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NetJets tackles boom in business

by Chad Trautvetter

NetJets has “temporarily paused” sales of fractional shares, leases, and jet cards for the Cessna Citation XLS and Embraer Phenom 300 due to “unprecedented demand within the private travel industry,” a company spokeswoman told **AIN**. “The decision to pause light jet sales, in addition to previous announcements regarding raising card prices and eliminating peak period day travel on card purchases, allows the company to continue...delivering the best possible experience to all owners.” In the meantime, the company is putting prospective customers for light jets on a waitlist.

According to NetJets, record contract utilization by existing fractional owners has resulted in flight demand currently exceeding all other highs in the company’s 57-year history (the company was founded in 1964 as Executive Jet Airways and started

selling “NetJets” fractional shares in 1986). It added that inventory constraints within the light jet category have reached a point that additional NetJets fractional sales before more aircraft are delivered would put service at risk.

“While most NetJets owners have experienced business as usual in their recent travels, a few have felt the challenges that coincide with heightened demand across the industry,” the company said. “The vast number of flights is taxing the air travel infrastructure in ways we haven’t seen in years—everything from fueling and ramp space to catering and ground transportation are being pushed to their limits in many locations. This is mainly due to demand across the industry, as well as staffing challenges.”

To meet continued demand, NetJets said it is hiring hundreds of pilots and

service employees through year-end and investing nearly \$2.5 billion for 100 new aircraft to be delivered between now and the end of 2022. ■



Read Our **SPECIAL REPORT**

Product Support

The results of the **AIN 2021 Product Support Survey** for business aircraft airframe manufacturers are in and show that **AIN** readers are passionate about the aircraft they fly, maintain, and operate.

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Due to “unprecedented” demand, NetJets has temporarily paused sales of shares, leases, and jet cards for light jets. That includes the Embraer Phenom 300 (shown here) and Cessna Citation XLS.

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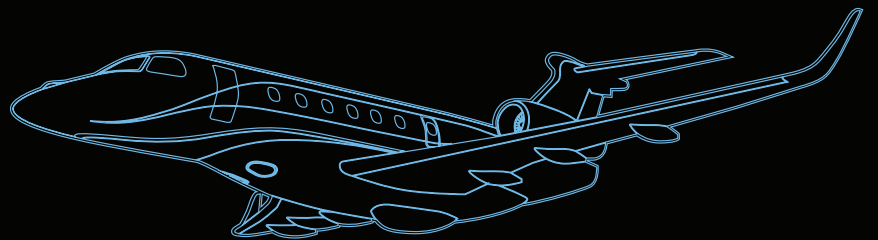
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As We Go To Press

EPIC E1000 GX OBTAINS FAA NOD

Epic Aircraft's latest version of its all-composite turboprop single, the E1000 GX, received FAA approval in mid-July. The upgraded E1000 GX features improved performance and safety thanks to the addition of a Garmin GFC 700 automated flight control system and Hartzell five-blade composite propeller. Garmin's GFC 700 provides flight director, autopilot, yaw damper, and automatic trim capabilities, as well as emergency descent protection and coupled go-arounds. Deliveries of the new model, which is priced at \$3.85 million, began last month.

EBAA AND GAMA 'ENCOURAGED' BY EU'S SAF PROPOSALS

EBAA and GAMA are "encouraged" by new rules unveiled July 14 by the European Commission to advance the production, availability, and use of sustainable aviation fuels (SAF) in the region. But they steered away from formally expressing support for the intended introduction of an EU-wide SAF blending mandate, which calls for the introduction of an obligation across the bloc to blend 2 percent SAF by 2025, rising to 5 percent in 2030, and 63 percent in 2050. These SAF measures form part of the EC's "Fit for 55" legislative package to reduce carbon emissions by at least 55 percent of 1990 levels by 2030 and aim to make the continent carbon-neutral by 2050. The policies include proposals to introduce an EU-wide tax on aviation fuel (exempting business aircraft), strengthen the EU Emissions Trading Scheme for aviation, and implement the UN Carbon Offsetting and Reduction Scheme for International Aviation into European law.

GARMIN G1000 NXI FOR PHENOM 100/300 GETS EASA OK

EASA has approved the Garmin G1000 NXi upgrade for Embraer Phenom 100s and 300s equipped with the Prodigy Flight Deck, offering modernized displays with improved readability, reduced power consumption, and more powerful processors. Garmin's G1000 NXi includes additional capabilities such as SurfaceWatch runway monitoring, visual approach guidance, and map overlay within the HSI. Available as an option for G1000 NXi-equipped Phenom 100s is a display of ADS-B In weather and traffic data via the GTX 345R/345DR transponder.

BELL 212 CRASH PROMPTS EMERGENCY AD

Following a similar directive from Transport Canada, the FAA has issued an emergency airworthiness directive requiring the removal and replacement of certain main rotor hub strap pins on Bell 204, 205, and 212 models, as well as limited-category UH-1 variants, before further flight. The emergency AD follows the fatal crash of a Bell 212

early last month in Canada. Canada TSB investigators determined that the pin on that helicopter failed, leading to the detachment of the rotor hub and main rotors in flight. The pin had only 20 hours of service. An inspection of another Canadian-registered 212 found another pin was deformed with only 29 hours time in service. Affected pins are identifiable with the serial number prefix "FNFS." Bell said the pin "may have not been manufactured in accordance with the engineering design requirements and may shear as a result of the non-conformance."

P&WC HYBRID-ELECTRIC SYSTEM TO FLY IN A DASH 8 IN 2024

Pratt & Whitney Canada is partnering with De Havilland of Canada in a program to test hybrid-electric propulsion technology in a Dash 8-100 flight demonstrator. Expected to undergo ground testing next year and fly in 2024, the demonstrator will include an electric motor and controller from Collins Aerospace, a P&WC sister company under the Raytheon Technologies umbrella. The governments of Canada and Quebec have committed to contributing roughly half of the program's C\$163 million investment. The new hybrid-electric propulsion technology will help optimize performance across the different phases of flight, allowing the demonstrator to target a 30 percent reduction in fuel burn and CO₂ emissions compared with current regional turboprops.

UK'S FARNBOROUGH AIRPORT NOW STOCKING SAF

London-area Farnborough Airport is the latest UK gateway to offer continuous supplies of sustainable aviation fuel (SAF). The move enhances Farnborough's environmental efforts. In 2018, it was the first business aviation gateway to be awarded carbon-neutral status and has reduced its controllable GHG emissions by more than 70 percent over the past decade. "The introduction of SAF at Farnborough Airport is a major milestone in our sustainability program and we are pleased to be able to offer Neste MY Sustainable Aviation Fuel by working with our fuel provider World Fuel Services," said airport CEO Simon Geere.

FCC CERTIFIES SMARTSKY TOWER RADIOHEAD

In a step that signals SmartSky's progress towards the launch of service on its U.S. air-to-ground inflight connectivity network, the Federal Communications Commission has certified the radiohead for the ground-based towers that will serve the company's airborne customers. SmartSky expects to launch commercial service later this year. Airborne service opened earlier this year in a U.S. Southeast corridor, although formal commercial launch awaits more complete expansion of its terrestrial network.



DAVID MCINTOSH

Wheels Up now a public company on NYSE

by Chad Trautvetter

Private aviation charter and aircraft ownership services company Wheels Up on July 13 closed its transaction with special purpose acquisition company (SPAC) Aspirational Consumer Lifestyle, making it a publicly traded company. The capital raised will accelerate investment in Wheels Up's technology and product offerings, driving global growth strategies and expansion of the Wheels Up Marketplace with membership and non-membership options, the company said.

"We are proud to be the first private aviation operator on the New York Stock Exchange," Wheels Up founder and CEO Kenny Dichter told *AIN*. "Since our 2013 launch, it has been our mission to create a dynamic platform to democratize private aviation. The IPO provided us with \$650 million in proceeds, and we're evaluating all available options on where to invest

that. We're now in a position to look at global partners who are aligned with our marketplace vision."

In the first quarter, Wheels Up reported record year-over-year revenue growth of 68 percent, to \$261.7 million, and a 56 percent increase in active members. Wheels Up offers membership programs, on-demand charter, aircraft management, whole aircraft sales, and corporate solutions.

Now known officially as Wheels Up Experience, the company will trade on the New York Stock Exchange under the symbol "UP." To commemorate the completion of the transaction, Dichter, Aspirational Consumer Lifestyle chairman and CEO Ravi Thakran, and some members of the Wheels Up founding and leadership teams rang the closing bell at the NYSE on July 14. ■

IADA warns of shortage in 'quality' preowned aircraft

The International Association of Aircraft Dealers (IADA) is warning of a pending shortfall in "quality" preowned business aircraft as it continues to see activity increase in aircraft under contract and transaction closings, according to its second-quarter 2021 IADA Market Report. In the second quarter, IADA dealers closed 320 preowned aircraft sales transactions and ended the quarter with another 315 aircraft under contract. That's up from the quarter a year ago, when dealers closed 174 transactions and had 219 aircraft under contract.

"We have buyers with funds to purchase, but demand for late-model aircraft with attractive configurations exceeds supply, which could increase pressure on prices and lengthen transactions," said

IADA executive director Wayne Starling. The aircraft broker's group noted that while some industry reports show the inventory of used aircraft at 7 percent of the fleet, "only about three to four [percent] are newer, late-model quality aircraft." IADA added about half of those aircraft are located internationally and a large percentage of them reside in China.

IADA also reported that, during the second quarter, its members executed 175 acquisition agreements and were exclusively retained to sell 135 aircraft. During that period, transaction prices decreased on 11 aircraft and 38 transactions were not completed. That compares with 119 aircraft whose prices decreased and 45 incompleting transactions in the second quarter of 2020. **J.S.**

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Pilatus has added a long list of new features to the PC-24's flight deck, including a now-standard touchscreen controller, automatic pitch and roll protection, autothrottle under- and overspeed protection, automatic yaw trim, and a "pilot-defined" visual approach function.

Pilatus refines PC-24 with cabin, avionics upgrades

by Chad Trautvetter

Pilatus Aircraft has announced a slew of new cabin and avionics features for its PC-24 twinjet based on customer feedback from more than 50,000 hours of fleet operations. PC-24s coming off the production line going forward will include these features, while "many" can be retrofitted to in-service airplanes, the Swiss aircraft manufacturer said.

In the cabin, new lie-flat seats provide more comfort, more intuitive controls, and lighter weight, in addition to quick-release mechanisms to facilitate rapid seating configuration changes. In lieu of

the standard forward left-hand coat closet, operators may now opt for a galley with a microwave oven, coffee/espresso maker, work surface, ice storage, and/or capacity for standard catering units.

But the bulk of the new features are on the flight deck and were developed in partnership with Honeywell. To start, a touchscreen controller is now standard, replacing the previous multifunction controller.

Meanwhile, the PC-24's flight control system now incorporates tactile feedback in both roll and pitch to prevent unintended unusual attitudes. This includes automatic

roll limit and overspeed protection, even with the autopilot turned off, and can be manually overridden by the pilot with a quick-disconnect button. The standard autothrottle system also now includes automatic under- and overspeed protection as well as refined Fadec software to reduce power oscillations in cruise and descent.

A new automatic yaw trim function further reduces flight crew workload during departure and climb by holding the aircraft to zero sideslip. If one engine is inoperative or a large thrust asymmetry exists, the automatic yaw trim will attempt to maintain approximately one-half trapezoid indicated sideslip.

The new "pilot-defined" visual approach function allows the pilot to set up an autopilot- and autothrottle-coupled visual approach to any runway, as well as precisely track a left-hand, right-hand, or straight-in pattern down to the runway threshold. According to Pilatus, this feature increases safety at uncontrolled fields by allowing the pilot to keep attention focused outside the aircraft to look for other traffic.

Among the new avionics features on the PC-24 are Honeywell's SmartRunway and SmartLanding advisory functions, which enhance safety and reduce pilot workload. Also available are VHF data-link with AFIS, ACARS graphical weather, SiriusXM satellite graphical weather, FMS takeoff and landing data (TOLD), CPDLC over the FANS 1/A+ network, KMA-29A Bluetooth 3D audio panel with record and playback functions, and Honeywell RDR-7000 weather radar with predictive hail and lightning functions.

In addition, Pilatus recently certified and began offering the True Blue Power lithium-ion batteries, which provide an 84-pound reduction in empty weight. ■

News Briefs

Bombardier Snags 10-aircraft, \$452M Deal

Bombardier on July 1 announced its largest business jet order year-to-date with a 10-aircraft deal valued at \$451.8 million at current list prices. Bombardier did not disclose the customer nor did it discuss the order mix, citing "competitive reasons." This order provides further evidence of a strengthening market after last year's pandemic-related malaise. Bombardier plans for deliveries this year to remain roughly flat from 2020 totals.

End of the Line for G550

Nearly two decades after it first entered service, Gulfstream's G550 saw its final commercial delivery on June 30. The Savannah, Georgia airframer has produced more than 600 of the ultra-long-range twinjets since receiving its type and production certificates in August 2003. First announced in 1999 as a derivative of the GV, the G550 (formerly GV-SP) was the launch platform for the company's PlaneView flight deck and was also certified with an enhanced vision system. With a range of 6,750 nm at Mach 0.80, the type earned more than 50 speed records.

Redesigned Eviation Alice Set To Fly This Year

Eviation Aircraft last month unveiled the revised design for Alice, its all-electric 11-seat aircraft, and confirmed plans to complete FAA type certification and service entry in 2024. Further, the company said the aircraft will make its first test flight by year-end. Newly published design drawings reveal significant changes from an earlier prototype, with a T-tail configuration replacing a V-tail. Meanwhile, Alice's two MagniX Magni650 electric motors have been relocated from the wingtips to a pylon mount on the aft fuselage. In May, MagniX delivered the first Magni650 motors to Eviation. Singapore-based Clermont Group owns the two companies. Eviation has sublet several hangars at Arlington Airport in Washington state and has spent at least \$300,000 to renovate the facility for Alice development work.

Bombardier Unveils 'Certified Preowned' Program

Bombardier has rolled out a Certified Preowned aircraft program that will offer customers "selected, inspected, and updated" Learjets, Challengers, and Globals. The program is designed to provide a "like new" experience for customers, including a one-year manufacturer's warranty and operational support. Under the program, customers can sign up for alerts when an aircraft becomes available. Bombardier will refurbish and provide services to help the airplane retain its residual value. This includes ensuring that it is up to date with maintenance inspections, service bulletins, system upgrades, and enrollment in Bombardier's Smart Parts program, as required.

New Brazilian frax firm Amaro takes delivery of first Pilatus PC-24

With the arrival of its first Pilatus PC-24 in early July at São Paulo Catarina International Airport, Amaro Aviation plans to be a major force in the Brazilian fractional aircraft share market—a segment that is expanding with the arrival of the country's own Part K regulations. The company includes several heavy hitters in the Brazilian aviation scene: partner Marcos Amaro is a son of TAM founder Rolim Amaro; CEO David Barione was a founder of GOL and president of TAM; and partner Francisco Lyra is an ex-chairman of ABAG and the aviation know-how behind the Catarina airport.

Amaro Aviation is basing its PC-24 at Catarina, which has an 8,100-foot runway and was recently certified as an international airport by Brazil's ANAC. The aircraft, which was greeted by a water salute upon landing at Catarina, will be joined by a PC-12 turboprop single in November.

Barione told **AIN** that Amaro Aviation plans to offer "a complete solution for business aviation," including not only



Brazilian fractional provider Amaro Aviation has taken delivery of its first Pilatus PC-24 at São Paulo Catarina International Airport, where it was greeted with a water salute. It will be joined by a PC-12 turboprop single in November.

fractional shares but air taxi, charter, and aircraft management services. Although founded only this year, Amaro Aviation already "manages the largest Gulfstream fleet in Brazil," among other aircraft, having absorbed the management department of Lyra's CFly Aviation. Barione extolled the PC-24's ability to land on unimproved runways as important for getting Brazil's booming agribusiness where it needs to go

and getting there faster than turboprops.

Meanwhile, Catarina's newfound international status will also help Synerjet, the exclusive South American distributor for Pilatus business aircraft, which has signed a lease to move its MRO operations to the São Paulo business aviation airport. Synerjet will be responsible for maintenance of Amaro Aviation's Pilatus fleet, according to Synerjet CEO José Eduardo Brandão. **R.P.**



Photos by Nikki Wongvongsri

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Steep climb for U.S. bizjet accidents in first half

by Gordon Gilbert

Accidents and fatalities involving U.S.-registered business jets more than doubled from a year ago as mishaps surged in the second quarter. Flying was down in the second quarter of 2020 due to the Covid pandemic but has rebounded considerably since then. Meanwhile, accidents involving U.S.-registered turboprops decreased year-over-year.

According to AIN research, preliminary statistics show that nine people lost their lives in three accidents of U.S.-registered business jets in the first half, compared with four killed in a single accident in the comparable period last year. The accidents this year and resulting number of fatalities were January 9, Cessna Citation V, one fatality; May 4,

Gulfstream IV (in the Dominican Republic), one fatality; and May 29, Cessna Citation I/SP, seven fatalities. Nonfatal accidents of U.S.-registered business jets also climbed from six last year to eight this year.

The one N-numbered fatal business jet accident in the first half of 2020 occurred on February 8 near Fairmount, Georgia. According to the NTSB preliminary report, a Citation 501 broke up while climbing through 15,400 feet to 16,000 feet after its pilots reported “problems” with the autopilot and the left-side attitude indicator. The twinjet, whose rated pilot was flying from the right seat, was on a Part 91 personal flight in day IMC and had filed an IFR flight plan.

In the first half, U.S.-registered turboprops suffered seven fatalities in three accidents, compared with 10 killed in four accidents in the first six months of 2020. The crash of a Mitsubishi MU-2 on May 5 killed one person on the ground in addition to the three onboard. The other U.S.-registered business turboprop fatal accidents in the first half of 2021 were February 7, Cessna Conquest, two fatalities; and February 21, Swearingen SA-226, two fatalities.

All six fatal U.S.-registered turbine business airplane accidents in the first half of this year occurred under Part 91. Four non-fatal accidents happened under Part 135, and there were zero accidents or incidents under Part 91K. The investigations into all of the fatal accidents of U.S.-registered turbine airplanes through the first six months of this year and last year remain in the NTSB preliminary report status.

Non-U.S. Jets Sustained One Fatality

In the first half of this year non-U.S. registered business jets were involved in one fatal accident that killed a crewmember compared to three such accidents and 14 fatalities in the first half of 2020. Charter operators experienced two non-fatal accidents, one more than the first half of last year. There was one fatal accident to a non-N numbered business jet on charter operations.

The single fatal accident of a non N-numbered business jet in this year’s six-month period occurred on April 20, when a Brazilian-registered Bombardier Learjet 35A, operating on a test and training flight, suffered a runway excursion after landing on Runway 13 at Belo Horizonte/Pampulha Airport, Brazil. The crew was performing a touch-and-go when the aircraft touched down with the undercarriage retracted. The twinjet then slid through the perimeter fence and broke in two some 700 feet from the end of the landing runway. One pilot died and two other occupants were injured.

The number of accidents and fatalities involving non-U.S. registered business turboprops in the first half was dismal compared to the same period last year. In the first six months of this year, 19 people died in four accidents versus one fatality in a single accident last year. In the first half of this year, there were two non-fatal mishaps of non-N numbered turboprops flying under private rules versus zero accidents or incidents of private operations in the same period last year.

Not included in our statistics were four fatal crashes in the first half of this year involving non-U.S. Air Force versions of turbine business airplanes that took the lives of 36 people: February 21, a Nigerian air force Raytheon King Air 350i (7) and a Mexican air force Learjet 45XR (6); May 21, another Nigerian air force King Air 350 (11); and June 10, a Myanmar air force Beech 1900 (12).

Additionally, these statistics do not include accidents or incidents that result from illegal flights, shoot downs, suicides, or other intentional crashes. ■

News Briefs

GJC Foresees \$162.1B Bizjet Market over 5 Years

The new and preowned business jet market is forecast to combine for \$162.1 billion in total transactions with a compound annual growth rate of 7.4 percent through 2025, according to Global Jet Capital’s (GJC) first-ever business jet market forecast. Providing a picture of both preowned and new aircraft transactions, the GJC forecast predicts transaction volume will grow from 3,308 transactions worth \$29.3 billion this year to 3,743 worth \$36.3 billion in 2025. Meanwhile, transaction volume will be up by 5.5 percent from 2020 to 2021 alone and dollar volume by 15.5 percent. GJC foresees a rebound in 2021 for new business jets, but believes it will be 2023 before the deliveries return to 2019 levels and 2024 before the market sees another more significant jump.

Gulfstream Further Lowers G700 Cabin Altitude

Gulfstream Aerospace is lowering the cabin altitude of its G700 flagship to 2,916 feet at 41,000 feet, marking an improvement from the originally announced 3,290-foot cabin altitude. The change, Gulfstream said, will give the 7,500-nm airplane the lowest cabin altitude of any large-cabin business jet. Along with the low cabin altitude, Gulfstream has designed the cabin to have 100 percent fresh air, “whisper-quiet” noise levels, a high-definition circadian lighting system, 20 panoramic oval windows, and a seating design with advanced ergonomics.

NASA: SAF Cuts Contrails

Besides lowering an aircraft’s carbon emissions, using a 50/50 sustainable aviation fuel (SAF) blend can also result in 50 to 70 percent fewer ice crystal contrails at cruising altitude, further reducing aviation’s impact on the environment, according to in-flight research by NASA and the German Aerospace Center (DLR). Ice crystal contrail formations can linger in the upper atmosphere for hours and affect the way Earth is heated and cooled, NASA said. Jet engine exhaust includes water vapor and soot particles. As the water vapor cools, it condenses and ice crystals form when this supercooled water interacts with exhaust soot or other particles naturally in the air. By using SAF, jet engines release fewer soot particles, resulting in fewer ice crystal formations.

Jet It, JetClub Launch Orders for Bye eFlyer 800

North America-based fractional ownership provider Jet It and its European affiliate JetClub are the launch customers for the all-electric, cabin-class Bye Aerospace eFlyer 800, which is slated for certification in 2025. Bye Aerospace said Jet It and JetClub signed a purchase agreement for a fleet of eFlyer 800s, though it did not detail the number of firm orders and options. Bye Aerospace estimates that the eFlyer 800 will operate at about one-fifth the costs of current twin turboprops.

AIN tables show “incidents” as well as “accidents” to distinguish mishaps based on their degree of severity. Investigators often draw fine distinctions between the two events, but, typically, incidents result in minor or no damage and their investigations are sometimes delegated to local officials.

Accidents are events that range from minor damage to destruction and/or injuries. Also, some incidents ultimately get upgraded to accident status during the investigative process.

Accidents/Incidents Worldwide

(first half 2021 vs. first half 2020)

U.S.-registered Business Jets and Turboprops

Business jets	Total		Part 91		Part 91K		Part 135		Public/Gov’t		Mfr.	
	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020
Total accidents	11	7	10	6	0	0	1	1	0	0	0	0
Nonfatal accidents	8	6	7	5	0	0	1	1	0	0	0	0
Fatal accidents	3	1	3	1	0	0	0	0	0	0	0	0
Fatalities	9	4	9	4	0	0	0	0	0	0	0	0
Incidents	34	32	18	18	0	0	15	14	0	0	1	0

Business turboprops	Total		Part 91		Part 91K		Part 135		Public/Gov’t		Mfr.	
	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020
Total accidents	11	13	8	8	0	0	3	5	0	0	0	0
Nonfatal accidents	8	9	5	5	0	0	3	4	0	0	0	0
Fatal accidents	3	4	3	3	0	0	0	1	0	0	0	0
Fatalities	7	10	7	9	0	0	0	1	0	0	0	0
Incidents	39	20	24	14	0	0	14	6	1	0	0	0

All data preliminary. Sources: FAA, NTSB, Aviation Safety Network, Bureau of Aircraft Accident Archives, AIN research

Non-U.S.-registered Business Jets and Turboprops

Business jets	Total		Private		Charter		Other*		Unknown	
	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020
Total accidents	4	6	1	0	2	2	1	3	0	1
Nonfatal accidents	3	3	1	0	2	1	0	1	0	1
Fatal accidents	1	3	0	0	0	1	1	2	0	0
Fatalities	1	14	0	0	0	8	1	6	0	0
Incidents	10	9	0	4	5	2	2	1	3	2

Business turboprops	Total		Private		Charter		Other*		Unknown	
	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020
Total accidents	10	3	2	0	1	0	7	3	0	0
Nonfatal accidents	6	2	2	0	0	0	4	2	0	0
Fatal accidents	4	1	0	0	1	0	3	1	0	0
Fatalities	19	1	0	0	10	0	9	1	0	0
Incidents	14	6	2	0	9	4	3	1	0	1

*For example: ambulance, survey, ferry, training, testing, manufacturer, government (non-military), and head of state.



