

Aviation International News

AIN
PUBLICATIONS

Vol.50 | No.7

\$9.00

JULY 2021 | ainonline.com



End of the supersonic bizjet era?

by Kerry Lynch

Aerion Corp. had appeared to be on the precipice of realizing its 18-year dream of building what many anticipated would be the first purpose-built supersonic business jet, the AS2. The company had decided on a final design that had been proved out in wind tunnel tests, and dozens of patents had been secured.

Then that facade came crashing down in late May, when the company confirmed it had ceased operations.

Aerion had sought to de-risk development with well-established suppliers. Many of the industry's giants signed on to the program, including Boeing, GE Aviation, Spirit AeroSystems, Honeywell, Rosen Aviation, Universal Avionics, and Collins Aerospace.

The company had held a groundbreaking ceremony in December for a \$300 million, 2 million-sq-ft headquarters complex at Florida's Orlando Melbourne International Airport (KMLB) that was to have housed facilities for research, design, production, and interior completions of the AS2 supersonic and future aircraft.

As the progress was being made, the AS2

had generated enthusiasm regarding the possibilities for the market, with established operators such as Flexjet and NetJets publicly coming on board. In fact, Aerion claimed its order backlog had ballooned to \$11.2 billion.

Meanwhile, the company had already teased its next product, a near-hypersonic AS3 airliner that was to incorporate technologies developed through a joint research project with NASA.

And, importantly, Aerion had helped convince regulators and lawmakers that the time was ripe to consider a fresh approach to certifying and accepting new-generation, more environmentally friendly supersonic aircraft.

Dramatically Ramped-up Spending

But while Aerion appeared to be moving forward with much momentum, it was also on the precipice of a dramatically ramped-up spend rate as it transitioned from being a design firm to an aircraft developer. At that critical juncture, the company's investors decided that was too much for them to bear without significant outside support.

Aerion knew from the beginning that its venture would be expensive, figuring it would take upwards of \$5 billion to bring its supersonic business jet to market. Fort Worth financier Robert Bass—the key investor who backed the project, enabling it to launch in 2003—had early on set a limit on what he would spend, according to officials close to the company.

Aerion knew it would have to line up other partners. It was able to attract the likes of Airbus, Lockheed Martin, and ultimately Boeing.

› continues on page 31



Read AIN's **MID-YEAR REPORT**

Aerospace Progress

Airlines, aircraft manufacturers, suppliers, and lessors are looking forward to a post-pandemic landscape and a return to growth.

› page 20



With little prospect of securing the funding needed to bring the AS2 supersonic business jet (left) to market, Aerion announced the sudden shutdown of its 18-year effort, just months after it broke ground on a new headquarters and manufacturing facility in Melbourne, Florida, and unveiled the near-hypersonic AS3.

FBOs

Atlantic, Signature chains sold › page 12

OEMs

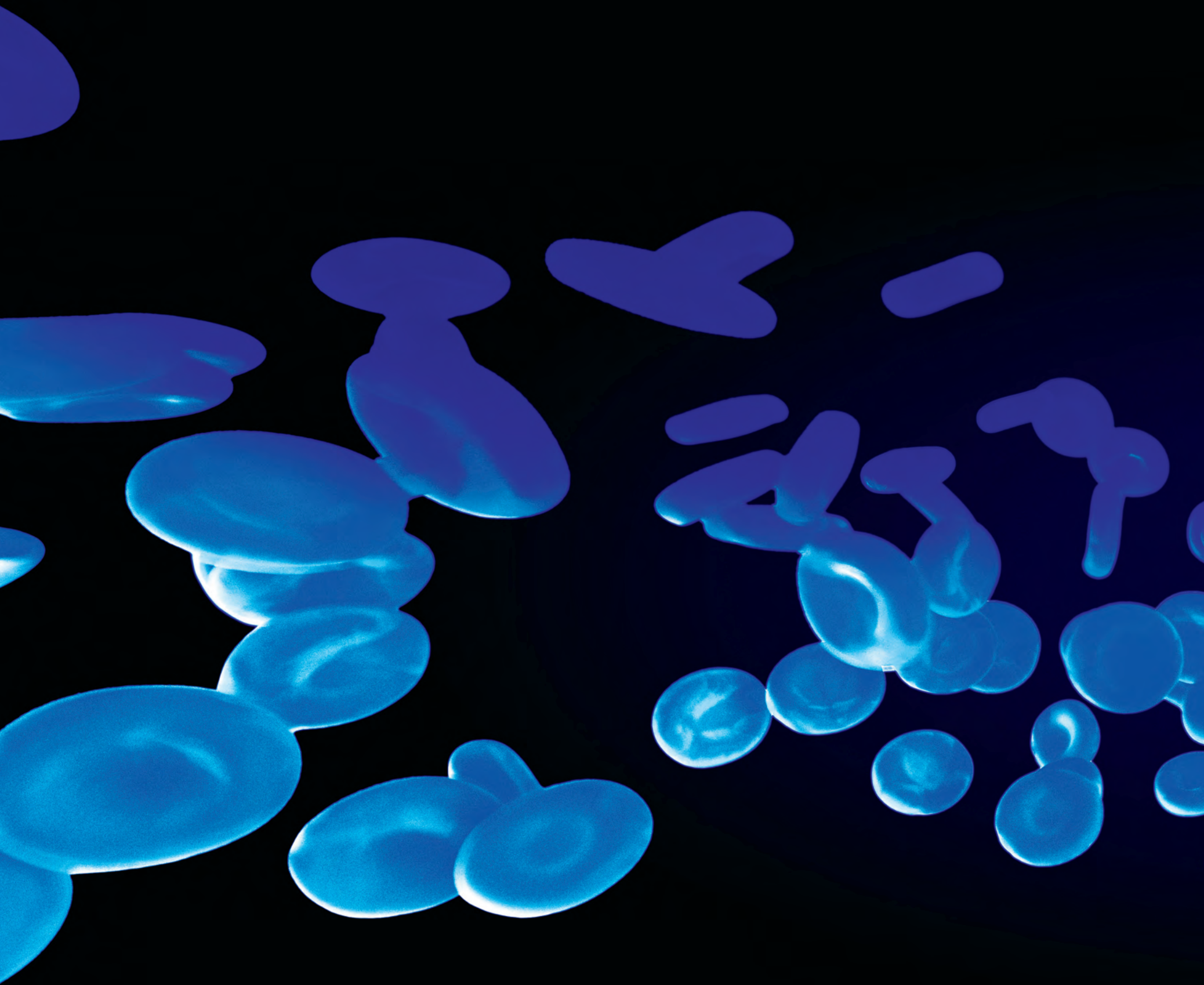
Honda Aircraft unveils latest upgrade › page 14

Regulations

FAA releases final pilot records rule › page 17

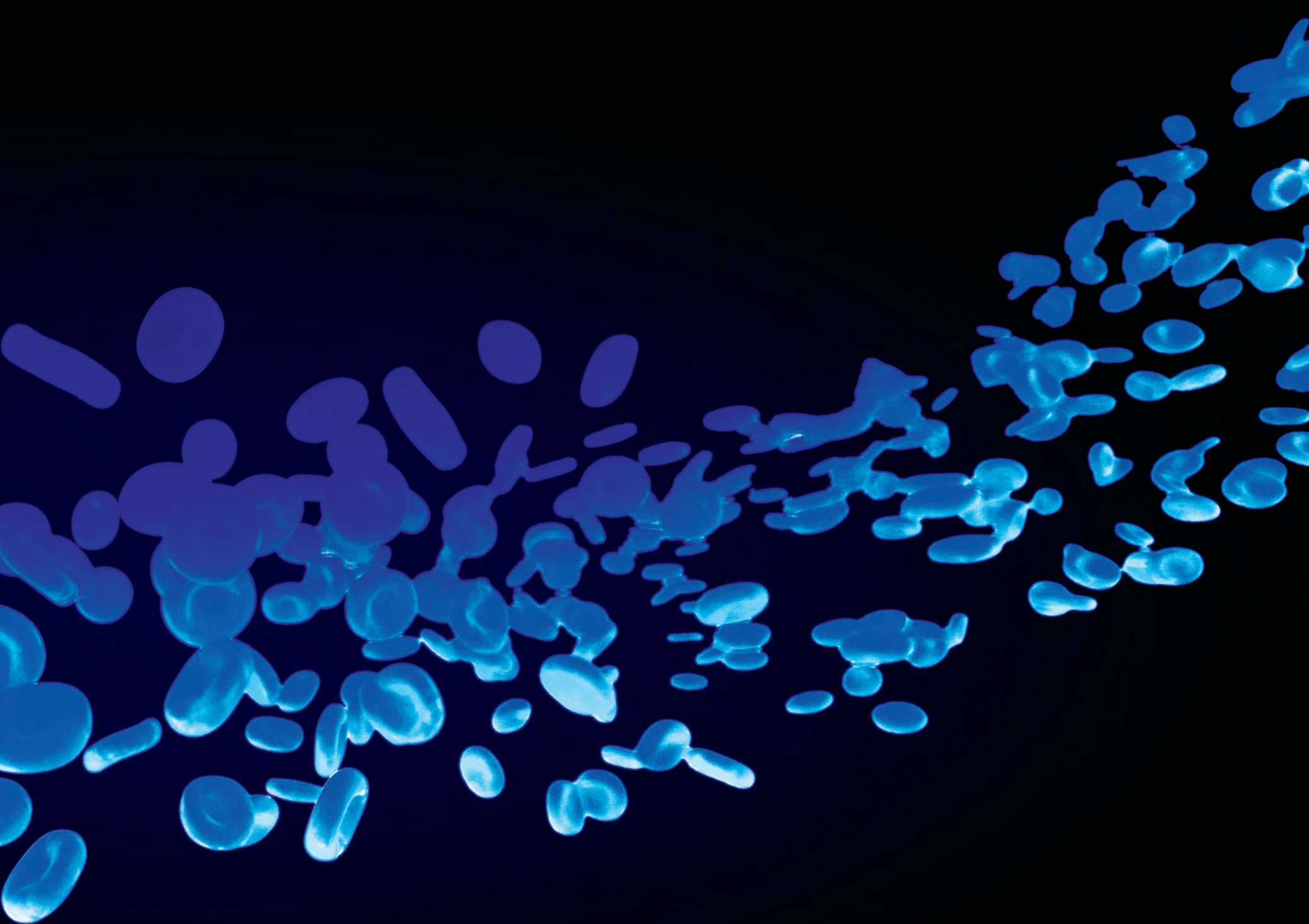
Safety

Air Methods solves the IIMC problem › page 28

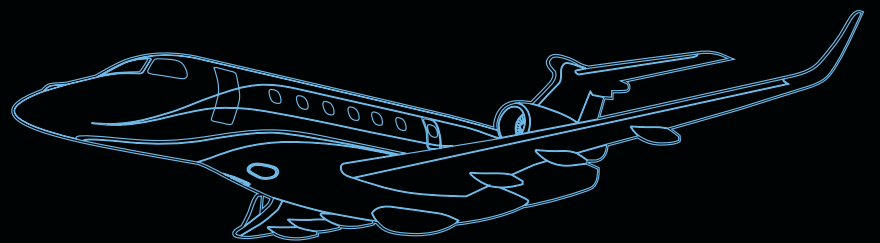


PRAETOR 600

BY EMBRAER



OXYGEN RICH.



prae•tor six hun•dred : *arrive refreshed with the best-in-class cabin altitude of 5,800 ft*
+1 321 751 5050 | embraer.com/human



AIRPLANES and ENGINES

- 1 End of the supersonic bizjet era?
- 14 Honda Aircraft unveils upgraded HondaJet Elite S
- 30 GE, Safran launch green open-rotor tech demo

AIR TRANSPORT

- 8 United Airlines lends weight to Boom Supersonic plans
- 20 Aerospace suppliers in for uneven recovery
- 21 Generous state support boosts French supplier amid Covid
- 21 Top of civil aircraft food chain hungry for recovery
- 22 U.S. Airlines poised for relief from Covid crisis
- 24 Aircraft lessors seek bulk as industry convalesces
- 26 Covid brings more supply to aircraft recycling business
- 26 Flight volume data reflects gradual and uneven recovery
- 34 Embraer sees E-Jets facilitating air transport's recovery from pandemic
- 34 Airbus plans for significant boost of A320 production rates

AVIONICS and TECHNOLOGY

- 12 Garmin Autoland recognized by National Aeronautic Association
- 14 Aviation Alliance highlights emerging tech
- 36 G1000 NXi enhancements available for Mustangs
- 36 GPS interference testing remains problematic
- 37 Viasat demos phased-array antenna on Citation II
- 37 Garmin closes purchase of AeroData software biz

37 Avidyne Helios FMS receives TSO approval

CHARTER and FRACTIONAL

- 10 Directional Aviation's Halo orders 200 Eve eVTOLs
- 10 Why Directional Aviation is betting big on urban air mobility

FBOS AND AIRPORTS

- 12 PE firm KKR buying Atlantic for \$4.5 billion
- 12 Signature Aviation under new ownership

INDUSTRY and MANAGEMENT

- 27 GA aircraft deliveries up or flat in 1Q: GAMA

PEOPLE

- 6 Hansueli Loosli takes over as chairman of Pilatus
- 8 Robert Sumwalt retires from NTSB chairmanship
- 16 Mansour Ojje remembered

REGULATIONS and GOVERNMENT

- 17 FAA final pilot records rule applies to bizav ops

SAFETY

- 18 Let the flyer beware

ROTORCRAFT

- 6 Production-conforming AW609 expected to fly soon
- 28 Air Methods: Solving the IIMC accident problem

DEPARTMENTS

- 42 Accidents | 36 Avionics Update | 45 Compliance Countdown | 40 Hot Section | 8, 10, 12, 14 News Briefs
- 46 People in Aviation | 38 Touching Bases

Aviation International News

JAMES HOLAHAN (1921-2015), FOUNDING EDITOR
WILSON S. LEACH, FOUNDER & CEO

EDITOR-IN-CHIEF – Matt Thurber
NEWS EDITOR - AIN PUBLICATIONS – Chad Trautvetter
SENIOR EDITORS – Charles Alcock, Curt Epstein, Kerry Lynch
Gregory Polek – Air Transport,
Jerry Siebenmark

CONTRIBUTORS
David Donald – Defense Mark Huber – Rotorcraft
Jennifer Leach English David Jack Kenny – Safety
Gordon Gilbert Richard Pedicini
James Wynbrandt
PRODUCTION MANAGER – Martha Jercinovich
GRAPHIC DESIGNERS – John A. Manfredo, Grzegorz Rzekos
DIGITAL SOLUTIONS MANAGER – Michael Giaimo
DEVELOPER – Ryan Koch
DIRECTOR OF VIDEO – Ian Whelan

CHIEF OPERATING OFFICER – Dave Leach
VICE PRESIDENT SALES & MARKETING – Karl H. Elken
ASSOCIATE PUBLISHER – Nancy O'Brien
ADVERTISING SALES
Melissa Murphy – Midwestern U.S., +1 (830) 608-9888
Nancy O'Brien – Western U.S./Western Canada/Asia Pacific,
+1 (530) 241-3534
Joe Rosone – Mid-Atlantic U.S./Southeast U.S./Caribbean/Brazil,
+1 (301) 693-4687
Diana Scogna – Europe/Middle East, +33 6 62 52 25 47
Victoria Tod – Northeastern U.S./Eastern Canada/Great Lakes U.S./
United Kingdom,
+1 (203) 733-4184
Yury Laskin – Russia, +7 05 912 1346
AUDIENCE DEVELOPMENT MANAGER – Nicole Bowman
MARKETING AND CLIENT SERVICES MANAGER – Lisa Valladares
SALES AND MARKETING COORDINATOR – Adam Brandwein
SOCIAL MEDIA MARKETING – Zach O'Brien
SALES ADMINISTRATOR – Cindy Nesline

DIRECTOR OF FINANCE & HUMAN RESOURCES – Michele Hubert
ACCOUNTS PAYABLE – Mary Avella
ACCOUNTS RECEIVABLE – Bobbie Bing

U.S. HEADQUARTERS
214 Franklin Ave., Midland Park, NJ 07432, +1 (201) 444-5075
Advertising Inquiries: +1 (201) 345-0085
adsales@ainonline.com
Circulation Inquiries: +1 (201) 345-0085
subscriptions@ainonline.com

WASHINGTON, D.C. EDITORIAL OFFICE:
Kerry Lynch (business aviation)
klynch@ainonline.com
Tel: +1 (703) 969-9195
EUROPEAN EDITORIAL OFFICE:
Charles Alcock
calcock@ainonline.com
Tel: +44 7799 907595

THE CONVENTION NEWS COMPANY, INC.
AIN PUBLICATIONS EXECUTIVE TEAM
Wilson Leach Jennifer Leach English Karl H. Elken
Matt Thurber Dave Leach
Michele Hubert Nancy O'Brien

Aviation International News (ISSN 0887-9877) is published thirteen times per year (monthly plus a special NBAA Convention News issue in November). Periodicals postage paid at Midland Park, N.J., and additional mailing offices. Postmaster: Send address changes to Aviation International News, P.O. Box 8059, Lowell, MA 01853 USA. Allow at least eight weeks for processing. Include old address as well as new, and an address label from a recent issue if possible. Subscription inquiries: +1 (201) 345-0085 or email: subscriptions@ainonline.com.

Aviation International News is a publication of The Convention News Co., Inc., 214 Franklin Ave., Midland Park, NJ 07432; Tel: +1 (201) 444-5075. Copyright © 2021 All rights reserved. Reproduction in whole or in part without permission of The Convention News Co., Inc. is strictly prohibited. The Convention News Co., Inc. publishes Aviation International News, AINAlerts, AIN Air Transport Perspective, AINtv, Business Jet Traveler, BJTwaypoints, ABACE Convention News, Dubai Airshow News, EBACE Convention News, Farnborough Airshow News, FutureFlight.aero, HAI Convention News, LABACE Convention News, MEBA Convention News, NBAA Convention News, Paris Airshow News, Singapore Airshow News, Mobile Apps: Aviation International News; AINonline. PUBLICATION MAIL AGREEMENT NO. 40649046 RETURN UNDELIVERABLE CANADIAN ADDRESSES TO: PITNEY BOWES INTERNATIONAL MAIL, STATION A, P.O. BOX 54, WINDSOR, ON, N9A 6J5, returns il@mex.pb.com.



For feedback, letters to the editor, or other editorial needs, please contact AIN's Editors at AINedit@ainonline.com



THE GULFSTREAM DIFFERENCE

Your mission is our inspiration. Every investment we make—in advanced technology, precision manufacturing and worldwide customer support—is an investment in you.



GulfstreamTM

A General Dynamics Company

As We Go To Press

WINGX: BIZJET FLIGHTS SURGE IN JUNE, TOPPING 2019

Business jet activity resurged globally in the first half of June, surpassing pre-Covid levels and outpacing cargo growth for the first time, according to data from WingX. The business jet sector logged more than 100,000 movements in the first half of the month, representing 15 percent of all fixed-wing movements and exceeding June 2019 first-half numbers by 12 percent. Year-to-date global business jet and business turboprop activity is within 6 percent of 2019 totals and is up 41 percent from a year ago. Business aviation activity is down 15 percent in Europe and 7 percent in North America. However, activity is ahead elsewhere: up by 10 percent in Asia, 45 percent in Africa, 80 percent in South America, and 23 percent in the Middle East.

MILLION AIR KHPN SUES OVER SECOND HANGAR DELAY

Million Air is suing Westchester County for \$30 million for refusing to allow construction of its planned second hangar at Westchester County Airport (KHPN) in White Plains, New York. According to Million Air's lawsuit filed in federal court, the replacement hangar is permitted under its lease and the company thus asserts the county is breaching contract obligations by denying approval. The FBO alleged the county has already delayed the project by 3.5 years and each additional week of delay adds approximately \$175,000 "in lost revenue and other unnecessary costs." Million Air is asking the court for an "expedited declaration" that the county breached its lease by "unreasonably failing" to approve Million Air's second hangar adjacent to its current hangar and FBO terminal. Westchester County did not respond to AIN's inquiries seeking comment about the lawsuit.

NBAA MOVES AHEAD WITH IN-PERSON EVENT PLANS

As NBAA moves forward with its effort to bring back the in-person BACE in October in Las Vegas, the association also remains in the throes of planning a nearly full lineup of in-person events in 2022, beginning with its annual Schedulers & Dispatchers Conference (SDC2022) from January 18 to 21 in San Diego. Other NBAA events scheduled thus far in 2022 include its annual Leadership Conference from February 7 to 9 in Fort Worth, Texas; International Operators Conference from March 14 to 16 in Los Angeles; Maintenance Conference from March 3 to 5 in San Antonio, Texas; and EBACE from May 23 to 25 in Geneva. Absent from the lineup at this time, however, is ABACE due to ongoing uncertainties and rolling restrictions surrounding the global pandemic.

CHICAGO JET, TRIMEC NEXTGEN UPGRADE STC'D FOR G200

Trimec Aviation has completed installation of the first NextGen ProLink FANS/CPDLC/LPV solution for the Gulfstream G200. Chicago Jet Group (CJG) developed the new STC and Trimec is its installation partner. CJG's NextGen ProLink upgrades the original Collins Pro Line 4 system. With Universal Avionics as the base avionics, NextGen ProLink offers CPDLC-DCL, CPDLC-Enroute, FANS 1/A+, and European ATN B1 (formerly Link 2000+). With the ProLink upgrade, operators also gain LPV approach and CPDLC push-to-load capability.

LIEBHERR, GM TO COLLABORATE ON HYDROGEN FUEL CELLS

General Motors (GM) and Liebherr-Aerospace will collaborate on a new hydrogen fuel cell technology for aircraft based on GM's Hydrotec technology. Teams from both companies will work together in a dedicated laboratory at Liebherr's facility in Toulouse, France, to produce a demonstrator unit that will incorporate GM's fuel cells, a Hydrotec power cube and fuel cell system, along with controls and models developed by the U.S.-based car maker.

FLEXJET, VIASAT ENTER CONNECTIVITY PARTNERSHIP

Viasat and Flexjet have entered a partnership in which the satcom provider's Ka-band in-flight connectivity (IFC) will be line fit on the fractional company's super-midsize Embraer Praetor 600 fleet. Flexjet's Global and G450 and G650 fleets also will be equipped with Viasat's Ku-band IFC service, enabling a path to transition to its Ka-band system in the future as that network is further built out. Because of the partnership, Viasat said Flexjet will be the first fractional operator to offer Ka-band IFC in the super-midsize jet category when it soon takes delivery of a Ka-band equipped Praetor 600.

MANNING TO CHAIR 2022 SPECIAL OLYMPICS AIRLIFT

Legendary quarterback Peyton Manning has signed on as the honorary chair of Textron Aviation's 2022 Special Olympics Airlift. In the role, he will be encouraging Citation, King Air, Premier, Beechjet, and Hawker owners and operators to participate in the airlift, which will transport thousands of athletes and coaches to the 2022 Special Olympics USA Games next June in Orlando, Florida. With this eighth Airlift, Textron Aviation aims to recruit more than 200 aircraft owners to help transport many of the 4,000 athletes and coaches. Inbound flights will be on Saturday, June 4, 2022, with return flights to athletes' home states on Sunday, June 12, 2022.

Hansueli Loosli takes over as chairman of Pilatus

by Kerry Lynch

Pilatus Aircraft has formally elected Hansueli Loosli to replace Oscar Schwenk as chairman. Schwenk announced Loosli as his successor in April when he revealed plans to relinquish the position, which he'd held for 15 years.



Hansueli Loosli, Pilatus Aircraft chairman

Schwenk, who has been with Pilatus since 1978, previously held a variety of other roles with Pilatus, including CEO. Pilatus credited Schwenk for reshaping Pilatus, "turning the former company focused on subcontracting work into an aircraft manufacturing plant with a clear product strategy, namely, to build the world's best aircraft in its niche." This

included the successful introductions of the PC-12 turboprop single, PC-21 military trainer, and PC-24 light jet.

Schwenk will continue to play a role in the company, supporting its strategic direction as honorary president. He also will continue as honorary chairman and chairman of the board of directors of subsidiary Pilatus Australia.

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.

In addition to formally electing Loosli, during the Pilatus Annual General Meeting, two new members were added to the board: Martin Furrer and Mario Rossi. Furrer is a member of the executive board and a partner of Baker & McKenzie Zurich, and Rossi has worked for Swisscom for more than 20 years, most recently as CFO.

Schwenk called Loosli an "extremely experienced chairman" and noted that Furrer and Rossi are well-known business leaders. "The know-how they bring with them makes them ideal additions," he said. ■

Production-conforming AW609 to fly soon

The fifth prototype in Leonardo's AW609 tiltrotor program is nearing final completion at the airframer's U.S. assembly facility in Philadelphia, and it is expected to achieve first flight in the third quarter. During a visit to the site last month by AIN, P5, the first production-conforming aircraft, was seen with its wing mated to the fuselage, while the sixth airframe—which is slated to be the first production aircraft, destined for launch customer Bristow—sat behind it awaiting wing attachment.

Though the construction of these two aircraft will be completed in one end of the AW119 assembly lines, future AW609

production will move to a nearby, recently acquired hangar. Meanwhile, the company expects its AW609 full-flight simulator and flight training device to receive FAA approvals later this year.

