Issue 3
WEDNESDAY
15 November 2023

FLIGHT DAILY NEWS

With distribution supported by CAE

DUBAI AIRSHOW

Cosmic vision

Spaceflight has been one of the show's central themes, with the stunning UAE Space Agency stand a major attraction. The nation has been laying out its ambitions for the sector with plans under way for a mission to the Asteroid Belt in 2028. Nasser Al Boom, head of procurement and administrative services at the agency, looks forward to what the UAE can further achieve in Earth orbit and beyond.

BillyPix

Clark's Rolls-Royce rebuke

Emirates chief will not order A350-1000s until Trent durability issues addressed

David Kaminski-Morrow

Emirates president Sir Tim Clark yesterday delivered an ultimatum to Rolls-Royce: improve the Trent XWB-97 or we will not consider an Airbus A350-100 order.

Speaking at a briefing during the show, Clark said that while he believes the larger variant of the widebody would fit into the Dubai carrier's fleet, it will not be considered until the UK engine maker is able to offer greater durability for the airline's specific conditions and operations.

The A350-1000 is powered by the Rolls-Royce Trent XWB-97, a higher-thrust version of the XWB-84 used on the -900, which Emirates will introduce next year.

While Clark says the XWB-84 engines are "good to go", he states that an A350-1000 acquisition will not materialise until he is satisfied with the type's powerplant.

"Clearly the [XWB-97] engine isn't doing what we want it to do," he says. "Until it does we won't be ordering."

He says the XWB-97 engine needs to "stay on wing" for a minimum of 2,000-2,500 cycles. "And if can do that, at a maintenance cost per hour that is OK with us, that would be all right. But it's not doing that at the moment," he claims.

Clark was highly critical when Airbus opted to redesign the A350-1000 in 2011, partly over the manner in which it took place but also because he believed the improvements were not sufficient. Although the engine thrust was hiked from 93,000lb to 97,000lb, Clark had argued that this came at the expense of commonality.

The carrier subsequently cancelled its order for 70 A350s, of which 20 were -1000s.

Continued on page 3

Ethiopian backs Max

Order marks post-crash milestone, as big two share spoils on day two

Graham Dunn

Follow-on orders from EgyptAir, Ethiopian Airlines and Kazakhstan's SCAT Airlines led commercial order activity from Airbus and Boeing on the second day of the show.

Ethiopian placed firm orders for 11 Boeing 787-9s and 20 737 Max 8s. Notably the latter order marks its first commitment for Max jets since the fatal accident in 2019 which prompted the global grounding of the type.

"The accident of the Max that happened four years ago was a very sad accident, it has left a big scar in our memory and we always feel sad for the victims of that accident," said Ethiopian Airlines chief executive Mesfin Tasew during a press conference at the show yesterday.

Ethiopian Airlines Mesfin Tasew (*right*) with Boeing's Brad McMullen

BillyPix

"We believe, and we have checked and confirmed, that the design defect of that aircraft has been fully corrected by Boeing, and we have renewed our confidence in that aircraft. We decided to order more aircraft because we have seen the capabilities of that aircraft and we are convinced that aircraft has no more safety concerns."

The African carrier has also taken options on 21 more Max jets and 15 additional Dreamliners as part of the order, as well as tapping Boeing Global Services to upgrade the cabins on its existing 787s.

Deliveries of the new aircraft will begin in 2026 and continue through until 2030. As this is later availability than Ethiopian needs for its growth plans, it aims to bridge the gap before then with leased aircraft.

"This order is in line with Ethiopian Airlines' growth strategy," says Tasew. "This is just the first phase. We expect to do another round of fleet [orders] in the coming years."

Boeing also secured a repeat order covering seven 737 Max 8s from Kazakhstan's SCAT Airlines. The order was previously attributed to an unidentified customer in Boeing's official backlog figures.

Airbus meanwhile secured a follow-on commitment of its own from EgyptAir, which signed for 10 Airbus A350-900s for delivery from 2025.

The order will see the Egyptian carrier take delivery of all 10 of the Rolls-Royce Trent XWB-powered A350s by 2027.

That is in line with EgyptAir's five-year expansion strategy, under which it expects to increase its fleet to around 125 aircraft by 2028.

EgyptAir Holding's chairman Yehia Zakaria says the A350s will be in addition to and not replacements for its existing widebody fleet.

The Star Alliance carrier already operates Airbus A330-300s in a widebody fleet that also includes Boeing 777-300s and 787-9s.

It came a day after EgyptAir announced plans on Monday to introduce its first Boeing 737 Max jets after striking a deal to lease 18 Max 8s from Air Lease.

Continued from page 1

Clark says that, at the time of the redesign, Airbus was "all over the show as to where they wanted it to be". But the -1000 has since undergone incremental enhancements, and the aircraft will suit Emirates' needs "when the engine's solved", he states.

"It's now an aeroplane which we think we could easily fit into the fleet, if the engines worked. Quite a good one, actually," he adds.

But Clark points out that Emirates operates its fleet with "very high" utilisation. "We whack these aeroplanes around the skies, full up, all the time," he says.

Emirates operates in a region which is "problematical" given the high temperatures and dust levels, he says, claiming that if the carrier took the XWB-97 in its current state, it would "probably end up with less than a quarter of the cycles on wing".

"Which would mean maintenance costs per hour would more than quadruple, because of all the consequential cost we would face. In addition to that, we'd have to have a large number of spare engines at $20 million a pop."

Clark says the carrier could potentially take 35-50 A350-1000s. "If the engine was doing what we want it to do – and Rolls-Royce knows what we want it to do, and so does Airbus – then it would re-enter the mix of assessment for our fleet plan."

Rolls-Royce was approached by FlightGlobal for comment.

IAI progressing with 777-300ER freighter

Israel Aerospace Industries has completed two Boeing 777-300ER freighter conversions, and is in the process of modifying another three, with the aircraft due to enter service next year.

One aircraft (N778CK) is undertaking the flight-test and certification programme, while a second (N779CK) is being displayed at the show. US cargo carrier Kalitta Air is due to take delivery of the first examples.

AerCap is a partner and customer of the programme, and conducts marketing for the aircraft, designated the 777-300ERSF.

Vice-president of airline and fleet management Paul Morris declines to specify the number of aircraft in its backlog, but states that the overall number of aircraft on order exceeds the individual backlogs of the new-build Boeing 777F, 777-8F and Airbus A350F.

Other customers for the 777-300ERSF include Emirates SkyCargo, Fly Meta, Hongyuan Group, Eva Air Cargo, Altavair, Challenge Air Cargo, Cargojet, Jiangxi Air and Central Airlines. There are also two undisclosed customers.

Morris believes the maturity of the 777-300ER, particularly the reliability of its GE Aerospace GE90 engines, and the "very homogenous" feedstock are key to the aircraft's popularity.

He adds that the freighter is designed to be flexible. "It works if you fly 5,000h a year but also works well for operators who don't want to operate as many hours," he says.

The 777-300ERSF is intended as a Boeing 747 and MD-11 replacement, and is being pitched at the centre of the "real world" market, with figures based on actual – rather than theoretical – cargo experience, says Morris.

He says some freighter models can "cube out" before reaching their full load limit, despite having high structural capability. At realistic volumes of around 120-127kg/m³ (7.5-8lb/ft³), he says, the 777-300ERSF will typically accommodate around 96t of revenue payload.

As part of the conversion the twinjet has its maximum zero-fuel weight raised by 15.4t to 253t and its maximum landing weight increased to 264t – providing greater structural flexibility. I'ts maximum take-off weight remains unchanged at 351t.

It is fitted with a large aft freight door, with the passenger floor reinforced, smoke detectors and a roller system installed. The forward cabin has a supernumerary personnel area.

The jet will be offered with various configuration options, including the ability to transport GE90 or Trent XWB engines, if their fan and core are separated.

Two conversion sites – in Tel Aviv and Abu Dhabi – are currently set to accommodate 777-300ERSF modification, although IAI has indicated potential to expand to other locations in Korea and the USA.