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EASA certifies Textron's Citation Longitude

by Jerry Siebenmark

Nearly two years after Textron Aviation received type certification for the Cessna Citation Longitude from the FAA, the super-midsize twin has been certified by EASA, paving the way for

deliveries in Europe. Tom Perry, Textron Aviation v-p of sales for Europe, the Middle East, and Africa, said the company has a specially configured Longitude set to be delivered in Europe



Textron Aviation's Cessna Citation Longitude has received EASA approval, nearly two years after obtaining FAA certification of the super-midsize twinjet.

later this year that is outfitted with flight inspection equipment for verification of navigational aids.

A Textron Aviation spokeswoman told *AIN* that EASA certification typically follows FAA certification by six months to a year for clean-sheet aircraft, but in the case of the Longitude "there were some delays in certification efforts due to the pandemic and significant shutdowns in the U.S. and Europe." Since receiving FAA type certification in September 2019, the Wichita-based airframer has delivered 34 of the type, according to figures from the General Aviation Manufacturers Association.

Powered by a pair of Fadedec-equipped Honeywell HTF7700L turboprops and with a full-fuel payload of 1,600 pounds, the Longitude has a range of 3,500 nm, making it capable of flying nonstop from Geneva to Dubai or Rome to New Delhi.

"In the second half of last year we saw a substantial increase in super-midsize flight activity across Europe as individuals relied on these products as a transportation solution," Perry added. "The introduction of the Longitude to the European market will fulfill the international travel needs of many of our customers." ■

News Briefs

FAA Electronic Civil Registry To Roll Out in October

The FAA remains on track to roll out its new Civil Aviation Registry Electronic Services (CARES) on October 5, moving functions of the registry currently handled manually to a cloud-based online system. CARES will provide a web-based platform for registering all U.S. aircraft and airmen certifications, replacing the current civil aviation registry processes. Jeff Towers, past chairman of the NBAA Tax Committee and general counsel with TVPX, said the system is designed to make the FAA more efficient, make records more accessible remotely, and enable government agencies to better vet for criminal/fraudulent activity. Roberto Gonzalez, deputy director for the FAA's office of foundational business, said CARES will shorten the time for aircraft registration to about a week.

JetClub Gains Maltese AOC

JetClub, the Europe-based sister company to North Carolina-based fractional operator Jet It, has received its air operator certificate (AOC) from the Transport Malta Civil Aviation Directorate. This enables the company to begin operating fractional and charter passenger flights with its HondaJet-centric fleet in the Old Continent. Besides Europe, JetClub plans to serve fractional owners in Asia, South Asia, and South America. Like Jet It, it offers a fractional model in which owners purchase a share of a HondaJet in exchange for using the aircraft for a certain number of days, not hours.

Wintrust Adds Business Aircraft Finance Division

Wintrust Asset Finance announced a new division, Wintrust Commercial Finance Aviation Group, that will focus on financing solutions for turbine business aircraft. The group will be led by Michael Cole, an ATP-rated pilot and CFI who previously served as v-p of aviation at Bridgeview Bank Group and managing director of aviation at Bank OZK. According to Wintrust, its aviation group will be able to finance new and preowned business airplanes operating under Parts 91 or 135.

Sully Picked for ICAO Post

President Joe Biden has nominated C.B. "Sully" Sullenberger III—famed for his role in the successful "Miracle on the Hudson" emergency landing—to serve as the U.S. ambassador to ICAO. Sullenberger is a former U.S. Air Force fighter pilot and retired airline pilot with more than 20,000 flight hours. In the Air Force, he flew the McDonnell F-4 Phantom II. In 1980, he became an airline pilot with Pacific Southwest Airlines, which was later acquired by US Airways. Sullenberger also performed accident investigation duties for the USAF, served as an ALPA representative during an NTSB accident investigation, and helped to develop and implement a crew resource management course.

Joby teams with JetBlue, Signature on carbon credits

by Charles Alcock

Startup eVTOL developer Joby Aviation is joining forces with JetBlue and Signature Flight Support to establish carbon credits for flights using green electric and hydrogen propulsion. The companies announced last month that they will "work to define the creation, validation, and eventual use of these new credits on aviation carbon markets, including identifying a third party to oversee and validate transactions."

U.S. airline JetBlue sees the partnership as part of its wider commitment to carbon neutrality, which it says it achieved in 2020 for domestic flights through the purchase of carbon offsets from solar, wind, and forestry projects. The company is an investor in Joby through its venture capital division, JetBlue Technology Ventures.

Signature Flight Support has been introducing sustainable aviation fuel (SAF) through its FBO chain, as well as

via book-and-claim at locations where it doesn't yet carry SAF. "We're excited to expand that model through this partnership to include the purchase of electric aviation credits from clean operators like Joby," said Signature CEO Tony Lefebvre.

Joby's intention is to help create a market for electric and hydrogen flight credits by working with partners to define the terms for these credits, taking into account factors such as the carbon footprint of the electricity supply. Among the issues that will need to be resolved is the basis on which consumers and operators will be able to purchase credits. ■

This story is from FutureFlight.aero, a news and information resource developed by *AIN* to provide objective, independent coverage and analysis of cutting-edge aviation technology, including electric aircraft developments and advanced air mobility.



Joby Aviation wants airline passengers and business aircraft owners to be able to offset the carbon emitted from flights by buying credits for equivalent operations in eVTOL aircraft like the model it aims to bring into service from 2024.

Global Jet Capital appoints Kaushal as new CEO

Business jet financier Global Jet Capital has appointed Vivek Kaushal as CEO, replacing Shawn Vick, who will now serve as executive chairman. Kaushal was most recently Global Jet's COO, a position he was appointed to in 2019 after joining the company in 2015 following its acquisition of GE Capital's business aircraft portfolio.

In his new role, Vick will advise the company through its limited partners, investment committee, and senior leadership team. "Over the past six years, Vivek has demonstrated passionate and dedicated leadership along with a deep understanding of our market and all elements of our business," Vick said.

Kaushal has served nearly 30 years as a leader in finance, including as CRO for GE Capital Business Aviation Finance. He has a master's of business administration degree from the Indian Institute of Management and a bachelor's of science degree in chemical engineering from the Indian Institute of Technology.

Global Jet has more than \$5 billion in investments in business aviation and is capitalized by private equity firms the Carlyle Group; FS/KKR Advisor, a partnership between FS Investments and KKR Credit; and AE Industrial Partners, of which Vick has served as a partner since 2014. **J.S.**

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Dassault's third flight-test Falcon 6X took to the skies on June 24. The twinjet has a full interior and will be used to test in-flight entertainment and communications systems, as well as evaluate environmental features and temperature control and validate cabin acoustics systems.

Third Falcon 6X joins flight-test fleet

by Chad Trautvetter

The third flight-test Falcon 6X, registered as F-WAVE, took to the skies in late June, edging Dassault Aviation's 5,500-nm, large-cabin twinjet one step closer to its planned certification next year. S/N 3, which has a full interior and will be used for cabin design validation, made its inaugural flight on June 24, attaining an altitude of FL400 and speeds up to Mach 0.85, the French aircraft manufacturer announced.

This follows the first 6X that flew on March 10 and the second on April 30. To

date, these two aircraft have accumulated more than 130 flight-test hours at a rate of two to three flights a week, with envelope expansion now nearly complete, according to Dassault.

"This latest flight is yet another sign of the smooth progress we have been making with the 6X test program," said Dassault Aviation chairman and CEO Eric Trappier. "We have been consistently impressed with the flight performance and handling of the 6X and the reliability of aircraft systems."

S/N 3 will be used to test in-flight entertainment and communications systems, as well as evaluate environmental features and temperature control and validate cabin acoustics systems, the company said. A fourth flight-test 6X, which will also have a full interior, is currently being outfitted at Dassault's site in Mérignac, France. This aircraft will conduct a two-month global endurance flight campaign to ensure that all 6X systems are fully mature upon entry into service. Meanwhile, S/N 10 is now on the final assembly line in Mérignac. ■

Elit'Avia to sell HondaJets in France, parts of Africa

Business aircraft sales, leasing, and charter management company Elit'Avia has inked a deal with Honda Aircraft to serve as the exclusive HondaJet sales representative in France and 16 Western and Central African countries, including Nigeria. Elit'Avia will thus sell the HondaJet Elite S—the latest version of the Honda twinjet, unveiled in late May—in the region.

"We are pleased to be working with the Elit'Avia team," said Honda Aircraft



Business aircraft sales and charter management firm Elit'Avia will serve as the HondaJet sales representative for France and 16 African countries. Elit'Avia will thus sell the HondaJet Elite S—the latest version of the Honda twinjet, unveiled in late May—in the region.

president and CEO Michimasa Fujino. "Representing France and several African nations, Elit'Avia completes our global reach. Elit'Avia's excellent expertise in aircraft sales, charter, and management, as well as its operations in the European and African business aviation market, adds great value to our commitment to the business aviation market and customer support in the region."

Michel Coulomb, CEO of Elit'Avia, said that with its 1,437-nm range, the Elite S is "perfect for travel throughout Europe and ideally suited to reach African destinations that are not typically well-served by commercial aviation carriers. As a light business aircraft, the HondaJet delivers many of the efficiency and comfort benefits of a much larger aircraft but at a far more attractive price point." C.T.

News Briefs

Embraer Confirms Talks To Merge Eve with Zanite

Embraer's Eve Urban Air Mobility Solutions subsidiary is negotiating a possible merger with Zanite Acquisition Corp., a special purpose acquisition company that started trading on the Nasdaq market in November. In a statement, Embraer executive v-p of finance and investor relations Antonio Carlos Garcia responded to a Bloomberg report that Eve and Zanite were preparing a \$2 billion merger. "Negotiations with Zanite are ongoing," Garcia said. "The company cannot predict if Eve will reach a definitive agreement or what will be the terms thereof." U.S.-based Zanite was launched by business aviation entrepreneur Kenn Ricci, who is principal of Directional Aviation Capital, and Steve Rosen, who is co-CEO with Ricci of Resilience Capital Partners. On June 1, Directional's OneSky Flight announced plans to buy 200 four-passenger Eve eVTOLs.

SmartSky ATG Network Goes Live in Southeast U.S.

SmartSky has stood up its first fully operational coverage zone—a large contiguous portion of Florida, Georgia, and South Carolina—for its air-to-ground broadband network. This enables route-based flight demonstrations for business jets and turboprops and puts the company closer to certification and commercial launch in most of the continental U.S. later this year. Months of successful field testing have ensured that the entire system performs to specification, according to SmartSky.

European Firm Offers Upset Recovery Training

Upset Training Solutions International (UTSI) is now offering lower-cost upset prevention and recovery training (UPRT) for aircraft pilots in Europe at its facility at Breda International Airport in the Netherlands. The program has also been vetted and approved by Mesa, Arizona-based UPRT provider Aviation Performance Solutions. According to UTSI, increasing demand for EASA Advanced UPRT FCL.745.A certificates is driving the need for lower-cost UPRT solutions in Europe.

Wheels Up Targets Corporate Clients

Wheels Up has launched a customizable solution for corporate clients that includes aircraft charter and management and support for whole aircraft sales. Called Up for Business, the program also offers flexible spending for corporate clients to use pre-funded amounts for booking travel on Wheels Up's fleet or with its partner, Delta Air Lines, through a single account. Under the program, Wheels Up will provide dedicated account managers and a key account desk to evaluate and understand the travel needs of corporate clients and to produce tailored solutions that are efficient and optimize their spending.

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The new era of aviation safety: cognitive science

by Kimberly Perkins

Rarely do complex questions have a simple answer. Rarely do problems have an isolated cause. While a Boeing study found that 80 percent of accidents occur because of human error, the reasons behind those errors are hard to isolate and not subject to simple analysis. The rising number of experts in the field of human factors clearly indicates that the aviation industry is trying to problem-solve, but a deeper analysis might be beneficial.

Many technologies were put in place to eradicate specific human errors—for example, emergency descent mode (EDM) to shield against another Payne Stewart accident or geosynchronous overlay on approach charts to protect against a future Cali, Colombia disaster where the crew lost situational awareness close to the ground.

Technological advancements continue to focus on safety and indeed have enhanced safety for general aviation to air carrier operations. Improvements range from airframe parachutes to new surveillance tools like ADS-B. Predictive weather radar and combined vision systems are pushing the envelope even further to enhance safety.

To meet the demands of the evolving technological improvements, human factors experts have focused on human-to-machine integration. This new age of aviation safety began with warnings about the dangers of the “children of the magenta” or pilots relying too heavily on automation.

Despite all these technological advancements, human error remains the most-cited cause of accidents. In many regards, pilots have been trained as if they were machines; we are trained to react both mentally and physically without conscious processing in an emergency.

But in emergencies or other high-stress situations that require conscious processing, we’ve adopted tools such as the crew resource management (CRM) model to use all available information to maximize safety and efficiency. Along with CRM, pilots have aeronautical decision making (ADM) and threat and error management (TEM) in their human factors toolbox. Decade after decade we saw a new aviation safety process emerge as some extension of or augmentation to the previous model.

What if there’s a better way? What if staying in this line of linear growth and layer after layer of new safety processes and tools blinded us to the ontological pivot necessary to analyze human error organically and responsively? It is time for the industry to take an interdisciplinary approach for a more comprehensive proactive safety system with cognitive

processing as its fulcrum. When we put cognitive processing to work, we don’t just acquire knowledge; we build on that knowledge and gain insights that allow us to look at a problem by consciously merging input from a variety of sources to turn information into suitable action.

Our ‘Three Brains’ and SMS

The human brain is an impressive and complex sorting machine. It receives 11 million bits of information per second but processes only about 40 bits per second. This means that 99.99 percent of the information we receive, we cannot process consciously.

To catalog incoming data more quickly, part of the brain makes mental models and forms shortcuts, some of which enact cognitive biases. These biases were important for our evolution in moments of time-pressured decision-making: house cat or saber tooth tiger, friend or foe. We’ll think about this functionality as our primitive brain.

Consider the three brains that collectively make up the human brain: the primitive brain keeps us alive by triggering the fight, flight, or freeze response. The emotional brain is home to memories and experiences. It’s a blank slate that is programmed based on our assumptions, beliefs, and experiences. This part of our brain helps us have empathy for others, but it also might make us act irrationally or emotionally when triggered. The thinking brain is the higher-level processing part of our brain responsible for problem-solving. This is where creativity comes from. We do our best work from our thinking brain.

The brain can help us be critical thinkers and brilliant innovators and allows us to have empathy for others. It can also make us perpetuate antiquated models and outdated stereotypes when operating on overly simplified prototypes. It depends on which part of the brain you’re operating in, and this impacts your safety culture.

The Primitive Brain and Safety Culture

The primitive brain is an impressive (and not always accurate) cataloging engine that is always on high lookout for potential danger or threat. Over the past few centuries, and especially in Western modernity, our perception of threat has shifted from predominantly physical to primarily mental. These mental threats activate the same fight, flight, or freeze response, triggering us to use cognitive shortcuts or biases in our decision-making. These shortcuts prevent



Kimberly Perkins,
corporate pilot
and safety
researcher

us from seeing the full frame of human error while also impacting our decision-making process. Similarly, our response to perceived mental threats inhibits us from viewing the system comprehensively and limits our potential to problem-solve.

Understanding how our biases impact others and how we are impacted when we perceive bias against us directly affects safety. Our ability to communicate, our likelihood of self-reporting, and our view of a just culture within our safety management system (SMS) are all impacted by cognitive biases.

A Harvard Business Review study found that employees who perceived bias against them at work were more likely to disengage from work, leaving them feeling angry and less proud of their organization. Additionally, these employees were three times more likely to quit their job within the year. There’s a deterrent to safety in a micro view (within the attitudes of individuals at the organization) and in a macro view of low retention rates. It also has a direct impact on your organization’s safety culture.

To avoid operating in our primitive brain (which throws our thinking brain offline), we need to feel that we are secure and not under threat. Psychological safety is the amount of relational trust one feels in his or her environment. It means feeling comfortable to speak up, admit mistakes, and be your authentic self. It also means a safer employee and safer organization because it creates an environment where relationships are rooted in trust.

With a high level of psychological safety, the team has a sense of belonging and inclusion. This builds trust, which is fundamental to an organization’s SMS as it directly impacts an employee’s willingness to self-report, the unpinning of an effective proactive safety program.

Proactive safety is highly dependent on the individuals within an organization. To elicit a collaborative approach to safety, there must be a strong culture of self-reporting and an intrinsically just culture throughout the organization. This type of proactive safety requires a high level of psychological safety.

Overcoming the Gap in Human Factors

There is a gap in aviation safety. That gap is how to build trust, how to increase psychological safety, and how to promote a positive safety culture.

Our industry uses a host of data-driven approaches to enhance safety (ASIAS, FOQA, and ASAP are examples) but we have little academic research on the impact of cognitive biases on organizational safety culture. I aim to resolve

this gap through doctoral research.

Indirectly, the industry already has the regulatory requirement and justification for the expansion of human factors training. Now the FAA requires Part 121 operators to develop and implement an SMS program (14 CFR Part 5), and it’s a matter of time before it’s required throughout the whole industry (much like the history of CRM).

Once an SMS program is established, indicators of compliance and performance include training personnel on “non-technical skills with the intent of reducing human error” (ICAO Annex 19 component 4). The rationalization for the expansion of human factors training resides within the very structure of the system itself. The safety promotion pillar requires training, communication, and actionable progress on enhancing a positive safety culture. The safety policy pillar obligates senior management to commit to the constant improvement of safety. It is, inarguably, the accountable executive and safety officer’s responsibility to find ways of enhancing safety through positive safety culture promotion initiatives. This compels us to ask the same question: how?

I advocate that the industry needs aviation-specific, academically derived cognitive bias research, which will provide the structured foundation for a formal expansion of human factors training to include elements such as emotional intelligence, psychological safety, inclusive leadership, and cognitive biases training as an approach to enhance safety culture.

The neuroplasticity of our brains allows us to reframe how we think to have more control over our decision-making process. We can use self-awareness to pause and examine whether our brains are operating from the primitive or emotional parts or whether we are operating in our thinking brain. This process actually builds new neural pathways, and it becomes a habit. We can leverage this neuroplasticity to create new pathways of mitigating operating on negative biases. In the ways that we’ve all been trained to recognize and intervene in the accident chain, the same principles apply here. We recognize a pattern and we’re able to stop it. But that requires awareness and training.

If human error is the problem, the new era of aviation safety must begin with a granular analysis of cognitive processing. We cannot enhance safety without a better understanding of our cognitive biases and their impact on flight deck safety and organizational safety culture. An interdisciplinary research approach will target this pervasive safety gap to reduce human error and enhance the effectiveness of an organization’s SMS.

Contemporary cognitive science research is the new era of aviation safety. We can no longer afford to sit back passively in our zone, waiting for research in human factors to be done in other fields (refracted through their institutional logics) before taking it up and grafting it into aviation safety systems. For cognitive science research to accurately inform aviation, someone within the industry needs to be in the “flight deck” navigating the research. ■

NIAR modification lab obtains part 145 certificate

by Jerry Siebenmark

Something big is happening in a cluster of buildings and hangars in Wichita, Kansas, that once served as a modification center for Boeing. The National Institute for Aviation Research (NIAR) at Wichita State University (WSU) created an organization two and a half years ago, called NIAR Werx, to provide a host of services to OEMs, suppliers, business, and military aviation companies—especially startups—seeking to do projects as small as one-off parts manufacturing all the way up to retrofitting commercial airliners for special missions and other purposes.

At the same time, it provides real-world learning and experience for WSU engineering students and students enrolled in the airframe and powerplant and avionics programs offered by the university's technical college, WSU Tech.

David Jones, NIAR Werx director, emphasized that the nonprofit organization doesn't intend to compete with aviation companies but rather assist them with the manpower and expertise to

develop and certify STCs and bring new products and aircraft to market. "We're small, nimble, and low-cost," Jones told **AIN**. "We're here to augment them." And for smaller aviation startups, NIAR Werx offers resources that they don't have or can't yet afford to have. "It's almost like an incubator for new companies, a maker space for aviation," Jones added.

Originally launched with a cadre of 55 engineers—some of whom were previously employed at the Bombardier Flight Test Center in Wichita—under the designation of NIAR Engineering Design and Modification Team, NIAR Werx now boasts a workforce of 200 engineers, 100 mechanics and technicians, and 45 students working from a handful of buildings that include hangars measuring 111,000 and 47,500 sq ft—with the former one once serving as the hangar where Boeing modified the VC-25s currently being used as Air Force One. A third, 80,000-sq-ft hangar is expected to be added this summer.



JERRY SIEBENMARK

The Werx modification lab at Wichita State University's National Institute for Aviation Research (NIAR) has received a Part 145 repair station certificate from the FAA for limited airframe and engine maintenance.

NIAR Werx provides a menu of engineering and environmental and electromagnetic test services. Test services such as lightning, burn, ballistics, and high-intensity radiated fields are conducted in a 35,000-sq-ft building.

In June, the organization was awarded an FAA Part 145 certificate for limited airframe and engine work for its MRO services, which will primarily focus on aircraft modifications, Jones noted.

In December, it plans to launch a center for flight-test and certification services from its main facilities in Wichita, which have access to McConnell Air Force Base's 12,000-foot runway and runs parallel to the former Boeing Wichita property now known as Air Capital Flight Line. Flight testing will also be conducted offsite at Salina Regional Airport—about 90 miles north of Wichita—which has a 12,300-foot runway.

» continues on page 30

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GDC Technics faces liquidation

| by James Wynbrandt

GDC Technics, which filed for bankruptcy in April, faces a showdown between management's reorganization plan and a court-appointed creditors' committee, which favors

liquidating the completions and MRO company. GDC filed for bankruptcy after Boeing terminated contracts that month for modification and refurbishment work on two Air

Force One 747-8s for the U.S. government's executive fleet. The work includes electrical power upgrades, a communications system, medical facility, and executive interior, according to Boeing.

In May, the Fort Worth-based GDC vacated its facility at Port San Antonio and laid off some 250 employees, and in June it filed an emergency motion to obtain \$7.4 million in financing for its operations over

an 18-week period. The funds "will facilitate a successful reorganization or going-concern sale" of the business, GDC said in the motion, with the cash to come from MAZAV Management, which owns GDC and is headed by GDC's chairman, Mohammed Alzeer.



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But the committee of unsecured creditors alleges in federal bankruptcy court that GDC insiders are taking the company's remaining value for their own benefit at the expense of creditors. As an example, the committee noted that one of GDC's four principals loaned the company \$2.4 million for two weeks a year ago and charged it \$480,000, equal to a 520 percent annualized interest rate. The committee contends that liquidating GDC under Chapter 7 bankruptcy would be in the creditors' best interest.

Committee members, appointed by the U.S. trustee charged with overseeing bankruptcies, are Tran-Star Aircraft Interiors, Agente Technical, PAC Seating Systems, and former GDC engineer Kinglea Stringham. Separately, Stringham has sued GDC, alleging that it failed to give her and other former employees 60 days' advance notice of their termination as required by federal law.

Boeing has taken over GDC's lease at the Port San Antonio facility and continues the work on the Air Force One jets, and GDC has countersued Boeing, which claims GDC's delays caused the contract cancellation. GDC blames Boeing's changes to the project workscope for the missed deadlines. In June, Boeing informed the U.S. Air Force that delivery of the two presidential jets would be delayed a year and would require renegotiation of the contract price.

