JETNET iQ PULSE

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Rollie Vincent
JETNET iQ Creator/Director

The Times They Are a-Changin'

As a geographer by training, I am always fascinated with discovering new places and people, some of which have a strong connection to aviation. Duluth, Minnesota is probably not as well known or as oft-visited as it should be, facts of life that are unsurprising given that the city ranks well down the list amongst the largest and most accessible U.S. metropolitan areas. The birthplace of Robert Allen Zimmerman (later known as singer, songwriter, sometimes poet, philosopher, and social activist Bob Dylan) and the home of Cirrus Aircraft, Duluth and its twin city neighbor Superior, WI are by far the largest and busiest ports on the Great Lakes, the world's largest collection of unsalted inland seas. The entire Great Lakes region offers innumerable points of interest for the wanderlust, most of them very accessible by private aircraft.

Dylan penned his famous song *The Times They Are a-Changin'* in 1964 at a politically charged time in U.S. history, in some ways akin to today. Fifty-six years ago, business aviation was still in its infancy, with less than 100 jets and just 250 turboprops in service worldwide. Fleet leaders at the time included the Lockheed Jetstar — a 4-engine speedbird but gas guzzler by today's standards — and the twin-turboprop Grumman Gulfstream I, the predecessor to a long line of Gulfstream large-cabin business jets. Each dominated the marketplace, with 57% market share of their respective segments per JETNET.

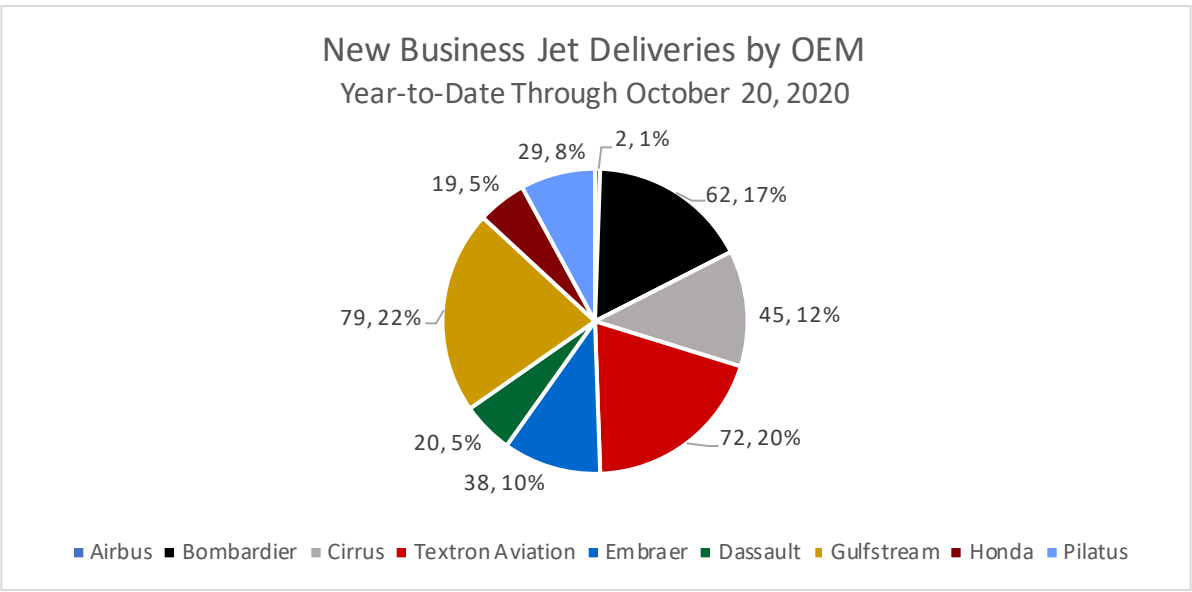
About 20 years after Dylan's song success, in the aftermath of the devastating 1981-2 recession, the sizes of the worldwide fleets of business jets and turboprops equalized. Since that time, product development investment in new airframes and high-efficiency turbofan engines has heavily favored the business jet segment, such that today, the worldwide fixed-wing turbine-powered fleet mix is 59% jet / 41% turboprop, per JETNET.

