin able to take an additional 5,000 litres of kerosene, giving the airframe both more payload and range, upgraded avionics in the cockpit and evolved passenger cabin architecture.

Over the years, Interflug operated six original non-M Il-62s, and 12 Il-62Ms. When it started flying for Interflug, the Il-62 soon took most of the airline's long-haul flights and, in between intercontinental trips, was also sequenced on busy European links such as the 'Friendship Line' to Moscow and its main link to Western Europe, Amsterdam (which, given that the airline wasn't permitted to fly over West Germany, took more than two hours, pole-vaulting due north overhead the Baltic Sea and Denmark before turning south over the North Sea into Schiphol airport).

Not only offering more range than any other type in Interflug's fleet but with 168 seats, significantly more capacity, putting it on the busiest routes in the network made a lot of sense. By 1973, including the loss of DM-SEA in August 1972, the Il-62 fleet had grown to five aircraft (in spring 1973, three jets were delivered from Kazan in just three weeks).

The venerable Il-62 was the long-haul workhorse for many carriers within the USSR and Allied nations
INTERFLUG ABTEILUNG WERBUNG

The first upgraded Il-62M delivered to Interflug was DM-SEI (c/n 3036931), joining the fleet in October 1980. But even though more and more of the advanced M version were delivered, the classic non-M Kuznetsov Il-62s all remained in service with Interflug until the late 1980s. The youngest, DDR-SEH (c/n 31405) former DM-SEH, was not retired until November 1989.

Going further

Travelling on the Il-62 gave you the highest level of comfort on any of Interflug's Soviet-built aircraft. The »

type was popular with passengers and crews alike. Its enormous wing meant the ship remained very stable even in turbulent weather and, with the four engines mounted on the rear of the fuselage, was very quiet inside the cabin, unlike the very noisy Il-18.

As well as its role as the airline flagship, it was also used for government missions (to be fair, it wasn't always easy to tell where scheduled flying stopped and government missions started). In November 1974, following a series of charter flights (most of them carrying crews of the GDR's fishing fleets), a scheduled route to Havana was launched, designated IF900/901. Once more, the capabilities of the Il-62 had opened a new door for the GDR on the world stage.

To be able to cross the Atlantic Ocean, three machines, DM-SEF (c/n 31402), DM-SEG (c/n 31403) and DM-SHE (c/n 31405), were equipped with the expensive LORAN-B radio navigation system. Even though it had more range than the other aircraft in Interflug's fleet, strong westerly winds made non-stop westbound rotations to Cuba impossible with a full payload. For the first year of operations, a technical stop for refuelling was made at Santa Maria in the Azores, a stop that Cubana had also chosen for the same routing.

In March 1976, the stop was moved from the Azores to Gander in Newfoundland, Canada. Operating via Gander saved more than 400 miles off the Azores route. Sometimes, when the wind conditions were favourable and/or the payload lighter than usual, the return flight was operated non-stop. The stop in Canada was not very popular with the GDR regime – dissidents occasionally used it as a means of defecting to the West. Instead of returning to the aircraft from the transit lounge, they prostrated themselves before a Canadian immigration officer and applied for political asylum.

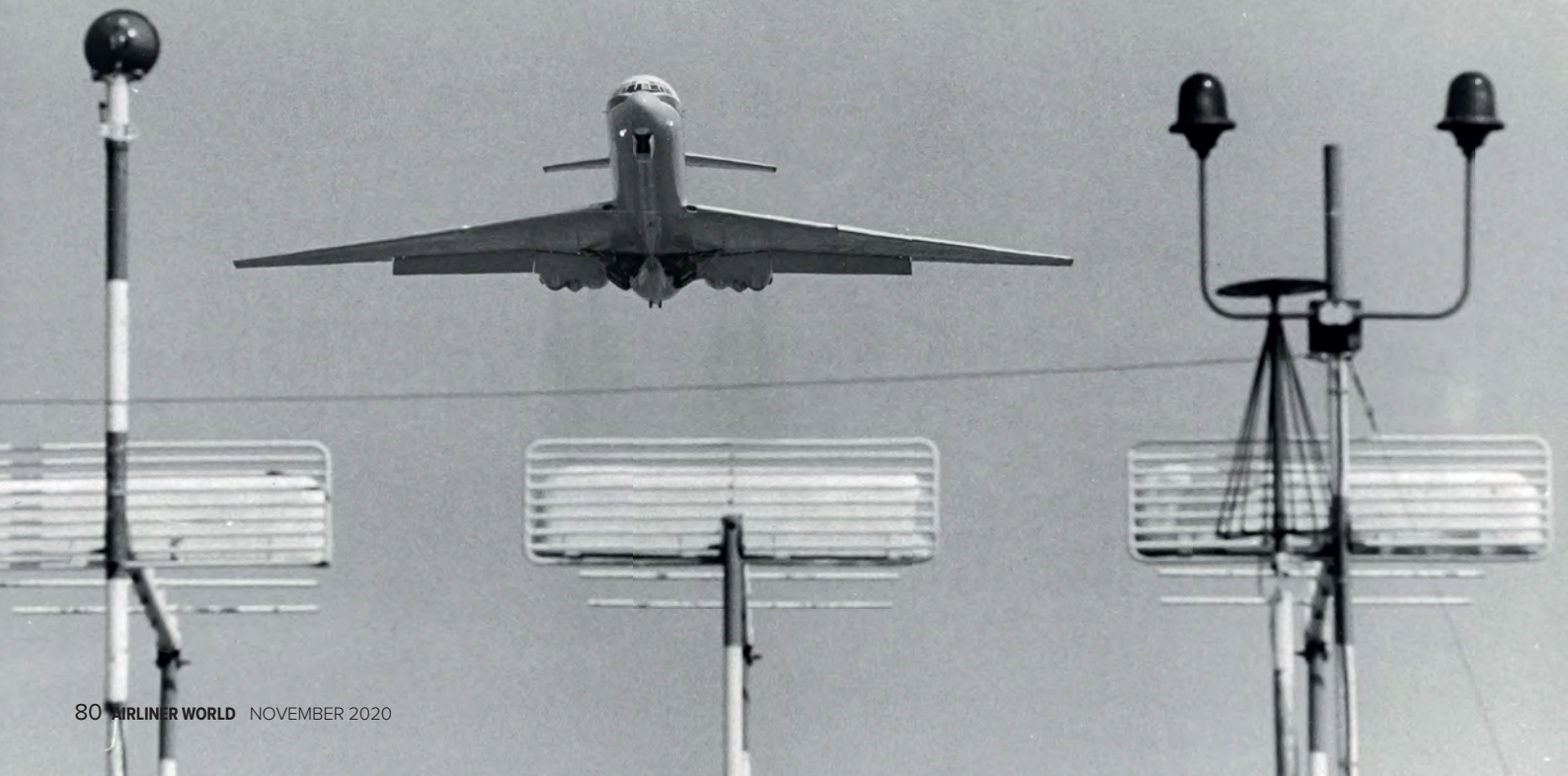
The story goes that, sometimes, the most pragmatic planned their escape for the return flight from Cuba to the GDR. Why not enjoy a holiday in tropical Cuba before saying goodbye to the system? Imagine their horror at the captain's welcome-aboard announcement leaving Havana that due to favourable winds, the flight would be operating nonstop back to Berlin instead.

What was known as the Gander Gap was only overcome with the delivery of the Airbus A310s, which were able to fly the route to Havana nonstop in both directions. But then, a few months later, the GDR was gone eventually anyway.

ABOVE RIGHT • ***In the same year as the Il-62's introduction with Interflug, its annual passenger numbers topped one million*** VIA AUTHOR

ABOVE • ***Interflug operated six original non-M Il-62s, and twelve Il-62Ms*** TINO LEHMANN

BELOW • ***Berlin Schönefeld Airport was the home and hub for the GDR carrier*** PETER ZIMMERMANN VIA BUNDESARCHIV



The cockpit of the Il-62 was advanced for a Soviet aircraft of its era
VIA AUTHOR

An Interflug Il-62 pictured at Leipzig in 1986
GOTTFRIED SCHILKE

BELOW • *This image was taken from Berlin Schönefeld's observation deck in 1990, only months before DDR-SEM was sold to Aeroflot*
GOTTFRIED SCHILKE

In the late 1980s, the Il-62 was used for a major expansion; between 1985 and 1989, Interflug took over nine additional aircraft including two inherited from the GDR Air Force's TG-44 government flying squadron. New routes were opened to Dubai, Beijing and Singapore, followed by Malta, Bangkok and Mexico City, following a new strategy to serve major hub airports in the respective regions, allowing passengers to connect within the region from there, and in the case of some routes, blatantly catering to demand from West Germany, which brought in much-needed hard currency.

Less commercially attractive routes, which were often flown because of political rather than commercial reasons, were dropped, such as Maputo, Amman and Baghdad. The 1989 summer schedule showed the Il-62 deployed on a cosmopolitan mix of destinations, some only an hour's flying time from base, others taking days to complete: Amsterdam, Athens, Beijing, Bourgas, Brazzaville, Bucharest, Budapest, Cairo, Damascus, Dubai, Hanoi, Havana, Helsinki, Istanbul, Karachi, Larnaca, Leningrad, Luanda, Malta, Moscow, Rome, Singapore, Tripoli, Tunis and Varna. This demonstrated the Il-62's diverse capabilities.

Right up until the end of Interflug, the Il-62 fulfilled an essential role and even when the A310s replaced it on many of the long-haul flights, it still had a place as a high-capacity people-mover on shorter flights and as a supplement aircraft, due to the fleet having quite a bit of spare capacity. When Interflug launched the route from Leipzig to Düsseldorf in August 1989, Il-62, DDR-SET (c/n 4546257), had the honour of operating the inaugural flight (which still routed via Czechoslovakian »

airspace, as crossing the intra-German border was still forbidden to German airlines).

Auf Wiedersehen

When Interflug stopped flying, the active Il-62 fleet stood at seven examples. All were sold to what was still the Uzbek division of Aeroflot, based at Tashkent (a major aerospace service centre for Soviet-built types), which became Uzbekistan Airways in 1992. Except for two, the rest were broken up or remained in storage in Tashkent. DDR-SEY (c/n 1951525), suffered a fatal landing accident at Mashhad while operating for Iranian carrier Aria Airlines (leased from Deta Air of Kazakhstan) in July 2009. One of the very last active Il-62s in the world is an ex-Interflug machine, and not even their youngest one. DDR-SET was delivered new to Berlin in December 1985, converted to a freighter after its Uzbek days, and is still operating today for Rada Airlines of Belarus as EW-450TR.

Whether a sign of Interflug's enthusiasm for the type or poor fleet planning ability, their last two Il-62s, DDR-SEY and DDR-SEZ (c/n 2951636), were only delivered to Interflug in June and August 1989, at the same time a trio of A310s were handed over. So Interflug took delivery of more of old iron and its replacement at exactly the same time.

Unfortunately, even though it was an overall success for Interflug, the Il-62 also had the sad honour of being the type with the highest number of fatalities in accidents. Interflug lost two Il-62s including its first-delivered, DM-SEA, in what is still Germany's worst ever air disaster, hardly more than two years after its handover, with just 3,500 hours of flight in the logbook. On the late afternoon of August 14, 1972, just minutes after take-off from Schönefeld on a non-scheduled charter flight bound for the Bulgarian seaside resort of Bourgas, leaking hot air ducts in the air conditioning system caused a fire to erupt in the rear of the aircraft. With no fire detection sensors that far aft, the first sign of trouble was unresponsive elevator control. Despite turning back, control was lost and the airframe crashed close to the town of Königs Wusterhausen, killing all 156 people onboard.

The other Il-62 loss occurred 17 years later on June 17, 1989. While taxiing out at the start of the sunrise IF102 departure to Moscow, the flight deck crew omitted to deactivate gust locks that held control surfaces in place during parking. Although 'full and free' controls appeared twice on the checklist, control surfaces were still locked; at 160kts, the captain could not get the nose up and called for an abort, with just 3,080ft remaining of Runway 25L. The flight engineer panicked and instead of putting the engines into reverse thrust, accidentally shut down all four engines. DDR-SEW (c/n 2850324), went off the end of the runway at 141kts and smashed through lighting stanchions, an excavation ditch, a water tank, a road embankment, the concrete piles of the airport perimeter fence and six large trees. Testament to the strength of the Il-62, only 21 lives were lost, with 92 survivors (including all ten crew). It is possible that even more lives could have been saved, but rescue operations were delayed as authorities feared sabotage – as the crash took place on the anniversary of the 1953 anti-Soviet uprising and against a backdrop of palpable political tension in the GDR's last months.

