

Reporting on The Business of Business Aviation Since 1965

October 25, 2021

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**Intelligence**

The global market for electric aircraft is expected to rise from \$7.9 billion in 2021 to \$27.7 billion by 2030, at a compound average growth rate of 14.8% for the period, according to ResearchAndMarkets.com. Growth is mainly driven by the deployment of urban air mobility (UAM) aircraft and the rising use of electric aircraft for cargo applications and aerial missions. The North American market is projected to hold the highest share of the electric aircraft market.

REGULATORY/LEGISLATIVE

**Wichita Machinists Union Resists COVID-19 Vaccination Mandate**

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**WICHITA—The Machinists union in Wichita is pushing back on a government mandate requiring employees of government contractors to be fully vaccinated against COVID-19 as Textron Aviation and Spirit AeroSystems work to comply.**

The mandate comes at a time the aviation industry faces a shortage of skilled workers. Its impact on the supply chain is too soon to tell, although some experts say it will have an effect.

Wichita-based Textron Aviation and Spirit AeroSystems have told employees that they have until Dec. 8 to become vaccinated to comply with President Joe Biden’s executive order.

Effects bargaining has opened between the companies and their biggest union, the International Association of Machinists and Aerospace Workers (IAMAW), District Lodge 70, to negotiate the changes in working conditions. The union has hired an attorney to represent the workers, and members have been picketing in Wichita.

On Sept. 9, Biden issued an executive order mandating vaccines for all employees of prime federal contractors and subcontractors, including employees not directly involved

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FORECASTS/INDUSTRY DATA

**What Impact Will eVTOL Have On Business Aviation?**

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**Spurred by the rapid development of electric vertical takeoff and landing (eVTOL) and hybrid-powered aircraft, the industry is poised for the coming revolution in urban and advanced air mobility (AAM).**

But what impact, if any, will this new generation have on business aviation? At first glance, there seems little overlap between the mostly small, slow and short-range capability of these innovative vehicles and the high-flying, faster and longer-range world of the business jet.

Yet despite the stark differences, there is growing evidence that eVTOLs and an emerging subset of electric and hybrid-electric-powered, vertical-takeoff business aircraft will not only interact with today’s business aviation sector but could augment it, and even develop into significant new market areas.

In the near term, this effect is expected to materialize in the form of close links between eVTOL and other future FAR Part 135/AOC (air operator’s certificate) electric vehicle users and fixed base operators (FBOs). Co-located with commercial facilities at major and regional airports, FBOs provide access to ramp areas, handling and—poten-

**EVTOL, P. 2**

**EVTOL, From P. 1**

tially—charging facilities that current passenger terminals do not.

These links are already happening. On Feb. 18 of this year, Blade Urban Air Mobility announced an alliance with FBO Vertiport Chicago and Part 135 operator Helicopters Inc. to fly Blade passengers.

As part of the deal, Blade will also work with the vertiport to support the transition to eVTOL aircraft. In September, Eviation Aircraft, developer of the all-electric Alice regional aircraft, partnered with Clay Lacy Aviation on a plan that will enable its aircraft to be charged at all Clay Lacy Aviation FBOs as part of its network of services. Eviation, which plans additional FBO agreements, has targeted 2024 for entry-into-service of the Alice.

Other elements of the eVTOL and business aviation business model are also beginning to emerge. In July, Joby Aviation announced it was partnering with JetBlue Airways and the FBO company Signature Flight Support to pursue the creation of carbon credits for commercial flights of electric and hydrogen-powered aircraft.

Signature, which is introducing sustainable aviation fuel (SAF) across its network, is including electric aviation credits by expanding its “book-and-claim” model, which enables the purchase of carbon offset credits at sites where SAF is not yet available.

## A Logical Connection

The link between electric aviation and FBOs is a logical connection, says Sergio Cecutta of urban air mobility (UAM) industry watcher SMG Consulting. “You’ve got to charge somewhere, and an FBO makes more sense because commercial terminals will never allow high-voltage chargers—it’s just complicated. Do you want to have a high voltage next to a Boeing 777? I wouldn’t want that,” he says.

Cecutta spoke at the NBAA Business Aviation Convention & Exhibition (NBAA-BACE), held Oct. 12-14.

Business aviation operators also see the potential for profitable synergies as the new generation of eVTOLs emerge. In Europe, regional air mobility startup Lilium has partnered with Luxemburg-based Luxaviation to provide commercial operations with its seven-seat eVTOL aircraft from 2024. Luxaviation will be responsible for regulatory approvals and managing pilots, who will train following an European Union Aviation Safety Agency (EASA)-approved type rating concept developed by Lilium partner Lufthansa Aviation Training.

**There is growing evidence that eVTOLs and an emerging subset of electric and hybrid-electric-powered, vertical-takeoff business aircraft will not only interact with today’s business aviation sector but could augment it, and even develop into significant new market areas.**

Lilium, which plans to fly the first production-conforming certification prototype of the ducted-fan Lilium Jet at the end of 2022, also aims to launch services in Florida by the end of 2024 with an initial four vertiports, expanding to a network of 14 locations across the state served by more than 100 aircraft. Lilium is also looking at other regions for U.S. networks including the Northeast, California and Texas.

Embraer’s Eve UAM Solutions has similarly partnered with helicopter operator Bristow to develop an AOC for the Brazilian company’s four-passenger eVTOL. The deal, announced in September, follows an agreement with on-demand charter broker Flapper to serve as a proof-of-concept for future eVTOL operations across South America. Eve has also announced provisional service deals with U.S.-based charter platform

Blade, in addition to securing commitments from ridesharing service Halo in the U.S. and UK, and Helisul Aviation in Brazil.

“I think it will make sense, especially to the fractional operators, to align themselves or partner with these eVTOL network operators because the whole thing about business jets is speed,” Cecutta says. “It’s cheaper than a helicopter and it brings passengers into their system. And, oh by the way, it enables them to offset their carbon footprint, because now they are using electric vehicles.”

## Prototypes

Several companies are developing vehicles that are aimed at combining vertical takeoff and landing capability with the range and capacity of a business jet. These include U.K.-based startup Samad Aerospace, which recently completed hover tests of its half-scale e-Starling all-electric prototype aircraft, marking a key step toward development of the planned follow-on seven-seater air taxi.

Colorado-based XTI Aircraft is merging with holding company Xeriant to ensure funding to cover development of a prototype of the company’s TriFan 600 hybrid-eVTOL business aircraft.

Another vertical business jet (VBJ) concept under development is by South Africa-based Pegasus Universal Aerospace. To be tested in 2022 using two 4-m-span (13-ft.) quarter-scale models, the VBJ is a VTOL concept with a hybrid-electric propulsion system, two turboshaft engines generating electricity to power four lift fans in the wing and two ducted fans for propulsion.

## OEM/SUPPLIERS

## Embraer Delivers 21 Business Jets, Nine Commercial Jets In Q3

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**Embraer delivered 21 business jets and nine commercial aircraft during the third quarter of 2021, bringing its number of deliveries so far the year to 54 business jets and 32 commercial aircraft, the company said Oct. 21.**

Its firm order backlog at the end of the quarter totaled \$16.8 billion.

Business jet deliveries for the third quarter were flat com-

pared to those of a year ago, but deliveries for the first nine months of 2021 were up from 43 a year ago. During the third quarter of 2021, Embraer delivered 14 light jets, all Phenom 300 aircraft, and seven large jets, including two Praetor 500s and five Praetor business jets.

During the third quarter of 2021, Embraer delivered its 1,500th business jet, a Phenom 300E, to Haute Aviation, a Swiss-based charter, brokerage and aircraft management company.

In commercial aviation, Embraer announced the sale of 16 new E175 jets to Sky West for operation in the Delta Air Lines network.

## SAFETY

## All Escape After MD-87 Leaves Runway, Catches Fire

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**Three crewmembers and 18 passengers evacuated safely after their McDonnell Douglas MD-87 left the runway and caught on fire Oct. 19 while attempting to take off from Houston Executive Airport (KTME) in Brookshire, Texas.**

The corporate MD-87 narrowbody airliner rolled through a fence and caught on fire in a field while departing KTME shortly after 10 a.m. local time, according to the FAA. The airport, located 35 mi. west of Houston, has a one paved north-south runway

(18/36) measuring 6,610 ft. long by 100 ft. wide. The NTSB is leading the accident investigation.