According to Bill Sunich, the airframer's head of tiltrotor marketing, Leonardo has not yet finalized a price tag for the AW609, telling AIN that he expects it will be somewhere between \$20 million and \$30 million. While Sunich declined to discuss order numbers, he noted "we have tremendous interest across all the mission sets—VIP and corporate, search and rescue, EMS, [and] offshore energy exploration around the world." C.E.



IAN WHELAN

FLEXJET

THE FIRST FRACTIONAL PROGRAM TO OFFER UNLIMITED HOURS

PURCHASE A SINGLE GULFSTREAM G650 SHARE AND ACCESS OUR ENTIRE FLEET



866.437.4243 | [FLEXJET.COM](https://flexjet.com)

YOU WON'T JUST BE FLOWN, YOU'LL BE MOVED.

© 2021 FLEXJET, LLC.



United Airlines says it will order at least 15 Boom Supersonic Overtures once the design meets its safety, operating, and sustainability requirements.

United Airlines lends weight to Boom Supersonic plans

by Gregory Polek

United Airlines said on June 3 that it has reached a so-called commercial agreement with Boom Supersonic to order 15 Overture supersonic jets “once Overture meets United’s demanding safety, operating, and sustainability requirements.” The agreement also specifies options on another 35 airplanes.

Boom plans to fly a demonstrator of its supersonic concept sometime this year as it looks toward a rollout of a full-scale example in 2025 and entry into service in 2029. Powered by three General Electric J85-15 turbojets, the composite-bodied XB-1 will fly up to Mach 2.2 ahead of the planned introduction of the 65- to 88-seat

Overture. Boom staged an online rollout ceremony for its one-third-scale XB-1 demonstrator last October and in March announced a “strategic investment” from American Express Ventures.

Boom says it plans to start building the Overture at a new, still unidentified factory location in 2022.

The design includes what Boom calls one of the highest-efficiency civil supersonic intakes ever tested. During the rollout, Boom CEO Blake Scholl explained the importance of the aircraft’s engine intakes, which act to slow the speed of the airflow to roughly half the speed of sound to accommodate the subsonic GE engines on the demonstrator. Boom has worked for the last five years with Rolls-Royce on the planned medium-bypass turbofans for the Overture.

Planning to fly the XB-1 on sustainable alternative fuels (SAF), Boom promotes the program as carbon-neutral. In 2019 the company formed a partnership with Prometheus Fuels for the supply of SAF.

Scholl noted that while safety and sustainability account for two of the three pillars of the program, speed lies at its core. If successful, the Overture will fly from Tokyo to Seattle in four and a half hours, New York to London in three and a half hours, and Montreal to Paris in four hours. ■

Robert Sumwalt retires from NTSB chairmanship

by Kerry Lynch

Robert Sumwalt, who stepped in as the 14th chairman of the National Transportation Safety Board (NTSB) on Aug. 10, 2017, and served as a Board member since August 2006, stepped down from his post at the end of June. Sumwalt was most recently reappointed to the position of chairman in August 2019 and 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 with him a deep background and knowledge of commercial and business aviation to the position. 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. He has amassed more than 14,000 flight hours and, while at US Airways, served on its Flight Operational Quality Assurance monitoring team.

During his time as chairman, Sumwalt brought a focus on business aviation professionalism, particularly in the wake of the Gulfstream IV crash in Bedford, Massachusetts, as well as made a push to elevate Part 135 standards to incorporate

elements that have been successful with commercial airlines. This included stressing the need for greater implementation of safety management systems and flight data monitoring.

Industry leaders lauded Sumwalt for his dedication to and advancement of aviation safety. “Chairman Sumwalt’s unwavering commitment and passion for safety has had a major impact on our organization, the Air Charter Safety Foundation,” said ACSF chair Bryan Burns. “His service has benefited us in countless ways, including being an advocate for improving safety in the Part 135 air charter industry.”

Burns praised his leadership as well as Sumwalt’s efforts to find ways to educate charter efforts on safety. “His vision was to take a page out of the airline industry safety record and align it with the charter industry, which I think was one of his most meaningful initiatives.”

Likewise, National Air Transportation Association (NATA) president and CEO Timothy Obitts praised Sumwalt’s dedication to safety involving aviation businesses. “NATA applauds NTSB Chairman Robert Sumwalt’s years of service and commitment to aviation safety, professionalism, and industry



Robert Sumwalt

standards,” Obitts said. “As our mission encompasses all aspects of aviation business safety, we appreciate Chairman Sumwalt’s vision for organization-wide and industry-wide approaches such as SMS and data monitoring as keys to continuous aviation safety improvement. A true champion of safety, Sumwalt has been a leader in raising the bar across all modes of transportation.”

The NTSB called Sumwalt “a fierce advocate” for all modes of transportation. At numerous events, including aviation-focused forums, he would campaign against the widespread use of cellphones, including hands-free, while driving. In the aviation community, he would remind everyone that the drive home from the airport is part of the safety continuum for pilots.

Sumwalt leaves a Board that also has a substantial background in transportation safety, including three other members—Tom Chapman, Michael Graham, and Bruce Landsberg—who have had past experience in business and general aviation safety. ■

News Briefs

Vref Sees Strong Market for Business Jet Sales

Sales of older and smaller business jets have seen a resurgence, according to aircraft appraisal and data tracking provider Vref. In its first-quarter market trend report, Vref noted that older jets with some refurbishments are still desirable entry points for first-time buyers, with aircraft such as the G550, G450/IV/IV-SP, Challenger 604, and Legacy 600 topping large-cabin business jets. Demand in the small to midsize segment is outstripping the supply, it added, with Cessna Citations, Challenger 300/350s, Phenoms, Learjet 40s and 60s, Beechjet 400s, and Eclipse 500/550s generating the most interest.

Pfizer Flight Dept Helped Get Vaccine to Market Sooner

Pfizer’s corporate flight department has been credited with helping to reduce by two weeks the time it took to bring the company’s Covid-19 vaccine to market, said v-p of corporate aviation John Witzig. Participating in the Flight Safety Foundation/NBAA Business Aviation Safety Seminar’s opening general session last month, Witzig detailed how the pandemic had shuttered his operations and the steps his department took not only to get up and running but to step up as the company was conducting trials for its Covid-19 vaccine. “As slow as our flying was for last year, the reality is that the value the flight department generated for the business probably exceeded the value of every trip we’ve ever done,” he said.

Attorney Bailey, Former Enstrom Owner, Dies

F. Lee Bailey, 87, the high-profile defense lawyer and aviator who also owned Enstrom Helicopter for nearly a decade, died June 3. Bailey and a group of investors acquired Enstrom in 1971. There, he hired a talented team of young executives and engineers to revive a piston helicopter design that dated to the 1950s. Under Bailey’s tenure, Enstrom launched the 280FX “Shark,” increased production to 100 helicopters per year, and began work on a four-seat piston design known as the 280L “Hawk” that was never completed and drove the company into financial distress. Bailey sold the company in 1979 and was subsequently involved in other aviation ventures.

Jet Edge Secures \$150M Funds

Investment firm KKR has provided a \$150 million credit facility for charter/management and brokerage firm Jet Edge. The funding will help Jet Edge roll out its new AdvantEdge charter management program, as well as digital technologies and strengthen its employment base. CEO Bill Papariella said the AdvantEdge program will further enhance the company’s efforts to expand nationally and add predictability to the ownership experience.

C O N T I N U O U S I N N O V A T I O N

IT'S IN OUR DNA



At **Honda Aircraft Company**, continuous innovation is fundamental to who we are and the spirit with which we were founded. It's the fulfillment of a dream and the transformation of a concept to reality, resulting in products which challenge expectations.

We are excited to announce the next iteration of HondaJet born from this philosophy, the **Elite S**. The new **Elite S** expands operational capability through increased payload range and enhanced technology. Coupled with bold new styling, the **Elite S** allows owners and operators to deploy HondaJet's class leading efficiency to new destinations.

HondaJet



2015

HondaJet
ELITE



2018

HondaJet
ELITE S



2021

Cockpit Seats
"Collapsed Position"
and "Vertical Adjustment"
for Pilot entry and
Exit

Bulkhead

Directional Aviation's Halo orders 200 Eve eVTOLs

by Charles Alcock

Halo, the new urban air mobility operation launched by business aviation group OneSky Flight, placed the largest order to date for new eVTOL aircraft. In 2026, the company intends to start taking delivery of 200 of Embraer's four-passenger Eve aircraft and will split this fleet between operations in the U.S. and the UK.

The new urban air mobility (UAM) operator will combine OneSky Flight helicopter operators Halo Aviation in the UK and U.S.-based Associated Aircraft Group (AAG). OneSky Flight is part of the Directional Aviation group, which also includes fractional ownership provider Flexjet, jet card service Sentient Jet, and on-demand charter operators PrivateFly and FxAir.

Prior to the delivery of the first Eve eVTOL, the new combined operation will provide flights with Halo Aviation's Leonardo AW109 and AW169 helicopters and

AAG's Sikorsky fleet. Customers of the other Directional Aviation services will be able to access the Halo flights, which are expected to begin in New York City and London. OneSky Flight's expansion is being led by Andrew Collins.

Halo has not disclosed the value of the deal agreed with Embraer or said whether the order is secured by a deposit. In a statement, the company said it had evaluated nearly a dozen other eVTOL aircraft before agreeing on the partnership with the Brazilian manufacturer. The Directional Aviation group is already an Embraer customer with several of its Phenom, Praetor, and Legacy business jets in its portfolio.

"Bringing together two companies, which are leading providers of vertical lift and urban mobility services in two of the most important markets, will create a phenomenal vertical mobility platform,"



Directional Aviation's Halo division plans to use Embraer Eve eVTOL aircraft for its urban air mobility service in the New York City and London areas.

commented Directional Aviation principal Kenn Ricci. "And in placing this order for a revolutionary breakthrough in urban air mobility, we are advancing toward safe, efficient, and sustainable travel between our cities. EVTOL urban air mobility is the greatest opportunity, and the greatest challenge, in my 40 years in aviation, and Eve is positioned to make it a reality."

Embraer formed Eve Urban Air Mobility as a breakaway subsidiary from its EmbraerX technology incubator. Last year, the company said it was looking to sign up strategic partners to help complete the development of its all-electric, lift-and-cruise eVTOL aircraft. Working with other Embraer subsidiaries, such as Atech, and partners including Airservices Australia and energy group EDP, Embraer is focusing on developing the wider UAM ecosystem including air traffic management and ground infrastructure.

The new aircraft is expected to have a range of up to around 60 miles. Embraer said it will be up to 80 percent quieter than current helicopters and with 50 percent lower operating costs.

"This partnership is an important step for Eve to assume its position as a global leader in the UAM industry," said Eve Urban Air Mobility president Andre Stein. "We are ready to build the future of mobility with our partners in an extremely collaborative way. Halo is aligned with our mission to create comprehensive urban air mobility solutions, and this order marks an important milestone for Eve in key markets."

OneSky Flight acquired UK helicopter operator Halo Aviation in May, having previously acquired AAG in February. In the U.S., commercial eVTOL aircraft operations are expected to be conducted under existing FAA Part 135 rules. In the UK, they will be regulated by the country's Civil Aviation Authority, which has yet to say whether the new aircraft category will be covered by existing rotorcraft rules. ■

News Briefs

Learjet Pilots Lose Jobs after Intentional Roll

The German Federal Bureau of Aircraft Accident Investigation (BFU) recently released a report detailing an instance where pilots were fired after flight data recorder (FDR) data revealed they performed an unauthorized roll of their air-ambulance-configured Learjet 31A. After about an hour into the flight from London Biggin Hill on a flight to Faro, Portugal, the pilot-in-command asked the copilot if he agreed to fly a roll. The copilot maintains that he did not agree to such a flight maneuver. But at about 11,500 feet, the BFU said the aircraft entered two steep turns with a bank angle of about 140 degrees each before the "PIC conducted the roll about the longitudinal axis of the airplane," leveling off 10 seconds later. The maneuver was discovered during a routine readout of FDR data and then reported to the operator, which then inspected the aircraft but found no damage.

Embraer Takes RJs to Semi-private Cabin Config

Embraer is developing an STC to offer an aftermarket "semi-private" cabin configuration for all ERJ-145 regional jets following growth in use of such aircraft. Under the conversion, the twinjets can be converted from the 50-seat configuration to "premium" seating for 16 to 28 with no more than one seat on each side of the aisle. The semi-private configuration also would include removing overhead bins, aimed at creating more personal space for passengers. Embraer-owned service centers would perform the conversions.

Group To Launch Ireland's First Vertiport

A consortium of companies and organizations have come together in an MoU to launch Ireland's first passenger and cargo vertiport at Shannon Airport. With goals of establishing Ireland's first air taxi service and routine beyond visual-line-of-sight (BVLOS) drone operations, the group, which expects to establish an operational vertiport in 2022 at the FMCI campus adjacent to the airport, plans to start BVLOS testing there as early as September.

USAF Acquiring Global 6000s for Battlefield Ops

The U.S. Air Force has awarded a \$464.8 million contract to Learjet Inc., a Wichita subsidiary of Bombardier's specialized aircraft division, for the purchase and modification of six Global 6000s as Battlefield Airborne Communications Node (BACN) aircraft. Designated as the E-11A and assigned to Air Combat Command, the modified large-cabin business jet model serves as a high-altitude, loitering communications node to air and ground forces, providing them with the ability to communicate by voice as well as share data, video, and images. Bombardier's Global Express served as an earlier version of the E-11A with four copies in the air.

Why Directional Aviation is betting big on urban air mobility

"We are great at doing six-hour flights in business jets, but now had to learn how to do six-minute flights in rotorcraft," Directional Aviation principal Kenn Ricci told **AIN** in explaining why the company purchased two helicopter operators—Associated Air Group (AAG) in the New York City area and Halo Aviation in London—in its quest to launch eVTOL urban air mobility service around 2025. "Operating helicopters now in the UAM environment gives us time on how to be proficient on very short flights."

Ricci also gave more background on why the company's Halo UAM subsidiary placed a large fleet order in June for eVTOLs from Embraer-affiliated Eve Urban Air Mobility. "Embraer not only knows how to certify an aircraft but also understands you need a production certificate to build in quantity," he said, noting that some

eVTOL startups are focused solely on aircraft approval and lack plans on how to obtain a production certificate.

"Embraer also has a firm handle on product support and, unlike some eVTOL manufacturers, doesn't plan on also operating the eVTOLs—they won't be our competitor." In addition, Eve will seek Brazil DGAC certification first and then get reciprocal FAA approval, bypassing the "dozen or so eVTOL OEMs that will be waiting in line for FAA certification."

"Eve is also a UAM machine," he added. Ricci said Halo is interested in a shorter-range aircraft such as Eve versus a longer-range "regional mobility" machine such as the Lilium Jet. Internal analysis at Directional also advised to stay away from tiltrotor designs because they are more complex, he noted.

According to Ricci, Halo will announce more details later this year about how and where it plans to conduct UAM operations. "The AAG Sikorsky fleet is pretty big, so we can deploy helicopters to other U.S. cities to expand our UAM ops. We're currently identifying the most attractive eVTOL markets before we move those assets," he said. "And we'll also announce our go-to-market strategy in the fall."

Ricci sees three distinct five-year phases for eVTOL UAM operations. Between 2025 and 2030, he envisions manned (meaning piloted) eVTOLs flying from landing pad to landing pad. In the following five years, operations will expand to "alternative pads" such as parking garage rooftops and some streets. After 2035, Ricci expects eVTOL operations to become autonomous, meaning no pilots on board. **C.T.**



GARMIN®

CITATION MODE:
ENGAGED

GFC™ 600 AVAILABLE NOW
FOR SELECT CITATION JETS

FULLY COUPLED
VERTICAL NAVIGATION*

INTEGRATION
WITH GARMIN NAVIGATORS
AND FLIGHT DISPLAYS

MODERN, PATENTED,
SMART BRUSHLESS SERVOS

*With compatible Garmin navigator and flight instruments or flight display (sold separately).
© 2021 Garmin Ltd. or its subsidiaries. All rights reserved.

AUX GEAR

PE firm KKR buying Atlantic for \$4.5 billion

by Curt Epstein

U.S.-based private equity company KKR announced that it is acquiring Atlantic Aviation, an FBO chain with 69 U.S. locations, from Macquarie Infrastructure Corporation (MIC) for nearly \$4.5 billion. The deal, which is expected to close in the fourth quarter, comes on the heels of the sale of Signature Aviation, the world's largest FBO chain, to private-equity firms Blackstone, GIP, and Cascade for \$4.7 billion.

MIC is selling its Atlantic Aviation business to KKR for \$4.475 billion in cash and assumed debt and reorganization obligations. Overall, MIC expects to receive \$3.525 billion at closing. MIC purchased Atlantic Aviation and its 10 FBOs in 2004 for a reported \$238 million.

MIC had initially placed Atlantic on the market some months ago, but those efforts were shelved amid the global Covid pandemic. One industry expert noted that in the absence of the pandemic, the Atlantic sale would have concluded



Atlantic Aviation's 69-location-strong network will be acquired by private equity firm KKR in a deal worth approximately \$4.5 billion. The purchase is expected to close in the fourth quarter.

long before the Signature Aviation deal transacted and that, in the end, MIC benefitted financially from the interest surrounding the Signature sale.

"We are proud of the robust growth Atlantic Aviation has achieved under our ownership, which resulted in strong

interest from prospective buyers during the sale process," said MIC CEO Christopher Frost. "We are pleased with the outcome of the sale process and the unlocking of additional value for MIC shareholders."

Atlantic Aviation CEO Lou Pepper told AIN that "KKR's focus on providing long-term capital combined with our existing platform for growth will allow Atlantic to expand into key areas and to meet our customers' needs now and into the future."

Signature Aviation under new ownership

Without any fanfare, the \$4.7 billion sale of Signature Aviation to a consortium of private equity firms was completed. The groups—Blackstone, Global Infrastructure Partners, and Cascade Investments—combined to establish a jointly-owned company and issued the successful bid, which was approved by Signature Aviation's shareholders in late March. The purchase was officially sanctioned by a UK court on May 27.

"Effective June 1, Blackstone, Global Infrastructure Partners, and Cascade assumed ownership of Signature Aviation, which is now a privately held company no longer publicly traded on the London Stock Exchange," Signature said in a statement released to AIN. "All three companies have unmatched experience successfully investing across the aviation, transportation, infrastructure,

and hospitality sectors. They are deeply committed to accelerating the growth of the Signature Aviation business while making a positive impact on our team, our customers, the environment, and the communities we serve."

In January, Global Infrastructure Partners issued an offer of \$4.6 billion to purchase Signature, which operates the world's largest FBO network with more than 200 locations globally. That prompted responses from Cascade, which handles the bulk of Microsoft co-founder Bill Gates's personal fortune and owned a nearly 20 percent stake in Signature, as well as from private equity group Blackstone Infrastructure Advisors and Blackstone Core Equity Management Associates, which had previously issued its own \$4 billion offer, to combine forces to buy Signature. **C.E.**



With the conclusion of its sale to a group of private investment firms, Signature Aviation is now under new ownership, a consortium of private equity groups.

News Briefs

Embraer Delivers 600th Phenom 300

Embraer delivered its 600th Phenom 300-series light twinjet in late May, with the milestone aircraft going to Superior Capital Holdings of Fayetteville, Arkansas. Superior previously operated a turboprop single and was looking to upgrade to an aircraft that would provide more cabin comfort, speed, and range. Since ANAC type certification in December 2009 followed by FAA and EASA certification in May 2010, Embraer has delivered the Phenom 300 and 300E to customers in more than 35 countries, with the fleet accumulating more than 1.2 million flight hours. The company delivered 50 Phenom 300/300Es last year and nine 300Es in the first quarter.

Reduced Flight Ops Affecting Pilot Proficiency

Reduced flight time resulting from Covid-19 is degrading professional pilots' performance, Paul Ransbury, CEO of training provider Aviation Performance Solutions, said during a virtual Bombardier Safety Standdown session. "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," he said. Meanwhile, Embry-Riddle Aeronautical University research into reports from the Aviation Safety Reporting System filed during this period found "items identified most readily with a proficiency-currency issue increased by 1,000 percent—a tenfold increase" in the aftermath of operations reductions, Ransbury said. He identified manual flight control skills as those most affected.

Aviation Industry Cheers New SAF Tax Credit Plan

A broad-based consortium of aviation companies and organizations applauded the introduction of the Sustainable Skies Act in the U.S. House of Representatives. The proposed legislation would establish a \$1.50-per-gallon "blender's tax credit" for sustainable aviation fuel (SAF) that achieves at least a 50 percent reduction in lifecycle greenhouse gas emissions compared to conventional jet fuel. In addition, the fuels would receive another one-cent-per-gallon credit for each percentage point in reduction above 50 percent. Thus, a 100 percent reduction would receive a \$2-per-gallon credit. Under the measure, the tax credits would be in effect until 2030.

Pratt & Whitney Reaches PT6E Century Mark

Pratt & Whitney has turned out its 100th PT6E-series turboprop engine from its Lethbridge PT6 Center of Excellence in Alberta, Canada. Pilatus Aircraft was the launch customer for the engine, which powers its PC-12 NGX turboprop. The PT6E features a dual-channel integrated electronic propeller-and engine-control system that provides full digital envelope protection, precise engine control, reduced pilot workload, and optimized power.

NEWS note

The National Aeronautic Association is bestowing one of its highest recognitions, the 2020 Robert J. Collier Trophy, upon Garmin for Autoland. The first certified system of its kind, Autoland was selected over a competitive field of nominees that also included the Bell V-280 Valor and SpaceX Falcon 9 and Dragon 2, among others.

NAA annually presents the Collier Trophy in recognition of "the greatest achievement in aeronautics or astronautics in America, with respect to improving performance, efficiency, safety in air or space vehicles, the value of which has been thoroughly demonstrated by actual use during the preceding year."

"The Garmin Autoland system marks a significant improvement in civil aviation," said NAA chairman Jim Albaugh. "Its ability to take over an airplane with a disabled pilot and land it safely will save many lives in the future. It's a remarkable technical achievement."

Autoland can activate automatically or with a press of a dedicated button in case of an emergency, such as pilot incapacitation. The system calculates a flight path to the most suitable airport and initiates a stabilized approach and lands the aircraft. Three aircraft were certified in 2020 with Garmin Autoland: the Piper M600 SLS, Daher TBM 940, and Cirrus Vision Jet. **K.L.**



Texas Gulf Coast Regional Airport

Angleton, TX (KLBX) | A Premier Avfuel Network FBO

Only 45 minutes from Houston, Texas Gulf Coast Regional Airport's full-service FBO is available to accommodate your arrival seven days a week. Whether stopping for a quick turn or staying overnight, operators save with competitive fuel pricing and the absence of landing fees, while travelers enjoy first-class service and complimentary refreshments. Learn more at FlyLBX.org and make your reservation at FlightBridge.com/Go/TexasGulfCoast.

- 7,000' Runway
- After-Hours Service
- GPU Available
- Transient Hangar Space | Door Measures 100' x 28'
- FAR 139 Certificated ARFF Index A Reliever Airport
- Executive Conference Rooms with A/V Capabilities
- Business Center
- Crew & Rental Cars
- Café on Site

Avfuel Contract Fuel and AVTRIP Available | Avfuel Training System (ATS) Certified

Powering your flight with more than just fuel. Learn more at avfuel.com.





Honda Aircraft's new Elite S adds 200 pounds to mtow and 120 nm more range, along with new avionics features and paint options.

Honda Aircraft unveils upgraded HondaJet Elite S

by Matt Thurber

In a virtual launch ceremony on May 26, Honda Aircraft president and CEO Michimasa Fujino revealed features of the new HondaJet Elite S, including an increase in maximum takeoff weight (mtow), flight deck improvements, a nosewheel steering enhancement, and new paint colors. The Elite S became available in June and has a base price of \$5.4 million, up from the Elite's original base price of \$5.25 million when it was introduced in 2018.

The Elite S mtow is 200 pounds heavier, which allows carriage of an extra passenger or flying an additional 120 nm with one pilot and five passengers. The additional mtow capability is the result of "various analyses, ground and flight tests, as well as additional certification requirement tests to prove the aircraft and its structural capabilities," according to Honda Aircraft.

On the flight deck, new features include a Com 3 datalink radio and FAA Data Comm and aircraft communications, addressing, and reporting system (ACARS) capabilities added to the Garmin G3000 avionics suite. Data Comm allows pilots to use text-style messaging via the G3000 touchscreen controllers for departure clearances and en route services where available in the U.S. ACARS is for receipt of terminal information and weather, including departure clearances from supported airports, as well as communications with operations centers for flight plan uploading, messaging, weather, and automatic position reporting and out/off/on/in status. The Com 3 radio can also be used as a VHF radio by disabling its datalink.

These features, said Fujino, are "all to reduce pilot workload and enhance safety and efficiency."

A new nosewheel advanced steering augmentation system (ASAS) "helps reduce pilot workload during landing, expands operational limits, and enhances safety for missions in specific weather conditions,"

according to Honda Aircraft. ASAS embodies new control logic in the nosewheel steering to assist the pilot during landing rollout. This is done by detecting the yaw rate of the HondaJet and "providing directional assistance to the nosewheel steering," according to the company, "to increase stability...to help maintain runway centerline during rollout. This reduces pilot workload during the landing rollout and provides an additional level of safety during the landing."

