Business Aviation Update & Analysis

October 5, 2023
Business Aviation Overview
23,838 Active Business Jets; 67% Based in N America

- US 64% 15,208
- N. America 67% 15,993
- Central & S. America 10% 2293
- W. Europe 10% 2283
- Africa/Mid East 4% 838
- E. Europe/W. Asia 2% 503
- Asia 4% 839
- Oceana 1% 284

Note: 805 aircraft locations unspecified

Source: AMSTAT 8/29/23
## 33 Choices of Bizjet Models Compete For ~700 Annual Deliveries

<table>
<thead>
<tr>
<th>OEM</th>
<th>Category 1 &lt;$5M</th>
<th>Category 2 $5-15M</th>
<th>Category 3 $15-25M</th>
<th>Category 4 $25-30M</th>
<th>Category 5 $30-50M</th>
<th>Category 6 $50M+</th>
<th>Bizliner Airliner Deriv.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bombardier</strong></td>
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<td><strong>Challenger 350 /3500</strong></td>
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<td><strong>Challenger 650 Global 5500</strong></td>
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<tr>
<td><strong>Cessna</strong></td>
<td>Citation CJ3+</td>
<td>Cit. M2 GEN2</td>
<td>Sovereign+</td>
<td>Longitude</td>
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<tr>
<td></td>
<td>Cit. CJ4 GEN2</td>
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<td>Cit XLS+/AscendLatitude</td>
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<tr>
<td><strong>Dassault Falcon</strong></td>
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<td></td>
<td><strong>Falcon 900LX</strong></td>
<td><strong>Falcon 6X</strong></td>
<td>Falcon 2000LXS Falcon 8X Falcon 10X</td>
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<td></td>
<td><strong>Falcon 6X</strong></td>
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<tr>
<td><strong>Embraer</strong></td>
<td>Phenom 100 EV</td>
<td>Phenom 300E</td>
<td>Praetor 500</td>
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<td></td>
<td>Praetor 600</td>
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<tr>
<td><strong>Gulfstream</strong></td>
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<td></td>
<td><strong>G280</strong></td>
<td><strong>G400</strong></td>
<td><strong>G600 G650/ER/800 G700</strong></td>
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<tr>
<td><strong>Others</strong></td>
<td>Cirrus SF50</td>
<td>Pilatus PC-24</td>
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<td></td>
<td><strong>Boeing BBJ Airbus ACJ</strong></td>
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<tr>
<td></td>
<td>HondaJet</td>
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In 2022 Textron Cessna Again Delivered the Most Units, GD Gulfstream the Highest Shipment Value

2022 Deliveries (Units)
- Cessna, 178, 25%
- Bombardier, 123, 17%
- Embraer, 102, 14%
- Gulfstream, 120, 17%
- Others, 157, 22%
- Dassault, 32, 5%

2022 Deliveries (Value $B)
- Gulfstream, $6.521, 33%
- Cessna, $2.693, 13%
- Embraer, $1.360, 7%
- Bombardier, $6.020, 30%
- Others, $1.895, 9%
- Dassault, $1.526, 8%

Sources: GAMA (units), BRiFO (Value $2022)

2022: 712 units worth $20B
After a 2008 Surge, A Lost Decade of Bizjet Deliveries

Observations

- Deliveries halved following the 2008-2009 Financial Crisis
- Remained flat for over a decade

Source: GAMA w/ BRiFO analysis, NBAA
Suddenly, Business Aviation Surged During COVID

Why Private Flying Surged

- Avoiding airport crowds during COVID motivated new users
- Increased usage by existing private aircraft users
- Avoiding the airline experience and decreased schedules
- Widespread wealth creation to afford it

What’s Happened Since

- Worldwide economic decline and possibility of recession
- Fewer used sales, higher inventory, lower prices
- Fewer but still strong new sales
- Less hysteria over airport crowds; increased airline scheduling
- Many newcomers returned to Economy-Plus airline seats
Preowned Bizjet Inventory Hit All-Time Lows -- Now Rebounding