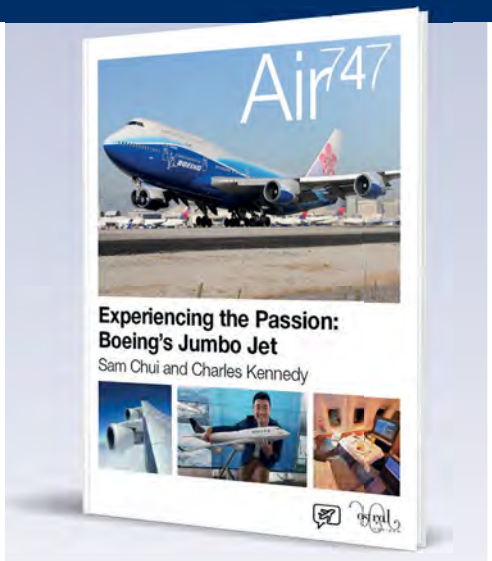
These two tragic events should not cast a shadow over an otherwise quite remarkable legacy. And to finish this chapter on a positive note: Interflug's Il-62s were famous throughout the GDR thanks to a high-profile television career as the star of the Treffpunkt Flughafen (literally *Airport Meeting Point*) television drama series first broadcast in 1985 and 1986. AWW

Its enormous wings meant the Il-62 remained very stable even in turbulent weather INTERFLUG ABTEILUNG WERBUNG

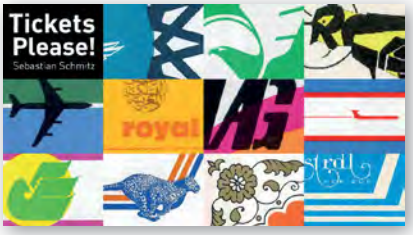
Our thanks to Sebastian Schmitz and Charles Kennedy for their assistance with this feature.
If you would like to pick up a copy of the full book, *Interflug: East Germany's Airline*, visit **www.theairlineboutique.co.uk**

New books from The Airline Boutique

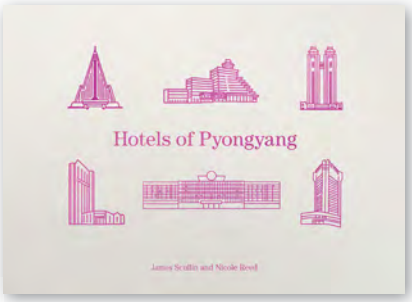
Interflug
the story of communist East Germany's airline, on the front lines of the Cold War



Air747
legendary vlogger Sam Chui and historian Charles Kennedy pay tribute to the Queen Of The Skies



Tickets Please!
a colourful collection of vintage tickets bring a bygone age of travel and design back to life



Hotels Of Pyongyang
the unique architecture of the hotels in North Korea's capital

Airliner Deliveries

The latest commercial aircraft deliveries from manufacturers and lessors

AeroLogic's 16th Boeing 777F, D-AALP (c/n 66086), was delivered to its Leipzig/Halle base on July 20. A quarter of the company's fleet now wear DHL's red and yellow colours
AIRTEAMIMAGES.COM/ DIPANKAR BHAKTA

Key to Abbreviations

a/c	aircraft
als	airlines
awys	airways
bf	bought from
b/u	broken up/scrapped
canx	cancelled
cls	colours
cn	manufacturer's construction/serial number
cnvrtd	converted
dbf	destroyed by fire
dbr	damaged beyond repair
dd	delivery date
ex	previous reg'n
ff	first flight
frtr	freighter
lrf	last revenue flight
lsd fr	leased from
lsd to	leased to
msn	see cn
ntu	not taken up
oo	on order
op	operated
pax	passenger
pwfu	permanently withdrawn from use
reg'd	registered
reg'n	registration
ret fr	returned from
ret to	returned to
rr	re-registered
rts	return to service
sb	sold by
scr	scrapped/broken up
st	sold to
std	stored
tba	to be advised
unk	unknown
wfu	withdrawn from use
w/o	written off/destroyed

Thanks to Dave Richardson and LAASI Aviation for the above

Serene Air [ER/SEP 'SERENE']

AP-BNE	A330-200	733	ex F-WTAX, dd 27.08.20, lsd fr Carlyle Aviation Partners

Air China [CA/CCA 'AIR CHINA']

B-30FJ	A320neo	9593	ex B-007M, dd 31.07.20

Air Travel [A6/OTC 'AIR TRAVEL']

B-30EH	A320neo	10061	ex F-WWDD, dd 17.07.20, lsd fr GECAS

China Eastern Airlines [MU/CES 'CHINA EASTERN']

B-30FE	A320neo	9481	ex B-000F, dd 31.07.20

Juneyao Airlines [HO/DKH 'AIR JUNEYAO']

B-30FQ	A320neo	10035	ex B-005E, dd 27.07.20, lsd fr Aviation Capital Group

Loong Air [GJ/CDC 'LOONG AIR']

B-30DN	A320neo	9544	ex F-WWIT, dd 10.07.20, lsd fr AerCap
B-30FV	A320neo	10028	dd 23.07.20

Qingdao Airlines [QW/QDA 'SKY LEGEND']

B-30FG	A320neo		ex B-007J, dd 30.07.20

Shandong Airlines [SC/CDG 'SHANDONG']

B-5546	737-800	39391	ex N1786B, dd 23.08.20, lsd fr BoComm Leasing

Tianjin Air Cargo [HT/CTJ 'TIANJIN CARGO']

B-20F1	737-700F	29086	ex N707KC, dd 19.08.20, lsd fr Spectre Air Capital

Tibet Airlines [TV/TBA 'TIBET']

B-1010	A319ceo	8841	ferried Tianjin – Lhasa 18.08.20, was dd 23.04.19

AHK – Air Hong Kong [LD/AHK 'AIR HONG KONG']

B-LDQ	A330-300F	781	ex M-BELR, dd 23.08.20, lsd fr/op for DHL

HK Express [UO/HKE 'HONGKONG SHUTTLE']

B-LCQ	A320neo	9416	ex D-AUAK, dd 28.07.20, lsd fr AerCap

Air Canada [AC/ACA 'AIR CANADA']

C-GEGP	A330-300E	1015	ferried YMX-YUL 21.08.20 for entry into service

Air Transat [TS/TSC 'TRANSAT']

C-GOIJ	A321LR	9278	ex D-AYAJ, dd 16.07.20, lsd fr AerCap, fleet #704
C-GOIO	A321LR	9492	ex D-AVYK, dd 17.07.20, lsd fr AerCap, fleet #706

Conair [-/FGD 'FIREGUARD']

C-GVFH	BAe Avro RJ-85	E2256	ex N354AC, reg'd 12.08.20

Jazz Aviation [QK/JZA 'JAZZ']

C-GJFZ	CRJ900LR	15488	ex C-GZSJ, dd 29.06.20, fleet #724
C-GJHZ	CRJ900LR	15486	ex C-GZTK, dd 25.06.20, fleet #722

Aerovias DAP [V5/DAP 'DAP']

CC-DCV	BAe.146-200	E2089	ex N16TA, dd 25.08.20, lsd fr Tronos Jet

Sky Airline [H2/SKU 'AEROSKY']

CC-AZU	A320neo	10055	ex F-WWBV, dd 28.07.20, lsd fr CALC

TAP Air Portugal [TP/TAP 'AIR PORTUGAL']

CS-TXF	A321LR	9230	ex D-AVZM, dd 24.07.20

AeroLogic [3S/BOX 'GERMAN CARGO']

D-AALP	777-F	66086	dd 20.07.20, lsd fr DHL

Condor [DE/CFG 'CONDOR']

D-AICP	A320ceo	2142	ex EC-MVH, dd 15.08.20, lsd fr AerCap

Lübeck Air [-/-]

SE-MDB	ATR 72-500	822	ex EI-RER, dd 21.07.20, lsd fr/op by Air Alsie

Lufthansa [LH/DLH 'LUFTHANSA']

D-AINZ	A320neo	9442	ex D-AUAA, dd 31.07.20; Neubrandenburg

TAAG Angola Airlines [DT/DTA 'DTA']

D2-TFB	DHC-8 402	4619	ex C-GNKQ, dd 10.08.20; Zaire

Flightline [FTL 'FLIGHT-AVIA']

EC-NIP	SA227	AC-658B	reg'd 22.07.20
EC-NIQ	SA227	AC-679B	reg'd 23.07.20
EC-NIR	SA227	AC-698B	reg'd 23.07.20

Iberia Express [I2/IBS 'IBEXPRES']

EC-NIA	A321neo	9571	ex D-AYAL, dd 09.07.20

Volotea [V7/VOE 'VOLOTEA']

EC-NGL	A319ceo	2879	ex EI-EZC, reg'd 10.07.20; A plus dans l'Airbus

Mahan Air [W5/IRM 'MAHAN AIR']

EP-MED	A310-300	706	ex EY-704, dd 07.20, entered service 21.08.20

Nyxair [-/NYX 'NYX AIR']

ES-NSE	Saab 2000	2000-013	ex G-LGNO, dd 16.07.20, lsd to/op for Air Leap
ES-NSF	Saab 2000	2000-039	ex G-LGNT, dd 13.08.20, lsd to/op for Air Leap
ES-NSG	Saab 340B	340B-223	ex G-LGNU, dd 17.06.20

Fly Sky Airlines [-/-]

EX-76003	Il-76TD	1033418596	ex UP-I7650, entered service 31.08.20

BA CityFlyer [CJ/CFE 'FLYER']

G-LCAC	ERJ190	19000513	ex EI-GSW, reg'd 20.08.20, lsd fr CDB Aviation

easyJet [U2/EZY 'EASYJET']

G-EZDX	A319ceo	3754	ex OE-LQO, reg'd 14.08.20
G-EZGR	A319ceo	4837	ex OE-LKB, reg'd 19.08.20
G-EZTJ	A320ceo	3979	ex OE-IVO, reg'd 10.08.20
G-EZTL	A320ceo	4012	ex OE-IVX, reg'd 28.08.20
G-EZTX	A320ceo	4286	ex OE-IVH, reg'd 24.08.20
G-EZUC	A320ceo	4591	ex OE-IVK, reg'd 05.08.20
G-UZLK	A320neo	9504	ex D-AUBP, dd 23.07.20
G-UZLM	A320neo	10053	ex F-WWDK, dd 01.07.20
G-UZMJ	A321neo	9468	ex D-AVYE, dd 21.07.20

Wizz Air [W6/WZZ 'WIZZ AIR']

HA-LJB	A320neo	10092	ex F-WWBG, dd 29.07.20
HA-LVK	A321neo	9444	ex D-AYAP, dd 30.07.20

Saudi Arabian Airlines [SV/SVA 'SAUDIA']

TF-AMB	747-400F	28263	ex B-2428, dd 06.08.20, lsd fr/op by Air Atlanta Icelandic

flyadeal [F3/FAD 'PURPLE']

HZ-FAL	A320neo	9554	ex OE-ILD, dd 10.08.20, lsd fr Avolon

flynas [XY/KNE 'NAS EXPRESS']

HZ-NS29	A320neo	9522	ex D-AXAP, dd 24.07.20, lsd fr CMB Financial Leasing

GulliVair [-/-]

LZ-ONE	A330-200	811	ex 2-PAOH, dd 08.20, lsd fr Klaatu Aircraft Leasing

Air Transport International [8C/ATN 'AIR TRANSPORT']

N457AZ	767-300ERF	25448	dd 03.08.20

Allegiant Air [G4/AAY 'ALLEGIANT']

N292NV	A320ceo	4891	ferried BQN-PIE 14.08.20 for entry into service

American Airlines [AA/AAL 'AMERICAN']

N413AN	A321neo	9374	ex D-AVXQ, dd 01.07.20, fleet #413
N419AN	A321neo	10017	ex F-WZMJ, dd 31.07.20, fleet #419
N420AN	A321neo	9584	ex F-WZMG, dd 29.07.20, fleet #420

Castle Aviation [-/CSJ 'CASTLE']

N253AE	Saab 340B(F)	340B-253	dd 07.08.20, lsd fr Jetstream Aviation

Commutair (United Express) [C5/UCA 'COMMUTAIR']

N14153	ERJ145	145761	ex PT-SJS, dd 28.08.20, lsd fr United Airlines

Coulson Aviation [-/CUL 'COULSON']

N140CG	C-130H	4337	ex 955 RNoAF, reg'd 10.08.20

FedEx Express [FX/FDX 'FEDEX']

N111FE	767-300F	64060	dd 28.07.20 & reg'd 18.08.20; Kacee

Frontier Airlines [F9/FFT 'FRONTIER FLIGHT']

N368FR	A320neo	9549	ex F-WZMU, dd 28.07.20; Cortez the Green Turtle
N369FR	A320neo	10031	ex F-WZMY, dd 28.07.20; Chinook the Grey Wolf
N371FR	A320neo	10089	ex F-WZMC, dd 30.07.20; Parish & Daisy the Burrowing Owls

JetBlue Airways [B6/JBU 'JETBLUE']

N2048J	A321neo	9377	ex D-AZAF, dd 01.07.20

SkyWest Airlines [OO/SKW 'SKYWEST']

N261PS	CRJ200	7959	ex C-FMOS, reg'd 05.08.20, std Tucson
N262PS	CRJ200	7962	ex C-FMND, reg'd 04.08.20, std Tucson
N374CA	CRJ700	10090	reg'd to SkyWest Airlines 10.08.20, std Tucson
N656CA	CRJ700	10143	ex C-GIAU, reg'd 05.08.20, std Tucson

We welcome any feedback on this listing

(The listing is alphabetical with reference to the registration of the country of origin. Columns indicate the registration, type, construction number and notes)