There currently is no upgrade package to bring HondaJet Elite models to the

Elite S configuration, but the company is seeking customer input on the desirability of such an option.

Three new paint schemes are available with the Elite S: gunmetal, luxe gold, and deep sea blue. The Elite S shown during the virtual unveiling sported a high-tech camouflage-style scheme, what Fujino said is a "unique paint scheme representing the spirit of Honda Aircraft Company as we continue our research and development of leading-edge technology and expand the horizon of the business jet."

Introducing the new model, he said, "We are firm believers that you should never stand still and [we are] always seeking to push the limits and evolve our design. This philosophy of continuous improvement led to the introduction of the HondaJet Elite and now the Elite S, the next iteration of HondaJet to expand operational capability." ■

Aviation Alliance highlights emerging tech

As emerging technologies and sustainability continue to capture the attention of the aviation industry and government leaders, the Alliance for Aviation Across America is rolling out a new microsite and held a panel discussion on June 10 to raise awareness of the importance that such developments play within local communities and the need for collaboration across federal, state, and local levels.

The website provides key figures that can be used to educate decision-makers, highlights sustainable efforts underway, and details policy and legislative initiatives. Future plans call for adding pages that will detail state initiatives.

Noting the "great hit" that general aviation has taken throughout the Covid-19 pandemic, Alliance executive director Selena Shilad said, "When we look toward the future, it is not only about recovery but it is also about growth. What many people don't realize is that general aviation and business aviation are making significant investments in sustainability and emerging technologies. What many

also don't realize is how these investments are going to benefit local communities and how federal investments and local support are so critical at this time."

Barbara Tolbert, mayor of Arlington, Washington, told **AIN** her local airport, Arlington Municipal, "is a key part of the economic engine for the region" and stressed that it underscored its value not only during the pandemic but also the 2014 Oso mudslide that devastated part of the region.

Tolbert, who is a pilot, said in the aftermath of the mudslide city officials contemplated how to rebound and looked to the airport to boost the economy and decided to build an industrial center that attracted "clean-tech" industries. The city is already seeing the fruits of that effort with Eviation, developer of the nine-seat electric Alice aircraft, moving there as well as the area being in the final running for another company looking to produce a zero-emission electric hydrogen aircraft. "We're making headway—sooner than I thought on that front," she said. **K.L.**

News Briefs

Vicki Britt To Head Gulfstream's R&D, New Products

Gulfstream Aerospace has promoted long-time company executive Vicki Britt to senior v-p of innovation, engineering, and flight. In her new role, Britt is a member of the Gulfstream leadership team, reporting to president Mark Burns, and has responsibility for research and development; new aircraft program initiation; engineering and product development; flight, lab, and structural testing; and worldwide Gulfstream flight operations. Britt brings more than 30 years of aerospace experience, including the last 25 with Gulfstream in areas such as stress, fatigue, and damage tolerance; new product development; and airframe engineering.

MSB Unveils Zero Gravity Side Ledge Table

MSB Design has launched its Zero Gravity two-place side ledge table lift system that, when deployed with its four-place hi-lo conference table, can create a six-place setting for onboard dining and meetings. When installed with MSB's hi-low system, tables can be used independently or combined with a single control button into a table for six. Three years in development, the Zero Gravity system weighs less, is quieter, and has less shock impact during deployment and stowage. The table surface can be finished with either a traditional wood veneer or carbon-fiber material. Montreal-based MSB expects the Zero Gravity table, which is currently in the qualification process, to be available through Gulfstream by year-end.

Luxaviation To Operate eVTOL Flights for Lilium

Lilium is partnering with Luxaviation to provide commercial operations with its seven-seat eVTOL in Europe from 2024. Luxaviation will take responsibility for securing necessary regulatory approvals and managing pilots, who will train following an EASA-approved type rating concept developed by Lilium partner Lufthansa Aviation Training. The German startup said that it chose the Luxembourg-based group because of its extensive experience in operating business jets and helicopters. On a single charge, the all-electric Lilium Jet will have a projected range of 155 miles and fly at speeds of 175 mph.

Astronics Secures STCs for Enhanced Vision on EC130s

Astronics has been granted STC approval from the FAA, EASA, and Transport Canada Civil Aviation for the installation of its Max-Viz 1200 and 1400 enhanced vision systems on the Airbus EC130B4 and -T2. The electronics specialist worked with Avio Canada in Calgary, Canada, to secure the STCs. EuroTec Canada performed the initial installation of the Max-Viz 1400 using the STC. Incorporating an uncooled thermal camera, the systems will display images on any flight deck display that accepts NTSC or PAL/Analog RS-170 video signals.



ATLANTIC

ENJOY YOUR DOWNTIME

WE'LL HANDLE THE REST

As soon as you land on an Atlantic ramp, you can rest assured that
YOU, YOUR PASSENGERS, & YOUR AIRCRAFT will be taken care of.

www.atlanticaviation.com

Mansour OjjeH remembered

by Wilson S. Leach

Mansour OjjeH, who died June 6, had a big impact on everyone who knew him, either personally or in his role as TAG Aviation's founder and president of TAG Group. I'm honored to say I knew him—both through

business and as a friend—for 44 years.

I first met him, along with his brother and business partner, Aziz, in 1977 in Montreal at the rollout of the original Challenger 600, for which they'd placed a large

launch order. Mansour and Aziz, who had been attending college in California and also taking flying lessons, immediately impressed me as articulate young men who were on a mission.

The OjjeH family was already familiar with business aviation, having owned numerous business aircraft. Mansour's father, Akram, had just formed the original TAG company, Techniques d'Avant Garde.

Upon Akram's death in 1991, Mansour became president of the family enterprises. He acquired California-based Aviation Methods and Switzerland-based Aero Leasing and merged his businesses into Geneva-headquartered TAG Aviation, which grew into one of the industry's premier charter, management, and MRO operations, with world-class FBOs in Geneva and London/Farnborough, a Dassault service center, and a significant Asian footprint.

Mansour oversaw all of this expansion. Commanding and impeccably dressed, he was also down to earth. And he consistently put his employees' well-being ahead of any financial decisions. I'll never forget arriving at EBACE early one morning and seeing billionaire Mansour standing proudly in front of his stand, ready to greet customers and friends from around the world.

I also have fond memories of EBACE dinner parties at Mansour's magnificent Lake Geneva home, which featured excellent food and wine and a guest list limited to about a dozen industry friends. And I vividly remember a white-linen Mansour dinner held right on the production floor at the McLaren Group headquarters in Woking, England. We all know Mansour from his aviation exploits, but he also loved Formula One racing and valued his ownership stake in McLaren.

Another Mansour legacy is the Aviator Hotel in Farnborough. What was originally supposed to be simply a place to house pilots turned into south London's only five-star hotel. But perhaps Mansour's biggest aviation legacy is the spectacular TAG Farnborough, which always rates number one in AIN's international FBO Survey.

Though Mansour underwent a double lung transplant in 2013, he retained enough strength to continue a basically normal lifestyle for another seven years. Nonetheless, a few years ago, he started selling off aviation assets, including the MRO facility (to Dassault Aviation), the Geneva FBO (to Signature), and the Farnborough FBO (to Macquarie). Steven Young, TAG Asia's majority shareholder, purchased the charter management operations in Asia and Europe. Thus, TAG Aviation continues as a business enterprise, exactly as Mansour would have wanted it.

He was unique in how he conducted himself and dealt with people, and he exuded an infectious love of life. The world has lost a shining star in Mansour, who will be terribly missed by everyone who had the pleasure of knowing him. ■



Rethink How You Refuel

SAVE 37% ON AVERAGE. TRY IT FOR 3 MONTHS FREE.

For 10,000+ Part 91 aircraft, CAA membership means more savings, more freedom, and more control. We negotiate the best jet fuel prices from more than 270 preferred FBOs throughout the US and beyond. You even get to vote on which FBOs we include — and recommend your favorites.

Interested FBO?

- ★ Apply for free
- ★ No fees to belong
- ★ Keep 100% of fuel sales

[Sign up online.](#)



JOIN FOR FREE TODAY!

www.corpaa.us

CAA provides the lowest price on jet fuel offered to Part 91 aircraft at the CAA Preferred FBO.

FAA final pilot records rule applies to bizav ops

by Kerry Lynch

The FAA has released its final electronic Pilot Records Database (PRD) rule, scaling back some of the reporting requirements but—despite an outpouring of opposition—maintaining corporate flight departments in the applicability.

Issued a little more than a year after first proposed, the final rule requires air carriers, public operators, air tour operators, fractional owners, and corporate flight departments to enter “relevant” data on pilot employees into the PRD and calls on air carriers and entities such as fractional and air tour operators to access pilot records for hiring candidates. The rule provides a year for operators to load current pilot records into the database, two years for historical records back to 2015, and three years for all historical records. Hiring operators must begin reviewing records within six months. Records must remain in the database until a pilot dies or reaches age 99.

In recognition of NBAA’s concerns regarding the establishment of a definition of “corporate flight department,” the rule eliminates such a formal provision. But it essentially still does imply a definition in a footnote that states, “The FAA uses the term corporate flight departments to reference operators of two or more aircraft conducting operations in furtherance of or incidental to a business, solely pursuant to the general operating and flight rules in Part 91 or operating aircraft pursuant to a Letter of Deviation Authority issued under §125.3.” In addition, the rulemaking includes those parameters in the applicability section and added rotorcraft.

In the rulemaking, the agency acknowledged the hundreds of comments, including from most of the business and general aviation organizations, asking that corporate operators be excluded. In addition, others sought exclusion for public aircraft operations (primarily government). Organizations expressed concerns about the undue burden they said such requirements would pose and suggested that they offer limited value since the career path for corporate pilots doesn’t traditionally lead to airlines. Others were concerned about privacy and the expansive scope of the records requirement.

“Upon consideration, the FAA determined that in light of the information and data provided

by commenters, some requirements of the proposed rule were overly burdensome for certain types of operators,” the agency said, adding, “This rule reduces the reporting

burden for certain operators conducting operations without a Part 119 certificate, in that they are not required to report specific types of records unless and until requested. Such operators include public aircraft operations, air tour operations, and corporate flight departments.”

Specifically, corporate flight departments, air tour operators, and public operators will not be required to upload training,

disciplinary, and separation from employment records to the PRD unless and until requested by a hiring operator. But certain termination and disciplinary action records must be reported, the agency added.

“The FAA determined the most effective way to ensure review of a pilot’s records by a potential employer while reducing extraneous records loaded by the [affected

› continues on page 19

Ready to train

with the best technologies and tools, unmatched instructor expertise, full-career-lifecycle pilot training to the highest safety standards and a program built around your specific needs and goals

with the industry leader?

CAE is ready when you are.

Explore more reasons for working with the team that works with you — at cae.com/business-aviation

Your worldwide training partner of choice



Let the flyer beware

by Stuart “Kipp” Lau

Recent accidents highlight a disturbing number of unqualified business aircraft operators. Billionaires and sports stars killed in private aircraft accidents get the headlines, but others are just as vulnerable. Rarely do the accident reports say the operator and flight crew did everything right. Rather, many reports offer statements that point to the organizational failures of a bad aircraft operator.

For example, the NTSB categorized the November 2015 crash of a Hawker 700 that killed nine people in Akron, Ohio, as “a disturbing accident after an unstable approach that raises serious questions about an operator’s procedures and culture.”

In the opening remarks of a public hearing on this accident, then NTSB chairman Christopher Hart said, “A traveler boards an on-demand charter flight with the assumption that these government and company protections are in effect. However, in the accident...we found a flight crew, a company, and FAA inspectors who fell short of their [safety] obligations.”

Hart went on to note that the company’s “casual attitude towards compliance and standards illustrates a disregard for operational safety, an attitude that likely led its pilots to believe that strict adherence to SOPs was not required.”

Hart later added, “These companies must either improve their practices or close their doors. All companies have a responsibility to follow the regulations and actively manage safety in all facets of their operations.”

In aviation, there is a well-used playbook to carry out safe flight operations; the NTSB and industry leaders have long recognized the effectiveness of these modern safety systems and now encourage the adoption of safety management systems (SMS), flight data monitoring (FDM) programs, and other proactive safety programs.

NTSB “Most Wanted”

Both SMS and FDM are recommendations on the 2021/22 NTSB “Most Wanted” list (MWL) of transportation safety improvements.

The NTSB called for the FAA to require and verify the effectiveness of SMS in all revenue-passenger-carrying aviation operations. This recommendation recognizes that an established SMS creates a culture aimed at making safety a top priority and reducing the risk of accidents.

According to the NTSB, to be effective an SMS must address safety policy, safety risk management, safety assurance, and safety promotion. NTSB board member Michael Graham says, “SMS is not a book on the shelf. It is a management system that brings safety-conscious behavior to the forefront of an organization. It starts at the highest levels and permeates throughout to all employees.”

Since 2015, the FAA has required commercial airlines to develop and implement an SMS to improve safety for the traveling public, yet it is not required for other revenue-passenger-carrying operations, such as charter flights.

According to the Air Charter Safety Foundation (ACSF), of the 1,900 charter operators in the U.S., only 20 or one percent have been accepted into the FAA’s voluntary SMS program. Another 213 have applied, but once approved, they will still represent no more than about 10 percent of all charter companies.



A photo from the NTSB report on the AW139 that crashed in July 2019 in the Bahamas.

The installation of flight data recorders (FDR) and establishing FDM programs also made the 2021/22 NTSB MWL. FDRs are extremely helpful to investigators trying to piece together what happened during a crash. In the past, it was considered cost-prohibitive or technologically infeasible to install FDRs on older aircraft; these challenges have been overcome with the advent of lightweight recorders, which record flight parameters, video, or voice.

The NTSB believes that all charter and tour operators should not only install FDRs but also employ an FDM program. “Not learning from the past is a brutally expensive and dangerous way to run a flight operation,” said NTSB vice chairman Bruce Landsberg. “Through the analysis of past flights, flight data monitoring can catch errors before they have a chance to lead to accidents.”

Charter Safety

Beyond the NTSB, other industry leaders, such as Air Charter Safety Foundation (ACSF) president Bryan Burns, are keenly interested in advancing air safety. Burns says his organization recommends “taking a holistic approach to safety, which includes a multi-layered approach.” According to Burns, the foundation of this approach to safe operations and controlling risk is an effective SMS that is routinely evaluated through an accredited aviation audit. These third-party audits

can identify gaps or weaknesses within an organization’s safety enterprise.

As mentioned, an SMS is more than a “book on a shelf”; it is a living and breathing part of any safety system. The safety risk management and safety assurance elements of an SMS are fed with data. Data sources include employee hazard reports, supported through a Just Culture, and other safety programs such as FDM and the Aviation Safety Action Program (ASAP).

A Just Culture provides an atmosphere in which all staff are encouraged to provide—and feel comfortable providing—safety-related information. According to Burns, “ASAP is a system that encourages aviation staff to voluntarily report safety issues and events (without fear of

In February, the NTSB released the final report on the Sikorsky S-76 crash that killed Kobe Bryant, his daughter Gianna, and six others. In this crash, the pilot continued flight into IMC, became disoriented, lost control of the helicopter, and crashed.

Contributing to the accident, according to the NTSB, “was the pilot’s likely self-induced pressure and plan-continuation bias, which adversely affected his decision making.” The NTSB also determined that the operator’s inadequate review and oversight of its safety management process contributed to the crash.

In another report, a crash involved a Leonardo AW139 in the Bahamas. This flight, operated under Part 91, occurred in July 2019 and killed Chris Cline, a coal billionaire, and six others, including his daughter and two pilots. The focus of the investigation was the lack of oversight from the operator and a troubled training history for both the pilot in command (PIC) and the second in command (SIC), issues that might have been identified by an accredited third-party audit.

In this case, the Part 91 operation supported Cline and his family with three business jets, one floatplane, and the AW139. The final report noted that the helicopter had been operated independently of the fixed-wing aircraft and managed by the PIC of the accident flight. The SIC was a contract pilot. According to the fixed-wing chief pilot, he had few interactions with the helicopter operation.

The NTSB Human Factors Group report revealed troubling information about both pilots’ initial and recurrent training on the AW139. Instructor notes pointed to marginal training performance, a lack of understanding of key aircraft systems, and poor CRM skills.

The accident PIC was faulted for a “lack of skills and knowledge” during initial training in 2017 and recurrent training in 2018. During 2018 recurrent training, “progressive training/checking was halted and changed to traditional 61.58 [basic proficiency check] training due to the applicant not reaching the required proficiency and failed more items than required.”

Further, the SIC had training issues. Instructors noted problems with CRM, automation management, and situational awareness and said the pilot could be easily overwhelmed with ATC and weather. The SIC’s 2018 recurrent training was also reverted to 61.58 due to failures.

Business aircraft are complex machines that require a high level of organizational structure and formal programs to support safe operations. A common theme in these NTSB reports is a lack of operator commitment to create the organizational structure to provide adequate oversight and management of flight operations, training, standards, and compliance.

SMS and programs such as FDM provide greater safety but require additional resources and funds. Resource-limited companies are problematic, and as ACSF’s Burns said, “When operators go rogue, it is driven by cost.” ■

reprisal), and then captures and aggregates data in order to effectively report safety concerns.”

The ACSF’s organizational-based ASAP is a bright spot when it comes to Part 91/135 voluntary safety programs. It was originally designed for Part 135 charter operators and has now expanded to include several Part 91 operators. According to Burns, “the program is structured so ACSF, not the FAA or operator, shoulders 90 percent of the administrative burden.” Since its inception over six years ago, it has grown to include over 120 participants—and Part 91 operators now make up over half of the total.

The ACSF supports its members by providing education through training and access to safety programs, such as its ASAP program and free SMS tools. According to Burns, “When it comes to safety, there’s no finish line.” Establishing and maintaining across-the-board safety measures requires constant vigilance and improvement. As it happens, many of our members need a pathway to safety...a starting point and some guidance.”

Different Outcomes

Culling through NTSB reports—especially the “recommendations” section—provides a great opportunity to not only learn but also improve safety across the industry. SMS, FDM, and even safety audits are frequently mentioned in these reports.

› continued from page 17

Pilot records rule

operators] is to require that group to enter only records that may be of particular concern to a hiring employer.” This marks a scaling back from the original proposal, which sought details such as training and check-ride notes.

However, the FAA disagreed with the contention that these operators should be exempt, saying such a move “would not serve the FAA’s safety mission; overall, this final rule requires an appropriate level of engagement from certain Part 91 operators.” The agency further noted that single-aircraft operations are not included.

As for the contention that such requirements would be of little benefit to corporate operations, the FAA said that the rule isn’t designed for the benefit of one operator type over another but for overall safety. “This rule responds to a statutory requirement...As a result of this rule, operators will be better prepared to make informed hiring decisions to support aviation safety.”

Coming at the behest of Congress, the rulemaking was strongly pushed and supported by the Families of Continental Flight 3407, the organization of family members and friends of the victims of the Feb. 12, 2009, Colgan Air crash.

“It has been a long journey for the families of Colgan Flight 3407, but their tireless advocacy and continued engagement with the FAA has made this database a reality. With it, employers will be able to quickly and thoroughly make informed hiring decisions to keep our skies safe,” said FAA Administrator Steve Dickson.

Despite the expanded applicability, business and general aviation organizations welcomed changes that they said exempt most of business aviation from “onerous” reporting requirements.

NBAA said the hundreds of comments from the business aviation community proved critical to some of the key changes in the rule, such as the exemption for corporate flight departments, air tour operators, and public operators from certain of the training, disciplinary, and separation-from-employment reporting requirements.

NBAA also praised the elimination of the single “corporate flight department” definition. As proposed, the association “would sidestep the reality that business aviation is a diverse industry, made up of a variety of operational types, possibly ushering in a host of

unintended consequences for the sector.”

“This final rule reflects a more risk-based approach to safety and demonstrates that our community effectively made its voice heard during the rulemaking process,” said NBAA president and CEO Ed Bolen. “The business aviation community stands for safety, and working together, we have determined the best way to address the agency’s aims, without introducing needless reporting requirements

that do not have a clear safety benefit.”

The Aircraft Owners and Pilots Association, which had joined NBAA in expressing strong reservations about the rule, also was encouraged by some of the incorporated changes to the rule. “While AOPA continues to review the final rule, we are pleased to see the FAA has addressed some of our concerns [regarding] the proposed rule,” said Christopher Cooper, senior director of

regulatory affairs. He noted that the final rule establishes a process to resolve errors in a pilot’s record and reduces the reporting burden for small and sole-practitioner Part 91 operators, such as air tour and corporate flight operations.

“Compared to the proposed rule, both changes provide increased flexibility and transparency, while also ensuring safety and accurate pilot records,” Cooper added. ■



www.amacaerospace.com

THE PERFECT PLACE FOR BUSINESS AIRCRAFT

AMAC AEROSPACE

Aerospace suppliers in for uneven recovery

by Gregory Polek

One would be hard-pressed to overstate the effects of the Covid pandemic on the aerospace industry, but the level of impact has varied considerably between sectors and among individual suppliers. For example, as a general rule, larger companies fared better than smaller ones. Those that controlled enough resources to absorb 30 percent declines in revenues through spending cuts on employees, for example, likely can look forward to a fairly strong recovery. For others—mainly the so-called Tier 2 and Tier 3 suppliers—the immediate future might look less encouraging, particularly for those that depended on soon-to-expire government support to stay afloat.

Another divide resides between companies involved heavily in military activity and those whose business depends more on civil programs. Throughout the pandemic, governments generally did not reduce defense spending, meaning suppliers whose product portfolios tilted toward military equipment fared comparatively well. A few even saw single-digit revenue growth last year, while the pandemic decimated the finances of those more dependent on airliner sales and support.

Among the major Tier 1 suppliers, Raytheon subsidiary Collins Aerospace falls into the category of those whose business volumes lean more toward the commercial side, which accounts for some 64 percent of its sales. The U.S.-based aircraft systems supplier maintains a particularly strong position on the Boeing Max airliner, for example, and enjoys a presence on virtually all the Boeing and Airbus commercial programs. Its comparative lack of exposure to defense, however, hurt its financial performance last year, when it saw a 26 percent decline in revenues compared with 2019.

But just as companies with a heavy presence on the military side have enjoyed something of a hedge from the ravages of Covid, future prospects within commercial aviation might vary with their exposure to different categories of that sector. As the airline industry begins to emerge from the pandemic, most analysts agree that domestic and regional flying will return faster and see a stronger recovery than international flying. That will translate into a stronger market for narrowbodies than widebodies, thereby favoring companies with positions more heavily weighted toward programs such as the 737 Max and Airbus A320neo.

Speaking with **AIN** from his offices in Washington, D.C., Jay Carmel, head of the



Workers at Collins Aerospace's plant in Winston-Salem, North Carolina, assemble Super Diamond business class seats used in the Boeing 777 and 787 and the Airbus A350 and A330. Collins also enjoys strong positions in narrowbody programs such as the 737 Max, giving it the diversification it needs to emerge effectively from the pandemic.

aviation practice at global consulting firm Avascent, noted that no company escaped Covid without experiencing financial pain. But, similar to the divide that has developed between the narrowbody versus widebody segments, companies that depend heavily on airline maintenance and aftermarket parts supply suffered from the severe decline in the need for those services during the pandemic.

Nonetheless, as traffic continues to build from the Covid recovery, those companies should see a corresponding increase in the need for maintenance services and parts. "Maintenance suppliers, especially those providing a lot of spare parts and repair services for things like APUs or other sorts of mechanical systems that have a little bit higher tendency to break...will have a shot of kind of clawing back that type of business sooner," explained Carmel. "When you look at the flip side...anything that's widebody-related is in for a tough haul ahead just because we don't expect international travel to get back anytime soon. And, therefore, if you look at how much production of widebodies was going on before Covid, it was already starting to overheat."

In fact, Avascent doesn't expect widebody production to return to 2019 levels until after 2030. "So that can really make or break a lot of these suppliers," said Carmel, who works closely with the Aerospace Industries Association on trend analysis. "Some of them have major exposure on those big programs and will be in

for, potentially, a tougher haul. So you can make some of these general statements about who's looking better or worse, but it really does boil down to who ended up with the right types of positions with the right types of systems."

Among all the main widebody types, Carmel expressed particular concern for suppliers with major positions on the Boeing 777X. Now not expected to reach the market until at least late 2023, three years behind its original schedule, the 777X since the pandemic lost about a third of its backlog due to accounting adjustments Boeing needed to make to reflect uncertainty over whether some of its marquee customers will take all their airplanes on order, according to a February 2021 filing by Boeing with the U.S. Securities and Exchange Commission.

"[The 777X] is a big, big concern for the supply chain," said Carmel. "I think it already was starting pre-Covid; it already was looking a little suspect because a big, big chunk of the order book was concentrated in some very shaky Middle East airline customers."

Emirates Airline, Etihad Airways, and Qatar Airways account for two-thirds of the gross orders for the 777X listed on Boeing's orders and deliveries website through April. "Those airlines aren't going to disappear, but they were certainly facing some serious financial challenges pre-Covid and, now especially, post-Covid, as a lot of other airlines are starting to compete more effectively against them," added Carmel.

Among specific categories of suppliers, further pessimism about widebodies has dampened the outlook, particularly for composite aerostructures makers, notwithstanding carbon fiber's growing prominence in the design of new and future airplanes. Because they require little or no MRO services, aerostructures generate little aftermarket revenue. Meanwhile, as production rates for airplanes such as the Boeing 787 and Airbus A350 remain depressed into the foreseeable future, composites suppliers will see similarly dampened demand for their materials.

Carmel noted that although major composites maker Hexcel's effort to merge with Woodward failed due to Covid-related considerations, the attempt illustrated the difficulties standalone aerostructures makers face. "Composites are going to be very essential moving forward for the industry, but it's a tricky business to be in," he said. "That merger was going to be interesting in that it tried to combine more of a mechanical systems company with a structures company and to see if you could find some vertical integration opportunities for next-generation aircraft. I think the logic made sense but it was also a bit of a play to offset some of those standalone risks you have as a composites player."

From the standpoint of the wider aerospace industry, offsetting the risk of bankruptcy by drastically cutting employee roles and research and development spending carries a risk of its own, namely the ability to quickly and effectively restore technology maturity efforts put on hold due to the pandemic.

"If you're shedding all this talent and you're shedding a lot of R&D investment, which a lot of these companies did...it's coming at no worse time because we're just looking at all these exciting new developments related to electric aircraft and hydrogen aircraft," explained Carmel, who further noted that European manufacturers, especially in France, enjoy far more direct government research and development support than do U.S. companies.

"The French government dedicated hundreds of millions of dollars to keeping their industry afloat by investing in R&D for next-generation aircraft," Carmel concluded. "And that wasn't really nearly to the same extent here in the U.S. And so that's going to be the big question. I think in the long run [the question] is how much will this Covid downturn and the negative impacts not only hurt the industry and the workforce today but also potentially hurt the [U.S.] industry's competitiveness 10 years from now, when we start seeing these new types of aircraft technologies coming in." ■

Generous state support boosts French supplier amid Covid

Like so many other aircraft and engine-component manufacturers, France's JPB Système was hit hard by the Covid pandemic. In April 2020, when it became obvious how production rates would be decimated as airline business models fell apart, CEO Damien Marc knew right away that his team would have to change course quickly.

But rather than shutting down the operation and furloughing staff, he saw an opportunity for the company to reinvent itself by upgrading its capability and product offering. With generous funding from the French government, the effort has led to plans for a new 430,000-sq-ft production and laboratory facility at Villaroche, near Paris, where JPB will expand its fully digitized production techniques for self-locking, safety-critical devices that attach components in engine assemblies.

The company expects the \$36 million facility to open during the third quarter of 2022. But JPB isn't waiting until then to introduce the latest 3D printing techniques to produce higher-performing components for engines made by manufacturers including Safran, Pratt & Whitney, CFM International, GE Aviation, and Rolls-Royce.

Starting with Pratt's Geared Turbofan program, JPB has automated many aspects of the manufacturing process, using robots to make and then inspect components. Now it wants to diversify beyond engine components to manufacture self-locking devices needed elsewhere in aircraft, such as smart washers, endoscopic caps, nuts, and rods.

By expanding its use of 3D printing techniques, JPB has been able to make lighter parts while also delivering more versatile locking mechanisms that do a better job of dissipating vibration. Self-locking devices avoid the need to use safety wire, which can be time-consuming to assemble and disassemble, making them suitable for use in hard-to-access areas of engines or aircraft.



JPB Système has automated many aspects of its manufacturing process.

Marc told **AIN** that the French government's France Relance (relaunch France) program has proved critical to helping the country's aerospace firms not only survive Covid but also give them a chance to compete more effectively in the longer term. "Our government has been very proactive

and its response was maybe one of the best in Europe," he commented. "It was rapid and massive, with support that started with paying 25 percent of our 2019 revenues to us upfront. The results of this approach will be measured over the next five or six years." **C.A.**

Top of civil aircraft food chain hungry for recovery

by Gregory Polek and Charles Alcock

At least within the civil aviation sector, no part of the aerospace food chain escaped a totally unforeseen body blow from the Covid 19 pandemic in 2020. Companies with revenue streams from the related defense and space sectors benefitted from some mitigation, but overall the experience proved epically grim.

Just as rising tides supposedly raise all ships, the reverse holds true when conditions change adversely in a way that arguably companies could not have anticipated. In the case of air transport, the premise that 'it all starts at the top' in this case meant that the sector's fortunes largely hinged on what was happening at the industry's two dominant players, Airbus and Boeing.

The combination of Covid-19 and the continued grounding of the 737 Max following the twin crashes in Indonesia and Ethiopia that claimed 346 lives made 2020 quite possibly the most difficult year in the history of Boeing. The first sign of relief came last December, when the FAA, EASA, and several other jurisdictions' civil aviation agencies re-certified the Max, ending a 20-month grounding that cost

the company perhaps incalculable dollars and credibility. Even this year, as Boeing slowly resumed delivering the airplanes to customers around the world, the Covid crisis continued to take its toll on its customers, many of whom deferred delivery of several airplane models, including the Max.



Boeing 737 Max jets undergo final assembly in Renton, Washington.

In a drastic departure from pre-grounding plans to raise the 737's peak rate of 57 a month to as many as 63, Boeing now sees 737 Max rates holding at 31 per month next year and proportionally rising with any increased market demand thereafter. Meanwhile, widebody production will remain suppressed as Dreamliner production fell from 10 to just five per month and 777 output fell from five to two. Of course, the company last July announced plans to end 747 production in 2022, in an unceremonious end to the iconic airliner's 50-year reign as "Queen of the Skies."

By the start of this year, even as Boeing

saw its first glimmers of recovery following the Max's return to service, the company continued to struggle with production issues that further stifled deliveries, first involving the 787 Dreamliner and then of the Max again.

Faulty body joins in Dreamliners led to four months of no 787 deliveries through February, and Boeing didn't resume shipments until late March.

Then, on April 8, Boeing advised 16 customers to temporarily ground 109 Max jets due to a new production problem involving cockpit electronics. Three weeks later the FAA issued an airworthiness directive calling for modification of the electrical bonding of certain metallic support panel assemblies installed in the flight deck. By mid-May operators began applying the fixes as described in a pair of service bulletins.

But even while Boeing saw deliveries suppressed by the production problems, it saw gradual improvements in orders and delivery figures as 2021 progressed and in May recorded its fourth consecutive month of positive net orders, which stood at 97 for the year at the end of the period. However, during the month it delivered just 17 airplanes, raising the total to 111 for the year, as 787 deliveries paused again due to an FAA request for more information on analysis and documentation associated with the body join problem.

» continues on page 22

› continues from page 21

Meanwhile, the electrical problems in the Max resulted in just 11 single-aisle deliveries, including a single P-8 Poseidon to the U.S. Navy.

For its part, Airbus started 2021 having to believe that things could only get better after the Covid-plagued annus horribilis of 2020. On January 8, the European airframer reported that airliner deliveries had fallen 34 percent from last year at just 566 units and considered itself fortunate to have ended 2020 with net orders for 268 airplanes. Taking account of 115 order cancellations, its backlog at that point stood at 7,184 aircraft.

A fortnight later, Airbus confirmed that overall production rates would “remain lower for longer.” Behind that headline, its plan called for A320 monthly output to gradually increase from 40 to 43 in the third quarter of 2021, and then to 45 in the fourth quarter, with A220 rates taking a baby step up from four to five. But with demand for long-haul travel still dented by the pandemic, Airbus postponed plans for a rate increase for the A350 widebody, holding it at just five per month, and at just two for the A330.



Airbus began assembling the first A321XLR in late May.

With the accountants’ assessment of 2020 concluded, February 18 brought Airbus’s full-year financial results, which showed a 29 percent decline in group-wide consolidated revenues to €49.9 billion (\$60.2 billion). Adjusted earnings, at €1.7 billion, barely reached a quarter of those recorded in 2019, and without relatively healthy performance in the defense and space sectors

circumstances would have been far worse.

In late April, Airbus announced plans to restructure its aerostructures assembly “value chain” by consolidating several different operations. In France, a new company will combine Airbus’s operations in Saint-Nazaire and Nantes with those of Stelia Aerospace. In Germany, another new venture will combine the work done by Stade and Structure Assembly in

Hamburg with Premium Aerotec in Nordenham, Bremen, and Augsburg.

In May, the company said that it has resumed work on a modernization of its A320/321 final assembly line in Toulouse. Later the same month, the Airbus plant in Hamburg started assembling the first of the new A321XLR extended range narrow-body, which is due to enter service in 2024.

By May 27, Airbus felt able to firm up some of the market projections made in February, by issuing new guidance to its suppliers on anticipated production rates. During the course of the month, it delivered 50 aircraft to 32 customers and logged new orders for seven airplanes.

With full recovery still projected at between 2023 and 2025, and led by demand for single-aisle aircraft, the company advised that it sees 64 A320s rolling off the assembly line in the second quarter of 2023, rising to 70 by the first quarter of 2024 and possibly 75 in 2025. It sees A220 output from its North American factories in Mirabel and Mobile climbing slowly to six in early 2022 and then to 14 by the middle of this decade. Output levels for the A350 could inch up to six by the fall of 2022, with the A330 still lagging at two per month for the foreseeable future. ■

U.S. Airlines poised for relief from Covid crisis

by Gregory Polek

While airlines around the world have suffered profound damage from the pandemic over the past 15 months, U.S. carriers largely see the middle of 2021 as an inflection point as vaccination rates gradually increase and a population beset by Covid fatigue pines for a break from social restrictions. For an industry that has undergone a permanent structural change following record financial losses, returning to some semblance of normalcy—at least in the leisure market—would mark the beginning of the end of the worst downturn it has ever endured.

While leisure markets have shown signs of recovery, particularly in the U.S., business travel remains severely depressed due to several factors, including international border restrictions and deep travel budget cuts by companies that have found teleconferencing an acceptable alternative to in-person meetings.



Frontier Airlines stood among the carriers whose low-cost model helped it to more effectively withstand the ravages of the pandemic.

“It was a deeper crisis than we expected, and a big part of that was the complete evaporation of corporate travel,” Airlines for America (A4A) vice president and chief economist John Heimlich told **AIN**. “Some of it is clearly the fiscal savings that some of these companies have enjoyed, but it’s also an issue of international business travel, including U.S.-Canada and transoceanic, being restricted. If you can go, oftentimes it’s a 14-day quarantine that’s required and so that’s a nonstarter.”

Above all, Heimlich called for “visibility” and a “clear path” out of the muddle of Covid travel rules between jurisdictions. In early May A4A called for a plan to reopen air travel between the U.S. and the UK through a protocol that could amount to a travel bubble similar to that established between Singapore and Hong Kong, for

example, by the start of the G7 Summit on June 11. Around the same time, the European Commission recommended easing restrictions on non-essential travel from outside the EU and allowing entry into the 27-member-state bloc for fully vaccinated foreign citizens and non-residents.

Downturn Lasting Longer than Expected

Heimlich also noted that the downturn has proved longer than originally anticipated. While A4A’s optimistic projection showed January 2021 as the first month in which the pandemic would not negatively affect revenues, it now appears its pessimistic projection of June 2022 will prove far more accurate, mainly due to the slow revival of business travel.

“It certainly hasn’t been quick, but we do expect to see some kind of tangible recovery of corporate travel after Labor Day [September 6],” said Heimlich in early May. “And that all comes down to vaccination rates...U.S. travel agency bookings have been down 85 to 90 percent for many, many months. And now we’re seeing something closer to down 75 percent. But I think we’ll start seeing a better pace of improvement in the fall.”

A4A’s projections for leisure travel look far more optimistic, particularly as the summer vacation season approaches. Robust demand to one market that actually saw an increase in bookings in April this year compared with two years ago—the U.S. Virgin Islands—suggests a positive outlook for beach destinations in Southern California and Florida in the summer, as ocean waters get warmer, said Heimlich.

Meanwhile, by the spring, travel between the U.S. and Latin America already had seen more substantial improvement. U.S.-Mexico traffic, in particular, by May had outperformed U.S. domestic traffic in terms of volume relative to pre-pandemic levels, according to A4A statistics.

Still, airlines that serve countries with large domestic markets fared better than those serving mainly international destinations. For example, Chinese domestic traffic has virtually recovered from the pandemic, while U.S. carriers have relied on recuperating

› continues on page 24



E2 PROFIT HUNTER. A force with nature

Ultra efficient high-aspect ratio wings, new engines and lightweight materials help to deliver a double-digit reduction in fuel consumption and the lowest level of CO2 emissions. Inside the cabin and outside, it's the quietest aircraft in its class, delivering a 65% reduction in noise levels around airports and the biggest margin to ICAO noise limits. The E2 Profit Hunter is a force with nature, not against it.

[E2sustainability.com](https://www.embraer.com/e2sustainability)
#ConnectToOurWorld



 **EMBRAER**

CHALLENGE.
CREATE.
OUTPERFORM.

› continues from page 22

domestic markets to help compensate for the paucity of cross-border traffic.

“We’re very fortunate that we have a large domestic market, so that’s one big difference,” said Heimlich in reference to the relative strength of U.S. airlines. “The Chinese carriers [also] benefit from a large domestic air travel market. To some extent that is true in Australia and New Zealand...[Another factor centered on] the different degrees and forms of government support...The Canadian carriers and airports had almost no support.”

Heimlich called the situation in Europe “somewhat uneven” due to the differences between government responses among various countries. “Those carriers had to park an inordinate number of airplanes and lay off an inordinate number of workers,” he said. “[The U.S. carriers] did not have to take such extreme measures. I think it also made it a little easier for us to access the capital markets.”

Globally, though, Heimlich conceded that the pandemic fundamentally and permanently changed the structure of the industry. He cited the retirements of

a major portion of the largest widebodies in international markets and a more pronounced reduction in twin-aisle jets compared with single-aisle types in domestic markets.

In the U.S., the new competitive environment has favored low-cost and ultra-low-cost carriers with a shift toward leisure travel and the downsizing of global network carriers, which before the pandemic competed more aggressively in those markets. Examples of new LCC entrants include Burbank, California-based Boeing 737 operator Avelo, which

started operations on April 28, and David Neeleman’s Breeze Airways, which started flying on May 27. Separately, Frontier Airlines and Sun Country Airlines both went public in March and continue to expand, noted Heimlich.

“I’m not necessarily saying the pandemic made that possible, but I do think it created more opportunities for those carriers,” he explained. “It freed up gates; it freed up markets to serve...The ultra-low-cost carriers will be the quickest to return to positive cash flow. And their low costs are better suited to the current low-fare environment.” ■

Aircraft lessors seek bulk as industry convalesces

by Cathy Buyck

The proposed \$30 billion merger of aircraft leasing giants Gecas and AerCap and the likely further consolidation of lessors in the wake of Covid-19 does not seem to worry airlines and aircraft manufacturers, at least not publicly.

“My first observation on the lessors is that they have remained very strong over the last year,” Airbus CEO Guillaume Faury told analysts during the company’s first-quarter earnings conference call. “They’ve been instrumental in enabling that industry to keep moving forward in a very, very challenging situation. It relies on the stability of the financial system. There’s no financial crisis, and that’s very important for us.” Faury acknowledged that Airbus considers the consolidation of some lessors important. “There are pros and cons in these situations. But overall, I would say, we’re fine with it,” he stressed.

Willie Walsh, director-general of the International Air Transport Association, also dismissed concerns about too much consolidation and the potential risk of anti-competitive behavior in the leasing sector. “It is still a pretty fragmented industry,” he said, speaking to media during a recent briefing on the impact of the pandemic on the global aviation industry. Even the combination of Gecas and Ireland’s AerCap—the largest aircraft lessors in the world by portfolio value, with a combined fleet of more than 2,000 airplanes and an additional 500 on order—does not represent a significant percentage of the supply from the lessors, he asserted.

“I think generally the leasing sector is competitive,” said Walsh. “There are lots of options out there for most if not all airlines. In fact, it would be fair to say that in many cases lessors have been part of the solution to the cash crisis that airlines

have faced through 2020 because you have seen a lot of sale and leaseback activity. And in most cases, these have been from my personal experience [as former CEO of International Airlines Group] at rates that I would have considered normal or near-normal. I have no concern about the leasing industry at this stage.”

According to Cirium data, the combined fleet resulting from the proposed AerCap-Gecas combination will account for about 16 percent of the global passenger jet leasing portfolio and 15 percent by value. With a lessee base of 266 airline customers, the combined entity would be providing aircraft to more than a quarter of the world’s airlines.

“The lessor market is not yet too concentrated and still fragmented compared to other industries,” noted David Yu, finance professor at New York University in Shanghai and chairman of

China Aviation Valuation Advisors, an aviation-focused valuation advisory firm in China and Asia. The top 10 aviation lessors control a market share of less than 40 percent while the concentration of the top 10 in other industries could reach 80 or even 90 percent.

Yu expects the aircraft leasing segment will see an increase in M&A activity, due in part to Covid. “Over the last 10 years, the top 10 lessors’ average and the minimum size by value to get on the list have increased significantly, and the pandemic will accelerate this trend,” he said, pointing to the need of most lessors to restructure their leases.

Lessors have supported cash-strapped airlines with rent concessions or short-term delivery deferrals. “One of the major reasons for that is that their banks have been very supportive of them,” Yu explained. “It is not about niceness; it is all about business...Who were they going to remarket the mortgaged aircraft to?” Hence, he added, lessors and banks have shown reluctance to initiate aircraft repossessions. “But there is a critical point,” he said, warning that a lot of portfolio restructuring deals have begun and banks have started to

pull aircraft from delinquent operators. “It is starting, not with a big boom but a progression.”

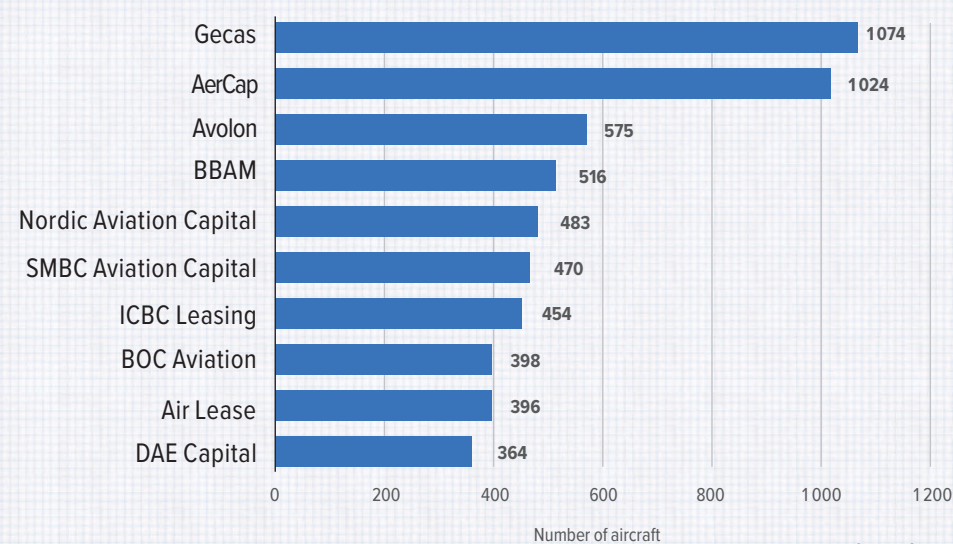
Alton Aviation Consultancy identified more than 900 passenger aircraft operated last year by “high risk” airlines—defined as operators carrying liquidity of two months or less and no government ownership. They acquired the majority of the 900 airplanes, most less than 10 years old, via lease. “Lessors have supported struggling airlines with concessions; now some need a structured plan to weather the crisis themselves,” the Alton consultants remarked. They expect to see increased portfolio consolidation, with well-capitalized lessors acquiring assets or full portfolios from smaller players and investors that are looking to rationalize their holdings or forced to sell.

SMBC Aviation Capital chief executive Peter Barrett recently indicated that the company, one of the world’s largest lessors with 496 owned or managed aircraft, would likely receive offers to take part in consolidation as one of the best-capitalized firms in the industry. “[If any opportunities] present value and fit into our strategy, we’ll certainly have a look at them,” he told Reuters, adding that he believes that the events of the last 18 months will “probably accelerate” the sector’s consolidation.

“Some lessors would want to sell because there is no other path while others want to bulk up,” confirmed Yu. He said a handful of lessors already are unofficially for sale.

According to Yu, the aircraft manufacturers should “definitely” heed warnings about too much concentration of the aircraft leasing industry because they will face increasing competition from lessors to place aircraft with airline customers. Lessors typically represent 15 to 20 percent of the OEMs’ order books, but that figure becomes even bigger when adding the recent spike in purchase and leaseback transactions. “From an airline’s perspective, this might be a good thing,” he concluded. ■

LEADING AIRCRAFT OPERATING LESSORS IN 2020, BY FLEET SIZE



Gecas and AerCap dominate the commercial aircraft leasing business in fleet size, each carrying a portfolio of more than 1,000 airplanes.



SUSTAINABILITY A CLEAR AMBITION



Sustainability is at the heart of our business. From the beginning, we have invested in technologies to make our engines cleaner, quieter and more efficient. Our clear ambition is to push the limits of innovation, demonstrating uncompromising technologies that will help pave the way for an ever more sustainable future. A common mission, extraordinary together.

cfmaeroengines.com

CFM International is a 50/50 joint company between GE and Safran Aircraft Engines



Covid brings more supply to aircraft recycling business

by Cathy Buyck

Few would disagree that aircraft recycling has evolved from an almost non-existing, polluting industry to become a textbook example of how aerospace contributes to a circular economy and aviation's overarching environmental sustainability goals. Depending on the type of aircraft, recyclers can recover about 90 percent of an aircraft's weight for reuse in aviation or other sectors, a level that Tarmac Aerosave CEO Patrick Lecer described as "fantastic." The company, a joint venture of Airbus, Safran Aircraft Engines, and waste specialist Suez, has disassembled, dismantled, and recycled 291 aircraft and 141 CFM56 engines in an eco-efficient manner since its creation in 2007, including 75 percent of all the A340s that companies have recycled.

Yet Lecer expressed concern about the sector's post-Covid course. Due to the pandemic, the number of aircraft that owners have stored is enormous, he noted during a webinar organized by France's aerospace business club, Usaïre. "Of course, not all of them will be parted out but there is a risk of increased so-called dry dismantling when aircraft are scrapped with poorly-controlled processes and end up as landfill waste—particularly in certain parts of the world. This is very different from what we do; we recycle to maximize reuse and focus on the safe disposal of non-recyclable parts," he explained.

Lufthansa Technik several years ago switched its strategy to dismantle aircraft of Lufthansa Group—which includes Lufthansa, Swiss, Austrian Airlines, and



Airliners sit in storage at Tarmac Aerosave grounds at Tarbes-Lourdes-Pyrenees Airport in France as an ex-Singapore Airlines Airbus A380 arrives in November 2017.

Brussels Airlines—with European providers only, said Fabrício La Banca, Lufthansa Technik senior director of corporate purchasing. "By doing so, we avoided the traditional ferry flights to other destinations, saving tons of kerosene and CO₂. On top of that, the European providers we are using are AFRA [Aircraft Fleet Recycling Association] members that follow rigid processes and rules in regard to recycling and final demolition of the aircraft," he told **AIN**. AFRA's more than 70 accredited members must pass an audit based on best management practices. The International Air Transport Association (IATA) also has developed the "Best Industry Practices for Aircraft Decommissioning" manual.

Operators retired about 600 airplanes a year before the pandemic and the vast majority were recycled, according to Boeing. Management consultancy Oliver Wyman estimated that due to the Covid-19 shock to aviation, roughly 2,000 aircraft will leave the fleet permanently during a 12-month time span. Candidates now include airplanes only 20 years old rather than the more typical 25-year-old aircraft.

For IATA director-general Willie Walsh, the acceleration of the retirements of older aircraft marks a positive contribution to the aviation industry's environmental commitments. "The fleet that we will be

operating in 2021, 2022, and beyond will be much more efficient and sustainable than the fleet that was in place in 2019," he said. For the recycling market and the used serviceable materials (USM) market, however, the higher volume of aircraft retirements marks a changed dynamic.

Under normal market conditions, retired commercial jets represent an excellent source of USM. "Someone will buy an aircraft to recycle if it makes economic sense, meaning if there is a market to sell the material that will come off the decommissioned aircraft," explained Chris Markou, head of operational cost management at IATA. "The recycling market—aircraft disassembled for parting out and reuse of components—may decrease due to lower demand for spare parts as many airlines operate smaller fleets, therefore they have excess parts inventories in their warehouses before they need to go out to the market to get parts. Excess inventories will be used first before getting into aircraft part-outs," he told **AIN**.

Based on IATA analysis, Covid is driving up the inventory of components and parts, with the market for used surplus material expected to grow to \$7.9 billion by 2022.

Since March 2019 demand for USM dropped significantly, though Lufthansa Technik has continued its strategy to

maximize the quota of USM in its work, said La Banca. However due to the overall demand reduction, the absolute numbers went down, he confirmed. "Especially in the engine sector the demand for certain engine types disappeared completely as airlines have been trying to avoid major overhaul events and are performing only the necessary minor events on-wing or during short shop visits," he said. Also, some widebody aircraft types might never return to service and, therefore, their supply potential might not be relevant at all for the USM market, he explained. Nevertheless, despite the current slump in demand, he believes airlines and MROs will need the contributions from USM "in order to recover faster."