As we highlighted in our last issue of JETNET iQ PULSE, the time may be right for prospective new customers to purchase their first business aircraft, whether new or pre-owned. With attractive inventory, historically reasonable prices, and pervasive concerns about air traveler safety and security in our COVID-19 infected world, business aircraft offer a safe and time-effective alternative that is only accentuated in times of reduced airline service. Brian Proctor, President and CEO of Mente Group LLC, joins us this issue to make the great case for business aviation, with a clear and compelling message highlighting safety, access, and value for the investment.

In the brief period of about 60 years, our society and business aviation have evolved, in some ways quite dramatically. While the times may be forever a-changin', the enduring benefits of direct access, privacy, and time savings that business aviation delivers are as crystal clear as the deep Great Lakes waters.

Outlook

Transaction trends are very useful indicators of market health, and business aircraft are no exception. Since 1988, JETNET researchers have been tracking the fixed-wing turbine aircraft inventory-for-sale, asking price, and transaction activity on a worldwide basis. When combined with information on new aircraft factory shipments, we can build a good overview of overall market conditions. In the first 9 months of 2020, the pre-owned and new aircraft segments have been on relatively different trajectories. While sales volumes in both segments are down year-over-year (YOY), pre-owned transactions have been less impacted than new aircraft deliveries so far. Through October 20, there have been 366 new business jet deliveries year-to-date (YTD), led by Gulfstream (79) and Textron Aviation (72). Our forecast is that, collectively, the aircraft OEMs will deliver about 575 new jets in 2020, including Cirrus as well as Airbus and Boeing single-aisle models. This would represent a reduction of 29% in industry shipments YOY, similar in magnitude to the 27% reduction in new jet shipments from 2008 to 2009 in the last industry downturn. At this point in time, our outlook for 2021 shipments remains essentially flat year-over-year, whereas shipments dropped a further 15% in 2010 in the aftermath of the global financial crisis.



Source: JETNET iQ

The Great Case for Business Aviation

Brian E. Proctor
President and Chief Executive Officer
Mente Group, LLC

The National Business Aircraft Association has been making the case for business aviation since its inception 73 years ago. We often hear of the many benefits of business aviation: access to airports, flying when and where you need to, not dictating schedules based on the needs of an airline, customized delivery, etc. Yet, never has the case for business aviation been more apparent than now.

"…never has the case for business aviation been more apparent than now."

At the writing of this article, the U.S. and the entire world are continuing to fight the devastating effects of a global pandemic that has reached the four corners of the earth. With widespread health concerns, businesses all over the globe have had to close to dampen the effects of the virus. We have seen a massive shift from business offices to home offices, the evolution of technologies to facilitate meetings, and we have seen the highest interest in business aviation in the history of the industry.

Across the industry, service providers are reporting the most active, and in some cases frantic, pace of sales they have ever seen. In a recent publication, WingX, a leader in operational aviation data, showed how in one month, business aviation has grown from 12% to 30% of all fixed wing activity globally. Fractional and charter companies have seen, in some cases, over a 50% increase in the number of new customers for their services. And, at its recent annual meeting, dealers from IADA (the International Aircraft Dealers Association) reported the most robust sales in recent quarters.

So, what does this all mean? Why are consumers considering business aviation in volumes never seen before? And, what does this mean, long term, for the business aviation industry? We are seeing first-time users considering the space for three primary reasons: safety, access, and value.

"We are seeing first-time users considering the space for three primary reasons: safety, access, and value."

The Case For Safety

It goes without saying that an aircraft cabin with 1 to 14 carefully screened and known passengers versus 120 to 200 random passengers intuitively reduces the risk and spread of disease. In a recent article on its website, Kaiser Health Network wrote:

"The real danger of traveling isn't the flight itself. However, going through security and waiting at the gate for your plane to dock are both likely to put you in close contact with people and increase your chances of contracting the virus. In addition, boarding — when the plane's ventilation system is not running, and people are unable to stay distanced from one another — is one of the riskiest parts of the travel process."

While eliminating the close-contact environments above, most private travelers don't see and aren't aware of the systems installed on aircraft which are designed to enhance their safety when traveling. For example, Aviation Clean Air's NeedlePoint Bi-Polar Ionization™ process is part of an installation that aircraft owners can install on their aircraft's air systems that proactively neutralizes pathogens in the air and on surfaces throughout the cabin and for the duration of the flight, creating a safer cabin experience for the traveler.