N779CK, on display at Dubai, is the second aircraft to be modified under the programme

BillyPix

Flydubai to open its own training centre

Flydubai and CAE are to open a $56 million full-flight simulator and training facility in Dubai, which is scheduled to be fully operational from the start of 2025.

The new facility is located on the grounds of the Flydubai campus and will be home to six simulator bays, offering capacity of more than 43,000 training hours a year.

Flydubai chief executive Ghaith Al Ghaith says: "With more than 130 aircraft scheduled for delivery by 2035, the pressure of confirming available training slots with third-party simulator providers is alleviated by having our own simulator facility."

CAE's group president, civil aviation, Nick Leontidis, says: "We are happy to be building on our longstanding relationship with Flydubai and supporting their growth with the four state-of-the-art Boeing 737 Max full-flight simulators and the flight training device included in these agreements."

Flydubai chief technology and supply chain officer Mohammed Hareb AlMheiri says plans for its own first full-flight simulator facility have always been a "vital part of our growth strategy".

"As the demand for pilots and pilot training continues to soar in the region, it has become essential for airlines to have their own training facilities, enabling them to take more control over their training requirements," he says.

Flydubai says the building's modular construction design allows for future expansion. The airline currently uses the Emirates CAE Flight Training simulator centre at Dubai's Silicon Oasis to train its pilots.

Donus: We want to understand the technology better

BillyPix

MTU bids to break the fuel cell block

Dominic Perry

MTU Aerospace continues to progress two next-generation propulsion concepts with that activity buoyed by the recent award of EU funding to accelerate work on a fuel cell powertrain.

Munich-based MTU had already been working on a project alongside Germany's DLR aerospace research institute with the aim of converting a Dornier 228 to run on fuel cells.

But the award in September of funding from the EU's Clean Aviation initiative for the MTU-led HEROPS (Hydrogen-Electric Zero Emission Propulsion System) promises to further advance the firm's grasp of the technology.

"We want to understand the technology better," says Fabian Donus, MTU's innovative propulsion director.

"Today there is no fuel cell system which is optimised for aviation and we think this is a mistake."

Automotive fuel cells are "not capable of bringing efficiencies" in terms of power or weight, he says: "For us that is key."

Under the DLR project a flight of the fuel cell-equipped Do 228 is supposed to take place by the middle of the decade "and we are still targeting that".

Running until 2026, no flight testing is envisaged through the first phase of the HEROPS programme, instead it seeks to mature the components needed for a powertrain, including the fuel cell stacks and hydrogen storage tanks.

Meanwhile, MTU continues to explore the potential of its Water Enhanced Turbofan (WET) concept, in part through the Clean Aviation-backed SWITCH programme in which it is working alongside Airbus, Collins Aerospace, GKN Aerospace, and long-term narrowbody engine partner Pratt & Whitney.

Additional work on the WET concept has been funded by Germany's LuFo aeronautical research programme and component-level rig tests began earlier this year, says Donus.

However, he adds: "We are still in the phase of trying to converge on the architecture [of the WET engine] itself."

Abelo makes a beeline for ATRs

Recently-formed regional aircraft lessor Abelo has returned to ATR for another batch of up to 20 aircraft, potentially doubling its commitment for the twin-turboprop type.

Unveiled at the show yesterday, the agreement – to be concluded next month – for 10 firm ATR 72-600s and 10 options adds to Abelo's existing orders for 10 of the 72-seaters and 10 examples of ATR 42-600S short take-off and landing variant placed in 2022.

Steve Gorman (*left*), Abelo chief executive, says that the recovering market for domestic and regional air travel prompted the repeat deal: "We saw that we would need to order more aircraft," he says.

Of the initial batch of 20 aircraft, four have so far been placed – including an ATR 42-600S – and will begin delivering next month.

Including the latest batch of aircraft, Abelo holds delivery positions running until 2028. "We have secured slots for the next five years," says Gorman.

Alexis Vidal (*right*), senior vice-president commercial at ATR, says the Abelo agreements are contributing to its goal of delivering 40 aircraft this year while maintaining a book-to-bill ratio of one or above.

BillyPix

Embraer

C-390 collaborators

Micael Johansson (*left*), chief executive of Saab, and Bosco da Costa Junior, his counterpart at Embraer Defense & Security came together at the show yesterday to stress the continuing collaboration between the Swedish and Brazilian companies. Earlier this year, Saab and Embraer announced a partnership to position the latter's C-390 Millennium as the "preferred solution" for the renewal of the Swedish air force's tactical airlift fleet, as well as pursue mutual opportunities in Latin America.

Dovetail's hydrogen deal

Spanish regional carrier Air Nostrum has signed for 10 hydrogen-electric aircraft conversions from Dovetail Electric Aviation – an Australian company in which it has invested. No details of which aircraft in Air Nostrum's fleet will be considered for conversion have been released; it operates both Bombardier CRJ regional jets and ATR 72 turboprops.

Equally, Air Nostrum may consider smaller aircraft types of around 19 seats, says David Doral, Dovetail chief executive. Air Nostrum last year invested in Dovetail, and sister firm Dante Aeronautical, alongside fellow Spanish operator Volotea. Dovetail's first conversion programme is an all-electric version of the Cessna Caravan, which it expects to fly for the first time at the end of 2024 ahead of certification in 2025 or 2026.

EDGE on acquisition trail

BillyPix

Al Tariq missiles set for Tejas

EDGE says the Al Tariq series of precision-guided munitions will be integrated with the Hindustan Aeronautics (HAL) Tejas Light Combat Aircraft.

The two companies have completed a feasibility study related to the work, which was the subject of a memorandum of understanding earlier this year between Al Tariq – a joint venture between EDGE and South Africa's Denel.

Plans call for the Al Tariq's munitions to be fully integrated with the Tejas by the third quarter of 2024.

"We are proud to be associated with HAL in this strategic campaign to offer high technology solutions to the Tejas customers in the region," says Theunis Botha, chief executive of Al Tariq.

"We look forward to presenting the range of Al Tariq's mission-proven long-range precision-guided munitions to HAL Tejas customers around the globe."

The Indian air force is the sole operator of the Tejas, which is participating in the show's flying display this year.

Murdo Morrison

"Come and talk to us." That is the message from the chairman of EDGE Faisal Al Bannai (*pictured*) to small and medium-sized companies with innovative technologies that want to partner with the Abu Dhabi defence house.

EDGE – which is marking its fourth anniversary – has been on an acquisition spree in recent weeks, as well as announcing a host of product launches and other innovations during the show.

Al Bannai says that shortly after the formation of EDGE – which consolidated many of the UAE's defence industrial assets under one organisation – the company launched a "roadmap of products that we want to build".

While the company's priority is to develop intellectual property within country, Al Bannai says EDGE is also aware that it has to bolster its capabilities with key technologies and expertise from overseas.

He says that EDGE will make a rapid assessment of the merit of any potential acquisition. "You could speak to us or you could speak to someone who might just spend three years chit-chatting," he remarks.

However, Al Bannai cautions that acquisitions will have to be the right fit. "We are not buying for the sake of buying," he says.

Ahead of the show, EDGE announced it has taken a 50% shareholding in Polish start-up Flaris, which is developing a single-engined, short take-off and landing personal jet that could also be flown autonomously. It has also taken a majority stake in Anavia, a Swiss manufacturer of uncrewed vertical take-off and landing platforms.

EDGE claims to have launched 11 products during the show so far, adding to a portfolio of "159 systems and solutions covering multiple domains".

The list includes: the Reach-M unmanned combat air vehicle, the NASEF-20 sub-sonic cruise missile, the Hunter 2-SJ seeker drone, and the all-weather, extended range National Surface Anti-Ship Missile, or MANSUP-ER. The latter has been co-developed with the Brazilian navy and SIATT, in which EDGE has a 50% shareholding.

