

Reporting on The Business of Business Aviation Since 1965

**August 31, 2020**

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**Intelligence**

Bruce Landsberg, vice chairman of the National Transportation Safety Board (NTSB), will continue to serve in the position for a new 3-year term. President Donald Trump made the designation on Aug. 21. Landsberg began a five-year appointment as a board member on Aug. 7, 2018, and began a two-year term as vice chairman the same day. The NTSB will look at ways to apply some of the systemic approaches successfully used in aviation to other modes with a goal of zero deaths in transportation, he said. Until then, the board is working to reduce the number of deaths and injuries that occur in every mode of transportation.

FORECASTS/INDUSTRY DATA

**Pre-Owned Business Jet Sales Soar Over Summer**

JOHN MORRIS, [john.morris@aviationweek.com](mailto:john.morris@aviationweek.com)

**Used business aircraft sales picked up sharply in June and July after the COVID-19 pandemic and its economic impact hit them hard in the two earlier months. See *Chart on Page 16.***

Dealers accredited by the International Aircraft Dealers Association (IADA) reported 103 closed sales transactions in July, more than three per day for every day of the month. Association members also did well in June, making 74 deals.

“Many of our dealers are saying they’ll have their second-best year ever if this pace continues,” IADA Executive Director Wayne Starling says. IADA members account for more than 60% of all pre-owned aircraft sales globally, the association notes.

Those 177 deals in the past two months compare with 100 total in April and May, a 77% increase. In addition, August began with another 87 aircraft under sales contracts. And fewer deals fell apart in June and July: 27 versus 38 in April and May.

“IADA dealers also experienced a reduced percentage of deals where lowered prices were integral to completing the transaction,” he notes. IADA can take some of the credit for that, he believes: “We communicated and kept customers informed early on, when

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PROGRAMS

**Otto Takes Wraps Off Slippery, Fuel-Sipping Celera 500L**

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

**The subject of mystery and speculation since the first unofficial pictures appeared, an unusual business aircraft has finally emerged into public view with the formal introduction of the Otto Aviation Celera 500L.**

The aircraft, an aerodynamic prototype which first flew in January 2018, comes with eyebrow-raising performance claims—a stand-up cabin for six passengers and 4,500 nm range cruising at more than 400 kt. on a single 500-hp turbocharged diesel-cycle piston engine burning 16-22 nm/gal. of Jet A fuel.

A smaller, more fuel-efficient engine, low-drag, high-aspect-ratio wing and extensive drag-reducing laminar flow over the wing, fuselage and tail are the keys to Otto’s performance claims for the aircraft.

Having self-funded the project since 2008, the Yorba Linda, California-based startup has launched a Series B fundraising round. The company estimates it needs “a couple of hundred million dollars” to take the Celera 500L to FAA Part 23 certification, which it

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**SALES, From P. 1**

sellers were asking what they should do. Why would you lower prices when there were no buyers? We told them they needed to stay the course ... and avoid panic sales.

"Prices held up really well when sales had almost stopped. I think our members showed real leadership," Starling says.

Despite the surge of activity, inventories of pre-owned jets have increased slightly, but nowhere near as much as they could have, he believes.

Starling notes that the number of first-time buyers has more than doubled from "normal" times, and they now represent 35 to

40% of sales. Most are high net worth individuals and entrepreneurs, with corporations remaining on the sidelines.

Demand is mostly for late-model midsize jets, and mostly from the U.S. as travel restrictions keep international customers at home. Interest in large and ultra-large jets is slow, he adds.

In addition to completed sales, IADA-accredited dealers registered 19 new commitments to purchase aircraft in June and July, and 52 acquisition agreements in the same period. The group was also exclusively retained to sell 217 aircraft in the past four months.

**CELERA 500L, From P. 1**

anticipates will be a "three-year process," CEO Bill Otto Jr. says. The certification prototype is expected to fly within 18 months.

The project was started by William Otto, a former engineer at North American Aviation, who was looking for an aircraft that was fast but inexpensive to operate. "It started as a kind of hobby. His intent was to build an experimental aircraft for himself," says Otto Jr., his son.

The aerodynamic prototype first flew at Victorville, California, in January 2018. Secretly taken pictures of the bullet-shaped aircraft caused a stir of speculation and skepticism when they appeared online. The prototype began performance testing in September 2019.

The 31 flights completed before COVID-19 pandemic restrictions halted testing in March validated the aircraft's performance goals, Otto said. The extent of smooth laminar flow achieved in flight was measured using infrared imaging. "We are getting excellent laminar flow," he says.

The Celera 500L is powered by a 500-hp RED Aviation A03 V12 four-stroke diesel-cycle engine. In the prototype this has a single turbocharger stage, which restricts maximum altitude to 20,000 ft. This also limits the extent of laminar flow that can be achieved, says David Bogue, head of aerodynamics and formerly with Boeing and Boom Supersonic.

The production-conforming prototype now in design will have a two-stage turbocharger, which will enable the aircraft to cruise at 40,000-50,000 ft., similar to business jets, where full laminar can be achieved, Bogue says. With full laminar flow, Otto estimates drag will be 59% lower than competing aircraft.

The 4,500-nm range claim is with full laminar flow, but this can be disrupted by contamination, such as insects, so the Celera's performance will be certified with full turbulent flow. Guaranteed range will be less than 4,500 nm, so operators will see laminar flow as an added benefit in operation, Bogue says.

Otto says the prototype's purpose was to demonstrate the

aerodynamics, and the aircraft is overbuilt structurally for safety, so the focus in design of the conforming prototype is on optimizing weight. There will be other design changes, such as cabin windows and longer landing gear. Flush inlets will replace the large cooling intakes on top of the rear fuselage.

In addition to a smooth surface finish for laminar flow, there are other drag-alleviating design features such as the integrated winglets and the pusher propeller, which ingests and re-energizes the slow-moving fuselage boundary layer to minimize the momentum loss in the wake.

Mounting the propeller on the tail also avoids the Piaggio Avanti's noise issue with its wing-mounted pusher props, Bogue says. But it does mean the aircraft has to land with a fairly flat attitude to protect the prop, and pilots will need tailstrike training. Otto is targeting a 3,500-4,000-ft. balanced field length.

Other Celera 500L design features include a 6.2-ft.-high cabin, mechanically linked flight controls and a single-pilot instrument flight rules avionics fit. The powerplant operates as two six-cylinder engines, providing redundancy, and the wing enables a 22:1 glide ratio, a threefold improvement, Otto says.



Credit: Otto Aviation

## CHARTERS/BROKERS

## Charter Boom May Not Last, Analyst Says

JOHN MORRIS, [john.morris@aviationweek.com](mailto:john.morris@aviationweek.com)

**There is a real danger in showing too much enthusiasm for today's booming charter demand: it may not last, and it may lead the government to think that further relief money is unnecessary.**

So says aviation analyst Brian Foley, who has worked closely with the business jet industry for many years.

"Unsubstantiated exuberance may be setting the industry up for exclusion from any future government aid programs," he warns in the latest Forbes.

While there is little doubt business aviation has recovered far faster than the airline industry and other parts of the economy, there is growing concern that summer may have been the high point for the aircraft charter season, he says. "Once the frolicking at the beach is over and people return home, the focus normally turns to business trips in the fall."

Will they recover? Just look at your own calendars and compare them with last year, Foley says. That may be the best

guide for the future travel environment.

What some charter operators may report as booming business could in fact just be a spike in new inquiries, not trips sold, Foley notes. "The number of first-time flyer calls are undeniably higher, but the closing rate into an actual trip flown is just a fraction of calls from traditional private flyers. Newbie interest tends to be short-lived once they get a five- or six-figure quote. Many of their requests are for one-and-done trips, and are shopped all around for the lowest price, which makes any trips actually flown a low-margin proposition."

Based on the comments and press releases of a few business jet charter providers, one could be led to believe that the industry is on fire as well-heeled travelers avoid the airlines. There may be some outlier examples, but the data generally does not support these claims, Foley says.

"While perhaps beneficial from a marketing perspective, these glowing accounts of the industry could backfire should future government relief programs be considered.