The Great Case for Business Aviation (cont.)

The Case For Access

In the same publication mentioned above, WingX indicated that airlines have reduced their flights by over 50%, with only a handful of base closures. What that means is that the number of flights per day from destination to destination has been significantly reduced. Where there may have been, for example, seven flights a day from Dallas to Omaha, today there are only three. The implication for executives, when they get back to traveling, is that it will be increasingly difficult to operate their businesses in the same ways they've done in the past if they use the airlines as their travel solution.

The Case For Value

There has never been a better time to buy a whole aircraft than right now. But time is running out. There is a confluence of factors that have come together at this point in history to cause buyers to consider whole aircraft purchases like never before. First, there are a significant number of quality preowned and new aircraft available now, with delivery available before the end of the year. It is no secret that, since the 2008-2009 Great Recession, aircraft have not held their value like previously believed. That said, there are significant value opportunities in the market. Couple that with historically low interest rates and aggressive tax rules, and you get an environment that favors ownership like never before.

As corporate executives and high net worth individuals are realizing, business aviation's benefits in safety, access, and value are at an all time high. Our industry needs to prepare for an influx of new customers during the fourth quarter of 2020. This will be driven by a simple need, as one of our clients recently said: "Private aviation provides me, my family and friends, and my coworkers three things I can't buy: time, safety, and peace of mind."

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GE Honda Aero Engines

FL450 ADVANCED SILENT TOUGH EFFICIENT RELIABLE

Accelerating Innovation:
The All New HF120

Two names synonymous with invention have joined forces to create unprecedented performance—a product igniting change in the industry—the all-new 2,000-pound thrust class turbofan power plant. Built to last, the HF120 delivers advanced technology designed for speed, endurance, and the smoothest ride.

FL450: The fastest engine in its class, the HF120 enables effortless climb to FL450 and beyond. Its high fan and core pressure ratio provides increased aircraft speed and reduced climb time to higher cruising altitudes. With a low thrust lapse rate, the engine allows for initial climb in excess of 4,000 feet per minute and reduces time to climb by 40%.

ADVANCED: The engine represents decades of research and development. A wide-chord, swept titanium blisk fan with composite fan outer guide vanes and the use of innovative turbine blade and combustor materials are just some of the unique features the HF120 brings to the light jet market.

SILENT (Inside & Outside): Smart placement of the rotor dynamic resonant frequencies outside of the engine taxi and flight settings minimizes unwanted cabin noise. Tight tolerance controls and exceptional build quality deliver low fan and core vibration levels. Low levels of vibration transmission to the fuselage result in a quiet cabin and the smoothest flying ride in its class.

TOUGH: Setting new standards for durability and efficiency, superalloys used in the hot section permit a higher operating temperature with extended parts life. All HF120s are monitored closely via proven large aircraft engine proactive diagnostic systems to minimize downtime and enable longer uninterrupted service.

EFFICIENT: Using innovative aerodynamic designs, the HF120 delivers greater cycle efficiency while optimizing operability. Unique airblast fuel nozzles provide better fuel atomization yielding superior fuel-to-air combustion to minimize fuel burn. Laser drilled combustor liner holes ensure minimum pressure drop across the combustor, enabling optimum transfer of compressor energy to the turbine side. This unique design offers outstanding overall environmental benefits, including low NOx, CO, and HC emissions.

RELIABLE: All of these amazing features combine to create an engine that redefines dependability. Extensive testing in excess of 23,000 cycles and simulated 5,000 flight cycles run on a single engine reveal proven reliability and readiness for longer uninterrupted operation.

The HF120 enjoys enviable operational success. It's an incredible machine built to set a new standard for the light jet market—ready for applications beyond its current aircraft installation.