BillyPix

Calidus: born in the UAE

UAE-based Calidus Aerospace used its home show to exhibit a range of in-development products, including its B-250 turboprop and the Sahab unmanned air vehicle (UAV) design.

Taking part in the daily flying display in Dubai, the B-250 (*pictured*) is on order for the UAE air force, which will field 24 of the type in a light attack configuration.

The company's static display features an unpainted aircraft with the serial number SN 0001. Fitted with a dummy canopy, it is flanked by a variety of precision-guided weapons, among them the Al Tariq, EDGE-developed Desert Sting 16 and Thunder P-32, and the Raytheon AIM-9L air-to-air missile. The two-seat aircraft also is equipped with an electro-optical/infrared sensor turret installed beneath its fuselage.

Also on show is a B-250T trainer, in a striking orange and grey livery, Calidus's in-development B-350 intelligence, surveillance and reconnaissance and strike aircraft – unveiled at the show two years ago, plus the Sahab UAV.

Deliveries of the B-250 to the UAE air force are expected to begin during 2024.

New skid in town

BillyPix

Dominic Perry

Leonardo Helicopters is presenting its skid-equipped AW169 at the Dubai air show, fresh from announcing a pair of performance upgrade kits for the intermediate-twin.

On 30 October, the Italian airframer revealed an optional 300kg (660lb) increase in maximum take-off weight for the AW169, to 5.1t, alongside a new 11-passenger configuration for oil and gas operations.

Both are only available on the skid-equipped variant, and the 11-seat layout can only be implemented alongside the increased gross weight (IGW) kit.

With the upgrade, the helicopter is capable of matching the capabilities of larger legacy types such as the Airbus Helicopters AS365/H155 Dauphin and the Bell 212/412, says Ricardo Ronchini (*pictured*), product marketing specialist for the AW169.

"It brings the performance closer to helicopters in a bigger class," he says.

While the 11-passenger oil and gas version loses around 60nm (111km) of range due to lower fuel capacity, that range reduction is "not relevant" for most oil and gas missions, says Ronchini.

Certification for the IGW kit is due in late 2024, while approval for the new offshore version is scheduled for the end of 2026, "but it is still under development so this date could change".

A new avionics standard is also in the works, although Ronchini declines to say when the Phase 9 software release might be certificated or the new features it will offer.

The AW169 shown at Dubai is operated by Italy's Guardia di Finanza and will remain in the UAE after the show to conduct demonstration flights for undisclosed potential customers. Leonardo's previous sales in the region include to Abu Dhabi-based Falcon Aviation Services and Abu Dhabi Aviation.

Deliveries recently crept past the 169-unit milestone, with the 170th example handed over. Leonardo has taken 330 orders for the AW169, including from Italy and Austria for the military M model.

Leonardo is additionally working on weapons integration for the AW169M for an undisclosed customer, thought to be Austria.

Gulf Air extends its ties with MRO Joramco

Gulf Air has extended its long-standing partnership with Amman-based aircraft maintenance, repair, and overhaul (MRO) facility Joramco during the show. The agreement will facilitate the maintenance of Gulf Air aircraft at Joramco's MRO facility located at Queen Alia International airport in Jordan.

Joramco chief executive Fraser Currie says: "As part of this new agreement, Joramco will be providing heavy checks for different aircraft types from Gulf Air's fleet for the upcoming four years."

Gulf Air chief executive Captain Waleed Alalawi says: "We are thrilled to announce the extension of our decade-long strategic partnership with Joramco, a milestone that holds immense significance for us.

"This collaboration is a pivotal move in enhancing Gulf Air's maintenance needs to meet the demands of our expanding fleet and the longevity of our fleet at the highest standards."

Joramco is the engineering arm of lessor Dubai Aerospace Enterprise.

Quick kit allows two operators to Dash out freighter

De Havilland Canada has announced two deals to supply its quick-change freighter kit for the Dash 8-400.

Abu Dhabi's Falcon Aviation Services is to take two of the kits, while Keynan cargo specialist Advantage Air Travel will take one.

The product allows operators to convert quickly between all-passenger and all-cargo services.

De Havilland stated last year that it would start offering the conversion solution for the currently out-of-production regional turboprop.

"The cargo market is a growing opportunity for airlines looking for solutions to enhance the revenue-generating capabilities of the aircraft," says vice-president of sales and marketing Ryan DeBrusk.

De Havilland says the "short time" required to change between the configurations allows operators to "adapt to market dynamics".

It adds that installation of smoke-detection systems in the cabin eliminates the need for attendants while in cargo operation.

Flydubai's chief executive Ghaith Al Ghaith marks the deal with CFM's Jean-Paul Alary

Flydubai

CFM wins business with MENA carriers

Air Arabia has picked CFM International Leap-1A engines to power its 120 on-order Airbus A320neos.

The deal was signed during the Dubai air show yesterday and also includes a multi-year services agreement and spare engines.

It covers Air Arabia's order for 73 A320neo, 27 A321neo and 20 A321XLR aircraft, which are scheduled for delivery from 2025.

The low-cost carrier already operates the manufacturer's CFM56 powerplant on its Airbus A320 narrowbodies, plus the Leap-1A on a handful of leased A321LRs.

CFM also announced new support services with Flydubai and Air Cairo during the show.

Flydubai has signed a multi-year services agreement with the engine firm covering 222 Leap-1B engines powering its Boeing 737 Max fleet.

The agreement covers the Dubai low-cost carrier's in-service an on-order portfolio of 737-8s and -9s.

EgyptAir subsidiary Air Cairo has also signed a multi-year non-exclusive services agreement with CFM to cover the shop visits of 28 Leap engines powering its 14 A320neos.

Bell's belles

Bell is promoting a range of helicopters at this year's show, including the 429 configured for parapublic missions and the 505, which has proven popular as a trainer.

Two Bell helicopters are in the static display at the show: a 429 operated by the Abu Dhabi Police and a 407M used by an undisclosed military customer.

The 429 features an electro-optical/infrared sensor with an operator's station. It also has a winch, spotlight, and a beam across the top of the cabin that allows special forces to conduct fast-roping descents.

The two helicopters are part of a broader Textron presence at this year's show, which also includes fixed-wing aircraft.

"Bell has been in the region for decades and the Dubai air show is the perfect platform where we can talk not just about the products, but also the people behind the products," says Sameer Rehman, managing director Asia-Pacific for Bell.

Rehman notes that Bell's team in the region supports parapublic, military, and oil and gas users. Rehman is optimistic on the outlook for parapublic and VIP helicopters in the Middle East.

He adds that the increasing adoption of parapublic helicopters is leading to more interest in helicopters equipped for such missions, which he says is "not a small segment of Bell anymore". Roles in this space include search and rescue and emergency medical services.

Rehman also observes that regulatory changes around air taxis in the United Arab Emirates bode well for the country's transport infrastructure: "Bell wants to be a firm advocate not only for the supply of products, but also policy as they build," he says.

He adds that the 505 continues to perform well in the training role, including its service with the UAE's Horizon International Flight Academy: "The 505 has been come the staple, the standard, and the expected platform from which new pilots are trained."

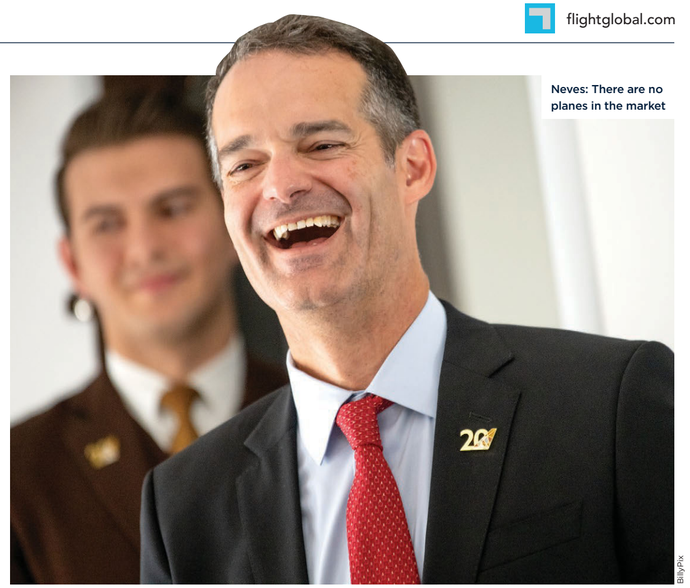
The Bell 429 on the static

BillyPix

Saudia takes training airside with L3Harris

Saudia Academy is expanding its training collaboration with L3Harris Technologies with a new award to equip the facility with the latter's Airsidesim ground handling training simulators. The expanded collaboration, the contract for which was signed at the show, makes the Saudia Group facility the first in the Europe, Middle East, Africa and Asia to install the Airsidesim technology.