N658CA	CRJ700	10148	ex C-FAWH, reg'd 05.08.20, std Tucson
Southern Air [9S/SOO 'SOUTHERN AIR']			
N5227A	737-800(BCF)	32742	ex N849DM, dd 05.08.20, sub-lsd fr Amazon.com, op for Prime Air
N5233A	737-800(BCF)	34029	ex N204RH, dd 26.08.20 sub-lsd fr Amazon.com, op for Prime Air
Sun Country Airlines [SY/SCX 'SUN COUNTRY']			
N845DM	737-800(BCF)	32739	ex HS-NGH, dd 06.07.20, op for Prime Air
Swift Air [WQ/SWQ 'SWIFTFLIGHT']			
N307GT	737-700F	26455	ex N496SA, dd 09.07.20, lsd fr/op for DHL
N309GT	737-400F	26334	ex N498SA, dd 31.07.20, lsd fr op/for DHL
United Airlines [UA/UAL 'UNITED']			
N884UA	A319ceo	2579	ex B-6207, dd 27.08.20, lsd fr AerCap
N7712G	737-700	32660	ex N261AT, reg'd 18.08.20, ferried PAE-ROW 20.08.20 for temp storage
MEA – Middle East Airlines [ME/MEA 'CEDAR JET']			
T7-ME1	A321neo	9427	ex D-AVXK, dd 09.07.20
T7-ME2	A321neo	9458	ex D-AYAH, dd 30.07.20
LATAM Airlines Brasil [JJ/TAM 'TAM']			
PR-MHE	A320ceo	3111	ex A4O-OVC, ferried CNF-GRU 30.07.20 for return to service
NordStar Airlines [Y7/TYA 'TAIMYR']			
VQ-BBX	737-800	39444	ex LN-NIA, dd 14.08.20, lsd fr Avolon
VQ-BVW	737-800	34990	ex EI-ESP, dd 14.08.20, lsd fr Avolon
Red Wings Airlines [WZ/RWZ 'REMONT AIR']			
VP-BVT	A321ceo	2107	ex A7-ADT, dd 14.08.20, lsd fr Castlelake
S7 Airlines [S7/SBI 'SIBERIAN AIRLINES']			
VQ-BSD	A320neo	10016	ex F-WWBE, dd 24.07.20, lsd fr SMBC Aviation Capital
Air Leap [FL/LPA 'LEAP']			
ES-NSE	Saab 2000	2000-013	ex G-LGNO, dd 21.08.20, lsd fr/op by Nyxair
ES-NSF	Saab 2000	2000-039	ex G-LGNT, dd 21.08.20, lsd fr/o by Nyxair
SE-KXK	Saab 2000	2000-012	ex HB-IZI, dd 10.08.20, lsd fr/op by Lipican Aer
Egyptair [MS/MSR 'EGYPTAIR']			
SU-GFO	A320neo	10039	ex F-WWBN, dd 20.07.20, lsd fr AerCap
SU-GFP	A320neo	10064	ex F-WWDN, dd 23.07.20, lsd fr AerCap
SU-GFQ	A320neo	10072	ex F-WWIS, dd 29.07.20, lsd fr AerCap
Lipican Aer [-/LIP 'ZIPIZAN']			
SE-KXK	Saab 2000	2000-012	ex HB-IZI, reg'd 04.08.20, lsd fr Erik Thun, lsd to/op for Air Leap
SE-LOM	Saab 2000	2000-035	ret fr Air Leap lease
SunExpress [XS/SXS 'SUN EXPRESS']			
TC-SOV	737-800	40776	ex D-ADAA
TC-SOY	737-800	40777	ex D-ADAB
TC-SOZ	737-800	29649	ex D-ASXO, lsd fr Aviation Capital Group
TC-SPB	737-800	30272	ex D-ASXV, lsd fr Aviation Capital Group
TC-SPC	737-800	34984	ex D-ASXX, lsd fr Ming Shen Financial Leasing
TC-SPF	737-800	39093	ex D-ASXF, lsd fr Aviation Capital Group
TC-SPG	737-800	30806	ex D-ASXC, lsd fr AerCap
Turkish Airlines [TK/THY 'TURKISH']			
TC-LLM	787-9	65812	dd 21.07.20, lsd fr AVIC
TC-LSY	A321LR	9415	ex D-AVYI, dd 21.07.20
Air Atlanta Icelandic [CC/ABD 'ATLANTA']			
TF-AMB	747-400F	28263	ferried LGG-JED 06.08.20, lsd to/op for Saudia
TF-EAB	A340-300	210	lsd to/op for Air Madagascar
Icelandair [TF/ICE 'ICEAIR']			
2-CCEA	757-200	25695	ex N687AA, ferried CAN-KEF 30.08.20
Trans Air Congo [Q8/TSG 'TRANS CONGO']			
TN-AKH	737-500	24898	ferried KBP-BZV 19-20-08.20 for entry into service
Air Astana [KC/KZR 'ASTANALINE']			
P4-KBK	A320neo	9459	ex D-AUAI, dd 27.03.20, lsd fr SMBC Aviation Capital
Windrose Airlines [7W/RWC 'WIND ROSE']			
UR-RWC	ATR 72-600	1450	ex OY-YCG, dd 17.08.20, lsd fr Nordic Aviation Capital
Pionair [PH/SFZ 'SKYFORCE']			
VH-SQR	BAe 146-300	E3151	ex D-AWDL, reg'd 29.07.20
GoAir [G8/GOW 'GO AIR']			
VT-WJM	A320neo	9218	ex D-AVVV, dd 17.07.20
VT-WJS	A320neo	9598	ex F-WWIX, dd 17.07.20
VT-WJT	A320neo	9412	ex D-AUAD, dd 17.07.20
IndiGo [6E/IGO 'IFLY']			
VT-ISL	A320neo	9471	ex D-AUBI, dd 03.07.20
VT-ISN	A320neo	9489	ex D-AUBX, dd 21.07.20
VT-IUW	A321neo	9366	ex D-AVZZ, dd 14.07.20
Vistara [UK/VTI 'VISTARA']			
VT-TNX	A320neo	9572	ex F-WWDP, dd 10.07.20, lsd fr Avolon
VT-TVA	A321neo	9297	ex D-AZAR, dd 22.07.20, lsd fr Air Lease Corp
Viva Aerobus [VB/VIV 'VIVA']			
XA-VIX	A320neo	10062	ex F-WWIB, dd 30.07.20
Volaris [Y4/VOI 'VOLARIS']			
XA-VRP	A320neo	9475	ex D-AUBH, dd 28.07.20
Air Bucharest [-/BUR]			
YR-YAP	737-300	27454	ex YL-BBI, dd 04.08.20, lsd fr GA Telesis
Blue Air [0B/BLA 'BLUE AIR']			
YR-BMR	737-700	33465	ex OE-IAH, dd 24.08.20, lsd fr Air Lease Corp
Albawings [2B/AWT 'ALBAWINGS']			
ZA-ALC	737-400	24706	ex EI-FVA, dd 07.08.20
Origin Air [-/-]			
ZK-JSK	Jetstream 32	986	ex TF-ORG, reg'd 20.08.20
Air Mauritius [MK/MAU 'AIR MAURITIUS']			
ZS-SDE	A350-900	354	ret fr South African Airways lease
ZS-SDF	A350-900	365	ret fr South African Airways lease
Cronos Airlines [C8/CRA 'CRONOS']			
TJ-KMM	ERJ145	145306	ex HL8320, dd 13.08.20
Air Madagascar [MD/MDG 'AIR MADAGASCAR']			
TF-EAB	A340-300	210	ex F-GLZL, dd 14.08.20, lsd fr/op by Air Atlanta Icelandic
Madagasikara Airways [7D/AYS]			
5R-AMX	ERJ145	145461	ferried TNR-TLV 27.08.20
DAC Aviation [JX/-]			
5Y-JUB	C295	166	dd 10.08.20
Safe Air [K3/SAQ 'SINBAD']			
LZ-MDK	A320ceo	1422	ex RP-C7932, dd 19.08.20, lsd fr/op by Fly2Sky
Freebird Airlines Europe [-/FHM "EUROBIRD']			
9H-FHA	A320ceo	4207	ferried CHR-LEJ 19.08.20 after temp storage
Galistair [GTR 'GALISTER']			
9H-VDO	A320ceo	3136	ex T7-MP3, dd 14.05.20, lsd fr Fortress Investments
Lauda Europe [LW/LDA]			
9H-LMG	A320ceo	4603	ex OE-LMG, lsd fr Orix Aviation
SmartLynx Airlines Malta [-/LYX 'MALTA CAT']			
9H-SLB	A320ceo	1945	ex S7-SIL, dd 12.08.20 HYD-MLA, lsd fr Aero Capital Solutions
Mwantjet [-/-]			
9S-AYE	ERJ145	145601	ex 2-TEZK, dd 08.20

Air Transat's fifth Airbus A321LR, C-GOIJ (c/n 9278), visited Manchester for the first time on July 30. It had entered service with the Canadian leisure carrier just four days earlier
ASHLEY FRENCH

Air Astana has accepted its fifth Airbus A320neo, P4-KBK (c/n 9459)
AIRTEAMIMAGES.COM/ MATTHIAS DUEBER

Lufthansa Technik delivers maiden A350 to German government

The latest news from maintenance, repair and overhaul providers by Nigel Pittaway

The first of three Airbus A350-900s for the German government was handed over by Lufthansa Technik during a ceremony at its Hamburg facility. It's the first example to be delivered to a sovereign entity, rather than a commercial airline.

The Rolls-Royce Trent XWB-powered widebody, D-AGAF (c/n 416), was previously registered with Lufthansa Technik but will fly with the Federal Ministry of Defence (BMVg) Special Air Mission Wing, wearing the military serial 10+03.

Johannes Bussmann, chairman of the executive board of Lufthansa Technik AG, said: "Today we are proud to present to the Federal Minister of Defence the new flagship of the Federal Government's Special Air Mission Wing, the world's very first Airbus A350 as a government aircraft. The [jet] 10+03 and its two subsequent sister aircraft are a continuation of the successful tradition of supplying the German Armed Forces and having them as one of our best and most important customers."

Lufthansa Technik received the A350 from the Airbus production line in May and installed an interim cabin interior to allow it to perform political/parliamentary flight operations on behalf of the German government. The cabin is fitted with office and conference areas and a multifunctional lounge area, with accommodation for accompanying delegations in the rear.

The other pair of A350s – to be registered 10+01 and 10+02 – are set to be delivered with a full VIP interior by Lufthansa Technik in 2021, after which the initial aircraft will return to the company's facility in Hamburg for upgrade to the final configuration. (Photo Lufthansa Technik)

Magnetic MRO wins contract

Tallinn-based Magnetic MRO has announced the awarding of a continuing airworthiness management (CAMO) contract by aircraft leasing service provider, BOC Aviation (Ireland) Limited.

As part of the deal, Magnetic MRO will provide support to BOC which includes the planning of ferry legs, registration/de-registration of airframes and the issuance of maintenance work packages and provision when aircraft are positioned in Tallinn. Since the agreement was signed, the leasing company has already delivered the first Boeing 737NG to Magnetic's MRO facility.

Janno Väinola, Magnetic MRO senior airworthiness engineer, said: "We are very pleased to start the co-operation with BOC Aviation – and appreciate that the communication has been very efficient and productive. Both parties understand the scope of work that is required to keep [the] given asset airworthy and ready for the next potential customer. We will continue this path with our client and will be looking forward to the future projects together with BOC Aviation." (Photo Magnetic MRO)

Supplemental type certificate obtained

The Civil Aviation Administration of China (CAAC) airworthiness department has issued a supplemental type certificate (STC) to GKN Fokker Services for modification of Boeing 737 Next Generation jets.

The award of the STC, first announced on August 20, covers the installation of all compliant types of transponders in conjunction with every compatible GPS source.

In a statement, GKN Fokker Services confirmed that several of its existing customers have already ordered the 737NG Out modification, noting that both the European Union Aviation Safety Agency (EASA) and US Federal Aviation Administration (FAA) had issued STC approval in 2018 and last year, respectively.

The company already holds EASA and FAA STC's for the De Havilland Canada Dash 8-400 and Airbus A320 Family types and has announced its intention to expand its ADS-B Out programme to other aircraft examples including: Boeing 737 'Classic', 747, 757 and 767 airliners.

Erik Louis, ADS-B Out production manager at GKN Fokker Services, said: "We are very happy with our CAAC STC for our competitive and innovative ADS-B Out solution for the [737NG]. It's truly differentiating since it encompasses all compliant transponders and GPS sources."

Louis added: "Our STC will also allow our customers to modify their aircraft very cost-effectively and with a minimum of downtime, typically just one or two overnight checks. Furthermore, with our STC the customer has the option to update existing transponders or replace [examples] from different vendors."

The latest news from maintenance, repair and overhaul providers by Nigel Pittaway

Aerostar opens new MRO centre

Romanian aerospace company, Aerostar SA, announced on September 1 that it has opened a new 90,417sq ft commercial MRO facility at Iași International Airport. The complex – situated in northeast Romania – is around 80 miles north of the company's existing site at Bacău.

Completed in August, the three-bay MRO hangar is part of Aerostar's EASA Part 145 maintenance base. The company reports it has the necessary approvals to manage and execute commercial MRO activities for Airbus A320 Family and Boeing 737 jets.

The first inducted into the new facility was a four-year-old A320neo, TC-NBC (c/n 7185), from Turkey's Pegasus Airlines – one of Aerostar's existing customers. More than 100 'C' and 'D' maintenance checks have been carried out on behalf of the firm at the company's Bacău site to date. Other services provided include the first base maintenance inspection on a CFM International LEAP 1A-powered A320neo in Europe during 2018.