Source: AMSTAT w/ BRiFO analysis
COVID Caused Preowned Prices To Spike; Have Yet To Decline Despite Inventory Increase

**Observations**

- Pandemic-induced low supply/high demand spiked preowned prices
- Anticipate eventual price decrease as inventory levels return to pre-COVID levels

Source: Barclays, Jetnet
The Pandemic Drove Record Utilization; Subsiding In 2023 But Still Above 2019

<table>
<thead>
<tr>
<th></th>
<th>Part 91</th>
<th>Part 135</th>
<th>Fractional</th>
<th>All</th>
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</thead>
<tbody>
<tr>
<td>Turboprop</td>
<td>-0.9%</td>
<td>-13.6%</td>
<td>2.2%</td>
<td>-6.4%</td>
</tr>
<tr>
<td>Light Jet</td>
<td>-1.3%</td>
<td>-13.2%</td>
<td>1.9%</td>
<td>-3.5%</td>
</tr>
<tr>
<td>Mid-Size Jet</td>
<td>-9.9%</td>
<td>-3.9%</td>
<td>4.8%</td>
<td>-3.5%</td>
</tr>
<tr>
<td>Large Jet</td>
<td>-0.7%</td>
<td>1.9%</td>
<td>20.1%</td>
<td>2.0%</td>
</tr>
<tr>
<td>All Aircraft</td>
<td>-2.3%</td>
<td>-8.5%</td>
<td>4.9%</td>
<td>-3.6%</td>
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2023 Slowdown: N American Activity July 2023 vs. July 2022

Source: FAA, WingX, ARG/US
The Recent Slowdown Arguably Benefitted The Industry

- Manufacturers
  - Supply chain catch up
  - Shorten delivery times
- MROs
  - Less utilization means fewer shop visits, but...
    - Shortened wait list and more hangar workspace
- Labor Supply
  - Opportunity to staff-up
- Brokers
  - More used inventory to buy/sell
- Charter
  - Lower demand allows service levels to recover
  - Less use of expensive sub-charter
Business Aviation Forecast
### New Models To Help Stimulate Sales and Deliveries

**Recently Began Delivery 2018+**

<table>
<thead>
<tr>
<th>Plane</th>
<th>Year</th>
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<tbody>
<tr>
<td>Gulfstream 500</td>
<td>2018</td>
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<tr>
<td>Gulfstream 600</td>
<td>2018</td>
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<tr>
<td>Pilatus PC-24</td>
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<tr>
<td>Global 5500</td>
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<tr>
<td>Global 6500</td>
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<tr>
<td>Global 7500</td>
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<tr>
<td>Citation Longitude</td>
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</table>

**Future Aircraft**

<table>
<thead>
<tr>
<th>Plane</th>
<th>Year</th>
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<tr>
<td>Falcon 6X (2023)</td>
<td></td>
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<tr>
<td>Falcon 10X (2025)</td>
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<tr>
<td>Gulfstream G400 (2025)</td>
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<td>Gulfstream G700 (2023)</td>
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<tr>
<td>Gulfstream G800 (2023)</td>
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<td>Global 8000 (2025)</td>
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</tbody>
</table>

(Falcon 6X and Gulfstream G700 delayed from 2022 to 2023)
Inflation Has Actually Benefitted Aircraft Sales In The Past

“..it is generally better to own physical things ... than dollars when inflation is high” — Elon Musk

Observations

• Business jets are high-value, hard assets to own during inflation
• Deliveries more than doubled 1976-1980 as inflation rose

Source: FAA, AMSTAT
Business Aviation Accounts For 0.04% of Annual Worldwide Greenhouse Emissions

Source: NBAA
Yet Climate Activism Is Changing Market Dynamics

Flyers now shun ownership in favor of anonymity provided by fractional and charter