The Airsidesim uses mixed-reality simulation training technology and will enable Saudia Academy to train students on the current equipment and airport gate configurations for municipal and large airports.



Neves: There are no planes in the market

BillyPix

Supply chain woes are set to continue warns Etihad chief

Graham Dunn

Etihad Airways chief executive Antonoaldo Neves believes supply chain challenges are likely to remain an issue impacting aircraft availability for the next two or three years, as the Abu Dhabi carrier embarks on its third decade with a fresh growth vision.

Neves was speaking to journalists at the show yesterday from on board a soon-to-be-delivered Boeing 787-9, which is on the static display. "There are no planes in the market. I would love to be flying this plane, but it's not delivered yet," he joked. "I need the planes."

To help meet that capacity shortage, the airline has just reinstated the third of four Airbus A380s it is deploying on its Abu Dhabi-London Heathrow route. "It was great to bring them back," says Neves. "Customers love it. It's important [because] I need the planes.

"It's getting really hard to get a plane, and that has a consequence for the entire supply chain, for seats, for parts," he adds. "That for me, if I had to pick one big challenge, is how can I address that supply chain problem... which is going to last for two, three years more, because there is a lot of demand but our ability as an industry to provide what we need is not there."

It is an issue for Etihad because the carrier has returned to growth after a period of consolidation, in part from the unwinding of its equity-alliance strategy and then from the Covid pandemic.

"Now I think we have the right size and we have an opportunity to grow again," says Neves. "The plan is to double the size of the fleet in the next seven years; the plan is to get to about 33 million passengers in the next seven years.

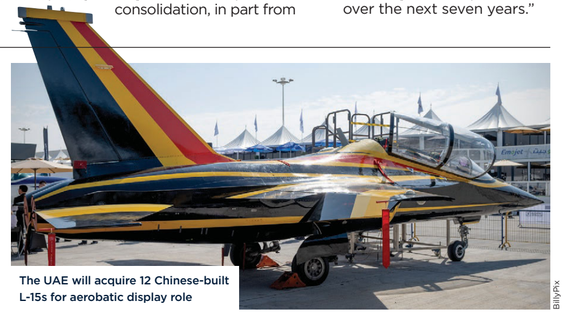
"We have a clear mandate from the shareholder. And the mandate is very simple. Deliver extraordinary customer service and at the same time, make money."

He adds: "We are in a region where GDP is growing at least 5% every year, and ... aviation usually grows two times [as fast], at least. So I don't see any reason we cannot grow 10% per annum over the next seven years."

UAE's Al Fursan team opts for Chinese L-15s

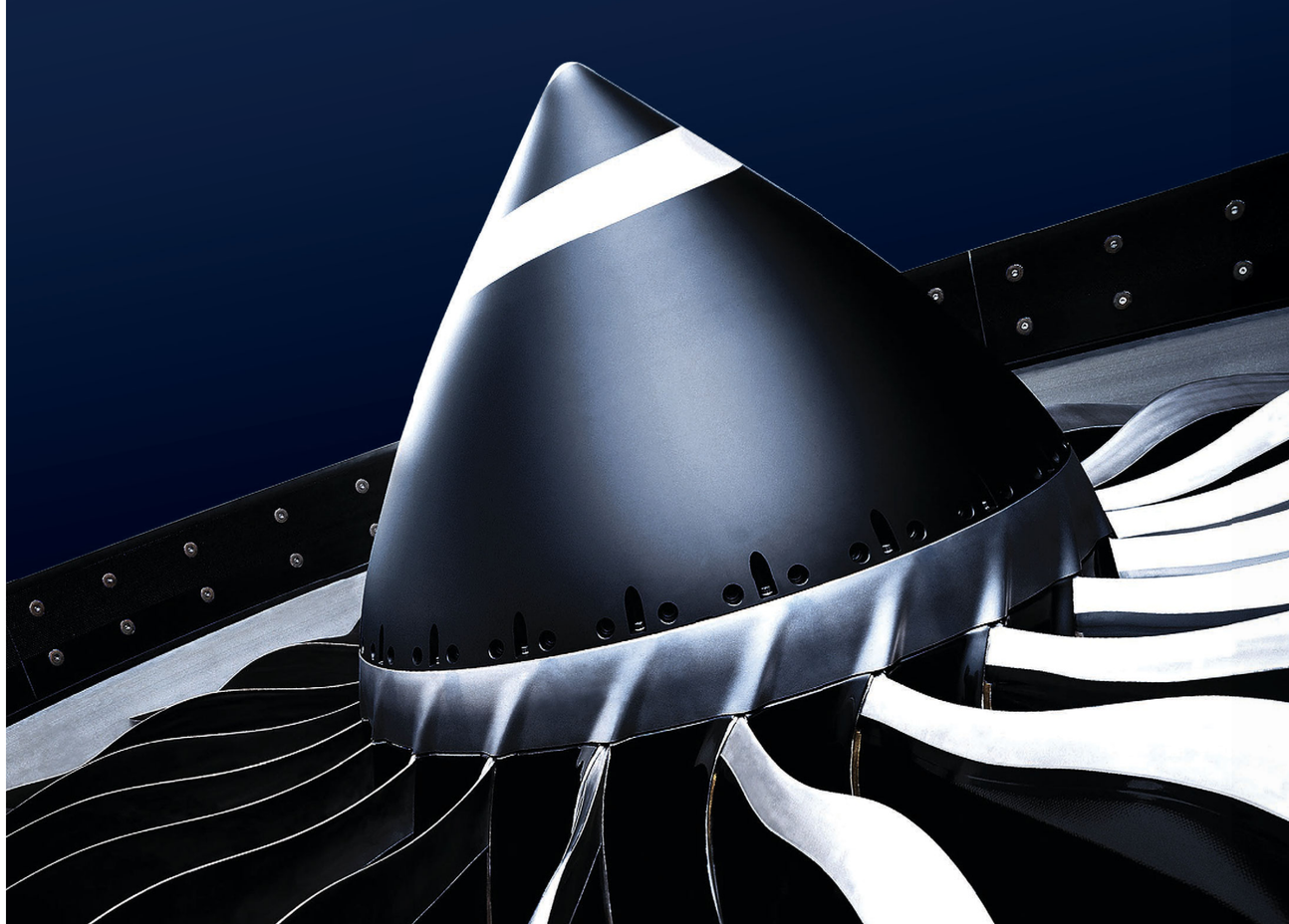
The UAE defence ministry has confirmed finalising a contract with China's CATIC to supply its air force with a dozen Hongdu L-15 jet trainers for aerobatic display team use.

At the show, the UAE's Tawazun detailed a roughly $440 million deal "to procure an air show aircraft and its accessories". The order is understood to have been signed off earlier this year. The UAE air force's Al Fursan display team currently flies Leonardo-suppled MB-339 jet trainers. Its interest in the twin-engined L-15 emerged following the 2021 Dubai air show, with a potential need to also acquire light attack-configured examples.



The UAE will acquire 12 Chinese-built L-15s for aerobatic display role

BillyPix



Collins lands Neom deal

Collins Aerospace has been picked to supply airport operational and passenger processing systems for the new airport being developed in Neom, Saudi Arabia.

