Reporting on The Business of Business Aviation Since 1965

### April 26, 2024

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### Intelligence

Daher celebrated Margrit Waltz on her 960<sup>th</sup> ferry flight onboard a TBM 960. The transatlantic flight began at Daher's TMB production facility in Tarbes, France, and served as a delivery for a new TBM 960 owner in the U.S. According to Daher, the flight was completed in 15 hr. 38 min., with stopovers in the UK, Iceland and Canada. Waltz was also one of the first pilots to ferry a TBM-family aircraft across the Atlantic Ocean for Daher, according to the company. FORECASTS/INDUSTRY DATA

### Bizjet Deliveries Rise, Turboprop Shipments Slide In Q1 2024

MOLLY MCMILLIN, molly.mcmillin@aviationweek.com

# Business jet and turboprop manufacturers delivered 178 aircraft during the first three months of 2024, down from 193 a year ago, according to preliminary data from Aviation Week Network Fleet Discovery database. (See related charts on pages 13-14.)

Deliveries were the second highest for the quarter over the past five years. Backlogs remain strong, while manufacturers continue to grapple with supply chain issues, which challenge the ability to deliver aircraft.

"The number one issue that Piper and the aviation industry faces is suppliers' timeliness and availability of providing their products to us so we can build aircraft," John Calcagno, Piper Aircraft president, said during Sun 'n Fun Aerospace Expo in April. "This has resulted in aircraft builds much less than the aviation market currently demands."

Nicolas Chabbert, senior vice president of Daher's aircraft division, agrees. Daher has a two-year order backlog for Kodiak and TBM aircraft, he said during a media briefing at Sun 'n Fun. Supply shortages are creating production challenges.

"We're not looking for customers; we are now looking for parts," Chabbert said.

Manufacturers delivered 48 turboprops in the first quarter of (Q1) 2024, including six multi-engine and 42 single-engine aircraft, down 28% from 67 turboprop deliveries in the BIZJET, P. 2

#### **OEMs/SUPPLIERS**

### Gulfstream Orderbook, Deliveries Rise In Q1 2024

MOLLY MCMILLIN, molly.mcmillin@aviationweek.com

# Gulfstream Aerospace delivered 24 business jets during the first quarter (Q1) of 2024, including 21 large-cabin and three mid-size cabin aircraft, up from 21 during the same period a year ago, the company reported April 24.

The company took orders in the quarter totaling \$2.4 billion, which grew its orderbook to \$20.5 billion, up 6.2% from a year ago.

Gulfstream recorded revenue in its aerospace division, which includes Gulfstream Aerospace and Jet Aviation, of \$2.08 billion, up 10% from 1.89 billion a year ago and operating earnings of \$255 million, up 11% from \$229 million a year ago.

"Sales activity and customer interest is evident this quarter," says Phebe Novakovic, chairman and CEO of General Dynamics, Gulfstream's parent company. "But concerns over persistent inflation and monetary policy in the U.S., together with concerns about conflict in the Middle East, has slowed the consummation of transactions to some degree. It is also worth noting that a significant portion of the demand we see is fleet replenishment for corporations. These multi-aircraft deals usually proceed at a slower pace."

GULFSTREAM, P. 2

#### PROGRAMS

### **Gulfstream Delivers First Two G700s To Customers**

MOLLY MCMILLIN, molly.mcmillin@aviationweek.com

Gulfstream Aerospace announced the delivery of its first two Gulfstream G700 aircraft to customers, with the first delivery—MSN 87010—registered to TVPX Aircraft Solutions [Trustee], according to the Aviation Week Network Fleet Discovery database.

At the time of publication, both aircraft remain at Gulfstream's headquarters in Savannah, Georgia. The delivery announcement by the company comes less than a month after the aircraft achieved FAA type certification.

Gulfstream did not name the customers accepting the two deliveries, but in 2019 Gulfstream announced Qatar Airways as the

**BIZJET, From P. 1** 

same period a year ago. They also delivered 130 business jets, up 3% from 126 a year ago.

By category, Q1 deliveries included 36 large jets, 41 midsize jets and 53 light jets, compared to 39 large jets, 30 midsize jets and 57 small jets during the same period a year ago.

Textron Aviation delivered the highest total number of jets and turboprops during the quarter with 51 shipments, compared to

#### GULFSTREAM, From P. 1

The sales are more a timing issue with completion of deals rather than a headwind to overall demand, Novakovic says. "I think that's an important nuance."

Gulfstream received FAA certification for its new G700 business jet at the end of the quarter, which enabled the company to deliver the first two jets in April.

"This is a strong start to 2024, and we remain confident in our outlook," Novakovic says.

Gulfstream had earlier planned to deliver 15-to-17 G700s during Q1, but with certification at the end of the quarter, it was too late for deliveries to begin, Novakovic said during a call with analysts.

"The good news is that we now have certification, and the delay in deliveries does not change our outlook for the year," she says. The company remains on track to deliver 50 to 52 G700s during 2024. The first 20 are built and by the end of April, the next seven or eight will be ready for delivery as well.

Supply chain issues are improving with supplies more predictable, although Gulfstream continues to experience parts G700's launch customer for its charter service, Qatar Executive. The agreement was for 10 aircraft.

In all, Gulfstream expects to deliver 50 to 52 G700s in 2024, the company reports.

The aircraft seats up to 19 passengers, depending on configuration. It has a range of 7,750 nm at Mach 0.85 or 6,650 nm at Mach 0.90, and a maximum operating speed of Mach 0.935. The G700 features 100% fresh air, quiet noise levels and 20 large panoramic oval windows.

"We appreciate the confidence our customers have demonstrated in our aircraft and look forward to continuing these deliveries in the weeks ahead," says Mark Burns, Gulfstream president. "We are excited for our customers to experience the unparalleled G700 as we continue to deliver this exceptional aircraft around the world."

66 a year ago. Bombardier delivered 21 jets, compared to 24 a year ago; Gulfstream delivered 20 jets, compared to 18 a year ago, while Embraer delivered 18 business jets, compared to eight a year ago.

The in-service fleet in March 2024 rose 3% compared to the same period a year ago and was up 5% when compared to March 2022, according to Aviation Week data.

shortages that cause "significant out-of-station work," Novakovic says. "Quality is improving, and schedule reliability is improving, but make no mistake, we still have a lot of out-of-station work, and that impacts the profitability and margin on airplanes that are experiencing that. So, we definitely see improvement. We are optimistic that they can keep pace, but it's not without its margin challenges."

The G800 flight test and certification program continues to progress well, she says, and its design, manufacturing and the "overall program are very mature."

The company expects G800 certification about nine months after the G700 certification, "although I'm increasingly reluctant to give estimates about these things that are ultimately out of our control," Novakovic says. Gulfstream also expects certification of its new G400 about 12 months following G800 certification, although with the G800, "I'm kind of out of the detailed predicting mode. I will say the program is doing extremely well. And it will fly in the third quarter, and I think we'll be flying a pretty mature airplane."



#### OEMs/SUPPLIERS

### **Textron Q1 Jet, Piston Deliveries Rise, While Turboprops Decline**

MOLLY MCMILLIN, molly.mcmillin@aviationweek.com

Textron Aviation delivered 36 Citation business jets and 20 commercial turboprops during Q1 2024, compared to 35 jets and 34 turboprops during the same period a year ago, while strong market demand continues across its product lines, company officials say.

The Wichita-based company delivered 52 piston-engine powered aircraft during the quarter, compared to 46 a year ago. It also delivered 13 Citation Latitudes, compared to seven a year ago, along with 12 Caravans and seven King Airs, compared to 19 and 12 respectively.

"We're feeling pretty good about the order flow," says Scott Donnelly, chairman, president and CEO of Textron, Textron Aviation's parent company, told analysts on a Q1 financial call. "A lot of these aircraft are going to deliver a couple of years from now.... The order activity was staying pretty strong."

Textron Aviation recorded revenue of \$1.2 billion, up \$39 million from a year ago, reflecting higher pricing of \$48 million along with

lower volume and mix of \$9 million. Profit for the quarter totaled \$143 million, up \$18 million from a year ago, reflecting the positive impact of higher pricing, net of inflation, Textron says.

Its order backlog at the end of the first quarter totaled \$7.3 billion, up \$177 million in the quarter.

Results in Textron's aviation segment feel a "bit short" of estimates, J.P. Morgan analysts wrote in a note to investors, with order demand "solid". Sales missed estimates by 8% with Citation deliveries down by two from projections. Growth in its order backlog implies orders in the quarter of \$1.4 billion, similar to those in Q4 2023.

Supply chain and labor hours attained in the factory continued to improve during the quarter, which supports growth in deliveries through the remainder of 2024, Donnelly says.

"The trend in terms of productivity and efficiency and throughput in the factory improved as we worked our way through the quarter," he says. Deliveries were "a little bit lighter than we probably would have liked, but not a big number.... The momentum is good."

Supply chain challenges while improving, continue, he notes. Shortages of windshields, for example, "have been a problem now for several years.... It certainly has been and remains one of the top problem items by category."

**OEMs/SUPPLIERS** 

### **Bombardier Ramping Production, Building Inventory To Meet Demand**

MATTHEW FULCO, matt.fulco@aviationweek.com

Bombardier is ramping production to capitalize on the surge in private flying but seeing a corresponding slide in revenue and profit given high related costs in the near term, the company said.

In the first quarter, the Canadian aerospace company delivered 20 business jets, down from 22 a year ago, and posted \$1.3 billion in revenue, below analysts' expectations of \$1.5 billion. Profit fell to \$100 million from \$302 million a year earlier, however, earnings per share of 36 cents beat a consensus estimate of 28 cents.

"Our focus during the first half of the year is to build our inventory in order to deliver high volumes of aircraft in the second half," CEO Eric Martel said in a call with analysts.

Bombardier's cash burn in the January-March period jumped 57% to \$387 million, exceeding a consensus estimate of \$361 million.

However, the company's leadership struck an upbeat note in an earnings call. "While we continue to require more working capital investment in the near term ... we have a clear line of sight on the upcoming year and well as where we need to be for 2025," Martel said. He reiterated that Bombardier would deliver 150-155 jets in 2024.

In an April 25 note to clients, the National Bank of Canada pointed out that "activity on Bombardier model jets is running 7% higher [year-over-year], which we view as a solid leading indicator that order activity should remain solid."

First quarter (Q1) book to bill, or deliveries compared to orders, were 1.6 in Q1, which increased Bombardier's backlog by \$700 million. Its total backlog is \$14.9 billion.

"Customer metrics are at the heart of the good work we have done to start the year," Martel says. "We grew unit orders yearover-year, as well as posted another double-digit services growth quarter. Jet orders were up 60% versus Q1 last year, which represent excellent traction in our traditional client markets, fleet operators and new opportunities materializing for Bombardier Defense."

CFO Bart Demosky said in the earnings call that the company expects higher year-on-year deliveries in the second quarter. Given Bombardier's "continued inventory investment to support growth in deliveries, we do expect some cash usage again in Q2, though improving from Q1," he said. The company is increasing production on its Challenger family of aircraft in 2024 and on its Global products in 2025.

Activity from the American market remains strong, while the BOMBARDIER, P. 9



## **Bombardier Unveils New Global Branding**

JEREMY KARIUKI, Jeremy.Kariuki@aviationweek.com

Bombardier has announced its new brand identity—a move reflecting the company's now undivided efforts on business aircraft.

The rebranding includes a new logo, the Bombardier Mach, which artistically depicts the silhouette of an aircraft breaking the sound barrier. According to the company, the logo was designed with the historic Learjet winglet iconography in mind.

"This evolved brand is a catalyst for Bombardier to differentiate itself as a global leader, not just amongst aerospace and defense peers, but proudly with the world's leading inspirational brands," says Ève Laurier, Bombardier vice president for communications, marketing and public affairs. "Our brand has been crafted to coherently tie notions of our heritage and precision-driven engineering. The brand describes our future, in which we will express a heightened sophistication of our technology, how our employees master their craft and, above all, the customer experience." According to Bombardier President and CEO Éric Martel, the rebranding is a reflection of the company's "family-like" culture, made possible by its team of more than 18,000 members.

"Our clients worldwide are leaders who shape the world and who expect us to deliver a truly memorable experience," Martel says. "When asking them what sets Bombardier apart, the notion of 'like family' comes back time and again as a true differentiator. Bombardier would not be where it is today without the best people.

"They are true masters of their craft, bridging some of the world's most complex technology with a highly personal and passionate approach to aircraft interior artistry, defense modifications, 24/7 services and much more. Our new company brand honors these highest standards our people themselves have set for our industry."

As part of the announcement, Bombardier notes that the company's EcoJet research project is utilizing a blended-wing-body aircraft to reduce carbon emissions by up to 50%.

Bombardier will continue to operate its defense services, with offerings such as the Bombardier Global 6500 for surveillance, reconnaissance and multi-mission capabilities.

#### **OEMs/SUPPLIERS**

### **Embraer Reports Strong Year-Over-Year Q1 Backlog, Deliveries**

JEREMY KARIUKI, jeremy.kariuki@aviationweek.com

### Embraer reported its highest backlog volume in seven years and a 67% increase in aircraft deliveries in the first quarter (Q1) 2024 year-over-year.

The Brazilian-based manufacturer recorded a \$21.1 billion backlog, representing a quarter-over-quarter 13% increase. Embraer also saw its highest number of Q1 deliveries in the last eight years, driven in large part by its executive aviation division.

The manufacturer delivered 18 business jets in Q1 2024, compared to eight in Q1 2023. Embraer's light jet segment experienced an 83% increase in deliveries when compared to the same quarter a year ago, while its medium jets deliveries tripled. In total, Embraer's business jet division ended with a \$4.6 billion backlog in Q1 2024 for a \$300 million sequential increase, according to the company.

Embraer's commercial aviation segment remained flat yearover-year with seven aircraft deliveries, while its commercial order backlog increased 26%, or \$2.3 billion when compared to the period a year ago. Embraer's commercial segment was largely supported by a recent firm order by American Airlines for 90 E175 jets, with purchase rights for an additional 43 jets.

In total, Embraer's commercial segment has a \$11.1 billion backlog-\$2.3 billion higher than in the fourth quarter of 2023.

Embraer's Defense and Security segment is anticipating the entry into service of the C-390 Millennium, which completed its maiden flight by the Hungarian Air Force. The new aircraft was showcased alongside the A-29 Super Tucano at Embraer's first Defense Day in the U.S. for government and military attendees.

According to the company, the C-390 selection by countries in the EMEA and APAC regions have not yet been included in the backlog, which currently sits at \$2.4 billion, down 4% in Q1 2024 when compared to a year ago.

According to the report, Embraer is changing its strategy to mitigate business seasonality after delivering 12% of the total number of aircraft implied by the mid-point of current year guidance for business and commercial aviation. The company plans to stabilize its production pace throughout the calendar year in the "medium-term future."

Embraer's Services and Support segment remains as one of the company's main growth factors through "a combination of operational excellence, customer experience, and innovative solutions," the company said. The segment's backlog finished Q1 2024 sequentially flat at \$3.1 billion.



### Staff

EDITORIAL

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

U.S. EDITORIAL STAFF Editor-In-Chief Molly McMillin Copy Editor Natalia Pelayo Associate Producers, Heidi Carcella, Donna Thomas-High Contributing Editors Michael Bruno, Bill Carey, Matthew Orloff, Tony Osborne, Graham Warwick

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Customer Service, New/Renewal Sales The Weekly of Business Aviation, 22701 W 68th, Ste 100, Shawnee, KS 66226-9806 Tel: +1-877-369-3706 (within the U.S.) Tel: +1-913-850-6930 (outside the U.S.) Fax: +1-800-455-3145 Email: tech\_assistance@aviationweek.com

#### INTELLIGENCE AND DATA SERVICES

Senior VP, Intelligence, Data and Media Anne McMahon Tel: +1-646-469-1564, anne.mcmahon@aviationweek.com

Senior Director, Intelligence and Data, Matt Holdreith, Tel: +1-917-703-0920, matt.holdreith@aviationweek.com

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### User Engagement Melissa Crum, Tel: +1-913-284-2951 melissa.crum@aviationweek.com

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#### ADVERTISING

Sales Director Melissa Crum Tel: 913-284-2951, melissa.crum@aviationweek.com

#### REPRINTS

Wright's Media Tel: 1-877-652-5295 (within U.S.) 1-281-419-5725 (outside U.S.), informa@wrightsmedia.com

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REGULATORY/LEGISLATIVE

### FAA Extends Timeline For SMS Compliance

BILL CAREY, bill.carey@aviationweek.com

# Charter and air tour operators have three years to implement safety management systems (SMS) under the final SMS regulation the FAA announced on April 22.

The update of the FAA's Part 5 mandate for SMS systems, a requirement for airlines since 2018, extends the rule to charter and commuter carriers operating under Part 135, air tour companies under Part 91.147 and manufacturers under Part 21. The agency makes exceptions to some SMS requirements for certain single-pilot operators flying under Parts 135 or 91.

SMS systems are organization-wide programs designed to identify, assess, and manage safety risks. Under the updated regulation, operators will be required to share hazard information with other aviation organizations so they can work collaboratively to identify and address potential safety issues, the FAA said.

"SMS provides a means for a structured, repeatable, systematic approach to proactively identify hazards and manage safety risk," the agency said. "By incorporating SMS, these aviation organizations will be better able to develop and implement mitigations that are appropriate to their specific environment and operations."

Among changes to the SMS notice of proposed rulemaking (NPRM) the FAA released in January 2023, the compliance date for existing Parts 135 and 91 operators has been extended to 36 months from 24 months proposed in the NPRM. They will be required to submit a "declaration of compliance" with the rule instead of a statement of compliance.

Part 21 type certificate and production certificate holders have up to six months after the effective date of the final rule–30 days after its publication in the Federal Register– to submit SMS implementation plans and 36 months to put in place their systems. "[P] art 5 does not apply to either a supplemental type certificate (STC) holder or production certificate (PC) holder for an STC, or PC holders that only produce parts or articles," the FAA says.

The National Air Transportation Association (NATA), which represents aviation businesses including Part 135 operators, issued the following statement in response to the FAA announcement:

"As the NATA regulatory team combs through the 160-page rule, it appears the FAA has thoughtfully considered industry input in their drafting," the association said. "In particular, we appreciate the extended timeline provided for industry to come into compliance and the accommodations for single-pilot operators. NATA will provide more information as we complete our analysis," said Alan Stephens, NATA vice president of regulatory affairs.

There were 215 accidents involving Part 135 operators between 2015-2019, with a total of 121 fatalities, the FAA states in the final rule, referencing NTSB data. There were 33 accidents involving air tour companies operating under Part 91.147, with a total of 16 fatalities.

Of these accidents, the FAA identified 35 accidents with fatalities and serious injuries involving Part 135 operators and four involving Part 91.147 operators that could have been mitigated had those operators had a safety management system in place, the agency said.







#### FORECASTS/INDUSTRY DATA

### **Pre-Owned Sales Of Business** Aircraft Rise In Q1

MOLLY MCMILLIN, molly.mcmillin@aviationweek.com

The pre-owned business aircraft market saw an increase in first quarter 2024 sales with 253 resale transactions, up from 239 in the same period a year ago.

The quarter ended with 248 aircraft under contract, compared to 206 at the end of 2023, according to a market report from the International Aircraft Dealers Association (IADA).

In addition, 46 deals fell apart during the first quarter, compared to 53 a year ago, while 88 sellers lowered the price of the aircraft, compared to 52 a year ago, IADA says.

"At the end of the first quarter, the pre-owned business aircraft market is objectively healthy, with numerous signs of rebalancing after a heated sales climate, IADA says.

The quarter was more active than expected, says Phil Winters, IADA chairman and vice president of sales and charter management for Western Aircraft. "The six-month projections for sales, demand, willingness to inventory and supply all continue the cautiously optimistic trends we saw in the fourth quarter of 2023, despite regional unrest and the uncertainties of a presidential election."

Retail transactions of pre-owned business aircraft peaked in 2021 and into the first part of 2022, which emptied the number of available inventory, which drove a spike in transaction prices.

"Since the latter half of 2022, inventory has continued to seep into the pre-owned market, providing much-needed products to satisfy a clear step-change in demand for business aircraft," IADA says. "The recent certification of the Gulfstream G700 is expected to deliver fresh pre-owned inventory into a marketplace eager for young, highly pedigreed aircraft, especially at the top of the market."

In a survey of IADA broker and dealer members, about threefourths of respondents said they think the large and ultra-longrange resale pricing will fall and inventories will rise over the next six months.

About half of respondents anticipate prices and inventories will stabilize in the pre-owned turboprop aircraft market, a segment that typically avoids the "wider gyrations" seen in other parts of the market.

The market is resetting post-COVID, says one dealer, with the presidential election and tax benefit uncertainties causing buyers to be cautious.

The first quarter has demonstrated resiliency in the market, says Jim Riner, with Wetzel Aviation. "Demand for excellent pedigree aircraft is good, and pricing changes are reflective of predictable depreciation rates," Riner says. "Some owners that acquired aircraft during the COVID market—who did not seek professional broker counsel that contemplates and discusses asset exit strategies during the buying process—may be slow to accept the reality of a leveling-off of the market. We are on track for a solid 2024."

#### FORECASTS/INDUSTRY DATA

### Business Aircraft Average Age Exceeds 18 Years, Survey Shows

MOLLY MCMILLIN, molly.mcmillin@aviationweek.com

The average age of a business aircraft in the U.S. is 18.5 years old, although in 11 states, aircraft average 20 years or more, according to a survey by Pureprofile commissioned by Airbus Corporate Jets.

Newer aircraft offer better fuel efficiency, advanced technology and lower operational costs, all reasons owners and operators decide to upgrade, Airbus says.

"Our analysis shows that a significant number of business aircraft in the U.S. are older, and many of their owners will be looking to replace them with newer, efficient models," says Sean McGeough, vice president of commercial Airbus Corporate Jets for North America. "The level of innovation and development in the larger business aircraft segment has been staggering, and this bodes well for this market." In a second survey of business aviation financiers and brokers, 85% of respondents say they expect to see purchases of large, heavy business jets rise over the next five years, while 99% say that demand for large and midsize jets is increasing faster than other categories because of their range and capacity.

Manufacturers are driving interest in the categories with their introduction of new models, they say.

#### FAA, From P. 5

The FAA also identified several fatal accidents across Parts 91, 121, and 135 operations that could have been mitigated or prevented if the design or manufacturing organizations involved had put in place an SMS.

"Requiring more aviation organizations to implement a proactive approach to managing safety will prevent accidents and save lives," said FAA Administrator Mike Whitaker.



#### CHARTERS/BROKERS

### Wheels Up Consolidating Sites Into New Palm Beach Facility

JEREMY KARIUKI, jeremy.kariuki@aviationweek.com

Wheels Up announced plans to open a new 40,000 ft<sup>2</sup> facility at Palm Beach International Airport (KPBI), following the consolidation of resources from its lesser traveled locations.

The facility comes at the cost of Wheels Up's maintenance operations in Cincinnati, Ohio, and Broomfield, Colorado. According to the charter provider, 108 technicians will be impacted across both locations. Additionally, Wheels Up plans to relocate mobile service units in Sacramento, Las Vegas, Salt Lake City and Burbank to locations in the Eastern U.S. It will also shift resources from its nearby location in Fort Lauderdale, Florida.

The affected technicians at the Ohio and Colorado maintenance locations will be provided paths for placement opportunities at FEAM Aero and AVEX Aviation, according to Wheels Up.

"The decision to close these facilities is not one that we made lightly. Our entire maintenance team is responsible for driving meaningful improvement across key customer experience indicators, particularly total completion rate and on-time performance metrics," says Wheels Up COO Dave Holtz. "Our people are absolutely crucial to our success, and we are highly appreciative of the MRO providers we have partnered with to ensure that we take care of the staff affected by these closures in every way we possibly can."

According to Wheels Up, the new facility is set to open in the fourth quarter of this year. KPBI stands as one of the busiest business aviation airports in the country. It was selected to properly align resources to the charter's geographic network and flight demand density, the company says.

"We at Wheels Up are continuously evaluating and acting upon opportunities that will drive efficiencies and control costs, all in service of strengthening our business model and improving our member experience," says Wheels Up CEO George Mattson. "The opening of our new state-of-the-art maintenance facility at PBI is a key strategic step, leveraging our resources and locating our facilities in areas of high flight frequency. As a result of these measures, we are improving reliability and efficiency while reducing costs as we continue to drive toward Adjusted EBITDA profitability later this year."

PROGRAMS

### **Robinson Helicopter Buys UAS Company In Its First Acquisition**

TONY OSBORNE,tony.osborne@aviationweek.com

### Robinson Helicopter has made the first corporate acquisition in its 50-year history by purchasing an uncrewed aircraft system (UAS) developer.

Wilmington, Massachusetts-based Ascent AeroSystems, the developer of battery-powered cylindrical airframe vertical-takeoff-and-landing (VTOL) co-axial UAS, is now a wholly owned subsidiary of the Robinson Helicopter Co. (RHC), the California-based light-helicopter OEM announced April 23.

The value of the acquisition has not been disclosed.

The purchase of Ascent is the first major decision made by RHC's new CEO, David Smith, who took over in February from Kurt Robinson, the son of founder Frank Robinson.

Smith describes the acquisition of Ascent as strategic and says it will help broaden Robinson's offering in the law enforcement, public safety, firefighting, utility and defense markets.

He also says Ascent's autonomous electric flight technology and modular design philosophy will bolster Robinson's engineering capabilities. "Ascent's advanced technologies and versatile designs complement our ability to be the preeminent choice in global rotorcraft," Smith says.

The Ascent purchase appears to signal a new, more corporate direction for RHC, which is best known for its family of R22, R44, and R66 piston and turbine-engine light helicopters that are largely used for general aviation and training.

Smith already has declared plans to grow the Robinson product line as well as increase output to take on new entrants emerging in the light-helicopter market.

Ascent appears to be positioning itself to be ready for expected upcoming major purchases of smaller UAS by the U.S. armed services, noting the new relationship with Robinson will mean U.S. customers will have a "domestic source for reliable, mission-critical UAV platforms," Peter Fuchs, Ascent's CEO says.

Although Ascent will keep its headquarters in Massachusetts, RHC says Ascent can further grow and scale by building UAS at its facilities in Torrance, California.

The purchase of Ascent is the second acquisition of a UAS company by a major helicopter OEM this year. In January, Airbus Helicopters acquired Bingen, Washington-based Aerovel, a producer of a tactical tail-sitting VTOL UAS.



#### SUSTAINABILITY

### **Organizers Describe Testing Of UL100E Unleaded Avgas**

BILL CAREY, bill.carey@aviationweek.com

Principals of the industry-government effort to develop an unleaded aviation gasoline that will work across all piston aircraft have provided details on the testing being done on the lone fuel candidate to survive an FAA-led evaluation program.

Developed by partners LyondellBasell and VP Racing Fuels, the 100-octane unleaded avgas—UL100E—last November became the first fuel to advance to full-scale engine and flight testing under the FAA's Piston Engine Aviation Fuels Initiative (PAFI). The developers of a second candidate fuel, Afton Chemical and Phillips 66, suspended work on their formulation after it failed to clear the third of PAFI's multiple testing "gates." The different outcomes of the two fuel candidates followed more than two years of testing.

The National Air Transportation Association (NATA) says the first FAA-approved 100-octane unleaded aviation gasoline is unavailable at the pump because its proprietary formulation is not based on an industry consensus specification, but the first shipment from a 1-million-gal. supply refined by Vitol Corp. was expected from Baton Rouge, Louisiana, late in April after it passed laboratory testing.

In their latest public briefing on April 23, principals of the Eliminate Aviation Gasoline Lead Emissions (EAGLE) effort filled in details on the full-scale testing of UL100E, which, if successful, could lead to a fleetwide authorization of its use in most piston-engine aircraft in 2025. They also provided updates on two high-octane unleaded fuels that have advanced separately of PAFI through the FAA's supplemental type certification (STC) process: General Aviation Modification Inc.'s (GAMI) G100UL and Swift Fuels' 100R.

### **10 Engines And Eight Aircraft**

Full-scale testing of UL100E under PAFI is expected to take 12-18 months and involves engine performance testing on 10 different engine models, including Continental, Lycoming, Air Repair, and Pratt & Whitney types, and flight testing on eight aircraft models. The aircraft being tested are the Robinson R44 Raven II, Cirrus SR22T, Beechcraft G36, Cessna T206H, Cessna 402C, Piper PA-46-350, Cessna 182Q and T-6 Harvard IV.

A supply of 50,000 gal. of UL100E is being distributed to companies and institutions nationwide and in Canada, with the FAA's William J. Hughes Technical Center near Atlantic City, New Jersey, receiving the largest portion of 17,400 gal. Other quantities are being provided to Cape Air, Cirrus Aircraft, Continental Aerospace Technologies, Embry Riddle Aeronautical University, Hartzell Propeller, Lycoming Engines, National Research Council Canada, Piper Aircraft, REL, Robinson Helicopter Co., Textron, and Van's Aircraft.

As of April 10, about 20% percent of materials compatibility and 5% of engine detonation and performance testing had been completed under the PAFI Gate 4 full-scale testing round, said Tim Owen, Continental Aerospace Technologies engineering director.

"We have a high confidence level that (UL100E) will complete the rest of the testing adequately," Owen told the online briefing. "There may be some accommodations that will have to be made for a small percentage of the [engine] fleet that will be incorporated in this process as well."

### GAMI G100UL Status

Among the original fuel developers, GAMI was the first to discover the holy grail of 100-octane unleaded avgas, having obtained STC approval from the FAA in September 2022 to run G100UL in all spark ignition piston-engine airplanes. The company is working to line up distributors for its product but is facing headwinds from industry groups that have expressed a preference for a fuel formulation based on an industry-consensus specification.

GAMI announced at the recent Sun 'n Fun Aerospace Expo that jet-fuel supplier Vitol Aviation "has produced an initial production tank of approximately 1.2 million gal. of G100UL [that is] now available for sale," said Lirio Liu, executive director of the FAA Aircraft Certification Service.

"Right now, GAMI has an approved model list, supplemental type certificate approval to use G100UL avgas in all certified piston engines and airplanes," Liu said. "They also have obtained an STC for rotorcraft and are working that project with the FAA. GAMI has submitted a flight-testing report for this project based on flight-testing that was conducted using a Robinson helicopter."

Swift Fuels has submitted conforming test results for an initial STC allowing the use of 100R in aircraft, data the FAA is reviewing, Liu said. Once the agency approves the initial STC, Swift plans to expand the approved model list of piston aircraft and engines that can burn 100R later this year. The company is also applying for an industry-consensus product specification through standards organization ASTM—something GAMI's fuel lacks.

Indiana-based Swift has produced lower-octane UL94 unleaded avgas since 2015, a fuel that is available at 35 airports nationwide, a relatively small number of airfields. "It's our company's intent that UL94 will cease and be replaced by 100R in the months ahead," said Swift CEO Chris D'Acosta, who called into the briefing.





#### BOMBARDIER, From P. 3

company is seeing activity in the Middle East and Asia, and there are signs of an uptick in Europe, Martel said.

Activity was strong on the large-cabin market and the Global family of aircraft, a trend expected to continue throughout 2024, he says, while its Challenger products have also performed well. Meanwhile, the Global 7500 is on track to transition to the Global 8000 in the second half of 2025.

"The aircraft is performing on all fronts, on the bottom line and in the air," Martel said.

A bright spot for Bombardier in Q1 was the aftermarket, which "continues its strong momentum and produced 13% year-overyear growth translating into \$477 million in revenues," Demosky said, adding that, "we love having this business with its strong predictable revenues and cash flows and expectations of strong growth for years to come."

While Bombardier's need to ramp production will impact earnings in the short term, the long-term outlook for the business jet market is healthy. In a new report, research firm Fortune Business Insights forecasts that private aviation will grow from a roughly \$46 billion industry this year to about \$67 billion in 2033, a compound annual growth rate of 5.4%.

Looking ahead, a challenge for Bombardier could be intensifying competition in the business jet sector. In an April 15 research note, the National Bank of Canada said that "Bombardier faces strong and better-capitalized competitors in the business jet market."

In the U.S., Textron Aviation's Citation business jet line has the highest share of the private jet market, followed by General Dynamics' Gulfstream. Gulfstream's revenue, earnings per share and orderbook all expanded at a healthy clip in the January-March period.

In late March, the FAA certified Gulfstream flagship G700 large-cabin business jet, which competes with Bombardier's Global 7500.

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### **Business Aviation Briefs**

**Pratt & Whitney Canada** announced that the 500<sup>th</sup> PT6 E-Series engine has rolled off its production line at the company's facility in Lethbridge, Alberta. The PT6E-67XP powers the Pilatus PC-12 NGX aircraft and the Pt6E-66XT powers the Daher TBM 960. The PT6 E-Series has flown more than 200,000 hr. since entry-into-service in 2019. The company celebrated the 60<sup>th</sup> anniversary of its PT6 engine family in 2023. The engine has powered more than 155 aircraft models.

**Elliott Aviation**, a provider of aviation services, has become an authorized dealer of Starlink's satellite internet technology. Starlink offers a satellite internet service provided by SpaceX with high-speed, low latency broadband internet for use across the world, it says.

**Continental Aerospace Technologies** introduced the CD-170Rits newest Jet-A piston engine variant. The engine is part of the company's CD-100 series and is designed for rotorcraft applications. According to the company, the CD-170R features Full Authority Digital Engine Control (FADEC) and burns approximately 7.9 gal. of fuel per hour while in cruise. The engine will debut with a 1200-hr. Time Between Replacement (TBR). The new engine offers an improved power-weight ratio by weighing 37 lb. lighter.

**Daher** signed a repeat order for the TBM 960 aircraft with two German entrepreneurs during the AERO Friedrichshafen trade show in April. The new aircraft will go to Hubert Kristen and Peter Dirkorte, business partners who bought a TBM 960 in 2023. The aircraft is expected to be delivered next year.

**Aero** will continue its semi-private scheduled service to Coachella Valley's Stagecoach country music festival. Aero will offer flights to the event from its terminal at Los Angeles's Van Nuys (VNY) private jet facility and from Jacqueline Cochran Regional Airport (TRM). According to Aero, flights will begin at \$975 one-way and will be booked on the company's website.

**JetHouse**, a Malta-based charter company, announced the launch of its Falcon 7X charter operations. According to JetHouse, the

choice of Malta as its headquarters was due to the location's "robust jurisdiction and a dynamic and supportive regulator." The charter was awarded its Air Operator Certificate (AOC) from Transport Malta in February.

**MagniX and Harbour Air** signed a letter of intent (LOI) for the purchase of 50 magni650 electric engines. The engines will be used for Harbour Air's fleet and third-party conversions, according to MagniX. Starting in 2026, Harbour Air will use MagniX's electric propulsion units (EPUs) on the De Havilland DHC-2 Beaver. The two companies previously retrofitted the aircraft with MagniX's electric engine, becoming the world's first fully electric commercial aircraft to take flight, according to the company.

The National Agricultural Aviation Association (NAAA) is urging all uncrewed aircraft system (UAS) operators to exercise caution around low-altitude agricultural aircraft during this upcoming growing season. According to the NAAA, manned agricultural aircraft can fly as low as 10 ft.—well within the FAA's UAS ceiling of 400 ft. without a waiver. The NAAA reminds drone operators that manned aircraft must be given right of way and recommends landing uncrewed aircraft when low-flying aircraft are nearby.

**Greenpoint Technologies** announced the induction of a BBJ 787-9 for a full VVIP interior completion, marking the company's seventh 787 interior completion. The work will be conducted at Greenpoint's hangar facility in Moses Lake, Washington. According to Greenpoint, the interior cabin completion includes "elevated ceilings, customized IFE communication technologies and exceptionally quiet acoustics."

**Flexjet**, a private aviation company, announced its reception of three aviation safety awards: the FAA Diamond Award of Excellence for Aviation and Maintenance, an ARG/US Platinum Safety Rating, and an IS-BAO certification. According to Flexjet, the company has received the FAA Diamond Award for its 25<sup>th</sup> year and became the first operator to achieve the Air Charter Safety Foundation's IAS registry, completing nine successful audits thus far.



### **Airworthiness Directives**

DIAMOND AIRCRAFT INDUSTRIES GmbH Airplanes [Docket No. FAA-2023-2143; Project Identifier MCAI-2023-00088-A; Amendment 39-22718; AD 2024-06-13] The FAA is superseding Airworthiness Directive (AD) 2022-21-15 for certain Diamond Aircraft Industries GmbH (DAI) Model DA 42, DA 42 NG, and DA 42 M-NG airplanes. AD 2022-21-15 required replacing the rudder T-yoke axle with an improved rudder T-yoke axle. Since the FAA issued AD 2022-21-15, the European Union Aviation Safety Agency (EASA) superseded its mandatory continuing airworthiness information (MCAI) to correct an unsafe condition on these products. This AD requires, for certain airplanes, inspecting the rudder steering bracket edge distance and, depending on the inspection results, inspecting the T-yoke bolt hole for wear and play, and corrective action if necessary. For certain airplanes this AD requires replacing the rudder T-yoke bolt (axle) with a serviceable part, installing a new self-locking nut, and applying torque seal marks on the rudder T-yoke bolt head and self-locking nut. For all airplanes this AD requires repetitively inspecting the torque seal marks on the

rudder T-yoke bolt head for proper alignment and the self-locking nut for proper installation and corrective action if necessary. This AD also prohibits the installation of affected parts. The FAA is issuing this AD to address the unsafe condition on these products. This AD is effective May 28, 2024. The FAA estimates that this AD affects 205 airplanes of U.S. registry. The FAA estimates the cost of compliance for inspection of rudder steering bracket edge distance is \$21.25 per product and a cost to U.S. operators of \$4,356.25; the cost of replacement of rudder t-yoke bolt P/N LN 9037 with P/N D60-5320-0032 is \$124.50 per product and a cost to U.S. operators of \$25,522.50; the cost of application of torque seal marks to rudder T-yoke bolt and self-locking nut is \$78.75 per product and a cost to U.S. operators of \$16,143.75; and the cost of repetitive inspection of torque seal marks is \$21.25 per inspection and a cost to U.S. operators of \$4,356.25, per inspection. For more information contact Penelope Trease, Aviation Safety Engineer, FAA, 1600 Stewart Avenue, Suite 410, Westbury, New York 11590; telephone: 303-342-1094; email: penelope.trease@faa.gov.

### **Business Aviation Appointments**

**Brint Woodruff** has been named program manager for **West Star Aviation**'s Cahokia, Illinois (CPS) facility. Woodruff previously oversaw West Star's Egyptian Air Force (EAF) contract.

**Christophe de Coppel** has been appointed **Dassault Aviation**'s MRO sales director for Europe, the Middle East, Africa and the Asia-Pacific. De Coppel previously served as regional vice president for Europe at ExecuJet MRO Service.

Kenn Ricci has been appointed to Embry-Riddle Aeronautical University's Board of Trustees. Ricci is the founder of Directional Aviation Capital, which operates business aviation divisions, such as Flexjet, FXAIR, Sentient Jet and SimCom Aviation Training.

**Ryan Rudd** has joined **Duncan Aviation**'s Paint and Interior Sales Team at its facility in Provo, Utah. Rudd previously served as a general sales manager for a Harley Davidson dealership in Linden, Utah. Steve O'Neill has been added to Premier Private Jets' senior management team. O'Neill is the founder of CitationAir, a fractional and jet card provider. Jeff Lee has been promoted to chief operating officer for Premier Private Jets after serving seven years as the company's vice president of operations. Joanne Aquilina joined Premier Private Jets as chief financial officer. Aquilina previously served as vice president of finance and CFO for Bethesda Hospital. John O'Neill has joined the company as senior vice president of operations. He most recently served as vice president of charter operations for Private Jet Services Group and was with CitationAir for 15 years. Darren Blackett has been selected as vice president of sales. He previously served as senior director of sales for Skyshare. Kyle Eiserer is serving as Premier Private Jets' vice president of FBOs, while Ron Jennings joined the company as vice president of sales-MRO. He previously served as senior vice president of business development at C&L Aviation Group. Steve Purvis has been appointed as vice president of maintenance. He most recently served for the past two years as director of maintenance.

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### Calendar

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

**April 30-May 1**– 69th Annual Business Aviation Safety Summit, Austin, TX, https://flightsafety.swoogo.com/bass2024/begin

**April 30-May 2**–2024 NBAA Maintenance Conference, Portland, OR, https://nbaa.org/ events/2024-nbaa-maintenance-conference/

May 15–2024 NBAA Business Aviation Taxes Seminar, Dallas, TX, https://nbaa.org/ events/2024-nbaa-business-aviation-taxes-seminar/

May 21-23—Sustainable Aviation Futures, Hotel Okura Amsterdam, https://www.safcongress.com/

May 28-30-EBACE202, Geneva, https://ebace.aero/2024/

June 12–2024 NBAA White Plains Regional Forum, Westchester County Airport (HPN), White Plains, NY, https://nbaa.org/ events/2024-nbaa-white-plains-regional-forum/

July 3-4—AERO South Africa 2024, Wonderboom National Airport, City of Tshwane, Pretoria, South Africa, https://aerosouthafrica.za.messefrankfurt.com/pretoria/en.html#

Jul. 22-26—Farnborough International Airshow, Hampshire, United Kingdom, https://www.farnboroughairshow.com/

Jul. 22-28—EAA AirVenture Oshkosh 2024, Oshkosh, WI, https://www.eaa.org/airventure

Aug. 6-8–LABACE, Congonhas Airport, São Paulo, Brazil, https://labace.com.br/

Aug. 22-25—HJOPA Safety Summit and Convention, Colorado Springs, CO https://hjopa.org/

Sep. 18-20–16<sup>th</sup> ALTA Aviation Law Americas, Buenos Aires, Argentina, https://alta.aero/law/2024/

**Sep. 24-26**—MRO Asia Pacific, Singapore, https:/mroasia.aviationweek.com/en/home.html? \_sp=67af4e4a-11d5-435e-bf82-a07852b3b1af

**Oct. 2-3**—Malta Aviation Conference and Expo, Location TBA, Malta, https://mace.aero

**Oct. 20-21, 2024**–2024 NBAA Tax, Regulatory & Risk Management Conference, Las Vegas, NV, https://nbaa.org/ events/2024-nbaa-tax-regulatory-risk-management-conference/

Oct. 22-24, 2024–2024 NBAA Business Aviation Convention & Exhibitions (NBAA-BACE), Las Vegas, NV, https://nbaa.org/ events/2024-nbaa-business-aviation-convention-exhibition-nbaabace/

**Oct. 22-24**–MRO Europe, Barcelona, Spain, https://mroeurope.aviationweek.com/en/info/about.html

Oct. 22-24—MRO Barcelona, Barcelona, Spain, https://www.expostandzone.com/trade-shows/mro-europe

**Oct. 29-31**—The RACCA Annual Conference, Hilton Scottsdale Resort & Villas, Scottsdale, AZ, https://raccaonline.org/ conference-registration/

**Nov. 5-7**–2024 IAWA Annual Conference, Dublin, Ireland, https://iawa.org/



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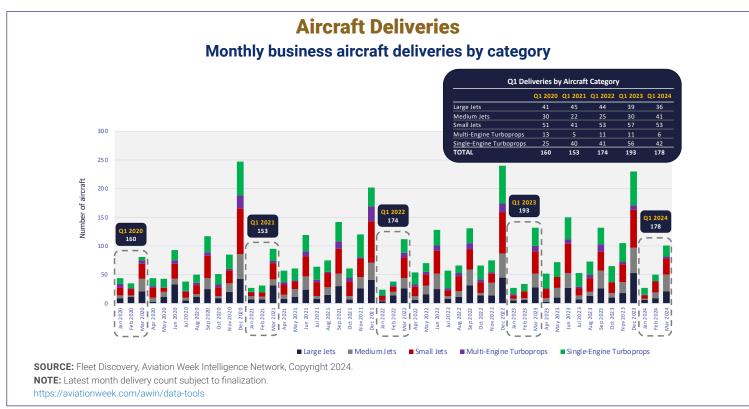
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### **Industry Data**

### **Business Aviation Shipments Q1 2024**



#### **Aircraft Deliveries** Monthly business jet and turboprop aircraft deliveries by category & month Q1 2024 vs. Q1 2023 Q1 2024 vs. Q1 2023 Large Jets Multi-Engine 6 41 +37% Medium Jets Single-Eng 42 **Business jets Business Turboprops** TOTA 53 Small Jets 7% 180 Q1 20 90 TOTAL 130 160 80 Q1 2024 Number of aircraft 140 70 Number of aircraft 120 60 100 50 80 40 60 30 40 20 20 10 0 Apr 2023 an 2023 Feb 2023 Feb 2023 Mar 2023 1202 **Mar 202** un 202 ug 202 Dec 2022 Apr 2023 Jul 202 in 2025 th 202 an 202 un 202 Jul 202 ■ Large Jets ■ Medium Jets ■ Small Jets ■ Multi-Engine Turboprops ■ Single-Engine Turboprops SOURCE: Fleet Discovery, Aviation Week Intelligence Network, Copyright 2024. NOTE: Latest month delivery count subject to finalization.

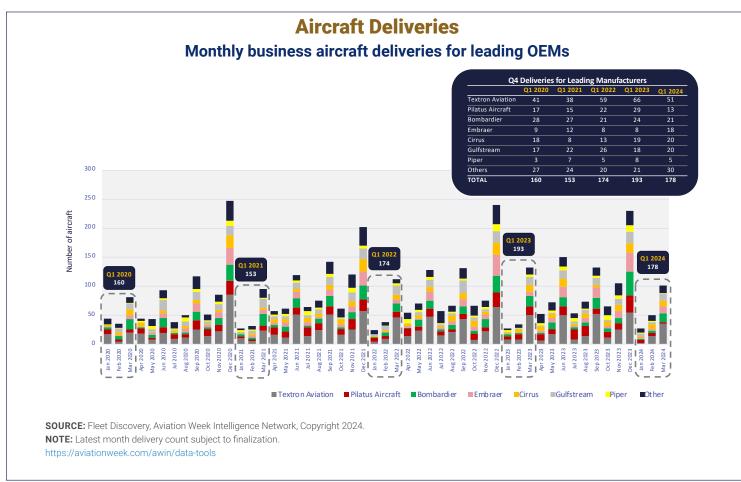
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### **Industry Data**

### **Business Aviation Shipments Q1 2024**



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