GDC, the former Gore Design Completions, has listed \$54.2 million in assets and \$55.2 million in debts in its bankruptcy filings. The company was acquired in 2013 by a partnership led by MAZ Aviation and SAAV Completions, the latter owned by Saudi Arabia's Ministry of Finance. In a 2019 reorganization, SAAV sold its interest, the Oriole Capital Group of Los Angeles took a stake in the company, and the reconstituted ownership entity was renamed MAZAV Management. ■



Safety Standdown

Less flying degrades pilot skills

by James Wynbrandt

Reduced flight time resulting from Covid-19 has degraded professional pilots' performance, according to Paul Ransbury, CEO of training provider Aviation Performance Solutions, and the problem will be "an issue for us for a while," he said at Bombardier's virtual Safety Standdown in May.

"It's really unprecedented for a large body of pilots to go this amount of time without flying or having an alternative way of staying current," Ransbury said in his online presentation, "Manual Flight Operations—Proficiency Fallout due to COVID-19." He cited operations declines ranging from 60 percent initially to recent 40-48 percent deficits over pre-Covid levels.

Bolstering his findings, Embry Riddle Aeronautical University research of the NASA Aviation Safety Reporting System (ASRS) anonymous voluntary reports filed by pilots during this period found "items identified most readily with a proficiency-currency issue increased by a thousand percent, a tenfold increase" in the aftermath of operations reductions, Ransbury said.

Manual flight control skills are most affected, including transition from automated to manual flight control; energy state management; and crew coordination. Pilots with little experience "are the most vulnerable" to loss of this proficiency, he said, while those with "a substantial amount of experience can get back up to a very high level of proficiency in a relatively short period of time."

These skills were lagging well before the pandemic; the FAA's Flight Deck Automation Group identified manual flight operations as an "ongoing challenge" a decade ago, even as operations have become ever more automated. The current decline in these skills is most pronounced among pilots of "highly automated airplanes," said Ransbury, and the degradation appears to surprise even pilots themselves. He quoted comments from the ASRS reports:

"I was legally IFR current, but I was clearly not proficient," wrote one, adding, "Covid-19 prevented me from getting recent practice." Another reported having "Too much confidence in assuming that it would all come back to me as second nature. I was wrong."

Relaxation of FAA currency regulations meant to compensate for the systemic strains caused by Covid "make the situation worse," Ransbury continued. Meanwhile,

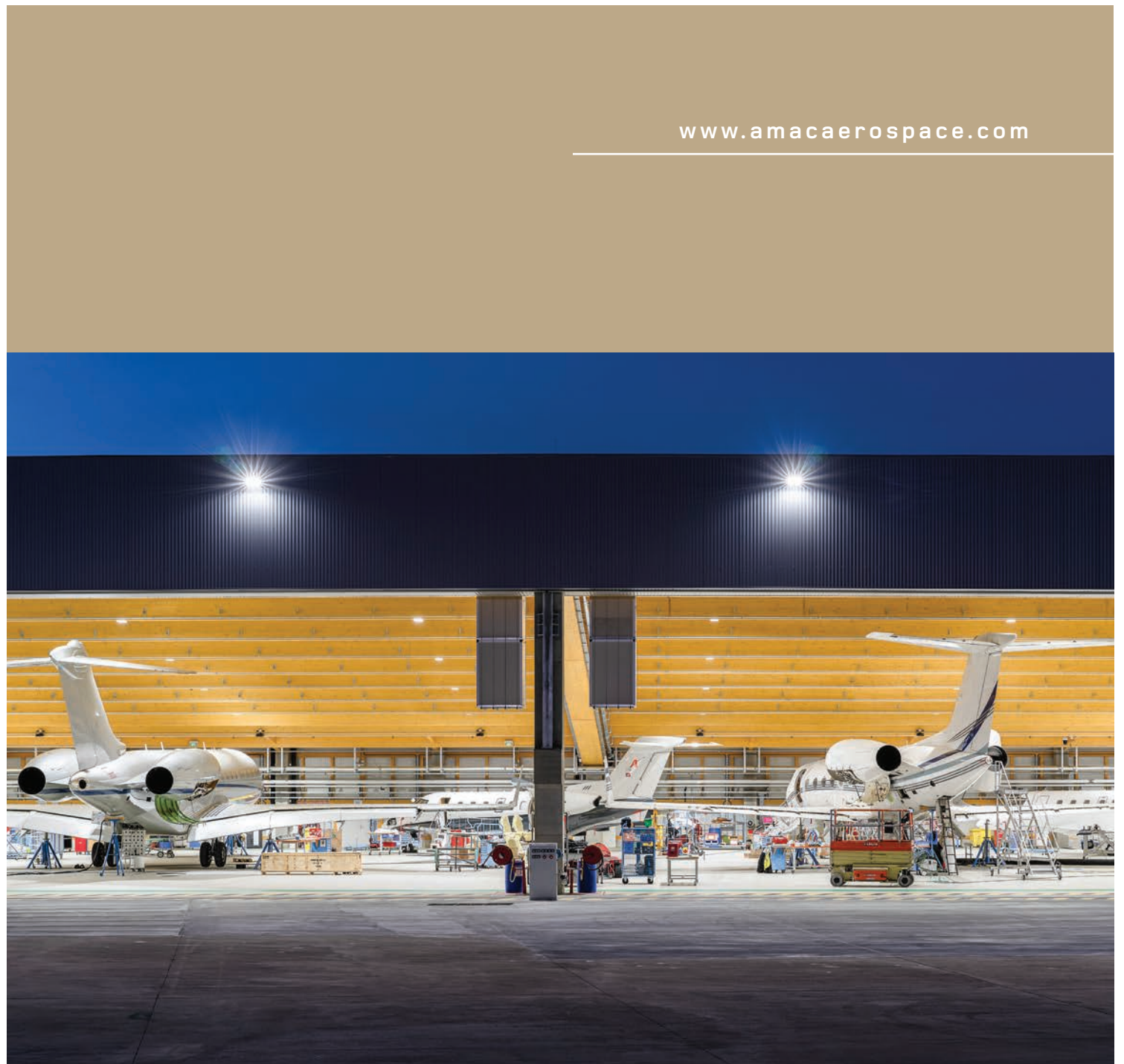
with operations trying to rebound, professional pilots that have remained active "are under a lot of pressure and generally face fatigue challenges," in addition to pandemic-related stress many people have experienced during the lockdown, according to Ransbury.

Mitigation strategies include improving pilots' awareness of the aircraft energy state; following the guidelines from ICAO's

2014 Upset Prevention and Recovery Training manual; and most importantly, dedicated practice. "We definitely need to be more aware of how much our proficiency decreases as we are flying less," Ransbury said.

Airlines he's spoken with on this issue report it generally requires three four-hour simulator sessions to restore pilots' skills to an acceptable level. ■

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AIN Product Support Survey

Dassault retains top ranking in 2021

by Jerry Siebenmark

For the third year in a row, Dassault Aviation held the top spot for business jets in the annual **AIN** Product Support Survey. The French manufacturer of Falcon jets recorded this year's highest Overall Average ratings of newer and older aircraft, with a score of 8.7 among jets based on results of **AIN**'s survey of aircraft operators, pilots, and maintainers.

Dassault's 8.7 Combined Overall Average rating is up from last year's 8.3 and higher than Gulfstream Aerospace, which came in second for a third consecutive year based on its mid-cabin jet Overall Average score of 8.5. That leaves Embraer in third place with a score of 8.4.

In the turboprop results, **AIN** decided to break out the results of in-production and out-of-production aircraft (see *Survey Rules and Methodology* for more details). Pilatus recorded the

top score for in-production turboprops with an Overall Average of 8.8, up 0.8 from last year's score of 8.0 and a 2019 score of 8.3. The out-of-production Mitsubishi MU-2 turboprop recorded a strong Overall Average score of 9.1, up slightly from 9.0 last year.

In comments to **AIN** regarding improvements to product support over the past year, a number of OEMs cited the challenges of the Covid-19 pandemic on those efforts, although none reported interruptions in providing service and support to their customers.

For this year's survey, there were 885 respondents who rated 2,671 aircraft broken down into 137 models. The minimum number of ratings required to include a manufacturer's aircraft in the final results is 20. (For more details, see *Survey Rules and Methodology* on this page.)

Dassault Aviation

The results

Dassault Aviation held on to its first-place ranking in the 2021 **AIN** Product Support Survey with a score of 8.7 in the Overall Average ratings of newer and older aircraft, up 0.4 from the score of 8.3 it recorded in 2020 and 8.4 in 2019. It also recorded gains in six out of 10 categories: 8.9 in Parts Availability, 7.5 in Cost of Parts, 8.8 in AOG Response, 9.1 in Warranty Fulfillment, 9.0 in Technical Manuals, and 9.3 in Technical Reps.

The improvements

While Dassault Aviation's customer service organization has slowed its pace of MRO acquisitions that saw it purchase the maintenance businesses of TAG and ExecuJet in 2019, it hasn't throttled back on improvements within the organization over the past 12 months. In January, Dassault consolidated its MRO sales operations into a single organization for customers in Europe, the Middle East, Africa, and Asia-Pacific

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Survey Rules and Methodology

The objective of the annual Product Support Survey is to obtain from the users of business jets, pressurized turboprops, and turbine-powered helicopters statistically valid information about the product support provided by aircraft manufacturers over the last year. The goal is to encourage continuous improvement in aircraft product support throughout the industry.

NEW SURVEY TOOL

This year, the survey was conducted via a newly designed questionnaire, developed in partnership with Rolland Vincent Associates, a Texas-based consultancy focused on aviation market research, strategy, and forecasting. The redesigned survey was created to provide improved ease of use and to encourage more participants to complete the entire survey.

The new survey tool:

- » Included Spanish and Portuguese versions for the first time.
- » Asked respondents to evaluate one full aircraft at a time including airframe, engines, and avionics.
- » Included clearer language and imagery around the individual categories and the evaluation scale.
- » Added a new aircraft category: Cost Per Hour Programs

METHODOLOGY

AIN emailed qualified readers a link to the password-protected survey website, which was open from May 3 to June 11. Respondents were asked to rate individual aircraft and provide the tail number, aircraft age, primary region of service, and whether they used factory-owned or -authorized service centers, or both. Respondents were also asked to rate, on a scale from 1 to 10, the quality of service they received during the previous 12 months in the following categories: Factory-owned Service Centers; Cost Per Hour Program; Parts Availability; Cost of Parts; AOG Response; Warranty Fulfillment; Technical Manuals; Technical Reps; Overall Product Reliability.

THE RESULTS

In total, 885 unique participants from 67 countries completed the survey, representing 2,671 aircraft and 137 aircraft models. Rolland Vincent Associates reviewed the data to ensure accurate and valid responses. They also compiled the final survey results in close coordination with **AIN**. In consultation with Rolland Vincent Associates, two changes were made this year:

- » The report only shows a single table highlighting the averages of both older and newer aircraft. This change reflects the lower utilization of older aircraft and consequently lower response numbers. It also simplifies the presentation of the data.
- » The report separates in-production turboprop aircraft and out-of-production turboprop aircraft. We determined it was not apples-to-apples to compare these OEMs in the same grouping. Respondents were also asked to recognize individuals who have provided them with exceptional product support and service. Select individuals are highlighted in this report.

RESULTS ANALYSIS

In analyzing the results of this survey vs. prior years, this year's scores were generally higher. Our thoughts on this are:

- » Higher scores reflect the OEMs continuous improved and focus on the customer experience.
- » Certain segments of business aviation did fly considerably less from May 2020-May 2021. Fewer cycles may have led to fewer scheduled and unscheduled maintenance events.
- » The new survey tool certainly could have played a part in scores tending to be higher. The switch from a drop-down to radio buttons reduced the chance of a mistaken score.
- » We suspect this year's strong results could establish a new benchmark of excellence for OEMs in the years ahead as flight activity rebounds globally.

COMING NEXT

The 2021 **AIN** Product Support Survey results for aircraft are published in this issue, avionics, cabin and connectivity will be featured next month, and engines will follow in October. ■



Combined Overall Average Ratings of Newer and Older Aircraft	Overall Average 2021	Overall Average 2020	Rating Change from 2020 to 2021	Factory Owned Service Centers	Authorized Service Centers	Cost per Hour Programs	Parts Availability	Cost of Parts	AOG Response	Warranty Fulfillment	Technical Manuals	Technical Reps	Overall Aircraft Reliability
Business Jets													
Dassault (Falcon)	8.7	8.3	0.4	8.3	8.8	7.8	8.9	7.5	8.8	9.1	9.0	9.3	9.2
Gulfstream (Mid-Cabin)	8.5	8.1	0.4	8.3	8.4	7.7	8.3	7.0	8.7	9.1	8.7	9.3	8.7
Embraer (Phenom, Legacy, Praetor, Lineage)	8.4	8.1	0.3	8.5	8.9	8.2	7.9	7.4	8.3	8.8	8.7	8.4	9.1
Gulfstream (Large-Cabin)	8.3	8.2	0.1	8.2	8.3	7.6	8.6	6.7	8.6	8.5	8.3	8.8	9.3
Textron Aviation (Citation)	8.1	7.9	0.2	7.5	8.6	7.2	8.3	6.6	8.3	8.6	8.0	8.6	8.7
Bombardier (Global)	8.0	8.0	–	7.3	8.6	7.5	7.8	6.4	8.1	8.1	8.0	8.8	8.4
Bombardier (Challenger)	7.9	7.9	–	7.5	8.5	7.6	7.7	7.0	7.7	8.0	7.8	8.4	8.7
Bombardier (Learjet)	7.7	7.2	0.5	7.1	8.9	7.7	7.0	6.5	7.7	7.7	8.0	8.1	8.4
Textron Aviation (Hawker)	7.6	7.1	0.5	7.3	9.0	7.8	7.3	5.3	7.3	7.9	7.9	7.1	8.4
Turboprops													
Pilatus (PC-12)	8.8	8.0	0.8	9.4	9.2	8.4	8.8	6.9	8.5	9.5	8.9	9.3	9.6
Textron Aviation (King Air)	8.2	7.5	0.7	7.9	8.2	7.8	8.4	7.2	8.0	8.3	8.5	8.5	9.1
Turboprops (out-of-production)													
Mitsubishi (MU-2)	9.1	9.0	0.1	9.6	9.7	*	8.6	7.1	9.3	*	9.2	9.7	9.6
Rotorcraft													
Leonardo	8.3	7.0	1.3	8.4	8.2	7.9	8.1	7.2	8.6	8.7	8.7	8.8	8.6
Bell	7.9	7.7	0.2	7.6	8.4	8.1	7.6	6.7	7.5	8.0	8.0	8.6	8.7
Airbus Helicopters	7.6	6.4	1.2	7.1	8.5	7.4	7.5	5.8	7.2	7.3	7.7	8.0	9.0

* Not reportable due to small respondent sample

› Dassault Aviation *continued*

that brought together the MRO sales operations of Dassault Falcon Service (DFS), TAG Maintenance Services (TMS), and the Falcon segment of ExecuJet MRO Services. That move serves to “keep the customers feeling that now they are not only dealing with single companies, but they are dealing with the Dassault MRO network,” Jean Kayanakis, senior v-p of Dassault Aviation’s worldwide customer service and service center network, told **AIN**.

The consolidation helps to optimize the planning of where customers would like to have their Falcon jets serviced and makes the service center network more efficient. It also exposes customers to the newer capabilities of service centers such as ExecuJet MRO Services Malaysia in Kuala Lumpur. “A few years ago they were not doing anything but now they’re doing large projects,” Kayanakis said.

The French airframer is also moving the Falcon Command Center and its frontline customer support to Mérignac, putting those operations closer to the production lines and the technical staff who support Falcon manufacturing. Those relocating operations will be housed in a new building that is expected to open this summer.

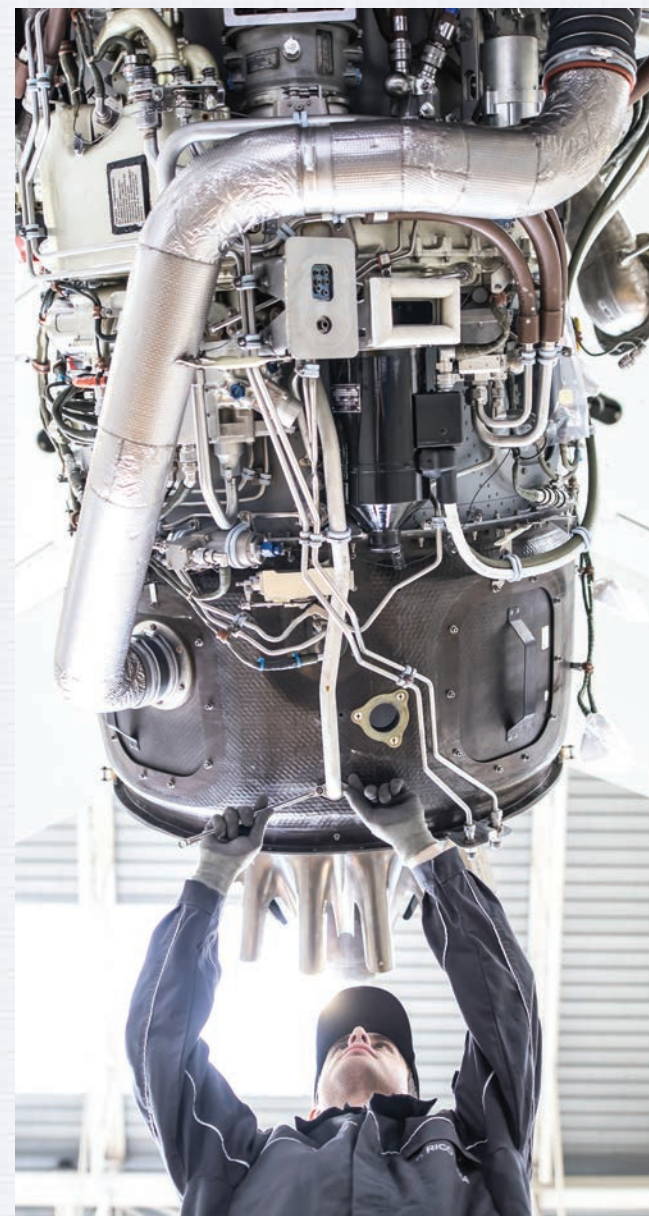
In the U.S., Dassault is undertaking a 10,000-sq-ft expansion in Reno, Nevada, which serves the West Coast. That expansion is expected to be completed this year. “We’re thinking that this may be an important place for the future of the 10X,” Kayanakis said. Elsewhere, the company

is building a new Middle East service facility in Dubai and plans to build a larger service center with ExecuJet in Kuala Lumpur that will replace its existing center there. It will be at the same airport, and Kayanakis said the relocation will likely happen sometime in 2023.

Lastly, Dassault continues to focus on making improvements to its FalconCare maintenance support program. That program offers scheduled and unscheduled maintenance services through C-check, including airframe, avionics, landing gear parts, labor, consumables, service bulletins, and maintenance tracking.

In October, Dassault announced new options for FalconCare, including offering it at two different levels. The basic level, known as FalconCare Essential, covers the full cost of Dassault spare parts, while FalconCare Elite covers parts as well as labor, consumables, AOG GoTeam service, documentation, and exchange items such as batteries and wheels. FalconCare Efficiency Bonus—a rewards program—and a flex spending account for costs outside FalconCare coverage are also available with both plans.

“What is important is we are adding options, and consistently improving the program to cover more services and to be more customized,” Kayanakis said. “It has had quite good success with our customers. I think it’s a trend in the industry; we’re not the only one. But there is a lot of competition [and] we’re trying to be different. And I think we’re able to do that.” He noted that there are 500 airplanes enrolled in FalconCare.



Pilatus Aircraft

The results

Pilatus's PC-12 was tops among in-production turboprops for the third consecutive year, besting Textron Aviation's King Airs, with a Combined Overall Average Ratings of Newer and Older Aircraft of 8.8, improving upon its 2020 Overall Average of 8.0 in 2020 and 8.3 in 2019. The Swiss airframer also saw improvement in nine of 10 categories: 9.4 in Factory Owned Service Centers, 9.2 in Authorized Service Centers, 8.4 in Cost per Hour Programs, 8.8 in Parts Availability, 8.5 in AOG Response, 9.5 in Warranty Fulfillment, 8.9 in Technical Manuals, 9.3 in Technical Reps, and 9.6 in Overall Aircraft Reliability.

The improvements

Officials of the Swiss airframer told **AIN** they were just happy to get through the past year and the effects of Covid-19 relatively unscathed. "We were able to manage our workforce and our production to be able to build the aircraft and then more importantly to support the aircraft that were out there flying," said Pilatus v-p of marketing Tom Aniello. Still, Pilatus managed to continue enhancing its support network by adding four more PC-24 authorized service centers in North America. Additionally, the company provided visibility of spare parts throughout

its global service center network as well as offered an online option for maintenance training courses because of the travel restrictions brought on by the global pandemic.

At its North and South American headquarters and completions site in Broomfield, Colorado (which is marking its 25th anniversary this year), Pilatus broke ground on a new paint shop. And it certified a full-motion PC-12 NGx simulator for pilot training.

While Aniello and Pilatus v-p of customer service Piotr Wolak noted that utilization and demand is "unbelievable" post-Covid, the supply chain remains a concern. "Just managing inventory and getting parts for production and spares...it's still a challenge," Aniello said. "We and a lot of other companies were working off of existing inventory and it's just now this year I think we're all starting to see some of the real weaknesses in the supply chain, whether it's getting parts or the quality of parts we're receiving. Certainly, it's keeping us busy both on the production side and the support side."

Wolak noted there are "a lot of things in the pipeline" in terms of Pilatus product support improvements but added it's too early to disclose them. "Our company's motto is you always improve what you're doing," he said. "It never stops. You raise the bar."



Gulfstream Aerospace

The results

The Savannah, Georgia-based airframer placed second in the Combined Overall Average Ratings of Newer and Older Aircraft with a rating of 8.5 for its mid-cabin jets and fourth place with an Overall Average rating of 8.3 (up from 8.2 last year) on the strength of its large-cabin jets. For mid-cabin jets the OEM recorded improvement in Warranty Fulfillment and Technical Reps with scores of 9.1 and 9.3 respectively. Its large-cabin jets improved in Overall Aircraft Reliability with the highest rating at 9.3.

The improvements

In the past 12 months, Gulfstream Aerospace has opened two new service centers, a 225,000-sq-ft MRO complex at Farnborough Airport and a nearly \$50 million FBO and service center with sister company Jet Aviation at Palm Beach International Airport in Florida. It has also started construction on a \$42 million, 163,000-sq-ft service center at Alliance Airport in Fort Worth, Texas that Gulfstream customer service president Derek Zimmerman told **AIN** should be completed sometime between end of first quarter and into the second quarter of 2022.

"Taken in its entirety, if you look back a little farther Alliance, once it's online, that'll be the eighth new service center to join the Gulfstream customer support network in the last eight years," Zimmerman said. But in the past year, Gulfstream also closed a service center in Las Vegas and consolidated the Long Beach, California, service center with its Van Nuys operation.

Beyond Gulfstream's service center operations, it opened a new global aircraft parts distribution hub near Atlanta Hartsfield-Jackson International Airport last August housing more than \$20 million in spares. "It gives us almost immediate access to a terrific array of commercial flights and cargo flights. When hours and minutes matter, being that close to a host of flights can make all the difference from a customer perspective," he said.

More recently, the airframer announced plans to add G600 completions at the Love Field facility. The company is adding more than 13,000 sq ft to its Appleton, Wisconsin completions hangar.

Besides opening new and expanding existing facilities, Gulfstream rolled out a new ecommerce site in the second half of last year, making it easier for customers to access more than \$1 billion in parts. "We're soliciting feedback from [customers] to continue to build out the functionality," he said.

Also in the past year, Gulfstream is taking expertise of its designers, engineers, and installers in delivering more than 3,000 aircraft to introduce services to its in-service fleet that includes significant configuration changes, updating interiors, adding functionality, and aircraft repainting.

In terms of overall customer service capabilities, "I don't feel like we're done yet," Zimmerman added. "I think there's more that we can do and will do as our fleet of aircraft continue to grow. We are committed. Our parent company is committed. And we'll continue to grow as customers need us."

Embraer Executive Jets

The results

Embraer came in third place again with its Phenom, Legacy, Praetor, and Lineage jets with a Combined Overall Average Ratings of Newer and Older Aircraft of 8.4, a 0.3 increase from last year when it tied Gulfstream's mid-cabin offerings with an Overall Average of 8.1. The Brazilian airframer also saw improvement in its Factory Owned Service Centers rating with an 8.5 rating and a Cost per Hour Programs rating of 8.2.