Selected by Innovative Contractors for Advanced Dimensions (ICAD) – prime contractor on the Neom Bay project - Collins will provide its suite of connected airport system products, including operational database, resource management, messaging, baggage and self-bag drop systems.

Neom's vision is to develop one of the largest hub airports in the world supporting the brand new city the Kingdom is building.

"Collins is working closely with ICAD to implement data-driven solutions to save time and increase the operational efficiency of this airport," says Rakan Khaled, general manager airport solutions at Collins. "We are dedicated to improving the passenger journey for travelers around the globe, and meeting the modernization needs of airports and airlines."

The Terminal 1 and Terminal 2 phase of the Neom Bay expansion is scheduled to be completed by end-2023. The fourth and final construction phase is due to end in 2026.

FLIGHT DAILYNEWS

Produced by FlightGlobal, 1st Floor, Chancery House, St Nicholas Way, Sutton, Surrey SM1 1JB, UK

HOW TO CONTACT US

We are located in the show dailies area on the first floor by the exit to the static display

Editor Murdo Morrison murdo.morrison@flightglobal.com

Executive Editor, Flightglobal Graham Dunn graham.dunn@flightglobal.com

Reporting team Craig Hoyle, David Kaminski-Morrow, Dominic Perry, Greg Waldron

Production Louise Murrell

Designer Sarah Eversfield

Picture editor James Robbins

Photography Tom Gordon

Distribution Stuart Burgess, Dawn Hartwell

Divisional Director, FlightGlobal Sophie Wild

Printers Emirates Printing Press, Dubai

Potential suppliers have shown interest in partnering in the programme

BillyPix

Jekta amphibian making a splash

Murdo Morrison

Operators from island nations are "showing a lot of interest" in a 19-seat, all-electric amphibian aircraft being developed by Swiss start-up Jekta.

The company – which is exhibiting a model of its PHA-ZE (for passenger hydro aircraft – zero emission) 100 on its stand in the Swiss pavilion – has also been speaking to "quite a few suppliers keen to work on the programme", says founder George Alafinov (*pictured*).

Payerne-based Jekta, which is aiming to certificate and deliver its first aircraft by early summer 2029, is hoping to sign a contract with a battery supplier during the show. Earlier this year, it announced a contract with Honeywell for the PHA-ZE 100's avionics, electric engines, flight control systems and connectivity systems. The two companies also agreed to collaborate on the viability of commercial flights with single pilots.

While Jekta is a new name in sustainable aerospace, Alafinov has a long heritage in amphibious aircraft. With his father, he was behind Aero Volga, the Russian firm best known for the LA-8 seaplane.

The 130nm (240km)-range PHA-ZE 100 is a composite design, with five propellers on each high wing, above a floating hull. Alafinov believes the aircraft is ideal for coastal and lakeside communities that are not well served by commercial aviation. In March, Dubai-based tour operator and brokerage Gayo Aviation signed a letter of intent to purchase 10 PHA-ZE 100s.

Piper signs 90-aircraft deal

BillyPix

AeroGuard chief executive Joel Davidson (*left*) with Piper vice president of international and direct sales Drew McEwen

Piper has secured an order from training school AeroGuard Flight Training Center for 90 Archer TXs, which will take school's fleet to over 200 aircraft.

The order, signed at the show yesterday, will help AeroGuard train pilots for airlines.

"We are thrilled to sign this agreement with Piper Aircraft to bring 90 new Piper Archers to AeroGuard's fleet," says Joel Davidson, chief executive of AeroGuard.

AeroGuard has agreements with major carriers such as SkyWest, Cathay Pacific, Korean Air, and others. The company has training locations in the US states of Arizona and Texas, as well as in Saudi Arabia.

Davidson says that airliners prefer to train pilots in the USA owing to benign weather in training areas, good airport infrastructure, and the strong regulatory environment.

He feels that demand for pilots is only set to grow, noting the major orders at this year's show, as well as the larger existing order-books among the region's carriers.

Piper pitches the TX as ideal for ab initio training. The aircraft has a Garmin G1000 NXi cockpit, and is powered by a single Lycoming IO-360-B4A engine.

Russia debuts re-engined Il-76

Russia's presence at the Dubai air show includes a debut for its re-engined Ilyushin Il-76MD-90A transport.

Powered by four Aviadvigatel PS-90 turbofans, the type can carry a 60t payload some 2,160nm (4,000km), or cover 4,600nm with a cargo of 20t.

Exhibited by Moscow's Rosoboronexport agency, the airlifter also is equipped with a President-S defensive aids system. Meanwhile, a prototype Il-76MD-90A has for the first time performed a landing and take-off from a dirt runway.

Russia's United Aircraft (UAC) notes that the new model's more powerful engines – installed instead of Soloviev D-30KPs – facilitate "improved take-off, landing and cruising characteristics", while it also features an updated landing gear.

"These and other improvements make it possible to operate the transport aircraft at equipped and unequipped [unprepared] airfields, on concrete and dirt runways, in various climatic conditions," UAC says.

The Il-76 is on display on the static

BillyPix

Sustainable aerospace together

The pursuit to build a brighter tomorrow is in all of us—and now is the time for action. We are enacting changes to reduce emissions and activate an ecosystem of aviation, energy, finance and policy that will support progress. Net zero will require all of us working together as we pursue the next horizon—safely and sustainably.
Learn more at sustainabilitytogether.aero

BOEING

Arjan Meijer, with Embraer's 'Tech Eagle' E195-E2

BillyPix

Embraer: demise of E175 a decade distant

Dominic Perry

Embraer could continue building its E175 into the 2030s as continued airline demand and a lack of scope-clause relief in the USA combine to extend the regional jet's expected production life.

Despite the lack of new-generation engines, the oldest and smallest E-Jet still in production is maintaining its commercial momentum: at the end of the third-quarter the Brazilian airframer held firm orders for 101 examples, the vast majority from US carriers.

While production of the E190 and E195 has now switched to their re-engined and stretched E2 variants, the E175-E2 remains indefinitely paused, leaving the E175 as Embraer's only product with which to address the 70-seat segment.

"Basically it is the only aircraft in the market," says Arjan Meijer, chief executive of Embraer Commercial Aviation.

Production will "continue for quite a while yet", he says. While this will not continue indefinitely, "we see a very good period ahead of us", extending its life "at least until the end of the decade".

"I don't see any date yet when we would stop producing the E175," adds Rodrigo Silva e Souza, vice-president of sales and marketing at Embraer Commercial Aviation.

Although the Pratt & Whitney PW1700G-powered E175-E2 was always intended to be the final member of the E2 family to arrive, its suitability for the US market hinged on changes to agreements between mainline carriers and their pilots which limit the number and size of regional jets that can be flown by regional affiliates.

At 44,600kg (98,120lb) maximum take-off weight, the E175-E2 exceeds the current scope clause limit by 5,600kg. And with no changes to those restrictions in sight, Embraer has repeatedly postponed the jet's arrival.

"Ideally we would only be producing E2s by now, but the same scope clause that prevents that from happening also prevents anyone else from competing in the market," says Silva.

At one stage Mitsubishi Aircraft had seemed to be a potential competitor with its SpaceJet family, but delays and spiralling development costs – alongside its own scope clause complications – put paid to the Japanese airframer's challenge.

Long-standing rival Bombardier has also exited the regional jet space, selling its CRJ programme in 2020 to Mitsubishi Heavy Industries under whose ownership production ended.

But if the E175 continues to sell strongly in the USA, the same cannot be said for its two larger PW1900G-powerd E2 siblings where, excluding lessors, neither has registered a sale. The closest it has come is a 50-strong order for E195-E2s from Canada's Porter Airlines, which regularly operates the twinjet on cross-border services.

But Meijer is optimistic the pair can gain traction with US operators, despite strong competition from the Airbus A220.

"I think the timing needs to be right for operators. From an Embraer perspective we've gone through the Boeing deal uncertainties in 2019 and then we went seamlessly into Covid – but we are now restarting discussions. We keep up a dialogue with the [US] majors."

