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◀ Famous five: Comlux executive chairman and CEO Richard Gaona; the company will be operating 9H-FIVE for the FIVE Group

Dubai company revealed as first ACJ TwoTwenty customer

HIGH FIVE!

Airbus has revealed that Dubai-based FIVE Holdings is the purchaser of the first ACJ TwoTwenty, through the Comlux Group in Switzerland.

Famed for its FIVE hotels on the Dubai Palm and Jumeirah Village Circle, the group is involved in real estate, hospitality, investments, and philanthropy.

Delivery of the green aircraft to

the Comlux Completion Centre in Indianapolis will be in January 2022, with delivery of the finished aircraft the following year.

Comlux Aviation will operate the ACJ TwoTwenty commercially in partnership through an exclusive charter agreement under the Comlux AOC in Malta. The aircraft, registered 9H-FIVE, will be known as Nine-Hotel-FIVE.

Richard Gaona, executive

chairman and CEO, Comlux, said: "The all-new business jet, the 'Nine-Hotel-FIVE' will be available starting in early 2023 for FIVE's guests, charters and demo flights.

"It will be based in DWC Dubai World Central airport, which is the ideal airport in the world to further grow and develop FIVE and Comlux businesses.

The FIVE ACJ TwoTwenty

will be finished in the avant garde design, and will feature 16 seats, a dining table for eight passengers, a master suite with a king-sized bed and shower, electro-chromatic window shades and full LED lighting, a fully equipped kitchen, non-stop streaming high-speed connectivity, and two ultra-large 55 inches screens, with a flight time of up to 12 hours non-stop with a full crew on board. ▲

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10 NEW AIRCRAFT FOR NIGERIAN CARRIER

The penultimate day of the show saw Nigeria's Ibom Air purchase 10 A220s. The deal marks Airbus' 4th announcement during the event.

"We are thrilled to make this in-road in Nigeria and to welcome Ibom Air as a new customer," said Christian Scherer, CCO and head of Airbus International.

With the largest population and GDP in Africa, Nigeria offers substantial growth potential in both domestic and regional travel, making the A220 an ideal choice for a full range of services from short-haul segments to intra-continental air routes.

Ibom Air currently operates a fleet of five CRJs. The addition of the A220s will enable the state-owned airline

to increase its footprint in Nigeria's domestic market, as well as across the African continent.

Speaking at the signing, Governor of Akwa Ibom state, Udom Emmanuel,

said: "Today is a major milestone in history of Nigerian aviation. It reflects our commitment to making a positive socio-economic growth in Akwa Ibom state and Nigeria."



▲ From left: Airbus CCO, Christian Scherer with CEO Ibom Air Mfon Udom, and governor of Akwa Ibom, Udom Emmanuel

NEWS IN BRIEF

World Defense Show expands

The General Authority for Military Industries (GAMI) has announced a venue expansion for the World Defense Show taking place between March 6-9, 2022, in Riyadh. Exhibition Hall 1 will expand to more than 14,500sqm for international defence companies looking to exhibit. Construction of the purpose-built 800,000sqm site – featuring the world's first dedicated runway for a defence event – is on track for completion by the end of December 2021. The show will host more than 800 exhibitors, including 100 local defence companies, with a series of senior military delegations and officials set to attend.

Boeing scores big Max order with Akasa Air

Boeing got on the show order scoreboard in a big way on day three with a deal worth nearly \$9 billion for 72 737 Max narrow-bodies with Indian start-up low-cost carrier Akasa Air.

Co-founded by Indian billionaire, Rakesh Jhunjhunwala, and former president of Indigo Airlines, Aditya Ghosh, Akasa Air will take delivery of its first 737 Max ready for its operational launch in summer 2022, Boeing confirmed.

The OEM could not elaborate on the delivery schedule, saying that was down to the airline to explain.

Akasa Air is being led by former Jet Airways head, Vinay Dube.

However, neither Jhunjhunwala, Ghosh or Dube were presented to the media to trumpet the order, which is not the usual drill during

the hoopla of an air show. Instead, it was left to Darren Hulst, vice-president of commercial marketing of Boeing, and John Bruns, its head of sales in India, to divulge the news.

Details were scant, but it is Boeing's first significant order in India for some time in a market dominated by carriers mainly operating Airbus types. "We have not done this for publicity," said Hulst. "It's a statement that they have ordered the airplane."

It may have been a thoroughly odd media event, but nevertheless the Boeing executives were delighted at Akasa's endorsement of the 737 Max.

All the 72 orders are incremental to Boeing's 737 Max backlog, which at the end of October stood at 3,296 units.



▲ Behind closed doors: Vinay Dube, chief executive of Akasa Air, and Stan Deal, Boeing Commercial Airplanes president, sign Akasa's order for 72 737 Maxes



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Drones will transform many industries, but the priority is their safe integration with existing airspace users. Frequentis develops air traffic management solutions for ANSPs around the world and is collaborating with Avinor ANS on a drone application to prepare for the new normal.

The intuitive tower application allows air traffic controllers to set airspace rules and restrictions, review flight plans and issue clearances to drone operators, in real time. And what's more, it is already being used in a real-world environment by Avinor ANS in Norway.

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New premium-economy seating for 105 Emirates aircraft

Emirates has announced that it will retrofit 105 of its wide-body aircraft with new premium-economy seating.

The move follows a trial since January on selected aircraft.

The 18-month programme, which will be conducted at Emirates Engineering Centre in Dubai, will see 52 Emirates A380s and 53 Boeing 777s fitted with the new cabin class. The programme is due to begin at the end of 2022.

At the end of the retrofit programme, Emirates will have a total of 111 Boeing 777 and Airbus A380 aircraft offering premium-economy seats, including the six A380s that would have been delivered to the airline with four cabin classes by December 2021.

The airline is also considering installing a brand new business class product on its Boeing 777 aircraft, with customised seats in a 1-2-1 layout.

Sir Tim Clark, president Emirates Airline, said: "Since we introduced our premium-economy seats a year back, we've received a hugely positive response. Customers have been amazed by the quality and comfort."

▲ Meanwhile, aviation software specialist, GE Digital, has inked a deal with Emirates Airline to implement its digital fuel insight



▲ Coming to a wide-body near you soon! Emirates premium economy class will be extended to both A380 and Boeing 777 aircraft

product, as well as its FlightPulse pre-flight module to help reduce fuel costs and CO₂ emissions.

"Emirates recognises that environmental responsibility is core to our long-term business success," said Captain Hassan AlHamadi, the company's divisional senior VP – flight operations.

"We are fully engaged in an ongoing investment to reduce our environmental impact and these

solutions will help us to achieve our goals." Helping to reduce fuel consumption and, subsequently, emissions, Fuel Insight uses GE Digital's aviation data and analytics platform to merge flight data with flight plans and to increase aircraft fuel efficiency and reduce waste.