The new facility at Iași is based on Aerostar's second hangar at Bacău but incorporates three hangar doors to facilitate aircraft movement and includes back shops attached, together with a small machine shop.

When at full capacity, the Romanian complex can employ more than 100 engineers and technicians simultaneously. (Photo Aerostar SA)

Satair provides A220 material management for Airbus Canada

Airbus services company, Satair, has taken responsibility for the overall A220 management from Airbus Canada, the two parties announced on September 3.

As part of the integration of the A220 programme into Airbus, Satair has taken the lead on global material support and services for A220 operators, with the transition officially commencing on July 1 of this year. Under the agreement, Satair is responsible for activities including planning and inventory, purchasing, quality inspection, certification, warehousing and distribution, customer order handling and 24/7 aircraft on-ground support. In the future, the company will develop parts lease, repair and exchange services for the global A220 fleet.

Rob Dewar, senior vice president, A220 customer services, customer satisfaction and product policy, commented: "All A220 customers will benefit from the same level of service and global network offered by Satair on all other Airbus platforms. This is a significant contributor to improving the overall satisfaction of our growing [type's] customer base worldwide."

By the end of July, Airbus reported 642 firm A220 orders. Currently, 118 examples serve with seven operators and comprise of two variants: -100 and -300. (Photo Airbus)

AeroLogic signs ten-year support contract

Leipzig-based freight carrier, AeroLogic – a joint venture between DHL Express and Lufthansa Cargo – has signed a further ten-year total component support contract with Lufthansa Technik. The deal encompasses component services for the firm's fleet of 16 Boeing 777Fs. Under the agreement, announced on September 8, Lufthansa Technik will also provide AeroLogic with data from its AVIATAR digital platform, to optimise component supply and assist with the operational planning from its two hubs: Leipzig and Frankfurt.

George Fanta, Lufthansa Technik's vice president of aircraft component services, said: "We're proud to continue our partnership with AeroLogic for a contractual period of a further ten years. Our operational experience enables us to provide optimal support for AeroLogic's fleet in the fiercely contested air freight market." (Photo Flickr Commons/ Oliver Holzbauer)

Roof on, time to start decorating

Preserving Commercial Aviation's Past

Having completed construction of its Airpark Roof earlier this year, the Longreach, Queensland-based Qantas Founders Museum (QFM) has now turned its attention to the aircraft that shelter under the 86,886sq ft canopy.

As well as protecting the attraction's exhibits and visitors, the structure will also serve as a covered venue for what the museum described as "expanded visitor experiences" including Luminescent Longreach, a 20-minute light and sound show projected onto QFM's Boeing 707, 747, Douglas DC-3, Lockheed Super Constellation and the Airpark Roof which tells the story of Qantas' first 100 years. The show, which the museum states is designed to "delight, entertain, inform and move", opened on July 1.

There are ongoing plans to create a second presentation to complement the one already being screened.

With the AUS$14.3m project now complete, the facility plans to spruce up the stars of its Luminescent Longreach show. It has earmarked the two Boeings and the Douglas DC-3 for repainting. It will be the first time that the QFM jumbo, VH-EBQ (c/n 22145), has been completely repainted since arriving at the Queensland museum in December 2002 – volunteers spent three weeks clambering up and down 65ft of scaffolding to recharge the red on the fin in 2011.

Also among aircraft due to receive a repaint is the museum's Lockheed L-1049 Super Constellation, N4247K (c/n 4144). This former United States Navy C-121J arrived at Longreach on May 24, 2017, after more than a quarter-of-a-century in storage at Manila/Ninoy Aquino, having been impounded there in 1988.

Owing to the toll taken on the airframe during its time in storage in the Philippines, volunteers spent 945 hours returning the cockpit to its former glory – almost half of that time was spent cleaning the aircraft's instrument panels, a difficult undertaking as they had to rely on photographs as a reference for completing the flight deck.

Following work on the cabin – which serves as an exhibition detailing the Lockheed type's significance in Qantas' history – the propliner was moved into its new permanent position in April 2020.

Reflecting on the milestone, Rodney Seccombe, who oversaw the project to save and restore the 'Connie', said: "Over five years ago, after keeping a watching brief for many years, we successfully bid for and saved this Super Constellation from being scrapped in Manila, so it is wonderful to see this beautifully restored [airframe] positioned with our other museum aircraft and under the protection of our Airpark Roof."

Shortly after arriving in Australia in May 2017, the aircraft was sandblasted and painted to represent L-1049H, VH-EAM (c/n 4801), which flew for the carrier between 1956 and 1962.

Prior to delivery to the Australian firm, the aircraft had served as the prototype for the L-1049H, a convertible passenger/freighter variant of the earlier G model. It became surplus to Qantas' requirements in 1962, by which time its Boeing 707-138B fleet numbered 11, and was sold to Air New Mexico. It later flew in Alaska, Bolivia and Argentina, ending its flying career as a freighter during the Biafran airlift. It was scrapped at Columbus, Ohio, in 1972.

As well as giving its largest exhibits some tender loving care, the museum plans to construct a walkway that will take visitors around the circumference of the Airpark enclosure.

BELOW RIGHT • ***The completed cockpit of a Lockheed L-1049B Super Constellation is found at the museum***

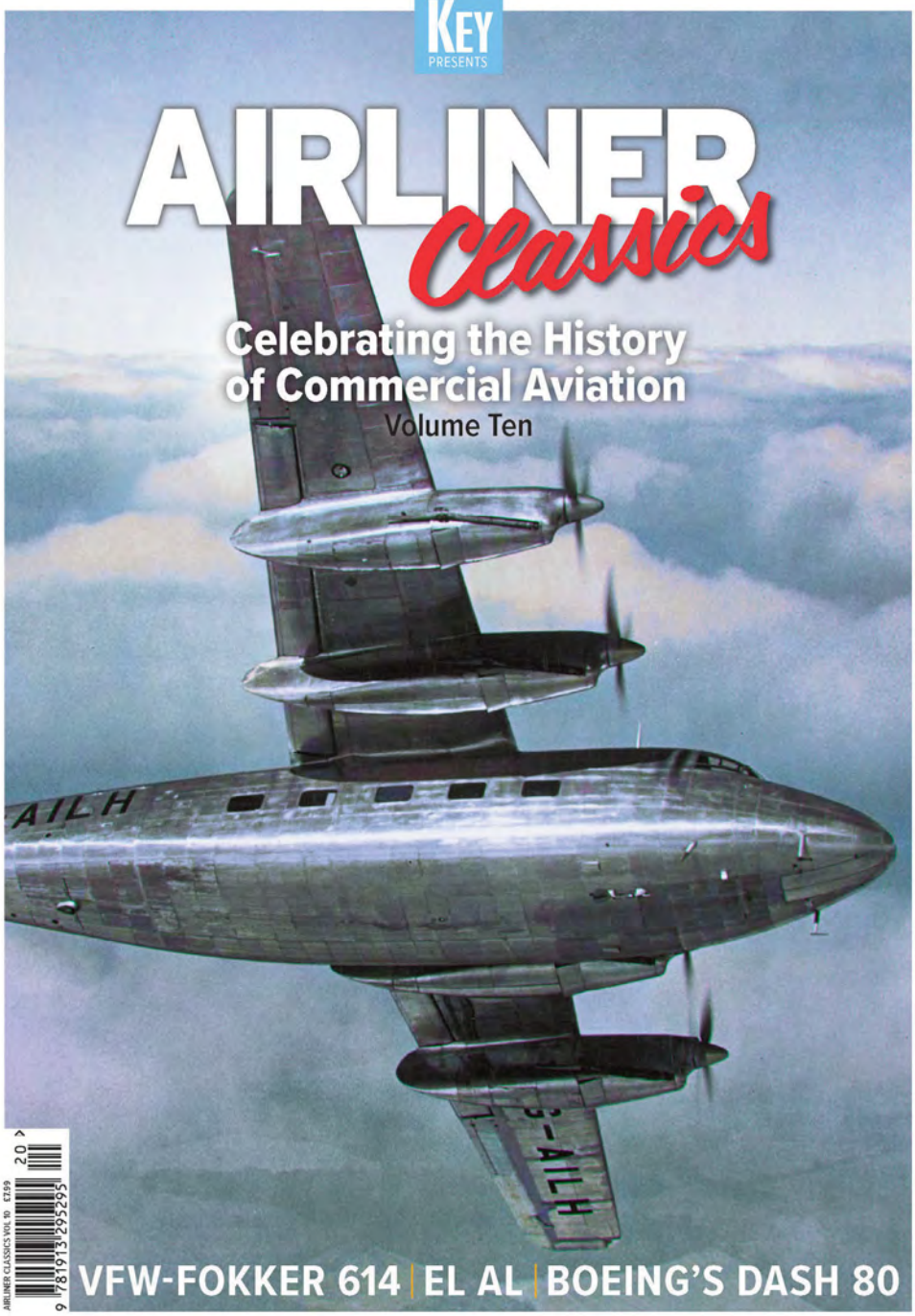
BELOW • ***Images are projected onto the jumbo as part of the Luminescent Longreach show***

QFM's Boeing 747-200, VH-EBQ (c/n 22145), under the Airpark Roof. The structure was built around the 1979-vintage jumbo

ALL IMAGES VIA QANTAS FOUNDERS MUSEUM

Volume 10 of the AIRLINER Classics series

CELEBRATING THE HISTORY OF COMMERCIAL AVIATION



KEY PRESENTS

The latest edition of *Airliner Classics* continues the series' remit to provide an in-depth look at the glory days of commercial aviation. Major articles include a survey of British post-war airliners, as well as the Handley Page Herald, West Germany's unconventional VFW 614 regional jet and the life and times of the Boeing 367-80, the ancestor of Seattle's modern airliner family.

Two contrasting airports, the UK's East Midlands and Wellington in New Zealand are profiled whilst airline features include El Al, the Israeli flag carrier, and the Dakota-operator FieldAir.

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China Airlines confirms **training partner**

The latest training aids available for the aviation professional

L3Harris Technologies has been chosen by Taipei-based China Airlines to provide training support for its incoming Airbus A321neos.

As part of the deal, L3Harris is set to deliver a RealitySeven A320neo Standard 2.1.0 full-flight simulator. Additionally, it will provide an enhanced flat panel trainer and a pair of flight management system stations. The products will be installed at the Taiwan national carrier's Taipei/Taoyuan training centre from 2021. Ming-Hui Lai, vice president of flight operations division, China Airlines, commented: "The new suite of devices will provide a modern, progressive training environment allowing us to utilise the most appropriate device across the training journey."

The maiden A321neo is expected to be delivered to China Airlines by next September, subject to COVID-19 restrictions. Meanwhile, Lufthansa Aviation Training's latest L3Harris Technologies-built simulator has entered service following certification.

The A320 EASA Level 2 flight training device was both constructed and delivered despite the challenges, including new protocols, posed by the coronavirus pandemic.

David Birrer, managing director LAT Switzerland, said: "The simulator demonstrates the high fidelity and quality now available from an FTD [flight training device] and provides a great opportunity for us to effectively adjust the training time across our device mix. Feedback from all those who have used the L3Harris FTD has been excellent."
(Photo L3Harris Technologies)

ATR sim arrives in Clark

CAE has delivered the first ATR 72-600 full-flight simulator to Philippine low-cost firm Cebu Pacific Air. This example is based at the CAE Clark training centre, home to the Philippine Academy for Aviation Training (PAAT) on the island of Luzon. It joins a trio of Airbus A320 simulators at the facility.

Nick Leontidis, CAE's Group president, civil aviation training solutions, said: "Cebu Pacific Air and CAE share a partnership that spans almost ten years... To date, CAE has trained more than 1,000 pilots for Cebu Pacific Air and we look forward to training many more [aircrew] with the most innovative training equipment, best instructors and through COVID-19 safe operational measures. We have a strong commitment to training for safety, and we thank Cebu for their trust."

The full-flight simulator features the latest advancements including an extended motion envelope, allowing Cebu's pilots to practise upset prevention recovery training procedures. The Manila-based airline currently fields a contingent of 13, 78-seat ATR 72-600s.
(Photo Flickr Commons/G B_NZ)

Pioneering software launched

Texas-based CPaT Global has revealed the launch of its 'CPaT Invent' aviation training software platform. In a statement, the company said the distance learning product offers customers "on-demand access to efficiently create, modify and maintain training material". Formed from what it calls the "three fundamental pillars of capability", it comprises: Content Design, Content Enhancement and Content Control.

The design section supports a pre-set course structure including 3D and virtual reality software for cockpit and walk-around familiarity. The enhancement pillar lets airline customers modify training content for their unique requirements. Finally, the control phase provides an evidence-based approach where students performance data is logged, giving their trainers the ability to make "real-time changes to [the] curriculum".

This latest development comes after the training firm acknowledged that meeting specific client needs can be difficult. With varying customers having either multiple airframes, conflicting regulations or operating with certain procedures, limitations existed with the former distant learning applications.

Brian Bergeron, CPaT president, commented: "CPaT Invent is a revolutionary approach to distance learning that will empower airline training professionals like never before. We have reimagined how aviation training is created, adapted to the customer and maintained. Distance learning in aviation training as we know it, will forever be changed.

"Since its inception, CPaT Global has been providing software solutions that proactively address the needs and challenges of the aviation training market and Invent is no exception. Its release will follow a phased approach by airframe, with the first phase expected to complete by [the] end of this year, followed by additional [examples] rolling out by the end of the first half [of] 2021," he went on to add.