The MD-87 was registered as N987AK to 987 Investments LLC, a company owned by Houston-area real estate developer James Alan Kent, according to media reports. Kent was a passenger on the aircraft, which was destined to fly to Boston Logan International Airport.

Powered by Pratt & Whitney JT9D-219 engines, the MD-87 was manufactured in 1987 and delivered in January 1988 to Finnair. It later served with Aeromexico before being placed in storage, according to Aviation Safety Network. Kent's 987 Investments acquired the aircraft in 2015.

## SERVICES/FBOs

## Propeller Airports Acquires FBO At Paine Field

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**Airport development and management company Propeller Airports has acquired the Castle & Cooke fixed-based operation (FBO) at Paine Field (KPAE) in Everett, Washington, north of Seattle.**

Propeller Airports did not disclose the terms of the acquisition, which it announced on Oct. 20. But the company plans to invest around \$20 million to redevelop the current infrastructure at KPAE and build a new FBO terminal and hangar complex, The Seattle Times reported.

Through a public-private partnership with Snohomish County, Propeller Airports built and now operates a \$40 million two-gate terminal for airline passengers that hosted its first scheduled flight in March 2019—an Alaska Airlines Embraer E175 bound for Portland, Oregon. “Our goal is to bring the same award-win-

ning, world-class service and operational excellence to our private aviation clients that our airline passengers have come to expect,” said Propeller Airports CEO Brett Smith. “This makes a tremendous amount of sense given our understanding of the airport and our home market.”

KPAE offers people living in the region access to U.S. West Coast destinations without having to fight traffic to reach Seattle-Tacoma International Airport. It is also home to Boeing's Everett assembly plant for the 747, 767 and 777 wide-body airliners. Boeing delivered the final 787 from the plant in February after deciding to consolidate 787 production in North Charleston, South Carolina.

Propeller Airports also announced that it has formed Propeller Aero Services, a new subsidiary that will focus on FBO development and operate the FBO at KPAE. Castle & Cooke and Propeller Airports expect to close the FBO acquisition by Nov. 30, at which time Propeller will assume the management, including provision of aircraft fueling, catering, cleaning and hangar services.

## SERVICES/FBOs

## Modern Aviation To Acquire Five Sheltair New York FBOs

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**Modern Aviation, based in New York, has signed an agreement to acquire five Sheltair Aviation fixed base operations in New York, subject to government approval.**

The deal is expected to close in the fourth quarter of 2021. Modern Aviation is backed by Tiger Infrastructure Partners, a private equity fund.

Under contract are Sheltair facilities at LaGuardia, JFK, Westhampton, Republic/Farmdale and Long Island MacArthur Airports.

In the past year, Sheltair received an unsolicited overture from Modern Aviation that led the company to review its role in New York at a time it is enlarging operations in other parts of the U.S., says Lisa Holland, Sheltair's president. Holland's father, Jerry Holland, founded Sheltair in 1963. It operators 19 FBOs in the U.S.

"Modern Aviation became an obvious and appropriate buyer given their corporate presence in New York, their track record of

excellence at major airports elsewhere in the country, and their roster of respected professionals with extensive experience in the New York aviation community," Holland says. "Among our key considerations in determining how best to proceed was the fact that Modern Aviation reflects our corporate family's values in how we strengthen, nurture and support our employees' careers as well as embracing strict performance standards at the airports we serve."

Terms of the deal were not disclosed.

Modern Aviation was founded to develop a national network of FBOs, says Mark Carmen, Modern Aviation CEO. "The opportunity to acquire Sheltair's five New York locations within our own New York footprint, and build upon their well-deserved reputation for client service, is a significant milestone in executing our strategy."

The company plans to hire all of Sheltair's current employees in the New York market, Carmen says.

"We know the New York market is a highly attractive, growing general aviation market, and we plan to invest in additional infrastructure as we have continued to do in our other markets," she says.

## FORECASTS/INDUSTRY DATA

## Rising Prices, Used Bizav Aircraft Demand To Continue, IADA Says

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**Used business aircraft prices have increased 20% to 30% due to historically low inventory and a backlog of new aircraft orders, an International Aircraft Dealers Association (IADA) survey of its dealers shows.**

"Clearly, the market for used business aircraft is at an unusual place, with much higher prices and a dearth of inventory in the most modern used business aircraft markets," says Wayne Starling, IADA executive director. "The third-quarter responses from our membership predict the next six months will continue to have increased pricing and demand for all sectors of the market, while inventory deficiencies will continue to drive higher prices."

Third-quarter used aircraft dealer activity shows a continuing heated market, with 182 aircraft sales agreements, compared to 110 in the third quarter of 2020. Third-quarter transactions showed only seven with lower prices, compared to 83 in the third quarter of 2020, IADA says.

Forty transactions fell apart during the third quarter 2021, compared to 50 in the same period a year ago. IADA dealers closed 325 deals in the past quarter, compared to 283 a year ago.

The fourth quarter of the year is traditionally the busiest.

Projections for the next six months predict prices and demand for turboprop, light jet, midsize, large and ultra-long-range jets to rise dramatically, the survey shows. The supply is also expected to stay far below normal as it is now or drop slightly lower, IADA says.

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**AVIATION WEEK**<sup>7</sup>  
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## SERVICES

# SES Kick-Starts Multi-Orbit Plan With SES-17 Launch

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**LYON, FRANCE—An Ariane 5 heavy launcher is to send the SES-17 satellite into orbit during the night of Oct. 22-23 local time at Arianespace's Kourou, French Guiana, spaceport, as spacecraft manufacturer Thales seeks to capture half of the crucial North American inflight connectivity market.**

The flight is expected to deploy the first component in SES' geostationary/medium-Earth-orbit (GEO/MEO) network designed to meet growing needs in broadband satellite communications.

The geostationary SES-17, the largest spacecraft SES has ordered, is designed to be seamlessly interoperable with the yet-to-be-launched O3b mPower MEO constellation.

The constellation will use Automatic Resource Controller (ARC) software designed to make the most of a digital payload's flexibility, concentrating power in specific beams as needed. ARC is described as the brain for the network, dynamically and automatically allocating traffic in real time. For example, it can switch to O3b mPower, from SES-17, if a particular application demands lower latency.

Cruise customers will be the first to benefit from that feature, Luxembourg-based SES said. Satellite communications needs when a hurricane hits a specific area or when a sports game requires high broadcast capacity are other examples, said Herve Derrey, CEO of Thales Alenia Space, which built SES-17.

"The need for flexibility was emerging in 2016, when SES ordered the satellite," he said. "It is fully adapted to the 2021 market."

SES CEO Steve Collar concurred, saying: "Flexibility is economical now, it was not always the case. This changed three to four years ago."

Collar sees flexibility as a way to serve the key market of North American aviation efficiently. Thales, which will use SES-17 with its FlytLive service to carriers, wants to capture half of the inflight connectivity demand in North America. The air transport market for satellite communications there will grow to 285 Gbps in 2030 from 6 Gbps in 2020, according to SES' numbers. Thales will be SES' anchor customer over North America.

Combined, the Americas and the Atlantic Ocean regions over which SES-17 will be positioned are predicted to account for almost 50% of the global demand for inflight connectivity.

More carriers may move into a free onboard Wi-Fi business model, and SES is planning for the resulting increase in demand, Collar said. Passengers expect to enjoy in flight the typical triple-simultaneous video-streaming experience they enjoy in their living rooms, according to Craig Olson, Thales InFlyt's vice president for connectivity solutions. Working with customers such as Spirit Airlines, Thales could identify the routes where demand is strong and tailor the beams' power accordingly.

SES-17, with its Ka-band payload, will have 200 GHz of processing capacity. Almost 200 beams will maintain up to 2 Gbps per connection, SES said. Payload power will stand at 17 kW at the beginning of SES-17's 15-year design life.

As a consequence of the spacecraft's power needs, its solar arrays are the largest and most powerful ever produced by Thales Alenia Space, creating a 48-m (157-ft.) wingspan. The electric power created will generate massive heat, and SES-17 is the first commercial

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## SUPPLIERS

## Tamarack Conducts New Tests Of King Air Performance Smartwing

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**LAS VEGAS—Tamarack Aerospace is conducting new demonstration and validation tests for the King Air Performance Smartwing.**

The announcement was made at the NBAA Business Aviation Convention & Exhibition, held Oct. 12-14.