The improvements

Frank Stevens, Embraer Services & Support v-p of global MRO centers, told **AIN** that continuous improvement is "the name of the game" within his organization and the focus of that has been on parts inventory. "We have had many actions to ensure the parts inventory is reviewed and adjustments are made to levels to support the demand," he said. Stevens also noted Embraer has evolved its aircraft maintenance program "to ensure the highest level of safety and quality."

On the modification front, Embraer monitors the market and maintains close contact with customers to determine "the most desired features to be developed and included in our portfolio of aircraft modifications." That includes new avionics loads that add safety features such as cockpit display of traffic information, predictive windshear, synthetic vision guidance system, and runway overrun awareness and alerting system, among others. "We work hard to induce these improvements in our day-to-day activities while striving to address the long term through customer driven action plans," he said.

Embraer operates three company-owned service centers in the U.S.—Mesa, Arizona; and Fort Lauderdale and Melbourne, Florida—as well as Sorocaba and Gavião Peixoto in Brazil and Le Bourget in France and a worldwide network of more than 70 authorized service centers.

"Embraer has a vetting process to ensure that these partners pass a complete check to ensure the same safety, quality, and delivery are maintained," Stevens said.

Bombardier

The results

Bombardier's Challenger and Global jets moved lower in this year's survey, recording 7.9 and 8.0 respectively in the Combined Overall Average Ratings of Newer and Older Aircraft, the numbers of which were flat from last year's survey. But Learjet was up 0.5 to 7.7 on the Overall Average.

The improvements

"Bringing our jets back home" has been the strategy and guiding principal at Bombardier over the past five years, Jean-Christophe Gallagher, Bombardier executive v-p of services and support and corporate strategy, told **AIN**. And as a result, "we're

► continues on next page



Textron Aviation

The results

The Wichita-based airframer saw improvement for its Citation and Hawker product support in the survey's Combined Overall Average Ratings of Newer and Older Aircraft by increasing its year-over-year ratings 0.2 to 8.1 for Citation and 0.5 to 7.6 for Hawker, pushing the OEM's Citation from its seventh spot in 2020 to fifth—and edging out Bombardier's Global and Challenger models—while Hawker's position remained unchanged from last year.

Hawker models also saw an increased top rating of 9.0 for Authorized Service Centers.

Among turboprops, Textron Aviation's Beechcraft King Air recorded an Overall Average rating of 8.2, an increase from last year of 0.7, but it wasn't enough to unseat Pilatus's PC-12. The King Air did earn a high mark of 7.2 for Cost of Parts in this year's survey.

The improvements

One of the big initiatives in Textron Aviation's customer service organization in the past 12 months has been the rollout of a "single sales doc" that allows customers who are getting their Citation jets or Beechcraft turboprops maintained at the airframer's service centers to see the progress of work. "As we close out work it updates that document and the customer has almost a real-time view of the invoice as it builds," Textron Aviation senior v-p of customer support Brian Rohloff told **AIN**.

Also seeing some tweaking is the company's customer portal, where the single sales doc resides. "Just recently we updated our customer portal," Rohloff continued. "We streamlined it, giving customers central access for any maintenance needs, any parts needs, tech pubs, and just streamlining the business, streamlining our interactions with the customer." Textron Aviation expanded its 1Call customer support service in Europe as well as "go teams" there for AOG because "oftentimes with our MSUs [mobile service units] it can be a challenge to get across borders."

Rohloff added that the company also is close to establishing additional line service capabilities at

Stuttgart Airport in Germany. In the Asia-Pacific region, the Citation service center in Singapore has added more aircraft models to its certification while also building up its structural repair capabilities. Before, "we tended to bring that structural repair activity back to Wichita," Rohloff said. "Now we've built up the team and capabilities in Singapore to do much of that [work]."

The January 2020 acquisition of PremiAir Aviation Maintenance in Australia has been a "great opportunity to bring our OEM service to all of our customers down there," he said. "In a very short period of time PremiAir is now CASA authorized to work on all of our Textron Aviation products."

In terms of aftermarket parts, one key area that's seen improvements is the company's ecommerce site, senior v-p of parts and programs Kriya Shortt told **AIN**. Specifically, the company has worked to make it easier for customers with a partial part number to find the exact part they're looking for as well as see what parts may be on back order. Other improvements to the site will include estimated shipping rates and lead time projections.

The company continues to evaluate parts pricing, including on a case-by-case basis. "When a customer brings that to our attention, we're evaluating it," she said. "If there is a chance we were not priced right in the market, we'll own that." Even in instances where the company has adjusted the price on a certain part, it may not be the lowest price in the market, but it will be a fair price, she added.

Shortt acknowledged that because of the pandemic "there are some places [in the supply chain] that are constrained. The team is working diligently through that and our supply base is being transparent with us so that we can provide information back to our customers. I appreciate that our customers have an understanding that we were all impacted by the pandemic. It does have an impact when we can't supply a part to a customer who has an important business meeting or revenue-generating flight. But what they most want to know is when they can expect it and that you have a handle on it."



Mitsubishi

The results

Mitsubishi's out-of-production MU-2 and its variants occupy their own category in this year's survey, and the company continues to receive high marks from operators for its support of the turboprop twin even though production ended in 1986. On the Combined Overall Average Ratings of Newer and Older Aircraft, Mitsubishi received a rating of 9.1, which was up slightly from 9.0 in last year's survey.

The improvements

Mitsubishi Heavy Industries America (MHIA) continues to support the aircraft through its MU-2 Aircraft Product Support Division located in Addison, Texas, which provides product support programs worldwide for the Mitsubishi MU-2B series turboprop airplanes. Its support comprises spare parts, sales, engineering, field support, quality assurance, and flight safety as well as offers learning opportunities based on the latest best practices in flight safety.

MHIA product support director Yoshiaki "Yoshi" Asako told **AIN** that in the past 12 months many MU-2 operators and owners "faced challenging times, but with the benefit of the Special Federal Aviation Regulation No. 118 providing relief from several regulatory requirements, including Part 91 Subpart N for MU-2 pilots, MHIA saw encouraging activities from MU-2 owners and pilots continuing to fly their airplanes as well as maintenance activities from its MU-2 authorized service centers.

Because of the Covid-19 pandemic, the company had to cancel its biennial, in-person Pilot's Review of Proficiency. However, it was able to offer a number of webinars throughout the past 12 months, including analysis of past accident scenarios and safety enhancement systems. "MHIA is hoping to participate in more face-to-face events in the future," Asako said.

The company also remains focused on continuing its ongoing support of the MU-2 through localizing manufacturing of spare parts in the U.S., he said. "These efforts should continue to enhance the MU-2 parts supply chain and FAA coordination into the future," he added.



► Bombardier *continued*

going through the biggest expansion of our service network in the history of the company," he said. Now, the company is in the "most interesting part" of that strategy, where a lot of its past investments are coming to fruition, Gallagher noted.

In January, Bombardier completed the acquisition of issued and outstanding shares it didn't own of Lufthansa Bombardier Aviation Services from Lufthansa Technik and ExecuJet Aviation Group, giving the Montreal-based airframer a wholly owned service center in Berlin and its ninth such center. At the end of June, the company took possession of its 330,000-sq-ft service center expansion at Seletar Aerospace Park in Singapore where later this summer it will begin accepting customers. "And we've got so much more coming in the next year," Gallagher added. That includes a 250,000-sq-ft service center at London Biggin Hill that replaces its existing service center there and expected to open by the end of this year. There are also a 50,000-sq-ft service center at Essendon Fields Airport in Melbourne, Australia, and a new \$100 million, 300,000-sq-ft service center at Miami-Opa Locka Executive Airport.

"All of these expansions are coming due—boom, boom—one after the other and it's going to basically grow our service network by 50 percent in one shot," Gallagher explained. "We're going to go from about two million sq ft of space to three million sq ft of space in this expansion journey."

But the expansion activity does not stop there. Bombardier now has seven line maintenance stations in Europe and has added one each in the U.S. at Teterboro Airport in New Jersey and Van Nuys Airport in California. "That complements overall the heavy maintenance network," he said. "I describe it as the tentacles of the network, spreading around the big bases and supporting our customers where they fly." Additionally, Bombardier's Mobile Response Team is up to 30 trucks

across the U.S. and Europe. "It's an ecosystem of different support structures that come together, always coordinated by the central entity in Montreal that we call the Customer Response Center."

But the "real revolution" in Bombardier's product support is coming through Smart Link Plus health monitoring units (HMU), he said. The company's flagship aircraft, the Global 7500, was the first Bombardier aircraft to come equipped with an HMU.

"This piece of equipment is so game-changing, not only for Bombardier who provides the support but for our customers, in terms of being able to benefit from just a heightened level of support from the manufacturer," Gallagher explained. The HMU communicates with Bombardier in real-time and allows the OEM to remotely troubleshoot problems with the airplane. Not only does it cut the time it would take Bombardier technicians on the ground to troubleshoot an issue, it accelerates the process of dispatching parts and technicians to fix the issue.

Bombardier announced at the 2019 NBAA-BACE that it would retrofit the installed base of Challenger and Global jets with the HMU for free although the monitoring service requires a Smart Link Plus subscription. That work is beginning this summer on some Challenger 300s, Gallagher noted. "We're bringing that benefit of the connected aircraft to a 15-year-old airplane or a 10-year-old airplane," he added.

"Retrofitting a fleet of more than 2,000 airplanes is a complete other game, which we know will catapult us into a new era of support." It's a game-changer because Bombardier will know about a maintenance issue and what it is and will have dispatched the part and the technicians—in an AOG situation—even before the call comes in from a customer. "That's the kind of new level of customer interaction we want to reach with that kind of technology."

Leonardo Helicopters unseated Bell as the perennial favorite in **AIN**'s annual Product Support Survey with a Combined Overall Average Ratings of Newer and Older Aircraft of 8.3, a noteworthy jump from the 7.0 the Italian airframer recorded in last year's survey and 6.8 in the 2019 survey. Leonardo's advance pushed Bell to second place with an Overall Average of 7.9, a 0.2 gain from Bell's 7.7 in 2020. Airbus Helicopters also saw a noteworthy improvement in its Overall Average, moving from 6.4 in 2020 to 7.6 in this year's survey. The increase, however, wasn't enough to move the OEM from its third-place position.

Leonardo Helicopters

In addition to moving up to the top spot among helicopter OEMs, Leonardo saw higher ratings in seven of 10 categories: Factory Owned Service Centers (8.4), Parts Availability (8.1), Cost of Parts (7.2), AOG Response (8.6), Warranty Fulfillment (8.7), Technical Manuals (8.7), and Technical Reps (8.8).

The improvements

In spite of the challenges Leonardo faced in 2020 along with other helicopter OEMs, the company continued its investment in digital transformation, which was of great help during the pandemic, the Italian airframer told **AIN**. That included Leonardo's HeliLink application for remote troubleshooting.

Leonardo also continued to expand its support network with the acquisition last August of Precision Aviation Services (PAS), which has since been renamed Leonardo South Africa. PAS had served as an authorized service center for Leonardo for 25 years and was its first "excellent" service center on the continent, recognizing its large scope of service capabilities and focus on maintaining third-party fleets while guaranteeing continued fulfillment of Leonardo's expectations. PAS supported a fleet of more than 120 helicopters operating mainly in Sub-Saharan Africa.

In April the company opened an \$80 million Philadelphia training academy that is operated by Rotorsim, a joint venture between Leonardo and CAE, offering mission-specific ground, in-flight, and virtual training. The academy is expected to serve up to 1,000 students per year and features 10 multi-media classrooms, three maintenance simulators (AW139 and AW119 with the AW609 to be added shortly), and two full-motion flight simulators for the AW139 and AW169/AW609 with roll-on/roll-off capability.

To ensure parts availability during the pandemic, Leonardo leveraged its worldwide hubs to avoid interruptions in distribution. The company said it "completed [this] in a matter of weeks from the start of the pandemic shutdowns. And we did the same with our service representatives, deploying them immediately to locations in closer proximity to our customers' main operations."

Lastly, the company used its recently opened repair centers in Malaysia, Australia, and the Gulf of Mexico to ensure maximum fleet availability, which it said allowed for better and faster support for its customers.



Bell

While Bell moved down a notch in its Combined Overall Average Ratings of Newer and Older Aircraft but up to an Overall Average of 7.9, survey respondents gave the manufacturer a higher rating for its Cost per Hour Programs of 8.1.

The improvements

In spite of the interruptions brought on by the Covid-19 pandemic, 2020 was a busy year for Bell's product support organization, including the opening of Zhenjiang Bell Textron Aviation Service in China following the acquisition of Zhenjiang Aerochine Aviation. That move was made to support a growing Chinese customer base and a spare parts supply center in Shanghai, Bell v-p of customer experience Mike Reagan told **AIN**.

In keeping with improving its global product support capabilities, Bell also expanded its component overhaul services of products such as gearboxes at its Prague, Czech Republic service center, specifically for the company's 412 and 429 model helicopters. In the UK, Bell expanded its rotor blade capabilities at a company-owned rotor blade repair operation that serves Europe. Continuing that focus on rotor blade repair, RBL Hawker in Australia—Bell's joint venture with Jet

Aviation's Hawker Pacific Airservices—opened a dedicated rotor blade repair facility in Brisbane.

"The piece that's fairly noteworthy is that we also have been attacking the price model of the spares and we've actually been lowering the prices on specific parts for some of our in-production models," Reagan said. "And the 429 probably received some of the most...parts where we lowered prices to support that growing fleet." Keeping parts costs low and competitive is key to an industry that places great import on the direct operating costs of an aircraft. And whatever you can do to improve the direct operating costs, then you have greater success that an operator will select your aircraft to support the mission that they fly," Reagan explained.

Also on the parts side of Bell's operation is an effort begun in the past year to work with competitor Leonardo on supporting the "AB," or Agusta-Bell, legacy fleet. Under that effort, Bell is offering parts to improve price and lead times for AB owners and operators. Previously, Leonardo, which acquired Agusta, was the only source for those parts. The AB fleet comprises four models— AB 206, AB 212, AB 412, and AB 205—built by Agusta under license from Bell.

› continues on next page



» Bell *continued*

New this year is the planned launch of a dedicated AOG desk within Bell's customer business center at its Fort Worth, Texas headquarters that will "verify we have the right technical support, the right solution, the right parts to get the aircraft back in the air," he said. Bell will be enhancing its Customer Advantage Plans to offer operators and owners more choice through a variety of selections.

The OEM is also working on a "multi-year portfolio of launches" of upgrades for its helicopters aimed at increasing their performance or mission capabilities. "Many companies partake in offering or developing STCs for the Bell aircraft but coming from the OEM you have the advantage of

knowing all the intricacies of the operating systems within the aircraft," Reagan said. "So this is why we're embarking on launching this portfolio of upgrades."

These are expected to begin with a glass cockpit upgrade program in 2022 for Bell's medium fleet, which will give, for example, customers flying older 412 EPs "the ability to commonize the avionics suite with perhaps some of the newer aircraft like the [412] EPI or the [412] EPX," he said. "Again, we see this as an advantage coming from the OEM. It is targeted to reduce obsolescence, reduce weight, and then offer additional functionality in the cockpit for the customer."



Airbus Helicopters

The results

In addition to improving its Combined Overall Average Ratings of Newer and Older Aircraft a significant amount, to 7.6 from 6.4, Airbus Helicopters received high marks for Authorized Service Centers with a rating of 8.5 and 9.0 for Overall Aircraft Reliability.

The improvements

Among the improvements Airbus Helicopters has been making to its product support operations is a €100 million investment in spares for safety structures, Airbus Helicopters executive v-p of customer service and support Christoph Zammert told **AIN**.

In June, the French airframer agreed to acquire ZF Luftfahrttechnik from ZF Friedrichshafen in a deal that will broaden its range of MRO capabilities and add competencies in dynamic systems.

As a result of the Covid-19 pandemic, the company is looking to develop dual sources for the manufacture of critical components, Zammert added.

Airbus helicopters has seen enrollment in its HCare maintenance support program increase to 2,400 helicopters, or 20 percent of the global fleet, he said. The company also launched HCare Classics for helicopters no longer in serial production, such as the EC120 and the Dauphin. "They have different needs,

and also when it comes to sourcing parts, we manage the obsolescence as some of those parts are no longer in serial production," he added. "We needed to go a different way in order to make sure that our customers get the support they need from us."

Some ways Airbus Helicopters will source those out-of-production parts will be to manufacture those parts that have a high rate of need as well as "creating communities" where customers can source those parts through an exchange with other customers. Zammert added the legacy fleet comprises 15 percent of the flying fleet, "so it's an important source of revenues for us, but also an important population of customers, and we need to take care of them."

On the training front, the company also learned from the pandemic that it's important for Airbus Helicopters to develop more local solutions so training staff can deploy closer to the customer for training events. As well, the company has been working more on digital content that customers can use for remote learning, including maintenance training, Zammert explained. During the past year, the company has also integrated Airbus Helicopters Training Services for a more streamlined, consistent and coherent customer experience, he said. Also, it has certified its Level D H160 full-flight simulator and opened its H145 Level D full-flight simulator training in Texas.

Above & Beyond-OEMs

Jessica Good (Beechcraft)

She was on top of all at Aircraft Delivery in Wichita.

Justin Brown (Bombardier)

Justin has been very supportive of our team bringing a brand new 6000 into a new flight department. He has worked closely with us and provided the resources and support we have needed throughout the buildup of our department. His immediate manager Julien Bouchard has also been tremendously helpful with the entry into service and support for our team.

Bill Maslowski (Dassault)

Bill is consistently one of the most capable, engaged, enthusiastic, and responsive customer representatives I have ever dealt with. His looming retirement is well-deserved, but leaves big shoes to fill.

Alessandro Rossi (Embraer)

Embraer provides an incredible range of product-support resources. They are so many that often the aircraft operator is not knowledgeable enough about those resources to make the best use of them. Our Tech Rep, Mr. Alessandro Rossi, has been absolutely vital in helping us to make the best possible use of all of the excellent product-support resources made available by Embraer. Thank you Mr. Rossi!

Tony Hess (Gulfstream)

His attention to customer details is very detailed. Great communicator.

Beat Imboden (Pilatus)

For so many years, Beat from the technical support team at Pilatus is always helpful to sort out troubles with his extensive knowledge and experience. Thank you.

Ali Zaidi (Textron Aviation)

Professional, capable, and competent. If Ali doesn't have the answer or can't help me, he will either get me the answer or put

me in touch with someone who can help me. By far my most valuable contact within the Textron world. Hopefully, Textron will recognize his abilities and promote him to a position where his work ethic can actually change the operators' Textron experience on a wider scale.

Remi Albanese (Airbus Helicopters)

In-depth knowledge of customer problems and being assertive with the solutions in each of them.

Jim Agnew (Bell)

Considering he is not based in the Philippines, he visits us once a month or two.

Lorry Wang (Leonardo)

Very professional, experienced, and active to support our customer and willing to make friends with the customer no matter what the guy's position is.

Above & Beyond-Service Centers

Janet Beazley (Duncan Aviation)

She is a wonderful project manager. Always responsive to customer concerns. She always has strong consideration for her customer's schedule, aircraft, and budget.

Elie Zelouf (Jet Aviation)

He is the man of VIP aviation maintenance.

Julija Gerasimuk (TAG Maintenance Services)

Julija is the top sales manager I've ever encountered; professionalism and willingness to support are outstanding.

Kendal Krieling (West Star Aviation)

Best attitude, tenacity, experience, drive, and he never gives up on any job. He has found parts for us when no other company could. Their hangar was full of Hawkets and he still managed to get us in on an AOG, and they performed the work flawlessly as usual and got us out the door on time. Easy to work with and is a gentleman.

Report says it's 'party time' for bizjets | by Jerry Siebenmark

In a report to investors titled “Bizjet Party Time is Now,” analysts at investment bank Cowen see a number of factors improving fortunes for the next couple of years for the business jet industry and, in particular, for OEMs Gulfstream Aerospace and Textron Aviation. “The combo of Covid concerns, a robust stock market, and firming economy are creating the strongest bizjet environment since 2007,” the report said.

Analysts noted the inventory of used business jets for sale reached an “all-time low” of 4.5 percent of the fleet while the 275,000 business jet departures in May—led by fractional and charter operators—were near the October 2019 peak of 278,000. With demand driven by ultra-high-net-worth individuals and an increase in first-time buyers, that should push them toward the purchase of new business jets. OEMs likely won't see the fruits of that demand on deliveries because of production lead times until 2022 “and possibly 2023,” according to the report.

“Also, Fortune 500 customers are just starting to perk up, and foreign buyers have yet to return,” the report added. “Thus, the demand surge likely still has runway.”

As for the OEMs, Gulfstream “looks best positioned in bizjets” because preowned jet demand is highest in the large-cabin category. In addition, increasing G500 and G600 deliveries and the fourth-quarter 2022 entry-into-service of the G700 are pluses for Gulfstream, the report added.

At the lighter end of the market, Cowen analysts see a strong second-quarter 2021 book-to-bill for Textron Aviation and a “solid sales lift” in 2022, potentially extending into 2023. However, the report said, “demand durability is a bigger issue for smaller bizjets, and [Textron Aviation] has a less compelling product story than [Gulfstream].”

Lastly, the report added that OEMs Embraer and Bombardier “face issues” in the improving business jet market. Business jet and commercial operations at Embraer should improve next year but it could see potentially restrained cash flow from the possible launch of a new turboprop and subsidiary Eve Urban Mobility Solutions, which is developing an eVTOL aircraft. For Bombardier, the report

said Global 7500 profitability is expected to improve “but its extended G7500 backlog limits order upside and the stretched balance sheet is an issue.”



A report from investment bank Cowen finds that the business jet industry is enjoying the strongest market since 2007.

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Sumwalt reflects on NTSB career, views on safety

by Kerry Lynch

Robert Sumwalt stepped down from the National Transportation Safety Board (NTSB) at the end of June, following 15 years with the agency. He became the 14th chairman of the NTSB on Aug. 10, 2017, and served as a member since August 2006. His term on the Board was set to expire at the end of this year.

One of the NTSB's longest-serving members who was appointed and reappointed by both Democrat and Republican administrations, Sumwalt brought to his position a deep background in commercial and business aviation. He spent 32 years as a pilot, including for Piedmont Airlines and US Airways, and also managed a corporate aviation department of a Fortune 500 energy company, amassing some 14,000 flight hours and, while at US Airways, served on its flight operational quality assurance monitoring team.

Sumwalt discussed with AIN his time on the board and his views on safety as he was preparing to transition back into what he called "normal life."

Your term is not up until the end of the year. So why leave now?

My 65th birthday is June 30th and I felt that would be a good day to leave. The President has announced his intent to bring on board a new chairman. I think the last thing that any new chairman needs is an old chairman looking over his or her shoulders. So, I thought, go ahead and leave and be available to assist, just a phone call away. [President Joe Biden in May announced his intention to nominate current board member Jennifer Homendy to become the next chair.]

You've been with the NTSB a long time. You just missed the record?

It was never my intention to be the longest-serving, or one of the longest-serving, board members. My goal in the time that I have been here was to be an effective board member and an advocate for improving safety. I don't think I ever intended to be here 15 years, but one thing led to another and here I am.

It's been such an honor and privilege to serve on the NTSB, to be appointed by three U.S. presidents, and to be nominated and confirmed unanimously by the U.S. Senate on four occasions. I'm just blown away. I feel kind of like Forrest Gump here—kid gets lucky in life.

I think it's everyone's desire to leave somewhere a little bit better than you found it. I do think that I can leave knowing that we made some improvements in safety and also within the agency. We've got an incredible workforce at the NTSB and a very important mission. And it's one that I will miss greatly. I'll miss the people, I'll miss the NTSB, but life goes on.

When you stepped into the NTSB, was safety culture much different than it is now? How prevalent were terms such as "just culture" and "safety management systems" [SMS]?

Certainly, we cannot go anywhere these days without people talking about SMS. I'll admit I did not even fully understand what SMS was initially and when I came to the board, I went back to where I worked before, a Fortune 500 flight department, and said to my replacement, "I've got to do a talk on SMS." They said, "It's the things we were doing all along. It's just, we didn't call it SMS." And I'm like, "Okay, I got it now."