CPaT provides around a million hours of distance learning training each year to more than 250 aviation customers around the world. This includes examples such as Latvian-based airBaltic on its Airbus A220-300s (see *Aviation Training*, August edition).

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Letters to the editor

Share your insights and opinions

Airport names: two counter views

Dear Editor,
I was astonished at Andrew Oliver's letter of complaint regarding your publishing of full airport names. There is absolutely nothing wrong and everything right with the convention so please continue.
Barry Fitzgerald

Dear Editor,
Please continue to state the full name of the airport! It makes *Airliner World* so special and unique. As with the pictures, both registration and line-number are provided to easily identify the airframe past and present. As a spotter from Hamburg, we are so proud that our airport was named after Helmut Schmidt, the famous politician who sacrificed the life of Hanns-Martin Schleyer to save the lives of all passengers on board Lufthansa 'Landshut' Flight 181. It is an honour to keep his name alive.
Christian Stoever, Germany

PHOTO: MEDVEDEV/WIKIMEDIA COMMONS

An unexpected guest

Dear Editor,
After reading your Boeing 777 article in the September issue, I remembered that just by chance, I was at Heathrow on the day British Airways' first 777 arrived. It was a dull grey Thursday in April 1995. Standing on the path at the end of 27R people kept asking me if it had arrived yet. I didn't know what they were talking about, as I was totally unaware of any new aircraft arriving. Someone then said they heard it call up the tower. Suddenly all heads turned right to see the aircraft approaching. I was told that on the Tuesday, United Airlines had flown one of its 777s in as the launch customer.
There was a documentary on Channel 4 that showed how Boeing designed, built and tested the 777 to get it certified to enter passenger service. I remember to this day how the design team set up a mock-sized stretched frame. I'm not sure if airports would have had to carry out expensive work on realigning taxi-ways to cater for the longer aircraft. Of course this strange-looking frame went on to be the 777-300/ER that we know today.
Dean Russell, Bishop's Stortford

PHOTO: NICK MORRISH/BRITISH AIRWAYS

Casual in the Caribbean

Dear Editor,
The article on flying around the Bahamas in the August issue of *Airliner World* reminded me of a visit I made in the mid-1970s when I was working in the travel industry. While waiting for a local flight from, I think, North Eleuthera, the check-in lady called out to some people outside the terminal, shouting: "Get the men off the runway, there's a plane about to land!"
Andrew Oliver

Events

Enthusiast shows and events worldwide may be listed here – FREE. Organisers are invited to send correspondence to the editorial department (email: airlinerworld@keypublishing.com). Alternatively, visit our website at: www.key.aero

Events are subject to short-notice cancellation or postponement due to the ongoing COVID-19 outbreak. Readers are strongly advised to follow any advice issued by local authorities in relation to mass gatherings and travel.

CANCELLED Nov 18-20
Bahrain International Airshow, Sakhir Airbase, Kingdom of Bahrain
www.bahraininternationalairshow.com

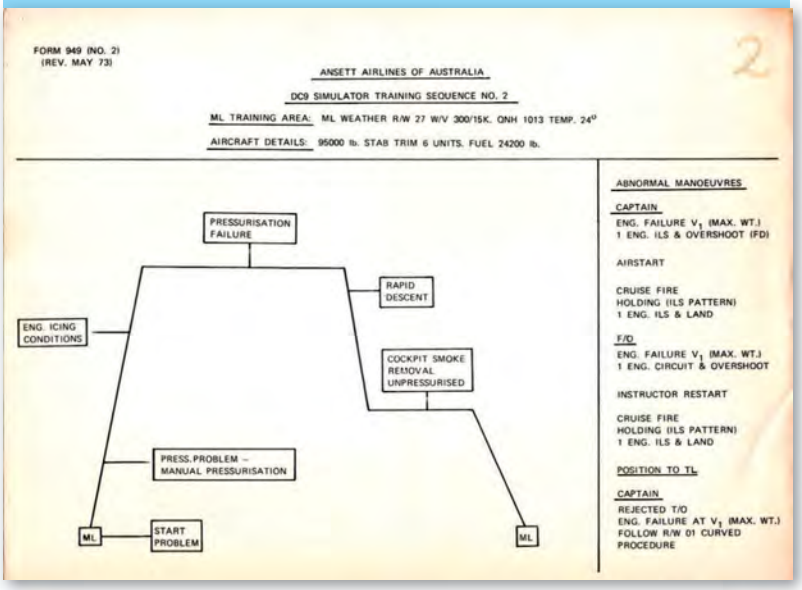
CANCELLED Nov 22
Heathrow Aircraft Enthusiasts Fair, Kempton Park Racecourse, Sunbury-on-Thames TW16 5AQ
Carl McQuaide, 07903 848726,
email: speedbird707@aol.com
www.aircraftenthusiastfair.co.uk

Events are subject to change without Airliner World's knowledge. Please check details prior to travel.

From Lympne to the Louvre

Dear Editor,
I am a regular reader of your magazine – in fact, for Christmas last, I was gifted an annual subscription – how fortunate that was with the current COVID-19 crisis! The recent story titled 'Bus Station to Aviation' caught my eye and brought back happy memories of my first ever flight.
In September 1963 (aged eight), the family holiday was spent at Dymchurch on the Kent coast and, during that week, my dad treated me to a surprise day trip to Paris. We made the short journey to Lympne to join DC-3 G-AMSM for the short trip to Beauvais and, after an amazing day in the French capital, we returned to Beauvais to travel back on Avro 748 G-ARMW. As with Richard Sumner (letter in September 2020 issue), this started my love of flying and I too have a logbook. Interestingly, when I was working with BT in the 1980s, one of my team revealed that she worked for Skyways Coach-Air in Victoria – small world, eh?
Many thanks for such an enjoyable read.
Martin Higgs, Marlow

PHOTO VIA DICK GILBERT



Mad Dog memorabilia

Dear Editor,
Many thanks for featuring the farewell flight of MD-80 in the August edition of *Airliner World*. It's a nice story in spite of these troubled times.
I experienced a number of fantastic flights on the aircraft, from a very short hop between Toronto and Rochester, New York on an US Air MD-80 in 1990, through to rather routine flights on Scandinavian Airlines MD-81/82/87s in 2003 and 2006.
The retirement of the 'Mad Dog' confirms my American Airlines Flight AA1573, MD-82, N479AA, from Washington/Dulles to Dallas-Fort Worth on July 1, 2011 as my last MD-80 service, though it's already a decade ago.
I loved flying on DC-9s too, I would call it 'My Little Dog' in the '70s and '80s. I especially liked the sound of the Pratt & Whitney JT8D-7B engines when it commenced taxiing – it always felt like the beginning of the new trip.
When I lived in Australia, I had a local friend whose father was captain of DC-9 aircraft flying for Ansett Airlines. In June of 1976, the captain took both of us to Ansett's pilot training centre at Essendon Airport in Melbourne. He showed us pilots training on a DC-9 sim and even gave me copies of the simulator training sequence (below). Even now, half a century later, they are my great treasure.
Kazuhiro Kobayashi, Japan

FORM 949 (NO. 2)
(REV. MAY 73)

2

ANSETT AIRLINES OF AUSTRALIA

DC9 SIMULATOR TRAINING SEQUENCE NO. 2

ML TRAINING AREA: ML WEATHER R/W 27 W/V 300/15K. QNH 1013 TEMP. 24°

AIRCRAFT DETAILS: 95000 lb. STAB TRIM 6 UNITS. FUEL 24200 lb.

PRESSURISATION FAILURE

RAPID DESCENT

ENG. ICING CONDITIONS

COCKPIT SMOKE REMOVAL UNPRESSURISED

PRESS. PROBLEM – MANUAL PRESSURISATION

ML

START PROBLEM

ML

ABNORMAL MANOEUVRES

CAPTAIN
ENG. FAILURE V_1 (MAX. WT.)
1 ENG. ILS & OVERSHOOT (FD)

AIRSTART

CRUISE FIRE
HOLDING (ILS PATTERN)
1 ENG. ILS & LAND

F/O
ENG. FAILURE V_1 (MAX. WT.)
1 ENG. CIRCUIT & OVERSHOOT

INSTRUCTOR RESTART

CRUISE FIRE
HOLDING (ILS PATTERN)
1 ENG. ILS & LAND

POSITION TO TL

CAPTAIN
REJECTED T/O
ENG. FAILURE AT V_1 (MAX. WT.)
FOLLOW R/W 01 CURVED PROCEDURE

Back to the future!

Dear Editor,
The letter by Keith Otto in the September issue jogged my memory of days past. As a schoolboy, the observation platforms on the Queens Building at London Heathrow were a big attraction to a keen plane spotter. I recall then – as now – the Paris to London route was a busy one with several flights a day each way.
So much so, that from time to time Air France used the Bréguet 763 Deux-Ponts – a double-decker passenger aircraft with 59 seats upper and 58 seats lower deck. What goes round comes around so to speak!
Clive Hawkins, Badwell Ash

PHOTO: RALF MANTEUFEL/WIKIMEDIA COMMONS

Liverpool lighting stand prang

Liverpool/John Lennon has re-designated several of its stands to allow aircraft to self-manoeuvre. The move follows an Air Accidents Investigation Branch (AAIB) report detailing a CAVOK Air Antonov An-12, UR-CKL (c/n 1348005), colliding with a lighting pole at the Merseyside hub on September 30, 2019. CAVOK Air An-12s had visited Liverpool Airport on several occasions on charter rotations prior to the incident flight.

As the airport lacked a suitable towbar to push back the Soviet-built turboprop, on each occasion the aircraft had been parked on Stand 41. While described in the airport's aeronautical information publication (AIP) as a 'taxi in/push back' stand, the aircraft was marshalled in by a member of airfield operations in such a way that it was able to taxi off stand when departing.

As had become procedure, on arrival from Hassi Messaoud/Oued Irara, Algeria, two days earlier, the Ivchenko AI-20-powered freighter was directed onto Stand 41 by a marshaller.

The AAIB explained that "by guiding the aircraft to turn onto the stand during the parking manoeuvre this had resulted in the left-wing protruding between two lighting stands located at the southern edge of the stand area. The intention was for the aircraft to continue the turn when taxiing off the stand which would allow its wing to clear the lighting stand in front".

The turboprop was unloaded and readied for its next rotation, which was rostered for 10.05am on September 30. Having been given clearance, the crew started the powerplants and requested permission from air traffic control (ATC) to taxi to Runway 27 for departure.

Following the incident, the crew reported to the AAIB that there had been no taxi markings to guide them off the stand, nor had a 'follow me' vehicle or marshaller been provided. A ground handling agent was present, but it was not his role to guide the aircraft onto Taxiway Whiskey.

The aircraft was taxied forward, but after moving 50-65ft, the crew reported that they felt an impact and immediately stopped the aircraft and shut down its four turboprops. On inspection, it was evident that the leading edge of the port wing had contacted the lighting pole at the head of the stand.

Liverpool's airfield operations department advised there had been no prior issues with the use of Stand 41 in this manner when An-12s had previously operated from the facility. It believed that the lighting stand's presence would have been obvious to the crew and that had they any concerns about taxiing off stand, they would have called ATC for assistance.

Following the incident, Liverpool Airport has informed the AAIB that it has re-designated stands 11, 12, 12A and 14 as well as stands 33-41 to allow aircraft self-manoeuvring. It has also updated the AIP to inform pilots that under such circumstances a marshaller will be available during departure and to instruct pilots to request assistance at any time it is required when taxiing. (Photo AirTeamImages.com/ Adam Tetzlaff)

DATE	REG'N	C/N	TYPE	OPERATOR	FATALITIES	LOCATION	NOTES
Aug 16	5Y-SAV	208B0312	Cessna 208B Grand Caravan	City Link	0	South Sudan	Hit a tree on take-off
Aug 18	6V-ASN	1452	ATR 72-600	Air Senegal	0	Senegal	Tailstrike on landing
Aug 19	N146FE	43551	Boeing 767-300ERF	FedEx Express	0	United States	Landed with left-hand main gear retracted
Aug 20	N198DM	BB-1198	Beechcraft Super King Air	Bomac Air	1	United States	Crashed shortly after take-off
Aug 22	EX-126	11508	Antonov An-26B	South West Aviation	7	South Sudan	Crashed shortly after take-off
Aug 28	N423AX	27569	Boeing 767-300ER	Omni Air International	0	Romania	Left-hand main gear collapse on landing
Aug 29	JA73NM	39421	Boeing 737-800	Skymark Airlines	0	Japan	Bird strike

AIRCRAFT TRANSPORT

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Wings of Peace

It seems remarkable that the most diminutive aircraft from the Brabazon Committee's masterplan for post-war British commercial aviation made the biggest impact – on both domestic and world stages. **Bruce Hales-Dutton** recalls the development and service life of the de Havilland DH.104 Dove

Several examples of the de Havilland Dove and the related Devon and Sea Devon remain in an airworthy condition, most notably LTU Classic's Dove 5, D-INKA (c/n 04266)

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It may not have been as fast as the Comet nor as commodious as the Viscount but in one area of performance at least it was superior to the more eye-catching jets and turboprops. With 542 units turned out over 23 years, the de Havilland Dove piston-engined feeder liner was comfortably ahead of any other airliner produced in Britain in the post-war era. And that includes all the other types dreamed up by the Brabazon Committee.

