THE WEEKLY OF
BusinessAviation

AVIATION WEEK
Intelligence
NETWORK

Reporting on The Business of Business Aviation Since 1965

August 17, 2020

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Intelligence

General aviation operations at Chicago Executive Airport reached a five-year record for traffic in July, following a drop in the spring from the effects of the COVID-19 pandemic. Takeoffs and landings at the airport, a general aviation reliever airport for Chicago O'Hare International, totaled 9,041 in July, preliminary data shows. It was the airport's largest single month of flight operations since July 2015. The activity caps a "remarkable turnaround" following a large drop in traffic during April and May from local quarantine and shutdown orders during the coronavirus outbreak.

PROGRAMS

First GE Catalyst Engine For Cessna Denali To Be Delivered This Year

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GE Aviation is progressing with engineering and certification testing on its Catalyst engine designed for Textron Aviation's Cessna Denali single-engine turboprop.

The engine's first flight and delivery of the first engine to Textron Aviation are expected to take place later this year, GE says.

But Textron Aviation officials are not ready to speculate when the first flight of the $5.25 million Denali will take place. It had earlier expected first flight in 2019.

"We want to make sure we have confidence in when GE's going to be able to get us an engine and their entire timeline," said Rob Scholl, Textron Aviation senior vice president for Sales & Flight Operations. Still, "I'm very encouraged by what I see. We do expect them to get their flying testbed up this year," he said. "And from there, we're going to just continue to monitor it ... Everything going on in the world right now just gives us a lot of uncertainty on the timing."

To date, Catalyst test engines have amassed more than 1,800 hr. of combined operation. Ten engines have been assembled, GE says.

GE recently completed development testing for icing certification. It has also com-

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REGULATORY/LEGISLATIVE

COVID-19 Slows The Progress Of FAA's NextGen Program

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COVID-19 has slowed the FAA's 17-year march toward airspace modernization.

During an on-line meeting of the NextGen Advisory Committee (NAC) on August 6, FAA leaders affirmed what came as no surprise—the precautions taken to prevent the spread of the novel coronavirus that causes COVID-19 will delay programs underpinning the NextGen air traffic control (ATC) modernization effort dating to 2003.

Even against the backdrop of dramatically reduced aircraft movements, the FAA has been challenged just to maintain daily ATC operations since the first coronavirus infections appeared in the tower at Chicago Midway International Airport (MDW) on March 17. Leaders of the agency's Air Traffic Organization and controllers' union have said the FAA developed its own protocol for responding to the pandemic after initially receiving little support from public health authorities.

"There really was no playbook on what to do," said Paul Rinaldi, president of the National Air Traffic Controllers Association. The initial plan "was actually to shut Midway down for 14 days." The FAA eventually reopened the tower in seven days.

As infections spread, the FAA activated contingency plans to shift air traffic services

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ENGINE, From P. 1

pleted development testing for altitude, endurance, vibration, durability, ingestion and integrated prop controls. Engine design and performance have been proven through component and development testing. The testing has met or exceeded program requirements, GE reports

GE also achieved 41,000 ft. in an altitude chamber and the company was "extremely happy with the performance results that came out of altitude testing."

GE's Catalyst engine program for the Denali met with delays last year mainly from more stringent testing requirements implemented by the FAA. The program is going through "the most extensive certification testing ever for a turboprop engine in the BGA (business and general aviation) segment," it said. The COVID-19 pandemic has also added to the delays.

"GE Aviation is continuously evaluating our operations due to the unprecedented impact of COVID-19 on the commercial aviation industry and will make adjustments as necessary," it says. "We remain focused on protecting the safety of our employees, continuing to serve our customers and preserving our capability to respond when the industry recovers."

GE's target going into 2020 was to complete first flight of the engine on a King Air 350 flying testbed and to ship the first engine to Textron Aviation.

In the meantime, GE has 98 patented technologies on the Catalyst engine. It is the first turboprop engine in its class to introduce two stages of variable stator vanes, cooled high pressure turbine blades and 3D printed parts.

The engine operates at a 16:1 overall pressure ratio, which allows it to achieve 10% higher cruise power than its competitor in the same size class, it says.

The engine delay has not curbed the enthusiasm for the Denali, Rob Scholl said. Textron Aviation remains committed to the program, which is otherwise going well.

"The team has made good progress in the program from our side," he said. "We're also pleased with what we're seeing out of GE from a performance standpoint ... The performance specs are meeting or exceeding all of the key goals."

"We remain focused on protecting the safety of our employees, continuing to serve our customers and preserving our capability to respond when the industry recovers."
-GE Aviation

The additional timeline has given Textron Aviation the opportunity to consider what else the company may do with the Denali program, Scholl said. He declined to elaborate.

The ideas are "nothing we're really willing to go to the market with yet on this airplane," he said. "But we are looking at what other features this delay has given us to bring in."

The Denali, which converts from passenger to cargo configurations, has a number of competitors in the single-engine turboprop space. It fills a gap in Textron Aviation's lineup.

"If you look at our product line, it's probably the one gap we have that isn't filled by anything else," Scholl said. "We have the Caravan but that is a different market segment."

The single-engine turboprop market is a "good, robust market that's been there for several years," Scholl said. "We think that given not only our technical capabilities to build and design an airplane that we think is as good or better than anything else out there, we think where we will be differentiated is in our service and support network. No one's got the global reach that we do from both parts and also our service centers and all of our channel partners."

Textron Aviation announced the clean-sheet Denali program in 2015 at EAA AirVenture in Oshkosh, Wisconsin. The aircraft has been engineered for a cruise speed of 285 kt. and a range of 1,600 nm at high-speed cruise with one pilot and four passengers. The aircraft is able to fly from Los Angeles to Chicago or New York to Miami.

COVID-19, From P. 1

to adjacent ATC facilities while affected towers, terminal radar approach-control and enroute centers were cleaned. Some facilities were reduced to "ATC Zero" status, for a time providing no service within their assigned airspace. Controllers directed pilots from airline ramp towers and parking garages, wore face masks and segregated into crews that stay together during the duty week to prevent randomly spreading the virus.

Still, the coronavirus has proliferated across the national airspace system. An FAA-updated website that lists ATC "facilities affected" by confirmed COVID-19 cases or suspected exposure to the disease counted 35 facilities in early April, 50 in June, more than 80 in July and 127 as of Aug. 7.