Business Conditions

GDP

The Economist's **GDP forecasts** for the U.S. and Euro Area economies for 2020 are -5.3% and -8.4% respectively in 2020; U.K.'s 2020 growth rate is -9.5%; China is the only major business aviation economy expected to grow in 2020, but by only 1.7%

Business jet cycles (take-offs and landings) from Sept 1 – Oct 20 2020 were down by -32% YOY for U.S. Part 91, up by 6% YOY for U.S. Part 135, and up by 12% YOY for U.S. Part 91K

The **Dow Jones Index** (U.S.) was down 1.9% YTD from January 2 to October 20, 2020, and up 5.5% YOY; The **FTSE 100** (U.K.) was down 22.6% YTD from January 2 to October 20, 2020, and down by 17.8% YOY

U.S. Index of **Consumer Sentiment** was 81.2 in Oct. 2020, versus 80.4 in Sept and 95.5 in Oct 2019 YOY; Euro Area **Economic Sentiment Indicator** was 91.1 in Sept. 2020, up from 87.7 in August but down from 103.4 in February 2020 at the onset of COVID-19

U.S. initial **unemployment claims** were 64.5 million in the 30 weeks ending October 10, 2020; U.S. unemployment rate (SA) was 7.9% in September 2020 (representing ~11.8 million people)

U.S. **Purchasing Manager Index** (Manufacturing PMI) was 55.4% in Sept. 2020, up from 50.9% in January 2020; Euro Area **Business Climate Indicator** was -1.3 in Sept. 2020, up from -1.2 in August

Transactions of pre-owned business jets (retail sales & leases) in September 2020 were down 3% YOY to 194; days-on-market were down 10% YOY to 240 days; transactions in Q3 2020 were up 9% YOY to 643

Business jet deliveries YTD as of Oct. 20 were 366 units (including Cirrus, Boeing, Airbus) and turboprop deliveries were 179 according to JETNET; we forecast 2020 jet shipments to be off 29-30% YOY

New Business Jet Transactions by Size Category

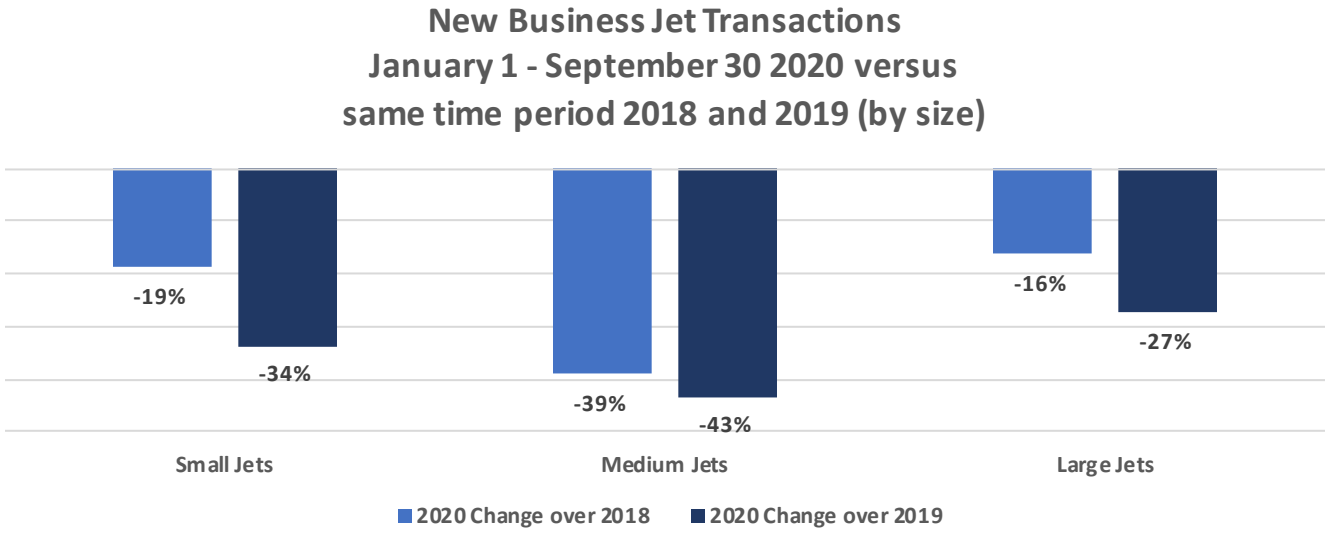
January through September 30 – By Year from 2018 through 2020

New business jet shipments across all size categories were down 35% YOY in the first 9 months of 2020, based on preliminary information as recorded in JETNET databases, updated through October 20. We fully expect that shipments data for Q3 2020, and for September in particular, are somewhat understated. Delivery totals should increase over the next several weeks as transaction records are recorded in the various aircraft registry databases.