The war-time body, chaired by a cabinet minister who had been sacked for saying nasty things about our Russian allies, was an attempt to decide which airliner types Britain would need when peace returned. Considering it was established at a time when victory was far from certain it represented a significant act of faith. But from Lord Brabazon's committee and its deliberations was to emerge the world's first turbine and jet-powered airliners.

And, of course, the Dove. Among the specifications issued by the committee in 1943 was one known as Type 5B. This was intended to produce a replacement for the highly successful and much-loved de Havilland DH.89 Dragon Rapide twin-engined biplane.

The de Havilland Aircraft Company responded by forming a design team headed by Ronald Bishop, who had created the war-time Mosquito fighter-bomber and was later to be responsible for the DH.106 Comet. The new mini-airliner, designated DH.104, would incorporate what were for the time several relatively novel features.

The result was an aerodynamically clean, all-metal low-wing twin, built to Air Ministry Specification 26/43. It featured a retractable nosewheel undercarriage and seating for between eight and 11 passengers. It was intended to operate profitably at a typical annual utilisation of 800 to 1,000hrs even with loads averaging half to two-thirds capacity.

This prompted the journal *Flight* to remark: "For air services which have that minimum level of traffic and do not require a larger machine, the Dove should be probably the most economical aircraft available for some years to come."

Put another way, the Dove could »

RIGHT AND BELOW
• ***The prototype, G-AGPJ (c/n 04000/P1), first flew on September 25, 1945***
ALL IMAGES KEY COLLECTION UNLESS STATED

carry 1.5 times the Dragon Rapide's payload over a similar range but at 1.25 times the older aircraft's speed for roughly similar fuel consumption per aircraft mile.

But, *Flight* observed, the new aircraft should not be regarded as merely a replacement for its predecessor: "It is intended to fill a somewhat different and more 'civilised' market in which a much higher degree of utilisation is to be expected."

In fact, economy and versatility were to be the aircraft's two most important attributes. Although the basic accommodation was for eight passengers, removal of detachable internal bulkheads and the toilet compartment meant this could be increased to ten. An eleventh passenger could be carried if the aft 45-cu ft baggage compartment was not used. That still left a 22-cu ft compartment under the flight deck, while removing all the seats created a 348-cu ft space for carrying cargo.

The fuselage was of monocoque construction with an Alclad skin reinforced by V-section hoops and stringers. Apart from the six main longerons, arranged two above and one below the windows on each side, most of the stringers were attached to the skin by the Redux bonding method. Developed during the war, this revolutionary process reduced the number of rivets used, cutting weight and skin friction. It would also be extensively employed on the Comet.

The fuselage was built in three sections which were further sub-divided in Mosquito production fashion for ease of manufacture.

The bottom one carried the single I-section main spar which passed through the fuselage above floor level and underneath a pair of seats. Main wing pick-up points were located on the centre-section spar at the fuselage sides. The floor structure was designed to carry concentrated freight loads and was covered by a two-piece

Dove by numbers:

Mk.1	Baseline version with two Gipsy Queen 70-4 engines each developing 330hp
Mk.1B	Up-rated Mk.1 with 380hp Gipsy Queen 70-2 engines
Mk.2	Executive transport with Gipsy Queen 70-2 engines
Mk.3	Proposed high-altitude survey variant; not built
Mk.4	Basic designation covering military variants: Devon C.1 transport and communications variant for RAF, Devon C.2 (re-engined Devon C.1) and Sea Devon C.2 for the Royal Navy
Mk.5	Gipsy Queen 70-2 engines
Mk.6	Up-rated Mk 2 with Gipsy Queen 70-2 engines
Mk.7 and Mk.8	Equipped with 400hp Gipsy Queen 70-3 engines.

ABOVE • ***Dove 2B, G-AKJR (c/n 04084), was initially delivered to Olley Air Service in October 1947. The propliner later served with the British Transport Commission, Cambrian Air Services and Morton Air Services before being permanently withdrawn from use in September 1967***

sandwich of light alloy and plastic. The wings were built up around the main spar with other span-wise members taking flap and aileron loads and providing attachment points for the engine bearers. The ribs were simple diaphragm pressings and there were additional span-wise stiffening stringers.

The use of small diameter propellers meant that the undercarriage legs could be relatively short to save weight. The main units retracted outwards into recesses in the wings, while the Vampire-style nose wheel folded backwards. The aircraft was designed to be operated by a pilot and radio operator, but dual controls could be fitted if required. The transparent bubble canopy gave the flight deck an unusually airy feel and provided plenty of headroom.

RIGHT • ***Several Doves flew on behalf of the Australian Commonwealth Department of Health, including VH-DHE (c/n 04471), which operated in the Northern Territories***

BELOW • ***A single de Havilland Dove, CF-DJH (c/n 04015), was fitted with floats and supplied to the Hudson's Bay Company of Canada***

A key design aim had been ease of maintenance. As a result, the engines could be replaced or swapped over relatively quickly. Each one – complete with its welded steel mountings, fireproof bulkhead, oil tank and cooler – plus all accessories – was carried on four quick-release pick-up points. Most of the controls and pipelines ran through the leading-edge section and were grouped at a break-down panel where they could be disconnected and reconnected. The engine controls had quick-release connections which left the adjustments unaffected.

The Dove was powered by a pair of DH Gipsy Queen 70 inverted in-line supercharged air-cooled engines. These units developed 330hp rising to 400hp over the type's production run. Each drove a three-blade DH Hydromatic featherable and reversible propeller.

When completed the prototype presented an elegant appearance with its clean lines. And, appropriately for a machine which flew for the first time just six weeks after the end of World War Two, the name Dove was chosen.

The first example, G-AGPJ (c/n 04000/P1), made its maiden flight from Hatfield in the hands of Geoffrey Pike on the 25th anniversary of the de Havilland company's founding: September 25, 1945. »

It was the first new post-war commercial aircraft to fly in the UK.

After a month of test and development flying, the Dove returned to the workshop for modifications to improve its engine-out handling. As a result, it gained a sweeping dorsal fin and rudder reminiscent of that fitted to the potent DH.103 Hornet fighter.

The prototype was passed to the Ministry of Supply in 1946 and served in military markings as a development aircraft, registered WJ310, until 1954 when it was sold to the Portuguese government as CR-CAC. A second example joined the development programme in early 1946 but was destroyed in a crash near Hurn airport, Bournemouth on August 14, 1946 while on loan to British Overseas Airways Corporation's (BOAC) development flight.

The fourth production Dove, G-AHRJ, made its public debut at the Society of British Aircraft Constructors' (SBAC) display at Radlett aerodrome in September 1946. By that time large-scale production of the Mk 1 had been launched at Hatfield. However, domestic sales were slow. Although the Dove's 165mph cruising speed was higher than the Rapide's,

ABOVE • ***Doves are seen alongside DH.106 Comets and DH.112 Venoms on de Havilland's busy Hawarden, Chester production line***

RIGHT • ***A row of five West African Airways Corporation Dove 1Bs is headed by VR-NOB (c/n 04207)***

RIGHT • ***A Morton Air Services Dove is framed against the promenade at Brighton during an air-to-air photography sortie***

and it offered greater single-engine safety, its high purchase price and operating costs were beyond what most British charter operators could manage in the austere post-war years.

Therefore, most early deliveries were to overseas operators. These included Airlines of Western Australia, Airways (India) Ltd, Eagle Airlines of Persia, the Iraq Petroleum Transport Company, the Belgian carrier Sabena, SATA of the Azores, South African Airways, Sudan Airways, Union of Burma Airways and West African Airways Corporation. Others went to Brazil, Chile and Ethiopia, while Argentina became a major operator of the type with an initial 20 delivered, followed by a further 50. Unique among export machines was the 15th production aircraft, which went to de Havilland Canada in 1947 and was the only Dove floatplane.

British operators of Dove 1s included Skyways Ltd, whose *Sky Maid,* the fifth production example, became the first British aircraft to land at Kathmandu in the Himalayas where it was inspected by the King of Nepal. Morton Air Services of Croydon Airport and Cardiff-based Cambrian Air Services also acquired Doves, as did BOAC, which used three for training.

The aircraft was soon to gain a reputation as pleasant and undemanding to fly. Noted test pilot H A Taylor couldn't find much he didn't like about the Dove when he tried an early example in 1946. His overall impression, published in *Flight,* wasn't so much of "a grown-up light aircraft" but one which had both the controls and what he called "the better mannerisms" of the modern full-sized transport.

Taylor liked the way the cockpit was laid out with all flying controls grouped in a central pedestal. He noted that the control columns curved over from the sides so that the pilot's seats were easily accessible.

The engine instruments faced the crew from the centre of the panel with the blind flying instruments on the left. The fuel system was a simple one with the fuel cocks located at the base of the central pedestal either side of the two cooling flap controls, which, in temperate climates, were normally left closed.

The flap lever sprouted from the rear of the pedestal with the undercarriage control on the left. But Taylor thought the two were unlikely to be confused in the dark as the flap lever was gated and the gear selector was of the push-button type with a safety catch.

TOP • ***Dove 8, G-ARUM (c/n 04528), was delivered new to the National Coal Board on November 29, 1961. Removed from the UK civil register as G-DDCD in May 2005, the aircraft arrived at South Yorkshire Aircraft Museum for preservation this January***

He also praised the visibility from the Dove's cockpit. He reported: "One can see almost a complete forward hemisphere as well as the wing tips," continuing: "The Dove offers neither difficulty nor danger during ground movements... The aircraft feels right from the start."

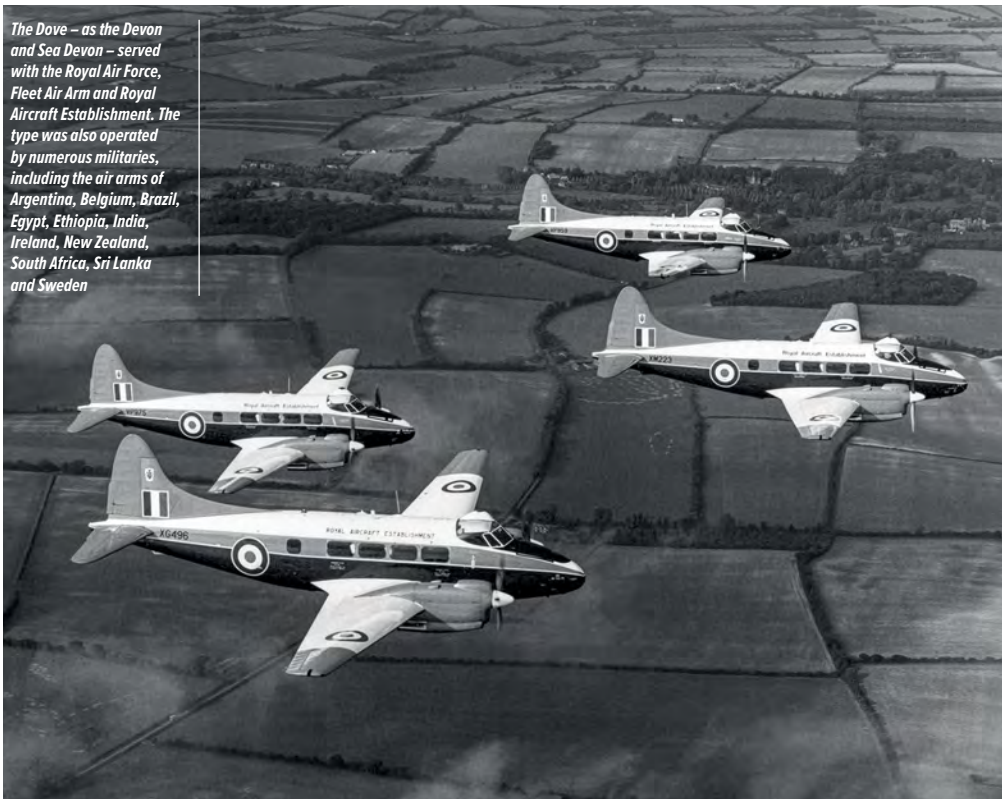
On take-off there was a tendency to swing to starboard, but this was so slight as to be barely noticeable. With the engines boosted to 3lb and turning at 2,600 rpm the recommended climb speed was 115mph, although Taylor thought the Dove happier at 125. He found the handling with one engine throttled back to be safe with the aircraft easily able to maintain 120mph with manoeuvrability unaffected.

The stalling characteristics "could hardly be more innocuous", although with flaps and undercarriage down there was some slight shuddering from the rear. In this condition the aircraft stalled at around 70mph. Normal cruising speed was found to be 155-160mph.

Cockpit noise levels were low and even with the engines at take-off and climb power there was no need for voices to be raised in the cabin.

Taylor tried approaches and landings at three very different airfields including one of rough grass. At none of them did he experience any difficulty. "The Dove can be held off almost to a 'reversed' three-point attitude and it is perfectly stable in all axes in the near-stalled condition," he reported.

In 1948 the six-seat Dove 2 executive transport was introduced. This »



The Dove – as the Devon and Sea Devon – served with the Royal Air Force, Fleet Air Arm and Royal Aircraft Establishment. The type was also operated by numerous militaries, including the air arms of Argentina, Belgium, Brazil, Egypt, Ethiopia, India, Ireland, New Zealand, South Africa, Sri Lanka and Sweden

variant found a ready market with business operators at home and abroad, particularly in the USA which was to prove an especially lucrative market with more than 100 examples exported. This success would form the basis of the good sales performance later achieved by the Hawker Siddeley HS.125 executive jet (originally developed as the DH.125 Jet Dragon).