Meanwhile, the aircraft recycling ecosystem is working to develop new solutions to increase the recyclability level of aircraft above the current 90 percent. Carbon fiber-reinforced polymer composites that appear in modern commercial airframes have proved a challenge to recycle and reuse, Lecer said.

OEMs have invested in initiatives to improve the recycling process for composites for many years. "Boeing has conducted extensive work on the use and recycling of carbon composite material and we strive for the capability to recycle as many materials as possible for use in other applications," a spokesman for the U.S. aircraft manufacturer told **AIN**. "We worked with two business partners in May 2018 to conduct the world's first dismantling of a composite fuselage airplane—one of the first-built 787s."

Another example of this circular economy, he said, appears in the company's partnership with UK-based ELG Carbon Fibre. Boeing provides about one million pounds a year of excess carbon composite fiber from its manufacturing processes to ELG, which recycles the material and sells it to other manufacturers that make car parts, computer laptop cases, and wind turbine blades. "As part of our strategy, we consider the full lifecycle of our airplanes—from design and assembly to in-service operation and end-of-service retirement," he concluded. ■

Flight volume data reflects gradual and uneven recovery

By Charles Alcock and Gregory Polek

The Covid pandemic's initial impact in the spring of 2020 constituted an unprecedented shock to the global industry, and ever since the recovery path has been hard to chart. Seeking clarity in hard

data, **AIN** asked two specialists, data and analytics provider Spire Aviation and aviation intelligence supplier FlightAware, to crunch some numbers that could illustrate the fluctuations that have characterized

the air transport industry's situation.

Spire generated data from its own constellation of more than 110 satellites to track the number of flights operated by six international carriers between January 2020 and the end of May 2021. The variations in their fortunes is striking, reflecting wide differences in Covid's impact, governmental responses, and societal attitudes towards the risk from travel.

Air China has fully restored pre-pandemic levels of flight activity, hitting

a year-to-date peak of almost 40,000 flights in April. In the U.S., United Airlines has yet to completely reverse its descent, but has achieved a mainly steady recovery to reach almost 54,000 flights in May after hitting some new turbulence around September 2020 and February 2021.

In Europe, where new waves of Covid infection and vexatious switches in restrictions have been more challenging, Lufthansa remains at less

» continues on page 32

GA aircraft deliveries up or flat in 1Q: GAMA

| by Curt Epstein

As the world moves into the post-Covid era, billings for general aviation airplanes and rotorcraft delivered in the first quarter soared 18.1 and 26.2 percent, respectively, year-over-year (YoY), according to the General Aviation Manufacturers Association (GAMA).

At 113 deliveries, business jet airframers were off one unit from last year's first-quarter total. Gulfstream boosted its YoY Q1 deliveries by five in its large-cabin class, while Embraer added four, handing over five more Phenom 300Es than it did in the same period in 2020. Textron delivered five additional Citations, as it more than doubled the output for its light M2. Bombardier remained static at 26 deliveries, its five fewer Challengers replaced with five additional Globals handed over. Dassault reports its deliveries only at mid-year and year-end. In the bizliner segment, Boeing added one delivery in the first quarter, compared with none in the same period last year, while Airbus tacked one more to the lone delivery it had in the first three months of 2020.

The smaller private jet OEMs all logged decreases YoY. Pilatus saw its PC-24 deliveries more than halve in the first quarter of 2021, as did Cirrus, which declined from 18 SF50 VisionJets handed over a year ago to seven during the first three months of 2021. Honda Aircraft delivered two fewer HondaJets in the first quarter of this year.

While the total number of turboprops rose by more than 18 percent YoY, to 84 aircraft, there were two fewer high-end pressurized models handed over in the first quarter of 2021. Daher increased its output of TBM 940s to seven after handing over four in Q1 2020, while Piper doubled M600 deliveries to six in the first quarter of this year. Epic remained static with one E-1000 delivery in the opening quarter of both years, while Pilatus's 11 PC-12 deliveries in the first three months of 2020 dropped to seven this year. Textron Aviation, which ended the production of the King Air C90 in March, saw its deliveries totals move from 11 last year to seven in the first quarter of this year.

Piston airplanes were also up, with 235 deliveries representing a 7.3 percent advance YoY.

Turbine-powered helicopter deliveries in the quarter increased

by seven units from the first three months of 2020 to 92, up 8 percent.

Airbus Helicopters, which issued only a first-half delivery total last year, had 36

deliveries in the first quarter this year. Bell bettered its Q1 2020 output by 50 percent, handing over 15 rotorcraft in the Q1 2021, while Leonardo added two to its Q1 2020 figure for a total of 12. Sikorsky handed over one S-92 through the first quarter of 2021 after delivering none in the same period last year. Robinson Helicopter boosted its R66 deliveries to 22 in the first three months of 2021, a seven-unit improvement.

Piston helicopter deliveries were flat from a year ago, with 36 units, one fewer year over year. "It is encouraging to see [OEMs] begin to bounce back from the impacts of the pandemic, although we are not yet in the clear," said GAMA president and CEO Pete Bunce. "The industry continues to face headwinds, especially with ongoing supply-chain issues and pandemic-related restrictions and constraints to global travel." ■

HOW DID WE MAKE THE NEW M600/SLS THE NEW STANDARD IN SAFETY?

We taught it everything you know.

M600/SLS





The HALO™ Safety System with Garmin® Autoland—the most groundbreaking advancement in recent general aviation history—does everything you would do when you can't. After alerting ATC, checking fuel levels and weather, it safely lands the aircraft. In short, it's as if the controls were still in your hands. **See how your highest standards come standard at piper.com/HALO.**



Download the Piper Aircraft App to experience our M600/SLS in flight.



FlightSafety International's Airbus Helicopters simulators are a key part of the successful training protocols created by Air Methods to help teach pilots how to avoid inadvertent entry into instrument meteorological conditions.

Air Methods: Solving the IIMC accident problem

by Woody McClendon

Air Methods is one of the founding members of air medical operations in the U.S. Roy Morgan started the company in 1980 to fulfill his dream of operating a medevac helicopter and saving lives. Mortgaging his house, he bought a Bell Long Ranger and put it to work at St. Mary's Hospital in Grand Junction, Colorado. He and his team of nurses flew their first patient on their first night in business.

His company continued to grow, expanding into air medical interiors and completions as there were few other sources for that work. Air Methods became well known for high-quality interiors, and customer completions grew faster than new hospital programs. The company would go on to create medical interiors for the Army's Black Hawk, an initiative that would become a significant source of revenue.

As Air Methods grew, Morgan brought in business professionals to run day-to-day operations. Determined to expand by buying market share, they embarked on a search for acquisitions. The largest was Rocky Mountain Holdings, the parent of Rocky Mountain Helicopters, one of the biggest commercial operations in the U.S. Based in Provo, Utah, Rocky Mountain operated a large fleet involved in all segments of commercial helicopter operations. Its air medical unit operated helicopters throughout the U.S. For Air Methods, the acquisition was more complex because Rocky Mountain was a much larger company. But when it was done, Air Methods emerged as the largest air medical services provider in the U.S., a position it maintains to this day.

Air Methods employs more than 1,400 pilots and operates 450 aircraft. From corporate headquarters in Denver, it manages more than 400 bases in the U.S. The company accounts for about 65 percent of all U.S. medevac operations.

The civilian medevac community saves more than 40,000 lives a year, but it comes at a cost. Almost 450 medevac crew members have been killed as they've flown across rough terrain at night, often in marginal weather conditions, to reach trauma victims who without the helicopter to save them would likely perish.

Accident statistics testify to the danger medevac crew members endure. In 2001 the fatal accident rate for airlines was 0.011 per 100,000 hours, and air charter operations had a rate of 0.60. For helicopter air ambulances, the rate was 1.64 fatalities per 100,000 hours, almost 150 times worse than the rate for airlines.

About 77 percent of medevac fatalities are attributed to pilot error, with the most dangerous of all causes being inadvertent entry into instrument meteorological conditions. This is when pilots fail to recognize

they are entering worsening weather until they are enveloped, then lose control and crash. A near-constant stream of these accidents, dubbed IIMC, has plagued commercial helicopter aviation.

From 2005 through 2017, Air Methods experienced 56 accidents, of which about 15 percent were IIMC-related. And yet, its safety record was four times better than the average for all medevac operators.

The culture of the commercial helicopter business, which experienced a trend-breaking expansion after the Vietnam War, may have contributed to the problem. Most of the pilots were veterans whose instrument training had been minimal. According to retired CW5 Joe Walker, who attended helicopter flight school at Ft. Rucker in 1968, flew in Vietnam, and then taught new pilots how to fly, students received only basic instrument training. "We got some time in the 'Blue Canoe' [the original Link trainer/simulator] and that was about it," he said.

"When we were flying in Vietnam, we did all we could to stay out of clouds," Walker explained. "But a lot of pilots flew into them as they tried to avoid ground fire, at night when they couldn't see where they were

going, or when the weather changed rapidly as it did on any given day over there. A lot of pilots lost their way and crashed." Pilots returning from the war who went to work for utility operators strongly preferred to rely on visual flying skills rather than their rudimentary instrument training to survive encounters with weather.

Pilot training and the limitations of training aircraft have been factors as well. While commercial airplane pilots are instrument trained and usually have experience flying in actual instrument conditions by the time they take their first flying jobs, that's not the case with helicopter pilots, even those who complete formal instrument training. They may complete instrument training while wearing a view-limiting device or hood but then they never transition to flying in actual instrument conditions. The reason: none of the helicopters available to flight schools are certified for IFR. So, unlike their peers in airplane training who likely experience actual IFR conditions as a part of their training or shortly thereafter, helicopter students, even those who go on to become helicopter instrument instructors, have rarely if ever flown in actual instrument conditions.

Commercial operators have never considered this a problem. Aerial survey, fire-fighting, logging, and other such operations all focus on the ground environment and visual contact with their objectives.

Challenging Conditions

While air medical missions are in visual conditions at their terminus—the scene where the patient is picked up—the route from the base to the scene often is over rough terrain and in unknown, often terrible weather conditions. And it is likely to be at night, when most accidents and other trauma events happen, all of this creating the right environment for IIMC encounters.

Nearly 450 medevac crew members have died, with IIMC encounters the most significant cause of accidents. And yet, in the pilot training environment, the requirements for passing an FAR Part 135 initial or recurrent checkride in a helicopter state that the pilot must "...demonstrate the ability to maneuver the rotorcraft solely by reference to instruments." How is it then that pilots being trained under Part 135 fail to cope when encountering unforeseen instrument conditions?

One answer may be that, until recently, almost all medevac helicopter training was done in the aircraft, with minimum time allotted for instrument training. What little time was allotted was done under a hood. Medevac pilots wear helmets so the choice of view-limiting devices is minimal. Foggles, which are worn like glasses, are the accepted device.

The problem with these is they are made for cabin environments in which the windshield glass does not extend below the airplane cabin's lateral centerline, so

» continues on facing page



Simulators offer a huge advantage for helicopter pilot training, allowing realistic replication of scenarios that have been implicated in a number of accidents.

› continued from facing page

Training helps prevent IIMC

the pilot's view is generally limited to the instrument panel, with the rest obscured by the hood or Foggles. But a helicopter has windows clear down to those between the pilot's feet, the so-called chin windows. With Foggles or a hood on, a pilot still can see out the bottom half of the helicopter, negating the purpose of the training, which is to fly by reference to instruments alone and not outside visual cues.

Having taken numerous 135 checkrides in these circumstances, I can attest that I had plenty of visual attitude cues while flying with Foggles on. So the training and checking process for IIMC survival does not subject the pilot being trained to actual instrument conditions.

Improved Training

Given that pilot error was the root cause of most of Air Methods' accidents, the management team identified improved pilot training as a key remedial factor in reducing accidents. To that end, it was decided to transition the training programs from the in-aircraft environment to simulators. The FlightSafety facility in Denver was commissioned for that very purpose. The Air Methods training team had identified the economic benefits of simulator training, but it was equally important to refine and improve the curriculum and the course structure using simulators. The ultimate result: creating more-focused, better-defined scenarios and measurably improving pilots' skill levels.

Early in the process, several pilots were having trouble with the IIMC scenarios. Air Methods training managers identified the problem as a lack of basic instrument flying skills. They had to create a short course to review and teach pilots instrument flying basics sufficient to manage an IIMC encounter. Pulling together the fundamentals from instrument training resources, they designed a course that could be taught in a single simulator session. Within the scope of remedial training as prescribed in FAA Part 135, instructors could administer the course when needed, equipping the pilot with the skills required to successfully complete the IIMC training.

For pilots attending recurrent training, Air Methods developed IIMC scenarios that would take them into slowly decreasing

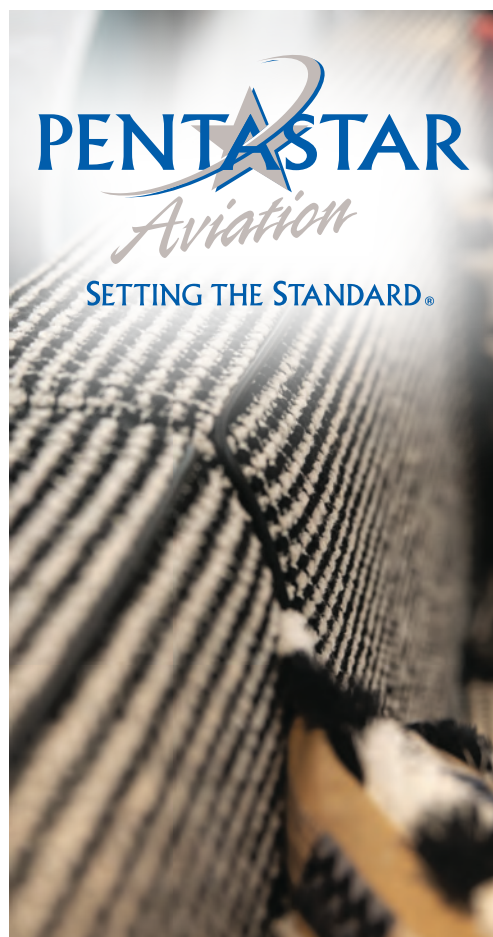
visibility during the assigned mission in one of the simulator sessions. The preflight briefing would include advising pilots that they might encounter worsening weather and a review of IIMC protocols. It might also include a question on whether the pilot had ever had an IIMC encounter and, if so, how he or she handled it. The objective of the discussion would be to ensure pilots had a clear picture of how to avoid

deteriorating weather and the steps they should take should they inadvertently enter IMC.

The instructor might set the weather to 1,000 feet overcast with five miles visibility. As the flight climbs to a cruising altitude of 800 feet, the instructor, over two or three minutes, slides the visibility down to a mile while keeping up a chat about other details of the flight.

Pilots should, at that point, call out the decreased visibility and initiate a 180-degree turn. If they do, then they are commended for their decision-making. If they don't, the visibility drops rapidly to zero. The pilot is allowed to respond without further input from the instructor. If the pilot does manage to maintain control and asks for a vector to visual conditions, the instructor might

› continues on page 33



MAKE YOUR AIRCRAFT EXCLUSIVELY YOURS!

PentastarAviation.com | mtxsales@pentastar.aero

248-666-8388 |     

**Private Jet Charter | FBO Services | Aircraft Management
Fivestar Gourmet® | Advisory Services | Custom Interiors | Maintenance**

©2021 Pentastar Aviation

GE, Safran launch green open-rotor tech demo

by Gregory Polek

GE Aviation and Safran on June 14 launched a technology demonstration and maturation program under their CFM joint venture for a family of open-rotor engines that would run

on either 100 percent sustainable aviation fuel (SAF) or liquid hydrogen by the middle of the next decade. Called Rise (Revolutionary Innovation for Sustainable Engines), the

development program aims for a 20 percent improvement in fuel burn and CO₂ emissions compared with today's CFM Leap family.

CFM foresees ground testing on engine modules at GE and Safran facilities starting in the middle of this decade, followed by flight testing on a GE testbed "soon thereafter," according to Safran CEO Olivier Andriès, who, along with GE Aviation chief executive John Slattery hosted an online

briefing during which they also announced the extension of the CFM partnership until 2050.

Andriès stressed that the Rise announcement did not amount to an engine launch but rather a formal commitment to continue with studies for a Leap successor on which GE and Safran have collaborated since 2019. Also appearing at the online event, GE Aviation vice president of engineering Mohamed Ali called the 20 percent fuel burn and CO₂ reduction target "the single largest improvement" the companies will have ever made.

A joint GE-Safran engineering team has laid out what the companies call a comprehensive technology roadmap, including composite fan blades, heat-resistant metal alloys, ceramic matrix composites, and additive manufacturing. The Rise program includes more than 300 components, modules, and full engine builds.

"There are so many new technologies that are coming on to the program," said Slattery. "If you start with the open fan, which we have a lot of tacit knowledge between both organizations on...of course, it will be hybrid-electric. There will be a lot of new materials that we'll be bringing. We would have a gear on this engine, of course, because it's open-rotor."

The companies plan to use a single rotor in their plan, as opposed to counter-rotating designs considered in past studies, including GE's UDF in the 1980s and, more recently, Safran's open-rotor studies developed through Europe's Clean Sky research program in 2017.

"We recently have been able to use these learnings, in both companies, in addition to a tremendous utilization of computational power that became more recently available," added Ali. "And now we are able to actually make it a single fan...and design blades specifically for that. That not only reduces the weight and reduces the complexity; it opens up the efficiency [and] creates the same comfort from a noise perspective that all the passengers have become used to." Andriès said this open-rotor design would result in no more noise—either internally or externally—than today's Leap.

Although Andriès wouldn't estimate an investment cost for the project, he noted that Safran has committed to dedicating 75 percent of its R&D budget to sustainability and stressed the importance of government partnerships, which, he said, he fully expects the European Commission to endorse. Slattery, meanwhile, promised GE would commit a "significant" portion of its R&D budget. ■

Platinum Sponsors: **BOMBARDIER** **DASSAULT FALCON JET** **Gulfstream™** **JSSI** **STEVENS AEROSPACE AND DEFENSE SYSTEMS** **TEXTRON AVIATION**

Gold Sponsors: **gogo BUSINESS AVIATION** **PILATUS** **PNC AVIATION FINANCE** **romanelli.com**

We're Back in Time...

...and in Person; the JETNET IQ Summit returns with new life, new ideas and a new location at the neo-retro, super swanky TWA Hotel located at the JFK Airport. Reconnect with colleagues, business leaders and old friends in this exciting new space, where the past meets the future. Come and celebrate our 10th IQ Summit...back in time. Visit jetnet.com/summit for more info.

JETNET IQ Summit

TWA Hotel at JFK | Sept. 15-16th, 2021

TWA

- Network**
Hob-nob over cocktails with all the right people.
- Experience**
Dazzling speakers from across the industry.
- Inspire**
Brainstorm with the biggest brains in BizAv.
- Convenient**
A single flight from almost anywhere.

› continued from page 1

However, Airbus was not the right fit because while interested in the technology, sources say, it was not as interested in building a business jet. The relationship proved fruitful while it lasted but ultimately was not going to get the AS2 to the finish line. Similarly, Lockheed Martin had different priorities.

Then Boeing appeared to be the right match, but the timing proved wrong. Aerion announced its partnership with Boeing in February 2019, just a month before the second of two Boeing 737 Max airliner crashes set off a global grounding of the manufacturer's cornerstone new program. That grounding lasted more than a year, until December 2020.

In the interim, the pandemic set in, causing airlines to cancel aircraft orders. Boeing recorded a nearly \$12 billion loss in 2020—one of its worst years. Slogging through a double-whammy, Boeing in late 2020 shuttered its NeXt innovation division, which had focused on emerging technologies.

Even so, Boeing had ostensibly continued its involvement in the Aerion program. It had reportedly already invested several hundred million dollars for a 40 percent stake in the company and was appointed to two of the five positions on the Aerion board. However, its ability to

continue at that level of investment came into question.

Boeing president and CEO Dave Calhoun shed light on a decision against furthering its Aerion investment at the June 3 Alliance Bernstein 37th Annual Strategic Decisions Conference. Boeing assess its investments based on whether projects are “big enough and meaningful enough” to Boeing, he said.

If a project doesn't bring such benefit to Boeing, then it has to stand on its own, Calhoun said. “And our decision on supersonic was that [it didn't]. We couldn't get there with respect to the market, with the respect to the needed investment,” he said. Boeing evaluated its investment yearly, and “we got to a decision where, yes, we just...didn't believe in it quite as much as we thought we could.”

A Search for Investors

Meanwhile, the search for outside investment continued. Aerion reportedly was in talks earlier this year to go public through special purpose acquisition company (SPAC) Altitude Acquisition Corp. But as the SPAC market seemed white-hot this year, the Securities and Exchange Commission has given notice that it is stepping up oversight in this arena.

Aerion was said to have been “agonizingly close” to arranging for outside

capital that would have provided the necessary push into production, said another source close to the company. However, during a pandemic that had already taken a heavy toll on Boeing and major suppliers, that outside capital proved elusive.

“Investors are fickle,” said one observer, noting that the eVTOL sector has been attracting heavy investments, particularly from the risk-takers in Silicon Valley, while a company such as Aerion has failed to secure the same.

Joshua Ng, a director with Singapore-based Alton Aviation Consultancy, said the investment proposition for eVTOLs is significantly different from that for supersonic aircraft. “With eVTOLs there is the aim to democratize air travel, but that is not the case for supersonic business jets, which will only ever be used by the super-wealthy,” he told *AIN*. “So, the overall addressable market for supersonic aircraft is much smaller. The question is whether existing business aircraft owners will trade up to supersonic. I'm not sure about that.”

With no deal in hand, Aerion executives faced the tremendously difficult decision to cease operations and informed suppliers and employees of their fate. The company held a meeting on May 21 that was described as “bleak.”

That evening, Aerion issued a statement: “In the current financial

environment, it has proven hugely challenging to close on the scheduled and necessary large new capital requirements to finalize the transition of the AS2 into production. Given these conditions, the Aerion Corporation is now taking the appropriate steps in consideration of this ongoing financial environment.”

Fallout from the Shutdown

The fallout was swift. Its anchor supplier, GE Aviation, discontinued development work on the twin-shaft, medium-bypass Affinity engine that was to have powered the Mach 1.4 AS2. GE Aviation also confirmed to *AIN* it was redeploying its Affinity team to other programs.

The engine-maker had announced plans in October 2018 to move forward with the development of the Affinity specifically for the AS2 and later revealed plans for the engine to be part of a family in the 16,000- to 20,000-pound-thrust range.

Other suppliers were forced to quickly move on past the AS2. Spirit AeroSystems, which had been selected to design and supply the aircraft's forward fuselage, also was notified of Aerion's decision to cease operations on May 21, a spokeswoman for the Wichita-based supplier told *AIN*. Employees working on the AS2 program were moved to other roles within the

› continues on page 44

Come to the LIGHT SIDE

A Powerfully Connected Future
is Only Moments Away



SMARTSKY
NETWORKS®

The Next Evolution in Aviation Connectivity

RESERVE A SPACE NOW

SmartSkyNetworks.com

› continues from page 26

than half of its pre-pandemic activity levels. In May, it operated just under 12,000 flights, having never pushed above a monthly total of 16,000 since the nadir in April 2020.

Qatar Airways and Air New Zealand closely tracked each other's dispiritingly static traffic levels in the low five figures, never breaking through the clouds at around the 15,000 mark. Worse still is the

situation for Singapore Airlines, which has essentially flatlined for almost 14 months, seemingly unable to generate more than a paltry 5,000 monthly flights.

Spire Aviation, which is part of data and analytics group Spire Global, also logged numbers for widebody airliners in service from January 2020 through the end of May 2021. The data shows which of the various Airbus and Boeing types have been most and least active in a long-haul

sector, where Covid has most severely affected demand.

Since the start of the pandemic, the ubiquitous Boeing 777 has consistently led the twin-aisle pack. The A330 and the 787 Dreamliner have run almost head-to-head, after outstripping activity levels for the aging 767.

Covid has clearly accelerated the venerable 747's long-anticipated retirement wave. Perhaps more surprisingly, numbers

for the far more modern A350 stayed low, while the A380s and A340s flatlined too.