The FlightPulse pre-flight module provides pilots with access to aggregated data from across the operation for more informed fuel decisions and departure briefings.

Jazeera doubles fleet with \$3.3 billion order

Kuwaiti low-cost carrier, Jazeera Airways, will almost double its fleet in the second half of this decade, after it signed a memorandum of understanding (MoU) for 28 A32neo family aircraft at the show yesterday.

The airline currently operates 16 leased A320s, split equally between ceo and neo models. A 17th neo will arrive in two weeks.

Yesterday's MoU, for 20 A320neo, eight A321neo, plus purchase options for a further five unspecified examples, will also mark a move by the airline to buy its aircraft. The order value, including options, is in excess of \$3.3 billion at list prices.

Some of the new aircraft – which will be delivered from 2026-2028 – will replace existing A320ceos as they come off lease.

Jazeera CEO, Rohit Ramachandran, described the deal as a "realistic, modest order". Ramachandran, who has often talked about over-capacity in the region – especially in the Kuwaiti market, where he has accused rivals of dumping seats – said his company had shown it could compete with others, "but we also need to invest in ourselves".

He added that he foresaw a "mature" Jazeera as having a fleet of around 30-35 aircraft. "We believe that's a reasonable and digestible size for a base carrier in Kuwait. Anything more, I believe would be in the realm of science fiction."



▲ Christian Scherer, Airbus CCO and Rohit Ramachandran with the MoU

Afrijet orders ATR72-600s

Gabon's Afrijet ordered three ATR 72-600s yesterday to replace three older ATR 72-500s, with first delivery next year, said Marc Gaffajoli, chief executive of the scheduled and charter carrier. ATR has a backlog of some 200 orders for its turboprop workhorse and is targeting 30 deliveries to customers this year, according to its chief executive, Stefano Bortoli. The company celebrated its 40th anniversary two weeks before the show, having delivered 1,600 aircraft to date.



Afrijet's Marc Gaffajoli (right) and ATR's Stefano Bortoli at yesterday's ATR 72-600 order signing



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Manta co-founder and CEO Lucas Marchesini with the Manta Aircraft ANN2 model here in the Vista start-up zone

Manta – a force to be reckoned with

If it's Italian, it is almost certainly going to be cool and it's almost always going to be fast. Welcome to Manta Aircraft's ANN2 project, a hybrid electric VTOL 2-seater that is generating plenty of attention, especially from pilots who are excited not only by its sleek lines but its 300km/h cruise speed.

Manta co-founder and chief executive, Lucas Marchesini, is delighted at the interest being shown in the show debut of the aircraft as he woos financial and industrial partners, many of whom he has been meeting here.

The intention is to have three

models in the Manta range, with the platform starting off with the two-seater ANN2 for utility missions, the four-seater ANN4 for air taxi use and the ANN drone.

Manta flew a one-third scale prototype of the ANN2 in December 2020 and plans to have two full-sized prototypes flying by the end of 2022, with certification starting in 2023 and entry into service in 2025, explained Marchesini.

Start-up Manta, which focuses on the development and programme management of the aircraft, is looking for international partners in the Gulf, Europe, and the US to join it in

bringing the aircraft to market, said Marchesini.

The Manta has eight electric ducted fans with two mounted in the nose and two in the aft fuselage to provide VTOL lift. Two pairs of fans are mounted under the wings for vertical lift that transition to a horizontal position to deliver cruise performance.

Each fan is powered by the aircraft's hybrid-electric propulsion system, which can operate on bio-diesel, Jet A-1, or synthetic aviation fuel. The aircraft has a range of 400km in vertical take-off mode and 900km if it takes off using a short runway.

NEWS IN BRIEF

Air Tanzania' fab four

Air Tanzania has ordered a 787-8 Dreamliner, a 767-300 Freighter, and two 737 MAX jets at the show. "Our flagship 787 Dreamliner is popular with our passengers, providing unrivalled in-flight comfort and ultra-efficiency for our long-haul growth," said Air Tanzania CEO Ladislaus Matindi. "Adding to our 787 fleet, the introduction of the 737 MAX and 767 Freighter will give Air Tanzania exceptional capability and flexibility to meet passenger and cargo demand within Africa and beyond."

Tarom signs up for three more ATRs as it modernises fleet

Romanian flag-carrier, Tarom, has signed a firm order for three ATR 72-600 turboprops as it continues to modernise its fleet.

The deal will also see the airline up-gauge its current 48-seat ATR 42-500 fleet to the larger 72-seat ATR 72-600.

Tarom's website lists the company as having seven of the earlier-generation ATR 42-500s plus two ATR 72-500s.

"Having been an ATR pilot, I have witnessed first-hand the importance of the connectivity that they provide," Tarom CEO Catalin

Prunariu said.

"They are an essential link to communities all over Romania. As a CEO, I also see the value of their efficiency and flexibility.

Tarom's fleet of 42-500s "have proved the viability of domestic routes throughout Romania and delivered valuable connections for local communities", said ATR CEO Stefano Bortoli.

"They will use the new aircraft to offer more routes and more seats, which in turn helps the communities that they serve to grow thanks to these connections."

NEWS IN BRIEF

Space for a MoU

Cargo specialist, Volga-Dnepr Group, has signed an agreement with the Mohammed Bin Rashid Space Centre (MBRSC) to provide logistics services and air cargo solutions for the UAE satellite programme. The MoU was signed in the presence of HE Yousuf Hamad AlShaibani, director general MBRSC, by Aremyi Ivanovskiy, general manager, Volga-Dnepr Group Dubai and Salem Almarri, deputy director general MBRSC. Aside from cargo operations in the Middle East, Volga-Dnepr Group, which comprises Dnepr Airlines, AirBridgeCargo Airlines, and ATRAN Airlines, as well as CargoLogic Germany and CargoLogicAir, is known for its MRO services with its home base in Sharjah.

Cooperation deal

EPI, the precision engineering entity of EDGE, and Strata Manufacturing, the advanced manufacturing facility wholly owned by Mubadala, have signed a framework agreement which will set the terms and conditions that will govern all future cooperation between the companies for Airbus and Boeing Aircraft programmes and boost UAE aerostructures manufacturing capabilities.

Landing gear deal

Boeing has signed a MoU with Ethiopian Airlines that will help the airline to bring cost savings to its maintenance operations with Boeing's 787 landing gear exchange programme. "As the fastest growing airline in Africa, much of our success depends on our ability to seek out new ways to drive operational efficiency in our processes," said Tewolde GebreMariam, group chief executive officer, Ethiopian Airlines. "As the commercial airline market continues to recover, we believe these services provide a reliable way to realise more stability and predictability in managing our overall maintenance operations and costs across our fleet."