He argues that the relatively young E2s – service entry for the E190 came in 2018 followed by the E195 the next year – have not previously had enough in-service history to convince operators "but now we are in a totally different position".

Souza points to a number of Airbus narrowbody operators – including Royal Jordanian and Scoot – who have also selected E2s to complement their A320 fleets. "There's a change going on in their mindset," he says.

Additionally, Embraer is hopeful that it can validate operator feedback that both the in-production E2 models are significantly more fuel efficient than advertised.

At service entry, the airframer said the E190-E2 was 17.3% better on fuel burn than its predecessor, while the E195-E2 boasted a 25.4% improvement. However, real-world experience suggests those figures are actually closer to 20% and 28%, respectively.

"We know it's more than they expected but we need to measure and that takes time on our side," says Meijer.

In the meantime, Embraer has seen only a very limited impact from the problems affecting the P&W geared turbofans that equip the E2s. While conceding the engines "have not been completely without challenges" it is "a completely different situation to other platforms", says Meijer.

Embraer has an E195-E2 on display at Dubai in its latest special 'Tech Eagle' livery and Meijer is confident that existing E2 operators in the region, SalamAir and Royal Jordanian, will offer a springboard for future sales.

"With these two customers we will showcase the E2 in the region. To improve connectivity in the Middle East and Africa the E2 is the best fit to make that happen."

Energia grows to 50 seats

Embraer has again shifted the scope of its Energia project, extending the size of the conceptual aircraft under consideration up to 50 seats.

While not as dramatic a change as last year, when the airframer announced a focus on hybrid- and fuel cell-powered aircraft in the 19-30-seat class, shelving any immediate interest in electric and hydrogen combustion powertrains, the move is still significant.

Last year's decision was based on operator feedback and continued dialogue with the Energia customer advisory panel has helped to further refine the concept, says Rodrigo Silva e Souza, vice-president of sales and marketing at Embraer Commercial Aviation.

"We are looking at bigger capacity. We started with from nine up to 50 seats then we concentrated on 19 to 30 seats last year and through this year we are looking at a bit bigger, up to 50 seats."

The move was "primarily driven" by airline feedback that they wanted "bigger aircraft", he says, "but we also see the technology being able to support that.

"Our understanding of the technology has progressed," he says. "But the biggest challenge is to understand how this aircraft will be used and that's the work we have been doing with airlines, trying to understand where these would fit into their network."

Arjan Meijer, chief executive of Embraer Commercial Aviation, says the airframer needs to analyse "if there is a good business case for airlines" and "what is technologically feasible" before any product launch.

"We need to be absolutely sure that it works. But once we make up our mind that it does, we have shown we can come to the market quickly."

Feedback has been positive to date, says Silva, but he sees a need to revitalise the sub-50-seat market to ensure the viability of any future aircraft.

Embraer intends to present its latest updates to the advisory board at the end of this month and will also add new members in the coming months, he adds.

It sees the potential for the hybrid-electric aircraft to arrive in the 2030 timeframe, followed by the fuel cell-powered version in 2035.

The JF-17 Block III features a new AESA radar

BillyPix

Block III JF-17 debuts

Greg Waldron

The Chengdu/Pakistan Aeronautical Complex JF-17 Block III fighter has made its Dubai air show debut with an appearance in the static park.

The aircraft on show is part of 16 Sqn, the Black Panthers. The JF-17 is also appearing in the show's flying display.

"The JF-17 Thunder Block III fighter jet epitomises the pinnacle of modern aerial warfare technology," says the Pakistan air force.

"Equipped with state-of-the-art avionics, enhanced weaponry, and advanced electronic warfare systems, the JF-17 Block III boasts superior manoeuvrability, extended range, and enhanced combat capabilities."

The aircraft on static is shown with air-to-air missiles and bombs, as well as an electro-optical/infrared targeting pod. It also includes an aerial refuelling probe, a capability lacking in earlier versions of the JF-17.

A key improvement with the Block III is the incorporation of an active electronically scanned array radar in the form of the KLJ-7A, developed by the Nanjing Research Institutie of Electronics Technology (NRIET).

NRIET has said that the KLJ-7A can track dozens of targets simultaneously and is highly resistant to jamming.

The aircraft is powered by a single Klimov RD-93 engine. The type is, however, likely to get a Chinese-made engine in the form of the Guizhou WS-13 Taishan.

Cirium fleets data indicates that the Pakistan air force operates 146 examples.

"[The JF-17's] participation in the Dubai air show signifies the confidence [the air force] places in this indigenous marvel, highlighting Pakistan's commitment to fostering self-reliance in the defence industry," it says.

The JF-17 is pitched as a low-cost fighter for the developing world. Though Pakistani officials have long talked up its international potential for several years, it has secured few sales. Cirium fleets data shows that Myanmar operates seven examples and Nigeria three.

Argentina is reportedly considering the type, but the USA is trying to broker an alternative deal whereby Buenos Aires would take 33 used Lockheed Martin F-16s from Denmark. The Pakistani air force has also brought a Super Mushshak basic trainer to the show.

"This robust and reliable aircraft has been instrumental in nurturing the skills of countless [Pakistan air force] pilots, contributing to their excellence and expertise," adds the Pakistan air force.

"With its remarkable performance and adaptability, the Super Mushshak has garnered international recognition as a trusted trainer aircraft."

Emirates moves MRO to DWC

Gulf carrier Emirates is to build a new $950 million engineering facility at Al Maktoum International airport (DWC) aimed at supporting its fleet and operating requirements for at least the next 20 years.

The facility will handle a full range of engineering services including light and heavy maintenance programmes, engine repair and testing, and full cabin interior fit-outs and aircraft conversions.

Emirates Group chief Sheikh Ahmed bin Saeed Al Maktoum says: "This significant investment signals our confidence in the future growth of Emirates and the aviation sector. The new facility will enable Emirates to be entirely self-sufficient when it comes to maintenance, repairs, overhaul and all engineering requirements for our aircraft fleet.

"It gives us operational stability and flexibility, and quality assurance. With the projected growth of the region's aviation sector, Emirates' new engineering facility will also play a key role as a centre of excellence, attracting the involvement of global players across the aviation supply chain."

Alongside supporting Emirates' own fleet requirements into the 2040s, the facility will also potentially provide spare capacity to other airline operators.

Construction work on the first phase of the project is set to begin next year and be completed in 2027. This will deliver eight maintenance hangars and one paint hangar, capable of handling commercial aircraft including Airbus A380s.

Emirates Group's facilities and project management executive vice-president, Ali Mubarak Al Soori, says: "Provisions have been made for further expansion, potentially doubling the capacity in Phase 2, in line with Emirates' fleet growth and operational requirements."

Emirates' existing engineering centre at Dubai International airport will continue to support the airline's operations, with the new complex at DWC initially handling spillover work and heavy maintenance programmes with longer aircraft ground time.

Emirates is to build a new $950 million engineering facility at DWC

BillyPix

In brief...

Talking innovation

Royal Aeronautical Society president Kerissa Khan will deliver the Sir Maurice Flanagan lecture on "Pioneering future flight innovation" in Dubai tonight.

The lecture – which will look at how disruptive air mobility solutions will revolutionise connections between urban, rural and remote communities – will be held in the auditorium, Building A, Emirates Training College, Garhoud. Entrance is free but attendees must register at https://forms.office.com/e/pcyF20ckAV

Region could be leader in SAF

The Gulf could be a pioneer in sustainable aviation fuel, both as a customer and producer.

So says BP, which is at the show to promote its green credentials. Its managing director Middle East, Linn Tonsberg (*pictured*), spoke yesterday at the sustainability conference.

Tonsberg believes the region's long history as a fuel producer, and airlines that are taking active steps to reduce their carbon footprint could see the Gulf being at the vanguard of a SAF revolution.

"This region is at the heart of aviation and the heart of energy," she says.