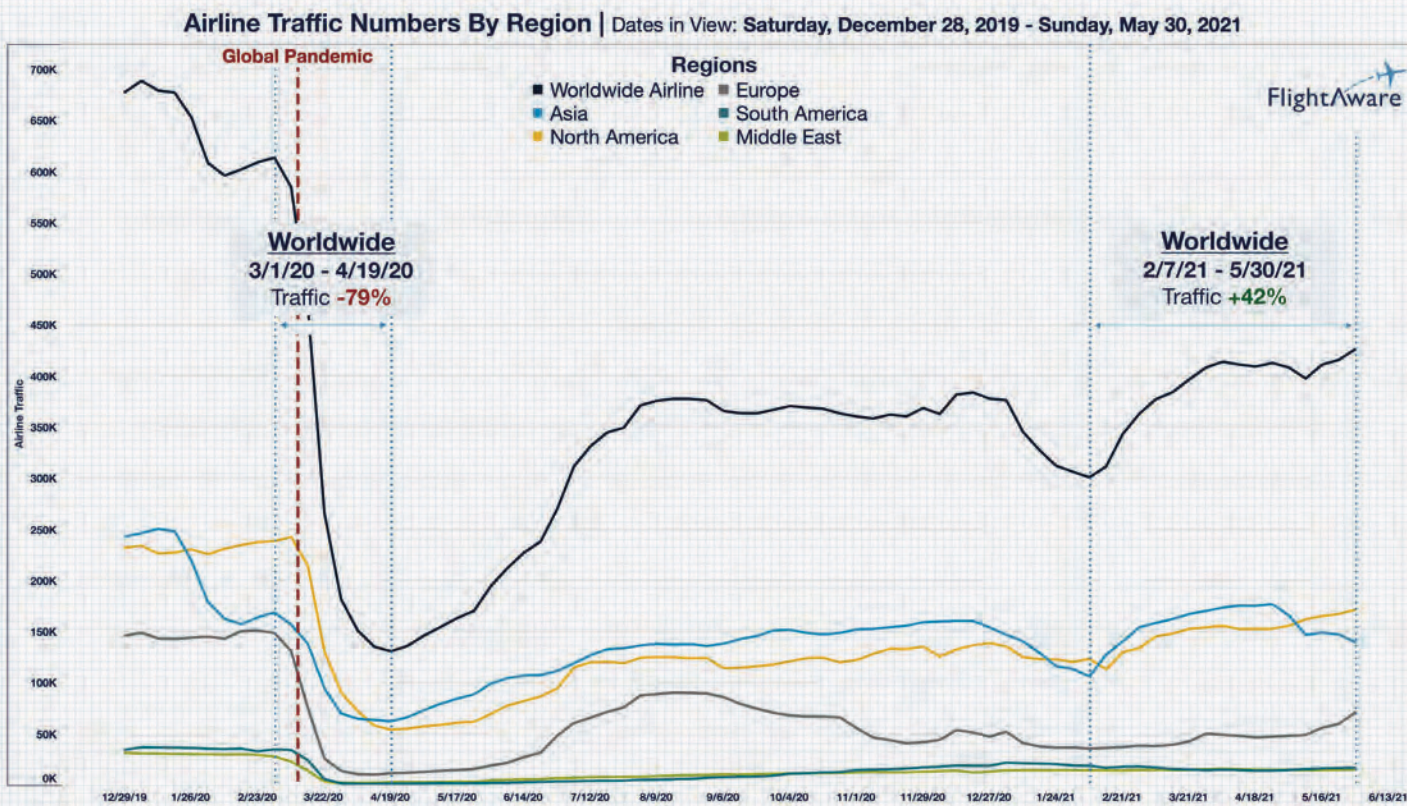
Bucking the overall trend to some extent is the fact that the numbers of older A300/310 jets remaining active through the pandemic did not fall as severely. "It's interesting to note very limited change in A300/310 statistics, since most of the type is used for air cargo and military applications, respectively," commented Spire's technical product manager David Manda.

The pandemic's effect on the activity of widebody airplanes in the category of the A380 and 747 reflect continuing stagnation of international markets. Of course, the relatively strong resurgence of domestic flying, particularly in China and the U.S., disproportionately has accounted for what recovery the industry has seen so far. Conversely, the Middle East and South America have lagged all other regions, FlightAware vice president Mark Duell told *AIN*.

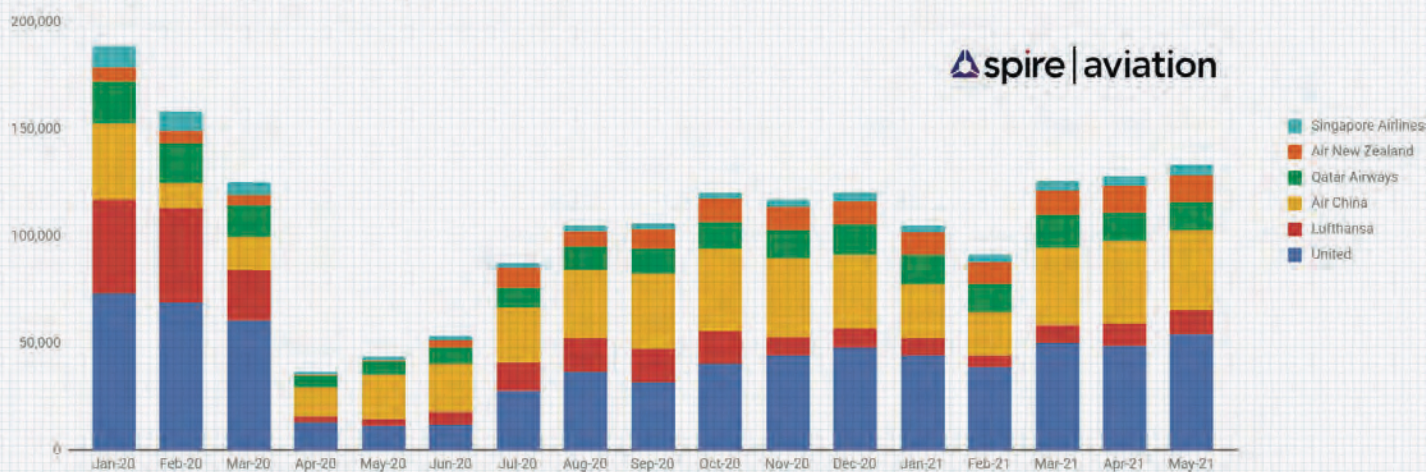
"South America and the Middle East are sort of competing for the slowest recovery," he said. The Middle East, where the big Gulf carriers Emirates, Etihad, and Qatar Airways rely almost exclusively on international traffic, has seen a steady flight volume of about 50 percent of pre-pandemic traffic levels since the start of this year. Similarly, South America sits at about 55 percent following a slip by the end of the first quarter to roughly 40 percent of pre-Covid levels as border closures stalled international traffic and Brazil's persistently high Covid rate hit domestic travel in one of the biggest markets in the region.

Overall, even as flight volumes have begun to return with higher vaccination rates in certain regions, load factors remain "very poor," said Duell, as airlines vie for market share and add flights pre-emptively in anticipation of traffic returning. "Anecdotally, we've seen stories about one passenger flying back from India in a 777," he noted. "A fair bit of it is also belly cargo, as the air freight market is very strong right now... Emirates is not flying that 777 to India for one person; they're flying it with a belly full of cargo."

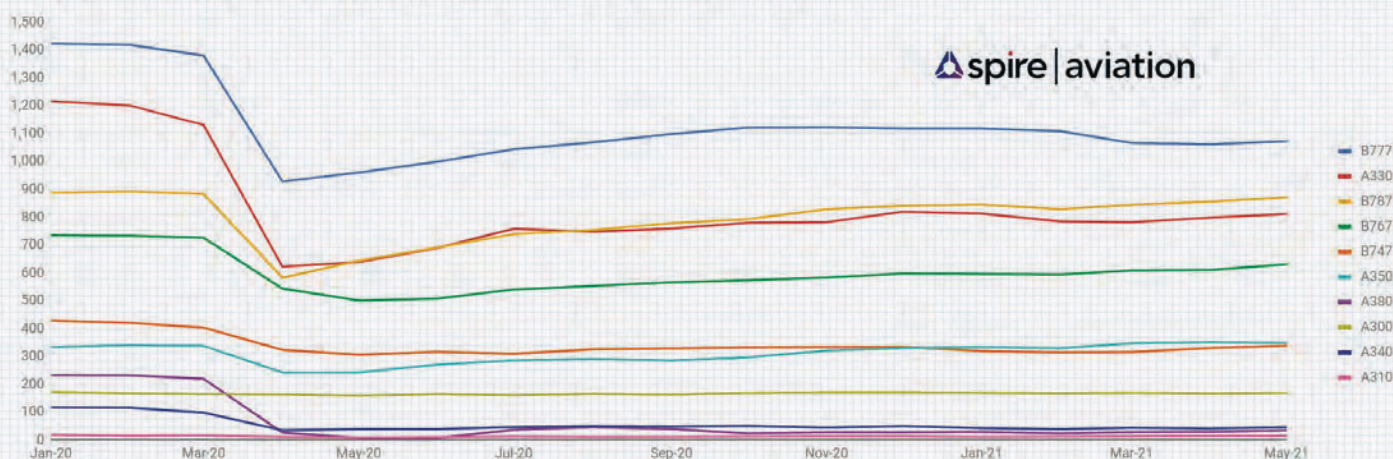
Considering the uneven recovery, Duell said industry leaders have begun to show more optimism lately. In the U.S., for example, all the major airlines have said they've begun to recall staff and plan to reactivate all their idle airplanes by the end of the year. In places with small domestic markets and where vaccination rollouts remain slow, the situation appears far less encouraging. "It may be quite a while before movement gets back to normal [in those places]," concluded Duell. ■



Number of FLIGHTS operated by 6 major airlines



Most popular Airbus/Boeing widebodies based on number of AIRCRAFT in-service



› continued from page 29

Air Methods and IIMC prevention

suggest that no safe VFR weather is close by, including the fact that it has closed in behind them. The pilot should ask for vectors to an airport and an instrument approach. Then the instructor works with the pilot to fly to an airport and execute the approach.

If the pilot instead loses control and crashes, then the instructor would review how the pilot allowed himself to fly into IFR conditions and what he might have done to maintain control. The instructor would then start the short IIMC course, planning to take the pilot through it in an hour or so of simulator time. The events planned for that hour would be pushed back into the following simulator session.

By the end of the course, the pilot should be comfortably flying instruments such that he or she can maintain control and execute a plan to fly to an airport and complete an approach.

Those who did recognize the deteriorating conditions could expect another scenario in which the weather closed in on them faster than they could react to it, giving them the chance to fly in the cloud environment the simulator provides and manage the problem.

Success

The program worked. Within a few months, pilots who had experienced problems were successfully flying out of the weather and completing their recurrent training, all while demonstrating their ability to manage an IIMC encounter.

The results have been profound. Since the simulator training program was launched in early 2017, Air Methods has not experienced any IIMC-related accidents. The training team had effectively identified the problem and solved it. Air Methods chief pilot Raj Helweg agreed this was an accomplishment to be credited to his dedicated team but he is also philosophical about it. "We launch dozens of flights every day all over the U.S. under all kinds of weather and terrain conditions," he said. "We seem to have gotten the IIMC problem under control, but we always have more work to do. We can never stand on our laurels."

What does the future hold to build upon that success? IFR certification is finally moving into smaller helicopters, thanks to

lower-cost autopilots with sophisticated stability augmentation and envelope-protection features. Recent examples include the Bell 407GX and Leonardo's A119, which are now certified for IFR. According to a senior training pilot at Air Methods, the company anticipates a transition to IFR operations in these helicopters and other types in the fleet as they become IFR certified. This will inform a more

comprehensive instrument pilot training program and the potential for at least limited IFR operations, if for no other reason than to give pilots the option to enter the IFR system should they encounter unforeseen weather. Just the ability to climb or descend through a marine layer in coastal cities or fly through ground fog that otherwise is mission-stopping would be significant operational breakthroughs.

Industry leaders like Air Methods recognize the benefits of this new technology and are hard at work implementing it, within the limits of cost and logistics challenges that come with such dramatic changes. Tragic accident causes like inadvertent flight into IMC will be minimized and medevac flight operations could, in the not-too-distant future, be conducted with the same high levels of safety as those in other segments of aviation. ■

FUELING SUCCESS



TITAN[®]
AVIATION FUELS

FUELING SUCCESS SINCE 1975.

With nearly five decades of experience in aviation fuels and related services, TITAN knows what it takes to succeed. Our focus has always been on you and providing the tools to help your business grow. Going far beyond just fuel, TITAN has the tools to fuel your success.

WWW.TITANFUELS.AERO • 1-800-334-5732

Embraer sees E-Jets facilitating air transport's recovery from pandemic

by Gregory Polek

Embraer expects to emerge from the Covid crisis in a relatively strong competitive position as a fundamental shift in traffic patterns portends increasing interest in smaller narrowbodies such as the E195-E2, according to Embraer Commercial Aviation CEO Arjan Meijer. Following a 2020 campaign that saw Embraer Commercial ship just 44 airplanes due to customer deferrals and two months of inactivity at the start of the year as it worked on the “carve out” of the division for its since-aborted integration with Boeing, the company will likely see improvement on deliveries this year as more markets open with improving epidemiological circumstances. A recent pair of orders covering 17 E175s by Alaska Airlines and its regional partner SkyWest sent what Embraer considers a clear signal of improving market conditions. But even before securing those deals, Embraer added 10 new E-Jet operators resulting mainly from used aircraft transactions since the start of 2020.

Of the three variants, the one that has drawn the most interest from airlines recently—the E195-E2—is also the largest, carrying as many as 146 passengers in a single-class layout. Embraer plans to deliver the first of four next month that were ordered by Switzerland’s Helvetic Airways, which coincidentally will become the first to fly one of its eight E190-E2s in revenue service into London City Airport, where E-Jets already account for 70 percent of all movements. That model gained approval to operate into the short-field, obstacle-limited airport last week.

Meanwhile, the smallest of the E2s—the E175-E2—continues to struggle to find a market outside the scope-clause-limited U.S., prompting Embraer to delay its introduction again by another year, to the second half of 2024. Nevertheless, Embraer is no less committed to that airplane for the medium- and long-term, said Meijer.

“We consider the E175-E2 an integral part of the E2 family,” he insisted. “If there would be a customer today wanting the aircraft, that would have been a different discussion, but with Covid, the whole world is in a little bit of a pause and we said, ‘Let’s focus on the 190 and 195 short-term.’”

In fact, the latest delay of the E175-E2 in no way reflects a desire to defer research and development spending since the onset of Covid and the April 2020 collapse of Embraer’s proposed partnership with Boeing, said Meijer.

“In the broader sense, Embraer has spent a vast amount of money in the last couple of years developing the E2, developing the KC-390 on the defense side, and developing

the executive aviation new types with the Praetor being the last addition,” he explained. “We’re still spending money on the E2 program; we haven’t stopped that. And we’ve also been very vocal to the market that we’re very interested in going after the [turboprop] market.”

Meijer added that Embraer remains “very active” in the design of a turboprop that would seat between 70 and 90 passengers and use a traditional engine configuration. He also stressed that Embraer will proceed with the project only with the help of a strategic partner.

Hoping for an entry-into-service date of 2027, Embraer will need to move soon toward a launch to meet that relatively near-term target. “We will use this year to develop that aircraft further and we hope to be able to bring that to a more firm position in 2022,” Meijer said.

Still, product definition has progressed to the point where the company expects the airplane to fit between the ATR 72 and De Havilland Dash 8-400 in terms of performance while offering better economics,

a lower noise profile, and what Meijer called a superior passenger experience.

In the longer term, Embraer expects the new turboprop to serve as a platform for other technological advances. However, the design, as it stands, does not assume any radical new engine technologies. “All options are on the table, but for now we have worked on the assumption it will be a traditional engine to start with, and from there we’ll move forward and see what’s possible,” explained Meijer.

While the company cannot afford to lose focus on its long-term aspirations, it first must get through 2021 and the likely two or three years of Covid-related market suppression that most analysts expect. “We certainly hope that we’ll be climbing out of the crisis this year,” said Meijer. “This is a year of recovery and then the next couple of years we hope will be even more growth. So, yes, we’re intending to do better than last year. And I think with the appetite that we [see] from the market, both on the E1 and E2 sides, we’re very confident about the segment.” ■



Embraer Commercial Aircraft CEO Arjan Meijer

“We consider the E175-E2 an integral part of the E2 family. If there would be a customer today wanting the aircraft, that would have been a different discussion, but with Covid, the whole world is in a little bit of a pause and we said, ‘Let’s focus on the 190 and 195 short-term.’”

■ Airbus plans for significant boost of A320 production rates

Airbus has notified suppliers that it plans to boost production of A320-family jets from an average of 45 per month in the fourth quarter in 2021 to 64 per month by the second quarter of 2023. In a statement issued on May 27, the company said it has also started preparing for a rate of 70 per month by the first quarter of 2024, reflecting a bullish outlook for post-Covid recovery of the narrowbody sector.

“The aviation sector is beginning to recover from the Covid-19 crisis,” said Airbus CEO Guillaume Faury. “The message to our supplier community provides visibility to the entire industrial ecosystem to secure the necessary capabilities and be ready when market conditions call for it. In parallel, we are transforming our industrial system by optimizing our aerostructures set-up and modernizing our A320 Family production facilities. All these actions are set in motion to prepare our future.”

Separately, the company confirmed an increase in A220 production from five per month to six in early 2022. It said it envisions a monthly production rate of 14 per month by the middle of the decade.

Among widebodies, plans call for an increase in the monthly A350 rate from five to six by autumn 2022, while A330 production remains at two per month.

Airbus’s Covid-related production cuts began in April 2020, when it reported it



Airbus plans to increase production rates for its A320 narrowbody airliner family, including the A321XLR, for which assembly work began in May.

would reduce A320 output from 60 in 2019 to 40 this year. Widebody production, meanwhile, saw A330 rates drop from some 3.25 per month to two per month, and A350 rates fell from roughly 10 per month to six, and then again to five. Two months earlier Airbus had already announced an A330 cut from 53 in 2019 to 40 in 2020. The moves

represented a reduction of the pre-coronavirus average rates of roughly one-third throughout the Airbus product line.

The European aerospace group’s commercial aircraft deliveries last year reached 556 commercial aircraft, 34 percent fewer than in 2019 but in line with what the company calls the adaptation plan it instituted in April. **G.P.**

❧ In Memoriam ❧

Mansour A. Ojeh

1952 -2021



Mansour Ojeh, President of TAG Group and founder of TAG Aviation, passed away peacefully on June 6 surrounded by his family. He was the inspiration and driving force behind our company, and his kind, gracious spirit influenced each and every one of us. His positive impact on the company and everyone and everything he touched is embodied in our culture and will never be forgotten.

Mansour loved Business Aviation, and he was closely involved with our industry for more than forty years. In conjunction with his brother and lifetime business partner, Aziz, in 1977, TAG Group placed a launch order for twenty-one Challenger 600 aircraft, an event that helped secure the future of the program and led to the successful Challenger variants to follow. Years later, a similar event occurred when TAG signed an order (written by Bombardier President Bryan Moss on the back of a paper napkin) en route to the Dubai airshow for fifteen GlobalExpress aircraft, thereby launching the Global program.

As part of the original Challenger 600 order, TAG Group obtained the exclusive marketing rights for the Challenger throughout the fourteen member nations of the Arab League. Trading under the name TAG Aeronautics, this hugely successful enterprise continued until the distributorship rights were eventually sold back to Bombardier in 2015, bringing to a close TAG's 38 year association with Bombardier.

In 1998, TAG purchased U.S. based Aviation Methods and, shortly thereafter, Geneva Switzerland based Aero Leasing which were combined to form TAG Aviation, a company that grew to become one of the largest and most respected aircraft management and charter companies in the world. That move was closely followed by the establishment of TAG Asia and TAG's purchase of Farnborough Airport, located on the outskirts of London. TAG developed Farnborough into the only privately owned, business aviation airport in the world, and its high quality, purpose-built facilities and stunning architecture were a manifestation of Mansour's sense of style.

In 2019, after more than forty years in Business Aviation, TAG Group sold its shareholding in TAG Aviation to one of its partners and exited the aviation business.

While Mansour's contribution to our industry was substantial, to focus on his business accomplishments is to miss the essence of the man. Unfailingly gracious and polite, he had a personality that glowed like a Madonna in a Renaissance painting. His enthusiasm and spirit enveloped everyone he met, and he treated everyone, both the important and the unimportant, with equal....and substantial....respect and kindness. While he sought financial success in TAG's businesses, earnings never took precedence over the welfare of his people or his single-minded passion for quality and class, a quest that was reflected in every aspect of his life. Under his leadership, the brand "TAG" became known throughout the world for its integrity, high standards, and the professionalism of its people, and that is, perhaps, Mansour's greatest gift to aviation.

On behalf of all TAG Aviation employees, past and present, we want to thank Mansour for giving us a place to work that we can call home and the opportunity to experience the pride of belonging to a company where doing the right thing is expected. Mansour is gone, but his Spirit remains part of TAG Aviation.

G1000 NXi enhancements available for Mustangs

by Matt Thurber

While some Citation Mustang owners have opted to upgrade their Garmin G1000 avionics to the NXi configuration, Garmin has unveiled an STC for the Mustang that adds more features to the NXi upgrade. These include a new radar, diversity transponder, and datalink weather and communications.

These features can be added to Mustangs that already have the NXi upgrade, while

those with the original G1000 avionics can be upgraded to the NXi configuration with the new offerings. A big change for Mustangs is the package's GWX 75 weather radar, which replaces the original magnetron-based, four-color GWX 68. The GWX 75 is a digital radar with 16 colors, vertical scanning, weather attenuated color high-light technology, and optional ground clutter suppression and turbulence detection.

GPS interference testing remains problematic

by Matt Thurber

During an NBAA News Hour session on May 14, experts summarized the status of problems caused by military GPS jamming tests. This type of testing continues to grow and is causing GPS reception outages for all types of flight operations, and there is no plan by the military to reduce GPS jamming training operations.

"We've seen the number of GPS interference events have nearly quadrupled in the past decade," said NBAA director of air traffic services and infrastructure Heidi Williams. "The number of locations across the National Airspace System [NAS] where those jamming events occur has doubled in the last two to three years. So we're seeing a proliferation of events and locations." She added that it's likely the impact of this GPS jamming testing is growing. "It's fair to say that the events are often a safety concern for operators in the NAS and are profound when they do have an impact."

The reason for this testing and why it is growing is that the military needs to be prepared if GPS signals are compromised

by enemy jamming, explained Jim McClay, director of airspace, air traffic, and security for the Aircraft Owners and Pilots Association (AOPA). "The jamming by the DoD [Department of Defense] is to allow them to be able to train in an environment deprived of GPS signal. With the threat landscape globally having changed to more of a large nation-state scenario, the military has to be able to train in an environment where another nation takes out the GPS constellation and they can no longer rely on that."

This issue is not new. In 2017 the FAA tasked an RTCA committee to examine the impact of intentional GPS jamming and to make recommendations on mitigating them, according to Williams. The committee issued its report in May 2018, then the committee was disbanded. The report had 25 recommendations to the FAA, but she said, "we didn't have a status on what the agency decided to do with those recommendations and what mitigations were in play between the FAA and the DoD. That brings us full circle to today

Dual GTX 345DR transponders, which are part of the new NXi STC, provide ADS-B In traffic and weather and the ability to operate where diversity transponder output is required or helpful. Diversity transponders have antennas mounted on the bottom and top of the fuselage, allowing surveillance to work more consistently than it would from only belly-mounted antennas. Aireon's space-based ADS-B requires diversity transponders in many countries and some over-ocean regions.

Meanwhile, Garmin's GSR 56 Iridium transceiver adds global weather information, two-way text and voice communications, automatic position tracking, and other datalink services to the very light twinjet. ■

and why we're still talking about this."

"We as an industry are becoming more reliant on GPS," said McClay. GPS is a critical part of the NAS and there are more IFR procedures that rely on GPS, as well as airborne equipment that is primarily GPS-based. "This continues to be a concern for us," he said.

Jack Allen, managing director of air traffic management for Airlines for America, explained that these GPS jamming events are flagged with notams 120 hours before the event. But these GPS notams aren't included in standard briefings and pilots need to search separately for GPS notams.

But many of these GPS notams are textual and difficult to decipher, according to McClay. "We're trying to expect folks to interpret this information by looking at a series of lat/longs and a description. It's not effective." To its credit, the FAA does publish graphical depictions of GPS interference testing advisories on its FAA Safety website.

The other issue is that there is no consistent agreement about how to collect data on interference occurrences. According to Williams, GPS outages have a significant safety impact. In one case it caused an aircraft to enter a Dutch roll and another to lose all GPS information on final during an instrument approach.

"Those are big deals," she said, especially considering the increasing reliance on GPS as the NAS moves to reduce the number of ground-based navigation facilities (mostly VORs). As well, many aircraft equipped are now equipped with GPS-dependent ADS-B Out avionics, which report position information to air traffic control and traffic information to other aircraft. "We need a resilient NAS," she said.

The advice from the News Hour panelists for pilots experiencing a GPS outage is to let air traffic controllers know. "It's important to do that," said McClay. "Perhaps there is a concern with pilots not reporting it because they're not aware what's happening. There may be a concern because they're not sure where this report goes."

However, during a briefing with the FAA, the agency explained that a report to a

► continues on next page

News Update

Mid-Continent Introduces TSO'd Chronos Clocks

Chronos series clocks from Mid-Continent Instruments and Avionics fit in a two-inch instrument cutout and have eight modes of operation plus single or dual USB charging ports. In addition to providing up to 75 watts of USB power, the clock's eight modes include local and UTC time, flight and countdown timer, stopwatch, volts, and outside and secondary air temperature display.

The clock's lighting can be controlled externally and it also has a built-in photocell for automatic dimming. Time and flight timer memory are maintained by an internal, field-replaceable battery.