Compared to 2019, shipments of Large Jets (aircraft from the Challenger 650 / Falcon 2000 and above) are down 27% YOY, and down 16% over 2018 in the first 9 months of the year. This segment of the market includes several new models with substantial order backlogs that are in production ramp-up, including the Gulfstream G500 and G600 and the Bombardier Global 7500.

The highly competitive Medium Jet segment — including the Super-Light Jet, Mid-Size Jet, and Super Mid-Size Jet models — has slowed the most so far in 2020, down by 43% YOY and by 39% over results in 2018. We believe that results YTD reflect relatively thin backlogs and order cancellations / deferrals from fractional programs that take delivery of a significant proportion of new production in this segment.

Small Jet factory shipments are off 34% YTD in 2020, and 19% versus 2018, reflecting overall market conditions. While new deliveries are down, pre-owned retail sales and utilization rates of Small Jets are holding up better than other size categories, a trend to watch if the effects of the COVID-19 pandemic linger on through 2021 and even beyond.



Source: JETNET iQ; percentages may not add up to 100% due to rounding; JETNET data as of October 20, 2020

New Business Jet Transactions by Major Country

January through September 30 – By Year from 2018 through 2020

An analysis of JETNET records indicates that the U.S. accounted for 61% of new business jet purchases in the first 9 months of 2020, closely in line with the country's 63% share of the worldwide fleet. U.S. purchases of new business jets were down 38% YOY and down 18% over 2018 for the year-to-date through the end of September.

Relative to other key country markets for new business jet sales, Brazil appears to be faring comparatively well, with purchases down only 12% YTD. Although based on relatively few transactions, purchases from Canada, Germany, and Mexico are off 40-60% YOY from January through the end of September 2020, reflecting the impacts of COVID-19.

	Purchasing Country - % of Transactions From Jan 1 - Sept 30		
Country	2018	2019	2020
United States	57.2%	64.6%	61.2%
Brazil	2.5%	3.3%	4.5%
Canada	2.3%	3.3%	2.1%
United Kingdom	2.3%	1.0%	2.1%
Austria	0.5%	2.4%	2.1%
Australia	0.2%	1.6%	2.1%
Germany	4.1%	2.9%	1.8%
Mexico	1.6%	1.4%	1.2%
Portugal	1.4%	1.4%	1.2%
China	3.0%	0.6%	0.9%

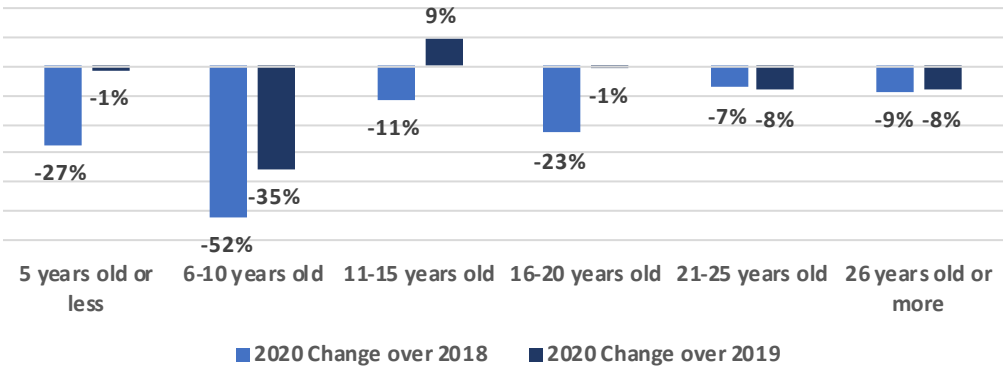
Source: JETNET iQ

Pre-Owned Business Jet Transactions by Age

January through September 30 – By Year from 2018 through 2020

Pre-owned business jet retail sales and lease transactions are down by only 8% YTD versus the same period last year, based on JETNET iQ analysis of the latest JETNET records. Given the gravity of the COVID-19 pandemic and its widespread impacts on our economies and particularly the air travel industry, this can only be considered a strong performance. Through the first 9 months of 2020, retail sales and leases of nearly new pre-owned business jets — defined as those factory-delivered 5 years ago or less — surpassed 200 aircraft worldwide in September, essentially at par with the level of activity in 2019. Except for the 6–10-year-old segment, where transactions are down 35% YTD on a YOY basis and by 52% over 2018, sales and leases for other age brackets are tracking closely with 2019.