Tamarack CEO Nick Guida and President Jacob Klinginsmith outlined a development effort with partner Dynamic Aviation. This effort is underway with a Beechcraft King Air 200 aircraft, making it the second airframe type to take advantage of active winglet technology. The Tamarack system already has proven itself on more than 150 Cessna Citation Jets

The Tamarack Performance Smartwing is a unique winglet design that features Active Winglet load-alleviation technology. It includes an additional control surface, called the Tamarack Active Camber Surface (TACS), which serves to reduce the upward stress on the wing caused by the winglet during most conditions of flight. The result is an installation that can be made with minimal wing modification since additional support reinforcement may not be required. Current installations take less than 10 days, including painting the additional wingspan and the winglet.

Depending on the model, the King Air installation adds 6-8 ft. of wingspan, lowering stall speeds and therefore climb and approach speeds. The installation will allow the aircraft to take off and land using 10% less runway. Because climb performance is improved—15% in the case of the King Air 200—aircraft can

reach fuel-saving altitudes faster. For military applications, the added wingspan allows for longer loiter times due to the lower speeds and higher altitudes.

We have long recognized the benefits of adding winglets to a conventionally winged aircraft. But the weight penalties of the additional wing structure needed to combat the added upward stress on the wing often have turned the cost-to-benefit ratio negative. An active winglet reduces or eliminates that added upward stress.

Tamarack active winglets have proven the technology in the Cessna Citation Jet (CJ) series. CJ pilots flying typical trips have found their 3-hr. aircraft are turned into 4-hr. aircraft overnight. Being able to climb to higher, more optimal altitudes has been a game-changer for these operators.

Unlike traditional “passive” winglets, the TACS also provides the additional benefit of essentially “turning off” the winglet during high-G events, such as steep bank angle turns and during turbulence. If you imagine a sudden gust of wind pushing the wing and winglet combination up suddenly, you can see having the additional span works against you. The TACS can counter the upward push and remove the winglet’s added force, reducing stress on the wing.

The announcement should be well-received by military and other special-missions King Air users as showing a cost-effective way of improving endurance for loiter situations. The large civilian King Air market should benefit from reduced fuel consumption due to improved climb performance. Both markets will cheer the improved high/hot-takeoff performance margins which can provide increased payload capabilities.

## SERVICES

## GE Digital Signs MOU With Flapz For Flight Safety Data

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**GE Digital has signed a memo of understanding (MOU) with Flapz, a Latin American marketplace service that connects passengers with charter operators, to provide personalized data about each flight under a program called Safety Insight for Business Jets.**

“Our goal is to digitalize the market and help our customers and partners to reduce costs, save time and commercialize their assets efficiently and flexibly,” says Ionatan Galeano, Flapz co-founder and CEO. “We have created a disruptive mobility ecosystem with dozens of local and regional partners, and now we want to help those partners—and the local authorities—in-

crease safety standards while providing a premium experience for flyers.”

GE Digital’s service helps business jet operators fly more safely by providing the actual flight data, said Andrew Coleman, the company’s general manager for business aviation. The data identify safety events and trends to reduce flight risks, and provide fuel-efficiency analysis.

GE Digital experts examine data and track safety metrics taken from each flight and flag potential areas of risk, and operators receive the data in a web application. Fuel-efficiency analysis allows the operators to evolve to a more sustainable business model, the company said. Under a subscription program, pilots receive data specific to each aircraft. GE Digital’s mission in business aviation is safety, Coleman said.

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## SERVICES

## Viasat Unveils Flexible Broadband Service Plans

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**LAS VEGAS—Broadband satellite communications (satcom) provider Viasat has unveiled a new service plan structure for business aviation that it describes as unrivaled by other providers.**

At NBAA-BACE, the company launched Viasat Select, a Ka-band service offering that can be customized by where an aircraft typically operates and the amount of data it requires. Viasat promises data speeds to the aircraft of 20 Mbps or better across all plans.

“It’s an innovation in terms of service plans that combines flexibility, performance and value,” Claudio D’Amico, director of Viasat’s Business Aviation division, told Aviation Week. “One of the things that we’ve heard from customers is: ‘We don’t really like how these service plans are designed today.’ There are limitations in terms of performance and speed. There are also some limitations in terms of the data allowances. That’s what we’re trying to solve with Viasat Select.”

“We created a set of service plans that are designed to meet regional operations or global operations,” D’Amico explained. “There is flexibility to align where you fly your aircraft. We’ve also broken down those service plans into different categories. We have a more entry-level service plans in the regional [category], which is a sub-\$3,000 plan—\$2,795. It’s a monthly 15-GB plan. That plan was designed to meet the needs of those operators that are lighter users. They either use a light amount of data, for email or texts, or they fly their aircraft for fewer hours.”

List prices of other plans are \$5,995 monthly for 50 GB and

\$9,995 for unlimited data speeds.

“We have midterm [plans] that have more data allowances at a little bit of a higher price, and then we have unlimited plans,” said D’Amico. “That’s for those heavy users. If you’re operating your aircraft on a regional basis over North America, for example, you can select an unlimited plan if you’re one of those heavy users that need streaming, if you need video conferencing capabilities. The other thing about Viasat Select is that independent of the plan, you have the same performance. We removed the speed limits from our plans last summer, and with the new Select plans, we’re delivering the same performance across all of the service plans. We have typical speeds that are greater than 20 Mbps across all of our plans.”

In July 2020, Viasat announced it would remove internet speed limits delivered to aircraft connecting via the company’s Global Aero Terminal 5510 (GAT-5510) shipset with its Viasat-1, Viasat-2 and European Ka-band satellite network. The GAT-5510 shipset includes a tail- or fuselage-mounted 12-in. parabolic antenna with an integrated power supply unit and a modem.

Viasat, based in Carlsbad, California, is nearing deployment of a new generation of high-capacity Viasat-3 Ka-band satellites that will expand its network capacity and coverage. The first satellite, Viasat-3A, covering the Americas and portions of the Atlantic and Pacific oceans, is scheduled to launch in the first quarter of 2022.

The placement of the first satellite will be followed in roughly six-month intervals by Viasat-3B, covering Europe, the Middle East and Africa, then by Viasat-3C covering the Asia-Pacific region. The GAT-5510 terminal is forward-compatible with the

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## ASSOCIATIONS

## HAI’s Hal Summers Dies Following 60 Years In Industry

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**Harold (Hal) Summers, Helicopter Association International director of flight operations, died unexpectedly Oct 20, HAI announced.**

Summers has been a “fixture” in the rotorcraft industry since the 1960s. In 2011, he received the FAA’s Charles Taylor Master Mechanic award, recognizing 50 years of working in aircraft maintenance, and continued to serve for 10 more years. He sent his last email on behalf of HAI just hours before his passing, HAI officials say.

“Words truly fail me today,” says James Viola, HAI president

and CEO. “Hal was an icon in the industry, a subject matter expert on everything involving helicopter maintenance, and he felt it was an honor and obligation to share his wisdom and experience with the rest of us. We are a better industry because of his passionate contributions, and he will be profoundly missed.”

Summers received an aircraft and powerplant license in the early 1960s. After working in Alaska, he joined Petroleum Helicopters before serving as acting chief engineer for a joint venture between PHI and China Southern Helicopter Co. in Zhuhai, Guangdong, China. Summers joined HAI in 2004, where he was responsible for managing the fly in and fly out of aircraft for HAI’s Heli-Expo. He also participated in a number of HAI and industry working groups and national and international regulatory committees or groups.

## PROGRAMS

## UP.Partners Targets Future Mobility With New Fund

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**With investors including Alaska Air Group, UP.Partners has closed a \$230 million early stage venture capital fund dedicated to supporting companies enabling future mobility.**

Investors in the fund represent the aviation, ground transportation and maritime sectors.

“The fund is focused on the picks and shovels of the future of mobility, and specifically this concept that we are calling multidimensional mobility,” said Cyrus Sigari, co-founder and managing partner.

“The key enabling technologies are shared, from manufacturing to sensing, control, propulsion and communications. So we are leveraging the fact that all these various industries related to mobility broadly can benefit from one another,” he told Aviation Week.

“So that’s why we have put together a group of investors and partners in the fund that are representative of the entire landscape of mobility.”