Netjets orders 1500 Textron Jets

Netjets orders 500 Embraer Jets

Flexjet orders ? (TBA at Convention 10/17)
In 2025, Deliveries To Reach Highest Level In 16 Years

- Forecast trimmed 10% due to recent lost sales opportunities by OEMs unable/unwilling to execute production increases
- Near-term delivery increase based on:
  - Industry Book-to-Bill still above 1:1
  - New users to bizav: ~10% staying
  - Preowned inventory still relatively low
  - Corporate pent-up demand
  - New jet models stimulate market
- 2025 deliveries (834) highest since 2009 (871)
- Values increase near-term as expensive Falcon 6X, 10X, G400, G700, G800, Global 8000 deliver
- Assumes a recession mid-forecast
  - Forecast doesn’t attempt to predict when downturns are, but to bake in the likelihood

### Worldwide Bizjet Delivery Forecast

<table>
<thead>
<tr>
<th>Year</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
<th>2026</th>
<th>2027</th>
<th>2028</th>
<th>2029</th>
<th>2030</th>
<th>2031</th>
<th>2032</th>
<th>2023-2032</th>
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<tbody>
<tr>
<td>Units</td>
<td>710</td>
<td>712</td>
<td>745</td>
<td>834</td>
<td>816</td>
<td>768</td>
<td>788</td>
<td>805</td>
<td>825</td>
<td>842</td>
<td>8056</td>
</tr>
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**2023-2032**

8056 Jets

Worth $252B
Risks To The Industry

• Manufacturers
  • Fractional/charter may defer/cancel fleet orders as utilization continues decline
    • (Fleets 1/3 of all 2022 deliveries)
  • Speculators likely in OEM order books as long lead times grow

• Charter/Fractional
  • High-profile, large fleet operators in financial difficulty
    • A Wheels Up default would flood market with Textron aircraft
    • A Vistajet default would flood market with Bombardier aircraft
  • Smaller operations have already failed – Jet It, AeroVanti...
  • Others with high debt ratios in high-interest rate environment to follow
  • Defaults would flood used market with late model aircraft competing with new
Kansas General Aviation Stable; Commercial Not So Much

• General Aviation Consolidation Behind Us
  • Hawker Beechcraft absorbed by Textron Aviation
  • Learjet discontinued by Bombardier
• Loss of local skilled workforce due to closings, furloughs - left for stable industries
• Textron Aviation a bastion of aviation
  • Strengths
    • Product portfolio, brand, support network, segment diversification, SkyCourier certification, Army Blackhawk replacement (Bell division)...
  • Challenges:
    • Minimal bizjet improvements, Denali certification, missed COVID surge, Wheels Up consolidation or default...
• Local suppliers squeezed by primes
• Spirit AeroSystems unsettled
  • “Boeing, Airbus contracts “not sustainable”
Brian Foley Associates (BRiFO)
Independent General Aviation Experts Since 2006

Research & Strategy
- Aviation Research & Analysis
- Due Diligence
- Forecasting
- Strategic Marketing Plans
- Expert Witness

Business Brokerage
- List/Sell Aviation Businesses
- Founder/Family-Owned
- $1-10+M Revenues
- Deep Investor Contacts

Brian Foley Background
- Former senior marketing executive at business jet manufacturer Dassault Falcon Jet (20+ years)
- Views quoted in worldwide aviation and business press
- Transportation Research Board (TRB) Subcommittees:
  - 1) Business Aviation  2) Regional Airlines  3) Helicopters 4) UAVs
- Speaker at aviation conferences and meetings
- Instrument rated private pilot
- Began career in Boeing Fight Test Engineering and then Marketing
- MBA Marketing, Seattle University
- BS Aerospace / Mechanical Engineering, Syracuse Univ.
- Wharton Executive Education – Corporate Governance
- Forbes.com aviation contributor, AvBuyer Editor

Industry Management Experience Prior To Consulting Adds Real-World Perspective