But I think a lot of good has [happened] in the decade and a half that I've been at the board. It's taken a lot of people to push that rock.

“My goal in the time that I have been here was to be an effective board member and an advocate for improving safety. I don't think I ever intended to be here 15 years, but one thing led to another and here I am.”

— Robert Sumwalt

What do you think were some of the drivers behind this change?

I don't know what actually changed the situation, but I was on the board for seven days when the Comair [Flight 5191, Aug. 27, 2006] crash happened. And 11 months later, we had a board meeting on that. We found a lack of professionalism with the crew violating the sterile cockpit. There was just a very casual attitude that the crew had...cascading errors to the point where they would attempt to take off on a runway that was too short. Before then, we had dealt with the [February 2006 Platinum Jet Challenger 600] runway overrun at Teterboro [New Jersey], and we cited the crew's lack of professionalism there.

Then we dealt with the [2004] event where the Pinnacle Airlines crew took the plane up to 41,000 feet and stalled it.

So, we had a series of tragedies that came out of a lack of professionalism. Those



Robert Sumwalt retired as NTSB chairman on June 30, after 15 years with the agency during which he focused on key aviation and transportation safety issues and opportunities.

really drove us. We did put professionalism on the most-wanted list and tried to really focus on that. Now, [as to] whether or not that had any effect on behavior, I'd certainly like to think so, but I will say that things have settled down a little bit and I'm going to knock on wood right now.

What about the May 2014 Gulfstream IV accident at Hanscom Field in Bedford, Massachusetts?

When I do presentations, I talk about that tragedy because from all outward appearances, that was a flight department that looked like they were really doing all the right things. They were going for their IS-BAO Stage 3 audit. The captain had been there like 27 years. The first officer or the other pilot had been there for something like 11 years. The flight attendant had been there for 16 years. They had really good comments in their last audit, yet they weren't even doing basic things [such as preflight checklists]. And I think what was even more troubling—and [resulted in] one of our recommendations—was the NBAA study. [That study] found 18 percent of flight departments or flight crews were not conducting full flight control checks before takeoff.

Have you seen this evolve? Where have you seen improvements?

The board only looks at accidents, really. I'm not sure that the lack of accidents necessarily means that there are no problems out there. We just look at the tip of the iceberg. It's what is going on underneath that we don't really know. I will say that we have seen fewer accidents related to a lack of professionalism, and I hope that that trend continues. But another troubling one was the Learjet going into Teterboro a few years ago. There were something like 130 expletives on a flight that was only 28 minutes long.

Speaking of unseen safety issues, the board also highlighted the fact that in the Calabasas accident, the company had an SMS but hadn't fully

implemented it. How big an issue is it that people might have a false sense of where they are safety-wise?

Ever since I've run a small flight department for a Fortune 500 company, I realized that a lot of times, people don't really know what's behind their hangar door. They just assume that since the airplanes are shiny, the pilots look spiffy, and the crew gets them where they want to go and makes good landings, they have a good flight department. And the question I've got is, "How do you really know?" Someone recently told me hope is not a plan. I think it's important to do everything you can to ensure that your flight department is running the way that it should.

I'm a believer in flight-data monitoring programs. I think that the term SMS is a little overused, but the main thing is, I want to make sure is that people are doing the things that they're supposed to do.

Looking forward, what do you see as the biggest issues?

One thing that really bothers me is a lack of procedural compliance. And we do find that as a factor [in accidents]. Procedures are written generally for a reason. People say they're written in blood. There've been studies that have shown that once you start deviating from the SOP [standard operating procedures], you're more likely to have consequential errors. So, I think that that's one thing that I do harp on.

SOP compliance is one part of professionalism. I think it's important to ask ourselves, are we truly professionals? And I think everybody would say they are, but by what standard? I think professionals follow procedures. They have a respect for doing things properly. They're doing the right things even when no one is watching. I think in some cases, people spend more time trying to figure out how to skirt the regulations than actually complying with them.

Are you seeing the needle move at all? Is getting voice recorders and video monitors into flight decks still a huge issue?

I think there's still room for improvement there. There again, we don't necessarily see what goes on in the national airspace system because we're more focused on accident investigation, but it is something we've had on our most-wanted list for a long time. Flight-data-monitoring programs are another thing we've wanted for a long time. And it's important to point out that these programs are not intended to spy on people. They're to see what systemic issues we may have.

Do you think there's more of an openness to it now than maybe two decades ago, now that there's been this strong push for just culture?

I don't know if there's more openness to it. I think cameras and image recorders are still something that is not acceptable in the pilot community. But 30 years ago, if you had the notion of a flight operational quality assurance program, or FOQA, that's something that pilots would have opposed. Certainly, there's been an evolution over the last two decades to where that is in all of the major airlines today. And it's just an accepted practice. And I think the reason for the success of programs like that is because they have not breached confidentiality. They're not looking at the individual, they're looking for systemic issues. So, I hope that same acceptance is coming into business aviation.

Fatigue is an issue that often gets brought up and across all modes, not just aviation. Do you think that there's a proper awareness of it and do you see it as a continuing issue?

It's something that is always going to be a factor if we don't manage it properly. I do think the awareness of fatigue has increased over the years. It used to be that you were a sissy or a wimp if you said you were too tired to fly. Now, we actually want people to say, "I'm really fatigued, and we can't do this right now." So, I do think there's a greater awareness of it. And I hope that awareness translates to respect for fatigue.

Do you think that there's a greater understanding in the aviation community of how to handle post-accident situations, particularly with the families and loved ones of the victims? Do you think people have been better at outreach?

Yeah, I hope so. I know that the airlines have been better about it. A few were responsible for the Aviation Disaster Family Assistance Act of 1996, including TWA 800 where the families were not treated well. Those tragedies did lead to Congress passing that law that gave us the responsibility to ensure that airlines were doing what they should be doing with respect to the family. So, I think on the airline side, that's gotten a whole lot better. I hope that in other areas that sensitivity has heightened as well. Certainly, one of the most difficult things for any of us to

do is to meet with the family members in the hours and days following an accident. We're sharing the worst news that anyone could ever get, but I think it's also important to let them know that here's a little but very important agency that is going to do its best to get to the bottom of the event so that we can prevent others from going through what they're going through.

One of your campaigns, even at aviation events, has been about talking on a mobile phone while driving. You've said that even though you've walked out of the hangar, you still have to get home. Did you want to discuss why it's been such an important part of your campaigns?

I think that when we step into the cockpit, we all hopefully are safety-oriented. We want to follow procedures. We want to do the checklist. But many people don't think twice about getting in their truck and getting on the phone. It is very much of a problem. People say, "Well, I'm using Bluetooth." But the fact is the real problem with cell phones is the cognitive distraction. We're so engrossed in the conversation that we've run through stop signs and stoplights and then people die as a result of that sort of behavior.

What about devices in the flight deck? Has that been something that you've been concerned about?

Yeah, I think any type of distraction, something that takes our attention away from the task at hand, has the potential to affect safety. Cockpit automation is certainly not new, but the level of fancy things that we have nowadays just blows my mind. I remember back in the late 1980s when it was a new deal to have a flight management system. A researcher compared the FMS or flight management

computer, the box, to a vacuum cleaner, and said it sucks your attention and your eyeballs and your fingers right into it. And that was just with an FMS. Nowadays, people have all kinds of eye candy in front of them to perhaps inappropriately take their attention away from the task at hand. So, it's something that really has to be guarded against.

If used properly, the systems can truly help us. But the devil is in the detail there. It's easy to just get sucked in. [When I flew] I made it a habit whenever one pilot would go heads down to make darn sure [for the other pilot] to come heads up. That was just a practice that I employed, but that was a long time ago.

Are you hoping to get some flying done?

That'd be fun to get back in a cockpit, but things have changed so much. I've been out of the cockpit for 15 years and, you know, I'm not sure I can catch up. There are a lot of changes, especially with avionics. Somebody said, I think he was flying something like the [Bombardier] Global 7500, that it was like flying an iPad with wings and jet engines on it.

Of all the technologies that have come to date, not as just an NTSB chair, but as just a pilot, what has been most exciting for you to see or the most interesting?

It's hard to say without really having been more out there using it but look at what an iPad has done. I got my first iPad in 2010, right after it came out. And nowadays people can plug in an iPad and get all sorts of information to increase situational awareness.

One thing I always wished for when I was flying for an airline was real-time weather information, such as convective weather information. I'd literally have to

wake up to watch The Today Show so I could get an idea of where the weather was going to be. And here I'd be flying an airplane with 160 people in the back going from coast to coast. And that was my weather briefing—The Today Show.

So, I think being able to just have an iPad or an iPhone or some such device to pull up weather is great. We can't over-rely on that because there's a latency factor in that information. But it still gives you a great insight for strategically avoiding the weather and [looking at] what's the better way to go. I think it's great for that.

What else has been on your mind as you leave the Safety Board?

Well, I certainly say that there's tremendous value in business aviation, and I hope that, now that we're hopefully coming out of the Covid situation, business aviation will continue to flourish. We want to make sure that it is done safely by properly managing risk.

I think that my view of safety has evolved over the years. I now look at safety as the primary practice of managing risk to an acceptable level. I think sometimes maybe people just blindly accept the risk, and I think it's important to assess those risk areas and manage the risk. If we could get people thinking of managing safety, if we could get them thinking in terms of it's really a risk-management situation, that would be an evolution.

When people think of risk management, their eyes glaze over. But a good definition comes from the FAA. They say that we manage risk whenever we modify the way that we do something to increase the chances of success and decrease the chances of injury, failure, or loss. I think we do that in day-to-day life.

It could be something as simple as the exit I would take when I would leave my apartment to go to the office. There were two exits out of the driveway and I always wanted to use the south exit because the north exit had a blind corner. I want to go out to the one where there is not a blind intersection. Those are the types of things that we hopefully do in our everyday life.

Let's take that forward to aviation. When I ran a little flight department, there was an airport that we went into that the pilots didn't like. There were a lot of reasons for it. And once we analyzed all those factors, we said, "I don't think we need to go into this airport anymore." We took it to management and explained all the hazards and the lack of mitigation. And they said, "You're right." Previously, the pilots have just been going there because they were called there.

What's ahead for you?

I don't know. What I really would like to do is take a little time off. I have commuted to and from South Carolina for 15 years and haven't spent a lot of time with my family—except in the last 14, 15 months—but I look forward to just taking a little time off and figuring out where I can make a contribution. ■

■ Landsberg: urgent need to overhaul notams

NTSB vice-chair Bruce Landsberg kicked off the Flight Safety Foundation/NBAA 66th Business Aviation Safety Summit (BASS) on June 1, stressing a need for the FAA to wrap up its two-decade-long effort to overhaul the notam system, calling the necessary changes a "safety of flight issue." Landsberg also highlighted the need for business aircraft operators to embrace safety management systems (SMS) and flight data monitoring (FDM).

He questioned why there are so many notams and why they are so cryptic and said, "It's time we did something different." Notams should be accessible in one place and improved in coordination with stakeholders and other groups, he said.

Landsberg also said SMS can root out unforeseen safety issues. Organizations may point to their perfect safety record, but he said, "Everything is perfect behind you, but it is the next flight that is the



Bruce Landsberg, NTSB vice-chair

most important." However, the FAA should "keep in mind that it needs to be simple, it doesn't have to cost a lot of money, and it doesn't need to have a huge amount of paperwork."

As for FDM, he asked, "Do we want to be reactive or do we want to be proactive?" Landsberg stressed the importance of basic measuring—"If we're measuring things, it allows us to modify our behavior for optimal outcomes. Does it work? Absolutely." K.L.

UK S-92 near-CFIT highlights hazards of MVFR flight

by Mark Huber

The UK's Air Accidents Investigations Branch (AAIB) has issued a final report regarding the circumstances that lead to a Sikorsky S-92A operated by Starspeed Ltd. nearly crashing next to a house with a subsequent recovery that inflicted 131 percent torque on the engines. The event occurred early on the evening of Oct. 14, 2019, on a flight from Birmingham Airport to a private landing site in northern Cotswolds. There were two pilots and nine passengers aboard.

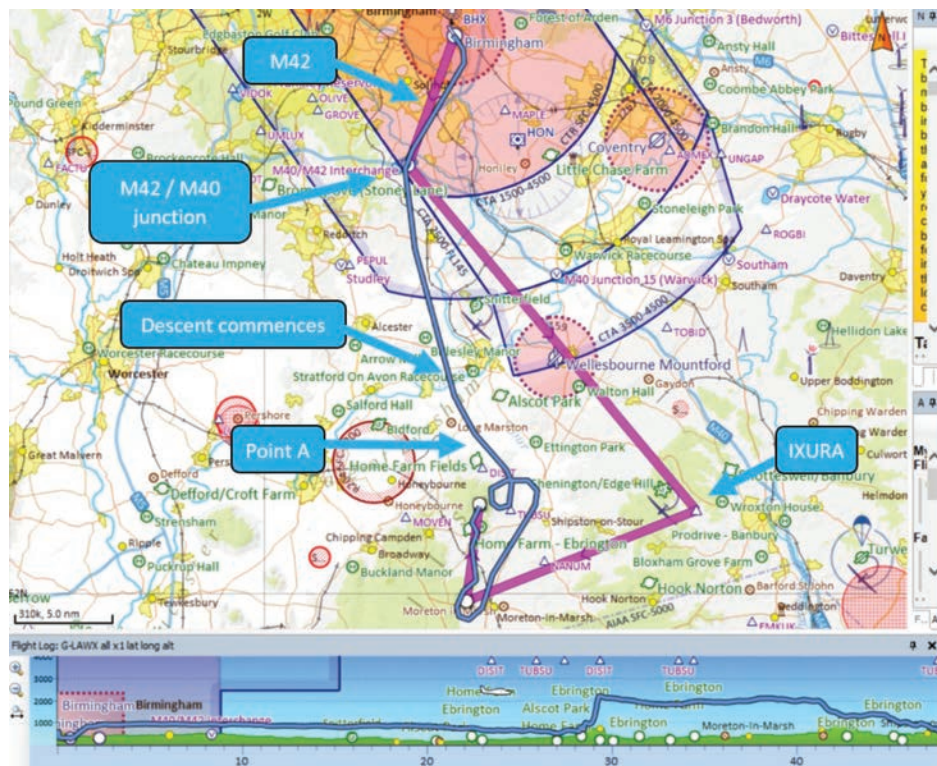
While the helicopter ultimately arrived at its destination, the circumstances of the flight are eerily similar to the one that killed Kobe Bryant and eight others near Calabasas, California in January 2020. Namely, a member of a flight crew feeling pressure to satisfy the need of a client to reach his destination and continuing a VFR flight into marginal VFR (MVFR) and ultimately IFR conditions in an area of rising terrain with a subsequent loss of pilot orientation to the ground, loss of location orientation, and spatial disorientation while continuing to hand fly the aircraft as opposed to engaging the onboard automatic flight control system. Encroaching local sunset also played a role in this incident.

Throughout the report, evidence emerges of a flight commander—who would be the pilot flying—unsure and anxious about deteriorating weather conditions both before and during the flight, a reluctance to engage automation, and heavy completion bias to press on into deteriorating conditions. Meanwhile, the copilot, while expressing multiple doubts about continuing the flight, continues to

repeatedly, albeit tacitly, affirm the commander's rapidly failing decision chain. All the while the approach parameters of the flight are becoming increasingly unstable in terms of pitch, heading, and airspeed.

Before the flight took off, the commander confided in the copilot that “we are really up against it” in terms of encroaching cloud cover and fading daylight. And the actual weather conditions at nearby airports, which weren't great, were even worse than forecast. Birmingham reported a broken base at 800 agl which would lower to 400 during the day, Gloucestershire reported a broken base at 800 to 900 feet with patches down to 400 agl, and Oxford reported a base of 600 feet declining to 400 to 500 feet during the day. While there was no formal weather reporting at the landing site, the estate manager reported to the copilot just before the flight's departure that the weather was “closing in” and that the tops of nearby radio towers could not be seen.

During the first four minutes of the flight, the helicopter progressively descended to avoid cloud bases, but initially maintained 500 feet agl. But as the flight progressed, the crew was treated to a crescendo of altitude warnings from the radar altimeter and terrain warnings from the HTAWS. The crew became confused about selection of waypoints in the FMS. Altitude deteriorated to 200 feet, then 100 feet agl, and ultimately 28 feet agl. Airspeed dropped to 35 knots. The crew could not visually locate the landing site on the first approach. The AAIB reported, “The pitch attitude, and



(Top) While attempting to land at a private landing site, the pilots flying a Sikorsky S-92 descended to 28 feet agl before initiating a go-around then successfully landing. (Right) The S-92 operated by Starspeed Ltd. had to undergo a series of maintenance inspections in Stansted due to overlimiting the engines, with torque reaching 131 percent during a go-around.



consequently airspeed, of the helicopter were unstable. It then yawed 30 degrees to the left and climbed, with nose-down pitch attitude, in response to collective input by the commander.”

The commander called go-around. And then, according to the AAIB, he “rapidly raised the collective resulting in the ‘low rotor’ warning and audio, and engine torque increasing to 131 percent. The helicopter initially achieved a positive rate of climb but then continued a more level acceleration, as the pitch attitude of the helicopter remained below the horizon. As a result, it flew along a level flight path at less than 300 feet agl. In response to deviation calls by the copilot, the commander raised the attitude of the helicopter significantly above the horizon achieving a high rate of climb, as the airspeed reduced back to under 10 knots.”

Instead of returning to Birmingham or diverting to an alternate—which had not been pre-flight planned—the crew opted to retry the approach, this time using a Dragon GL3 portable landing aid that had been placed at the landing site. But the commander rejected the copilot's suggestion to use automation—in the form of the onboard automatic flight control system—for the second try, a direct violation of the company's operations manual given the conditions and a potentially fatal mistake that became apparent shortly after the helicopter headed back to the initial point (IP) of the approach. Altitude deviated by up to 300 feet, airspeed and pitch again fluctuated, and heading varied up to 45 degrees on either side of the approach

track. The copilot suggested a return to Birmingham, to which the commander responded, “I'm just going to...err...try one more mile.” But it wasn't working. Two and half miles from the landing site and at 800 feet agl the commander said, “It's not going to happen” and called go around, but then pressed on to the landing site anyway. The pitch was minus 10 degrees and they were descending at 1,000 fpm. Finally, the copilot spoke up, saying, “I'm not happy with this.”

The commander replied with a series of “gotchas,” but still pressed on. Ten seconds later, at 500 feet agl, the commander called for the landing light. The approach stabilized and the helicopter landed without further incident. But the overlimiting of the engines was immediately reported and the helicopter was later flown to Stansted on a ferry permit for a series of inspections. The flight was reported to the AAIB, which deemed the incident serious and opened an investigation.

The AAIB found a series of problems with the flight including lack of standard operating procedures for altitude alert settings and stabilized approach criteria, as well as a lack of effective crew communications, customer bias inconsistent with flight safety, and crew uncertainty with landing rules. The AAIB stressed the need for the creation of more point-in-space approaches at helicopter landing sites and the overall need for greater awareness with regard to helicopter operations in areas of degraded visual conditions. It also suggested greater use of flight data monitoring for onshore operations. ■

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NIAR receives Part 145 certificate

Mission control and telemetry can be provided on site in Wichita, as well as through a mobile telemetry trailer that was donated to NIAR Werx by Gulfstream Aerospace.

A partnership with Dynamic NC in nearby Rose Hill, Kansas, allows Werx to offer parts manufacturing including FAA Parts Manufacturer Approval for services such as one-off parts. Dynamic NC's capabilities also include working with hard metals and large assemblies.

In March, NIAR Werx received the first two of three Boeing 737s for a special-mission modification in partnership with Dynamic Aviation of Bridgewater, Virginia. The unspecified modification involves a team of up to 90 staff and students who will design, modify, test, and obtain STCs for the program. That work is currently

being performed in its 111,000-sq-ft hangar.

Another modification project planned for that same hangar is a Boeing 777 passenger-to-freighter program to be carried out in partnership with Sequoia Aircraft Conversions and Kansas Modification Center. The first 777 for conversion is expected within six months, Jones said.

Jones has high hopes for the continued growth of the organization not only in commercial and business aircraft but also in military aircraft, space vehicles, and eVTOLs. Over the next five years, Jones said he envisions the addition of aircraft modification lines in Salina through a collaboration with local MRO 1 Vision and in Topeka.

“This vision maintains the [rationale for] NIAR Werx,” he said, which is to grow the aviation community with applied learning for WSU students and produce experienced A&P and engineering graduates. At the same time, the organization will continue to create value for customers and lower the costs of new development programs for them, Jones added. ■

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F. Lee Bailey's Enstrom tenure creative, chaotic

by Mark Huber

On a brisk 1979 winter day in Menominee, Michigan, David Brandt stepped out of the Enstrom Helicopter hangar and looked skyward. "I was horrified," recalled Brandt, then Enstrom's vice president of engineering. A few thousand feet directly above him, F. Lee Bailey, the flamboyant trial attorney, aviator, and owner of Enstrom Helicopter, was about to put the company's sole example of its new, four-place Model 280L Hawk into a Vne dive. Money from Bailey's high-profile law practice was keeping Enstrom afloat and the 280L was seen as the key to the company's future success. If Bailey augered in, it was game over. Brandt had hired an experienced Navy test pilot to wring out the Hawk, but Bailey insisted on personally putting the aircraft through its paces as well. "He was our chief kamikaze pilot," Brandt said. Bailey pushed the Hawk to its fastest speed yet and recovered the dive. "He was perfect," Brandt said.

He was also cold. Brandt had neglected to outfit the prototype with a heater, so pilots had to fly it in snowsuits, and the doors were sealed with thick green tape to keep out the cold that felt like -20 deg F.

Initially backed by a group of investors in December 1970, Bailey had taken charge of the dormant Enstrom, which had been all but shuttered by then-owner Purex Corporation for the better part of the year. He would go on to own 95 percent of the company. At first, Bailey had to beat back rumors that he had bought Enstrom to make a fast buck by turning it into a parts and pieces sale. Instead, Bailey revitalized it and by 1977 it was producing 12 helicopters a month.

Under his tenure, the company launched the popular 280 "Shark" three-seat piston helicopter, dramatically increased sales, built a worldwide distributor network, and brought in a talented team including Brandt, an MIT graduate who had worked at Boeing Vertol near Philadelphia. When a corporate recruiter approached Brandt about Enstrom, he was the chief technical engineer for Boeing's YUH-61, the unsuccessful competitor with Sikorsky for what would become the Black Hawk. "We were flight testing on Long Island" when Bailey's recruiter first approached Brandt. "I was ready to make a change," he said.

When Brandt arrived in Menominee he set to work on fixing problems with its sole certified product, the F28, three-seat piston single. "There were lots of little problems that needed attention the first couple of years I was there," said Brandt. Once those were solved, Brandt's team developed an improved version of the F28, the Falcon, that was never completed, in favor of moving ahead with the Hawk.

Prior to entering Boston University

School of Law in 1957, Bailey had been a Marine Corps carrier pilot. (Bailey graduated first in his class with the school's highest grade point average in history.) His law practice rocketed to rapid success with a string of high-profile murder cases including Albert DeSalvo (The Boston Strangler) and Dr. Sam Sheppard. By the time he was 34, Bailey's law practice was national, he had his own weekly network television interview show on the ABC network, and he was flying his own Learjet.



F. Lee Bailey, a licensed pilot and well-known criminal defense lawyer, owned Enstrom Helicopter from 1970 to 1979.

In his 1977 book, an aviation soliloquy titled, *Cleared For The Approach*, Bailey explained how he fell in love with helicopters a few years prior to leading the team to acquire Enstrom, building a helicopter hangar at his Marshfield, Massachusetts home, and initially flying a Brantly. In his book, Bailey made the case that helicopters were safer than fixed-wing single-engine aircraft in the event of an engine failure because an autorotating helicopter could be landed comparatively faster and in a more confined space. To make the point, Bailey said he routinely demonstrated autorotations to his passengers.

Bailey parlayed his celebrity contacts into Enstrom sales, selling helicopters to A-lister pilots including motorcycle stunt driver Evel Knievel and Las Vegas musical impresario Wayne Newton. Bailey "was a salesman," recalled Ben Bunting, a courtly Carolinian who was Bailey's business manager and de facto in charge of Enstrom's day-to-day operations beginning in 1976.