Pre-owned Retail Sale and Lease Transactions
January 1 - September 30 2020 versus
same time period 2018 and 2019 (by age)

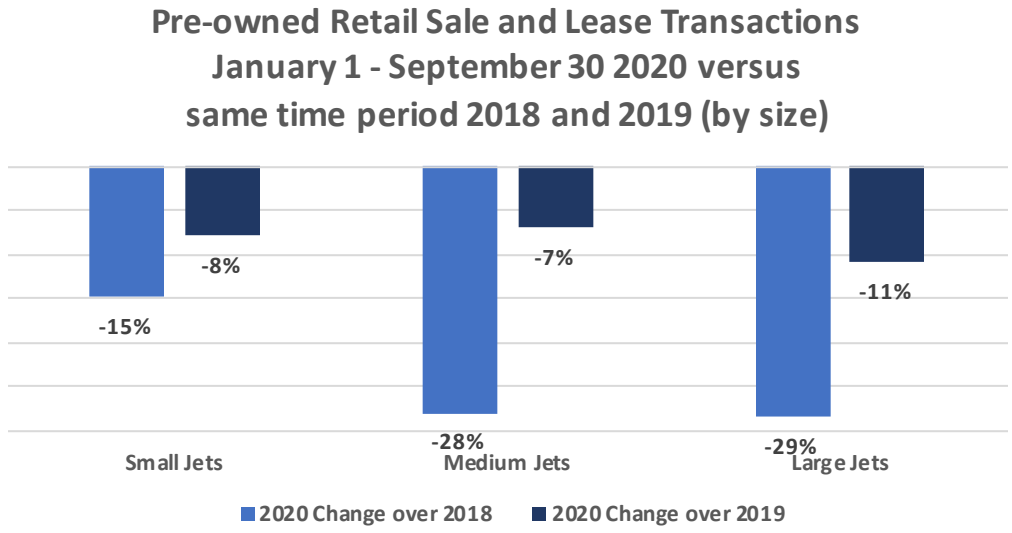


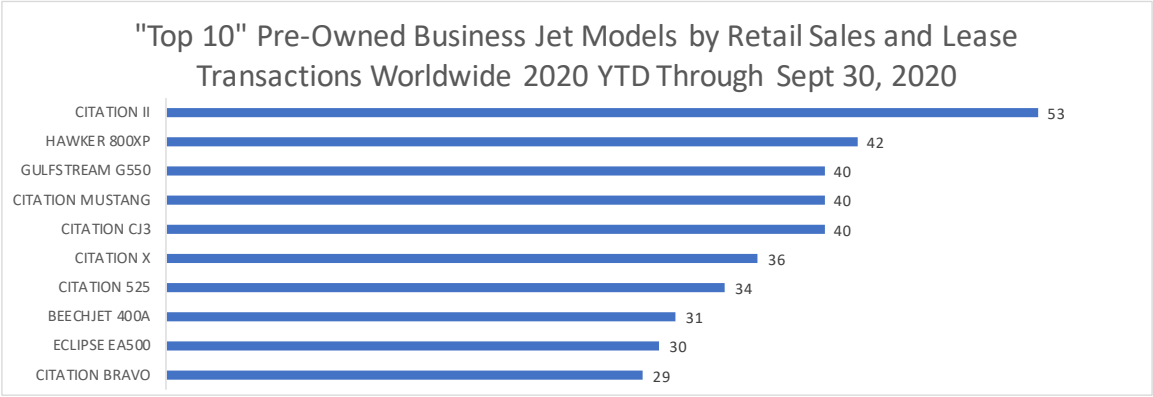
Source: JETNET iQ

Pre-Owned Business Jet Transactions by Size Category

January through September 30 – By Year from 2018 through 2020

In the first 9 months of the calendar year, worldwide retail sales and leases of pre-owned business jets have slipped by 8% YOY and are down 23% versus 2018 (a record year with almost 3,000 transactions). So far in 2020, 41% of deals are for a Small Jet, similar performance to 2019 but up from 37% in 2018 on a YTD basis. Medium Jets account for 32% of 2020 deals so far, with Large Jets making up the remaining 27%. Remarkably, JETNET records identify 156 different business jet models that account for the 2020 YTD transactions. Of the "top 10" models, 7 are Small Jets (led by the Cessna Citation II) and 8 are or were built by Textron Aviation and its predecessor companies.