In addition to Alaska, investors in the fund include Cathie Wood, founder and CEO of ARK Invest and a major investor in electric car maker Tesla; and Woven Capital, a subsidiary of Toyota Motor. Other backers are building materials giant Standard Industries, real estate developer Hillwood and ship management company OSM Maritime.

Other fund investors from the aviation sector include aerospace adhesives supplier Click Bond, maintenance provider Duncan Aviation and financial services company JSSi and fuel supplier AvFuel.

“We have effectively positioned ourselves as the periscope for these large corporates that have exposure in the movement of things, to do it faster, cleaner safer and at a lower cost,” Sigari said.

Areas of interest for the fund include package delivery drones, urban air mobility (UAM), software for precise positioning, hydrogen-powered aircraft, ultra-low-cost lidar sensors, and advanced manufacturing, as well as electric grid upgrades for recharging and other forms of e-mobility.

The fund is focused on early-stage seed and Series A investments with the goal of building a portfolio of 30 companies. UP.Partners has already made investments in 10 companies including drone delivery company Zipline, autonomous drone maker Skydio, automated inspection specialist UnitX and electric vertical-takeoff-and-landing startup beta Technologies.

UP.Partners was founded by Sigari and Ben Marcus, co-founders of business aircraft seller JetAviva and unmanned traffic management company AirMap. Co-managing partner is investor Adam Grosser.

In addition to the fund, they organize the annual UP.Summit that brings together entrepreneurs, executives and investors interested in improving mobility.

## PROGRAMS

## Asset Manager Amedeo Backs Aura’s Electric Regional

GRAHAM WARWICK, [graham.warwick@aviationweek.com](mailto:graham.warwick@aviationweek.com)

**Aircraft finance and asset management company Amedeo has entered a strategic partnership with Aura Aero that includes a letter of intent to purchase 200 of the French startup’s planned 19-seat ERA hybrid-electric regional aircraft.**

Founded in 2018 by former Airbus employees, Toulouse-based Aura is developing a two-seat aerobatic aircraft, the Integral R, and plans to fly an electric version, the Integral E, in 2022.

This will be the first step toward the ERA, which is planned to fly in 2024 and enter cargo and passenger service by 2027.

Aura Aero joins Swedish startup Heart Aerospace in securing an early customer commitment for a 19-seat electric regional aircraft.

In July, United Airlines and its regional affiliate Mesa Airlines together conditionally agreed to purchase 200 of Heart’s all-electric ES-19s, with deliveries planned for 2026.

“We have studied various concepts currently on the market and Aura Aero has a definite advantage in terms of skills, talent and design, which we support. Their prototype, Integral, is a first step toward a larger aircraft, a regional electric aircraft,” said Gabriella Lapidus, Amedeo chief commercial officer.

With offices in Ireland, the UK and U.S., Amedeo is an asset manager and investor in aircraft leasing transactions and has 39 Airbus and Boeing aircraft in its portfolio, according to the company’s website.

“[Amadeo’s] expertise in structured finance solutions across multiple asset classes is instrumental to where we are taking Aura Aero and look forward to our close collaboration going forward,” said Jeremy Caussade, the startup’s co-founder and president.



## SERVICES

## Competition Heats Up For Cockpit Satcom

BILL CAREY, [bill.carey@informa.com](mailto:bill.carey@informa.com)

**LAS VEGAS—Competition for cockpit-focused L-band satellite communications (satcom) has heated up with Inmarsat's recent announcement of a major "Elera" network upgrade even as avionics manufacturers continue developing first products for rival Iridium's new Certus offering.**

While Ka-band (26.5-40 GHz) is known for inflight connectivity to aircraft cabins, L-band (1-2 GHz) is the host for aeronautical communication functions including safety-critical Aeronautical Mobile (Route) Service air-traffic services.

Iridium launched Certus, a high-speed, internet protocol-based satcom service operating in the L-band, with the deployment of its new-generation Iridium Next low-Earth-orbit (LEO) satellites in early 2019. The service initially became available for the land-mobile and maritime markets.

Plans call for phasing in Certus service classes for business and commercial aviation, beginning with Certus 350, capable of 352-kbps data speed to support inflight applications such as flight data recorder streaming. Certus 700, capable of 704 kbps (352 kbps transmit; 704 kbps receive) presents competition for Inmarsat's SwiftBroadband service at 432 kbps per channel for up to four channels per aircraft. Iridium's legacy service, which Iridium Next satellites continue to support, provides 2.4 kbps.

Major value-added manufacturers (VAMs) for Certus aviation terminals continue working toward certification of their respective products, said Tim Last, Iridium vice president and general manager for the Americas. Iridium lists 10 VAMs that are developing Certus 700, 200 or 100 systems for aviation: Atmosphere, Blue Sky Network, Collins Aerospace, Flyht Aerospace Solutions, Flylogix, Honeywell Aerospace, Satcom Direct, Skytrac, Telespazio and Thales.

Certus 100 and 200, with data speeds up to 88 and 176 kbps, respectively, are optimized for host platforms with size, weight and power limitations such as uncrewed air systems.

"We finished deploying our current-generation network about two years ago," Last said at the NBAA Business Aviation Convention & Exhibition, held Oct. 12-14.

"We did deploy maritime and land solutions first, but we've been working diligently with a number of aviation partners on solutions for the aviation market. The big avionics companies that we assigned out as Certus partners are still knee-deep in development in most cases for their products, and obviously that's not been helped by the last year and a half of the [COVID-19] pandemic, which has particularly decimated com-

mercial transport."

Specifically, Last mentioned products advanced by Thales, Honeywell and Collins Aerospace. On Aug. 12, Honeywell said that its Aspire 150 and 350 satcom systems designed to use Certus should be certified this year, and it declared that Aspire systems will be the first to demonstrate connectivity up to 700 kbps via Certus.

Collins is developing the IRT-NX system for Certus, including a satcom data unit, satellite configuration module and either active low-gain antenna or high-gain antenna. A high-gain antenna allows more of the transmitted power to be sent to a receiver; it accommodates higher data rates but requires more accurate pointing. A low-gain antenna transmits and receives in all directions but supports lower data rates. Thales is developing FlytLINK, a series of systems using small high-, intermediate- and low-gain antennas.

"The good news is that none of those programs were fatally wounded," because of the pandemic, Last said. "All of the products, particularly those with Collins, Honeywell [and] Thales—which are the companies that are doing Certus 200, 350 or 700 products—are still well underway. None of them are yet commercially available fully in the market. All of those companies have been 'on air' with their products, and we're looking forward over . . . the next six to nine months seeing those three companies actually on aircraft in various stages of testing."

Iridium recently received approvals from standards organizations RTCA and the European Organization for Civil Aviation Equipment to offer Certus as a safety-critical service that supports FANS 1/A controller pilot data link communications (CPDLC) over oceans. The U.S. company was awaiting release by the FAA of a Technical Standard Order (TSO) that provides manufacturers with guidance to build approved systems. Meanwhile, Iridium's previous-generation Short Burst Data service, which has supported "FANS-over-Iridium" for a decade, remains available.

"We're waiting for the conclusion of the TSO with the FAA, and then we will enter FANS trials for aviation safety using Certus," Last said. We expect FANS [approval] about the end of next year. Once they finish those trials, you will see Certus installed for aviation safety applications on commercial transport aircraft."

While Iridium reports ongoing progress in developing Certus terminals, Inmarsat on Aug. 12 unveiled Elera, a major upgrade to its L-band network that promises higher data speeds and smaller, lower-cost terminals for aviation users. Inmarsat's new I-6 dual-payload L- and Ka-band geostationary (GEO) satellites will support existing Inmarsat Classic Aero H+ and SwiftBroad-

COMPETITION, P. 14

**MACHINISTS, From P. 1**

in the work. The actions are part of Biden's "Path out of the Pandemic: COVID-19 Action Plan." Weekly testing of unvaccinated employees is not an option for contractors. Employees may apply for a medical or religious exemption.

"These safeguards will decrease the spread of SARS-CoV-2, the virus that causes COVID-19, which will decrease worker absence, reduce labor costs, and improve the efficiency of contractors and subcontractors performing work for the federal government," the White House said in its guidance, issued Sept. 24.

For the Machinists, the issue is not about the vaccination itself. "It's not about the shot," says Cornell Beard, Machinists District 70 president and directing business representative. "We have to remember our choices are being taken away."

In a video update to members on Oct. 20, Beard clarified the union's position in hiring a lawyer.