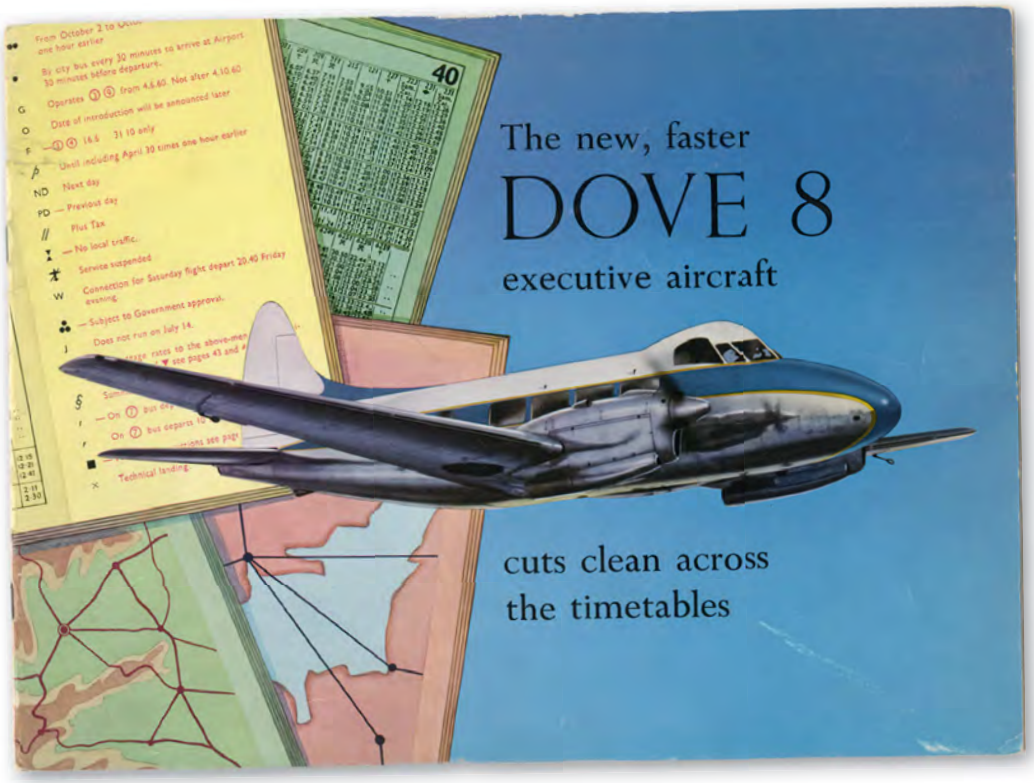
Dove 4 was the company designation applied to military liaison and communications variants meeting British specification C.13/46. The 48th production Dove was modified as the prototype and featured cabin seating reduced to seven to make room for a ten-man survival dinghy. An initial batch of 30 was delivered to the RAF in 1948 as Devon C.1s. They served with No 31 (Metropolitan Communications) Squadron at RAF Hendon and were also used by British air attachés overseas.

Nine more Devons were later delivered to the RAF, the last one finally retiring from service in 1984. However, one – VP981 (c/n 04205) – was retained for the Battle of Britain Memorial Flight to use as a support aircraft. It served from May 1985 until 1993, when the flight was allocated a Douglas Dakota.

In 1955/6, 13 converted civilian Doves were supplied to the Fleet Air Arm for service with No 781 Naval Air Squadron based at RNAS Lee-on-Solent in Hampshire. They were designated Sea Devon C.20s. Other military Doves and Devons were delivered to the air forces of the Belgian Congo, Ceylon, Egypt, Ethiopia, India, Iraq, Ireland, Jordan, Lebanon, Pakistan, South Africa and Sweden. The Royal New Zealand Air Force had 30 which served until the mid-1970s.

By 1951 demand for the Dove was running at such a high level that the production line was transferred from Hatfield to a larger site at Hawarden, Chester. Few major changes were made during early production, although from 1952 onwards 340hp Gipsy Queen 70-4 engines became standard. Designations were changed to Dove 1B and 2B, or 1A and 2A for the US market.

The following year, 380hp Gipsy Queen 70 Mk 2 engines became available for the Dove 5 and 6. Maximum take-off weight was increased to 8,800lb and this brought a 20% increase in payload on a typical 500-mile flight. Uprated Gipsy Queen engines were also retrofitted to earlier



ABOVE • ***The cover of a marketing brochure advertising the Dove 8 executive aircraft***
KEY COLLECTION

LEFT • ***Sabena used the de Havilland Dove on domestic routes in both Belgium and the Belgian Congo***

Dove Mk.7 **Specifications**

Accommodation	two crew and 8-11 passengers
Overall length	39ft 3in (11.96m)
Wingspan	57ft (17.4m)
Height	13ft 4in (4.06m)
Maximum all-up weight	8,950lb (4,060kg)
Cruising speed	187mph (30 km/h) at 8,000ft (2,440m)
Service ceiling	21,700ft (6,610m)
Range	880 miles (1,415km)

LEFT • ***SATA (now Azores Airlines) added a pair of de Havilland Doves to supplement a Beechcraft 18 on inter-island links. They were replaced by Hawker Siddeley HS 748s in 1972***
AIRTEAMIMAGES.COM/ CARL FORD

models to bring them up to the Mk 5/6 standard.

One of the most noticeable external change made to the aircraft during its production run was the installation of asymmetrically shaped elevators to eliminate buffeting. This resulted in the port elevator being 14in shorter and having a square-cut tip, while the starboard one retained the original rounded profile.

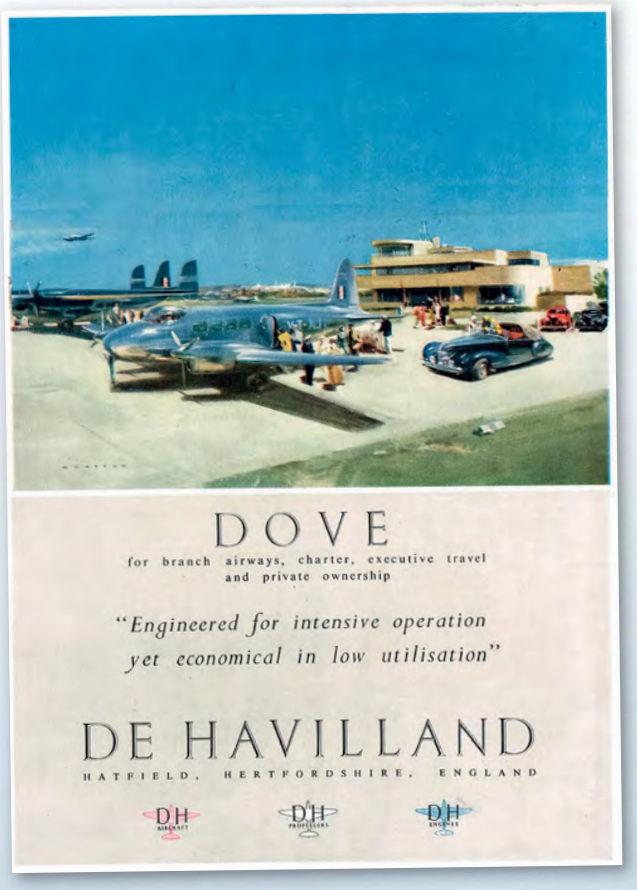
The final production models were the 8-11 passenger Mk 7 feeder liner and the six-passenger Dove 8, which was marketed as the Dove Custom 800 in the US. These variants were powered by 400hp Gipsy Queen 70 Mk 3 engines. Maximum take-off weight was raised to 8,950lb. They were distinguishable from earlier Doves by the enlarged oil cooler intakes on top of the engine cowlings, thrust augmentor exhausts and square-cut tips to both elevators. In addition, the raised cockpit roof line, using a Heron canopy, provided five inches more headroom for the crew.

The prototype Dove 8 executive model first flew in February 1960 and made its public debut at that year's Farnborough Air Show. First customer delivery was made on January 24, 1961 when excavator manufacturer J C Bamford received G-ARJB *Explorer.*

Other British corporate operators included the National Coal Board, British Insulated Callender's Cables and the Dowty Group, whose aircraft was flown by World War Two fighter ace, test pilot and world air speed record breaker, Neville Duke.

One of the biggest UK Dove operators was the government's Civil Aviation Flying Unit (CAFU), which between April 1947 and July 1981 operated a total of nine Doves. Although initially based at Gatwick, CAFU spent most of its operational life at Stansted. It was disbanded in 1996, its functions either outsourced or transferred elsewhere within the Civil Aviation Authority.

Its Doves performed two basic functions: the examination of pilot competence and the calibration of navigation aids. They were also used to enable ministry flying personnel to maintain their proficiency and to provide transport for ministers on official business.



LEFT • ***Ease of maintenance was a primary consideration of the Dove's design***

BELOW • ***British Eagle International Airlines utilised this DH.104, G-AROI (c/n 04474) to provide a feeder service between Dundee and Glasgow which linked up with the company's Glasgow-London/Heathrow service. The Broughton, Chester-built aircraft later served with British Westpoint Airlines and Fairflight***
KEN FIELDING

They replaced Avro Ansons and Airspeed Consuls. The first was registered G-AJLV and within a year it had been joined by `LFT and `LFU. A fourth aircraft was registered in October 1949, although it was probably not delivered for another six months. The Doves were eventually replaced by faster and more efficient turboprop Avro (later Hawker Siddeley) 748s.

The personnel of what had now become the Civil Aviation Authority's flying unit retained fond memories of the Doves. "We all liked them because they were so reliable," foreman airframe engineer George Todd recalled in conversation with the author. "Do I remember any particular problems with the Doves? Not really, nothing to take them out of flying for very long."

Capt John Robinson thought »

the Dove "a well-built British aircraft which did its job remarkably well. It was a pleasant aircraft to fly with no real vices." George Todd also pointed out it was economical to operate.

Dove production finally ended on September 20, 1967 when the 542nd aircraft was delivered, although the 541st was technically the last built, being assembled at Baginton Airport, Coventry in early 1968 from Chester-manufactured components.

Before this, however, the Dove had formed the basis for the development of the bigger, four-engined Heron.

A considerably redesigned three-engined variant was built by de Havilland Australia as the DHA-3 Drover, many examples of which served with the Royal Flying Doctor Service.

Apart from the various Gipsy Queen retrofits intended to bring earlier models up to Mk 5/6 or Mk 7/8 standard, the Dove also inspired two major modification programmes in the USA.

The first of these was developed by Jack Riley of Riley Aeronautics Corporation, Fort Lauderdale, Florida and was known as the Riley Turbo Executive 400. It featured 400hp supercharged flat-eight Lycoming IO-720-A1A in new slimline nacelles, large sharply swept fin and restyled flight deck and cabin interior. A total of 17 Doves were converted to this standard, including four by McAlpine Aviation at Luton Airport. Only one of the British-converted Riley Doves had the swept fin modification.

Even more ambitious was the transformation offered by Carstedt

ABOVE • ***Dan-Air London Dove 1B, G-ALVF (c/n 04168), shares the Speke Airport ramp with company Douglas DC-3, G-AMSS (c/n 16092)*** AIRTEAMIMAGES.COM/ THE SAMBA COLLECTION

RIGHT • ***A trio of Hawaiian Air Tour Service Doves on turnaround at Lihue. The Honolulu-based company also operated the larger DH.114 Heron*** AIRTEAMIMAGES.COM/ THE SAMBA COLLECTION

de Havilland Doves **in preservation**

Reg'n	C/n	Type	Location	Notes
G-AHRI	04008	Dove 1B	Newark Air Museum, Nottinghamshire, UK	Wears '4X-ARI'
G-ALCU	04022	Dove 1B	Midland Air Museum, Coventry Airport, UK	Wears 'G-ALVD'
LV-LER	04042	Dove 1	Aero Club Baradero, Argentina	
ZS-BCC	04079	Dove 6	South African Airways Museum	
G-ANVU	04082	Dove 1B	Österlens Flygmuseum, Östra Vemmerlöv, Sweden	
VH-DSM	04097	Dove 1	Queensland Aircraft Museum, Caloundra, Australia	Wears 'VH-MAL'
G-ALFU	04234	Dove 6	Duxford Aviation Society, IWM Duxford, Cambridgeshire, UK	-
D-INKA	04266	Dove 5	LTU Classic, Essen, Germany	Airworthy
JY-AEU	04288	Riley Turbo-Exec 400	Royal Automobile Museum, Amman, Jordan	Wears 'D-102'
CR-TAG	04373	Dove 1B	Darwin Aviation Museum, Northern Territories, Australia	-
D-IFSB	04379	Dove 6	Fishburn Historic Aviation Centre, County Durham, UK	-
JA5007	04408	Dove 1B	Restaurant Woody House, Nasushiobara, Tochigi, Japan	-
YU-ABN	04432	Dove 2B	Aeronautical Museum Belgrade, Belgrade, Serbia	-
G-ANOV	04445	Dove 6	National Museum of Flight, East Fortune, UK	-
G-ANUW	04458	Dove 6	East Midlands Aeropark, East Midlands Airport, UK	-
G-ARDE	04469	Dove 8	Al-Mahatta Museum, Sharjah, UAE	-
OY-DHZ	04476	Dove 6	Dansk Veteransflysamling, Stauning, Denmark	-
OE-BVM	04488	Dove 5	Vienna Technical Museum, Vienna, Austria	
SE-EUR	04496	Dove 6	Arlanda flygsamlingar, Stockholm/Arlanda Airport, Sweden	-
G-DDCD	04528	Dove 8	South Yorkshire Aircraft Museum, Doncaster, UK	-
G-AREA	04520	Dove 8	De Havilland Aircraft Museum, London Colney, UK	-
D-IKER	04530	Dove 6	Technik Museum Sinsheim, Sinsheim, Germany	-
D-IFSA	04531	Dove 7	Private owner, Baden Airpark, Rheinmünster, Germany	
N9888A	04534	Dove 7	Museo Aeronáutico de Málaga, Málaga, Spain	Wears 'PH-VLA'

Note. The above lists only de Havilland Doves built for the civilian market. Examples of the de Havilland Devon and Sea Devon can be found at numerous museums in the UK and worldwide.