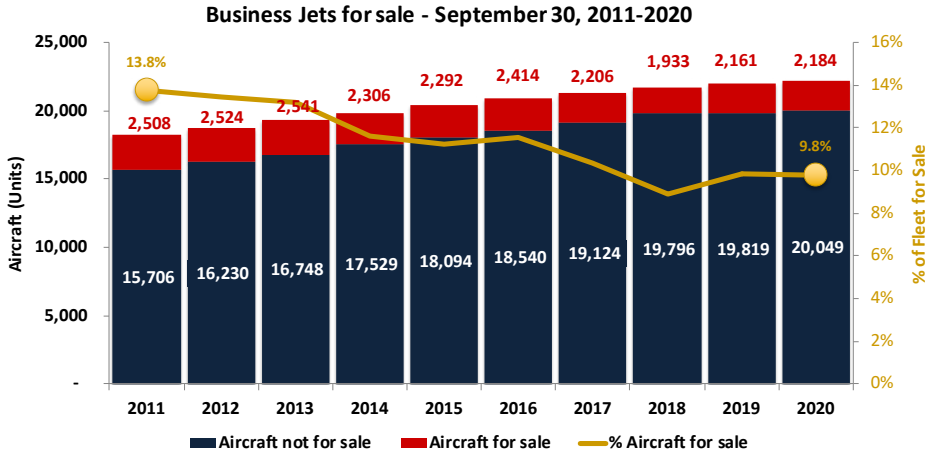


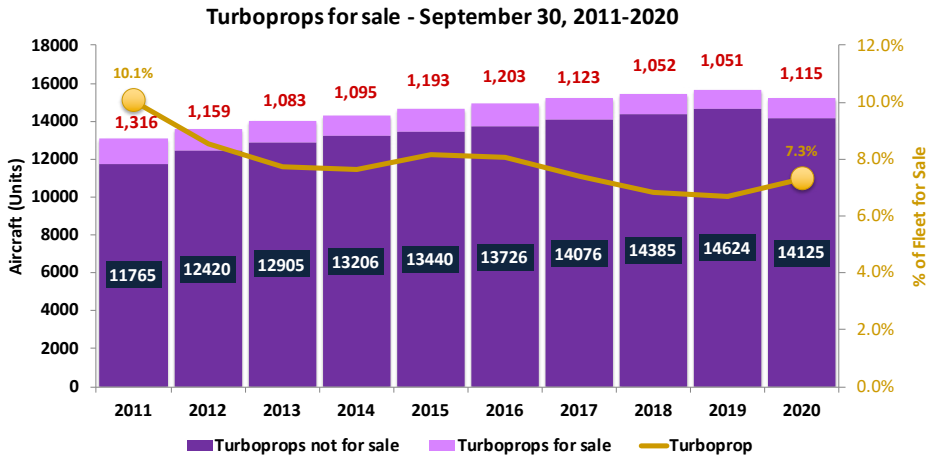
Source: JETNET iQ

Business Aircraft Inventory For Sale

September 30 – By Year from 2011 through 2020

Worldwide for-sale inventory of business jets has stabilized near 10%, with just less than 2,200 jets listed as "for sale" in the JETNET database. Turboprop inventory, which slipped just below 7% in 2019, has been edging upwards, reaching 7.3% at the end of September 2020. Although prices have generally softened across most models, for-sale inventories have remained remarkably stable in the COVID-19 period despite the tumultuous impacts of the coronavirus on most sectors of our economies.





Source: JETNET iQ

About JETNET iQ

JETNET iQ is a business aviation market research, analysis and forecasting service consisting of three main elements:

- **JETNET iQ Reports** are the definitive analytical reference for business aviation, incorporating quarterly state-of-the-industry analyses, owner / operator surveys, and detailed delivery and fleet forecasts;
- **JETNET iQ Summits** are annual industry conferences providing unique data, insights and networking opportunities; and
- **JETNET iQ Consulting** provides customized research and analysis for clients on a project-by-project basis.