"He was deeply involved in the marketing," said Brandt. This included developing a controversial marketing brochure that featured an attractive woman in a sheer negligee peering out a bedroom window at an F28 about to land on the lawn under the headline, "The Love Machine," replete with suggestive ad copy that could

have been ripped directly from a men's magazine: "When she's waiting for you (and you can't wait to be with her), an Enstrom helicopter will get you together faster. It carries you up and over traffic congestion at speeds in excess of 100 mph and you land within walking distance of her door. And an Enstrom helicopter lets you linger a little longer." Perhaps, not coincidentally, at the same time he owned Enstrom, Bailey was the co-publisher of a men's magazine called "Gallery" that had very little to do with fine art.

However, Bailey's management style when it came to engineering was largely to hire a talented team, point them in the proper direction, and get out of the way, according to Brandt. "He was brilliant, amazing, he had a photographic mind. He could grasp things so quickly." While Bailey didn't micromanage, he wanted to be kept apprised of critical Enstrom developments in real-time, even when he was in the courtroom. Accordingly, senior Enstrom executives were outfitted with pagers. When Bailey would get a five- or ten-minute recess in a trial, the pagers would go off and Enstrom managers were expected to call Bailey immediately.

But concurrently, Bailey was "very fair" to Enstrom employees, said Bunting, treating them like family. "He listened and made quick decisions." To woo Brandt to the company, Bailey personally transported his new engineering chief's wife, mother, mother-in-law, two Dobermans, and two cats from Philadelphia to Menominee in his Aero Commander. "Imagine piloting a plane for three hours with two Dobermans sitting right behind you," Brandt laughed as he recalled the flight.

Enstrom had literally bet the company on development of the Hawk, even as the personal helicopter market had all but evaporated in the face of a recession. Brandt and his team of 30 engineers had gone from product launch to first flight in just nine months. They had designed the new helicopter to be powered by either a turbine or piston engine—the prototype had a piston—and had worked through the Christmas holidays without a break to make sure the Hawk made its first flight by New Year's Eve Day, 1978.

Money had been tight at Enstrom for years. Bailey had used the retainer he received for defending media empire heiress Patricia Hearst on bank robbery charges to meet the December 1975 payroll, recalled Brandt. (Bailey had an Enstrom delivered to San Francisco during the trial and would fly it around the city during breaks in the trial, showing it off to a retinue of reporters who always seemed to be in tow.)

When Bunting joined the company he immediately noticed the financial strains even as it churned out record production. "We extended our credit line," he remembers, but even then sometimes that wasn't enough and Bunting would be sent out to collect customer deposits so that the company could make payroll.

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News Update

Bell Retiring V-280, Focusing on Next FVL Phase

Bell is retiring its V-280 tiltrotor demonstration aircraft, which has flown 214 hours over three years, to focus on "the critical next phase" of the Army's Future Vertical Lift (FVL) competition. The company will now concentrate on an "optimized design for a fleet of next-generation tiltrotors" in anticipation of the Army's release of a formal request for proposals for the Future Long-Range Assault Aircraft (FLRAA) program in the third quarter. During its flight campaign, the V-280 achieved a maximum forward speed of 305 knots and demonstrated a combat range of 500 to 800 nm, self-deployment range of 1,734 nm, low-speed agility, and rapid mission systems integration. It was flown by both Bell test pilots and U.S. Army experimental test pilots.

Van Horn Developing AStar Tail Rotor

Van Horn Aviation (VHA) has completed the first ground run of its new tail rotor system for the Airbus Helicopters AS350/H125, with flight testing set to begin in the coming months and certification anticipated in 2022. The system will be able to be installed without aircraft modification and features individually replaceable composite tail rotor blades and a titanium hub with self-lubricating spherical bearings. The blades use the same NASA-designed laminar airfoil as VHA's Bell 206 tail rotor blades. Company engineers expect the new blades to yield greater tail rotor authority and an overall noise decrease versus OEM blades.

EASA Presses for Human Factors Cockpits

EASA has directed airworthiness authorities to ensure that human factors are systematically considered during the design and certification process of rotorcraft cockpits. This will help to "reduce the risk of design-related errors attributable to human factors that may lead to or contribute to an accident or incident," EASA said. Specifically, CS-Parts 27 and 29 have been immediately updated to introduce certification specifications for human factors assessment of all the installed equipment intended for use by flight crewmembers.

Putting the "SAF" in Safran

Safran's helicopter powerplant division is reporting advances in the adoption of sustainable aviation fuel (SAF) for its engines. In June the French powerplant manufacturer noted the first flight of a rescue helicopter on SAF. The Airbus H145, powered by twin Arriel 2E turbines, flew on a 40 percent SAF blend. The OEM and rotorcraft operator ADAC have agreed to continue studying SAF usage on a daily basis with the helicopter based in Cologne, while Safran is in discussions with other operators on similar tests.

South Africa's 'Rocket' Air ambulance service takes off

by Mark Huber

Helicopter EMS (HEMS) firm Rocket is celebrating its first year of service in the South Africa air ambulance market. The company acronym stands for "rapid on-call emergency transport."

A division of Henley Air, Rocket operates a mixed fleet of five Bell 222s and plans to add three Bell 230s in the coming months. Operating with a staff of 25, Rocket transported 300 patients during its recently concluded first year of service, dispatching from bases in Johannesburg and Kimberley. The two bases can cover roughly one-third of the country. Rocket is one of five HEMS/air ambulance firms currently operating in the country—the others are Netcare 911, HALO, Red Cross AMS, Black Eagle Aviation—and the entire venture is privately funded by two shareholders.

To date, Rocket has had no problems with sourcing parts for the vintage 222s, either from third-party providers or directly from Bell, according to Henley Air Group

chairman Dr. Andre Coetzee, who said he literally scoured the globe to find the right machines.

The 222s can be flown both VFR and IFR by Rocket, and all ships are IFR-equipped. Helicopter pilots stay IFR current in the company's Bell 222UT FNTF II simulator, but operate most flights VFR. Night flights are always conducted with two-pilot crews. Rocket was also the first commercial operator in South Africa to add night vision goggle capability, according to Coetzee. This allowed the company to increase its night flying by 70 percent, he said, and was "most useful during dark moon phases in remote areas."

Each 222 is kitted with full intensive care equipment, said Coetzee, including ventilator, multi-parameter electrocardiogram and defibrillator, syringe drivers and infusion pumps, suction, vacuum mattress, scoop stretcher, head immobilization device, spider harness, traction splint, extrication



Rocket CEO Boeta Dippenaar poses with "Rocket 1," an aero-medical equipped Bell 222UT, one of five of the type operated by the company.

device, jump bags, drug bags, in-flight infusion and hemorrhage pouches, and multi-parameter patient monitor. Each base has a portable neonatal kit and an incubator that can be loaded aboard the aircraft.

Boeta Dippenaar, the former South African cricket star, is an experienced helicopter pilot and Rocket's CEO. He thinks that while Rocket's service model is exportable to neighboring countries, "significant government buy-in will be required." For now, he and his team are focused on providing the best-level care possible to existing customers, relying on "faith" and a "firm belief

in our own crew and resources." This was particularly true, he said, given Rocket's launch in the middle of a hard lock-down during the pandemic but still managed to navigate the regulatory and technical hurdles. "Ignorance is sometimes a blessing," he said.

"The Covid pandemic has been particularly difficult to navigate, and posed serious operational and logistical challenges," said Coetzee. "It has also forced us to think differently with regard to suitable funding models and actually putting the patient first." ■

FAA approves H160's Safran Arrano engine

Safran Helicopter Engines' Arrano 1A has received FAA type certification, clearing the way for the Arrano-powered Airbus H160 medium twin helicopter's U.S. certification and entry into service later this year. The engine received EASA approval in June 2019. The 1,100- to 1,300-shp Arrano features reduced maintenance, new digital controls, a two-stage centrifugal compressor, and variable inlet guide vanes that combine to reduce fuel consumption by over 15 percent and reduce emissions compared to comparable engines, according to the manufacturer. The gyrotary combustion chamber features 3D-printed fuel injectors that improve engine start

performance. The Arrano is certified to operate on up to a 50 percent sustainable aviation fuel blend

Cyrille Ressejac-Duparc, Arrano program director, said the new engine "is more than ready" for the Airbus H160's entry-into-service. This engine lies at the vanguard of Safran Helicopter Engines' new range. As well as the H160's imminent arrival in service, Safran Helicopter Engines is strongly committed to supporting Airbus and French Armed Forces in developing the "Guépard" military variant of the H160. Various French government agencies could take delivery of as many as 190 H160s beginning in 2024. **M.H.**



Two years after it received EASA authorization, Safran's latest rotorcraft powerplant, the Arrano 1A, which powers the Airbus H160 has been granted FAA type certification.

› continued from facing page

Enstrom's tight fiscal condition became ingrained in employee ritual. Every payday turned into a hangar beer party, Bunting said, as they awaited the arrival of Bailey from Boston in his Aero Commander with the payroll on board. "We'd sit around and wait for the plane to come in. It was fun," Bunting said.

By all accounts, Bailey was a talented pilot, but non-precision, night-time approaches into Menominee's frequently snow-covered and gusty runways could tax cockpit capabilities of even the most adept aviators. On one such occasion, Bailey plowed his Aero Commander into a snowbank, damaging the nose. An Enstrom crew was dispatched to tow the plane into the hangar and work all night repairing and repainting it "off the books," according to Mike Stevens, an employee who witnessed the event.

But as Enstrom prepared to campaign the Hawk at the Helicopter Association International's Heli-Expo in February 1979, company spirits ran high. The helicopter was transported to the show and flew 20 hours of customer demonstration flights there, garnering 62 orders. But it was too late. Enstrom was out of cash and out of credit. "We came home and shut the doors," Brandt said.

Before the closure, Brandt had formed Enstrom Research and Development Associates (ERDA) to separate the company's R&D expenses from production costs in an effort to make Enstrom's bottom line more attractive to lenders and investors. With Enstrom shuttered, he renamed that

company, replacing the word Enstrom with "Engineering." Brandt and Bunting ran ERDA for more than 20 years. The company, moved to an old boat factory in nearby Peshtigo, Wisconsin, was a pioneer in the development of 16 g dynamically-certified aircraft seats for business aircraft and is now part of Collins Aerospace.

Enstrom would eventually be sold to a succession of owners including a group of Saudi businessmen, inventor Dean Kamen, and a Swiss investor. It is now owned by the Chongqing Helicopter Investment Corporation of China and is still based in Menominee.

Bailey would go on to more high-profile cases including the O.J. Simpson murder trial and the protracted and successful fight to reinstate the medical certificate of legendary air show performer Bob Hoover, a struggle that would eventually lead to the "Pilot's Bill of Rights" legislation. He represented the victims' families in the Soviet shoot-down of Korean Airlines Flight 007 and the bombing of Pan Am 103 and helped to establish the Professional Air Traffic Controllers Organization union. He continued to be involved in aviation through several aircraft modification programs for Aero Commanders and Pipers.

A few weeks before he died on June 3rd, Bailey called Bunting and asked him to send any photos he might have of Bailey at Enstrom with his wife at the time, Lynda Hart. Bunting found a few and sent them along.

"He was always an aviation enthusiast," said Brandt of Bailey. "He loved that more than the law." ■

AEA show celebrates return to live events

by Matt Thurber

At the 64th Annual Aircraft Electronics Association (AEA) convention, held in June in Dallas, the mood was positive, attendee numbers were relatively high, and exhibitors were excited about opportunities to serve avionics dealers and their customers. After canceling last year's show due to the Covid pandemic, AEA delayed this year's in-person event to June from the normal March timeframe.

According to AEA, the show saw "nearly 1,500 avionics manufacturers, repair stations, installers, and other general aviation professionals" attend the four-day event. Most were from the U.S. because of international travel restrictions. With avionics shops seeing record growth and high demand for upgrades to the latest products, a key topic of discussion on the exhibit floor was the personnel shortage.

Thirty-four companies highlighted new products on the first day of the convention, and more than 120 companies filled the exhibit hall. AEA members delivered more than 100 hours of regulatory, technical, and business management training and professional development courses.



Resurging crowds signaled a return to near-normal conditions at this year's AEA convention.

Attendees were also invited to take Aircraft Electronics Technician (AET) certification and endorsement examinations at no charge, thanks to the AEA Educational Foundation and ASTM International's National Center for Aerospace

and Transportation Technologies.

Duncan Aviation components/OEM business development manager Kevin Miesbach was named the AEA Member of the Year and EDMO Distributors the AEA Associate Member of the Year. ■

FAA approves first general aviation head-up display

by Rich Pickett

After extensive design work, flight testing, and certification efforts, SkyDisplay, a division of MyGoFlight, received FAA certification on June 22 for its first supplemental type certificate (STC) covering the installation of the SkyDisplay HUD (head-up display) in a Cirrus SR22. Not only is this the first STC for the SkyDisplay HUD, but it is also the first approval for any such display for light aircraft. While HUDs have long been available in midsize and larger business jets and commercial aircraft, the SkyDisplay HUD brings the safety benefits of HUD to four-seat piston-powered airplanes through piston twins, single-engine turboprops, and light jets.

The SkyDisplay HUD, which displays data from the aircraft's certified avionics, is part of an integrated system comprised of the projector and display screen in the pilot's field of view and an aircraft interface device (AID) that connects to the aircraft's Arinc 429 and serial data buses. It is literally a visible extension of the aircraft's air data and navigation system.

While traditional HUDs have cost hundreds of thousands of dollars, the SkyDisplay HUD substantially lowers that barrier



The low-cost SkyDisplay HUD brings added safety and utility to smaller aircraft.

at an initial price of \$29,500, not including installation. Duncan Aviation worked with SkyDisplay on the HUD installation for the certification program.

Realizing the potential for other uses of the HUD, SkyDisplay integrated an Astronics Max-Viz enhanced vision system (EVS) infrared sensor with the HUD, with the help of Astronics, further enhancing the HUD's utility. The EVS imagery on the HUD—the airport and its environment clearly depicted while flying at night or in low

visibility—is overlaid along with other critical flight information.

Another example of the HUD-EVS's utility is firefighting, allowing the airborne assets to spot fires, follow the appropriate flight path vector, and see through the smoke, further enhancing flight safety. AeroBrigham of Decatur Texas has flown the Max-Viz EVS with the SkyDisplay HUD on four Air Tractor AT802F Fire Boss aircraft. Video from MyGoFlight shows the HUD view from the Fire Boss, with the fire clearly visible on the HUD's EVS imagery and a clear depiction of another aircraft dropping water on the flames, so the pilot flying behind the HUD can see where to drop additional loads of water.

The EVS integration is available with the purchase of an EVS interface for \$5,000; the Max-Viz EVS must be purchased separately.

The SkyDisplay HUD was approved first for the Cirrus SR piston singles and is available as part of an approved model list STC for other Part 23 aircraft operating under Part 91 regulations. Among these are Beechcraft Bonanzas, Barons, and King Air 300s; Cessna turboprops and light jets; Cirrus SF50 Vision Jet; Embraer Phenom 100; Mooney M20; Pilatus PC-12; Piper Twin Comanche, Cheyenne, and Malibu Matrix; and Daher TBM 700 and 850. More than 20 aircraft are committed to installations of the SkyDisplay HUD now that it is certified, according to MyGoFlight. ■

News Update

FAA Signs Off on AEA's Avionics Tech Apprenticeships

The Aircraft Electronics Association (AEA) has been notified by the FAA that its avionics technician apprenticeship program satisfies regulatory compliance for the issuance of a repairman certificate. AEA's program, which provides member repair stations with a framework to train avionics technician apprentices, already received approval from the U.S. Department of Labor Employment and Training Administration Office of Apprenticeship in 2019.

Chicago Jet ProLink STC'd in G200

Latitude Technologies' DL-150 satellite data unit has been selected as a core connectivity element in Chicago Jet Group's (CJG) recently approved NextGen ProLink STC upgrade for Gulfstream G200s equipped with Collins Pro Line 4 avionics. ProLink enables the G200 to meet requirements for FANS 1/A+ controller-pilot datalink communications (CPDLC) and European ATN B1, including CPDLC digital clearances and push-to-load messaging required for U.S. en route CPDLC operations. Also added are LNAV, LNAV/VNAV, LPV, and LP instrument approach capabilities, and the upgrade enables ACARS and VHF VDL Mode 2 and Iridium datalink.

MyGoFlight Designs 'Never Obsolete' USB Charger

MyGoFlight introduced a new concept for USB chargers: the InfinityPower series with a permanent panel-mount fixture and a replaceable USB module.

The InfinityPower USB chargers consist of a Power Base module that is installed in the aircraft and a USB insert module that simply twists into the base module by hand. The USB module can easily be replaced with new modules carrying different connectors, without removal of the base module. The Power Base module can be installed in instrument panels, galleys, or in-cabin seats and fixtures, and it displays power input and amps used by connected devices.

Plane Simple Antenna To Make STC Debut on Falcon 2000

Satcom Direct's tail-mounted Plane Simple Ku-band satcom antenna will first be STC'd for Dassault Falcon 2000-series jets. Installation of the Plane Simple dual variant antenna on a Falcon 2000LX is currently ongoing at Dassault's facility in Little Rock, Arkansas, with aerial validation flights to start soon followed by STC approval and service entry in the third quarter.

Plane Simple provisional hardware is already installed on Satcom Direct's Gulfstream G350 testbed. Further STCs will follow by year-end, though Satcom Direct was mum on what business jet models might be next.

JetTech STCs add new features for Citation jets

by Matt Thurber

JetTech unveiled its most recent avionics supplemental type certificates (STC) for the Cessna CitationJet at the Aircraft Electronics Association convention. One STC covers installation of touchscreen Garmin TXi displays, GTN 750/650 Xi navigators, and the GFC 600 autopilot in CitationJets through S/N 0359.

The company's other new STC is for an "enhanced equipment package" added to its GTN STCs, and this includes Garmin's GSR 56 Iridium satcom, GDR 66 datalink (for controller-pilot datalink communications features), GWX 75 digital weather radar, Garmin USB ports, Shadin

AIS-380 fuel flow, Bose headphone jacks, and a pedestal mount Jupiter Avionics glove box.

In addition to the aforementioned equipment, the original GTN STC also provides for the installation of Garmin GTX 33/3000 and 335/345 transponders, voice-activated GMA 35 audio system, GA 35/37 antennas, SiriusXM satellite weather and music, and ADS-B Out/In.

With the GFC 600 autopilot, CitationJet owners can fly autopilot-coupled LPV approaches; the autopilot also adds Garmin's Electronic Stability & Protection system, along with under-and over-speed



JetTech's new supplemental type certificate provides Garmin cockpit avionics upgrade solutions for Cessna CitationJets through S/N 0359.

protection, LVL mode, airspeed climb and descent mode, flight director command cues, and vertical navigation (when the

GTN navigator is also installed).

The JetTech upgrades are available from authorized Garmin dealers. ■

Blackhawk buys Columbia Avionics & Aircraft Services

by Jerry Siebenmark

King Air performance specialist Blackhawk Aerospace, under a new business entity called Blackhawk Aerospace Technologies (BAT), is expanding into the avionics space with the acquisition of all assets of Columbia Avionics & Aircraft Services (CAAS).

In business since 1995, CAAS has developed STCs for avionics packages for Cessna Citations and other business jets. Waco, Texas-based Blackhawk plans to use CAAS's expertise to do the same for the turboprop market. "The avionics STC development capabilities of the company will not only provide our dealers with more offerings for their customers, but it will also help Blackhawk to certify engine-to-avionics integrations more quickly and efficiently," said Blackhawk

president and CEO Jim Allmon.

Leading BAT will be Mark Wilken as president, Conrad Theisen as v-p of sales and marketing, Lance Fox as director of engineering, and Shad Sones as general manager. The four leaders bring a combined 110 years of avionics experience. BAT will remain based at Columbia (Missouri) Regional Airport.

"Blackhawk Aerospace's long-standing reputation in the King Air series aircraft along with the extensive Citation avionics, STC, and maintenance capabilities at our Columbia facility is a perfect match," said Wilken. "Blackhawk Aerospace Technologies will bring King Air and Citation owners and operators the personalized customer attention, quality, and technical experience they have been looking for." ■



Garmin's G1000 NXi suite installed in a Blackhawk Aerospace Technologies-modified King Air.

■ Appareo debuts AIRS-400 4K image recorder

Appareo introduced its 4K UHD AIRS-400 airborne image recording system at the Aircraft Electronics Association convention in June. It records cockpit audio/video and offloads data via cellular networks.

Suitable for implementation of a flight data monitoring (FDM) or flight operations quality assurance (FOQA) program, the AIRS-400 captures ambient audio, intercom audio, 4K ultra-high-definition video, and flight data from internal inertial measurement units (IMUs) and a WAAS GPS receiver. The AIRS-400 weighs 11 ounces and records altitude, latitude/longitude, groundspeed, vertical speed, attitude data (pitch, roll, yaw), rates of rotation, and acceleration data. Options include Arinc 429 input and ED-155 audio and RS-422 output.

Appareo is also developing the RDM-500 crash-hardened storage module, which meets or exceeds ED-155 survivability standards. The AIRS-400 includes its own internal crash-hardened memory that can store



"two hours of video and audio, more than 200 hours of IMU flight data, and 100 hours of Arinc 429 data," according to Appareo.

A removable SD memory card is available for offloading data, but the AIRS-400 is equipped with cellular connectivity that can transmit data when the aircraft is on the ground. Once captured, the flight data can be analyzed using Appareo's FDM/FOQA software tools, including its EnVision web-based software. Appareo said installation and setup of AIRS-400 takes just one day. ■

M.T.

■ West Star, Collins team up on CJ1+ Fusion upgrade

MRO provider West Star Aviation recently assisted Collins Aerospace in completing an STC for a Pro Line Fusion avionics upgrade for the Cessna Citation CJ1+. As a result, Fusion is now an upgrade option for the CJ1+, CJ2+, and CJ3.

Fusion comprises three touchscreen displays with synthetic vision, weather, navigation, flight plan, and other graphical

overlays that provide enhanced situational awareness in most flight conditions.

The Fusion upgrade was completed on astronaut Charlie Precourt's CJ1+ at West Star's Grand Junction, Colorado facility. STC development and flight testing were performed by Collins, while West Star supported Collins's engineering and completed the aircraft modifications.

"We are thrilled to be chosen by both Collins and Mr. Precourt to be involved with the development of the Fusion upgrade and the opportunity to create a higher value to our CJ customers," said West Star avionics technical sales manager Walt Marcy. ■

J.S.

IATA calls for clarity as airlines bleed cash

by Gregory Polek

European airlines will likely remain cautious about adding seating capacity for the summer travel season and beyond, given lessons learned from the experience of U.S. carriers that failed to meet surging demand in that country, International Air Transport Association (IATA) director general Willie Walsh commented during the group's media day on July 7. Walsh also amplified calls for governments to offer more clarity over plans for reopening borders as airlines express a need for lead time to prepare for reinstating capacity.

"I think we've got to recognize, for example, that a lot of aircraft that were in the fleets in 2019 have been permanently

removed. So it will take time for airlines to recover their network," said Walsh. "I think the appetite for risk amongst a lot of airlines would be significantly lower because of the impact on balance sheets."

Walsh noted that the industry's debt burden has increased by \$220 billion to \$650 billion—a figure, he added, that will likely increase further by the end of the year. "I think it's a combination of aircraft that have been retired [and] weaker balance sheets, which will discourage airlines from taking risks in terms of reintroducing parts of networks that were unprofitable or marginally profitable before the crisis," explained Walsh.



IATA director general Willie Walsh

IATA still believes total traffic will rebound to 2019 levels in 2023 or 2024, thanks largely to hesitancy by airlines to return to expansion patterns evident between 2015 and 2019, he added.

In the U.S., where domestic markets account for some 66 percent of the total, demand for travel within the country returned faster than some airlines anticipated, which, Walsh said, supports IATA's view that pent-up demand exists elsewhere. However, given that in Europe, for example, international travel accounts for 89 percent of the market, visibility on

plans for relaxing border restrictions in the EU will prove all the more important to the continent's airlines.

"I put the U.S. to one side because...it's a very big market with a single decision [on travel restrictions]," noted Walsh. "If you look at the EU...you've got a lot of decision-makers...If you get the timing of the increase in your network wrong, your costs are going to significantly increase."

The IATA boss also cited the fact that European airlines' 2021 cash burn of \$81 billion didn't include fuel expenditures and much of the usual labor costs, thanks to government support programs. That point, along with the lack of traditional sales in advance of carriage that airlines enjoyed before the pandemic, suggests a cash-flow imbalance.

"You're going to see a disconnect between the cash going in and the cash going out," said Walsh. "And this is where I think airlines are going to be very cautious." ■



A Virgin Atlantic Airbus A330-300 takes off from Manchester Airport in the UK.

Euro airlines lobby to keep slot rule waivers in place

by Gregory Polek

As the European Commission considers reimposing slot usage requirements, airlines have resumed efforts to lobby against any attempt to reinstate even a portion of the so-called "80-20 use it or lose it" rule on the continent and similar regulations worldwide. The rule, which before the pandemic required airlines to use at least 80 percent of their slots or risk losing them to competitors, remains lifted for the time being as a way to protect hub carriers' networks amid Covid-19 travel restrictions. However, the EC now has begun considering partially restoring the rule with a 60 percent use threshold for the winter season.

International Air Transport Association figures show that cross-border traffic measured as a percentage of 2019 levels has shown no improvement since October 2020. In fact, forward bookings in Europe reflect even lower demand for travel this winter than in the same period last year,

underscoring the continued need for slot rule waivers. More than 60 percent of international flights operate from Level 3 slot-controlled airports, forming what IATA senior manager of worldwide airport slots Dimiter Zahariev called the backbone of international connectivity and networks.

"Those hub networks rely on precise slot times at those airports," said Zahariev. "Our forecast is that international traffic may only recover to 32 percent of 2019 levels in the second half of 2021. And that is the important point here: that Level 3 airports play a very significant [role in] the recovery."

In the UK, regulators in February eased that country's 80-20 rule for the summer season to the great relief of airlines such as Virgin Atlantic, a strictly international hub carrier with no domestic traffic on which it can rely to help offset its severe service cuts during the pandemic. As in the EU, authorities in the UK have begun

weighing options for the winter season.

Virgin Atlantic vice president of networks, alliances, and commercial planning Rikke Christensen recounted her airline's "drastic steps" starting in the spring of 2020 to consolidate into just two hubs—London Heathrow and Manchester—and reduce staffing to 47 percent of 2019 levels. From April 10 to July 20 of last year, Virgin Atlantic operated no passenger flights, relying solely on a shift to cargo flying.

"We had to rebuild our entire operation to serve cargo-only routes with passenger aircraft," she said. "We have been flying over 4,000 cargo-only routes and from the passenger side, when we restarted it, we had to really closely monitor to see where the demand is and try to actively find opportunities."

Virgin needed to show considerable agility, a trait on which it had to rely to address the multitude of varying border restrictions around the world. The slot usage rule would have hindered the airline's flexibility at a time it could least afford to do so, and force it to fly routes with no passengers aboard simply to maintain its slot rights, she explained.

"While we are still in this world where there are so many restrictions, so flexibility is actually needed, and we should not talk about removing flexibility before we see the restrictions being moved, because that's the reason that the flexibility is needed," added Christensen.

"We also don't know now what is coming in the winter season, and there will be regional differences in the recovery. There could be regions where you have had cargo-only demand that suddenly is no longer viable and passenger demand might not come back because of restrictions. So we are absolutely not in a world right now where we can say that, that we know exactly what to plan...and so full flexibility is absolutely needed." ■

Kremlin committed to CR929 despite grim market prospects

by Vladimir Karnozov

China's Comac and Russia's United Aircraft Corporation (UAC) have shortlisted several suppliers for the CR929 widebody ahead of a planned first metal cutting this year, despite sagging prospects for widebodies in the context of the Covid pandemic. The moves come amid another confirmation of the strong intent by Beijing and Moscow to work together on major aerospace programs. During a June 4 online press conference with heads of the world's leading wire services, Russian president Vladimir Putin mentioned the "development of a widebody passenger jet" among other ongoing programs between Russia and China.

The program's research and development effort has passed several milestones. In March, Russia's Central Aerohydrodynamic Institute (TsAGI) reported completion of yet another set of tests in the T-128 wind tunnel in Zhukovsky near Moscow, devoted to refining the jet's wing featuring "sickle-like" tips.

Meanwhile, the U.S. is maintaining pressure on Russia through economic

» continues on facing page



Porter Airlines plans to take its first Embraer E195-E2 in mid-2022.

Porter Airlines revealed as major E-Jet customer

by Gregory Polek

Toronto-based Porter Airlines has signed a deal with Embraer covering a firm order for 30 E195-E2s and purchase rights on another 50 as part of a plan to establish a second base at Toronto Pearson International Airport, the airline said on July 12. It also plans to fly Embraer's biggest jets from Ottawa, Montreal, and Halifax to destinations including the Canadian west coast and so-called sun destinations in the southern U.S., Mexico, and Caribbean. The airline said in a statement it would announce its initial set of new routes ahead of first aircraft deliveries in mid-2022.

Porter will maintain its base at Billy Bishop Airport off downtown Toronto to fly its existing de Havilland Dash 8-400s, it added. The island airport closed to scheduled service last spring with the onset of Covid-19, forcing Porter to suspend operations. After several attempts at a restart, PortsToronto said last week it would reopen Billy Bishop to scheduled traffic

on September 8. Porter's initial schedule calls for September 8 service to Ottawa, Montreal, and Thunder Bay (three flights) from Toronto.

With the order, Porter becomes the North American launch customer for the E2. Under the terms of the deal, it retains conversion rights for the smaller E190-E2. Although the E195-E2 seats between 120 and 146 passengers, Embraer said Porter will reveal configuration plans "in due course."

Embraer said it would include the firm order, valued at \$5.82 million, in its second-quarter backlog. Embraer first revealed the order, which it attributed to an unidentified customer, in May.

Porter's present schedule already shows four northern U.S. destinations and Myrtle Beach, South Carolina, from Billy Bishop. A route map showing planned E195 routes covers another 15 southern cities in the U.S., as well as Minneapolis and Seattle. ■

» continued from facing page

sanctions and on China via trade restrictions, which make it increasingly difficult for those countries to obtain high-tech Western components for locally developed aircraft. Although the developers haven't yet chosen a powerplant for the CR929, geopolitical considerations leave no plausible alternative to the ODK-Aviadvigatel PD-35, now in development since 2014. According to Russia's United Engine Corp. (ODK), it continues construction of new production and testing facilities for the 35-tonne-thrust-class turbofan with the intent of installation on a variety of military and civil platforms.

But the first airplane meant to use the PD-35 remains a would-be twin-engine version of the Ilyushin Il-96-400M quad, sometimes referred to as the Il-496. Plans called for it to fly a year before the CR929 to serve as a testbed for newly developed items and to provide contingency in case the Sino-Russian effort fails.

The Kremlin allocated funding of 50 billion rubles (\$687 million) for the development of the Il-96-400M as an intended replacement for the smaller Il-96-300 quad, which has been in low-rate production at VASO plant in Voronezh since 1993. While the latter remains in operation with Cubana de Aviacion, the type no longer flies with Russian airlines, although it continues to fly with government agencies.

Efforts to find commercial customers for the Il-96-400M have so far failed. Faced with a decline in traffic due to Covid-19, the airlines have shown no interest in the type despite promises of financial aid and other sales-promoting measures from the Kremlin. Although an official confirmation on the closure of the respective program hasn't yet come, Russian media have reported that the Il-96-400M will go no further than the construction of two airframes for which the Kremlin already has paid. The early plan called for assembly of eight operable aircraft by 2027. ■

Pandemic speeds move toward digital training

by Cathy Buyck

The pandemic has prompted most organizations across the aviation industry to shift their staff learning and development courses away from the conventional classroom to digital methods, a trend that looks likely to continue and expand post-Covid, International Air Transport Association (IATA) research found.

The survey of some 800 human resources executives also uncovered that the Covid-19 crisis resulted in "severe" budget cuts for training in almost every business in the sector, IATA interim vice president of commercial products and services Frédéric Leger said during a July 8 media briefing. No fewer than 70 percent of the respondents reported that their organizations had removed or cut in half training budgets, and 75 percent said their companies had canceled or postponed all classroom training until further notice. Learning and development budgets saw cuts globally; however, organizations in the Middle East and the Americas were least likely to report complete removal of budgets. The cuts have proved particularly deep in organizations with fewer than 50 employees.

Eleven percent of respondents confirmed they do not provide skills-development programs to employees. "Training is in limbo," noted Leger, as he stressed the need for "right-skilling" new hires and employees returning to work after a long

absence to allow them to perform additional or new tasks and multitask.

The survey shows that digital methods such as e-learning, virtual classroom learning, webinars, and virtual reality training will become the preferred format. Although considered important across industries, e-learning will play the biggest role in recovery plans for airports, 88 percent of which ranked e-learning as the first or second most important training method for recovery. Ground handlers predict that they will increase the proportion of training delivered using virtual reality technology. Face-to-face will remain a critical learning method for specific training related to practical skills where knowledge and attitude matter, such as shipping lithium batteries by air.

Training during the pandemic and the shift to a virtual format came with regulatory challenges, Leger asserted. IATA, which trained 73,000 professionals in 2020, converted most of its training to a virtual environment in a short timeframe to ensure that people's training records met the regulatory requirements. "It is true that we have done a lot of advocacy work with regulators to explain to them that good virtual training, with real-time interaction with the trainer, could be as efficient as face-to-face training," Leger said. "They have accepted that." ■



Singapore Airlines low-fare subsidiary Scoot took delivery of its first Airbus A321neo late last month.

Airbus delivers 77 airliners in June

In another sign of the ongoing recovery of the airliner market, Airbus delivered 77 airplanes during June, marking its strongest month since the start of the year. The figure represents an increase of 41 airplanes over its June 2020 total and accounts for more than a quarter of all deliveries this year.

From the start of the year through the end of June, Airbus delivered 297 airplanes compared with 196 during the first half of 2020. The 297 figure puts the company on

pace to ship far more than the 566 it delivered last year, when Covid-19 pressures saw its total fall from 863 in 2019.

Meanwhile, the order Airbus collected late last month from United Airlines for 70 A321neos and three more from private and undisclosed customers raised its net order total into positive territory for the first time this year. With gross orders for 165 airplanes and cancellations for 127, the company's net order count now stands at 38 for the year. **G.P.**



Corporate Air is building a U.S. Customs facility next to the FBO's terminal, allowing Florida's Vero Beach Regional Airport to welcome direct international flights.

FBO To Bring Customs to Florida's Vero Beach

Corporate Air, an FBO at Florida's Vero Beach Regional Airport, will break ground this month on a 4,000-sq-ft U.S. Customs inspection facility. The \$2.2-million structure, built to U.S. Customs and Border Protection specifications, will be adjacent to the FBO's terminal and is expected to be completed in early 2023.

"Our customers were frequently flying internationally and wanted to come directly to their Florida homes, so we have answered their request and are building a U.S. Customs facility that will turn Vero into an international airport," said company president Rodger Pridgeon.

The FBO is in expansion mode with the opening of a 12,000-sq-ft hangar in March, bringing its total aircraft storage space to 65,000 sq ft. It is also adding more than four acres of ramp space in a \$7 million project—funded by the state Department of Transportation and the airport—ahead of the start of construction of a trio of 12,000-sq-ft hangars, which are expected to be completed by mid-2023. Further plans call for the construction of another pair of 12,000-sq-ft hangars and a 30,000-sq-ft MRO facility.

Speedboat Maker Opens Upgraded Idaho FBO

StanCraft Jet Center, one of two FBOs at Idaho's Coeur d'Alene Airport-Pappy Boyington Field, has opened its permanent facility. Idaho-based StanCraft, the same company that has produced a line of high-end wooden speedboats for nearly a century, purchased the former Southfield FBO in 2018 and began plans to transform the business, which was based out of a 2,000-sq-ft hangar.

The new \$15 million Avfuel-branded complex on the north side of the field consists of a 15,000-sq-ft, two-story terminal, with an atrium lobby displaying one of the company's mahogany boats; a 14-seat conference room; a golf simulator; a "crew club" with private communication pods, bathroom with showers, and a pair of snooze rooms; business center; concierge; coffee shop; tenant offices; and even a dog park for those traveling with

their pets. It adjoins a new 30,000-sq-ft heated hangar that can accommodate the latest large-cabin business jets.

StanCraft president Cory Mendenhall told *AIN* the company will break ground in the fourth quarter of this year on another 30,000-sq-ft hangar that will incorporate a user fee-funded U.S. Customs facility, built to Customs and Border Protection department specifications. A third 30,000-sq-ft hangar, which will house the company's aircraft maintenance business, is planned for next year.

Carver Aero FBO Group Expands into Wisconsin

Iowa-based FBO chain Carver Aero has increased to four locations with the acquisition of the Janesville Jet Center, the lone service provider at Southern Wisconsin Regional Airport, which features a 7,300-foot main runway.

The FBO, which is open every day from 8 a.m. until 5 p.m. with after-hours callout available, offers an 8,600-sq-ft terminal with an eight-seat conference room, pilot lounge, flight planning room, and crew car. It is attached to a 10,800-sq-ft hangar that can shelter aircraft as large as a King Air or a Citation. The facility is within walking distance of a golf course and restaurant.

Carver, which was sold last year to investment firm CL Enterprises but retained its name, added its third FBO earlier this year. This latest purchase marks its first foray out of the Hawkeye State.

"The Janesville FBO fits into our business strategy to expand into smaller communities throughout the Midwest," said Peter Limberger, Carver's chairman as well as co-founder and chairman of CL Enterprises. "This airfield can accommodate higher volumes and larger planes. That means greater opportunity."

Rise Aviation Breaks Ground on Texas FBO

Rise Aviation, formerly known as Lake Texoma Jet Center, has broken ground on its new terminal at North Texas Regional Airport, just 60 miles north of Dallas. It is the sole FBO at the airport.

To accommodate the \$3.7 million project, the company negotiated with

the Grayson County Regional Mobility Authority to expand its leasehold by 1.4 acres. The new 10,800-sq-ft, two-story terminal will include a spacious passenger lobby, pilot lounge with snooze room, shower facilities, and flight-planning and vending areas. It will also offer a 12-seat conference room, observation deck overlooking the runway, tenant office space, and the airport's administrative offices. The terminal is slated for completion in the first quarter of 2022.

The former 4,500-sq-ft 1950s-era terminal, which has been modified many times over the years, will be retained for tenant use. The FBO complex also includes approximately 68,000 sq ft of hangar space that can accommodate aircraft up to the size of a Gulfstream V, as well as seven acres of ramp space.

"As the North Texas area continues to grow, many businesses and investors who come to Grayson County with thoughts about relocating, building, or investing here will arrive in a business aircraft," said FBO owner George Shuler. "We are pleased that Rise Aviation's new facility will be Grayson County's front door to the world."

Jet Aviation Buys ExecuJet Zurich FBO, Lux's Swiss Ops

Jet Aviation has expanded its footprint in Switzerland with the purchase of ExecuJet's FBO at Zurich Airport along with parent company Luxaviation's Swiss aircraft charter and management operation.

ExecuJet's Zurich facility, which it occupied for nearly two decades, consists of a two-story, 10,800-sq-ft stand-alone terminal with a private passenger lounge, in-house customs and immigration, a landside and smaller airside pilot lounge, shower facilities, kitchen, storage room, lockers, and a 10-seat conference room, along with indoor and outdoor vehicle parking.

In addition, Jet Aviation, which already operates an FBO on the field, will gain aircraft shelter for the first time with 53,000-sq-ft and 27,000-sq-ft hangars, and two additional private ramps totaling approximately 112,000 sq ft.

"Acquisition of the ExecuJet FBO in

Zurich enables us to offer a more comprehensive range of services, including hangar space for short- and long-term private parking," said Stefan Benz, Jet Aviation's senior v-p of regional operations in EMEA. The purchase of Luxaviation's Swiss air operator certificate (AOC) will also transfer 17 Switzerland-based aircraft to Jet Aviation control, a more than 25 percent increase in the company's EMEA fleet size.

Van Nuys Airport Completes Second Taxiway Rehab

Van Nuys Airport (KVNY), one of the busiest private aviation hubs in the U.S., has completed a 15-month rehabilitation project on Taxiway A. The \$35.5 million program at the Southern California airport encompassed 12 phases, resulting in the full-depth reconstruction of the 8,000-foot taxiway, installation of LED centerline and edge lighting, airfield signage and pavement marking upgrades, taxiway geometry enhancements, infield grading, and drainage improvements. A similar project was completed last year on Taxiway B, and as with that previous effort, 90 percent of the funding came from FAA AIP grants.

According to KVNY owner and operator Los Angeles World Airports (LAWA), the work brings the taxiways into alignment with new FAA design standards and extends their lives by at least 20 years. "Van Nuys Airport continues to demonstrate it is the premier general aviation airport in the country with modern and safe facilities," said LAWA CEO Justin Erbacci.

"The Taxiway A project presented another opportunity for airport businesses to work in partnership with [LAWA] and the FAA on solutions to limit the number of days in which runways, taxiways, and leasehold access points were impacted during construction," noted Curt Castagna, president of the Van Nuys Airport Association. "This project ultimately enhances safety for pilots by providing better visual acuity, standardized taxiway nomenclature, and improved communication with the air traffic control tower." ■



After buying the ExecuJet FBO at Zurich Airport, Jet Aviation gained two large hangars, allowing it to offer transient and long-term customer aircraft storage there for the first time.



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Gulfstream is expanding completions capabilities at its Dallas Love Field facility, bringing the large-cabin G600 into the operation, which previously served the super-midsize G280.

Gulfstream Adds G600 Completions at Dallas Facility

Gulfstream Aerospace is adding G600 completions operations at its Dallas Love Field (KDAL) facility to accommodate growing demand for its newest large-cabin twinjet, boosting its outfitting capability at KDAL beyond super-midsize G280s. As part of this expansion, Gulfstream director of Savannah completions Melissa Grant has been promoted to v-p and general manager of the Dallas facility and will be relocating there.

The addition of G600 completions to the Dallas facility is being facilitated by the company's expansion to nearby Fort Worth Alliance Airport, where it is building a new 160,000-sq-ft MRO complex that is expected to open in the fourth quarter. This facility will include an 80,000-sq-ft hangar, 32,000 sq ft of office space, and 44,000 sq ft of back shops and support areas.

Airbus Helicopters To Acquire German MRO, Supplier

Airbus Helicopters has agreed to acquire ZF Luftfahrttechnik from ZF Friedrichshafen in a deal that will broaden its range of MRO capabilities and add competencies in dynamic systems for the rotorcraft OEM. The deal is expected to close sometime this year following regulatory approvals. With 2020 revenue of €85.3 million (\$101.7 million) and 370 employees, ZF Luftfahrttechnik is an MRO provider for the majority of the German Bundeswehr (armed forces) helicopter fleet. As a manufacturer of dynamic components for light and medium helicopters, the German company has also delivered more than 10,000 gearboxes globally and is a supplier of the H135 main gearbox and the tail gearbox of the Tiger helicopter.

Jet MS Adds Pre-buy Inspection Services

Jet MS has added pre-purchase inspections to its base and line maintenance

services in central and eastern Europe as a result of increasing demand for sales of preowned business jets, the Vilnius, Lithuania-based company announced. Those inspections will cover documents and aircraft records, airframe reviews, functional airframe systems checks, avionics and electronics checks, and exterior paint and interior technical and aesthetic reviews.

Hawthorne Global Expands Embraer Mx Authorizations

Hawthorne Global Aviation Services has expanded its capabilities as an Embraer-authorized service center (ASC) to include full base maintenance product service and support for the Phenom 100 and 300, Legacy 450 and 500, and Praetor 500 and 600 airframes. The Charleston, South Carolina-based MRO provider and FBO operator has been an Embraer ASC since 2006 with authorization to perform base maintenance service and support for Legacy 600 and 650 twinjets. From its Long Island MacArthur Airport location in Islip, New York, Hawthorne Global will provide Embraer maintenance services in the New York metropolitan area and the northeastern U.S. That includes recently added AOG service in the region.



Clay Lacy Aviation's maintenance facility at Van Nuys Airport.

JSSI Adds Mx Tracking with SierraTrax Acquisition

Jet Support Services (JSSI) is making a "strategic" move into maintenance tracking with the acquisition of SierraTrax, the Chicago-based provider of maintenance support and financial services to the business aviation industry announced. As a result of the acquisition, Wichita-based SierraTrax will expand its service to include super-midsize and large-cabin aircraft. Founded in 2017, SierraTrax supports independent operators of turboprop and light and midsize jets, as well as fleets of 15 or fewer aircraft.

Jet East, TES Partner on APU, Engine AOG Services

MRO provider Jet East is partnering with Turbine Engine Specialists (TES) to offer expanded AOG support on engines and APUs, including maintenance for the Honeywell TFE731, HTF7000, CFE738, and GE CF34 engines and access to TES's Honeywell 36-100 and 36-150 APU rental pool. Those APUs are found on most midsize and super-midsize business jet models.

With Jet East's network of 25 mobile maintenance teams and six MRO facilities across the country, TES will expand its AOG reach beyond its Fort Worth, Texas base and AOG technicians located in Arizona, Connecticut, and Florida. Jet East's mobile team consists of more than 100 technicians who average more than 400 maintenance events each month.

Clay Lacy Aviation Earns EASA Part 145 Certificate

EASA has granted Clay Lacy Aviation MRO Services EASA Part 145 Maintenance Organization certification, enabling the California-based business aviation services company to work on European Union-registered business jets. Clay Lacy Aviation operates full-service FBOs/MROs at Van Nuys Airport in Los Angeles and John Wayne Airport in San Diego. The company plans to open a third FBO/MRO in 2022 at Waterbury-Oxford Airport in Connecticut.

Sky Aviation Holdings Donates Two Jets to N.C. College

Florida-based Sky Aviation Holdings and its MRO subsidiary, Sky Aircraft Maintenance, donated to the Guilford Technical Community College (GTCC) Foundation a 1984 Mitsubishi Diamond IA twinjet with fully functioning engines and avionics and the fuselage of another Diamond with a fully working avionics package. The donation is valued at \$350,000 and will be used in GTCC's Aviation Systems Technology Program. Since establishing Sky Maintenance at Davidson County (North Carolina) Airport last fall, the MRO has developed a relationship with GTCC in nearby Jamestown.

ExecuJet MRO Africa Gains FAA Part 145 Approval

ExecuJet MRO Services at Lanseria International Airport near Johannesburg, South Africa, has received an FAA Part 145 repair station certificate, enabling it to inspect, maintain, and modify U.S.-registered aircraft and their engines, avionics, flight instruments, and other accessories. The company provides 24-hour line, base, and mobile maintenance for numerous business aircraft makes and models. It also holds airworthiness approvals from civil aviation authorities across sub-Saharan Africa.

Australia Approves RBI Hawker for Rotacraft Blade Repair

RBI Hawker has received Part 145 maintenance organization approval from the Australian Civil Aviation Safety Authority for its new rotary blade repair facility. Based in Eagle Farm, Brisbane, the 1,000-sq-m (10,763-sq-ft) facility provides advanced repair and static balance of rotor blades for all Bell helicopter models, as well as the Leonardo AW139 and AW109.

West Star Offers Corridor Communications Portal for Mx Customers

West Star Aviation is now offering ServiceEdge, a web-based communications portal for its maintenance customers that was developed with Camp Systems' Corridor aviation service software. The portal enables customers to communicate directly with West Star service teams that are working on their aircraft. Through ServiceEdge, customers will have access to work order quotes, job status updates, and additional job approvals. While notifications are sent by email, chat options for both desktop and mobile applications are available as well. ■

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PRELIMINARY REPORTS

Four Killed in Firefighting Training Accident

**BHI H60 HELICOPTERS UH-60A
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.....

All four crew members died and the helicopter was destroyed when an unsecured snorkel assembly contacted the main rotor during water-drop training. The snorkel and water tank had been installed eight days earlier under a supplemental type certificate. The accident occurred on the first post-installation test flight after several days of ground testing and calibration.

Witnesses at the airport reported that the crew made six uneventful runs, picking up water from a lake adjacent to the Leesburg airport. One described the water being dropped as “very dirty.” At the beginning of the seventh pass, two employees of the helicopter’s operator saw the snorkel swinging “violently,” its end coming close to the main rotor blades. One telephoned the airport’s control tower and asked the controller to have the pilot slow down and land immediately. The other ran alongside the helicopter waving her arms but failed to get the pilots’ attention. As the helicopter accelerated into forward flight and began to climb, she heard a loud bang “and saw multiple main rotor blades separate and hit the tail section.” The tail cone separated and the helicopter spun into the trees. A “loud explosion” and plume of smoke followed.

The main wreckage was found one-quarter mile east of Runway 3. The tail cone was 78 feet farther north. Half of one main rotor blade was found 600 feet to the south; half of another was 1,500 feet west. The snorkel’s stainless-steel suction cage was next to the runway with another section of main rotor blade, and the water-pump housing from the snorkel inlet was “heavily fragmented.”

Turbine Lancair Destroyed in Ohio

**LANCAIR EVOLUTION, MAY 28, 2021,
MCDERMOTT, OHIO**
.....

The pilot and passenger were killed when the amateur-built airplane crashed in circumstances suggestive of an in-flight breakup. The airplane climbed to FL 250 and accelerated to a groundspeed of 215 knots on an IFR flight from Bellefontaine, Ohio, to Charleston International Airport, South Carolina. Over the course of one minute and 43 seconds, it gradually slowed to 146 knots groundspeed, then turned left and descended rapidly. A stuck microphone transmitted “a distressed conversation between the pilot and passenger.” Air traffic control was unable to contact the pilot before radar contact was lost.

A witness who saw the airplane spiral down told investigators that “it may have been missing a wing.” It crashed into a forest in a near-vertical nose-down attitude, starting a fire. An outboard nine-foot section of the right wing was found about half a mile from the main wreckage. The airplane was equipped with a ballistic parachute that was not deployed during the descent; its propulsive charge ignited in the post-crash fire. Airmets for icing up to 22,000 feet and moderate turbulence from 25,000 to 42,000 feet were in effect over an area that included both Bellefontaine and the accident site.

Gear-up Landing at Odds with Pilot’s Account

BEECH 1900, JUNE 2, 2021, DENVER
.....

The Part 135 freighter touched down with its landing gear fully retracted, resulting in damage to both propellers and the bottom fuselage lateral bulkhead and stringers. Airport surveillance footage showed that all three legs of the gear were up when the Part 135 freight flight crossed the threshold of Denver International Airport’s Runway 17R and stayed up as the airplane descended to the runway. Radar data showed that it crossed the threshold and passed taxiway EC at 196 knots. Post-accident photographs showed its flaps fully retracted.

The pilot told investigators that on final approach he lowered the landing gear, confirmed three green indicator lights, and felt the increase in drag from the gear extension, though the airplane didn’t seem to slow as expected. After hearing another pilot and the tower controller advise him to check the gear position, he “confirmed three green lights while the airplane was touching down,” which was “smooth and normal” until “the propellers impacted the ground.”

FINAL REPORTS

Night Crash Attributed to Spatial Disorientation

**BELL UH-1H, SEPT. 6, 2019,
ANNA BAY, NEW SOUTH WALES, AUSTRALIA**
.....

The pilot’s decision to continue flying past last light, then attempt an overwater route devoid of visual references despite not being trained for night or instrument flight, led directly to spatial disorientation and loss of control. All five on board were killed when the helicopter crashed into the ocean about five km (three miles) southwest of Anna Bay 12 minutes after the published end of evening twilight. The accident occurred on the last leg of a flight from Archerfield Airport in Queensland with a planned destination of Bankstown Airport, New South Wales. The 1,440-hour pilot held private and commercial helicopter licenses

with a gas turbine endorsement but had no night or instrument experience, which were not required at the time he trained.

Following a stop at Coffs Harbour, NSW, to refuel the helicopter from an onboard 400-liter (105-gallon) storage tank and 205-liter drum, the helicopter lifted off at 4:48 p.m. At 5:55, the pilot contacted the control tower at Williamstown, requesting clearance to transit its airspace on the published VFR coastal route and a climb to a higher altitude for more favorable winds. The tower controller referred him to approach control, which identified the helicopter on radar and provided the requested clearance at a block altitude of 3,000 to 3,500 feet. This exchange took place at 5:57, four minutes before the published time of last light at Anna Bay.

At 6:02, the pilot was cleared to “track as required” to the Bankstown Airport. At 6:05, he attributed a descent to 2,700 feet to turbulence and was given a block altitude between 2,400 and 3,500 feet. The helicopter then turned left out to sea. ADS-B data showed that it flew southwest for about 90 seconds at GPS-derived altitudes between 2,568 and 3,168 feet, then entered a rapidly descending left turn. The last ADS-B data point was recorded at an altitude of 93 feet at 6:13:18, eight seconds before radar coverage was lost.

Despite an extensive sea and aerial search by the NSW police and, later, the Australian Navy, the wreckage was not located until September 25. The bodies of the pilot and two passengers were not recovered. The investigation discovered that the pilot was being treated for “significant health conditions” with four prescription medications, three of which were “absolutely incompatible” with Australia’s Civil Aviation Safety Authority medical guidelines, “as were the underlying conditions.” The fourth would have required an ongoing medical audit after a one-to-three-month grounding before issuance of a restricted medical certificate.

Inspection Procedure Revised Following Sudden Depressurization

**CESSNA 441, JULY 22, 2020,
BROOME, WESTERN AUSTRALIA**
.....

The pilots made a successful emergency descent in response to a rapid loss of cabin pressure, continuing to an uneventful landing. There were no injuries to either crewmember or any of their six passengers. Shortly after the aircraft reached cruising altitude of FL270 on a charter flight from Broome to Browns, a loud noise came from the passenger compartment, the cabin altitude warning light and alarm activated, and the cabin altitude gauge passed 25,000 feet. The pilots immediately donned their oxygen masks, instructed their passengers to do the same, and began their

emergency descent.

After reaching 12,000 feet, the pilot monitoring contacted the company’s senior base pilot, who advised them to continue depressurized to Browns Range. During their postflight walkaround, both pilots noticed that the outer skin had separated from the lower aft section of the emergency exit door. With no telephone service, the pilots concluded that the airplane’s Minimum Equipment List permitted them to fly to Halls Creek to meet the senior base pilot, who noticed a 10-mm gap at the bottom of the door. After viewing photographs, company maintenance staff concluded that returning to Broome unpressurized was unlikely to cause further damage. That flight was completed without incident.

Following a structural-failure investigation by the operator’s aeronautical engineer, CASA issued Airworthiness Bulletin 52-004, issue 1, on Aug. 6, 2020, to define a more detailed interim inspection procedure for the Conquest II’s emergency exit door. On Jan. 21, 2021, Textron Aviation issued Conquest Service Letter CQL-99-02 mandating ultrasonic inspection at intervals of 2,000 hours or four years, whichever comes first. Evidence of debonding was subsequently found in two other Australian Conquests operated beyond 22,500 hours total time under Supplemental Type Certificate SVA 528, which defines a life-extension program for the Cessna 441.

Electrical Fire Traced to Storm Window

**BEECH B200, OCT. 23, 2020,
BOURNEMOUTH, UNITED KINGDOM**
.....

Water entering the flight deck through the pilot’s storm window was found to be the likeliest cause of corrosion in the left circuit breaker panel, causing a fire in the back-lighting circuit board. On final approach to Bournemouth in clear weather, a yellow glow and smoke began emanating from the breaker panel after the crew selected approach flaps. Disengaging the electrical master had no effect, so they declared a Mayday, evacuating the airplane on the runway after landing. The airport firefighting crew responded, but the smoke stopped after the engines were shut down.

Inspection showed that moisture had entered the breaker panel. The back-lighting circuit board had sustained heat and fire damage. The panel was underneath the left-side storm window, which had not been retrofitted with the available improved seal. Water tends to collect on the outside of the window and can enter the flight deck when the window is opened—which it frequently is to clear a fogging agent used to sterilize the flight deck during the coronavirus pandemic. While the current operator generally hangared its fleet, this aircraft had been acquired recently and had previously been parked outside. ■

The material on this page is based on reports by the official agencies of the countries having the responsibility for aircraft accident and incident investigations. It is not intended to judge or evaluate the ability of any person, living or dead, and is presented here for informational purposes.

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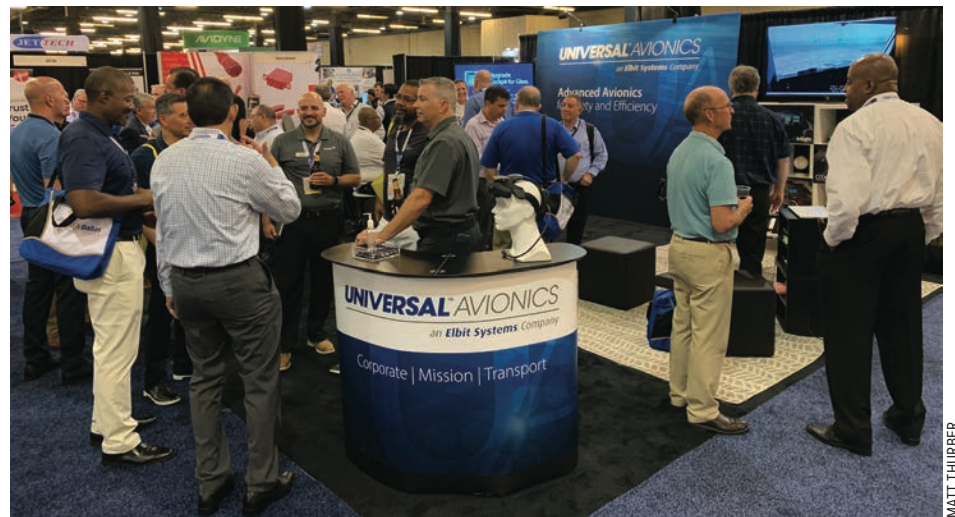
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Glad to attend a live show, visitors through the Universal Avionics booth at AEA 2021 in Dallas.

Back in the live show saddle

by Matt Thurber

“Back in the Saddle” was the theme for the Aircraft Electronics Association (AEA) Trade Show & Convention held in June in Dallas. And indeed that was what it felt like, probably not just for me but the 1,500 or so people who attended. The event was held at the Hilton Anatole, which is ideally suited for a relatively small show.

This was the first in-person event I’ve attended since the coronavirus pandemic began. My last big event was the Singapore Airshow in February 2020, and if I knew then what I know now, I would have been wearing masks much sooner and on that trip. I’m embarrassed to admit that at the time I pooh-poohed those who were smart enough to wear masks, including a doctor (major clue!) sitting next to me on one of my flights. The Singapore show was, understandably, sparsely attended.

Now that vaccination rates have climbed, especially among the demographic typical of the general aviation industry (i.e. older people like me), holding an in-person event without masking and social distancing does not seem to be a problem. The only people wearing masks that I saw during the event were the hotel workers. I will admit to hearing a little voice inside my head—while standing fairly close to friends at the show, hugging people for the first time in almost a year and a half, and shaking multitudes of hands—saying “I sure hope this vaccine works!”

But I must say it was a pleasure to see people and not having to try to figure out who they are and understand what they are saying through a mask and at a distance. A long-awaited big sigh of relief was palpable on the exhibit floor, and it was clear that either vaccination rates are high among this crowd or perhaps some have just decided to throw caution, along with their masks, to the wind.

The biggest change we all noticed was the lack of staff at the hotel. At one point I needed to find someone to ask about Wi-Fi access in the ballroom during the new product introduction session, one of my favorite parts of the AEA show. I

ended up walking the entire length of the facility without encountering one employee who was available. There were lines at the front desk, no one at the concierge desk, and whenever I tried to wait in line to talk to someone, it seemed like the people in front of me were having enormously complicated problems that would take forever to solve. Finally, I just gave up on tweeting out the new product introductions and went with the flow.

And it was a pleasant flow indeed. I enjoyed saying hello to old friends and making new ones. People I never thought would be the hugging type were embracing me with bear-like passion. Everywhere I went, people were eager to talk, and some visits turned into an hour’s worth of catching up.

Perhaps mirroring what’s going on in the hotel industry, everyone I spoke with at the AEA show raised concerns about shortages of personnel, not just technicians but engineers, managers, salespeople, etc. All agreed that the aviation industry, understandably battered by the pandemic, shrank itself too much and didn’t do a good job of planning for regrowth, although some companies did better than others in that regard. But to grow and take advantage of new opportunities, a lot of work needs to be done to attract new entrants and make working for these companies well worthwhile.

Just before the new product introductions, keynote speaker Gene Marks reminded the small business people in the audience of the importance of keeping employees happy, even suggesting radical ideas like unlimited paid time off, which is growing in popularity.

On an encouraging note, I encountered a lot of young people at the show who bring a dazzling array of talents to the aviation industry. The level of interest is high, and we seem to be able to attract diverse and diligent people who want to build a fruitful career in aviation.

Meanwhile, I’m already getting ready for my next in-person show and hope to see you there. ■

**Within 6 Months**

Aug. 9, 2021

U.S.: Pilot Records Database

This final FAA rule requires air carriers, charter operators, specific operators holding out to the public, entities conducting public aircraft operations, air tour operators, fractional ownerships, and corporate flight departments to enter relevant data on individuals employed as pilots into the electronic pilot records database (PRD). August 9 is the first of several PRD compliance deadlines that extend to Sept. 10, 2029. In addition, this rule identifies the air carriers and operators, including corporate flight departments, required to access the PRD to evaluate available data for each pilot candidate prior to making a hiring decision.

Aug. 12, 2021

EASA: Landing Performance

Due to continuing disruptions in the aviation industry from the Covid-19 pandemic, EASA has delayed the effective date of regulations implementing new standards for aircraft landing performance calculations. The new compliance date of the rules, originally set to go into effect on Nov. 5, 2020 is now Aug. 12, 2021.

Aug. 12, 2021 **NEW****EASA: Runway Surface Reporting**

ICAO has recommended implementing the new global reporting format (GRF) for assessing runway conditions on November 4. However, the European Union has decided to start using the GRF format as of August 12 to ensure a smooth preparation for the next winter season. The new format is intended to better associate airplane performance calculations with the actual runway surface conditions in order to mitigate the risk of runway excursions during landings and takeoffs on contaminated runway surfaces.

Aug. 12, 2021 **NEW****Canada: Runway Surface Reporting**

ICAO has recommended implementing the new global reporting format (GRF) for assessing runway conditions on November 4. However, Canada has decided to start using the GRF format as of August 12 to ensure smooth preparation for the next winter season. The new format is intended to better associate airplane performance calculations with the actual runway surface conditions in order to mitigate the risk of runway excursions during landings and takeoffs on contaminated runway surfaces.

Aug. 25, 2021

EASA: Aging Aircraft Structure

Incremental deadlines are set for implementing new and revised EASA regulations to address large turbine airplane structural aging risk factors. Design approval holders are required to develop data to support continuing structural integrity programs. At the same time, operators of covered airplanes need to revise their maintenance programs to incorporate those data and to address the adverse effects of modifications and repairs on each airframe.

Nov. 25, 2021

Canada: ELTs

Starting on Nov. 25, 2021, Canadian-registered commercial and private aircraft are required to have an emergency locator transmitter that broadcasts simultaneously on the 406 MHz and 121.5 MHz frequencies. Foreign-registered aircraft operating in Canada must have at least one 406 MHz ELT by November 25. Currently, Canadian aviation regulations only require that aircraft operate with one 121.5 MHz ELT.

Dec. 2, 2021

Australia: Flight Operations

Ten new flight operations regulations will consolidate the operating and flight rules, as well as certification and management requirements, for a variety of aircraft and operations which will apply to all pilots and operators in Australia.

Within 12 Months

April 30, 2022

Columbia: ADS-B Out Mandate

Starting on April 30, 2022, unless specifically authorized by ATC, no person may operate an aircraft within Colombian territory in any controlled airspace or other airspace in which a transponder is required without ADS-B Out operational capability.

Beyond 12 Months

Sept. 16, 2022 and Sept. 16, 2023

U.S.: UAS Remote ID

New FAR Part 89 requires that after Sept. 16, 2022, no unmanned aircraft system (UAS) can be produced without FAA-approved remote identification capability. After Sept. 16, 2023, no unmanned aircraft can be operated unless it is equipped with remote ID capability as described in new Part 89 or is transmitting ADS-B Out under Part 91.

For the most current compliance status, see: <https://www.ainonline.com/aviation-news/compliance-countdown>



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C.B. “Sully” Sullenberger III—noted for his role in the successful “Miracle on the Hudson” emergency landing—was nominated to serve as the ambassador representing the U.S. on the Council of the *International Civil Aviation Organization* (ICAO). A safety advocate, author, and keynote speaker, Sullenberger is a former U.S. Air Force fighter pilot and retired airline pilot who has amassed more than 20,000 flight hours over a 30-year career. He became known for his skills as a pilot in 2009, while as captain of US Airways Flight 1549 he and his crew successfully ditched their Airbus A320 into the Hudson River after the aircraft struck a large flock of Canadian geese upon takeoff from New York LaGuardia Airport and lost thrust from both engines. All 155 people on board survived and there were only a few injuries.

Pilatus Aircraft has formally elected **Hansueli Loosli** to replace **Oscar Schwenk** as chairman, the company said. Schwenk announced Loosli as his successor in April when he revealed plans to relinquish the position, which he’d held for 15 years. Schwenk, who has been with Pilatus since 1978, previously held a variety of other roles with Pilatus, including CEO. Schwenk will continue to play a role in the company, supporting its strategic direction as honorary president. Loosli, a businessman who joined Pilatus’s board in mid-2020, has chaired numerous other boards, including those of Coop, Swisscom, Bell Food Group, and Transgourmet.

John Foster has stepped into the role of chairman and CEO of *Skytech*. Foster has led Skytech for the past 22 years as president and has worked for the company since 1980. **Justin Lazzeri**, a nearly 20-year Skytech veteran, has taken the role of president. Lazzeri began as a part-time company pilot before moving into the role of director of marketing and ultimately v-p of aircraft operations. **Rick Shepard**, meanwhile, was named executive v-p of operations, overseeing both the FBO and flight departments.

Mike Caflich, who served as CEO of *Aircraft Performance Group* (APG) from 2014 to 2020, retired on July 1. Caflich, whose career spanned 40 years in a range of roles from engineering to business executive, helped lead APG through a transition from its original foundation to new ownership under AFV Partners, as well as through expansion with the integrations for RocketRoute and Seattle

Avionics in 2020. He has served as an executive board member for AFV Aviation Vertical for the past seven months, helping with strategic initiatives and assisting through a leadership transition to Aviation Vertical president **Shawn Mechelke**.

Tommy Sowers has taken the role of president and **David Ivy** v-p of engineering for *flyExclusive*. Sowers most recently was the Southeast region lead for innovation for the U.S. Department of Defense and also has taught innovation and entrepreneurship at Duke University, as well as co-founded and served as CEO of GoldenKey. Ivy has a background in leading technology teams and developing consumer and enterprise software applications across a variety of industries, including healthcare and data science.

Blackhawk Aerospace promoted **Donnie Holder** to CIO. Holder has served with Blackhawk since its inception 22 years ago, beginning as a receptionist, later moving into IT and marketing.

Universal Avionics named **Christopher (Chris) Whelchel** as CFO. Whelchel joins the company with 16 years of aerospace industry experience, most recently as v-p of finance at SolAero Technologies and also as controller for Bendix King. In addition, **Jean-Marie Bégis** was appointed director of product management and partnerships for Universal Avionics. Bégis has more than 20 years of experience in business development and implementation of mobile communications, aircraft data link services, and aerospace systems, including with SITA, CMC Electronics, and Avionica.

Sage-popovich (SPI) named **John Brattain** v-p of maintenance. Brattain, who spent 28 years in the U.S. Army, has more than 20 years of quality assurance management and engineering experience, most recently serving as director of maintenance for SPI and previously working as contract liaison with the Department of Defense. SPI also appointed **Joel Brumm** as quality assurance analyst manager. Brumm previously served with SPI as a student mechanic while earning his FAA airframe & powerplant (A&P) license. **Gustavo Perez-Hernandez** joined SPI as an aviation analyst. Perez-Hernandez most recently was a consultant to Jets Time and also has served as a consultant to Blackwolf and Associates. In addition, **Alex Boatright** was named aviation parts sales associate. Boatright has a background in performing aviation inventory audits.

StandardAero named **Peter Wheatley** v-p and general manager of its helicopters business unit in Winnipeg, Manitoba. Wheatley has served with StandardAero for 17 years, most recently as director of engineering of the helicopters business unit.

Mente Group promoted **Ken Hart** to v-p and group lead for transactions. Hart, who joined the company in 2020, previously spent six years with Hagerty Jet as executive v-p and three years with Welsch Aviation as an associate broker.

Ametek MRO promoted **Andy Wheeler** to divisional v-p and managing director. He succeeds Alan Harding, who has become divisional v-p for Europe and Asia. Wheeler joined the company in 1980 and has held a number of roles over 40 years, including as operations director and most recently as commercial director.

Texas Aerospace Technologies named **Brad Sutphin** v-p. Sutphin joins the company with more than 16 years of aviation experience, most recently as director of sales for DAC International.

Scott Sweet joined *Heads Up Technologies* as v-p of sales and marketing. Sweet formerly served as v-p of sales and marketing for AeroSonic Corporation and before that, was market development director for Inmarsat.

FlightAware added **Bruno Moreno** and **Toby Tucker** to its team in Europe and the Middle East. An aviation sales executive for the EMEA region, Moreno formerly was a key account manager for Cirium and has 16 years of aviation experience. A senior sales executive based in London, Tucker formerly led mobile crew applications for SITA.

Duncan Aviation named **Matt McGinn** a Bombardier service sales representative. A former aviation structural mechanic with the U.S. Navy, McGinn has served with Duncan since February 2014. **Greg Gancarz** was named manager of Duncan Aviation’s satellite facilities in Sacramento and Hayward, California. He succeeds **Bob Hazy**, who is retiring in June after a 21-year career with Duncan. Gancarz has spent 13 years with Duncan Aviation.

West Star Aviation promoted **Dan Sies** to Falcon maintenance supervisor at its East Alton, Illinois, facility. Sies has more than 20 years of aviation experience, beginning in West Star’s Citation department and transferring to Falcons in 2006, most recently as AMT lead. ■

FINAL FLIGHT

François Chavatte, who co-founded the *European Business Aviation Association* (EBAA) in 1977 and later served as president and chairman of the organization’s board, died on June 24.

“With the passing of François, we lost one of the two founding fathers of the united European business aviation industry,” said EBAA chairman Juergen Wiese.

Chavatte began his aviation career in 1952 with the French air force as a reconnaissance and fighter pilot, according to information from EBAA and NBAA. Following his service, he joined IBM and ultimately led the company’s flight operation from 1969 until 1993.

In March 1960, shortly after he had joined IBM, Chavatte copiloted an Aero Commander 680 from the U.S. to France, marking the first transatlantic business aviation flight to land at Paris Le Bourget Airport. The Aero Commander became the first business aircraft to be based there, helping to spark the growth of what has become one of Europe’s most prominent business aviation airports.

In 1977, he saw a need for advocacy on behalf of the emerging business aviation community in Europe and teamed up with Frits Philips to found EBAA. Chavatte was recognized as the first honorary member of EBAA. He also is credited for playing an integral role in the creation of the European Business Aviation Convention & Exhibition (EBACE). ■

AWARDS and HONORS

The National Aeronautic Association (NAA) selected **Erin Miller**, author of *Final Flight Final Flight: My Grandmother, the WASP, and Arlington National Cemetery*, for the 2021 Bruce Whitman Trophy. The honor was established in 2019 to recognize “...outstanding individuals who have made significant contributions to aviation or aerospace in the U.S., and who by working with museums and other institutions have promoted an appreciation by students and the broader public of the sacrifices and legacy of members of the military service.” Miller, the granddaughter of Women Airforce Service Pilots member Elaine Danforth Harmon, successfully led a grassroots campaign to fight a U.S. Army decision to deny a request for her grandmother to be laid to rest at Arlington National Cemetery (ANC), leading to a bill that was signed into law in January 2016 making WASP members eligible for ANC. Now more than 100 living WASP members are eligible. Miller further has used her books to educate others about the contributions of the WASP during World War II. ■



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