"Do I think we can stop a president mandate by ourselves with just our attorney?" Beard says. "Absolutely not. The mission is that everybody that puts in for an exemption, it should be granted. It's not the company's job to tell me what my religion is. They shouldn't be smarter than my doctor. If you want an exemption, we should be here to fight for you."

The Machinists union represents 7,000 hourly workers at Spirit AeroSystems and nearly 5,000 at Textron Aviation.

Thousands of them do not work directly on the companies' government contracts, Beard says. "So why are we asking everybody to do it?"

Beard has been hearing from Textron Aviation and Spirit AeroSystems workers saying they plan to file for medical or religious exemptions, take early retirement or otherwise leave the job.

The mandate is a national issue, Pierre Chao, co-founder of Renaissance Strategic Advisors, said Oct. 19 during Aviation Week's DefenseChain conference, and has a ripple effect on human resource policies at the affected companies. Management teams "are scrambling to think through that right now."

It is too soon to determine its ramifications and whether it will have little impact or lead to a large disruption in the market and "whether you find out we can't be building defense products because 20% of our workers have walked off the job," Chao says. "We'll find out more in the next two months."

Whether to get vaccinated goes beyond personal choice, says

Rolland Vincent, an aviation consultant with Rolland Vincent Associates. "The world is definitely seeing this as a very serious public health crisis. In some cases, that requires what some would say is a reduction of freedom."

Being vaccinated is increasingly required for travel, to eat at restaurants and other areas of life. It was a requirement to attend this month's National Business Aviation Association Convention & Exhibition in Las Vegas, for example. Still, "it looks like it's setting up to be quite a battle here," Vincent says.

He predicts it will cause some disruptions in supply chains, and "we don't need disruptions in our supply chains."

The mandate comes at a time that suppliers face a shortage of skilled workers and are having trouble filling job openings.

"Labor is tight," Vincent says. "Business aviation has a massive growth curve ahead of it, but we have to staff up for it. If we're not staffed for it, in the next couple of years it will just sit there as backlog or sit there as work we can't do."

Many in the business aviation and aerospace industry have retired and left the industry permanently.

"They're done," Vincent says. "This sort of vaccination requirement may encourage more to leave. We need these people to train and mentor the new folks coming up."

Supply chains are complicated, he says. "Even a small shop, if they can't deliver on their contracts, the chain slows down."

Companies have been offering incentives for employees get the vaccinations, such as reductions in the cost of medical insurance or an extra day of vacation, or disincentives, such as higher health care costs without it.

Textron Aviation declined to say what percentage of its workforce is vaccinated. At Spirit AeroSystems, 54% of its workforce has been vaccinated.

Tom Gentile, Spirit AeroSystems president and CEO, is urging the other 46% to get the shots.

The aerospace industry has been through some of the most challenging times in its history, Gentile said in a note to employees obtained by The Weekly of Business Aviation. It was made more acute because of Spirit's concentration of work on the Boeing 737 MAX and the downturn in the travel industry from COVID-19.

MACHINISTS, P. 11

**"It's not about the shot. We have to remember our choices are being taken away."**

-Cornell Beard, Machinists District 70 president

**"Whether to get vaccinated goes beyond personal choice. The world is definitely seeing this as a very serious public health crisis. In some cases, that requires what some would say is a reduction of freedom."**

- Rolland Vincent, Rolland Vincent Associates

**LAUNCH, From P. 5**

satellite to incorporate a high-efficiency, mechanically pumped loop thermal control system. An innovative way to conduct heat out of the satellite, it is the product of 20 years of research by Thales Alenia Space and the European Space Agency, SES said.

The 6,411-kg (14,130-lb.) SES-17 also will be one of the largest satellites launched by Arianespace. Flight VA255 will have the tallest fairing on an Ariane 5, as the usual dimension was raised by 1.5 m. The mission's total payload will set a new record, at a

cumulative 10,263 kg for the two satellites VA255 will carry—the other one being the French government's Syracuse 4A. The previous record, set in 2017, was combined payload that was 300 kg lighter.

VA255 is to be Ariane 5's second launch this year. It also will be the last one before VA256, which will have the James Webb Space Telescope (JWST) as its sole payload. VA256 is scheduled for Dec. 18.

**FLAPZ, From P. 6**

"Flapz is providing an innovative and exciting digital platform for Latin American travelers," he said. "We are proud to partner with Flapz to apply proven aviation practices, like those in C-FOQA [corporate flight operation quality assurance] to emerging technologies and provide an optimal experience for its customers. As the aviation industry returns to safe flight after the COVID-19 pandemic, we are incredibly focused on becoming even safer and more sustainable to meet the demands of the future."

Retrieving data produced by aircraft leads to an increase in safety, Coleman noted. It is a growing area of business aviation.

"We are incredibly excited about the enthusiasm around data produced by aircraft," he added.

The company, which saw a growth in orders in 2020, has been doubling that increase in 2021. Next spring, GE Digital is expected to launch a similar, personalized service providing data for pilots.

**BROADBAND, From P. 7**

new satellites7Viasat provides satcom systems for super-mid-size and larger business jets, including the Gulfstream G280, Embraer Praetor, Bombardier Challenger 350 models, and larger Bombardier Global and Gulfstream G550/G650 types.

"Some of them operate regionally, but some of them operate

on a more global basis," D'Amico said. "The plans that we offer today cover 90% of the business aviation routes between North America, the North Atlantic and European coverage areas. With Viasat-3, we're extending that to the other regions that those satellites cover."

**MACHINISTS, From P. 10**

The way out is for more people to resume travel, and the best way is for more people to get vaccinated, Boeing Commercial CEO Stan Deal said to Gentile in a conference call.

"We may all agree or disagree with the president's approach, but as commander in chief, he has the authority to direct federal contractors to take action," Gentile said in the memo. "Now that he has issued the executive order, it is our responsibility to comply with that order."

He asks employees to consider the work Spirit performs that is relied upon by the nation's warfighters and the airlines.

"We are now in the midst of recalling former employees as we staff up to begin what is expected to be one of the fastest increases in production rates in the history of our industry," Gentile says.

Spirit is not alone in its actions, he says. Besides Textron and Textron Aviation, Lockheed, Northrop and Raytheon are also complying with the mandate, as are the nation's airlines.

"Yes, there are risks and inconveniences to taking any vaccine, but throughout history people have taken risks in times of great struggle to overcome huge obstacles," Gentile says. "COVID-19 is as big an obstacle as any we have faced in our lifetimes ... This is our moment in history."

Textron Aviation said in a statement that it is obligated to comply with the executive order and is taking steps to meet its obligations.

"We have asked employees to provide their vaccination status, and, as federal contractors, requested employees to begin the process to become fully vaccinated by December 8, 2021," the statement says.

Employees unable to receive the vaccination due to a medical condition or a "sincerely held religious belief" will be given the opportunity to request an accommodation, it says.

The enemy is not the mandate, Vincent says. "The enemy is the disease."

## Business Aviation Briefs

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**Overland Aviation**, a fixed base operator in Williston, North Dakota, has opened a new terminal and U.S. customs facility at the Williston Basin International Airport. The 51,000-sq.-ft. terminal and hangar complex include a pilot lounge, passenger and crew terminals, management and rental office space and a 30,000-sq.-ft. heated hangar. The operations are conducted around the clock.

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**Bluetail**, based in Scottsdale, Arizona, has completed two capability upgrades of its aircraft records digitization platform. Its Business Process Automation and MACH Search upgrades will allow business and private aircraft owners and operators to onboard aircraft maintenance records in minutes and find data contained in thousands of records in seconds, the company says.

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**Universal Helicopter International** has been named the first Bell 505 dealer in the U.S. with a territory that includes Arizona and Utah. Universal will provide services from aircraft purchasing to operator training for current and future customers. Bell and Universal are collaborating on ab initio and rotorcraft add-on training for Bell 505 pilots in the U.S.

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**Inmarsat** is marking the 1,000th installation and activation of its Jet ConneX inflight connectivity service. Powered by Inmarsat's global Ka-band satellite network, Global Xpress, Jet ConneX is a line-fit option with all major business jet manufacturers, including Bombardier, Dassault and Gulfstream. It uses Honeywell's JetWave hardware. Inmarsat has received supplemental type certificate approvals for the service from the FAA and European Union Aviation Safety Agency (EASA), and across a number of platforms, OEMs and MRO service providers. The company says its 1,000th activation comes against a backdrop of a recovering business aviation industry. A recent survey commissioned by Inmarsat and Corporate Jet Investor found that nearly 80% of respondents believe more frequent business trips will be taken in 2022 than 2021, and 90% believe that online activities will dominate time in transit.

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**Duncan Aviation** has announced the creation of Duncan Manufacturing Solutions (DMS), a new division focused on high-quality parts fabrication. The Lincoln, Nebraska-based company has invested more than \$4 million in the DMS facility, which was con-

structed adjacent to Duncan's Turbine Engine Overhaul shop. The new facility has 21,000 ft.2 devoted to machining, metal work and composite capabilities. Since 2015, Duncan's Turbine Engine Services has gained new capabilities and increased efficiencies, leading the company to add room to accommodate larger engine and maintenance events. As such, the company's engine washroom area was increased to 592 ft.2 and now includes a new overhead crane with baskets to improve the speed of moving and cleaning engine parts. Larger wash sinks allow for more parts to be cleaned at once. What used to take up to four technicians now takes only one, the company said.

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**Sheltair Aviation** and **Avfuel** have expanded the scope of their partnership to include a new scholarship program called Future Takes Flight. The scholarship will award \$30,000 in educational funds annually, consisting of six \$5,000 scholarships across two categories: two for learning to fly or for advanced pilot ratings, two for aviation technicians and two for continuing education.

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**Traxxall** has announced the launch of a new MRO module that tracks time, tasks and labor costs, interoperates with existing automated systems, including accounting and flight scheduling, and updates airworthiness bulletins and service bulletins. The module is subscription-based and web-based and complements the company's maintenance tracking and inventory management modules, it says. The MRO module is the latest in Traxxall's evolution from a maintenance tracking company to a provider of aviation intelligence, the Montreal-based company says.

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**Mid-Continent Aviation Services** (MCAS), a Wichita-based maintenance, repair and overhaul facility, plans to build a new 31,500-ft.2 hangar in a \$5.7 million project at Eisenhower National Airport in Wichita that will double its workforce. The hangar will replace its existing 15,000- ft.2 hangar. Mid-Continent Aviation Services is an FAA-approved Part 145 repair station supporting business jet, turboprop, piston and rotorcraft products. It focuses on Hawker 4000, Hawker 800 series and Beechcraft Premier models. The company is an affiliate of ICM, based in Colwich, Kansas. As a result, the company will grow its team from 17 to more than 40. The existing hangar is expected to be operational in the first quarter of 2022. It will accommodate future work and includes a state-of-the-art infrastructure, the company says.

## Airworthiness Directives

**HELICOPTERES GUIMBAL HELICOPTERS** [Docket No. FAA-2021-0574; Project Identifier 2019-SW-073-AD; Amendment 39-21725; AD 2021-19-07] The FAA is adopting a new airworthiness directive (AD) for certain Hélicoptères Guimbal Model CABRI G2 helicopters. This AD was prompted by a report that, during scheduled maintenance on two helicopters, cracks were found on a certain main rotor (MR) nonrotating scissor link. This AD requires replacing an affected MR nonrotating scissor link with a serviceable part. The FAA is issuing this AD to address the unsafe condition on these products. This AD is effective Nov. 4. The FAA estimates that this AD affects 32 helicopters of U.S. registry with an estimated cost of compliance of \$408 per aircraft or \$13,056 for the fleet. For more information, contact Darren Gassetto, aerospace engineer, COS Program Management Section, Operational Safety Branch, Compliance & Airworthiness Division, FAA, 1600 Stewart Ave., Suite 410, Westbury, New York, 11590; telephone (516) 228-7323; email Darren.Gassetto@faa.gov.

**AIRBUS HELICOPTERS** [Docket No. FAA-2021-0559; Project Identifier MCAI-2021-00079-R; Amendment 39-21727; AD 2021-19-09] The FAA is superseding Airworthiness Directive (AD) 2020-24-03, which applied to certain Airbus Helicopters Model AS350B, AS350BA, AS350B1, AS350B2, AS350D, AS355E, AS355F, AS355F1, and AS355F2 helicopters. AD 2020-24-03 required testing the UP/DOWN switches of a certain part-numbered DUNLOP cyclic stick grip, installing a placard, and revising the existing Rotorcraft Flight Manual (RFM) for your helicopter, or removing the DUNLOP cyclic stick grip. This AD retains some requirements of AD 2020-24-03 and also requires incorporating a new modification and removing the placard and the RFM amendment installed previously as required by AD 2020-24-03. The additional actions are required as specified in a European Union Aviation Safety Agency (EASA) AD, which is incorporated by reference. This AD was prompted by the development of a modification (MOD) procedure by Airbus Helicopters for the electrical wiring of the hoist control of the DUNLOP cyclic stick. The FAA is issuing this AD to address the unsafe condition on these products. This AD is effective Nov. 4. The FAA estimates that this AD affects 390 helicopters of U.S. registry. The FAA estimates a nominal cost of compliance for accomplishing a ground test of the UP/DOWN switches for proper function, the cost of replacing a DUNLOP cyclic stick grip, if required, of \$2,713; the cost of installing the placard and revising the existing RFM for your helicopter of \$43 per helicopter and \$16,770 for the U.S. fleet; the cost of modifying the electrical wiring of the DUNLOP cyclic stick of up to \$2,487 per helicopter and \$969,930 for the U.S. fleet; and the cost of removing the placard and revising

the existing RFM to cost an estimated \$43 per helicopter and \$16,770 for the U.S. fleet. For more information, contact Daniel Poblete, Aerospace Engineer, Systems & Equipment Section, Los Angeles ACO Branch, Compliance & Airworthiness Division, 3960 Paramount Blvd., Lakewood, California, 90712; telephone (562) 627-5335; email: daniel.d.poblete@faa.gov.

**DASSAULT AVIATION AIRPLANES** [Docket No. FAA-2021-0569; Project Identifier MCAI-2020-01692-T; Amendment 39-21752; AD 2021-20-14] The FAA is adopting a new airworthiness directive (AD) for all Dassault Aviation Model FALCON 7X, FALCON 900EX, and FALCON 2000EX airplanes. This AD was prompted by a report of a manufacturing issue involving misalignment of a cabin seat pin and plate that can prevent the recline locking mechanism from properly engaging when the seat is in taxi, takeoff, or landing position. This AD requires an inspection of certain cabin seats for discrepancies and corrective action, as specified in European Union Aviation Safety Agency (EASA) AD, which is incorporated by reference. The FAA is issuing this AD to address the unsafe condition on these products. This AD is effective Nov. 18. The FAA estimates that this AD affects 565 airplanes of U.S. registry with an estimated cost of compliance of \$85 per aircraft or \$48,025 for the fleet, plus on-condition costs of \$85 per aircraft. For more information, contact Tom Rodriguez, Aerospace Engineer, Large Aircraft Section, FAA, International Validation Branch, 2200 South 216th St., Des Moines, Washington, 98198; telephone and fax 206-231-3226; email tom.rodriguez@faa.gov.

**BOMBARDIER, Inc., Airplanes** [Docket No. FAA-2021-0462; Project Identifier MCAI-2020-01714-T; Amendment 39-21751; AD 2021-20-13] The FAA is adopting a new airworthiness directive (AD) for certain Bombardier, Inc., Model CL-600-2B16 (604 Variant) airplanes. This AD was prompted by multiple reports of cracking of the main landing gear (MLG) shock strut lower pin. This AD requires repetitive lubrication and repetitive detailed visual inspections (DVI) and nondestructive test (NDT) inspections of the MLG shock strut lower pins, and replacement if necessary. The FAA is issuing this AD to address the unsafe condition on these products. This AD is effective Nov. 18. The FAA estimates that this AD affects 433 airplanes of U.S. registry with an estimated cost of compliance of \$595 per aircraft and \$257,635 for the fleet plus on-condition costs of \$2,945 per aircraft. For more information, contact Chirayu Gupta, Aerospace Engineer, Mechanical Systems and Administrative Services Section, FAA, New York ACO Branch, 1600 Stewart Avenue, Suite 410, Westbury, New York, 11590; telephone 516-228-7300; fax 516-794-5531; email 9-avs-nyacocos@faa.gov.

## Business Aviation Appointments

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**Stephen Spillane** has joined **TrueNoord's** Dublin office as technical manager. Most recently, Spillane served as engineering services specialist, technical consultant and materials coordinator consultant for CAE Parc Aviation.

**Srikanth Satya** has joined **Wheels Up** as chief technology and development officer. Satya has held technology positions at Amazon, Microsoft and Dell EMC.

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### COMPETITION, From P. 9

band service while providing L-band connectivity to a broader range of platforms, including drones, urban air mobility vehicles and general aviation aircraft.

Inmarsat received FAA approval of its SwiftBroadband-Safety (SB-S) service for safety-critical air traffic services applications

in March 2019. SB-S also will support Europe's "Iris" data link for CPDLC and 4D aircraft trajectories, which add a time factor to the dimensions of latitude, longitude and altitude for more-precise flight tracking and "trajectory-based" air traffic management.

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## Calendar

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To list an event, send information in calendar format to Donna Thomas at [donna.thomas@aviationweek.com](mailto:donna.thomas@aviationweek.com). For a complete list of Aviation Week Network's upcoming events, and to register, visit [www.aviationweek.com/events](http://www.aviationweek.com/events) (Bold type indicates new calendar listing.)

**Oct. 26-27**—ISTAT Asia, Ritz-Carlton/Millenia, Singapore  
<https://connect.istat.org/Asia>

**Oct. 26-28**—World ATM (Air Traffic Management) Congress, Institucion Ferial de Madrid, Madrid, Spain, <https://www.worldatmcongress.org/home>

**Oct. 26-28**—Aeromart Montreal, Palais des Congres, Montreal, <https://montreal.bciaerospace.com/en>

**Nov. 2**—Air Freight Conference 2021, Maastricht, Netherlands, <https://www.airfreightconference.com/?gdp=accept>

**Nov. 2-3**—22nd Annual Commercial Aviation Industry Suppliers Conference - Europe, Hôtel Palladia, Toulouse, France, <https://ace.speednews.com/en/home.html>

**Nov. 1-4**—Aerospace Incubator: Featuring Aerospace IT and Advanced Air Mobility, Miami, FL, <https://aerospaceincubator.aviationweek.com/en/home.html>

**Nov. 4**—2021 NATA Aviation Business Conference, <https://fly.nata.aero/l/875751/2021-05-25/9kv888>

**Nov. 10**—Aviation Week's A&D Mergers and Acquisitions Con-

ference, Four Seasons Hotel Los Angeles, Beberly Hills, CA, <https://adma.aviationweek.com/en/HotelTravel.html>

**Nov. 14-18**—Dubai Airshow, DWC, Dubai Airshow Site, Dubai, UAE, <https://www.dubaiairshow.aero>

**[Virtual Event] Nov. 25—10th Annual Mediterranean Business Aviation (MBA) Summit 2021**, <https://www.aeropodium.com/mba>

**Dec. 1**—Airline Economics Growth Frontiers London, Leonardo Royal Hotel London City, London, UK, <https://www.aviation-news-online.com/conferences/london>

**[Virtual Event] Dec. 1-2—9th European Aviation Conference** <https://www.eac-conference.com>

**Dec. 1-2**—Aero-Engines Europe, Stavanger, Norway, <https://www.aeroengineconference.com/en/home.html>

**Dec. 1-2**—World Aviation Festival 2021, ExCel Center, London, UK, <https://www.terrapinn.com/conference/aviation-festival>

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**Industry Data**

**New Business Aircraft Deliveries Worldwide - September 2021**

MANUFACTURER	MODEL	OPERATOR COUNTRY	OWNER	TOTAL DELIVERIES
<b>BUSINESS JETS</b>				
Bombardier	BD-100-1A10 (CHALLENGER 350)	USA	BOMBARDIER AEROSPACE CORPORATION	2
Bombardier	BD-700-1A10 (GLOBAL 6500)	USA	BOMBARDIER AEROSPACE CORPORATION	2
Bombardier	BD-700-1A11 (GLOBAL 5500)	Canada	GFL ENVIRONMENTAL INC.	1
Bombardier	BD-700-2A12 (GLOBAL 7500)	Hong Kong	ALPHA ONE SAN MARINO S.R.L.	1
Bombardier	BD-700-2A12 (GLOBAL 7500)	USA	BOMBARDIER AEROSPACE CORPORATION	4
Bombardier	CL-600-2B16 (CHALLENGER 650)	Canada	SIGNATURE AVIATION LP	1
Bombardier	CL-600-2B16 (CHALLENGER 650)	USA	NETJETS SALES INC.	1
Bombardier	LEARJET 45 (75 LIBERTY)	USA	ADAM DEVELOPMENT PROPERTIES GP LLC	1
Bombardier	LEARJET 45 (75 LIBERTY)	USA	FARGO JET CENTER LLC	1
Bombardier	LEARJET 45 (75 LIBERTY)	USA	J. BROS LLC	1
Cirrus	VISION SF50 (G2)	Brazil	TIMBRO COMERCIO EXTERIOR LTDA.	1
Cirrus	VISION SF50 (G2)	USA	MKAIR HOLDINGS LLC	1
Cirrus	VISION SF50 (G2+)	Brazil	TIMBRO COMERCIO EXTERIOR LTDA.	1
Cirrus	VISION SF50 (G2+)	Switzerland	0290 INC. [TRUSTEE]	1
Cirrus	VISION SF50 (G2+)	USA	379JD LLC	1
Cirrus	VISION SF50 (G2+)	USA	INSIGHT CAPITAL LLC	1
Cirrus	VISION SF50 (G2+)	USA	PARKER, STUART	1
Cirrus	VISION SF50 (G2+)	USA	VISIONARY AIR LLC	1
Dassault Aviation	FALCON 2000EX (LXS)	USA	DASSAULT FALCON JET CORPORATION	1
Dassault Aviation	FALCON 2000EX (S)	USA	DASSAULT FALCON JET CORPORATION	2
Dassault Aviation	FALCON 7X (8X)	Belgium	ABELAG AVIATION	1
Dassault Aviation	FALCON 7X (8X)	San Marino	LUXAVIATION SAN MARINO S.R.L.	1
Dassault Aviation	FALCON 7X (8X)	USA	DASSAULT FALCON JET CORPORATION	1
Embraer	EMB-505 (PHENOM 300)	Portugal	NETJETS EUROPE S/A	1
Embraer	EMB-505 (PHENOM 300)	USA	FLEXJET LLC	1
Embraer	EMB-505 (PHENOM 300E E)	Brazil	REMMO PARTICIPACOES LTDA.	1
Embraer	EMB-505 (PHENOM 300E E)	Switzerland	JMA AVIATION AG	1
Embraer	EMB-505 (PHENOM 300E E)	USA	YEASTERN AIR LLC	1
Embraer	EMB-545 (PRAETOR 500)	Canada	AIRSPRINT	1
Gulfstream	GVI (G650ER)	USA	DS AVIATION LLC	1
Gulfstream	GVII-G500	Switzerland	TVPX AIRCRAFT SOLUTIONS INC. [TRUSTEE]	1
Gulfstream	GVII-G500	USA	BANK OF UTAH [TRUSTEE]	1
Gulfstream	GVII-G500	USA	TVPX AIRCRAFT SOLUTIONS INC. [TRUSTEE]	1
Gulfstream	GVII-G600	USA	ALCHIBALINK INC.	1
Gulfstream	GVII-G600	USA	BANK OF UTAH [TRUSTEE]	1
Gulfstream	GVII-G600	USA	GORES GROUP LLC, THE	1
Gulfstream	GVII-G600	USA	QUOGUE AVIATION IV LLC	1
Honda Aircraft Co.	HA-420 ELITE (HONDAJET)	USA	BANYAN JET SALES LLC	1
Honda Aircraft Co.	HA-420 ELITE S (HONDAJET)	USA	BANYAN JET SALES LLC	1

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**Industry Data**

**New Business Aircraft Deliveries Worldwide - September 2021**

MANUFACTURER	MODEL	OPERATOR COUNTRY	OWNER	TOTAL DELIVERIES
<b>BUSINESS JETS (Continued)</b>				
Honda Aircraft Co.	HA-420 ELITE S (HONDAJET)	USA	TOWER INDUSTRIES LLC	1
Israel Aircraft Ind.	GULFSTREAM G280	Mexico	UNKNOWN	1
Israel Aircraft Ind.	GULFSTREAM G280	USA	CARIS SCIENCE INC.	1
Israel Aircraft Ind.	GULFSTREAM G280	USA	MICRON TECHNOLOGY INC.	1
Pilatus Aircraft	PC-24	San Marino	TULIP GROUP INVESTMENTS LTD.	1
Pilatus Aircraft	PC-24	Sweden	SWEDISH AIR AMBULANCE	2
Pilatus Aircraft	PC-24	USA	PILATUS BUSINESS AIRCRAFT LTD.	2
Textron Aviation (Cessna)	525B (CJ3+)	Sweden	NORTH SEA RORO AB	1
Textron Aviation (Cessna)	525B (CJ3+)	USA	AIR KARIS LLC	1
Textron Aviation (Cessna)	525B (CJ3+)	USA	HARBOR FLIGHT LLC	1
Textron Aviation (Cessna)	525B (CJ3+)	USA	REDGUARD LLC	1
Textron Aviation (Cessna)	525C (CJ4 GEN2)	Germany	INOVEX CHARTER GMBH	1
Textron Aviation (Cessna)	525C (CJ4 GEN2)	USA	AIR SCHARBAUER LLC	1
Textron Aviation (Cessna)	525C (CJ4 GEN2)	USA	CIAO AVIATION I LLC	1
Textron Aviation (Cessna)	525C (CJ4 GEN2)	USA	MITCHELL II, GEORGE P.	1
Textron Aviation (Cessna)	525 (CITATION M2)	France	UNKNOWN	1
Textron Aviation (Cessna)	525 (CITATION M2)	Guernsey	WILLIAM COOK AVIATION LTD.	1
Textron Aviation (Cessna)	525 (CITATION M2)	USA	G-FOUR AVIATION LLC	1
Textron Aviation (Cessna)	525 (CITATION M2)	USA	GULF SOUTH MANAGEMENT INC.	1
Textron Aviation (Cessna)	525 (CITATION M2)	USA	H2AIR LLC	1
Textron Aviation (Cessna)	525 (CITATION M2)	USA	IMAGO DEI VENTURES LLC	1
Textron Aviation (Cessna)	525 (CITATION M2)	USA	M. HIXSON AVIATION LLC	1
Textron Aviation (Cessna)	525 (CITATION M2)	USA	MONROE AVIATION LLC	1
Textron Aviation (Cessna)	560XL (CITATION XLS+)	Brazil	TAM AVIACAO EXECUTIVA E TAXI AEREO S/A	1
Textron Aviation (Cessna)	560XL (CITATION XLS+)	France	ASTONJET	1
Textron Aviation (Cessna)	560XL (CITATION XLS+)	USA	FB LEASING LLC [FL-USA]	1
Textron Aviation (Cessna)	560XL (CITATION XLS+)	USA	FRANKLIN MOUNTAIN ASSETS II LLC	1
Textron Aviation (Cessna)	680A (LATITUDE)	USA	AURORA VENTURES LLC	1
Textron Aviation (Cessna)	680A (LATITUDE)	USA	NETJETS SALES INC.	3
Textron Aviation (Cessna)	700 (LONGITUDE)	USA	LOREN COOK COMPANY	1
Textron Aviation (Cessna)	700 (LONGITUDE)	USA	NETJETS SALES INC.	2
<b>TOTAL SEPTEMBER 2021</b>				<b>84</b>
<b>TOTAL SEPTEMBER 2020</b>				<b>83</b>
<b>BUSINESS TURBOPROP &amp; PISTON AIRCRAFT</b>				
Daher	TBM 700N (940)	USA	TRANSATLANTIC DELIVERIES TRUST	3
Epic	EPIC E1000 GX	USA	HUNTINGTON AVIATION LLC	1
Epic	EPIC E1000 GX	USA	SYNDER AVIATION LLC	1
Epic	EPIC E1000 GX	USA	TURBINE AIRCRAFT SERVICES LLC	1

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**Industry Data****New Business Aircraft Deliveries Worldwide - September 2021**

MANUFACTURER	MODEL	OPERATOR COUNTRY	OWNER	TOTAL DELIVERIES
<b>BUSINESS TURBOPROP &amp; PISTON AIRCRAFT (Continued)</b>				
Kodiac Aircraft	KODIAK 100 III	USA	FLIGHTLINE GROUP INC.	1
Kodiac Aircraft	KODIAK 100 III	USA	RECESS INVESTMENTS LLC	1
Pilatus Aircraft	PC-12/47E (PC-12 NGX)	Australia	AGILE AVIATION PTY. LTD.	1
Pilatus Aircraft	PC-12/47E (PC-12 NGX)	Austria	GOLDECK TEXTIL GMBH	1
Pilatus Aircraft	PC-12/47E (PC-12 NGX)	Monaco	ALFA GOLF AVIATION MONACO	1
Pilatus Aircraft	PC-12/47E (PC-12 NGX)	Unk Country	UNKNOWN	1
Pilatus Aircraft	PC-12/47E (PC-12 NGX)	USA	PILATUS BUSINESS AIRCRAFT LTD.	6
Piper	PA-46-500TP (M500)	Canada	AVIATION UNLIMITED (1990) INC.	1
Piper	PA-46-600TP (M600 SLS)	USA	CUTTER SOUTHWEST AIRCRAFT SALES LLC	1
Piper	PA-46-600TP (M600 SLS)	USA	FLIGHTLINE GROUP INC.	2
Piper	PA-46-600TP (M600 SLS)	USA	SKYTECH INC.	1
Tecnam	P2012 TRAVELLER	USA	HYANNIS AIR SERVICE	3
Textron Aviation (Beech)	B200GT (KING AIR 260)	Brazil	COMEXPORT TRADING COMERCIO EXTERIOR LTDA	1
Textron Aviation (Beech)	B200GT (KING AIR 260)	USA	AVIATION TRUST COMPANY LLC [TRUSTEE]	1
Textron Aviation (Beech)	B200GT (KING AIR 260)	USA	BEAU FLY INC.	1
Textron Aviation (Beech)	B300 (KING AIR 360)	Brazil	COMEXPORT TRADING COMERCIO EXTERIOR LTDA	1
Textron Aviation (Beech)	B300 (KING AIR 360)	Kazakhstan	UNKNOWN	1
Textron Aviation (Beech)	B300 (KING AIR 360)	Mexico	UNKNOWN	1
Textron Aviation (Beech)	B300 (KING AIR 360)	USA	R & J AVIATION LLC [AR-USA]	1
Textron Aviation (Beech)	B300 (KING AIR 360)	USA	THREESIXTY VENTURES LLC	1
Textron Aviation (Cessna)	CESSNA 208	Paraguay	UNKNOWN	1
Textron Aviation (Cessna)	CESSNA 208	USA	BANK OF UTAH [TRUSTEE]	1
Textron Aviation (Cessna)	CESSNA 208	USA	MONROE AVIATION LLC	1
Textron Aviation (Cessna)	CESSNA 208	USA	TVPX AIRCRAFT SOLUTIONS INC. [TRUSTEE]	1
Textron Aviation (Cessna)	CESSNA 208B EX	Brazil	AZUL CONECTA	2
Textron Aviation (Cessna)	CESSNA 208B EX	Brazil	COMEXPORT TRADING COMERCIO EXTERIOR LTDA	1
Textron Aviation (Cessna)	CESSNA 208B EX	USA	PLANE5 LLC	1
Textron Aviation (Cessna)	CESSNA 208BFP EX	USA	SHOE AIR LLC	1
<b>TOTAL SEPTEMBER 2021</b>				<b>43</b>
<b>TOTAL SEPTEMBER 2020</b>				<b>29</b>
<b>MILITARY DELIVERIES</b>				
Gulfstream	GV-SP (G550)	USA	UNITED STATES AIR FORCE	1
<b>TOTAL SEPTEMBER 2021</b>				<b>1</b>
<b>TOTAL SEPTEMBER 2020</b>				<b>0</b>
<b>GRAND TOTAL SEPTEMBER 2021</b>				<b>128</b>
<b>GRAND TOTAL SEPTEMBER 2020</b>				<b>112</b>

**NOTE:** A delivery is counted when the aircraft is shipped from the factory to a customer, dealer or, in some cases, back to the manufacturer for completion or for a company's own use.

**Source:** Aviation Week Network Fleet Discovery Database