"We have taken actions to increase social distancing to make sure that we [can] keep the air traffic operations running," FAA Administrator Steve Dickson told the NAC, an airline-dominated advisory committee of aviation operations and technical executives.

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FORECASTS/INDUSTRY DATA

Small Jet, Turboprop Utilization Return To Pre-COVID-19 Levels, Data Shows

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Worldwide turboprop utilization in July reached its highest levels so far in 2020, with 85,574 multi-engine flight hours and 61,510 single-engine flight hours, according to Aviation Week Intelligence Network flight tracking data. ***(See Related Charts, P. 13.)***

Turboprop utilization completed its recovery to pre-COVID-19 travel lockdown levels in late June after hitting lows in April, Aviation Week data shows.

Business jet utilization, meanwhile, was higher in July than in April and May, but hours have not returned to levels found earlier in the year.

Large jet activity continues to lag from international travel restrictions. Large jet activity totaled 91,970 hr. in July, up from 76,716 in June, but down from January figures of 143,595 hr. Large jet activity hit a low in April with 30,703 hr. flown.

Midsize jet activity in July totaled 106,383 hr. up from 89,934 in June but down from a 2020 high of 117,926 hr. in February. Hours are up dramatically, however, from an April low of 29,489 hr.

Small jet activity, meanwhile, has returned to pre-COVID levels with 120,687 flight hours in July, a yearly high. Hours rose from 104,517 in June and from an April low of 40,332.

According to WingX, business aviation is coming back the strongest in Europe, with July-August trends up to 89% of comparative 2019 activity. Central Europe activity is seeing the highest levels of recovery.

In the U.S., for the first time since the pandemic struck, Florida is no longer the busiest state

Its year-over-year growth trend, resilient in June and July, was close to flat in August, WingX says. Colorado and Arizona appear to be popular as getaway destinations, with flight hours trending at least 5% above July and August 2019 levels. East Coast states, such as New York and New Jersey, are about 30% behind normal activity.

PROGRAMS

Second Cessna SkyCourier Makes First Flight

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WICHITA—Textron Aviation's second Cessna 408 SkyCourier twin turboprop has joined the flight test program, making its first flight here on Aug. 10, the company announced

Flight of the second test article follows the May 17 first flight of the SkyCourier prototype.

Since then, the aircraft has completed 38 flights and logged more than 76 flight hours. Through the flights, the company has been able to expand speed and center-of-gravity envelopes, complete preliminary engine and propeller tests and initial stability and maneuverability testing, it says.

A third and final flight test aircraft will join the development program in the coming months. The program also includes three ground test articles.

Entry-into-service of the $5.5 million SkyCourier is expected in the second half of 2021.

The second flight test aircraft, called P1, is the first conforming flight test aircraft and the first SkyCourier airframe configured as a freighter, the company says. It will be used primarily for systems testing, including propulsion, environmental control, avionics and anti-icing.

"Since the debut for the prototype aircraft, the team has rapidly moved through testing and has accomplished its goals of initial envelope expansion and handling, including stalls," said Chris Hearne, Textron Aviation senior vice president of engineering and programs.

"When you consider they have achieved all these milestones despite the many disruptions caused by a global pandemic, it's quite remarkable. The Cessna SkyCourier is heading through the second half of 2020 with a great deal of momentum."

The first flight of P1 was piloted by Peter Gracey and Todd Dafforn and lasted 1 hr. 35 min. It reached an altitude of 14,200 ft. with a maximum speed of 210 kt.

Textron Aviation is offering the SkyCourier in a variety of configurations, including a freighter with a 6,000 lb. payload able to carry three standard LD3 shipping containers, and a 19-seat passenger version.

The aircraft is equipped with two Pratt & Whitney PT6A engines and includes the Garmin G1000 NXi avionics suite. It has a maximum cruise speed of 200 kt. and a maximum range of 900 nm. It will also include single-point pressure refueling as standard for faster turnarounds.

Textron Aviation launched the SkyCourier program in November 2017. FedEx is its launch customer with an order for 50 aircraft and an option for 50 more.

CHARTERS/BROKERS

Wheels Up Forms Wheels Up Aircraft Sales

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Wheels Up has formed a new business division called Wheels Up Aircraft Sales, offering aircraft brokerage, acquisition, trade and advisory services.

With the expansion, Wheels Up offers private jet membership, aircraft management and whole aircraft sales. The move follows the company's acquisition of Gama Aviation, software developer Avianis Systems and the close of its acquisition of Delta Private jets through a transaction with Delta Air Lines this year.

The new business unit is led by Chris Brenner, former senior vice president of sales for the Americas at Jetcraft Corp.; John Odegard and Seth Zlotkin. Odegard and Zlotkin co-founded QS Partners, NetJets' aircraft sales and acquisition company.

"Adding whole aircraft sales and advisory services has been part of our long-term vision for Wheels Up as a total aviation solutions company and a global leader in the industry. The timing is perfect in that we see a meaningful shift in the addressable market and overall interest in private flying," said Kenny Dichter, Wheels Up founder and CEO. "With this new platform, we will have the capability to support the entire life cycle of a private flyer."

The COVID-19 pandemic has brought changes to the sector. Wheels Up has been adding new customers at rates seen before the crisis and is now running at pre-pandemic levels, Dichter said recently on an Aviation Week Network webinar. Travel is from families relocating or moving around and not from business and vacation travel. When those come back, Dichter said he thinks, "you're going to see a heyday in the private space."

Dichter founded Wheels Up in 2013.

FORECASTS/INDUSTRY DATA

Business, General Aviation Avionics Sales Fall In 2020

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During the first six months of 2020, business and general aviation avionics sales declined 23.6% from the same time a year ago due to the impact of the COVID-19 pandemic, reversing three consecutive years of growth, the Aircraft Electronics Association (AEA) says.

For the first six months of 2020, sales totaled $1.15 billion, down from $1.51 billion for the first half of 2019, AEA said.

Retrofit sales—avionics equipment installed after original production—totaled $613.4 million for the first half of 2020, down 22.8% from a year ago. Forward fit sales, avionics equipment installed by airframe manufacturers during production, totaled $537.7 million, down 24.5% from the first half of 2019.

For the second quarter of 2020, sales declined when compared to the first quarter. Second-quarter sales totaled $490.7, down from $660.4 million in the first quarter.

"Realizing a substantial decrease in worldwide avionics sales during the second quarter was the expectation in light of the COVID-19 pandemic," said Mike Adamson, AEA president and CEO. "The economic impact of the disease has been significant, and the business and general aviation electronics industry is not immune to the crisis. However, I remain optimistic that our industry will be poised for recovery in our shops and manufacturers continue their essential operations, legislators continue to address key employment initiatives and our industry amplifies the immense value of business and general aviation as an economic catalyst."

AIRPORTS

Lehigh Valley Airport Opens New Corporate Aircraft Hangar

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Lehigh-Northampton Airport Authority in Pennsylvania joined state and local officials to celebrate the completion of Hangar 11 at Lehigh Valley International Airport.

The 54,000-sq.-ft. facility is equipped to handle corporate and general aviation aircraft as large as the Gulfstream G650.

The $16.3 million project included an $8.8 million grant from the PennDOT Bureau of Aviation to boost the hangar's feasibility.

The grant helped provide site development, design and construction of the hangar, apron and adjacent parking lot.

Hangar space is limited for general aviation aircraft in the region, Lehigh-Northampton Airport Authority Director Thomas Stoudt said. "We are confident that Hangar 11 delivers a competitive advantage in attracting new tenants which strengthens economic growth within the Lehigh Valley."

The hangar is the first constructed by the airport since 2006. There are currently 137 aircraft based at the airport.

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Published weekly by Aviation Week, 2121 K Street NW, Suite 210, Washington, DC 20037 (ISSN No. 0509-9528). **Gregory Hamilton** President, Aviation Week.

Vol. 105 • No. 33

AVIATION WEEK NETWORK
an informa business

SUPPLIERS

Engineered Propulsion Files For Chapter 11 Bankruptcy

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Engineered Propulsion Systems (EPS) has filed for Chapter 11 bankruptcy protection with the U.S. Bankruptcy Court Western District of Wisconsin, while Chinese and "other foreign interests" are poised to buy the company's assets and intellectual property.

EPS, based in New Richmond, Wisconsin, was formed in 2006 to develop a new general aviation diesel engine. The Graflight V-8 engine was developed for single-engine and light twin-engine aircraft and designed to run on Jet A or diesel fuel.

At the time of its bankruptcy filing in late July, EPS had spent more than $60 million in private shareholder investment and in state and U.S. Air Force grants seeking certification of the engine for civil and military applications, it said.

EPS had been flying the engine on a Cirrus SR22 testbed, while expectations for certification had slid from 2017 to 2019 because of funding issues and from what the company described as a lengthy certification process. Once FAA certified, the company had been planning to develop a series of Supplemental Type Certificates for a variety of aircraft types.

At the time of filing, EPS had assets from $100 million to $500 million and liabilities of between $10 million and $50 million, according to court documents. It had been authorized to accept prebankruptcy short-term loans of up to $500,000, the filing said.

In the meantime, a receiving company named EPS Engineered Propulsion Systems LLC, has been formed in Delaware by Chinese and "other foreign interests" with the intent to take possession of EPS, EPS attorney James Sweet told shareholders in a meeting on Aug. 4. EPS identifies Chinese entrepreneur Hang Wei as the investor poised to buy the engine developer's assets and intellectual property.

The entity, which has assumed the role of Debtor in Possession, is in the process of preparing a "stalking horse bid" to assume the company's assets in an auction process defined by U.S. Bankruptcy Code. A "stalking horse bid" is an initial bid on the assets of a bankrupt company. It is an agreement against which higher and better offers may be solicited. It also spells out that the stalking horse will be deemed the highest and best bidder if no competing proposals are received. Mary Jensen is the designated U.S. trustee for the bankruptcy.

SUPPLIERS

FAA Awards $3.3 Million In Drone Research Grants

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The FAA has awarded $3.29 million in grants to its unmanned aircraft systems (UAS) center of excellence, a coalition led by Mississippi State University (MSU).

The University of Alabama-Huntsville will receive $1.1 million, the largest portion of $2 million in grants to six universities to study how drones can assist in disaster preparedness and response. The research will focus on coordinating procedures with the U.S. Departments of the Interior and Homeland Security, the Federal Emergency Management

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SUPPLIERS

Gogo Looking To Sell Commercial Aviation Division; Workforce Cuts Set

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Inflight entertainment provider Gogo has begun talks to sell its commercial aviation (CA) business, president and CEO Oakleigh Thorne revealed on an Aug. 10 earnings call.

Formal talks to sell the CA business are in progress with a service provider, a satellite operator or an avionics company, although none were named, Thorne said.

COVID-19's negative effects on the industry—especially commercial aviation—have "accelerated consolidation discussions as industry players look to emerge from the crisis with the strongest portfolio of assets they can to capture future industry growth," Thorne said.

The move comes after the company reported a 2020 second-quarter (Q2) consolidated net loss of $86 million, widened from a net loss of $84 million in Q2 2019. Consolidated revenue of $96.6 million declined by 55% from Q2 2019 because of the impact of COVID-19 on demand for both domestic and international air travel.

Gogo's Commercial Aviation-North American division posted total revenue of $30 million, down 72% from Q2 2019. Service revenue decreased to $25.5 million, down 74% from Q2 2019, because of lower average revenue per aircraft caused by the pandemic on North American air travel and, to a lesser extent, to the "full impact of American Airlines switching to the airline-directed model and the deinstallation of Gogo equipment from certain American Airlines aircraft during 2018 and the first half of 2019."

Revenue for Gogo's Commercial Aviation-Rest of World division was $12 million, down 67% from Q2 2019.

The company's Business Aviation business fared much better in the second quarter, reporting a 23% year-over-year (YOY) decline in revenue to $54.6 million, driven by a drop in both service and equipment revenue caused by COVID-19. Service revenue decreased to $44 million, down 20% YOY.

"While COVID-19 has significantly impaired global commercial aviation travel and our results for the second quarter, we are encouraged by the strong recovery in business aviation as well as the beginnings of a recovery in global commercial aviation, which has continued into August," Thorne said.

"Going forward, we are focused on maintaining the strength of our franchise and realizing the value of CA through a potential sale of the division."

In response to COVID-19, the company on Aug. 14 plans to initiate a reduction in force of 143 full-time positions, predominately in the CA business, which follows a fourth-month furlough of over 50% of the workforce, or more than 600 employees; ongoing compensation reductions for nearly all personnel not impacted by the furlough, including 30% for the CEO and board of directors and 25% for the executive leadership team.

SERVICES

Daher Chooses Elliott Aviation For TBM 940 HomeSafe Installations

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Daher has selected Elliott Aviation in Moline, Illinois, to install Garmin's emergency autoland system on TBM 940 turboprops delivered in the U.S. in 2019 and the first half of 2020.

Daher's TBM 940 aircraft to be equipped with the system, called HomeSafe, were sent to Elliott Aviation before achieving FAA certification in July. A portion of the aircraft sold were to include the upgrade once certification was achieved. Others are eligible for retrofit as a customer option.

Garmin's emergency autoland technology automatically lands the aircraft should the pilot become incapacitated.

"Elliott Aviation provides a solution for timely execution of the HomeSafe installations on aircraft from almost half of this year's production output, which require multi-competency expertise for work that will be performed to factory standards," said Nicolas Chabbert, senior vice president of Daher's aircraft division. "The company also has committed the necessary dedicated resources for an extended period of time to accommodate the availability of TBM 940s for retrofit and upgrades."

Installation of HomeSafe involves the modification of the braking system of the aircraft, including the installation of a larger hydraulic fluid tank and the addition of a dedicated master cylinder with servo and control linkage. Also required was wiring changes and the integration of electrical relays to enable automatic activation of the flaps, landing gear and landing lights. It also includes adding a fuel shutoff valve to stop the engine by cutting off the fuel supply and modifying the cockpit's glare shield to include an activation button.

After the work is completed, mechanics perform a comprehensive software upgrade, including configuration management followed by ground testing.

Elliott Aviation became a TBM-authorized service center in 2005. It is also a Garmin aftermarket dealer.

PROGRAMS

Deployed ARTEMIS Adds Jet To U.S. Army's ISR-Collecting Fleet

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A Leidos-owned Challenger 650 bristling with military sensors has been deployed by the U.S. Army to the Pacific region as part of a plan to acquire a new fleet of business jets with a "deep sensing" capability, service officials confirmed to the Aviation Week Network.

The July deployment, which became visible on aircraft tracking web sites, launched the Airborne Reconnaissance Target Exploitation Multi-Role Intelligence System (ARTEMIS) demonstration by the Army's Intelligence and Security Command (INSCOM).

As early as fiscal 2023, the Army wants to begin acquiring jet-powered surveillance aircraft under the Multi-Domain Sensor System (MDSS) program, along with a new suite of signals, radar and imagery sensors developed by the High Accuracy Detection and Exploitation System (HADES).

The acquisition of a new fleet would reorient the Army's fixed-wing ISR fleet on near-peer threats after spending nearly two decades focused on the counterterrorism mission.

"Army ISR needs the ability to sense targets from a longer distance, and with more precision," an INSCOM spokeswoman said. "The ARTEMIS sensor/platform pairing assessment will provide technical and performance evaluations of the installed commercial-off-the-shelf sensors. In addition, it will provide operational intelligence data to national databases for use by combatant commanders, fulfilling critical intelligence requirement gaps."

> **"The Army wants to begin acquiring jet-powered surveillance aircraft under the Multi-Domain Sensor System (MDSS) program."**

The Army program runs counter to the Air Force's ISR fleet plans. During the same period in the mid-2020s when the Army seeks to field business jet-class aircraft for the ISR mission, the Air Force intends to retire the E-8C Jstars fleet and implement the distributed and networked Advanced Battle Management System (ABMS).

By contrast to ABMS, the ARTEMIS platform is a Bombardier Challenger 650 that accommodates up to 12 passengers as a business jet. The aircraft is registered as N488CR and owned by Leidos subsidiary Lasai, which also operates eight King Air 350s, according to Aviation Week's aircraft database.

SUPPLIERS

Honeywell, Vertical Aerospace Sign Supplier Agreement

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Honeywell and urban air mobility (UAM) vehicle developer Vertical Aerospace have signed a letter of intent naming Honeywell as the avionics supplier for Vertical's passenger-carrying demonstrator aircraft.

The agreement, announced on Aug. 11, expands on contracts the companies signed in 2019 to equip the electric-vertical-take-off-and-landing (eVTOL) demonstrator aircraft with a Honeywell fly-by-wire system and flight-control software.

Vertical Aerospace, based in Bristol, UK, has built a proof-of-concept prototype aircraft propelled by four ducted fans and the Seraph eVTOL, which uses six pairs of coaxial rotors for lift. Capable of carrying loads of up to 250 kg (551 lb.), the Seraph accomplished its first flight at Llanbedr Airport, Wales, on Aug. 22, 2019.

The company is now developing a faster, longer-range eVTOL aircraft that will be capable of carrying five people and represents a "steppingstone toward a certified product," CEO Michael Cervenda said."Vertical is well advanced in the development of its next-generation, high-performance, passenger-carrying vehicle," Cervenka said.

"We are excited at the prospect of broadening our partnership with Honeywell, enabling our vehicles to leverage not only Honeywell's state-of-the-art flight-control systems, but also to marry these with the very latest in intuitive and safe flight deck technologies."

The new letter of intent calls for Honeywell to provide multi-touch displays, system controls, software and the vehicle operating system.

"One of the most important outcomes of this program will be the successful demonstration of simplified vehicle operations, which essentially is about making these aircraft more intuitive and flattening the learning curve to safely fly them," said Stéphane Fymat, Honeywell vice president and general manager for UAM and unmanned aircraft systems.

PROGRAMS

Wireless Charging System For Drones Wins Approval

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Wireless charging system developer WiBotic on Aug. 6 announced Federal Communications Commission (FCC) authorization of its line of transmitters and receivers for charging drones, mobile robots and industrial automation devices.

Seattle-based WiBotic described the FCC approval as the first of its kind allowing for the use of wireless charging equipment for battery-powered mobile and aerial robots—a system that enables drones to be recharged autonomously.

The FCC issued a grant of equipment authorization to WiBotic on July 21 under its Part 15 regulation governing electronics capable of emitting radio frequency energy.

"Previously only low-power cellphone and small electronics chargers or very-high-power electric vehicle chargers were approved for widespread use," WiBotic CEO Ben Waters said.

"WiBotic is now providing a solution that lets the entire automation industry take advantage of the wireless power revolution."

WiBotic provides the transmitter and onboard charger/receiver in configurations ranging from 90 watts to 300 watts maximum output power.

The company's software provides for visualization of battery-charging data across a fleet, and supports precision docking.

"WiBotic wireless charging has greater range and is more reliable than contact-based systems. Robots and drones no longer need millimeter-level navigational accuracy to successfully dock for charging," the company said.

"With full power delivery within several centimeters of the transmitter, robots can connect to power with greater ease and reliability, improving overall uptime."

In June, WiBotic announced that it had raised $5.7 million in Series A funding from several investors.

PROGRAMS

VerdeGo Runs Diesel-Hybrid Power Train At Production Power

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Electric power train developer VerdeGo Aero is running what the startup describes as "the most powerful piston hybrid system in the world."

The system has run at production power at VerdeGo's headquarters in Dayton Beach, Florida, co-founder and CEO Eric Bartsch told Aviation Week's Urban Air Mobility virtual conference on Aug. 13.

VerdeGo has teamed with Continental Aerospace Technologies to develop hybrid-electric power trains based on the engine manufacturer's Jet A-burning diesel-cycle piston powerplants. The startup is targeting distributed electric propulsion systems for commercial aircraft up to 7,500 lb. gross weight.

"We've entered the test and refinement phase to get toward a conformal design to enter production," Bartsch said. "We've moved from hardware that was under development to hardware that's being tested."

VerdeGo's hybrid core couples a Continental Jet-A piston engine with a generator that outputs more than 184 kW of electricity.

The system weighs 277 kg (609 lb.) and has a volume of 1.22 X 0.91 X 0.86 m (48 X 36 X 34 in.) including cooling system, power distribution and exhaust.

"As an industry we want to be electric because of its efficiency, emissions and noise. When we think why we want to be a hybrid, the answer is to have enough electrons on board to make that electric aircraft useful and safe," Bartsch said.

"If we put a hybrid system into that aircraft that is loud and burns a lot of fuel and has huge CO2 emissions, then we're not actually achieving that goal," he said.

"Why we're doing diesel hybrids is to ensure that the hybrid is additive to the concept of electrification and isn't negating the concept."

Compared with a system built around a turbine engine, a diesel hybrid is 40% cheaper to operate, generates 35% less CO2 and is more than 10 dB quieter, VerdeGo calculates. "So there is a huge rationale for hybridization, and we're very bullish on this over the next 10-20 years," Bartsch said.

VerdeGo is also developing a battery-electric power train, but hybrid-electric offers higher performance in the near term. "The energy density challenges [with batteries] are substantial. But even if those were solved we have some significant challenges with cycle lifetime, calendar lifetime, charge rate and charging infrastructure," he said.

With the relatively short cycle lives of current high-power battery packs "it's actually far cheaper to operate a hybrid-electric power train than it is battery-electric powertrain," Bartsch said. "Because while the energy is much cheaper for the battery-electric power train, the replacement batteries drive up the cost."

COVID-19, From P. 2

"Travel is extremely limited and non-existent in many cases," Dickson advised. "Access to our Tech Center [is limited] and we've also had a maintenance moratorium. We have stopped some of the system upgrades that would normally be taking place, to make sure that our controllers and our technicians are able to keep themselves and their families healthy."

The long-term objectives of the NextGen program portfolio are of secondary concern.

"Unfortunately, this latest resurgence in positive test results has upended most of our assumptions as to when we might be able to complete the tasks. A lot of it does require face-to-face interaction with our FAA and industry experts in the field," said FAA Deputy Administrator Dan Elwell. "I assure you that we have used every bit of our operational engineering and program expertise to innovate and adapt our way in an effort to prevent and mitigate delays. Unfortunately, a growing number of our FAA and industry programs are now showing delays, some into 2022."

The Terminal Flight Data Manager (TFDM) program to improve the efficiency of surface operations by integrating electronic flight data in airport towers has been delayed. "The TFDM program has been greatly impacted by the inability to travel and access the facilities, which includes the Tech Center and the [ATC] academy," said work group leader Rob Goldman, of Delta Air Lines. "TFDM Build 1 IOC (initial operational capability) in Phoenix is postponed until 2021 and the other milestones contingent upon that are all TBD [to be determined]."

DRONE, From P. 5

Agency and other local, state and federal organizations.

As the lead university of the Alliance for System Safety of UAS through Research Excellence (ASSURE), MSU will receive $1.29 million to provide overall program management, including financial tracking of core university project activities, review of project documentation before submission to the FAA and facilitation of meetings and outreach.

"These grants will help develop a greater array of innovative strategies to more effectively deploy drones during emergency response situations," said U.S. Transportation Secretary Elaine Chao, who announced the awards on Aug. 6.

The FAA named ASSURE as its UAS center of excellence, a cost-sharing program involving academia, industry and government, in 2015. The agency also recently designated MSU's Raspet Flight Research Laboratory in Starkville, Mississippi, as a UAS safety research facility.

Business Aviation Briefs

Textron Aviation has been awarded a contract by ATI Engineering Services for two multimission Cessna Grand Caravan EX aircraft for the Rwanda Defense Force. The aircraft will support the African Partnership Flight initiative and be the first fixed-wing aircraft put in service by the RDF. They are expected to enter service in the first half of 2021 and be based primarily in Kigali, Rwanda. The African Partnership Flight brings together engagements between African nations to strengthen U.S. partnerships with African countries, exchange ideas on aviation-related topics and enhance regional cooperation and interoperability. ATI Engineering Services will modify and equip the aircraft with high-frequency and ultra-high-frequency radio systems, night vision imaging, interior and exterior lighting and reconfigurable interior with two ambulatory medical stretcher kits, 11 passenger seats, eight collapsible seats and removable rollerball cargo floor.

Bombardier has donated 2,800 face shields to HCA Healthcare East Florida Division in Fort Lauderdale, Florida, and delivered them using its Global 7500 aircraft. The shields were produced and donated to Bombardier by Molded Precision Components, a fabricator of auto parts and medical components, and Sterling Industries, a medical device manufacturer. Bombardier's Global 7500 landed at Fort Lauderdale International Airport and the shields were taken to HCA's supply chain distribution center, where they will be distributed to HCA's 15 affiliated facilities across East Florida. Bombardier's donation will help continue to supply frontline workers during the COVID-19 pandemic, said Fred Wilson, CEO of HCA Healthcare East Florida Division Supply Chain Services. Molded Precision Components and Sterling Industries partnered to produce the shields, called Shield U, in large quantities. They produced 450,000 shields per day in less than 90 days. The shields meet U.S. and Canadian requirements for emergency healthcare equipment.

Omaha-based **Jet Linx** has launched a new corporate jet card service, Enterprise Jet Card Membership, to provide businesses with a suite of services and products for a "flexible and reliable corporate travel solution," the private jet management and jet card member-

Continued, P. 10

Business Aviation Briefs (Continued)

ship company says. Enterprise Jet Card Membership offers guaranteed availability of up to four aircraft per day at a guaranteed, fixed hourly rate and the ability to fly an unlimited number of employees with a 24-hr. lead time and no short-notice fees, it said. Members are guaranteed Wi-Fi and preferred access to Jet Linx's fleet of more than 100 aircraft in four size categories: light, midsize, super midsize and heavy jet aircraft. Two flexible payment options are available. Cardholders will have a dedicated account manager and access to local concierge services. Aircraft and private terminals are disinfected with an antimicrobial protection system from ViaClean Technologies.

Bell Unveiled a new 140,000-sq.-ft. Manufacturing Technology Center Aug. 10 to support the U.S. Army's Future Vertical Lift (FVL) effort. The company envisions the new facility, located in Fort Worth, will serve as a place to demonstrate its manufacturing readiness and ability to successfully build and support FVL aircraft, an Aug. 10 statement said. The factory is equipped to produce rotor and drive systems, critical infrastructure, and final assembly. The facility will not produce aircraft at rate but function more like a testbed and proving ground, a company spokesman told Aviation Week Network.

Robinson Helicopter Co. has delivered R66 Turbine Serial Number 1000 to a dealer, Les Gillespie of Gardner Aviation in Peachtree City, Georgia. The helicopter's owner is Donovan Valentine of Monarch Helicopters, based in Nashville, Tennessee. The R66 single-engine aircraft was certified in October 2010, with first delivery the following month. Since then, the R66, powered by the Rolls-Royce RR300 turbine engine, has surpassed 1.2 million flight hours, a milestone achieved without any reported flight engine failures, Robinson says. The R66 has flown to the North Pole and circumnavigated the globe multiple times, Robinson says.

Gulfstream Aerospace has enhanced its Gulfstream Cabin Experience with an investment in customer health through plasma ionization. The air purification system complements Gulfstream's 100% fresh-air environment, the company says. Lab tests have proven the system kills pathogens and allergens, it says. The plasma ionization system operates whenever the aircraft environmental control system is active and emits positive and negative oxygen ions that seek out and inactivate harmful molecules in the air and on surfaces. The process neutralizes particulate matter, such as bacteria and viruses along with unpleasant odors from organic matter, such as cigarette smoke. The plasma ionization system is available as a retrofit on Gulfstream G650, G650ER, G550, G450 and GV model aircraft. Additional installation options are pending foreign certification. It will be standard equipment on N-registered G650 and G650ER aircraft, with G500 and G600 and international certifications under development.

Continental, based in Mobile, Alabama, has received European Union Aviation Safety Agency (EASA) type certificate validation for its Jet-A CD-170 engine, which has been integrated into Tecnam's P2010 TDI aircraft. The CD-170, with a 170-hp engine, is included in the current type certificate for Continental's CD-series of engines, which have accumulated more than 7.1 million flight hours since first inception. Continental plans to apply for other foreign validation type certificates for the CD-170, it says. The CD-170 has a higher power output due to several internal design features, such as an increased fuel injection rail pressure and adjusted injection time. It operates on Jet A-1 fuel or Diesel EN590. The engine design has received product validation

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Bye Aerospace has selected Aviation Safety Resources (ASR), to supply its Soteria line of whole aircraft recovery parachutes systems for its eFlyer 2 electric trainer. Under the agreement, ASR will design, test, prototype, and deliver a recovery system specifically for the aircraft The patented technology and updated design offer space-saving amenities and a reduction of weight as compared to traditional systems, Bye says. Soteria also uses high-tech materials that extend repack cycles and reduce overall operating costs over the life of the aircraft, it says.

Acropolis Aviation, a UK-based VVIP charter operator, has selected Satcom Direct (SD) to provide high-speed connectivity to the first VVIP Airbus ACJ320neo. SD was chosen to deliver connectivity for crew and passengers while supporting ground operations. Data service is delivered throughout the aircraft using Inmarsat's Jet ConneX data service. It integrates dual SDR Gateway routers with SD Wi-Fi hubs for network availability. In the flight deck, the SD FlightDeck Freedom datalink service ensures communications for the flight crew and supports automated alerts to the flight deck including GeoNotifiations, route, and security alerts. On the ground, Acropolis Aviation uses SD Pro, the intelligent data management platform, to centralize flight planning and synchronize operations with updated visibility into network and aircraft performance.

Airworthiness Directives

PILATUS AIRCRAFT Ltd. Airplanes [Docket No. FAA-2019-0536; Product Identifier 2018-CE-054-AD; Amendment 39-21186; AD 2020-16-02] The FAA is adopting a new airworthiness directive (AD) for Pilatus Aircraft Ltd. Models PC-6, PC-6/350, PC-6/350-H1, PC-6/350-H2, PC-6/A, PC-6/A-H1, PC-6/A-H2, PC-6/B-H2, PC-6/B1-H2, PC-6/B2-H2, PC-6/B2-H4, PC-6/C-H2, PC-6/C1-H2, PC-6-H1, and PC-6-H2 airplanes. This AD results from mandatory continuing airworthiness information (MCAI) issued by an aviation authority of another country to identify and correct an unsafe condition on an aviation product. The MCAI describes the unsafe condition as rudder shaft assemblies with incorrect rivet configurations. The FAA is issuing this AD to address the unsafe condition on these products. This AD is effective Sept. 9. The FAA estimates the cost of this AD on U.S. operators to be $17,850, or $595 per product. Since the repair instructions could vary significantly from airplane to airplane if discrepancies are found during the inspections, the FAA has no way of determining the number of products that may need follow-on actions or what the cost per product would be. For more information, contact Doug Rudolph, Aerospace Engineer, FAA, Small Airplane Standards Branch, 901 Locust, Room 301, Kansas City, Missouri, 64106; telephone (816) 329-4059; fax (816) 329-4090; email doug.rudolph@faa.gov.

BOMBARDIER, Inc., Airplanes [Docket No. FAA-2019-0987; Product Identifier 2019-NM-144-AD; Amendment 39-19922; AD 2020-12-13] The FAA is adopting a new airworthiness directive (AD) for certain Bombardier, Inc., Model CL-600-2B19 (Regional Jet Series 100 & 440) airplanes. This AD was prompted by reports that during airplane wing fatigue testing, fatigue cracks were found on the lower right-hand-side wing plank at the end of the integrally machined stringers, which led to a determination that new or more restrictive airworthiness limitations are necessary. This AD requires, for certain airplanes, revising the existing maintenance or inspection program, as applicable, to incorporate new or more restrictive airworthiness limitations. The FAA is issuing this AD to address the unsafe condition on these products. This AD is effective Sept. 10. The FAA estimates that this AD affects 464 airplanes of U.S. registry with an estimated cost of compliance of $7,650 per aircraft. For more information, contact Aziz Ahmed, Aerospace Engineer, Airframe and Propulsion Section, FAA, New York ACO Branch, 1600 Stewart Avenue, Suite 410, Westbury, New York, 11590; telephone 516-228-7329; fax 516-794-5531; email 9-avs-nyaco-cos@faa.gov.

AIRBUS HELICOPTERS (Type Certificate Previously Held by Eurocopter France) Helicopters [Docket No. FAA-2019-1056; Product Identifier 2018-SW-047-AD; Amendment 39-21193; AD 2020-16-09] The FAA is superseding Airworthiness Directive (AD) 2009-25-09 for Eurocopter France (now Airbus Helicopters) Model SA330F, G, and J helicopters. AD 2009-25-09 required readjusting the torque of the main gearbox (MGB) flexible coupling bolts. Since the FAA issued AD 2009-25-09, Airbus Helicopters has modified the MGB overhaul and repair procedures, which corrects the unsafe condition. The FAA-validation for Model SA330F and G helicopters has also been canceled. This new AD retains the requirements of AD 2009-25-09 and revises the applicability by excluding Model SA330F and G helicopters and excludes MGBs that have been subject to the modified procedures. The actions of this AD are intended to address an unsafe condition on these products. This AD is effective Sept. 10. The FAA estimates that this AD affects 16 helicopters of U.S. registry. It estimates the cost of readjusting the tightening torque on the flexible coupling-to-flange attachment bolts of $680 per helicopter and $10,880 for the U.S. fleet; the cost for MGB input flexible coupling flange assemblies with more than 75 hr. time-in-service, inspecting the tightening torque load on the flexible coupling-to-flange attachment bolts of $850 per helicopter. If required, replacing a damaged flexible coupling is estimated to cost $2,131 per helicopter. For more information, contact James Blyn, Aviation Safety Engineer, Safety Management Section, Rotorcraft Standards Branch, FAA, 10101 Hillwood Pkwy., Fort Worth, 76177; telephone 817-222-5110; email james.blyn@faa.gov.

DAHER AIRCRAFT DESIGN, LLC (type certificate previously held by Quest Aircraft Design, LLC), Airplanes [Docket No. FAA-2018-0180; Project Identifier 2017-CE-043-AD; Amendment 39-21146; AD 2020-13-01]. The FAA is correcting an airworthiness directive (AD) that was published in the Federal Register. The AD applies to all Daher Aircraft Design, LLC (type certificate previously held by Quest Aircraft Design, LLC), Model Kodiak 100 airplanes. As published, the type certificate (TC) holder in the regulatory heading that identifies the AD is 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 is effective August 17, 2020. As published, the TC holder in the regulatory heading that identifies the AD is incorrect. The heading incorrectly identified the TC holder as "Quest Aircraft Design, LLC." The correct TC holder is Daher Aircraft Design, LLC (Type Certificate previously held by Quest Aircraft Design, LLC). Although no other part of the preamble or regulatory information has been corrected, for clarity, the FAA is publishing the entire rule in the Federal Register. The effective date of this AD remains August 17, 2020.For more information contact Wade Sullivan, Aerospace Engineer, Airframe Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, Washington, 98198; phone and fax: 206-231-3530; email: Wade.Sullivan@faa.gov.

Business Aviation Appointments

Marc Ramthun and **Emma Roberts** have been chosen for the **National Air Transportation Association's** newly formed Air Ambulance Subcommittee, a part of its Air Charter Committee. Ramthun, vice president of medical flight services for CSI Aviation, has been named chairman. Roberts, senior director of safety, training and compliance for REVA, has been named vice chair.

Martyn Holmes has been named chief commercial officer of **Embraer Commercial Aviation**. Holmes, who joined Embraer in 2012, previously served as vice president for Europe, Russia and Central Asia. Cesar Pereira has been appointed vice president of Europe, the Middle East and Africa. He has held a number of senior roles in market intelligence, product development and sales engineering at Embraer. **Raul Villaron**, formerly vice president of the Middle East and Africa, has been named vice president of Asia Pacific. **Mark Neely** has been appointed vice president of The Americas. He previously served as regional vice president of sales in North America.

Calendar

To list an event, send information in calendar format to Amy Hardcastle at amy.hardcastle@informa. For a complete list of Aviation Week Network's upcoming events, and to register, visit www.aviationweek.com/events. (Bold type indicates new calendar listing.

[Virtual Event] Biweekly mini sessions starting Aug. 19 and ongoing—Bombardier Safety Standdown 2020, https://safetystanddown.com/en

[Virtual Event] Aug. 25-26—SpeedNews Aerospace Manufacturing Conference, https://amc.speednews.com

[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. 14-17—ATEC Annual Conference, The Worthington Renaissance Fort Worth Hotel, Fort Worh, Texas, https://www.atec-amt.org/annual-conference-virtual.html

[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. 15-16—SpeedNews Commercial Aviation Industry Suppliers Conference, https://ace.speednews.com

[Virtual Event] Sept. 15-17—COMVEC Digital Summit, https://www.sae.org/attend/virtual-events/comvec-digital-summit

[Virtual Event] Sept. 16-17—Aero-Engines Europe, https://www.aeroengineconference.com/en/home.html

[Virtual Event] Sept. 22-24—Aviation Week MRO Asia-Pacific, https://mroasia.aviationweek.com/en/home.html

[Virtual Event] Sept. 23-25—World Aviation Festival, https://www.terrapinn.com/conference/aviation-festival/index.stm

[Virtual Event] Sept. 26—Girls in Aviation Day, https://www.wai.org/giad

[Postponed until 2021] Sept. 28-30—Airline Economics Growth Frontiers Dubai, Ritz Carlton, Dubai, https://www.aviationnews-online.com/conferences/dubai

[Canceled] Oct. 6—AOPA 2020 R.A. "Bob" Hoover Awards, Orlando, FL, https://www.aopa.org/community/events/bob-hoover-award

[Canceled] Oct. 6-8—NBAA Business Aviation Convention & Exhibition (NBAA-BACE), Orange County Convention Center, Orlando, FL, https://nbaa.org/events/2020-nbaa-business-aviation-convention-exhibition

[Postponed until 2021] Oct. 8-10—Routes Asia 2020, Chiang Mai, Thailand, https://www.routesonline.com/events/211/routes-asia-2020

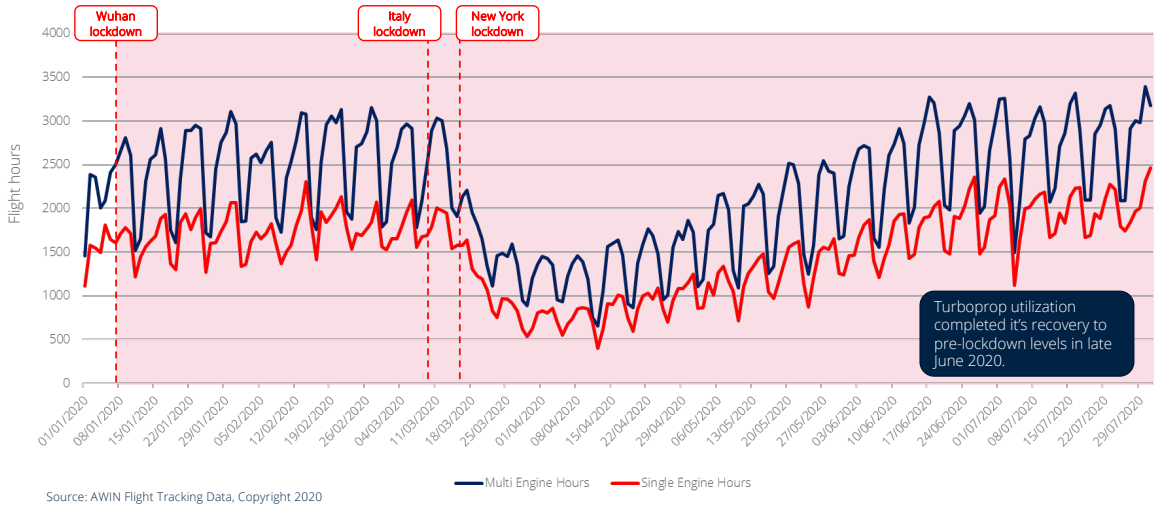
Oct. 19—Aviation Week Network's 63rd Annual Laureate Awards, The Ritz-Carlton Tysons Corner, McLean, VA, https://laureates.aviationweek.com/en/home.html

Industry Data

COVID-19 And Business Aviation Metrics

Utilization – Business Turboprops

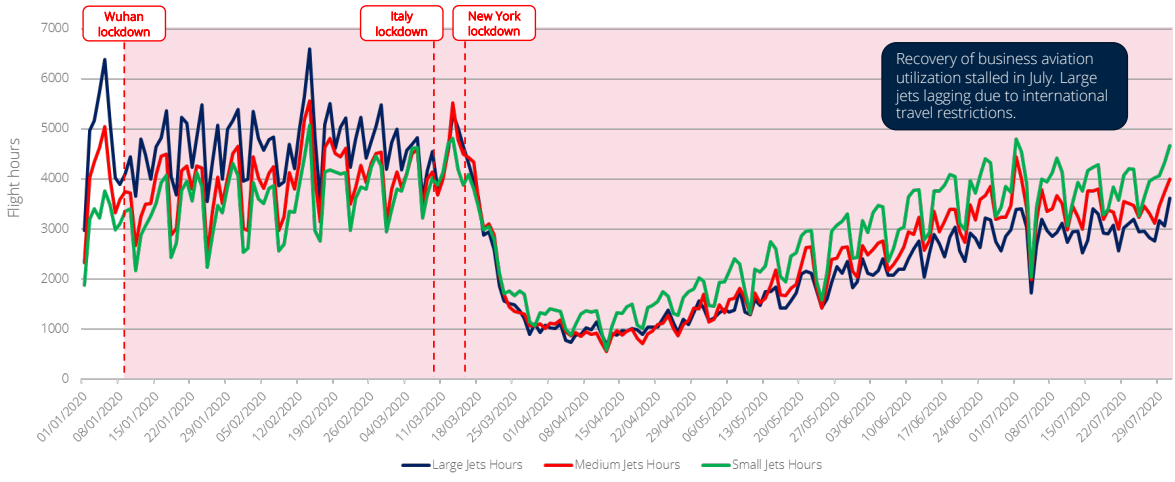
Utilization Rates In Hours For Business Turboprop Aircraft – January To July 2020



Source: AWIN Flight Tracking Data, Copyright 2020

Utilization – Business Jets, By Category

Utilization Rates In Hours For Business Jet Categories – January To July 2020



Source: AWIN Flight Tracking Data, Copyright 2020