JETNET iQ Reports are available in various formats on a subscription basis, and are published regularly by JETNET LLC, 101 First Street, Utica, NY 13501 - **currently offered at 8 different levels**. JETNET iQ is a partnership between JETNET LLC of Utica, New York and Rolland Vincent Associates, LLC, of Plano, Texas.

Since late 2010, JETNET has conducted quarterly surveys of the worldwide community of business aircraft owners and operators in order to gauge customer sentiment, brand perceptions, aircraft purchase, selling, and utilization expectations, and other factors. JETNET iQ Global Business Aviation Surveys are password-protected and by invitation-only. Potential respondents are drawn randomly from the JETNET worldwide database of business jet and business turboprop owners and operators; they are initially contacted by telephone and/or e-mail by JETNET's team of multilingual researchers. Target respondents include chief pilots, directors of aviation, and senior management. Each survey includes at least 500 respondents in 50 or more countries each quarter, and respondents closely reflect the worldwide distribution of the business jet and turboprop community.

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Appendix

Data sources:

GDP growth forecasts, Unemployment Rate, $U.S. Exchange Rate (2020): The Economist – October 17, 2020
https://www.economist.com/economic-and-financial-indicators/2020/10/17/economic-data-commodities-and-markets
Stock Markets:
Dow Jones Industrial Average: http://ca.spindices.com/indices/equity/dow-jones-industrial-average
London Stock Exchange (FTSE 100) : https://www.londonstockexchange.com/indices/ftse-100
Unemployment: Bureau of Labor Statistics (U.S.); https://www.dol.gov/ui/data.pdf; "SA" = seasonally adjusted
Consumer Confidence: University of Michigan Survey of Consumers (U.S.); http://www.sca.isr.umich.edu
European Commission (Euro Area) – Economic Sentiment Indicator; https://ec.europa.eu/info/sites/info/files/full_bcs_2020_09_en.pdf
Business Confidence: US ISM Manufacturing PMI (U.S.)
https://www.instituteforsupplymanagement.org/about/MediaRoom/newsreleasedetail.cfm?ItemNumber=31182
Eurostat (Euro Area); https://ec.europa.eu/eurostat/databrowser/view/teibs010/default/table?lang=en
https://ec.europa.eu/eurostat/databrowser/view/ei_bsci_m_r2/default/table?lang=en
Business aircraft fleet, deliveries, transactions, days-on-market (DOM), utilization: JETNET; DOM refers to aircraft that were sold / leased
Survey results: JETNET iQ Global Business Aviation Surveys (Quarterly)
Photo credits: Page 1: Honda Aircraft Company; Page 2, LHS: Gulfstream Aerospace; Page 2, RHS: Textron Aviation; Page 3: Mente Group, LLC; all other photos: Rolland Vincent Associates, LLC / JETNET iQ

Definitions and Abbreviations:

For the purposes of these Reports, business aircraft may be classified into 4 primary categories, reflecting propulsion, price, performance, and weight class differences. These categories are: Turboprops (Single-Engine Turboprops - SETP and Multi-Engine Turboprops - METP), Small Jets (Personal Jets, Very Light Jets, Light Jets), Medium Jets (Super-Light Jet, Mid-Size Jet, Super Mid-Size Jet), and Large Jets (Large Jet, Large Long-Range Jet, Large Ultra Long-Range Jet, Airline Business Jet). The "Personal Jet" category includes single-engine turbofan-powered models, today represented by the Cirrus Vision Jet.

B&GA: Business and general aviation
EIS: Entry in Service
FTSE: Financial Times Stock Exchange (London)
GAMA: General Aviation Manufacturers Association
GDP: Gross Domestic Product
MTOW: Maximum Takeoff Weight
NGO: Non-Governmental Organization
OEM: Original Equipment Manufacturer
QOQ: Quarter over Quarter
QTD: Quarter to Date
S&P: Standard & Poor's
TTM: Trailing Twelve Months
YOY: Year over Year
YTD: Year to Date

Disclaimer: