

Aircraft Acquisition Risk Assessment

Data-Driven Recommendations for a New Aviation Venture

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The Challenge: Entering a New Market

- ▶ Our company is expanding into the aviation industry but lacks domain knowledge of aircraft operational risks.
- ▶ A poor aircraft acquisition strategy could lead to significant financial and safety liabilities.
- ▶ **Objective:** To use NTSB accident data to identify the lowest-risk aircraft and provide a clear, data-driven purchasing strategy.

From Raw Data to Actionable Insight

- ▶ **The Data:** Analyzed over two decades (2000-Present) of modern NTSB aviation accident data.
- ▶ **The Method:** Cleaned and filtered data to focus only on relevant "airplane" incidents.
- ▶ **The Insight:** Engineered a custom '**Risk Score**' to measure the *severity* of each incident, not just the frequency.

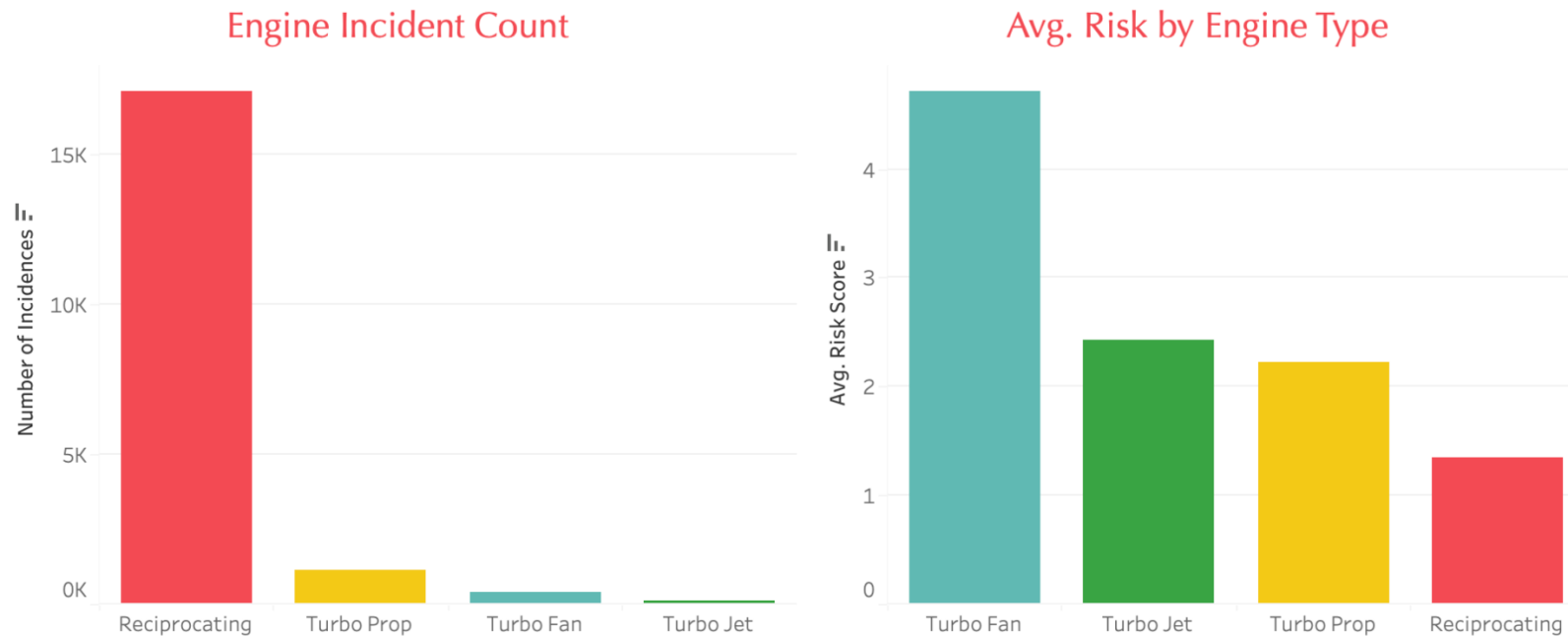
Certain Aircraft Have Proven Safety Records

- ▶ The data clearly shows that a specific group of common aircraft have a demonstrably lower average risk score, indicating a history of less severe incidents.



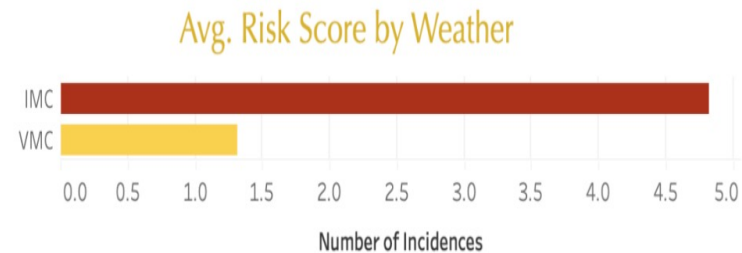
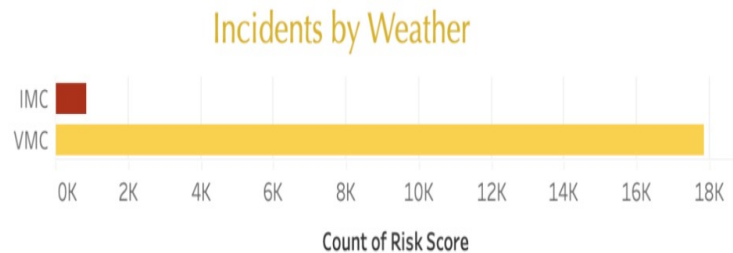
Frequency vs. Severity: Why Reciprocating Engines are a Prudent Choice

- ▶ While reciprocating (piston) engines are involved in a high number of incidents due to their widespread use, those incidents are, on average, far less severe than those involving more complex turbine engines.



Adverse Weather is the Single Greatest Risk Multiplier

- ▶ Incidents that occur in bad weather (IMC) are dramatically more severe than those in good weather (VMC). This is the most critical operational risk to manage.



Our Data-Driven Recommendations

- ▶ **1. Acquisition:** Prioritize initial purchases on models with the lowest proven risk scores, such as the **Cessna 152** and **Piper PA-18 series**.
- ▶ **2. Fleet Strategy:** Begin operations with a fleet of reliable **reciprocating engine** aircraft to minimize the severity of any potential incidents.
- ▶ **3. Operations & Training:** Make a significant investment in an **advanced pilot training program** with a rigorous focus on flying in adverse weather (IMC).

A Flight Plan for Success

- ▶ **Conclusion:** This analysis provides a strong, data-driven foundation for our initial fleet acquisition strategy, focusing on minimizing operational risk.
- ▶ **Next Steps:**
 - ▶ Begin due diligence on the recommended low-risk aircraft models.
 - ▶ Develop a budget proposal for an advanced pilot training program.

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Thank You & Questions?