"Panel space is a premium," said Matthew Harrah, senior v-p of technology and products. "Our customers wanted more built-in functionality and access to fast-charging USB power, all-in-one."

CMC Certifies Smart MFD

Transport Canada has granted Canadian technical standard order (TSO) approval for the CMC Electronics MFD-4068 Smart Multi-Function Display (SMFD).

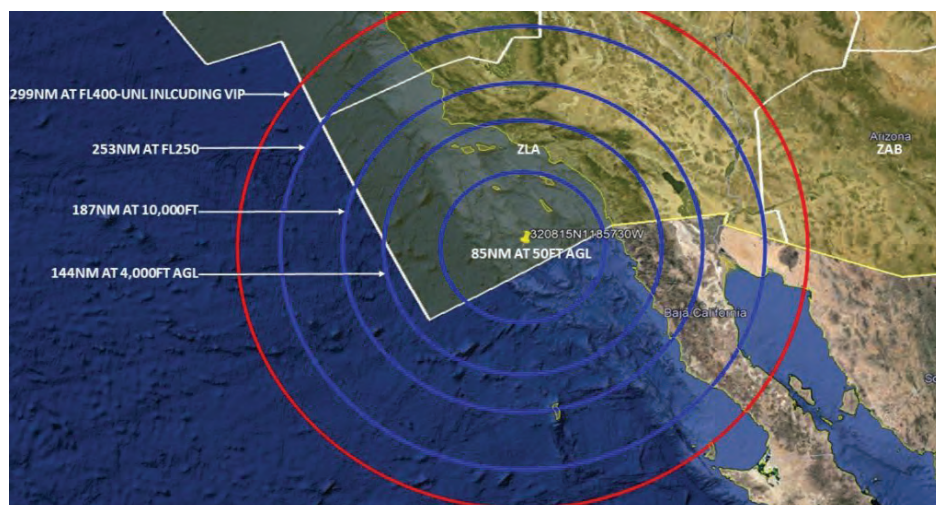
One of the MFD-4068 display's key attributes is its ability for one center-mounted display to drive adjacent displays and a head-up display, which is especially suited for trainer aircraft applications, according to Brad Nolen, v-p, sales and marketing. The display features an open-architecture platform that allows customers to develop their own applications. This includes customers such as military "programs with sensitive IP that they wish to keep in-house," he explained, "or legacy software that they wish to re-host." Examples of applications developed by customers and CMC include PFD, navigation, synthetic vision, and FMS applications, all of which can be displayed simultaneously.

Bizjets ID'd for CPDLC Trials

L-3Harris has identified aircraft models that carry the required equipment for participation in U.S. domestic en route controller-pilot data link communication (CPDLC) trials.

According to a Honeywell briefing, the FAA will temporarily exclude aircraft that don't meet the equipment requirements from the CPDLC trials, but these aircraft will be allowed to participate once their equipment is validated. The excluded aircraft "had a lower than expected transmission success rate," according to Honeywell.

The qualified aircraft include Gulfstream's G280 and G500 through G700; Dassault's Falcon 900 and 8X; Bombardier Global 5000/5500, 6000/6500, and 7500 and Challenger 300/350, 604/605/650; the Embraer Legacy 450/500 and Praetor 500/600; and aircraft with specified Universal Avionics and Garmin G3000/G5000 equipment.



A graphical depiction published by the FAA of the altitudes and areas that will be affected by upcoming GPS interference testing.



Viasat's phased-array satcom antenna is mounted on top of this Citation's fuselage for flight testing as part of Project AIDAN.

Viasat demos phased-array antenna on Citation II

Phased-array satcom antennas are moving closer to availability for aircraft, following a successful demonstration of a Viasat antenna on a Cessna Citation II. The first demonstration flight took place on April 20 during a flight from Rotterdam, Netherlands, to Payerne, Switzerland.

This effort was part of Project AIDAN, which is led by Viasat Antenna Systems Switzerland and involved a consortium of partners that included Viasat Netherlands, NLR, and Lionix International. The Citation II was provided by NLR, and funding for Project AIDAN comes from the European Space Agency, Switzerland, the Netherlands, Viasat, and other European companies.

Viasat's phased-array antenna can track satellites without any moving parts, electronically steering "its beams to maintain contact with the satellite," according to the company. While the antenna is somewhat large and must be installed in a suitable location on top of the fuselage, it could open opportunities to deliver broadband high-speed Ka-band connectivity for aircraft

that can't accommodate a tail- or fuselage-mounted mechanically steered antenna.

Prior to the April 20 demo flight, the phased-array antenna's tiles and apertures were tested in an anechoic chamber, then the antenna was mounted in a van that was driven around to ensure its beams could point properly at the Viasat satellites.

After the first flight, multiple demonstration flights were conducted, according to Carolina Vigano, RF and terminal director at Viasat Antenna Systems. "We were trying to stress the system and see how it is responding," she said. This included streaming Netflix on one laptop, making a Zoom call on another laptop, while another user uploaded a large file using a VPN and everyone on board connected as many devices as possible.

"This core technology is a building block to connect fixed and mobile platforms in the air, on land, and at sea, to enable the game-changing broadband experiences that Viasat satellites will provide worldwide," according to Viasat. **M.T.**

» continued from previous page

controller goes to the facility supervisor, then to FAA headquarters and the DoD. "DoD can review these reports to help craft future events, hopefully, to avoid trouble," McClay said.

There is also a way for the FAA to ask the DoD to stop jamming in case of a safety issue. AOPA explained, "According to the Pilot/Controller Glossary, 'stop buzzer' is a term used by ATC to request suspension of 'electronic attack activity.' Pilots should only use the phrase when communicating with ATC or over the emergency frequency 121.5 MHz if a safety-of-flight issue is encountered during a known GPS interference event. Using this unique phrase when experiencing an unsafe condition related to GPS interference will ensure that ATC and the military react appropriately by stopping the jamming."

Pilots can use the FAA's GPS Anomaly Reporting Form to notify the agency of

GPS issues. In any case, the FAA Aeronautical Information Manual recommends that pilots report any anomalies with navigation aids or global navigation satellite systems (generally GPS but there are other networks) per paragraph 1-1-13.

GPS jamming is a worldwide problem, not isolated to the U.S. Notams for GPS interference reference jamming potential in many regions, and in the case of international notams, information is provided for pilots to report jamming safety issues and incidents.

"We're not sure how many instances [of jamming occur]," said McClay, "but the FAA does keep track of how many 'stop buzzer' events happen. It's important for pilots, if appropriate, to call 'stop buzzer.' Pilots should be willing to speak up."

While there hasn't been much movement on the RTCA committee's recommendations, the dialogue continues and the FAA wants to continue collaborating with the aviation industry, according to Williams. ■

Garmin closes purchase of AeroData software biz

by Matt Thurber

Garmin announced May 25 that it completed the acquisition of aircraft performance data provider AeroData. The Scottsdale, Arizona-based company's products include runway analysis, takeoff and en route performance, weight and balance, passenger and cargo load planning, a global airport obstacle database, notam monitoring, and custom software.

In December, Garmin announced the integration of AeroData's runway analysis services with FltPlan, the flight planning company that Garmin purchased in 2018. Garmin plans to look at more ways to add AeroData capabilities for its business aviation customers. "We look forward to building upon AeroData's incredible success in providing advanced software solutions for both air transport and business aviation," said Phil Straub, Garmin executive v-p and managing director of aviation.

"In addition to broadening Garmin's presence in commercial aviation, AeroData's extensive load planning, performance, and flight path analysis expertise significantly enhances and expands our digital services portfolio."

AeroData will continue operating under its brand at the Scottsdale location. The company's customer base includes more than 135 airlines and it provides "performance data to more than 70 percent of airline flights in North America," according to Garmin.

"AeroData provides aircraft performance data for more than 20,000 commercial flights each day," said AeroData president Terry McDonough, "and we are excited to further expand this reach to commercial and business aviation customers worldwide within the Garmin aviation ecosystem." ■



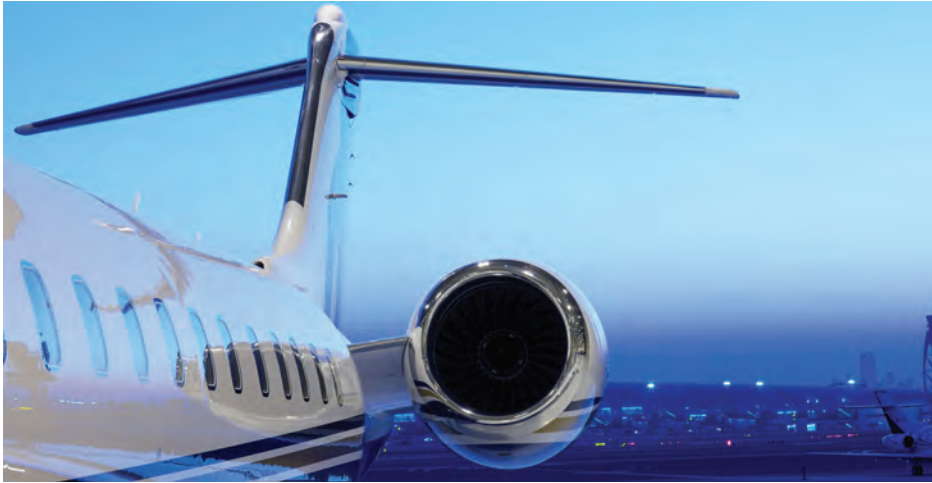
Avidyne Helios FMS receives TSO approval

A week after the FAA issued TSO approval for Avidyne's Atlas flight management system (FMS), the agency issued a TSO nod for the Helios helicopter version of the FMS. Like Atlas, the Helios FMS is a Dzus-mounted multifunction FMS that is form-factor compatible with many legacy systems, measuring 7.5 inches tall, 5.75 inches wide, and 10.615 inches deep. Helios prices start at \$23,999, or \$29,999 with optional navcom radio.

Among the many modern features that Helios brings to rotorcraft are SBAS/LPV approach guidance and the ability to provide position information for ADS-B Out transponders. Helicopter-specific optional features include night-vision goggle compatibility and helicopter-TAWS with powerline database.

Helios employs Avidyne's hybrid touchscreen interface, which lets pilots alternate between using the touchscreen or knobs and buttons for almost all functions. Wi-Fi and Bluetooth are built-in for connection to EFB apps. The FMS also has a USB charging port, and its qwerty keyboard is spill-proof.

The Helios display can show airspace, terrain, and navaid information with overlaid ADS-B In or SiriusXM weather. Other display elements include traffic from TCAS, TAS, or ADS-B In, and Jeppesen approach charts and airport/heliport diagrams. It can also show BendixKing digital weather radar imagery and the FMS's display can also run RS-170 video. An integrated 16-watt VHF com, VOR, localizer, and glide-slope radio is available as an option. **M.T.**



ExecuJet is now offering private aviation handling services at Tel Aviv's Ben Gurion Airport.

ExecuJet Adds Israel FBO

ExecuJet has expanded its footprint in the Middle East with the establishment of an FBO in Israel. The newest location is based at the Fattal Terminal at Tel Aviv Ben Gurion Airport, marking the country's first private luxury passenger facility. A Luxaviation Group subsidiary, ExecuJet, in partnership with Israel-based aviation company Flyeast, will provide passenger processing, supervisory aircraft handling, concierge services, flight arrangements, and aircraft charter.

The terminal, which is under the same ownership as the Fattal Hotel chain, serves business aviation clients as well as diplomats, heads of state, and high-end commercial passengers. It provides security checks, hand luggage screening, and CIQ services, and offers private waiting rooms with beds and ensuite showers, as well as a main lounge with refreshments. The facility also includes a catering kitchen, 20- and 40-seat conference rooms, two duty-free shops, and chauffeur service.

An ExecuJet representative will meet guests at the entrance to the private terminal and be on hand to assist inside the facility. "We're now finalizing key project elements, such as passenger flow within the VIP passenger lounge within the Fattal Terminal," said Mike Berry, the company's president of aviation services and v-p for the Middle East.

Over the coming months, ExecuJet will train new staff and develop its services to further enhance guest experience, it said.

Yingling Continues Growth with Rising MRO Demand

As it marks 75 years in business, Yingling Aviation is growing by another 50,000 sq ft following the acquisition of three hangars and office space near its existing 200,000 sq ft of facilities on the east side of Wichita Dwight D. Eisenhower National Airport (KICT). Yingling president Andrew Nichols told *AIN* that half of the new space will accommodate a growing MRO business, while the other half will serve corporate operators that base their aircraft at Yingling's FBO.

Nichols explained that at the beginning and "worst stages" of the Covid-19 pandemic, Yingling's MRO operations stayed "fairly" busy. But that left him uncertain about how demand would be for his company's maintenance, avionics, interiors, and paint business post-pandemic. As it is, "we just simply don't have the space right now to take on the customers that are calling us, looking for us to provide them with these services," he said. "So, these facilities that we've acquired will allow us to support the demands that we are seeing on the MRO side."

Additionally, ICT's largest FBO is looking to hire additional airframe and powerplant and avionics technicians to support the MRO demand, Nichols noted. Even with 145 employees, he hopes to add about 25 more by year-end. "That is our biggest challenge right now—finding the talent and getting them here," Nichols said.



Yingling Aviation's expansion will bring its total hangar inventory to 12 at Wichita Eisenhower National Airport.

Ross Aviation Breaks Ground on Scottsdale Hangar

Ross Aviation broke ground on a 56,000-sq-ft hangar and two adjacent 3,000-sq-ft office buildings at its Scottsdale [Arizona] Municipal Airport (KSDL) FBO complex. The \$15 million project at KSDL, which the company said is one of its most active year-round locations, is expected to be completed in the first quarter of next year.

According to Ross Aviation, the hangar will have two primary bays that can accommodate ultra-long-range business jets such as the Gulfstream G650. To further the company's sustainability effort, Ross Aviation said, the roof of the hangar and office complex will include a bank of solar panels and the 36-space parking area will have EV charging stations.

"Putting shovels in the ground is the start of providing even greater hangar capacity for our customers here in

sales, and charter provider flyAdvanced.

Hangar space able to accommodate aircraft up to the size of a Challenger 300 is available on an as-needed basis along with rental cars, and a restaurant is within walking distance.

Universal Aviation Expands Greek Operations

Universal Aviation has expanded its private aviation ground handling operation in Greece with the opening of its Mykonos office. Universal has had a presence in the country since 1993, with the introduction of its 24/7 Athens headquarters that provides ground support supervision to all of Greece.

Universal Mykonos, which opened just ahead of the peak Mediterranean summer travel season, provides local, dedicated company staff to directly support operators coming to the popular



LNS Alliance Aviation, the sole FBO at Pennsylvania's Lancaster Airport, showed off its new purpose-built 6,700 sq ft terminal with a week-long grand opening celebration in June.

Scottsdale," said CEO Brian Corbett. "Moreover, the groundbreaking further affirms our promise to invest in creating facilities that allow us to provide an unmatched level of flight hospitality."

Meanwhile, the company expects to continue to expand its network of 18 FBOs, with groundbreakings on at least two more facilities expected by year-end.

Alliance Aviation Debuts Lancaster Airport FBO

LNS Alliance Aviation, the lone FBO at Pennsylvania's Lancaster Airport (KLNS), debuted its new home—a \$3 million, airport-built FBO facility—with an official grand opening in June.

The newly built 6,700-sq-ft, two-story building features a glass-walled passenger lounge overlooking the ramp, 12-seat conference room, pilot lounge with a pair of snooze rooms and shower facilities, and flight-planning room. It will offer concierge services, complimentary hot beverages, a catering prep kitchen with a dishwasher, available office space, and a courtesy car. The new private aviation terminal replaces the decades-old 4,000-sq-ft facility that LNS Alliance Aviation occupied since 2008, which has already been taken over by aircraft maintenance,

location, which has no FBO and no overnight aircraft parking at its small airport.

"Historically, Mykonos can be a challenging destination due to the difficulty of obtaining slots and then coordinating parking for the aircraft off the island," said Yiannis Arkoulis, Universal Aviation Greece's managing director. "With the additional challenges due to Covid, new operating protocols, and the pent-up demand this peak season will bring, we thought it was important to add our own dedicated people to the island to assist with those challenges."

In addition to slot coordination for arriving aircraft, the company's staff will assist with arranging helicopter transfers, yacht rendezvous, concierge services, and specialized on/off-airport logistics services.

"From our headquarters in Athens we coordinate with our agents all over Greece to provide parking solutions and match slots and permits between Mykonos and other Greek airports used for aircraft positioning," said Dimitra Kiriakopoulou, Universal's in-country director of operations and customer care. "This ensures we are providing a seamless solution for missions both to Mykonos and elsewhere in Greece, reducing the risk of errors from handoffs." ■



 **NBAA|BACE**[®]
OCTOBER 12-14, 2021 • LAS VEGAS, NV

IT'S GO TIME.

Engines are roaring, the skies are clearing and we are firing up for the most epic event in NBAA history. The 2021 NBAA Business Aviation Convention & Exhibition (NBAA-BACE), taking place from October 12 to 14 in Las Vegas, is guaranteed to be a transformational event that provides you an unmatched opportunity to get connected and power your business forward. Save the date and visit the NBAA-BACE website to learn more.

LEARN MORE | nbaa.org/2021

 facebook.com/NBAAfans

 twitter.com/nbaa

 instagram.com/nbaaphotos



A&P technicians are among the jobs Bombardier is looking to fill at its U.S. service centers.

Bombardier Begins U.S. Service Center Hiring Spree

Bombardier is looking to fill more than 200 positions across its U.S. service center network, the Canadian airframer announced in early June. Specifically, the company is hiring A&P technicians; avionics/electrical technicians; customer project managers; interns; lead technicians; managers; paint and interior technicians; quality inspectors; structures technicians; and supervisors. The positions are open at its service centers in Dallas; Hartford, Connecticut; Tucson, Arizona; Wichita; and Fort Lauderdale/Miami Opa Locka. Overall, Bombardier expects its aftermarket services to grow to \$2 billion by 2025. During that period, the OEM plans to expand its aftermarket services to about 27 percent of total revenue.

ABS Jets Joins EmbraerX's Beacon Digital Mx Platform

EmbraerX's Beacon will provide its digital maintenance coordination platform to ABS Jets in the Czech Republic under a new agreement. Through its web and mobile application platform, Beacon connects operators, maintenance providers, aftermarket suppliers, and OEMs with the goal of accelerating aircraft return-to-service time during unscheduled maintenance events. ABS Jets is Beacon's first European executive operator to join the platform. ABS Jets expects to run more than 50 maintenance cases per year using the platform, with the goal of reducing the out-of-service time by 20 percent.

Constant's Orlando Paint Ops To Tackle More Jets

Constant Aviation has expanded its paint operation at Orlando Sanford International Airport in Florida to accommodate more business jets as large as the Gulfstream G650, Dassault Falcon 7X, and Bombardier Globals. As a result of the expanded capability, the Cleveland-based MRO provider expects to hire 50 additional workers at its Central Florida

location. The larger paint operation will allow Constant to increase its available paint slots by 20 percent.

Dallas Airmotive Brazil Ops Expands PW500 Mx Options

Dallas Airmotive's regional turbine center (RTC) in Brazil has expanded its capabilities to provide hot section inspections for Pratt & Whitney (P&W) PW500 family engines found on the Embraer Phenom 300 and Cessna Citation Bravo, Excel, Encore, and XLS-series twinjets. The move continues an expansion of Dallas Airmotive's portfolio of engine and APU support at the RTC. The Brazil RTC also will be able to provide service to operators that participate in the P&W Canada Eagle service plan.

Duncan Expands Engine Mx Capabilities in Lincoln

Duncan Aviation has expanded its turbine engine capabilities at its Lincoln, Nebraska facility with the addition of Honeywell TFE731 Heavy and HTF7000 Series Minor authorizations. In addition, the facility has brought online a 20,000-pound-thrust-class test cell. The company has also added 592 sq ft to its engine washroom area as well as a new environmentally friendly evaporator system that includes an air makeup unit with exhaust fans to remove fumes from

cleaning solvents. To better support HTF7000 customers, Duncan added a large-capacity media blaster and a paint booth dedicated to the company's engine services department.

PAG's Keystone Acquisition Adds M250 Engine Expertise

Precision Aviation Group (PAG) has gained a new specialization in Rolls-Royce M250 turbine engines through the acquisition of Keystone Turbine Services (KTS). In addition to being an OEM-approved aftermarket MRO of the M250 series of gas turbine engines, KTS is a Honeywell authorized warranty and repair station for Pratt & Whitney PT6A and PT6T fuel controls, power turbine governors, and related accessories.

GE Aviation Extends CF34 Engine Mx Agreement with MTU

MTU Maintenance Berlin-Brandenburg, a subsidiary of Germany's MTU Aero Engines, has signed a branded service agreement extension with GE Aviation to continue as an authorized service provider through 2030 for OEM maintenance, overhaul work scoping, and component repairs on CF34-3, CF34-8C, CF34-8E, and CF34-10E engines. Variants of the CF34 engine family power Bombardier and Embraer regional and business jets such as the Bombardier Challenger 605 and Embraer Lineage 1000 bizliner.

TAC Creates Hangar Management Business with Acquisition

Following its May 1 acquisition of the assets of Gemini Air Group at Arizona's Scottsdale Airport (SDL), Dallas-based The Arnold Companies (TAC) has established a Keystone Aviation operation there. Additionally, it created TAC Private Hangars, which will manage more than 65,000 sq ft of upscale private hangar and office space at SDL.

Keystone, which was acquired by TAC in 2012, will provide its full range of charter, aircraft management, and

Part 145 repair station services at SDL. In addition to providing customers with hangar space and tenant office space, TAC Private Hangars will offer dedicated handling services at SDL.

Heli-One Adds AW139 Main Gearbox Expertise

Heli-One is working with Leonardo Helicopters to develop expertise in the maintenance of the AW139's main gearbox (MGB). The Canadian helicopter MRO provider, which is an authorized component repair center for the Italian helicopter manufacturer, will offer MGB maintenance of the intermediate twin at its Delta, British Columbia facility. The company is working with Leonardo on MGB training and tools, which builds on the AW139 intermediate gearbox and tail gearbox capability Heli-One added last year.

Texas MRO Donates Global Express Airframe to Mx School

MRO provider and parts specialist Southwest Aerospace Technologies has donated a parted-out airframe of a Bombardier Global Express to Texas State Technical College (TSTC). It will be used at the school's campuses in Waco, Harlingen, and Abilene for airframe and powerplant technology and avionics technology training. Southwest Aerospace also will provide annual funding for a scholarship for TSTC aviation students.

Bluetail Launches Digital Record Search Engine

Aircraft data storage and access provider Bluetail has introduced a digital document search engine called Mach Search. Founded a year ago, the company developed this latest product with input from its customer base, including corporate flight departments, charter operators, aircraft owners, brokers, and flight schools. According to the company, the system uses optical character recognition to streamline the ingestion, organization, and search of operations and maintenance documents. It can even recognize handwriting to search by A&P technician signature or inspector signoffs.

Skandia Offers Soundproofing Kit for Bombardier Globals

Skandia's acoustic soundproofing kit for Bombardier Global Express, 5000, and 6000 large-cabin business jets has received Transport Canada STC approval. The Global kit is available to operators as an à la carte selection of soundproofing materials that include chin fairing, baggage, and floor damping; thermal acoustic insulation bags; over-frame blanket; and Aerolite carpet pad. In a Global 6000, the kit reduces average sound by 3.06 dB (SIL). ■



TAC Private Hangars will manage 60,000 sq ft of hangar space and 5,000 sq ft of office space at Scottsdale Airport in Arizona following the acquisition of Gemini Air Group's assets.

THE **FUTURE** OF THE AEROSPACE INDUSTRY

 **DUBAI**
AIRSHOW

14-18 NOVEMBER 2021
DWC, DUBAI AIRSHOW SITE

www.dubaiairshow.aero

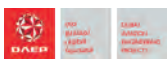
Book your space today: sales@dubai.aero

Join us as we launch a range of new features including new content streams, emerging technologies showcase, intelligent matchmaking platform, enhanced networking and much more in a live format.

Follow us on: [f](#) | [in](#) | [@](#) | [t](#) | [#DubaiAirshow](#)

COMMERCIAL AVIATION | AIRCRAFT INTERIORS | MRO | BUSINESS AVIATION | AIR TRAFFIC MANAGEMENT
SPACE | DEFENCE & MILITARY | AIR CARGO | EMERGING TECHNOLOGIES **NEW!**

Supported by:





by David Jack Kenny

PRELIMINARY REPORTS**Four Fatalities in Mississippi Approach Accident****MITSUBISHI MU-2B-60, MAY 4, 2021,
HATTIESBURG, MISSISSIPPI**
.....

One occupant of the house and all three on board the airplane were killed when the twin-engine turboprop crashed into a home while attempting a GPS approach to Hattiesburg's Bobby L. Chain Municipal Airport. Two other people in the home suffered minor injuries. Much of both the structure and the aircraft, including its instrument panel, were consumed by the ensuing fire.

The flight had departed from Wichita Falls, Texas just over two hours earlier on an IFR flight plan to Hattiesburg and was cleared for the RNAV approach to Runway 13. ADS-B position data logged during the approach showed that the airplane flew to the initial approach fix, executed the procedure turn, and entered the final approach segment. The last data point was recorded about 3.8 miles from the runway's approach end, 1.6 miles from the accident site, at an altitude of 1,475 feet msl. Investigators found the landing gear down and the flaps extended to 20 degrees.

The instrument-rated private pilot, whose second-class medical application filed nearly a year before the accident reported 7,834 hours of flight experience, had completed a flight review in the accident airplane on November 13, 2020 and the required model-specific recurrent training the following day. Before buying the accident airplane in February 2012, he had owned an MU-2F model.

Tennessee Departure Crash Claims Seven**CESSNA 501 S/P, MAY 29, 2021,
SMYRNA, TENNESSEE**
.....

Seven members of a Nashville-area church were killed when their Citation I crashed into Percy Priest Lake moments after takeoff. The flight was bound for Palm Beach County (Lantana) Airport in Florida. Recovered ADS-B data showed that the jet made a climbing right turn to 2,900 feet before descending to 1,800 and climbing back to 3,000 feet, then descending rapidly into the lake. Ceilings in the vicinity were overcast at 1,300 feet.

Initial reports did not make clear who was at the controls. One occupant, a co-owner of the company to which the jet was registered, held a CE-500 type rating and had a current medical certificate, according to FAA data. Another held a private pilot certificate with instrument and multi-engine ratings and a current medical, but no type ratings. None of the others appear to have held pilot qualifications.

FINAL REPORTS**Unforeseen Medical Crisis Implicated in Firebombing Accident****KAWASAKI HEAVY INDUSTRIES BK-117,
AUG. 17, 2018, ULLADULLA,
NEW SOUTH WALES, AUSTRALIA**
.....

The ATSB concluded that sudden incapacitation from an undiagnosed medical condition was most likely responsible for the loss of the firefighting helicopter and its pilot. The pilot was killed and the helicopter destroyed after the aircraft diverged from its planned course, allowing the fire bucket and long line to become entangled in trees. Postmortem examination led investigators to conclude that the pilot suffered from lymphocytic myocarditis, a condition "capable of causing sudden impairment or incapacitation" for which "There are no risk factors for the development...and it cannot be detected by medical screening." The pilot also had established coronary heart disease, which was "being effectively managed by medication."

The accident occurred on the pilot's third flight of the day, dropping water collected from a nearby dam on a fire on Plot Road, Woodburn. The bucket fill was uneventful, but shortly afterwards the helicopter went off course. Autopsy revealed an area of acute inflammatory change in the pilot's cardiac muscle, likely due to a previous viral infection, as well as confirmatory evidence of documented coronary heart disease.

Momentary Lapse Doomed King Air**BEECHCRAFT B300, JUNE 30, 2019,
ADDISON, TEXAS**
.....

The pilot's brief application of left rather than right rudder after losing thrust in the left engine caused a catastrophic loss of control at low altitude, resulting in the destruction of the aircraft with the loss of all on board. The pilot, co-pilot, and eight passengers were killed after the airplane rolled over and crashed inverted into a hangar 17 seconds after takeoff. In a finding of probable cause published on May 18, the NTSB also cited the 71-year-old pilot's failure to lower the nose to maintain airspeed and raise the landing gear after losing the critical engine as having contributed. The entire accident sequence lasted just 11 seconds from the first indication of loss of thrust to the moment of impact, making the lack of any discussion of emergency procedures prior to takeoff also potentially significant.

While not required, the King Air was equipped with a cockpit voice recorder (CVR). The recording did not capture

callouts from any of the applicable checklists (before engine start, engine starting, before taxi, or before takeoff). The crew obtained the current ATIS information at 8:26 and received an IFR clearance to the Albert Whitted Airport in St. Petersburg, Florida at 8:30. "A noise similar to an engine starting" was recorded just before 9:03, the second engine 16 seconds later. They received clearance to taxi to Runway 15 at 9:05 and takeoff clearance at 9:09:41.

The noise of increasing propeller speed was heard 30 seconds later, and at 9:10:25 the co-pilot said "Airspeed alive." No V-speeds were called out at any point during the takeoff roll. The NTSB's sound spectrum and performance analyses concluded that rotation occurred at 9:10:32 at 102 knots airspeed—eight knots below the reference speed for those conditions—and liftoff two seconds later at 105 knots, 12 knots less than the appropriate takeoff safety speed, after a ground roll of 1,900 feet. Witnesses on the ramp described the rotation as "steep," consistent with other pilots' descriptions of the accident pilot's "aggressive" technique.

Six seconds after liftoff, the pilot asked, "What in the world?" as the sound of the propellers' rpm began diverging. In the next three seconds, the CVR recorded the sounds of a click, the stall warning, and the co-pilot saying "You just lost your left engine." The airplane began turning left but continued to climb. A warning chime and another click followed, and the performance study calculated that the airplane began rolling left at 9:10:45. It reached its maximum altitude of 100 feet two seconds later as the stall warning sounded again, followed by three "bank angle" annunciations. Airspeed decayed to 85 knots, 11 below V_{mc}, and the rate of left roll increased from 5 to 60 degrees per second. The stall warning continued until impact at 9:10:51.

The performance study found that the yaw observed in airport surveillance footage implied a rudder deflection of 11 degrees nose-left two seconds after the loss of thrust, neutralized two seconds later and then reversed to 20 degrees nose-right. The cause of the power loss could not be determined. Impact signatures, including rotational scoring on the stators and power turbine rotating components, showed that both engines were operating at impact. The lack of checklist use, which the pilot's business partner said was characteristic, raised the possibility that he'd neglected to set the friction locks, allowing the left engine power control to slide back to the idle stop. A sound test in another B300 cockpit found this made a click similar to that captured by the CVR.

The 28-year-old co-pilot flew with the pilot frequently, but was not type-rated in the B300 and not allowed to

take the controls with passengers on board. Investigators conjectured that this inhibited him from intervening during the brief interval the airplane remained controllable.

Zero-Flaps Landing Ends in Tail Strike**CHALLENGER 605, FEB. 23, 2020,
CALGARY INTERNATIONAL AIRPORT,
CALGARY, CANADA**
.....

The Canadian Pacific Railway corporate jet sustained significant damage after briefly pitching up, lifting off, and striking its tail during a no-flaps landing. There were no injuries to any of the three crew members or 10 passengers, but the strike broke off the airplane's fuel drain mast and abraded the tail fairing's lower skin. The nose gear's subsequent contact with the runway caused overload damage that included deformation of the left and right nose gear torque box structure and adjacent lower fuselage skins as well as damage to several lower front fuselage frames. The TSB found that the crew responded appropriately to a "FLAPS FAIL" warning during approach, but failed to note the corresponding cautions in the Quick Reference Handbook (QRH) recommending nose-down control pressure prior to use of reverse thrust.

The flight from the Palm Beach (Florida) International Airport in the U.S. was uneventful until the initial descent into the Calgary area. A "FLAPS FAIL" message appeared immediately after the crew selected "flaps 20." They requested and received delaying vectors to run the QRH flap failure checklist and prepare for a no-flaps landing on Runway 17R at an approach speed of 155 knots, 30 knots above the normal reference speed. They touched down 3,000 feet beyond the threshold at 154 knots. Two seconds after the nose gear touched down, the pilot flying deployed the thrust reversers and applied maximum reverse thrust.

The nose gear lifted off the runway 4.5 seconds later as the airplane pitched up to 13 degrees nose-high, reaching a maximum of 16.9 degrees as the pilot flying applied forward pressure and deselected reverse thrust. The airplane banked slightly to the right and the left main gear briefly left the runway. The stick pusher activated less than a second after the tail hit the runway, and despite countervailing nose-up control pressure by the pilot, the nose fell by at least 15 degrees per second until the nose gear struck the runway. The jet slowed and was able to taxi to parking. The flap failure was traced to corrosion in a flexible drive shaft due to moisture incursion, possibly from holes punched in the outer sheath during installation of its data plate. ■

BUILDING A SUSTAINABLE FLIGHT DEPARTMENT

AIN is hosting four one-day regional conferences on sustainability and the modern flight department. Learn from and engage with AIN editors and leading market experts as they discuss topics such as SAF, carbon credits, impact of legislation, and more.

REGISTRATION IS NOW OPEN!

- September 22, 2021: Sleepy Hollow Hotel & Conference Center, Tarrytown, NY
- November 10, 2021: Hilton Anatole, Dallas, TX
- December 8, 2021: Westin Ft. Lauderdale, FL
- January 19, 2022: Los Angeles, CA

GUEST SPEAKERS



NANCY BSALES
4AIR



STEWART D'LEON, CAM
NBAA



DARREN B. FULLER
Ascent Aviation Group, Inc.



KEITH SAWYER
Avfuel Corporation



DOUG CARR
NBAA



MATTHIAS DZIWIS
Rolls-Royce



TIMOTHY R. OBITTS
NATA



DAVE SMITH
Rolls-Royce



SCOTT CUTSHALL, CAM
Clay Lacy Aviation



MARC EHUDIN
GAMA



KENNEDY RICCI
4AIR



SPONSORS



ainonline.com/events

For sponsorship information, please contact your representative or sales@ainonline.com

Platinum Sponsors: BOMBARDIER DASSAULT FALCON JET Gulfstream™ JSSI STEVENS AEROSPACE AND DEFENSE SYSTEMS TEXTRON AVIATION

Gold Sponsors: gogo BUSINESS AVIATION PILATUS PNC AVIATION FINANCE romanelli.com

We're Back in Time...

...and in Person; the JETNET IQ Summit returns with new life, new ideas and a new location at the neo-retro, super swanky TWA Hotel located at the JFK Airport. Reconnect with colleagues, business leaders and old friends in this exciting new space, where the past meets the future. Come and celebrate our 10th IQ Summit...back in time. Visit jetnet.com/summit for more info.



JETNET IQ Summit

TWA Hotel at JFK | Sept. 15-16th, 2021



Network
Hob-nob over cocktails with all the right people.

Experience
Dazzling speakers from across the industry.

Inspire
Brainstorm with the biggest brains in BizAv.

Convenient
A single flight from almost anywhere.

FutureFlight

THE FUTURE OF ADVANCED AIR MOBILITY

GET THE LATEST NEWS, DATA, AND ANALYSIS ON THE FUTURE OF AVIATION

COMPREHENSIVE DATABASE TRACKING NEW AIRCRAFT PROGRAMS

OBJECTIVE, EXPERT MARKET INTELLIGENCE, DATA AND COMMENTARY

HIGHLY RESEARCHED, IN-DEPTH REPORTS ON MAJOR TRENDS DRIVING CHANGE



Register today for a FREE 30 day trial!

FutureFlight.aero

› continued from page 31

company to support its defense work and growing commercial aircraft production rates, she said.

Meanwhile, at least in the immediate aftermath, Aerion remained a going entity. The word “bankruptcy” had not been mentioned but to all those involved, but the company was taking steps to shutter.

High-level employees gave notice of their availability for other opportunities, and Aerion chairman, president, and CEO Tom Vice was believed to have been reaching across his network to make sure his staff was taken care of to the extent possible.

The fate of the company’s intellectual property and some four dozen patents still remain unclear.

A Longtime Dream

Aerion began as a dream of keeping civil supersonic travel alive at a time when the Concorde had retired. Richard Tracy, the noted aerodynamicists who worked for companies such as Lockheed and Douglas, formed Asset Group in 1991 to pursue his research in supersonic natural laminar flow. He teamed with Bass in the founding of Aerion in the early 2000s to use that research to form a foundation for a new supersonic aircraft.

Tracy remained with Aerion and Bass throughout its time.

Aerion slowly worked to flesh out the concept and developed a company with seasoned industry executives that brought credibility and interest to the possibilities of supersonic.

These included, over the years, former Learjet president Brian Barents, who retired from Aerion in 2018 as executive chairman, and former Gulfstream president Bryan Moss, who joined the Aerion board in 2018. As Barents retired, Vice, a former Northrop Grumman executive, took the helm of Aerion.

Under Vice’s stewardship, Aerion moved away from that original natural laminar flow design to a more traditional supersonic design that would be easier to industrialize and bring to market.

And a little over a year ago, he laid out a concept in which the AS2 would be just the beginning. Aerion would become a company that facilitated door-to-door travel through partnerships and use of emerging eVTOL platforms.

Noise and Testing

Critical to moving ahead with the technology were environmental approvals from various government entities. Fully cognizant that the environmental community would never permit the return of a noisy Concorde, Aerion took a more practical approach, designing an aircraft that could be efficient at high subsonic speeds over land and supersonic over the ocean.

This could serve as a starting point as it worked to convince regulators of a concept of accepting a sonic boom that still occurred but didn’t reach the ground with the same impact as the Concorde. Aerion was targeting just over supersonic in the

Mach 1.2 range for that “boomless cruise” mode, while top speed could be Mach 1.4.

With a growing field of supersonic developers, Congress and the international regulatory community have begun to discuss such alternative concepts, and Lockheed Martin is planning noise trials with a demonstrator over land to test a softer thud or supersonic aircraft that do not produce the same noise or emissions profile. When Aerion began, this conversation was a nonstarter at the regulatory level. It was told to demonstrate that there was sufficient interest before regulators would consider evaluating noise requirements.

Beyond tackling the conundrum surrounding noise regulations, Aerion also recognized that clean emissions were critical in gaining acceptance of a supersonic aircraft and promised its model would fly on 100 percent sustainable fuel.

As this continued, analysts clearly saw a market for supersonic, but not for all of the players.

“The market is clearly there,” said Rolland Vincent, president of Rolland Vincent Associates and JetNet IQ creator/director. “Pricing has been established. The technology does not require any leaps of faith. Capital is cheap and [I thought] generally available.”

JetNet had forecast a 10-year market for 300 supersonic business jets, which incidentally was the forecast production rate Aerion projected for its AS2.

While it is unclear how much of Aerion’s backlog was backed with significant deposits, companies such as Flexjet appeared eager to move into that sector. Flexjet was to have been a launch customer, jumping onto the program as early as 2015 with an announced order for 20. More recently NetJets placed options for 20.

“Flexjet ordered its AS2’s from Aerion Supersonic in 2015 and the company has been a supporter of the program since then,” said Kenn Ricci, principal at Flexjet parent Directional Aviation. “We were particularly impressed with the recent design changes and innovations generated by Tom Vice and his current team. While we are disappointed to hear from the company that they are ceasing operations, we understand the vast investment required by such programs to bring them to fruition and the inherent risks involved.”

Meanwhile, as Aerion announced its end of operations, it touted its successes. “The Aerion Corporation has assembled a world-class team of employees and partners, and we are very proud of our collective efforts to realize a shared vision of revolutionizing global mobility with sustainable supersonic flight. Since our company’s formation, our team has created disruptive new innovations plus leading-edge technologies and intellectual property.”

The company further said its aircraft met “all market, technical, regulatory, and sustainability requirements” and that the market for a new supersonic segment was validated by its order base. ■

Contributing to this article were Charles Alcock, Jerry Siebenmark, and Chad Trautvetter

**Within 6 Months**July 6, 2021 **NEW****U.S.: Changes to NTSB Accident Notification Form**

Revisions have been proposed to the National Transportation Safety Board (NTSB) accident notification form 6120.1, the document required to be filed with the safety board by the pilot, operator, or representative of an aircraft involved in an accident or incident that meets safety board reporting criteria. Among the proposed changes: update the form's certification statement to include that by signing the document, the pilot/operator consents to the public release of the information contained therein. Comments on the proposal are due July 6, 2021.

July 20, 2021 **NEW****U.S.: Unmanned Aircraft Accident Definition**

The National Transportation Safety Board (NTSB) proposes amending the definition of "unmanned aircraft accident" by removing the weight-based requirement (under 300 pounds) and replacing it with an airworthiness certificate or airworthiness approval requirement. The weight threshold is no longer an appropriate criterion and the proposed definition will be flexible to account for changes in the unmanned aerial systems industry. It also allows the NTSB to respond quickly to UAS events with a safety significance, while not burdening the agency or public with unnecessary responses. Comments on the proposal are due July 20, 2021.

Aug. 9, 2021 **NEW****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 1 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 the available data for each pilot candidate prior to making a hiring decision.

Aug. 12, 2021

EASA: Criteria for Aircraft 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, amended on Aug. 1, 2019, and originally set to go into effect on Nov. 5, 2020 is now Aug. 12, 2021.

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. The second of several incremental deadlines, including the submission of compliance plans by STC holders, is Aug. 25, 2021.

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.

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>

**DUNCAN AVIATION****DELIVERING ON A 10-DAY PROMISE**

A fleet operator and first-time customer knew this Citation XLS couldn't be down for more than 10 days, yet a completely new look was requested. Duncan Aviation's Finish Shop delivered by hydrodipping the interior components in 10 days.

**WATCH NOW: WWW.DA.AERO/VIDEOS/10-DAY-PROMISE**



VICKI BRITT



PATRICK LUCY



BRYAN DUNN



ASHLEY UDICK



HARRY MITCHEL

The Citation Jet Pilots Owner Pilot Association (CJP) has named **Trent Corcia** as CEO. Corcia joins CJP after spending nearly a decade with FlightSafety International and he has also held positions with American Airlines and served as a U.S. Air Force C-130 instructor/evaluator, navigator, and mission commander.

Cadence Aerospace appointed **Olivier Jarrault** as CEO and **Brian Bentley** CEO of the Cadence Aerostructures segment. Jarrault succeeds Julian Guerra, who will remain on the board of directors. Jarrault has served on the board since June 2020 and has served as president and CEO of Albany International and group president of Alcoa Engineered Products and Solutions. Brian Bentley formerly was general manager of Perfekta and Premier Processing and held management roles at Raytheon Technologies and Bombardier.

Anna Galoni was appointed CEO of bearing and seal specialist *Marsh Brothers Aviation*. She succeeds **Terry McGowan**, who stepped down after holding the role for 14 years. Galoni has held a number of senior roles within Marsh including human resources director, new product development, and most recently chair, a position she continues to hold.

Ryan Scott was named president of *jetAviva*, overseeing the company's Embraer market activities. Scott brings more than 30 years of experience to his new role including as a founding member of Embraer Executive Jets, where he served as senior v-p of sales.

Gogo appointed **Gustavo Nader** as chief strategy officer and **Melissa Hale** as senior v-p of product and marketing. Nader, a telecommunications executive with 30 years of experience in the terrestrial and satellite communications industries, previously was head of strategy for Thales InFlyt Experience and has held senior positions with Echostar, Inmarsat, Ligado Networks, and T-Mobile (formerly Sprint Nextel). Hale brings 17 years of aviation experience to her new role, previously as director of program avionics at Gulfstream Aerospace.

Gulfstream Aerospace has promoted **Vicki Britt** to senior v-p of innovation, engineering, and flight. She succeeds **Colin Miller**, who is retiring after serving with the company for eight years. Britt has more than 30 years of aerospace experience, including the last 25 with Gulfstream and before that with NASA's Langley Research Center.

The Air Charter Association appointed **Patrick Lucy** as chair of its Next Generation group formed to promote greater awareness of the air charter industry, particularly among emerging professionals. Lucy is the area sales manager for Avinode.

Dassault Aviation's board of directors has selected **Besma Boumaza** to serve as an independent director and **Thierry Dassault** as a director. They take the terms of **Catherine Dassault**, who departed the board, and the late **Olivier Dassault**.

Helicopter Association International elected **Brian Jorgenson** of Timberline Helicopters and **Rick Kenin** of Boston MedFlight to three-year terms on the board of directors. Both are serving on the board for the first time. In addition, **Randy Rowles** of Helicopter Institute was named incoming chair and **Jeffery Smith** of R.O.P. Aviation vice-chair. **Jack Matiasevich** of Southern California Edison is treasurer for the upcoming term and **B. Adam Hammond** of Tennessee Valley Authority is assistant treasurer.

NBAA appointed **Kali Hague** to a three-year term on the board of directors as the Young Professional director. A pilot and flight instructor, Hague is a partner at Jetlaw, where she advises clients in the U.S. and internationally on all aspects of aviation law and co-presents the firm's NBAA-approved Professional Development Programs, as well as speaks throughout the country on aviation best practices and compliance.

Luxaviation Group promoted **Gary Forster** to managing director for ExecuJet Caribbean. Forster joined ExecuJet Middle East in 2012, helping to launch its new FBO in Riyadh, later leading the opening of an FBO in Bali, serving as regional FBO manager for Asia-Pacific, and most recently holding the role of global FBO business development manager.

Sage-popovich promoted **Shawn Farrington** to v-p of flight operations. Farrington, who joined the company in 2016, began as an aircraft detailer and worked in ground/line service, maintenance support, parts distribution, liquidations, and flight coordination roles.

Bluetail hired **Roy Gioconda** to serve as v-p of customer success. Gioconda brings 35 years of experience to the role, including leadership positions with Camp Systems, Traxxall, IBM, American Airlines, and Flight Options.

Arjun Garg has joined *Hogan Lovells's* transportation regulatory practice as a partner based in Washington D.C. Garg formerly was chief counsel and acting deputy administrator at the FAA and also has served as a U.S. Department of Justice trial attorney in the Federal Programs Branch of the Civil Division.

Baker Aviation appointed **Harry Mitchel** v-p of operations. Mitchel has more than 35 years of experience in operational leadership and consulting roles, most recently as COO of Executive AirShare and also as v-p of operations for Colgan Air.

Bryan Dunn has joined *Leading Edge Aviation Solutions* as vice president of aircraft sales. Dunn formerly served with StandardAero for seven years as Northeast regional sales manager.

USAIG announced several promotions: **Douglas Bosworth** was named v-p and underwriting branch manager in Seattle; **Kathleen McCoy**, a risk and compliance analyst in the customer care department, was appointed v-p; **Brenda Riech**, the customer care department's policy language analyst is now a v-p; and **Casey Hudson** is assistant v-p and quality assurance coordinator in the customer care department.

Ashley Udick was appointed general manager of *Aero Center Lakeland*, SAR Trilogy Management's FBO complex at Lakeland Linder International Airport. Udick brings more than 10 years of aviation experience to her new role, including holding leadership positions at Sonoma Jet Center, Winter Haven Airport, and Sheltair.

Precise Flight promoted **Bill Hoback** to general manager. Hoback has served with Precise Flight for nine years, most recently as senior director of business development.

Avidyne has made a number of changes to its sales organization, including the addition of **Dan Reida** as director of business aviation sales. Also, **Bryan Kahl** was promoted to senior director of North American sales, support, and customer experience; **Jorge Hernandez** was promoted to director of international and government sales; **Steve Lawson** is leading Avidyne's turbine and helicopter fleet sales; **Dale Ferrer** is covering sales in the West region of North America, and **Macie Dann** now handles sales in the East region of North America.

Duncan Aviation promoted **Leon Holloway** to director of human resources for the enterprise. Holloway, who has spent nearly 10 years with Duncan Aviation, has 18 years of human resources leadership experience including as director of human resources for a St. Croix manufacturer and serves on several advisory boards such as the NBAA Diversity, Equity & Inclusion Working Group.

Don Milum was appointed director of sales for *Universal Avionics*. Milum, who joined Universal in February of 2019 as regional sales manager, has more than 25 years of aviation industry experience that also has included roles with Honeywell, Textron, and StandardAero. ■



AWARDS and HONORS

NBAA has selected **Dr. Martine Rothblatt** as this year's recipient of its highest honor, the Meritorious Service to Aviation Award. A fixed-wing and rotorcraft pilot, she helped to revolutionize the satellite radio industry by co-founding the company that has become SiriusXM. To be presented during NBAA-BACE October 12 to 14 in Las Vegas, the Meritorious Service to Aviation Award recognizes "extraordinary lifelong professional contributions" to the field.

NBAA called Rothblatt a trailblazer in aviation and other industries whose work "fostered the availability of satellite weather information and Nexrad graphics

on the flight deck." Rothblatt also has played a role in the emergence of electric helicopters and is an integral player in advanced air mobility companies, including Beta Technologies, which has won contracts from the U.S. Air Force, Blade Urban Air Mobility, and United Parcel Service. Her work has focused on the use of new eVTOL aircraft for organ delivery, among other purposes.

She is considered an early visionary in biotechnology as well. After her daughter was diagnosed with pulmonary arterial hypertension, she founded United Therapeutics in 1994 to develop drugs to treat that condition and other rare diseases. ■



*U.S. Customs
now open!*

**Strength of a Chain,
Flexibility of an Independent**

*Your designated alternate for West Palm Beach (PBI)
TFR Just 15 miles North of Palm Beach County*



STUART JET CENTER, LLC

Concierge Services • Aircraft Charter • Aircraft Maintenance
Aircraft Sales • Aircraft Hangars • Executive Offices

2501 SE Aviation Way, Stuart, FL 34996

Phone: 772-288-6700 • Fax: 772-288-3782 • Toll free: 877-735-9538 • stuartjet.com

BIGGEST SMARTEST QUIETEST. A PERFECT 10.



Behold an incredible, new Falcon; a 7,500 nm (13,900 km) aircraft designed solely around the needs of today's business passenger. No other cabin is bigger, quieter or more flexible. And no other flight deck is smarter. It's beautiful in every way. **The Falcon 10X. Simply perfect.**

Falcon 10X

WWW.DASSAULTFALCON.COM | FRANCE: +33 1 47 11 88 68 | USA: +1 201 541 4600

**DASSAULT
AVIATION**