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▲ The system on a Diamond DA42MPP – but the new pod is optimised for use on search-and-rescue helicopters, starting with the Leonardo Helicopters AW139

Middle East to get new sensor integration centre of excellence

Images: Sentient

Australian-based search-and-rescue surveillance specialist provider, Sentient Vision Systems, has teamed with Austria's Airborne Technologies and UAE- and UK-based Phoenix Aerospace to create a Middle East centre of excellence for sensor integration.

The new venture will be focused on introducing the newly developed AW139 ViDAR self-contained aerial reconnaissance (SCAR) day/night 'optical radar' pod to the UAE market.

Tony Okill, managing director of Phoenix Aerospace, predicted that this would "not only place the UAE front and centre of this dynamic industry but, importantly, ensure that the ViDAR optical sensor system will become the chosen solution for a range of applications and platforms operating within the UAE".

The system is flying on a Viking Twin Otter ISR demonstrator, and has been demonstrated on the Diamond DA42MPP, but the new pod is optimised for use on search-and-rescue helicopters, starting with the Leonardo Helicopters AW139.

Sentient Vision Systems claims to be the inventor of what it calls the world's first optical radar. Its innovative visual detection and ranging (ViDAR) system actu-

ally uses artificial intelligence and deep learning to process and scan the video output from five high-megapixel video cameras in order to autonomously detect objects and identify targets in real time, and round the clock.

It does this over a much wider swathe of ocean than is possible using current optical sensor approaches. The system places a thumbnail image on the operator's screen showing the bearing and range of the target, and can automatically cue other sensors (perhaps an IR/EO turret).

The wide swathe of ocean covered gives an aircraft or helicopter equipped with ViDAR significantly greater operational coverage,

allowing survivors in the water or on liferafts to be found much more quickly.

As well as search-and-rescue operations at sea, the new system is well suited to military intelligence and surveillance operations, police operations, anti-smuggling, narcotics interdiction, anti-piracy and illegal fishing as well as border protection and the detection of migrants.

Richard Glynn-Jones, head of EMEA business development said that although there is, as yet, no contract for the new pod, Sentient has experienced a high level of interest and is busy building the team and demonstrating the system's capabilities.



▲ Eye in the sky: The ViDAR self-contained aerial reconnaissance (SCAR) day/night 'optical radar' pod



Night Hunter out on the prowl

The Mi-28NE Night Hunter (above) is not a new helicopter, but it is new to the air show scene, and is making its western debut here at Dubai. It previously appeared only at Moscow's MAKS show.

This Russian attack helicopter is designed to operate by day and night and under adverse weather conditions, hunting a range of targets from main battle tanks and armoured vehicles to low-speed airborne targets.

The aircraft was designed to operate in harsh conditions and has a part-armoured fuselage, giving significant battle damage tolerance. The Mi28NE is an improved and upgraded export version of the Mil Mi-28, which first flew almost 40 years ago, on November 10 1982, but was not selected by the Russian armed forces, as it lacked night attack capability.

The improved Mi-28N flew for the first time on November 14 1996, and entered Russian service in October 2009. The first customer for the Mi-28NE was Iraq, which took delivery of its first aircraft in 2013. The type had its combat debut with the Iraqi Air Force in November 2015 during the fighting around Ramadi.

Algeria also acquired 42 Mi-28NEs, and these made their public debut in August 2016. Russian Helicopters says that the variant being shown at Dubai is an improved version, first unveiled in 2018, which features an upgraded main rotor and the Khrisantema (Chrysanthemum) reconnaissance and strike system.

It uses Russian-made updated VK2500-01 engines in place of the original TV3-117VMA engines, which were made in Ukraine. The new engines and upgraded rotor confer a high degree of aerobatic agility, which is being demonstrated in the impressive flying display.

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Honeywell unveils its new smart airport solution

Honeywell has marked a milestone for its smart airport technology with the global launch of its enhanced NAVITAS solution, a system of systems (SoS) offering to help airport operators and air navigation service providers make more accurate decisions.

“The upgrades to the Honeywell software support airport operations and help drive decreased operational expenses, all while promoting a higher level of safety, security and uptime, as well as an improved experience for travellers and employees,” said Philipose Jacob, general manager, global airports, Honeywell Building Technologies.

With passenger traffic continuing to rise following the global pandemic, the NAVITAS solution can help airports integrate the capabilities they need to exceed key performance indicators (KPIs) and ensure safe, reliable operations.

It was first launched in 2018 and the latest updates enable automation and digitisation of air traffic services to help achieve efficient ground movement, improve situational awareness, control and

Ta dah! Raghu Seelamonthula, director Honeywell International, demos the next-gen software

monitoring of airside and air traffic management (ATM) equipment and integration.

The multi-modular solution is scalable for all size airports and now includes nine dedicated systems within the full suite. These include: tower manager, engineering manager, surface manager, performance manager, surveillance manager, lights manager, turnaround manager, arrival/departure manager and integration manager.

The original modules have all been upgraded with the latest technologies, including the adoption of artificial intelligence and machine learning, Raghu Seelamonthula Honeywell’s director, strategic growth connected airports and systems explained.

He added: “The key benefits to customers are threefold. First, it’s a holistic platform for air traffic controllers to better manage airside operations; secondly, it helps air traffic engineers with maintaining the infrastructure; and thirdly it supports the digitisation of air traffic control operations.

“Our core aim is to ensure improved safety and capacity management and deliver more efficient, sustainable airport operations.”

As for Honeywell’s growth plans in the region, Seelamonthula concluded: “Our focus now is on developing the smart airport of the future. We already have a strong presence in the Middle East and have made some exciting new partnerships during this show.”



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FREQUENTIS ON THE UP, DESPITE PANDEMIC

Despite the downturn in global air traffic over the last 18 months, Frequentis’s growth during this period has enabled it to support customers in managing their air-space more efficiently and sustainably.

Having acquired Australian-based secure communication company, C4i, in August, Josef Kutsch, MD Frequentis Middle East, explained: “This acquisition will enable us to expand our capability in providing command and control solutions to air defence and land forces customers in the Middle East and beyond.”

Meanwhile, the acquisition of a 51% share of Advanced

Traffic Solutions (ATRICS) in 2020, is enabling Frequentis to expand into the tower automation sector in locations throughout the region.

When it comes to addressing sustainable growth, the Frequentis orthogon arrival manager (AMAN) has saved more than one million tonnes of CO2 emissions globally within its 20 years of operations. Although not yet deployed anywhere in the Middle East, it’s surely only a matter of time as the number of globally deployed AMAN systems is increasing worldwide due to its scalability and environmental benefits.

▲ NEWS IN BRIEF

Liberty lands Paris partner

Liberty Aviation, the Al Maktoum International Airport-based aircraft interior/exterior detailing provider, has agreed to partner with Aero Design France, which operates out of Le Bourget Airport in Paris.

The agreement will see Aero Design establish a base at Dubai South from which it will provide the full range of interior repair, refurbishment, and modification services.

Liberty CEO, Marc Lelah, said: “We believe that our envisioned partnership is a natural progression of our business from an interior detailing company to a holistic interior appearance company. With the synergies that Liberty Aviation and Aero Design can offer, we look forward to rapidly proceeding with bringing the personalised and family-pride craftsmanship excellence of Aero Design to support the whole aviation industry in the UAE and wider region.”

Describing the agreement as an “exciting step,” Mikael Bodson, accountable manager of Aero Design France, added: “Liberty Aviation is an established UAE partner which understands the ethos of customer service and the delivery of a high-class product to a discerning customer.”

ATC on the move

Show exhibitor, Rohde & Schwarz, has successfully delivered communications equipment for mobile air traffic control (ATC) towers to a customer in the UAE. “We have a long and successful history of supplying our communications equipment for mobile ATC towers,” said Patrick Brodda, MD Rohde & Schwarz Emirates. “This additional order confirms our long-term commitment to our UAE customer.”



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Prepare to power-up! Hydraulics International's KC Tan, sales and marketing director getting hands-on at the show

Hydraulics International has the power to supply

Hydraulics International, located at the US pavilion, is at the show highlighting its range of ground support for commercial and military aircraft.

"Our extensive design capabilities enable us to produce the most sophisticated technological units known in the aircraft ground support equipment profession," said KC Tan, sales and marketing director.

"We hold leading market positions

in ammunition loading systems, aircraft hydraulic system testing, aircraft cabin pressure testing, power systems, environmental control systems, military trailers, high pressure gas and liquid systems, flow measuring equipment, and integrated logistics and support services."

The company also supplies hydraulic power for fighter and commercial aircraft, as well as chlorofluorocarbons (CFC) recovery

systems, charging oxygen cylinders and in-flight life support bottles, charging landing gears, struts, and accumulators, tire inflation, pressure gauge calibration, inflation of escape chutes and life rafts using CO₂ or helium.

The company, which has huge contracts in Oman, the UAE and Saudi Arabia, works on F15, F16 and F35 programmes, supplying bomb loaders, as well as ammunition loaders.

TITANIUM DEAL STRENGTHENS BOEING

Boeing has signed a memorandum of understanding (MoU) with VSMPO-Avisma, the world's largest vertically integrated manufacturer of titanium.

Yesterday's signing ceremony, which covers the supply of titanium for commercial aircraft, was attended by Stan Deal, president and CEO Boeing commercial,

Mikhail Shelkov, vice chairman of the board of VSMPO-AVISMA, Dmitry Ospivo, CEO VSMPO-AVISMA, and Sergey Kravchenko, president of the Boeing International Russia/CIS region.

Deal described the signing as a "terrific opportunity to extend our relationship with VSMPO".

As a result of the deal, which

also includes the increased utilisation of the Russian-based Ural Boeing Manufacturing joint venture, VSMPO will remain the largest titanium supplier for current future Boeing commercial aircraft.

Titanium parts from VSMOI-Avisma are used on Boeing 737, 767, 787, 777 and 777X aircraft.

▲ NEWS IN BRIEF

MEBAA Show set to return

The Middle East & North Africa Business Aviation Association (MEBAA) Show, taking place from December 6-8, 2022, in Dubai, will support the recovery of the business aviation sector as the industry shows growth in terms of traffic volume. Ali Ahmed Alnaqbi, founder of MEBAA said: "All recent indications suggest that the business aviation sector will make a strong recovery next year and the MEBAA Show will play an important role in restoring confidence, driving collaboration and creating new opportunities."

Panasonic coup

Panasonic Avionics has been selected by Emirates to deliver a suite of in-flight entertainment (IFE) solutions for its premium-economy cabin being rolled out across its fleet. Its IFE systems are being integrated into the premium economy cabin being introduced on 105 of Emirates' Airbus A380 and Boeing 777 aircraft, with the first due to enter service in the summer of 2022. This follows the unveiling of Emirates' premium-economy cabin last December, and its initial rollout to several of its newest A380 aircraft.

Woohoo LorEau

Dubai MRO start-up, LorEau Aviation, signed a partnership agreement with AeroGulf Services at the show to offer compliance, safety and pioneering foresight in aircraft maintenance.

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▲ NEWS IN BRIEF

Sign of good faith

Turkish Technic and FlyDubai have signed a commemorative certificate following their partnership on the C-check operations of Boeing 737-800 type aircraft.

Since 2019, Flydubai has contracted with Turkish Technic for maintenance, repair, and overhaul services. Over the years, Turkish Technic has provided landing gear overhaul for the airline. Currently, Turkish Technic is supporting heavy maintenance operations of the Dubai-based carrier.

Turkish Technic chief commercial officer Yalcin Aydin said: "This cooperation marks the beginning of a long-lasting partnership between Turkish Technic and Flydubai. We are well-positioned to provide long-term technical support, and we look forward to serving their fleet of Boeing 737-800s in the future."

Spreading a RAY of sunshine

If you're by the Vista start-up zone you might run into RAY the robot demonstrating his special disinfecting capabilities.

Canadian company, Aero HygenX, designed RAY for the transportation industry.

It is a compact, lightweight autonomous robot which uses motion sensing technology to navigate cramped spaces and disinfect air and surfaces using UV-C light.

Guided by advanced sensors, RAY is fully autonomous, and HygenXstream software lets it collect and stream operational data for analysis.

"UV-C light has been proven to destroy the pathogens that cause MERS-CoV, SARS-CoV1, Ebola, and SARS-CoV2, and other serious viruses," said Arash Mahin, CEO.



▼ Light fantastic! Aero HygenX CEO, Arash Mahin, with RAY the UV-C ray emitting, infection-fighting robot

"UV-C disinfection is better for the environment. It eliminates the need for constant use of harsh cleaning chemicals in the cabin, and is better for interiors.

"Many airlines have seen degradation of their cabin elements since Covid-19 necessitated more stringent disinfection and RAY is perfect for the job."

RAY is able to disinfect a narrow-body aircraft in as little

as seven minutes, including lavatories, flight deck, and crew rest, allowing airlines to sanitise after every flight.

Ethiopian Airways already has RAY in use on aircraft, and Lufthansa Technik recently signed an MoU to become the exclusive distributor.

The company is also looking to push it out to public sectors such as schools and hospitals.

Why Ansys's 'digital twin' is a digital win

Ansys is reducing the cost of aerospace design and testing by creating 'digital twins' of real-life objects.

These digital copies can then be used to refine designs, and even test their performance, all at a much-reduced cost.

Mariano Morales, senior manager, Ansys, said: "Our software is used to evaluate products and can be up to 20-30x cheaper than testing the real thing.

"Physics-based simulation allows us to predict what will happen with high accuracy. It helps us address very complex engineering problems related to new product and system design models that the aerospace and defence industry is embracing.

"Typical applications include the thermal behaviour of batter-

ies for electric aircraft, gas flow dynamics on turbine engines, and the aerodynamic performance of wing tips.

"Simulating very aggressive events, like crash testing, can be

up to 1000x cheaper than conducting the real thing."

A range of organisations currently use Ansys simulation solutions, including Meggitt, E Air Racing and MagniX.



▲ Mariano Morales: "Simulating aggressive events, like crash testing, up to 1000x cheaper than conducting the real thing"

▲ NEWS IN BRIEF

Salam Air and CFM International agree engine deal

Salam Air and CFM International finalised an engine maintenance agreement at the show, coupled with the acquisition of spare engines.

The airline operates a fleet of seven CFM LEAP-1A-powered Airbus A320neo family aircraft, with plans to introduce an additional A321neo in 2022.

"We have been with Salam Air since the beginning and it has been a privilege to watch them grow so quickly and so successfully," said Philippe Couteaux, vice president of sales and marketing for CFM International.

"We appreciate the continued trust they have placed in people and our products and look forward to the continued expansion of our relationship in the future."

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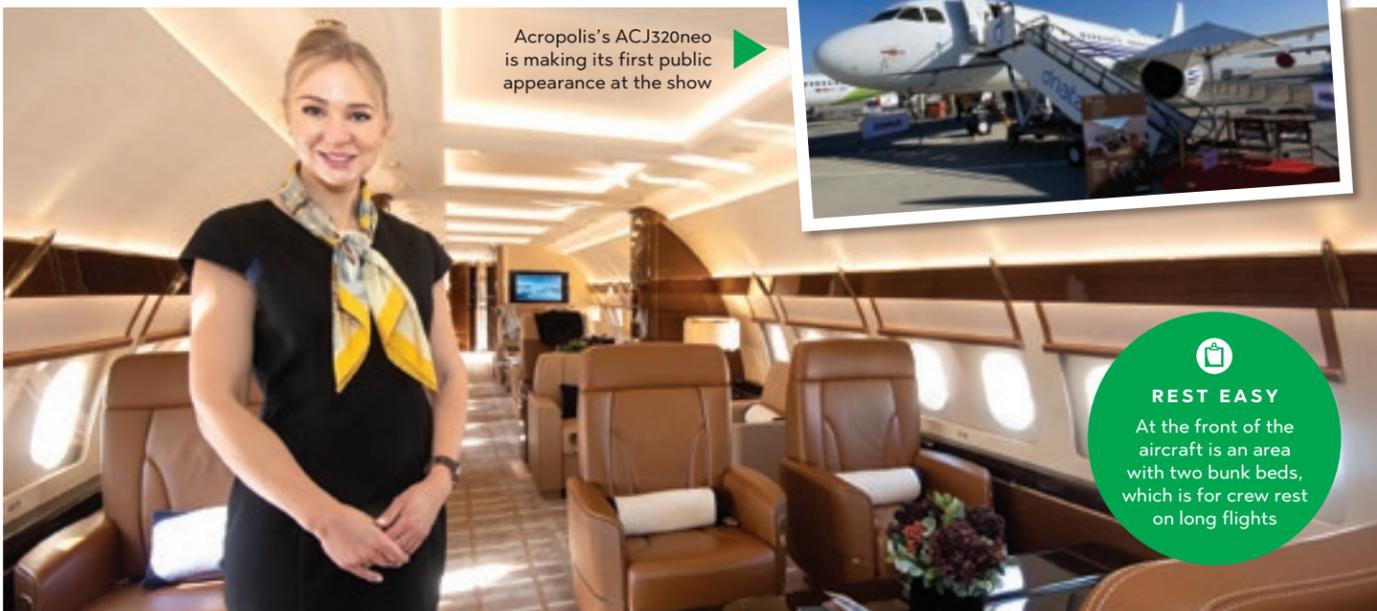
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Acropolis's ACJ320neo is making its first public appearance at the show

REST EASY
At the front of the aircraft is an area with two bunk beds, which is for crew rest on long flights

The classic aircraft with a modern feel and hidden features

Head to the static and you can catch a glimpse of Acropolis's ACJ320neo making its first public appearance. The aircraft was the first private A320 neo from Airbus, and sports a distinctive, luxurious cabin design by Yves Pickardt, head of VIP aircraft with interior design company Alberto Pinto. Pickardt was on board the aircraft at the show to highlight the subtleties of the design.

He said: "It is not just a question of design; it is a question of ambiance, of feeling and comfort. This aircraft is not science fiction. It is not the most modern design, as it is a charter aircraft and has to be suitable for customers from different countries. However, it is a combination of classic

JILL STOCKBRIDGE REPORTS

Catch a first glimpse of Acropolis's ACJ320neo – an aircraft kitted out with the comfort of customers and crew in mind

and modern – soft modern."

But some very modern technology is hidden in the classic lines. Innovations include the ability to move between the seats in the four-club setting, a specific request from the owner, which Pickardt incorporated.

And there's an angled bed in the bedroom that can be approached from either side, rather than one guest having to clamber across

But there is also more to the design than meets the eye. Pickardt said: "There are many new features that are hidden. You can

experience them, but not see them. You always start with the seat. It is the most important element. The seat is completely versatile. In the lounge seats you have a leg rest, plus a footrest. A footrest in a business jet is quite new. Before you only had a leg rest. We have introduced a new seat totally.

"There is also a touch-open pocket in the side of the chair, which holds the electronic pad controlling the lighting, sound, air conditioning, internet, seat control and crew contact. Normally, it is outside, but we have incorporated it into the design."

Alongside the seat is an elegant brass-coloured iPad/iPhone holder, with reading light, in an integrated style. Both are removable, depending on the client's needs. The aircraft has two lounges, a dining area and a cosy coffee corner, a favourite spot for customers. The four-club seater has a low coffee table, that rises up to dining height, with flaps that

open out to become a dining table.

Pickardt said: "This creates two tables – a four and a six-seater – but there is a bridge that connects the two tables that brings it to eight guests, with the addition of the two folding chairs. It is the only aircraft this size that can accommodate eight guests at a table."

Storage on board is always at a premium, and the ACJ320 has storage throughout, with almost every elegant decorative panel a hidden cache.

Pickardt said: "Our clients like to have their belongings on board, not in the hold. At the front we have an area with two bunk beds, which is crew rest on long flights, but can be used as shelves for storage on shorter flights. This is new." The galley is one of the largest on a private aircraft with two entrances, so two attendants can move in and out without crossing each other's path.

Pickardt concluded: "You also have a seat for an engineer or extra crew member, which is new. The aircraft is not only comfortable for the customers, but also for the crew. On long flights we need the crew to be able to relax and feel comfortable." ▲

The aircraft features an angled bed that can be approached from either side, rather than one guest having to clamber across



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▲ NEWS IN BRIEF

L3Harris on mission with Calidus

L3Harris Technologies has reached an agreement with Calidus Aerospace, a defence entity in the UAE, to develop a mission system for the Calidus B-250 light multi-mission aircraft.