Air of Long Beach, California. Its Jet Liner 600 was an extensively re-engineered Dove with a fuselage stretched by 7ft 3in. This was achieved by inserting plugs fore and aft of the wings, enabling 18 passengers to be accommodated. The cockpit was also moved forward, and the cabin roofline lowered. Two 605shp Garrett-AiResearch (later Honeywell) TPE331 turboprop engines were installed, driving three-blade feathering and reversing Hartzell propellers. An additional 187 imp gal of fuel was provided in tanks located outboard of the engine nacelles.

The first conversion made its maiden flight on December 18, 1966, but only a small number of Jet Liners were built, principally for US third-level carrier Apache Airlines of Phoenix, Arizona, which operated four. A similar conversion started in England by Dove operator Channel Airways of Southend was abandoned before completion.

By that time the Dove had made its point. Over a long career the type had performed unspectacularly in a variety of different roles but was seldom found wanting. It had also achieved well in export markets, enhancing the reputation of British-built aircraft and generating very respectable sales in the post-war era. AWW

Have your say

What do you think of the little de Havilland DH.104 Dove's big story? Join the **Key.Aero** debate, email **airlinerworld@keypublishing.com,** drop us a message on Twitter **@_AirlinerWorld** or on Facebook via **Facebook.com/ AirlinerWorld**

Denmark's Cimber Air, OY-DHZ (c/n 04476), acquired a single example in 1969. It is now preserved in the Dansk Veteransflysamling in Stauning,Denmark AIRTEAMIMAGES.COM/ THE SAMBA COLLECTION

British Aerospace inherited four Doves from Hawker Siddeley Aviation – G-ARBE, G-AREA, G-ASMG and G-ARHW (pictured) – as six-seat communications aircraft AIRTEAMIMAGES.COM/ ATI COLLECTION

The Aviodrome museum at Lelystad, the Netherlands, has repainted former Fleet Air Arm de Havilland Sea Devon C.20, XJ350 (c/n 04453), in Martin's Air Charter colours. The company, now known as Martinair, was formed in May 1958 with five employees and a single de Havilland Dove. AIRTEAMIMAGES.COM/ WOLFGANG MENDORF

Riley Aeronautics Corporation modified several Doves to create the Turbo Executive 400. The Fort Lauderdale, Florida-based company substituted the Gipsy Queen engines with 400hp Lycoming IO-720 piston engines and increased the size of the fin. AIRTEAMIMAGES.COM/ PAUL CHANDLER

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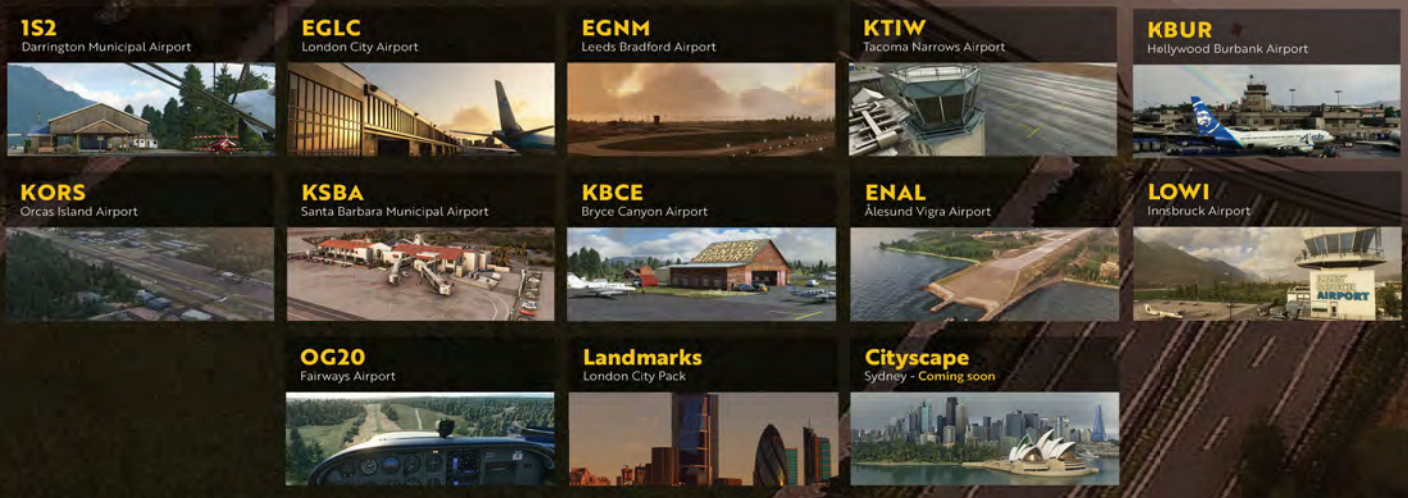

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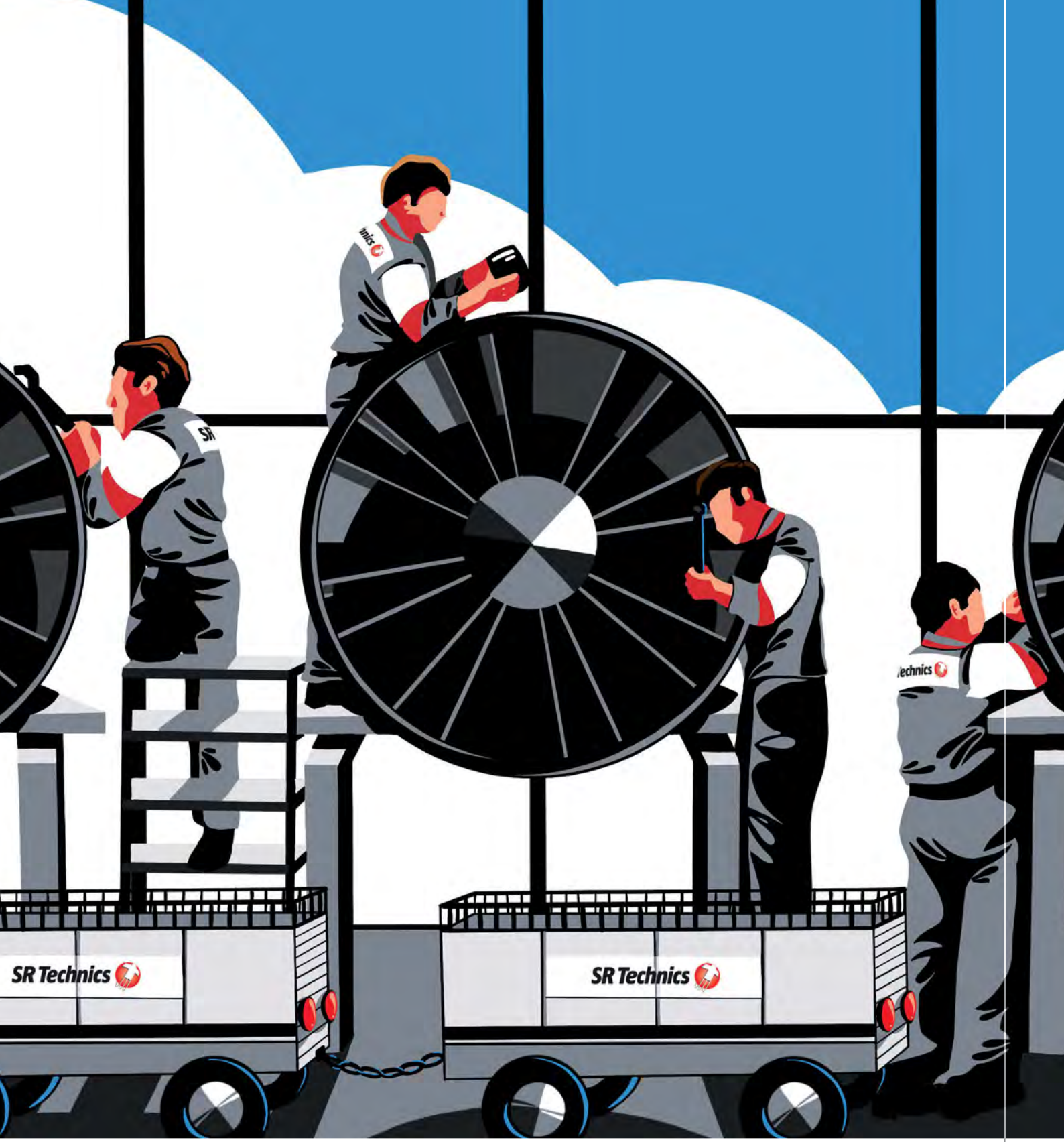
1920 Avro 504K
Number flown: One
1923 Airco DH.9C
Number flown: Three
1934 de Havilland DH.86 Express
Number flown: Three
1938 Short S-23C Empire
Number flown: Nine (S.23: eight, S.33: one)
1943 Consolidated PB-2B Catalina
Number flown: 12 (PB2B: seven, PBY-5A: five)
1944 Consolidated LB-30 Liberator
Number flown: Four
1945 Douglas DC-3
Number flown: 18
1945 Avro Lancastrian
Number flown: Four
1950 Short S-25 Sandringham
Number flown: Five
1947 Lockheed L-749 Constellation
Number flown: Seven
1949 Douglas DC-4
Number flown: Six
1950 de Havilland Australia DHA-3 Drover
Number flown: Five
1958 de Havilland Canada DHC-3 Otter
Number flown: Four
1954 Lockheed L-1049 Super Constellation
Number flown: 16
1959 Lockheed L-188 Electra
Number flown: Four
1959 Boeing 707-138B
Number flown: 20 (707-138: seven, 707-1138B: 13)
1965 Boeing 707-338
Number flown: 21
1981 Boeing 747-200/300
Number flown: 29 (747-238: 23, 747-338: six)
1966 Hawker Siddeley HS-125
Number flown: Two
1992 Boeing 747SP
Number flown: Two
1992 British Aerospace 146-300QT
Number flown: 18 (146-100: six, 146-200: ten, 146-300: two)
1989 Boeing 747-400
Number flown: 31 (747-438: 25, 747-438ER: six)
1993 Boeing 737-300
Number flown: 23
1993 Boeing 737
Qantas Lockheed L-749 Constellation VH-EAA 'Ross Smith'
Qantas Douglas DC-4 VH-EDA 'Pacific Trader'
Qantas Hawker Siddeley HS-125-3B VH-ECE
Qantas Boeing 737-3Q8 VH-TAF
Australian air Express British Aerospace 146-300QT VH-NJF
Qantas Boeing 747-238B VH-EBA 'City of Canberra'
1920
1930
1940
1950
1960
www.Key.aero

NIVERSARY 1920-2020
Australian
2002 Boeing 767-300
Number flown: 39 (767-200: seven; 767-300: 32)
QANTASLINK
2015 Fokker F100
Number flown: 17
QantasLink Fokker F100 VH-NHA
2000 Bombardier Q400
Number flown: 54 (DHC-8-200: five, DHC-8-300: 18, DHC-8-400: 31)
QANTASLINK
2004 Airbus A320-200
Number flown: Four
QantasLink Airbus A320-200 VH-VQS
2001 Boeing 717-200
Number flown: 23
QantasLink Boeing 717-23L VH-YQW
Jetstar.com
2004 Boeing 717-200
Number flown: 14
Jetstar Airways Boeing 717-231 VH-VQI
Jetstar
2013 Boeing 787-8
Number flown: 11
Jetstar Airways Boeing 787-8 Dreamliner VH-VKD
QANTAS
2002 Boeing 737-800
Number flown: 75
Qantas Boeing 737-838(WL) VH-XZP
oneworld
QANTAS
2002 Airbus A330-200
Number flown: 30 (A330-200: 20, A330-300: 10)
Qantas Airbus A330-202 VH-EBV
QANTAS
GO WALLABIES
2008 Airbus A380-800
Number flown: 12
Qantas Airbus A380-842 VH-OQH "Reginald Ansett"
100 QANTAS
2017 Boeing 787-9 Dreamliner
Number flown: 14 (787-9: 11 in service, three on order)
Qantas Boeing 787-9 Dreamliner VH-ZNJ "Longreach"
Australia Post
QANTAS FREIGHT
2020 Airbus A321P2F
Number flown: 0 (A321P2F, two on order)
Qantas Airbus A321P2F VH-ULD
1970
1980
1990
2000
2010
2020
Airliner World



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