A regulator could assume that any further stimulus to the sector is unnecessary given the accounts of business robustness."

## SERVICES/FBOs

## Gulfstream, Jet Aviation Open Palm Beach Service Center, FBO

MOLLY MCMILLIN, [molly.mcmillin@aviationweek.com](mailto:molly.mcmillin@aviationweek.com)

**Gulfstream Aerospace has opened a new, company-owned service center in Palm Beach International Airport in Florida, while Jet Aviation, its sister company, has opened a new hangar and fixed base operation complex there.**

Gulfstream and Jet Aviation share the 161,000-sq.-ft. facility, with more than 104,000 sq. ft. dedicated to Gulfstream. Each company has its own hangar and shared office space.

Gulfstream's hangar will accommodate up to seven G650ER or G650 aircraft. Jet Aviation's facility includes a 42,000-sq.-ft. hangar designed to handle large-body aircraft entering the market, 11,270 sq. ft. of FBO terminal, 64,188 sq. ft. of ramp and about 10,000 sq. ft. of dedicated office and storage space, it says.

The two share more than 9,000 sq. ft. of the passenger terminal on the first floor and 200,000 sq. ft. of shared tarmac space.

"Gulfstream has had a presence in Palm Beach for almost 20 years with the capability to accommodate all Gulfstream models," said Derek Zimmerman, Gulfstream Customer Support

president. "We are excited to open a state-of-the-art facility that will offer world-class service to a greater number of Gulfstream aircraft simultaneously. The Palm Beach service center is well-positioned to support customers in domestic and international markets, including South America."

Jet Aviation's facilities will support larger aircraft and increasing demand, said David Best, Jet Aviation senior vice president of regional operations, America. "We continue to grow our facilities to match our customer needs and are pleased to have strong interest in the new hangar."

It is Jet Aviation's fifth new hangar in recent years. Jet Aviation is currently constructing a new FBO and hangar terminal in Scottsdale, Arizona, with completion scheduled in early 2021. It is also working to replace a storm-damaged hangar in Houston. Gulfstream's Palm Beach facility offers a broad range of services, such as major inspections, structural modifications and repairs, major avionics installations and system upgrades. In 2019, Gulfstream opened a facility in Van Nuys, California, and expanded facilities in Appleton, Wisconsin, and Savannah, Georgia. It also recently began operations at a new service center in Farnborough, England.

## Sounding Board

### Five Minutes With XOJet Aviation President, COO Kevin Thomas

MOLLY MCMILLIN, [molly.mcmillin@aviationweek.com](mailto:molly.mcmillin@aviationweek.com)

Kevin Thomas joined XOJet Aviation in 2019 and holds the position of president and chief operating officer. He joined the company after serving as senior vice president of business development and strategic planning for Jet Support Services Inc. (JSSI). XOJet Aviation is based in Fort Lauderdale, Florida.

**Q. As an on-demand provider, XOJet Aviation is adding aircraft to its fleet as demand increases. What is your growth plan?**

A. Pre-COVID, our plan had always been to grow the fleet, but COVID obviously put a roadblock in that growth. Over the course of the last couple of months, we've seen a significant return and demand for business aviation.

**Q. What does that mean for the company?**

A. It seemed prudent and the timing seemed to be appropriate to begin conversations about those growth plans again. As a part of that, the first phase of those growth plans is adding to our existing fleet. We have an immediate need based on the current demand to start those growth plans and put (them) back into action.

**Q. How many aircraft will you add?**

A. We're looking at four aircraft initially, but have plans over the next 18 to 24 months to take somewhere between 10 and 20 additional aircraft. That will slide depending on how we see demand continue and what that growth looks like. This is consistent with what our plans were at the beginning of the year.

**Q. You mentioned that two of the four aircraft additions are pending—a Citation X and a Challenger 300. What about the rest and how large is your fleet now?**

A. We've got a portfolio of additional aircraft on the market that we're currently evaluating. We want to be smart. Currently at 40 aircraft, we are actively engaged at looking at adding a minimum of two more in the near term. For the XOJet Aviation fleet specifically, our goal is between 50 and 55 aircraft when it's all said and done.

**Q. You mentioned that you are experiencing a V-shaped bounce back with demand. What are you seeing in the market?**

A. We have seen a number of new clients, new to XOJet Aviation, but also new to business aviation in general. Clients who maybe had always had the means to fly business aviation or leverage the business aviation infrastructure but had traditionally flown first class are making the switch. (They also had) the need to get into operations where maybe commercial air travel has either ceased or has been significantly reduced. Our existing clients are starting to come back as well. It's really a combination of all those factors that play into what I would call a V-shaped bounce back in demand.

**Q. Is business back to pre-pandemic levels?**

A. I would say from a fleet utilization and hours (perspective), we are back. The second piece of that is what we call the yield or the price that we're able to generate in the market, and the pricing is not fully recovered yet. From a fleet perspective and number of hours we are putting into the fleet, we're definitely back. We've still got a way to go in terms of the revenue per flight hour; however, our projections show that we'll be able to achieve that sometime in mid-to-late Q4 or early Q1 2021.

**Q. What's been the effect of the pandemic on your employees and how have you had to adjust?**

A. Everything you might expect—new procedures and protocols in the way we clean our aircraft to our offices to social distancing requirements. We were fortunate enough and made the decision early on to invest in our employees to ride this out. We never furloughed or laid anyone off. Some in nonoperational positions have been able to work from home, but largely, the mission-critical operations folks have all remained in the office and continued to work full time.



Credit: XOJet Aviation

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Sounding Board is an intermittent column that features leaders of the business aviation industry.

## Staff

### EDITORIAL

2121 K Street NW, Suite 210, Washington, DC 20037  
Tel: +1-202-517-1100, [awin.aviationweek.com](mailto:awin.aviationweek.com)

### U.S. EDITORIAL STAFF

**Editor-In-Chief** Molly McMillin  
**Senior Copy Editor** Andy Savoie  
**Associate Producers**, Amy Hardcastle, Donna Thomas  
**Contributing Editors** Michael Bruno, Bill Carey, Tony Osborne, Bradley Perrett, Graham Warwick

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**Fleet Analysts** Nigel Howarth, Nigel Prevet

### SUBSCRIBER SERVICES

Customer Service, New/Renewal Sales  
The Weekly of Business Aviation, P.O. Box 1175,  
Skokie, IL 60076-8175  
Tel: +1-877-369-3706 (within the U.S.)  
Tel: +1-913-850-6930 (outside the U.S.)  
Fax: +1-800-455-3145  
Email: [tech\\_assistance@aviationweek.com](mailto:tech_assistance@aviationweek.com)

### INTELLIGENCE AND DATA SERVICES

**Managing Director** Anne McMahon  
Tel: +1-646-291-6353, [anne.mcmahon@aviationweek.com](mailto:anne.mcmahon@aviationweek.com)  
**Senior Director, Business Development**, Thom Clayton  
Tel: +44 (0) 20 7017 6106, [thom.clayton@aviationweek.com](mailto:thom.clayton@aviationweek.com)

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**User Engagement** Laurie Grossman, Tel: +1-646-233-4434  
[laurie.grossman@aviationweek.com](mailto:laurie.grossman@aviationweek.com)

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### ADVERTISING

**Sales Director** Melissa Crum  
Tel: 913-284-2951, [melissa.crum@informa.com](mailto:melissa.crum@informa.com)

### REPRINTS

Wright's Media  
Tel: 1-877-652-5295 (within U.S.)  
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### REGULATORY/LEGISLATIVE

## European Travel Restrictions Tighten As COVID-19 Spread Accelerates

HELEN MASSY-BERESFORD, [helen.massy-beresford@aviationweek.co.uk](mailto:helen.massy-beresford@aviationweek.co.uk)

**PARIS—COVID-19-related travel restrictions between European countries, including Germany and the UK, are tightening up, as the novel coronavirus spread accelerates in the region and threatens a fragile recovery in air travel demand.**

Germany is introducing a mandatory 14-day quarantine for passengers arriving from what it considers to be risk areas, in a move likely to come into effect Oct. 1. There is the possibility of shortening the isolation period if a COVID-19 test that can be taken on the fifth day of quarantine proves negative.

The UK government has removed the Czech Republic, Jamaica and Switzerland from its “travel corridors” safe list, meaning arrivals into the UK from those countries must self-isolate for 14 days as of 4:00 a.m. Aug. 29. Conversely the UK has added Cuba to the travel corridors safe list from the same date.

German aviation industry association BDL and Lufthansa say the new regime is effectively a new lockdown that cuts off travel to 80% of the world.

The industry had welcomed a previous measure introduced by Germany three weeks ago whereby passengers arriving from a risk area or risk country had to take a COVID-19 test upon arrival. BDL and Lufthansa favor a mandatory test involving incoming passengers from more defined risk areas.

Recently added to Germany’s at-risk list are areas of Europe where the virus spread is developing rapidly, such as France’s Ile de France region, which includes Paris, and its Provence-Alpes-Côte d’Azur region. Also added were French overseas territories French Guiana, Guadeloupe, and St Martin; parts of Croatia; Antwerp and Brussels in Belgium; and Gibraltar.

On Aug. 25, Eurocontrol said that the demand recovery in Europe had plateaued with traffic levels at around 48.5% of 2019 levels in the week to Aug. 23. “The recovery has hit a plateau ... state restrictions are having an impact,” Eurocontrol director general Eamonn Brennan wrote on Twitter.

Summertime is normally a lucrative vacation season in Europe. However, as many airlines have been building back capacity and seeking to attract wary travelers with cheap deals and flexible options, the aviation industry has been vocal in its criticism of inconsistent travel rules across the region. The latest complaint came from Charlie Cornish, CEO of London Stansted Airport’s parent company Manchester Airport Group (MAG).

Cornish noted that at this time in 2019—the last Monday in August is a UK public holiday—more than 280,000 passengers passed through Stansted in just one week-end. The figure is set to be less than a third of that in 2020.

“Throughout the pandemic there has been no evidence of any recognition from the government of the need to protect the travel industry and enable it to recover from what is undoubtedly the biggest crisis it has ever faced,” Cornish said Aug. 27.

Cornish blasted the UK government’s failure to provide financial support for the industry, as has happened in France, Germany and other European countries.

“The impact of this decision has been amplified many times over by its sluggish, chaotic and illogical approach to travel restrictions,” Cornish added.

## ASSOCIATIONS

## NBAA Asks IRS To Preserve Commuting Deductions

MOLLY MCMILLIN, [molly.mcmillin@aviationweek.com](mailto:molly.mcmillin@aviationweek.com)

**The National Business Aviation Association (NBAA) has asked the Internal Revenue Service (IRS), as it updates its rulemaking, to avoid double taxation on commuting expenses and to retain deductions for business travel.**

Before the passage of the Tax Cuts and Jobs Act in December 2017, certain commuting expenses were deductible by the employee if the benefits were reported as income to the employee or necessary for safety and security. The Act instituted a new limitation on deductions for certain commuting expenses. In response, NBAA says it has requested guidance from the IRS and the Treasury Department that deductions for commuting expenses should still be allowable in certain situations.

NBAA also says that the Act's elimination of employer deductions for commuting where taxable income has been correctly imputed to the employee would result in double taxation. That could not have been the intent of Congress, the association says.

In June, the IRS issued a Notice of Proposed Rulemaking called "Qualified Transportation Fringe, Transportation and Commuting Expenses Under Section 274," outlining its approach to the provisions.

"This is an important step in the regulatory process, and we thank the IRS and Treasury Department for providing us the opportunity to explain how these changes impact business aviation, an industry that is vital to our country's economic recovery," said Scott O'Brien, NBAA's senior director of government affairs. "The proposed regulations require additional clarification and we look forward to working with the IRS to protect taxpayers from double taxation and preserve deductions for commuting benefits necessary to protect the safety and security of employees."

In comments filed Aug. 24, NBAA says the language used in the proposed rulemaking could unintentionally expose business travel to the Act's limitation on commuting deductions, particularly if the employee works at more than one place of employment.

"There is no indication that Congress intended to apply this disallowance to business travel from an employee's residence to a secondary place of employment, which is not commuting," NBAA says. "This potential effect ... should be addressed through regulations to prevent the unintended consequence of disallowing deductible business travel. It seems obvious that such business travel expenses should remain working condition fringe benefits excluded from employees' income. Accordingly, we request that the regulations clarify that the disallowance ... applies only to travel classified as 'commuting' and not to otherwise deductible business travel."

## CHARTERS/BROKERS

## Sports Industry To Boost Air Charter In 2021, Broker Says

MOLLY MCMILLIN, [molly.mcmillin@aviationweek.com](mailto:molly.mcmillin@aviationweek.com)

**Sports travel is shaping up to be the fastest-growing sector in the air charter industry for 2021 because of a packed calendar of scheduled and rescheduled high-profile events, according to Chapman Freeborn, an air charter broker.**

A number of major events have been postponed from 2020 to 2021 because of the COVID-19 pandemic, including the Summer Olympics, the Ryder Cup golf competition, and the Euro 2020 and Copa America soccer tournaments. That means adding them to an already busy calendar that includes an Ashes cricket tour, British Lions rugby tour, the T20 Cricket World Cup and an array of events including the Super Bowl, grand slam tennis and golf tournaments, the NBA Finals, Champions League and Premier League soccer and various other golf tournaments.

The air charter industry is hopeful the teams, sponsors and fans—once they're allowed back inside stadiums—will choose to charter rather than travel on the airlines to have more control over timing, destination and health risks, the company says. The pandemic has led passengers to be more aware of the health risks in traveling.

To that end, Chapman Freeborn has appointed its first group director of sports, Nick Lamb, a former English cricketer. He took on the role in August.

"When you look at the schedule, 2021 has the potential to be a fantastic year for sport and also for our industry," Lamb said. "The benefit for teams, and for sports organizations, federations and corporate sponsors, is that chartering a flight enables people to stay together in their bubble without the need for public interaction at the air terminal or on the plane." It is also possible to personalize health and safety measures on board private flights, such as leaving empty seats between passengers and carrying extra personal protective equipment, he said.

## SERVICES

## Sustainable Fuels Still Key Focus Despite Pandemic

ANGUS BATEY, [angus@angusbatey.co.uk](mailto:angus@angusbatey.co.uk)

**The COVID-19 pandemic has had a huge impact on almost every aspect of the aviation sector, but the coronavirus does not appear to have dented the industry's determination to drive down CO2 emissions and its desire for operations to be more environmentally responsible.**

And, while future propulsion systems remain more distant aspirations, efforts to increase availability and adoption of sustainable fuels remain a key current focus.

In recent days, four announcements have underscored the importance placed on sustainable aviation fuels (SAF) to the future sustainability of the business aviation industry. In Europe, AirBP and its renewable fuels production partner, Neste, have committed to making more SAF available to a number of customer airports; in the U.S., Phillips 66 is to convert its San Francisco refinery to produce SAF, while FBO operator ACI Jet has received a first delivery of SAF at its John Wayne-Orange County Airport facility. And the SAF Coalition—a cross-industry body including a raft of business aviation trade associations—has published the second edition of its Sustainable Aviation Fuel Guide.

“[The new edition of the Guide] is a testament to our continued efforts toward a lower-carbon future,” says Athar Husain Khan, secretary-general of the European Business Aviation Association (EBAA). It forms the Coalition with the Commercial Aviation Alternative Fuels Initiative (CAAFI), the General Aviation Manufacturers Association (GAMA), the International Business Aviation Council (IBAC), the National Air Transportation Association (NATA) and the National Business Aviation Association (NBAA).

“Raising awareness to further fuel the demand for SAF is crucial to overcoming challenges such as the large geographical

spread required for our sector,” he adds.

That geographic spread is one that AirBP and Neste are working to address as the partners increase production and availability of SAF to a network of European airports. The companies have announced plans for a fivefold expansion of the volume of SAF made available at European airports including Stockholm and Oslo, with deliveries to begin “in the coming weeks.”