Ahead of breakthrough battery or hydrogen solutions becoming viable for larger passenger aircraft in particular, increasing the use of SAF is often viewed as the most immediate route to cutting the industry's carbon emissions. However, with refining capacity limited, prices of SAF remain high, and this has restricted demand, creating a vicious cycle.

In January, BP signed an agreement with Etihad Airways, local energy companies ADNOC and Masdar, and waste management specialist Tadweer to conduct a feasibility study on the production in the UAE of SAF made from municipal solid waste and renewable hydrogen.

The partners said that if the conclusion of the study – which is ongoing – is positive, they will work to develop the region's first commercial-scale SAF production plant in Abu Dhabi.

BillyPix

Archer recently began flight testing the Midnight, which is on show in the AAM pavilion

BillyPix

Archer targets sales in Gulf

Dominic Perry

Archer Aviation is at the air show bullish about its prospects in the Gulf region, hot on the heels of a recent agreement with the UAE government covering the launch of advanced air mobility (AAM) services between Dubai and Abu Dhabi in 2026.

Working initially with Abu Dhabi's Falcon Aviation Services – other operators may also come on board later – Archer will establish an air corridor for AAM operations between the two emirates.

Nikhil Goel, chief commercial officer at Archer, says the company's Midnight electric vertical take-off and landing (eVTOL) aircraft will be ideal for the UAE.

"Abu Dhabi and Dubai both have burgeoning populations and there's not enough 2D space to keep up with that," he says.

Archer has yet to detail the number of aircraft required for the initiative's initial phase but "it's not difficult for me to imagine several hundred across the Emirates," says Goel.

Flight testing of the Midnight aircraft recently began in the USA as Archer presses towards its goal of certification and service entry in 2025.

Archer is showcasing a Midnight mock-up at the Dubai show's AAM Pavilion but its links with the UAE don't end there: Abu Dhabi investment fund Mubadala is also one of the company's backers alongside aviation giants Boeing and United Airlines.

Mubadala also has other interests in the aerospace sector "which could really interesting research and development partners for us," says Goel. Those investments include engineering and leasing business Sanad and composite aerostructures manufacturer Strata.

Boeing's SAF bet with Zero

Boeing has struck an agreement with fossil-free synthetic fuels specialist Zero Petroleum to help further accelerate deployment of sustainable aviation fuel (SAF) for the sector.

The agreement signed during the show builds on Boeing's commitment last year with the UK's University of Sheffield to become a founding member of its Energy Innovation Centre as part of efforts to drive the development of SAF.

Boeing's vice-president environmental engagement and business development, Sheila Remes, says: "What we are doing is working with Zero Petroleum in our Sheffield collaboration site to help with the certification and approval process for this new fuel type."

Zero Petroleum chief executive Patrick Lowe adds: "The [certification] timescale will be one to two years. It is likely to be progressive. Our fuel has the ability to be 100% drop in, it could completely substitute all fuel in the aircraft. So inevitably that process will be progressive. Certification is very important, so it's not something that is done in a rush. But what we do through the new test house in Sheffield is we are able to fast-track it as quickly as possible."

Zero Petroleum is already working with the UK Royal Air Force, notably carrying out a 100% synthetic fuel-operated flight in November 2021, and in August struck a collaboration deal with engine manufacturer Rolls-Royce to further promote SAF development.

"Zero Petroleum is all about synthetic SAF," says Lowe. "These are fuels that are engineered from essentially air and water... in a circular system. So this is a process that can scale to all of world aviation, and indeed all of world fuels in due course."

Pictured (*l-r*): Brian Moran, Boeing; Patrick Lowe, Zero; Sheila Remes, Boeing; Brendan Nelson, Boeing; and Oliver Christian, UK Trade Commissioner.

BillyPix

Meet the team who have been delivering your copies of *Flight Daily News* over the past three days. Unmistakable in their distinctive red flight suits, they are pictured with Nimrod Meuleman from sponsor CAE.

CAE

Thales to supply Emirates 777X IFE

Thales has reconfirmed that it will supply the in-flight entertainment system for Emirates' Boeing 777X fleet.

Thales will provide the Dubai-based airline with its Avant Up equipment from 2025. Emirates previously had 115 777Xs on order but has newly-unveiled an enhanced agreement covering 90 additional 777Xs – a mix of 777-9s and 777-8s.

The two companies had originally unveiled an agreement in 2016 to supply IFE for the first 50 Emirates 777Xs, at a time when the carrier had signed for 150 of the jets.

Emirates last year chose the Avant Up system for the carrier's Airbus A350-900s.

Thales says the Avant Up features Optic 4K "smart displays" including high-definition screens, as well as its 'Pulse' power-management system offering high-speed charging at each seat.

Passengers' personal electronic devices can be synchronised to the screen.

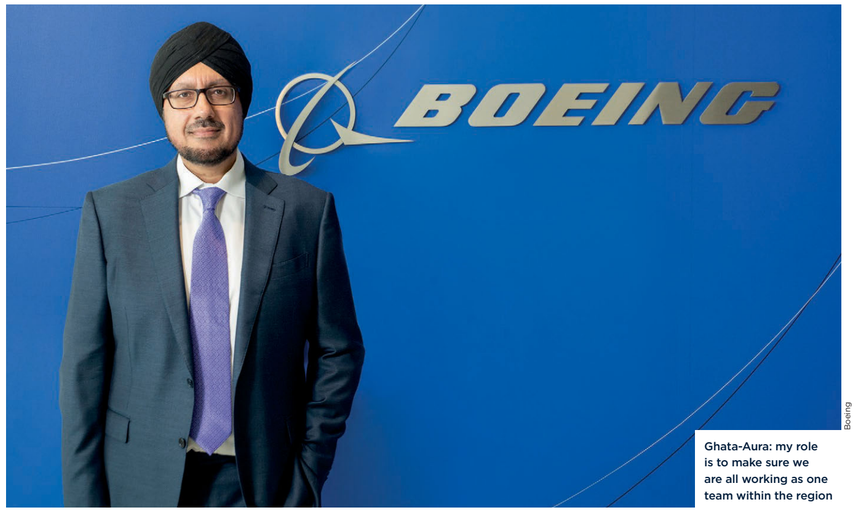
Thales adds that the system will have user interfaces enabling visually-impaired passengers to have an "immersive experience".

"We will bring extraordinary new features and innovations to elevate the passenger experience," insists executive vice-president of avionics Yannick Assouad.

Kuljit Ghata-Aura is Boeing's 'ambassador' in the Gulf and the surrounding regions, an area that contains some of the US company's most important customers and industrial partners. He describes his job and priorities

Our man in Dubai

Murdo Morrison



Boeing

Ghata-Aura: my role is to make sure we are all working as one team within the region

From being the point of contact with politicians to steering local industrial partnerships, sustainability initiatives, and talent acquisition efforts, Boeing's regional presidents play a crucial role in reinforcing the US giant's presence around the world. Few regions are as important as the one headed by Kuljit Ghata-Aura.

Dubai-based Ghata-Aura is responsible for the Middle East, Turkey, and Africa, a sprawling territory that accounts for a sizeable chunk of Boeing's in-service fleet, backlog, and sales prospects – including 45% of its forecast widebody deliveries over the next 20 years. Around 3,500 people work directly for Boeing or its joint ventures across the region, largely in the Gulf.

Ghata-Aura, British and a lawyer by training, works for Boeing Global, an arm of the company that serves the three main business units, Boeing Commercial Airplanes (BCA), Boeing Defense, Space & Security (BDS), and Boeing Global Services (BGS). Boeing Global was established in 2001 as part of an effort to make the manufacturer appear less US-centric.

Boeing Global – formerly Boeing International – "leads development of the company's growth and productivity initiatives" outside the USA and has been headed by London-based Australian Dr Brendan Nelson since January. He runs a team of country and regional presidents who effectively run the company's "embassies" around the world, and are, in many ways, the faces of the company.

While the business units are responsible for "engagements" with the customer, Ghata-Aura and the wider Boeing Global organisation support them through their relationships with governments, local industry, and the education sector. "The key aspect of my role is to make sure we are all working as one team within the region to enable us to be successful," he says.

"We are lucky in this region because we have customers for every part of our business," he remarks. On the commercial side, some 700 Boeing widebody and narrowbody airliners are in service, with another 600 in the backlog. Operators include the biggest Middle Eastern carriers Emirates, Etihad, Flydubai and Qatar Airways, as well as the likes of Ethiopian Airlines and Turkish Airlines.

With the fleet skewed to larger types – some 45% of aircraft delivered in the next 20 years will be twin-aisles, the highest proportion of any region, according to Boeing's latest commercial market forecast – Ghata-Aura's territory is particularly lucrative for Boeing, which supports operators there with its Dubai-based parts distribution hub, one of eight across the world.

The military market is equally critical for the company. "We've had strong relationships with Middle East governments and armed forces since the 1970s," says Ghata-Aura, who says the C-17, CH-47, AH-64, F/A-18, F-15 and Insitu's ScanEagle and Integrator are among the types in service. "Part of our role is providing training and sustainment solutions to keep those fleets mission-ready," he says.

He has high hopes for the latest F-15EX variant in the region, with Qatar and Saudi Arabia among existing F-15 operators. The US Air Force has begun replacing its F-15Cs with the EX, and in May Indonesia and Boeing announced a memorandum of understanding for the sale of 24 F-15EXs, subject to US government approval.

The EX, which comes with fly-by-wire controls, enhanced radar and sensors, and an integrated electronic warfare suite, is a "ready replacement for the C [variant]", says Ghata-Aura, who has held several leadership positions with Boeing since joining the company in 2010. "It's a product that we think is well suited to some of our customers."

Overseeing Boeing's industrial participation in the region is a vital part of the job. He acknowledges that these partnerships have become "more sophisticated" in recent years, evolving from the era of simple, job-creation offset in exchange for defence purchases. Today, governments tend to want arrangements that include intellectual property transfer and boost their indigenous industry.

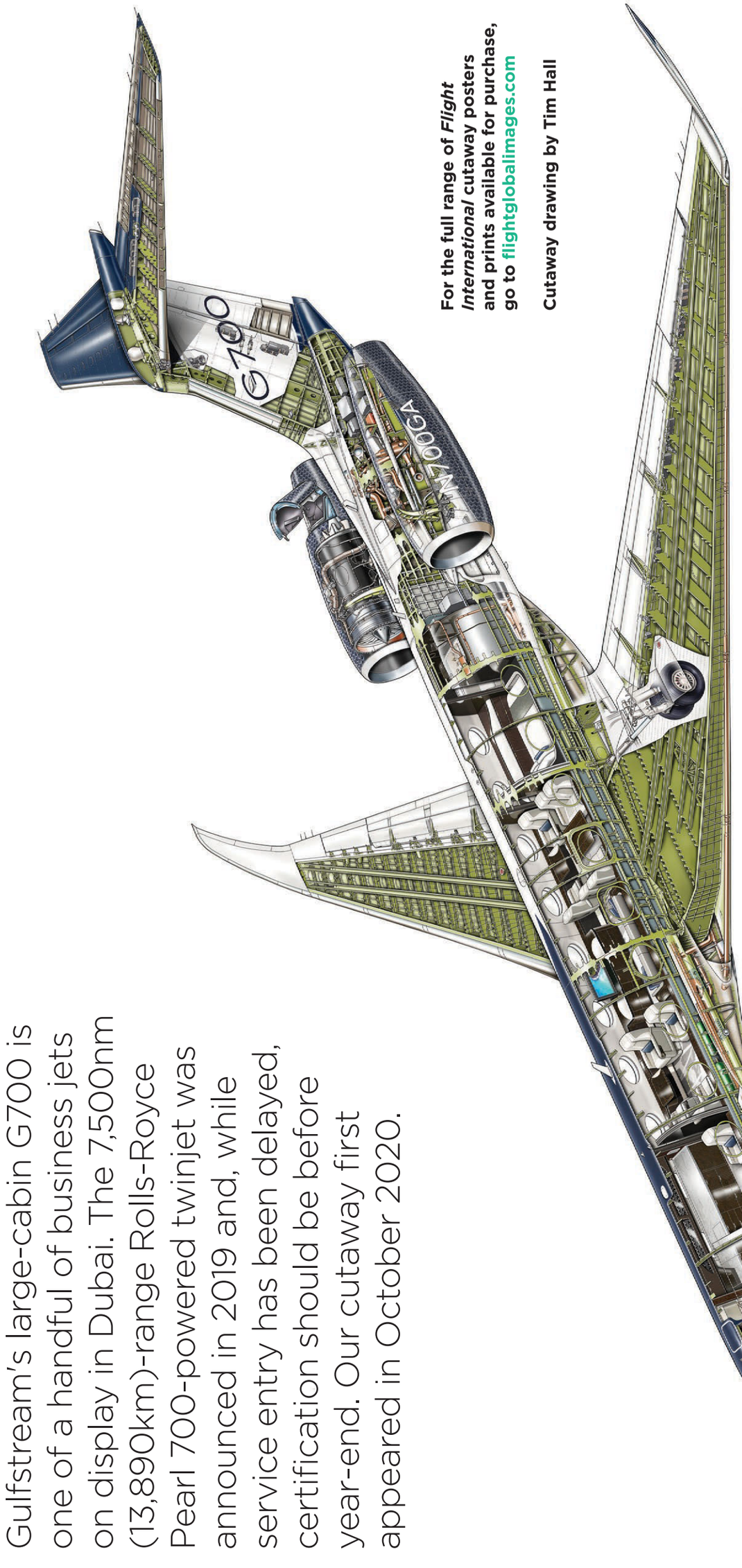
"As we increase our global footprint, we are looking at where Boeing's needs can be met, and where a country has aspirations for its industry, that creates a win-win," says Ghata-Aura, who highlights agreements with Abu Dhabi defence group EDGE and composites aerostructures specialist Strata – which manufactures the 787 vertical fin and 777 empennage ribs among other contracts.

Another significant agreement, signed earlier this year, which Boeing and Abu Dhabi government agency Tawazun are highlighting this week at the show, is the establishment of a centre of excellence for unmanned systems from Boeing subsidiary Insitu that will serve as a training and maintenance centre supporting the United Arab Emirates armed forces.

The father of all the Boeing industrial relationships in the region is Saudi Arabia's Alsalam Aircraft Company, established in 1988 as a maintenance, repair and overhaul player to support the transfer of technology and the development of Saudi nationals. It has been joined since 2015 by the Saudi Rotorcraft Support Company, which services the kingdoms fleets of AH-64s and H-47s.

A further responsibility for Ghata-Aura and his team is driving cross-Boeing initiatives such as on sustainability. This is particularly apt as his region hosted the most recent and will host the next United Nations climate conference – known as COP 27 and COP 28. The latter begins just two weeks after the show, on 30 November, in the nearby Dubai Expo City.

Gulfstream G700



For the full range of *Flight International* cutaway posters and prints available for purchase, go to flightglobalimages.com

Cutaway drawing by Tim Hall

Gulfstream's large-cabin G700 is one of a handful of business jets on display in Dubai. The 7,500nm (13,890km)-range Rolls-Royce Pearl 700-powered twinjet was announced in 2019 and, while service entry has been delayed, certification should be before year-end. Our cutaway first appeared in October 2020.


HOW WILL
SUSTAINABLE
BECOME THE
STANDARD?
Reducing CO_2 emissions is more than our priority—it's our passion. That's why we're reinventing aviation with more efficient engines and hybrid-electric propulsion. It's part of our commitment to meet net-zero emissions and safeguard our environment.
Visit RTX at Booth 1080 and at RTX.com/WeAreRTX
RTX
COLLINS AEROSPACE | PRATT & WHITNEY | RAYTHEON