L3Harris will design and produce mission kits for delivery to Calidus, the manufacturer and integrator for the B-250.

The system kits, specially designed for the UAE's B-250 mission, feature an integrated suite of L3Harris' mission management solutions, including the Wescam MX-15D electro-optical/infrared sensor; the Vortexi data link; the Falcon III RF-7850A multichannel airborne networking radio; and other aircraft avionics products.

L3Harris will deliver 12 kits under the agreement, with an option to provide 12 additional kits. The company will deliver the mission kits to be integrated by Calidus.

Luke Savoie, president, aviation services, L3Harris, said: "Our critical mission-enabling technologies enhance the safety, efficiency and security for both our commercial and military customers and international allies. "This partnership with Calidus will deliver a sustainable solution for managing evolving threats."

German debut

German-based ESG is marking its debut in the Middle East at this year's show, where it is showcasing its modular counter-UAS system. Guardian systems has been deployed by the German Air Force as a modular drone detection and defence solution. It is used for the early detection and effective defence against drones for field camp protection and is scalable to the respective deployment scenarios. ESG is now keen to establish a presence in the Middle East. "We are happy to be here for the first time, testing out the region and seeing how our solutions might be received," said Simon Volkmann, business director sales.



Air Marshal Gerry Mayhew, CBE: "Forces continue to go after the beating heart of Daesh"

Why we must all work together to defeat the terror threat

Air Marshal Gerry Mayhew, CBE, is the UK Royal Air Force's deputy commander operations and has been in the Middle East visiting units operating here, speaking at the air chiefs' conference, and attending the show.

A highly experienced fighter pilot, Mayhew has flown the Jaguar, the Tornado, the F-16, and the Eurofighter Typhoon, but is also an enthusiastic evangelist for greater interoperability, which he has described as being the key to countering adversaries who seek to exploit the UK's legal, moral and ethical thresholds.

Credible global force

Mayhew said: "The strategic utility of airpower reaffirms the necessity of the RAF remaining a credible global force operating internationally alongside our global partners. Our international commitments make these partnerships especially important.

"We believe that, as a service, we do already operate globally. We're used to operating globally. And we have the ability to allow us to do

that. However, we can't maintain that global posture on our own. And neither can our partners.

"Therefore, we need to work with each other, especially where we've got the same kinds of aircraft platforms, norms, and behaviours, because the sum of the parts will be greater.

"So, I'm delighted to say, that almost on a daily basis, you see great things coming from our partnerships in the Middle East – from Saudi Arabia, from Qatar, from Oman, from Jordan, and from the UAE – the list is endless and forgive me if I've not included everybody!

"Whether it's small training teams working together to share experiences, or whether it's shared experiences in a Typhoon squadron like No12 Squadron with Qatar, or whether it's the experience of our long Saudi relationship, and the now rejuvenating relationship here in the UAE, there's depth there and there's real operational excellence on both sides. And that's a real joy.

"This is not us giving it 'the grandiose Brits have arrived'. This is a shared set of experiences

and opportunities that allow us to work together against common threats."

Speaking on wider issues he added: "Operation Shader (the operational code name given to the contribution of the United Kingdom in the ongoing military intervention against Daesh) continues to be really successful for the Royal Air Force and for the wider coalition, and that is the measure of success.

In danger's way

"The coalition has stayed close together. These forces continue to go after the beating heart of Daesh, even if it is splintered. They continue to put themselves in danger's way every day.

"But the decision-making of our young women and men continues to give me great pride every day. They are doing a great job day in, day out, and more power to them!

"From a government perspective and from an air force perspective I'm incredibly proud of what they're doing because it is preventing danger coming on to our shores, or the shores of others who we work with."



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Bell at the vanguard of student VR experience

Bell Helicopters has developed a new VR headset experience to cover an element of flight-training.

The interactive simulation forms a complete training exercise, whereby students can physically look around a 3D model of the aircraft.

This method of training not only incorporates the 'practical' element, with the use of the controllers and the VR experience, it's also an alternate method of learning technical information and, for most, is easier to digest than a traditional classroom presentation.

Nick Girouard, manager, simulation maintenance and training systems development, Bell Training Academy, said: "Bell is the first

to bring out this virtual training technology, which gives the same learning experience as if it were being given on-site.

"It will save valuable time and resources all around so that pilots and service staff alike can benefit from training, wherever they are in the world."

The digital method of delivery means students can access a consistent 'standard' in training from anywhere, allowing them actual experience of Bell aircraft that would perhaps otherwise be prohibitive in terms of time and financial cost."

It's also easy for users to stay current on the latest aircraft upgrades, such as the analogue

407 changing to the 407GX1, with its digital displays.

Other changes to course information and any revisions to technical materials are easily updated across the board too. Previously, training manuals and presentations that featured a changed component had to be updated manually – which was costly, time-consuming and difficult to ensure consistency across all users.

The current trial simulation demonstrates pre-flight checks on the 429, but there are plans to roll out a full suite of training exercises across this and other models. Testing will begin in October at Bell's European training facility in Valencia.

SUIT UP: THE VITAL EQUIPMENT THAT HELPS SAVE LIVES

Survitec is displaying a range of its critical safety equipment, including its aircrew flight equipment (AFE). "AFE protects the pilot during flight and allows him or her exploit full performance of the aircraft," said David Stelling, category manager, air.

The British company supplies its products on some of the biggest fast-jet programmes, including the F-35 and Typhoon.

"We are the sole supplier for the full below-the-neck pilot flight equipment for the F-35 Lightning II Joint Strike Fighter programme," said Stelling.

"Survitec supplied a unique fully integrated, modular solution consisting of skeletal/full coverage anti-g suit, and functional flight jacket.

"We also supply single-seat life-raft, pilot cooling unit, and, additionally, the provision of pilot fitting facilities for a complete anthropometrics and fitting process upon receiving the equipment."

The company, which has in-house designers and engineers, also has programmes for rotary wing and non-fast-jet fixed-wing, both in peace



▲ No dummies when it comes to safety: David Stelling, Survitec category manager, air, shows off some of the range of safety clothing which can be seen on the company's stand at the show

time and combat missions.

Stelling said the Middle East is a strategically important region for the company, which is why it has a facility in Fujairah.

Its customers in the region include Saudi Arabia, where it supplies

equipment to its Typhoon and Hawk programmes.

It also recently won a contract with Khalifa bin Zayed Air College, here in the UAE, to supply upgraded equipment. "Our mission is to protect lives," said Stelling.



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Thales's new lightweight cockpit is a FlytX of fancy

Thales's new FlytX cockpit, as seen on the new VR Technologies' VRT500 helicopter, represents a step-change for the company.