In part, this increased production and availability has been driven by the Norwegian government's mandate that 0.5% of all aviation fuel sold in the country should be SAF.

“The mandate creates increased demand for SAF in Norway,” an AirBP spokesperson told The Weekly of Business Aviation via email. AirBP is able to use its existing supply infrastructure to deliver SAF, which is produced by Neste in Finland, then blended in Belgium before being shipped by sea to customer airports. “The incremental emissions for secondary logistics do not have a material impact on the overall emissions savings of using SAF,” the spokesperson added.

AirBP expects the majority of the additional SAF to be made available this year and next to be delivered to airports in the Nordic region, though some may find its way to other parts of Europe. Although the Norwegian mandate has been important, the company says it is seeing increased demand from customers across Europe, in both the commercial and business sectors.

The challenge facing fuel providers, airports and flight operators remains the catch-22 involving availability and price. SAF remains significantly more expensive than traditional aviation fuel, and costs will not come down until adoption increases. But for more customers to choose SAF, the price needs to fall. Commenting on the launch of the new Guide, NATA President and CEO Timothy Obitts says that “The Coalition's goal has always been to increase the production and use of SAF, and education through this Guide is kept to that mission.” That education effort has to include stakeholders outside the sector.

## PROGRAMS

## Mitsubishi Aircraft Reviews SpaceJet Flight-Test Data

BRADLEY PERRETT, [perrett@aviationweek.com](mailto:perrett@aviationweek.com)

**The Mitsubishi Aircraft SpaceJet regional jet program is focusing on reviewing flight-test data to prepare for an eventual return to flight.**

Planned restructuring of the grounded development program continues, a company representative said.

Engineers have data from 3,900 hr. of flying that was conduct-

ed before a decision in May to keep prototypes on the ground. The main flight-testing base, at Moses Lake, Washington was closed and the prototypes there mothballed.

The data is being validated and evaluated against targets and expectations, the representative said. The aim is to ensure Mitsubishi Aircraft is “prepared to build the most efficient plan to achieve TC [type certification].”

Under instructions from majority owner Mitsubishi Heavy Industries (MHI) to cut costs, Mitsubishi Aircraft has not

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## PROGRAMS

## Reliable Robotics Reveals Autonomous Caravan For Cargo

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

**A startup founded by former SpaceX and Tesla engineers is developing an autonomy platform to convert the Cessna 208 Caravan for unmanned cargo operations.**

Reliable Robotics performed the first automated landing with a Caravan on June 30 having already flown a Cessna 172 Skyhawk fully unmanned in U.S. airspace.

Reliable Robotics has a “singular focus” on certification, said cofounder and CEO Robert Rose, who led flight software development on the Falcon 9 rocket and Dragon capsule at SpaceX as well as the Autopilot diver-assistance program at Tesla. Juerg Frefel, cofounder and vice president of engineering, led development of the computing platform for the Falcon 9 and Dragon.

The San Francisco-based startup’s autonomy platform is divided up into layers that can be certified incrementally with the FAA. “Others talk about developing the minimum viable product, we joke internally about minimum viable autonomy. And that means breaking the problem down into bite-size chunks that you can push through the certification process,” Rose said.

The layers divide up the overall system into pieces that different parts of the FAA can handle, he said, from aircraft certification to flight standards.

“Certification of these systems is about more than just the equipment that goes on the aircraft. You also need the communications system, ground network and control center—for the foreseeable future you are going to have pilots operating these systems remotely. And then you have maintenance and the Part 135 and Part 121 [operating requirements] aspects,” he said.

“What makes us different from others out there is we are looking at solving this problem holistically, and how you vertically integrate all this together to create a complete operation,” Rose said. “For the first approval to do this you are going to have to answer questions about the onboard system, control center, maintenance plan and training for the pilots.”

Caravans in cargo feeder service with companies such as FedEx Express fly only a couple of hours a day. Converting the aircraft to supervised autonomy and moving the pilot to a ground station will increase utilization and improve economics, he said, adding: “The value comes from the ability to decouple the pilot from the aircraft and the new business opportunities that creates.”

The core layer of the autonomy platform is a fly-by-wire control system “that’s responsible for keeping the aircraft flying and following trajectories,” Rose said. On top of this is an outer-loop layer that performs trajectory definition and manages other aircraft systems. A layer on top of that deals with issues extrinsic to the aircraft, while a further layer enables remote operation of the entire system.

## SERVICES

## Comlux Set To Deliver Its First, World’s Third VVIP Airbus ACJneo

JOHN MORRIS, [john.morris@aviationweek.com](mailto:john.morris@aviationweek.com)

**The world’s third VVIP Airbus ACJneo will enter service after a handover ceremony to its customer before the end of August.**

The ACJ320neo was outfitted by Comlux Completions at its center in Indianapolis.

Registered 9H-NEW, the aircraft will operate under the flag of Malta.

Two other ACJneos have entered service so far out of the 15 orders received by Airbus: an ACJ320neo with Acropolis Aviation of the UK (G-KELT) completed and delivered for service in March by AMAC Aero of Basel, Switzerland, and an ACJ319neo (D-ANE0) with Germany’s K5 Aviation, completed by Fokker Techniek and handed over to the operator in June.

The Comlux aviation group is the largest single customer

for the Airbus ACJ320neo family of VVIP business jets, having ordered four. That brings its total orders for Airbus corporate jets to 20 over the last decade. “We are the No. 1 client ever of Airbus in the VIP market,” Comlux executive chairman and CEO Richard Gaona says.

Comlux is unique in the industry in that it purchases aircraft on its own books, hoping to resell them to clients who will also select Comlux to outfit them and even operate them. For Comlux the gamble paid off: it won completion contracts for all four of its A320neo family, making it the leading completions center for the type, Gaona says.

He admits that Comlux’ strategy to buy aircraft before finding customers was very risky, “but it has paid off.” The company also purchased two Boeing 737 MAX 8s soon after they were introduced. The first arrived “green” at its Indianapolis center in February 2019, but completion has been delayed by the grounding of the aircraft type.

## SUPPLIERS

## Honeywell Marks Additive Engine Milestone

GUY NORRIS, [guy.norris@aviationweek.com](mailto:guy.norris@aviationweek.com)

**An additively manufactured bearing housing developed by Honeywell for the ATF3-6 turbofan has become what is claimed to be the first 3D-printed flight-critical engine part to be certified for service on an operational powerplant.**

The milestone, which follows FAA approval, marks a significant step for production of safety critical engine components made using additive manufacturing rather than conventional casting processes.

Honeywell, which has been developing metal additive techniques since 2007, said the certification paves the way for production of additional 3D-printed qualified flight-critical parts on other engines.

The company pursued certification of the lower cost, faster manufacturing method for the number 4/5 bearing housing on the ageing ATF3-6 because of the increasing costs of supporting the dwindling fleet. Originally developed by Honeywell heritage company Garrett in the 1960s, only around a dozen engines remain in service powering a handful of Dassault Falcon 20Gs operated by the French Navy.

Honeywell Aerospace VP of manufacturing engineering Jon Hobgood said the adoption of additive manufacturing has cut lead time from “approximately two years to two weeks.” Honeywell added that, following certification, multiple new bearing housings are expected to be produced through the end of 2020. The company also mass produces non-flight critical 3D-printed aircraft components.

Other engine makers, most notably General Electric, are similarly building up additive manufacturing capacity and investing heavily in 3D printing for parts in commercial engines ranging from the CFM Leap-1 to the Catalyst turboprop. Additively manufactured components, including safety critical parts, are also included in the GE9X, which is expected to be certified shortly for use on the Boeing 777X.

Rolls-Royce developed an experimental large front bearing housing for testing on the Trent XWB in 2015 using electron beam melting technology. Rolls plans to certify that process for making parts of the UltraFan engine.

Pratt & Whitney also uses additive manufacturing for parts of the PW1000G geared turbofan and—working with Singapore-based ST Engineering—plans to introduce a 3D-printed fuel system component this summer for the maintenance, repair and overhaul of an unspecified engine model.

## ASSOCIATIONS

## NATA Establishes General Aviation Airports Committee

MICHAEL STEARNS, [michael.stearns@aviationweek.com](mailto:michael.stearns@aviationweek.com)

**WASHINGTON—The National Air Transportation Association (NATA) has established a General Aviation Airports Committee to assist in setting the organization’s policy priorities and advocacy efforts as they affect general aviation airport stakeholders.**

Co-chairs will be Lara Kaufmann, associate director of the Greenville (South Carolina) Downtown Airport; and Ben Harrison, general manager of the Cullman (Alabama) Regional Airport.

The committee is intended to provide NATA’s airport membership with a voice for the safety, quality and security issues

affecting airports and aviation businesses. Committee members are expected to address emerging concerns associated with COVID-19 and issues pertaining to landlord/tenant relations, airport revenues, fuel quality, fire codes, Customs, leases, minimum standards and hangar development.

The committee also is expected to “highlight the valuable services and jobs that the business aviation industry provides to their communities,” said NATA Board Chairman Curt Castagna. “This effort is consistent with NATA’s mission to encourage fostering collaborative approaches between airport sponsors, aeronautical tenants and the surrounding community in addressing challenges and opportunities that support maximizing the economic potential for such public/private partnerships.”

## MITSUBISHI, From P. 7

announced a schedule for returning to flight. In any case, there is little demand in the wrecked market for commercial aircraft.

“After we complete our restructuring, we will rebuild the plan to achieve TC,” the representative said. “Any personnel changes

being made as part of our reorganization are aimed at building an appropriate organizational structure to support our new direction and focus, and to realign resources to help us endure this crisis.”

The personnel changes were not detailed.

## Business Aviation Briefs

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**Gogo** has reached a milestone with its Avance L5 high-speed 4G inflight connectivity system installed and flying on 1,000 business jets, the company reports. Gogo hit the 1,000th installation milestone three years after its first L5 installation. The company is also nearing 450 installations of its Avance L3 system, a lighter weight, smaller system launched in early 2018. The Gogo Avance L5 is connecting all types and sizes of jets, from light jets to large global business jets, it said. Since the Avance L5 was launched in late 2017, more than 325,000 flights have been made with the system on board, flying more than 420,000 hr., 211 million mi. and consuming 150 million megabytes of data, the company says. The Avance L5 and L3 are available on a retrofit basis with more than 200 supplemental type certificate approvals from the FAA. The systems are also line fit factory options on a majority of business jets.

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**Bell Textron** announced the delivery of a Bell 505 Jet Ranger X to Southern Utah University (SUU). The aircraft will be added to the university's fleet of helicopters used to conduct student training in its Professional Pilot Aviation Program. SUU's College of Aerospace Sciences and Technology offers training in Rotor Wing Pilot or Fixed Wing Pilot components. The university's curriculum includes Turbine Transition, External Load, Night Vision Goggles, Mountain Flying and Single and Multi-Engine Fixed Wing training. The program also offers pilot licenses and ratings for private pilot, instrument rating, commercial pilot, certified flight instructor, and certified flight instructor instrument training.

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**CAE** has expanded its live online instructor-led maintenance training program to business jet platforms. The courses are now available for Dassault, Bombardier and Gulfstream aircraft types and specific helicopters. They offer real-time teaching in a virtual classroom setting where trainees can interact with course instructors and peers. Originally designed for helicopter platforms in 2016, the company now provides virtual courses to more than 15 operators and 200 individuals. The program offers flexibility for maintenance training and compliance to regulatory and scheduling guidelines. Technicians can study anytime, anywhere, with an internet connection.

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**Web Manuals**, a developer of digital document management for the aviation industry, has doubled the number of drone operator customers it supports. Following an influx of applications for FAA certification, and the increasing commercial use of drones since the start of the COVID-19 pandemic, the company is digitizing more

documentation to ensure Part 135 Air Carrier compliance. For customers operating in the European Union, the company has added IR 2020/746 (IR 2019/947) EU regulations to its libraries. Upon request, the regulations can be integrated into clients' portfolio of manuals and regulatory documentation.

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**Journey Aviation**, a private jet charter operator and aircraft management company based in Boca Raton, Florida, has expanded its large-cabin, long-range heavy jet charter fleet with the purchase of a Gulfstream GIVSP. The company now has a fleet of 16 heavy jets available for international and domestic flights. The GIVSP includes a newly renovated interior, long-range performance, 16-passenger configuration, a full-sized aft galley, complimentary Wi-Fi, display monitors and Airshow Genesys.

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**Bombardier** has delivered the first Global 7500 long-range business jet with a dual head-up display for additional safety and redundancy to the cockpit. The HUD is equipped with enhanced and synthetic vision systems for situational awareness. The second HUD builds on the advantages with benefits that include increased contributions from the co-pilot during HUD-assisted operations, easier switching between pilot flying and pilot monitoring and redundancy during low-visibility approaches.

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**Minuteman Aviation** in Missoula, Montana, has begun construction of a new 29,150-sq.-ft. hangar. Half of the structure will be filled with aircraft from existing customers, while space will be available for overnight stays or long-term leases in the new hangar and in the main hangar. The project is the first phase of a multiyear plan to expand the operation at Missoula International Airport to meet an increase in demand and traffic. The expansion also includes an additional 150,000 sq. ft. of ramp space with an asphalt rating that allows for 60,000-lb. aircraft. Almost half of the ramp has been completed. The remaining ramp space and a new terminal will be finished in mid-2021, the company says.

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**Textron Aviation** is celebrating the fifth anniversary of the first customer delivery of its Cessna Citation Latitude midsize jet. Since 2015, the company has delivered nearly 240 aircraft, comprising more than 40% of all midsize business jet deliveries. Deliveries have included more than 120 Latitudes to NetJets. The Latitude

CONTINUED, P. 12

## Airworthiness Directives

**BELL HELICOPTER** Textron Canada Limited Helicopters [Docket No. FAA-2019-0589; Product Identifier 2017-SW-020-AD; Amendment 39-21215; AD 2020-17-10]. The FAA is superseding Airworthiness Directive (AD) 2016-02-06 for Bell Helicopter Textron Canada Limited (Bell) Model 429 helicopters. AD 2016-02-06 required inspecting certain tail rotor (T/R) pitch link bearing bores for corrosion and pitting. AD 2016-02-06 also required a repetitive inspection of the sealant and repeating the inspections for corrosion and pitting if any sealant is missing. This new AD retains the requirements of AD 2016-02-06, expands the applicability, and adds a repetitive inspection. This AD was prompted by an FAA determination that additional part-numbered T/R pitch link assemblies (links) are affected by the same unsafe condition and that an additional repetitive inspection is necessary to address the unsafe condition. The actions of this AD are intended to address an unsafe condition on these products. This AD is effective Sept. 21. The FAA estimates that this AD affects 93 helicopters of U.S. registry. The FAA estimates that operators may incur the following costs in order to comply with this AD: the cost of inspecting the set of T/R links (eight bearings) for corrosion of \$85 per helicopter and \$7,905 for the U.S. fleet per inspection cycle; cleaning and inspecting the set of T/R links for pitting of an estimated \$85 per helicopter; replacing a T/R link at a cost of \$2,739 per T/R link; removing the torque stripe, cleaning and applying sealant to the set of T/R links to cost an estimated \$85 per helicopter, and the cost of inspecting the sealant on a set of T/R links of \$85 per helicopter and \$7,905 for the U.S. fleet per inspection cycle. For more information, contact Scott Franke, Aviation Safety Engineer, International Validation Branch, Aviation and Rotorcraft Unit, FAA, 10101 Hillwood Pkwy., Fort Worth, 76177; telephone 817-222-5110; email [scott.franke@faa.gov](mailto:scott.franke@faa.gov).

**AVIAT AIRCRAFT** Inc. [Docket No. FAA-2020-0715; Project Identifier AD-2020-00484-A; Amendment 39-21190; AD 2020-16-06]. The FAA is adopting a new airworthiness directive (AD) for all Aviat Aircraft Inc. Models A-1, A-1A, A-1B, A-1C-180, and A-1C-200 airplanes. This AD requires repetitive inspections of the forward horizontal stabilizer support assembly and the rear horizontal stabilizer support tube and reporting information to the FAA. This AD was prompted by field reports of the complete failure of both the forward support assembly and the rear support tube due to fatigue. The FAA is issuing this AD to address the unsafe condition on these products. This AD is effective Sept. 1. The FAA estimates that this AD affects 941 airplanes of U.S. registry with an estimated cost of compliance to inspect the forward horizontal stabilizer inboard support assembly for cracks of \$110 per aircraft or \$103,510 for the fleet; the cost of

inspecting the rear horizontal stabilizer inboard support tube weld joints for corrosion and damage of \$42.50 per aircraft or \$39,992.50 for the fleet, plus on-condition costs to replace the forward horizontal stabilizer support tube of \$466 per aircraft; the cost to repair the rear horizontal stabilizer support tube weld joints and install new support tube insert of \$545.50 per aircraft; and the cost to report if cracks are found of \$42.50 per aircraft. For more information, contact Mark Dalrymple, Aerospace Engineer, Denver ACO Branch, FAA, 26805 E. 68th Ave., Denver, 80249; phone: (303) 342-1090; email: [mark.dalrymple@faa.gov](mailto:mark.dalrymple@faa.gov).

**ASPEN AVIONICS**, Inc. [Docket No. FAA-2020-0723; Project Identifier AD-2020-00586-Q; Amendment 39-21192; AD 2020-16-08] The FAA is correcting an airworthiness directive (AD) that published in the Federal Register. The AD applies to certain Aspen Avionics, Inc., Evolution Flight Display (EFD) EFD1000 Emergency Backup Display, EFD1000 Multi-Function Display, and EFD1000 Primary Flight Display systems installed on various airplanes. As published, the docket number and product identifier in the Comments Invited section of the preamble are incorrect. This document corrects that error. In all other respects, the original document remains the same. However, for clarity, the FAA is publishing the entire rule in the Federal Register. This correction became effective Aug. 17. The effective date of AD 2020-16-08 remains Aug. 17, 2020. For more information, contact Mahmood Shah, Aerospace Engineer, Fort Worth ACO Branch, FAA, 10101 Hillwood Pkwy., Fort Worth, 76177; phone: 817-222-5133; fax: 817-222-5960; email: [mahmood.shah@faa.gov](mailto:mahmood.shah@faa.gov).

**AIRBUS HELICOPTERS** [Docket No. FAA-2018-0994; Product Identifier 2017-SW-002-AD; Amendment 39-21216; AD 2020-17-11] The FAA is superseding Airworthiness Directive (AD) 2017-14-05 for Airbus Helicopters Model SA330J helicopters. AD 2017-14-05 required replacing certain right-hand (RH) hydraulic pumps and was prompted by reports of broken screws that attach the cover of the hydraulic pump. This new AD requires replacing certain left-hand (LH) and right-hand (RH) hydraulic pumps. This AD was prompted by reports of broken bolts that attach the cover of the hydraulic pump. The actions of this AD are intended to address an unsafe condition on these products. This AD is effective Sept. 22. The FAA estimates that this AD affects 24 helicopters of U.S. registry. The FAA estimates the cost of replacing a hydraulic pump at \$2,670 per hydraulic pump. For more information, contact Matt Fuller, AD Program Manager, Continued Operational Safety Branch, Airworthiness Products Section, General Aviation and Rotorcraft Unit, FAA, 10101 Hillwood Pkwy., Fort Worth, 76177; telephone 817-222-5110; email [matthew.fuller@faa.gov](mailto:matthew.fuller@faa.gov).

## Business Aviation Appointments

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**Kelly Romano** has joined **AE Industrial Partners** as an operating partner. Romano has held executive roles at United Technologies Corp. for 27 years, most recently serving as president of Intelligent Building Technologies. Since her retirement from UTC in 2016, she has served as founder and CEO of BlueRipple Capital.

**Luke Williams** has been named corporate controller of **West Star Aviation**. Williams has 15 years of experience in finance within the transportation industry. **Lisa Hall** has been promoted to global program manager at West Star Aviation's Grand Junction, Colorado, facility. Hall has served in lead and management positions with Bombardier and West Star.

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## Calendar

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To list an event, send information in calendar format to Amy Hardcastle at [amy.hardcastle@informa.com](mailto:amy.hardcastle@informa.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.)

**[Virtual Event] Biweekly ongoing mini sessions** —Bombardier Safety Standdown 2020, <https://safetystanddown.com/en>

**[Canceled] Sept. 1**—Triple Tree Aerodrome Nall in the Fall, South Carolina, <https://tta.aero/aviation-events>

**[Virtual Event] Sept. 9-10**—Unmanned Aerial Systems (UAS) Tech Forum, <https://www.uascluster.com/pages/techforum2020-home.html>

**[Virtual Event] Sept. 14-15—2020 Business Aviation Sustainability Summit**, [https://www.bigmarker.com/series/virtual-2020-business-aviati/series\\_summit](https://www.bigmarker.com/series/virtual-2020-business-aviati/series_summit)

**[Virtual Event] Sept. 14-17**—IBAC's International Standard for Business Aircraft Operations (IS-BAO) Workshops, <https://www.eventbrite.com/e/is-bao-workshops-online-september-us-edt-registration-88066935575>

**[Virtual Event] Sept. 14-18**—ATEC Annual Conference, <https://www.atec-amt.org/annual-conference-virtual.html>

**[Virtual Event] Sept. 15-16**—SpeedNews Commercial Aviation Industry Suppliers Conference, <https://ace.speednews.com>

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## Business Aviation Briefs, Continued

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fleet has surpassed 320,000 flight hr. in all. The Latitude is certified in more than 40 countries.

**Planet 9**, a Van Nuys, California-based charter operator and aircraft management company, has added a fifth Gulfstream business jet, a Gulfstream GV, to its Part 135 managed charter fleet. The ultra-long-range aircraft is Planet 9's third GV. The aircraft is based at Naples Airport in Florida, a new operating base for the company. The GV was recently refurbished with a three-zone interior, 12 executive seats, two lavatories, rear galley and a forward crew galley. The company has also added two additional pilots. The aircraft brings Planet 9's managed and charter fleet to 11 aircraft.

**A coalition** of aviation organizations has released a new informational guide detailing how the industry can incorporate sustainable aviation fuel (SAF) into their operations and accelerate the adoption of low-carbon fuels, while reducing greenhouse gas emissions.

The on-line guide ([www.futureofsustainablefuel.com/guide](http://www.futureofsustainablefuel.com/guide)) provides details on the practicalities of SAF development, industry adoption, and pending expansion of supply and use, primarily from the perspectives of the business aviation community.

SAF blending components are made from bio-based or other feedstock sources. On a gallon-per-gallon basis, the low-carbon components often reduce net lifecycle CO2 emissions in excess of 50%, versus conventional jet fuel. Industry innovators are additionally planning to produce SAF blending components with deeper reductions, and in some cases more than 100%, making the fuels carbon negative. SAF is a demonstrated replacement for traditional jet fuel that can help lower the industry's carbon footprint. SAF has been used continuously at select airports since 2016, and its production is expected to scale significantly during the next five years.

Member organizations of the sponsoring SAF Coalition include the Commercial Aviation Alternative Fuels Initiative, the European Business Aviation Association, the General Aviation Manufacturers Association, the International Business Aviation Council, the National Air Transportation Association and the National Business Aviation Association.

SOUNDING BOARD, From P. 4

**Q. Do you think those moving from the airlines to private aviation will remain or return to the airlines once airline travel rebounds?**

A. I believe that those people who have come to business aviation and understand the flexibility and freedom it provides, as well as in the case of not having to be in a large airport with hundreds or thousands of people that you don't know, provides a sense of security that I think the airlines will just never be able to provide post-COVID. There may come a point where the balance, that equilibrium between commercial and private aviation that was similar to what it was pre-COVID returns, but I don't see that being the case for at least a couple of years, if not longer.

**Q. What are you seeing in the availability of pilots today? Not long ago, forecasts predicted a pilot shortage. Today, U.S. airlines that accepted government payroll aid are banned from job cuts before Sept. 30. But that day is coming, and**

**some carriers are warning they may be forced to shrink.**

A. I think there are a number of pilots out there in the commercial space that have received furlough notices and are waiting for October 1st to come around. We don't have a lot of positions, but we are hiring on the pilot side. Where we may have seen hundreds of applications before, we're now seeing thousands.

**Q. What do you advise young people wanting to pursue a dream as a professional pilot to do in this environment?**

A. If it's your dream and desire to become a commercial or corporate aviation pilot, go for it, do it. While (the pandemic is) having an immediate impact on the markets and the economies, human beings innately love to travel and the globalization of our economy is such that travel is not going away. COVID is going to be a moment in history when things slow down, but it's not going to stop the continued progression of travel. In the end, these jobs will come back.

Sounding Board is an intermittent column that features leaders of the business aviation industry.

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**Industry Data**

**New Business Aircraft Deliveries Worldwide - July 2020**

MANUFACTURER	MODEL	OWNER	OPERATOR COUNTRY	TOTAL DELIVERIES
<b>BUSINESS JETS</b>				
BOMBARDIER	BD-100-1A10 (CHALLENGER 350)	BOMBARDIER AEROSPACE CORPORATION	USA	1
BOMBARDIER	BD-700-1A10 (GLOBAL 6500)	GLOBAL AVIATION PARTNERS LTD.	ISLE OF MAN	1
BOMBARDIER	BD-700-2A12 (GLOBAL 7500)	BOMBARDIER AEROSPACE CORPORATION	USA	1
CIRRUS	VISION SF50 (G2)	BBR AIR LLC	USA	1
CIRRUS	VISION SF50 (G2)	SHARPRIDGE SERVICES LLC	USA	1
CIRRUS	VISION SF50 (G2)	SIOL VENTURES INC.	USA	1
CIRRUS	VISION SF50 (G2)	VISION JET HOLDINGS LLC	USA	1
DASSAULT AVIATION	FALCON 900EX (LX)	DASSAULT FALCON JET CORPORATION	USA	1
EMBRAER	EMB-500 (PHENOM 100EV)	ATLAS AIR SERVICE	GERMANY	1
GULFSTREAM	GVII (G500)	ELI LILLY & COMPANY	USA	1
GULFSTREAM	GVII (G600)	ALPINE LANDING MANAGEMENT LLC	USA	1
HONDA AIRCRAFT COMPANY	HA-420 ELITE (HONDAJET)	BANYAN JET SALES LLC	USA	1
HONDA AIRCRAFT COMPANY	HA-420 ELITE (HONDAJET)	RHEINLAND AIR SERVICE	GERMANY	1
ISRAEL AIRCRAFT INDUSTRIES	GULFSTREAM G280	ALFA-GOLF LLC	USA	1
PILATUS AIRCRAFT	PC-24	AMAC AEROSPACE (SWITZERLAND) AG	SWITZERLAND	1
PILATUS AIRCRAFT	PC-24	JETFLY AVIATION	LUXEMBOURG	1
PILATUS AIRCRAFT	PC-24	PILATUS BUSINESS AIRCRAFT LTD.	USA	1
TEXTRON AVIATION (CESSNA)	525 (CITATION M2)	ORIOLE CAPITAL LLC	USA	1
TEXTRON AVIATION (CESSNA)	525C (CJ4)	AVCON JET AG	AUSTRIA	1
TEXTRON AVIATION (CESSNA)	680A (LATITUDE)	BOLUDA CORPORACION MARITIMA S.L.	SPAIN	1
TEXTRON AVIATION (CESSNA)	680A (LATITUDE)	L & F ARROW LLC	USA	1
TEXTRON AVIATION (CESSNA)	680A (LATITUDE)	NETJETS SALES INC.	USA	1
<b>TOTAL JULY 2020</b>				<b>22</b>
<b>TOTAL JULY 2019</b>				<b>29</b>
<b>BUSINESS TURBOPROP &amp; LARGE PISTON AIRCRAFT</b>				
DAHER	TBM 700N (940)	TRANSATLANTIC DELIVERIES TRUST	USA	1
PILATUS AIRCRAFT	PC-12/47E (PC-12 NG)	BYSKY AIRLINE	BELARUS	1
PILATUS AIRCRAFT	PC-12/47E (PC-12 NGX)	PILATUS BUSINESS AIRCRAFT LTD.	USA	7
PILATUS AIRCRAFT	PC-12/47E (PC-12 NGX)	UNKNOWN	GERMANY	1
PILATUS AIRCRAFT	PC-12/47E (PC-12 NGX)	RAVENAIR	UNITED KINGDOM	1
PIPER	PA-46-600TP MERIDIAN M600 SLS	WESTERN AIRCRAFT INC.	USA	1
TEXTRON AVIATION (BEECH)	BEECHCRAFT B200GT (250)	HL AVIATION GMBH & CO. KG	GERMANY	1
TEXTRON AVIATION (BEECH)	BEECHCRAFT B300 (350I)	BOLTON AIR LLC	USA	1
KODIAK AIRCRAFT	KODIAK 100 II	FLIGHTLINE GROUP INC.	USA	1
QUEST AIRCRAFT	KODIAK 100 II	UNKNOWN	GERMANY	1
TECNAM	P2012 TRAVELLER	TECNAM US INC.	USA	1
TEXTRON AVIATION (CESSNA)	CESSNA 208B EX	CLEITON TAXI AEREO	BRAZIL	1
TEXTRON AVIATION (CESSNA)	CESSNA 208B EX	HILLIS AVIATION LLC	USA	1
<b>TOTAL JULY 2020</b>				<b>19</b>
<b>TOTAL JULY 2019</b>				<b>17</b>
<b>GRAND TOTAL 2020</b>				<b>41</b>
<b>GRAND TOTAL 2019</b>				<b>46</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

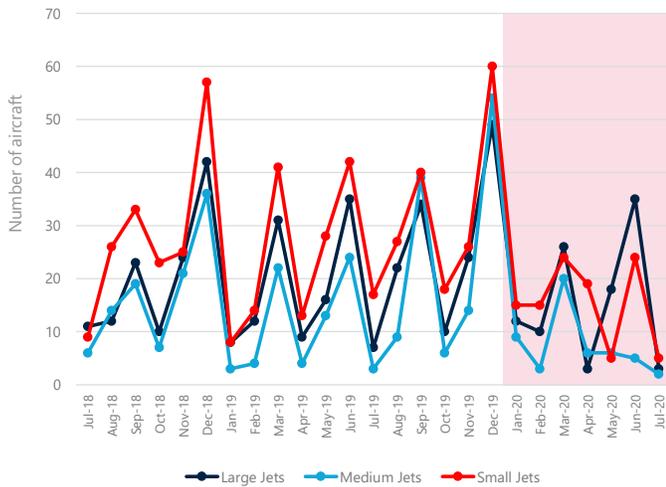
**Industry Data**

**COVID-19 And Business Aviation Metrics**

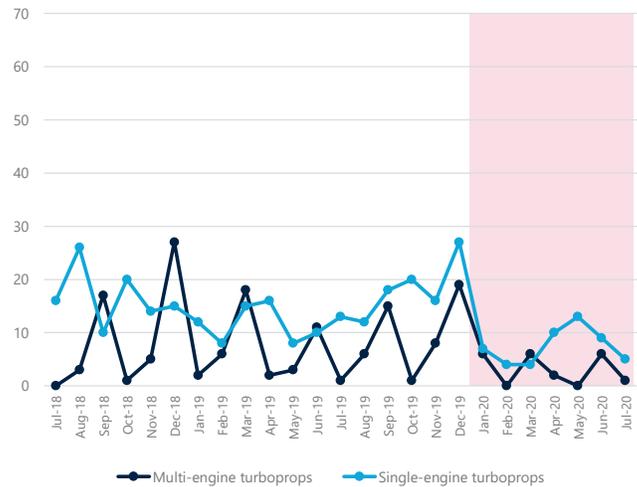
**Aircraft Deliveries By Category**

Business Jet And Turboprop Aircraft Deliveries By Category Between July 2018 And July 2020

**Business jets**



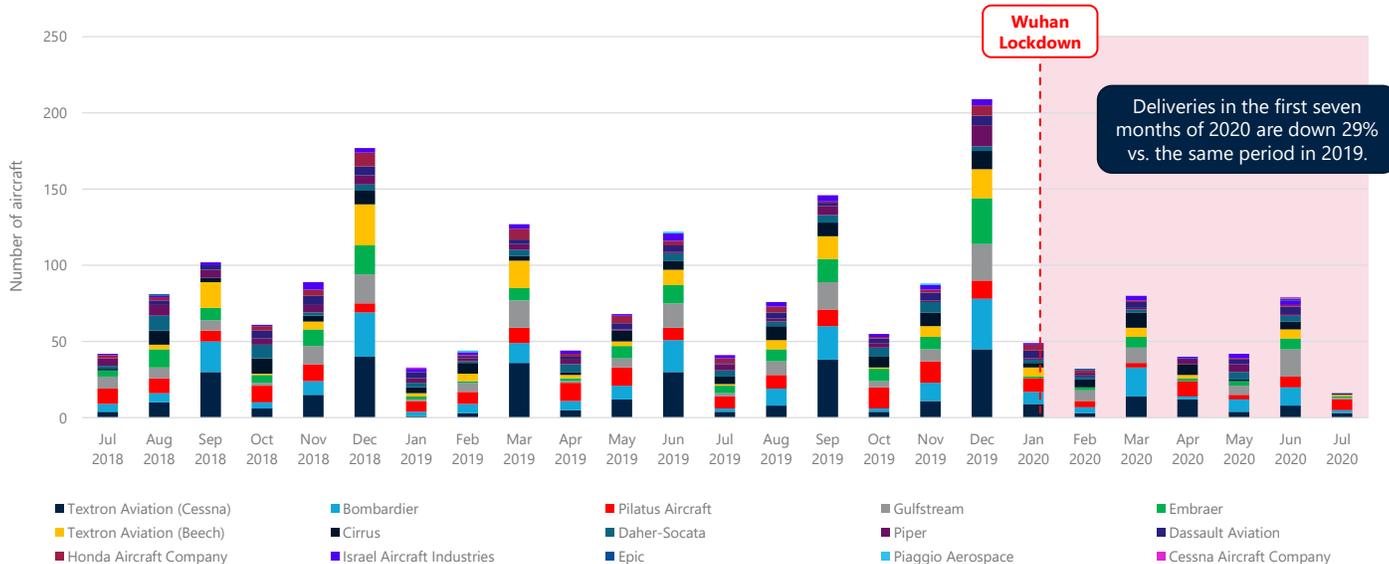
**Business Turboprops**



Source: Fleet Discovery, Aviation Week Network, Copyright 2020  
Note: Data may not contain all final July delivery numbers.

**Aircraft Deliveries By OEM**

Business Aircraft Deliveries By OEM Between July 2018 And July 2020



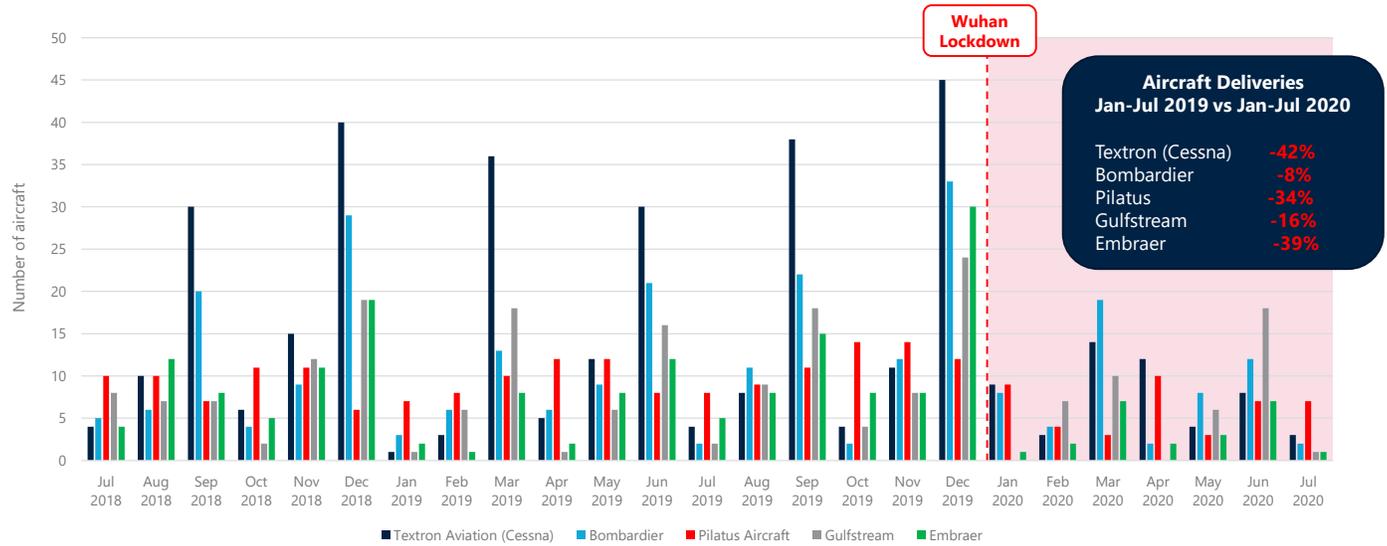
Source: Fleet Discovery, Aviation Week Network, Copyright 2020  
Note: Data may not contain all final July delivery numbers.

**Industry Data**

**COVID-19 And Business Aviation Metrics**

**Aircraft Deliveries By 5 Largest OEMs**

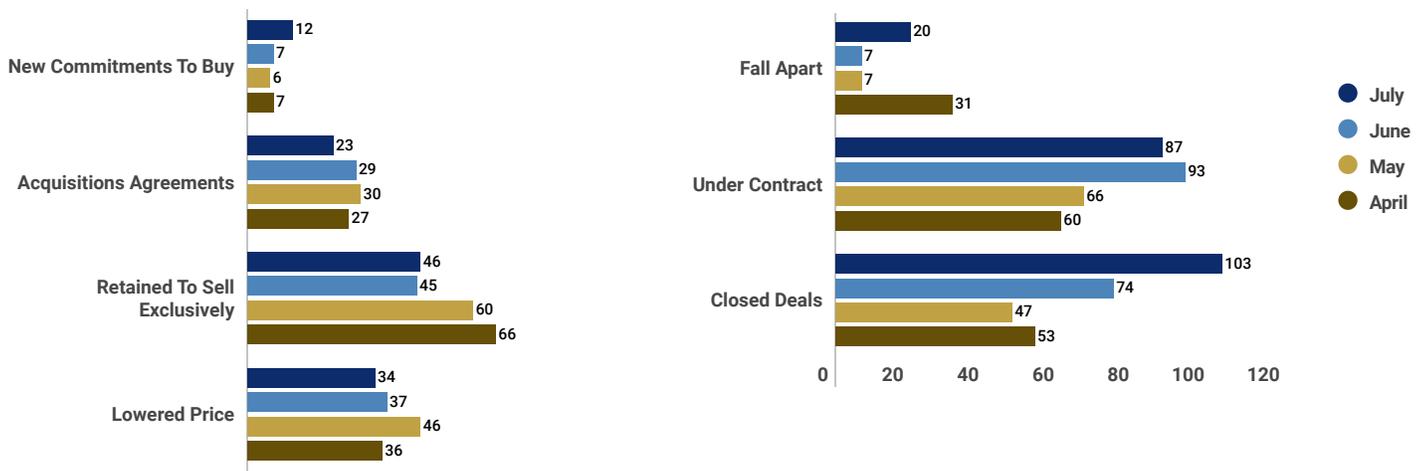
Business Aircraft Deliveries By Large OEM Between July 2018 And July 2020 Largest Five By Deliveries



**Source:** Fleet Discovery, Aviation Week Network, Copyright 2020  
**Note:** Data may not contain all final July delivery numbers.

CONTINUED, From P. 1

**IADA Dealer Activity Report**



Source: International Aircraft Dealers Association