The new avionic suite was designed to be lightweight but offer better performance than previous products. The integrated cockpit, developed at Thales' Toulouse, Bordeaux and Valence sites, achieves a 30 to 40% reduction in size, weight and power consumption compared with legacy avionics.

This is the result of the strong integration of avionics applications such as flight management system (FMS), helicopter terrain awareness and warning system (HTAWS) and radio management system (RMS), which are actually inside the display.

Yannick Assouad, Thales' executive vice-president avionics, said that the cockpit is the result of 10 years of research conducted in cooperation with pilots, ergonomists, physicians and engineers.

"It was designed to reduce training, optimise pilots' workloads and increase safety overall," Assouad said. "While touch-screen control is available, it is also backed-up with a control cursor device and a keyboard if need be."

Thales says FlytX, which is



▲ The new FlytX avionic suite was designed to be lightweight but offer better performance than previous products

available as new or retrofit, introduces a new way of displaying flight information, including a new timeline concept to create the link between flight phases and associated necessary tasks that need to be completed.

"Ultimately, for commercial aviation, we will be looking for more efficiency in flight management systems to go towards operation by a single pilot in the aircraft, if need be," Assouad said.

Colours and contrast are also used to decrease visual fatigue while presenting clear indications

for alerts. Pie charts are also used as a new way of displaying and selecting menus. The Thales new-generation flight deck is also tablet-friendly, with an easy connection system (USB) and compatible with any operating system (Windows, Android and IOS).

Pilots can bring their own devices, display the content on FlytX screens, and interact with any web application as if it were their tablet, completely protected from cyber threats thanks to the FlytX architecture and cyber health monitoring systems.

HONEYWELL 'FIRST' IS A COUP FOR WAHAJ

Honeywell has appointed Wahaj, a Saudi Arabia-based company, as a strategic supplier for manufacturing commercial aerospace parts. Wahaj will be the first company from the Middle East to manufacture and export a large variety of original equipment manufacturer (OEM) aviation parts to Honeywell Aerospace sites in the United States, Europe, and Asia.

Wahaj is one of the few AS9100-certified companies in Saudi Arabia involved in the manufacturing of high-precision, high-complexity machined components, kits, and subassemblies, for the aerospace and defence industries.

As part of the seven-year agreement, Wahaj will supply OEM parts to Honeywell that go into products such as wheels and brakes, power systems, engines, air and thermal systems, and auxiliary power units (APUs) for several

major platforms including the Airbus 350, 330 and 320NEO; Boeing 737MAX and 777; Dassault Falcon 8X/M1000 and 7X; and McDonnell-Douglas 11.

Mike Madsen, president and CEO, Honeywell Aerospace, said: "The Honeywell Aerospace-Wahaj partnership is the first major OEM Honeywell Aerospace manufacturing deployment in the Kingdom of Saudi Arabia."

"Wahaj's understanding of complex aerospace machining interactions, its deep engineering expertise, and its agile, collaborative approach, are exceptionally aligned to the Honeywell Aerospace strategy."

"This strategic cooperation is aligned with the Saudi 'vision 2030' project, which aims to further strengthen Honeywell's local commercial aerospace capabilities in the Kingdom of Saudi Arabia."



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WELCOME TO DUBAI AIRSHOW

We are on Day 4 of the Dubai Airshow already and there's still so much to experience! Make sure to make the most of your visit and check out all the conferences and features in the morning before heading outdoors to enjoy the thrilling flying display in the afternoon.

DAY 4 ACTIVITIES

Today we have three conferences Advanced Aerial Mobility, Tech Xplore Automation and Cargo Connect all pushing the boundaries of how the aerospace industry is evolving to accommodate flying cars, machine learning and last mile delivery. Our flying display of international aircraft will take to the skies once again at 14:00 and dazzle the crowds with their incredible flying skills! Finally make sure you head over to our VISTA start-up area and gain some valuable insights from our mentorship clinics.

GUIDED TOURS

Discover the best of what Dubai Airshow has to offer by booking our highly popular guided tours. We recommend pre-booking your slot online as places are limited and tend to fill up quickly. Visit stand 500 for more information.

FISH TANK TALKS

A unique way to listen in on some of the exclusive talks with CEOs and business leaders - headphones required.

Wednesday 17th November – Fish Tank Talks Schedule

Time: 13.30-14.00

Topic: Opportunity for air mobility in the Middle East region

Speakers:

Alexander Asseily, Vice Chairman, Lilium

Interviewed by:

Philip Butterworth-Hayes, Director of Strategy and Communications, CIVATA Global



HUB STAGE – CARGO CONNECT

With increasing cargo demand, safety and speed concerns are getting louder and companies around the world are discovering new technologies to ease capacity fluctuations.

Today, leading experts will gather once again, this time for a two-day conference to explore the way forward in the air cargo industry.

11.40

PANEL: EXPLORING HOW THE CARGO INDUSTRY CONQUERED TIME SENSITIVE VACCINE CHALLENGES

- Moderator: Dr. Omar Najim, Executive Director of Executive Affairs and Special Projects office, Department of Health Abu Dhabi
- Speakers: Dan Mann, Executive Director, Louisville Muhammad Ali International Airport
- Julian Sutch, Head of Global Sales Pharma, Emirates SkyCargo
- Sanjiv Edward, Chief Commercial Officer & EVP, Delhi International Airport
- Tayssir Awada, Vice President Planning and Engineering, FedEx Express MEISA
- Bradley Francis, Director, Air Logistics United Arab Emirates and Oman, Kuehne+Nagel

AEROSPACE 2050 – SPACE FORUM

Say goodbye to road traffic and hello to advanced aerial mobility!

This is your chance to dig deep into what new opportunities these disruptive technologies are bringing, from drone deliveries to air taxis, the way cargo and people will be transported is changing. Join world-leading UAV and eVTOL developers to discover the future of urban air mobility.

10.50

PANEL: INVESTING IN THE FUTURE OF SUSTAINABLE AUTONOMOUS FLIGHT

- Moderator: Duncan Walker, CEO, Skyports
- Speakers: Brian Yutko, Chief Engineer, Sustainability & Future Mobility, Boeing
- Eng. Ruba Fayez Abdelal (Advisor), Project Manager Transportation Systems Department, RTA
- Simon Masters, Deputy Challenge Director, UK Research and Innovation
- Kai-Tse Lin, Co-Founder/COO, Bellwether Industries

TECH XPLORE – ARTIFICIAL INTELLIGENCE

Covid-19 pandemic has forced the aviation sector to implement new automated and digital technologies changing the end-to-end passenger experience forever. With increasing number of airlines and airports adopting robotics, biometrics and automated technologies, it is clear that automation is the key for the aviation industry to bounce back from the COVID-19 setbacks.

Join us at the Automation in Aviation Conference at the Dubai Airshow to hear about reshaping and reinventing travel through automation.

10.35

OPENING KEYNOTE REMARKS

- H.E Eng. Farah Al Zarooni, Acting Under-Secretary, Ministry of Industry and Advanced Technology

11.35

AIRCRAFT INTERIORS PANEL DISCUSSION: LOOKING AT THE UNMET NEEDS OF FUTURE PASSENGERS & TECHNOLOGY TRENDS

- Moderator: Maryann Simson, Aviation Journalist & Director, Jetway Communications
- Speakers: Naveed Khan, Manager Aircraft Maintenance, Emirates Airline
- Peter Azzouni, Aircraft Interiors, Guest Experience, Brand & Marketing, Etihad Airways
- William Boulter, Chief Commercial Officer (CCO), IndiGo

VISTA – STARTUP STAGE

Co-located with the Dubai Airshow, VISTA provides a dedicated hub for startups from all over the world to gain facetime with investors, accelerators and mentors.

10.15

KEYNOTE PANEL: INVESTMENTS – GROW AND SCALE YOUR AVIATION STARTUP

- Frederico Fernandes, Head of Operations, PLM Middle East
- Frederik Cyrus Roeder, Managing Director, Consumer Choice Center
- Edward Batrouni, CEO, Zenitech
- Steve Allen, Executive Vice President, dnata
- Host: Mia Jafari, Hub and Programmes Manager, Intelak
- Moderator: Roberto Croci, Managing Director for Startups, Microsoft

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KEY INFORMATION



OPENING HOURS

Sunday 14 - Thursday 18 November: 10:00-17:30



Shuttle Buses: A daily shuttle bus service will run between the Dubai Airshow Site, the Ibn Battuta Metro Station and the Expo Metro Station.



Taxis: Demand for taxis in Dubai can be high especially at peak times. We strongly recommend the shuttle bus service as the quickest way to and from the Airshow site.



First Aid: Outside the exhibition hall, next to the Air Traffic Control Tower.

FLYING DISPLAY

Daily from 14:00 – 17:00



Mandatory Mask: Keeping in line with the latest COVID-19 regulations the wearing of masks is mandatory at Dubai Airshow 2021.



Cafés: At the front of the exhibition hall and near the exits to the static display.



Toilets: In each corner of the exhibition hall.

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FLYING DISPLAY - DAY 4 WEDNESDAY



14:00	Al Fursan	UAE AFAD
14:30	Mirage 2000	UAE AFAD
14:39	MI 28	JSC Russian Helicopters
14:44	A 350	Airbus
14:52	TEJAS	Indian Air Force
15:01	Super Mushak	Pakistan Air Force
15:12	L 15	China CATIC
15:21	Russian Knights	Russian Air Force
15:51	Boeing 777-X	Boeing
15:59	F16 UAE	UAE AFAD
16:08	ANSAT	JSC Russian Helicopters
16:13	MC 21	Russia (Irkut)
16:23	KA 52	JSC Russian Helicopters
16:28	Surya Kiran	Indian Air Force

COMMENTATORS

First Lt. Hazza Fahad Al Nuami, UAE Air Force
Joe McGrath

FLYING CONTROL COMMITTEE (FCC)

Brig. Gen. Staff. Pilot Abdulsalam R.Al Mehairbi, Chairman - FCC
Ibrahim Ahli, Deputy Chairman - FCC, Deputy CEO, Dubai Air Navigation Services

PROGRAMME SUBJECT TO CHANGE

ALAN DRON REPORTS

With commercial aviation facing environmental and commercial challenges, Boeing is looking to the future with technologies that may bring about pollution-free urban air transport

WISKING UP NEW WAYS TO HELP THE ENVIRONMENT

With aviation accounting for around 2.5% of global emissions, the struggle to contain or reduce the industry's effect on the environment has never been more important or urgent.

To ensure that public acceptance of commercial flight continues, the sector will have to demonstrate that it is making every effort to mitigate its effect on the world.

Although the pandemic has produced a temporary drop in aviation industry emissions, the sector is expected to return to its 2019 levels by 2023 or early 2024, and is then expected to continue to grow at anything up to 5% annually.

Greater efficiencies in both aircraft and the aviation eco-system around them will help to keep emissions under control until new technologies start to reduce them.

Many measures to improve the efficiency of future flights are already under way.

Fleet renewal meant that air-

lines could achieve as much as 30% savings in both costs and emissions compared to older-generation equipment. Each new generation of aircraft is typically 25% more efficient than its predecessor, said Brian Yutko, Boeing's vice-president and chief engineer, sustainability and future mobility.

Operational efficiencies – which typically included flying at better cruising altitudes and with improved flight plans with the assistance of air traffic controllers, and measures such as steady-rate climbs and descents – could save as much as 10% in fuel burn.

Many potential new aircraft designs are being studied, such as truss-braced wings that can significantly reduce drag and, thus, require less powerful engines to give the same performance as today's designs.

Huge efforts are, of course, being put into replacing fossil fuels over the next 10-20 years. Renewable energy sources, ini-

tially in the form of sustainable aviation fuels (SAFs) and, later, new-technology power sources, such as hydrogen, are under intense investigation.

SAFs offer a near-term method of reducing emissions, but their production will have to be "dramatically scaled up", said Yutko, speaking in a pre-show briefing.

Significant challenges

Hydrogen offers great promise over the longer term, but will require a radical redesign of aircraft, both aerodynamically and in propulsion systems. "We know there are significant challenges, mainly storage challenges," said Yutko. This is because hydrogen occupies a much greater volume than kerosene and has to be kept ultra-cold.

"Imagine you're holding a gas can that you might put lawn-mower fuel into. Imagine you've got one gallon of Jet-A, which weighs 7lbs (3.1kg). For hydrogen, it's around 3lbs (1.3kg), which is exciting, but the gas

can would need to be four times bigger and cooled to minus 420F (-250C). That's fundamentally the challenge about using it on an aircraft.

"These very voluminous tanks mean that you have to make 'more aeroplane' – which increases the aircraft's weight and drag."

There is also the problem of the amount of energy needed to get hydrogen to that temperature. "Then you don't want to have to spend more energy to keep it cold. That tends to mean [you need] a very heavy container – which is a challenge in an aircraft."

Urban air mobility is becoming an increasingly real prospect and Boeing (together with Kitty Hawk) is backing electric aircraft manufacturer, Wisk Aero, in a joint venture.

The partners are developing the CORA electrically powered vertical take-off and landing (eVTOL) aircraft that will be used as an air taxi. ▲



Boeing is backing Wisk Aero's CORA electric VTOL project with engineering resources

Wisk Aero

In association with Rwanda Civil Aviation Authority and RwandAir

NEW DATES ANNOUNCED



AVIATION AFRICA

15th - 16th September 2022

Radisson Blu Hotel & Convention Centre, Kigali, Rwanda

DRIVING REVIVAL AS RECOVERY STRATEGIES TAKE FLIGHT

Where we go from here – shaping the future for aviation in the wake of the coronavirus crisis

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