Aviation Business Risk Analysis

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Executive Summary

Data Source

- National Transportation Safety Board (NTSB)
- Aviation Accidents, 1962-2022

Analysis & Recommendations

- Sub-Industries
- Aircraft Makes
- Risk Mitigation

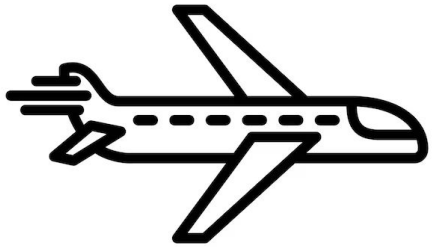
Next Steps

- Expanded Data
- Financial Analysis

Data Methodology

Geographic Focus

United States



Aircraft Type

Professional-Built Airplanes

Business Application

Risk Levels by Purpose

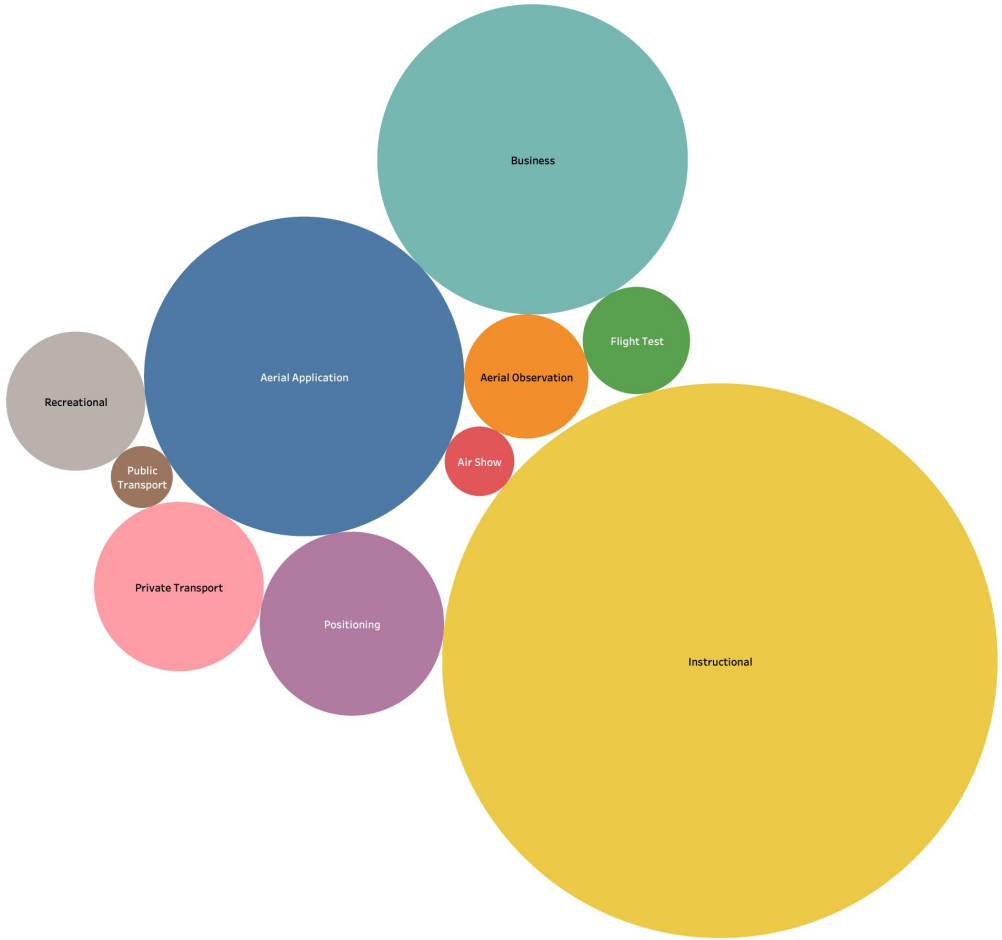
Aviation Sub-Industries

Risk Level

- Highest: Personal Use
- Lowest: Public Transport, Government

Investment Considerations

- Start Up Costs
- Regulatory Requirements



Aviation Sub-Industries

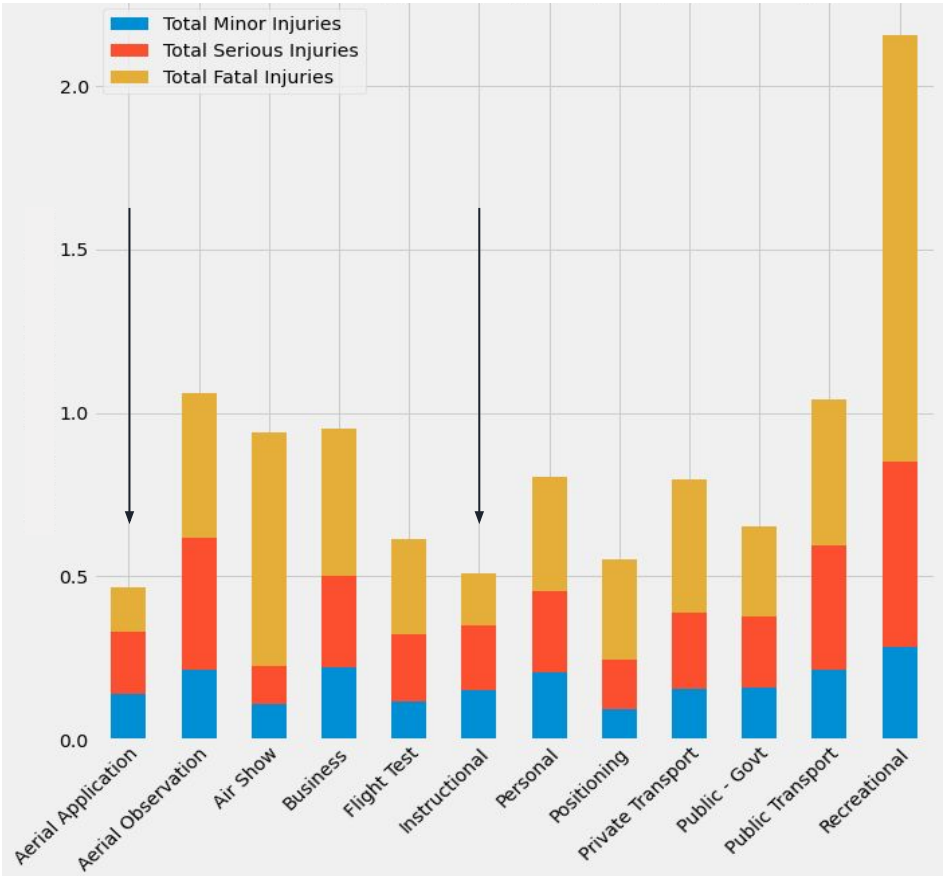
Recommended Industry

- Agricultural (Aerial Application)
- Instructional

Investment Considerations

- Environmental Factors
- Insurance Costs
- Pilot Certification Level

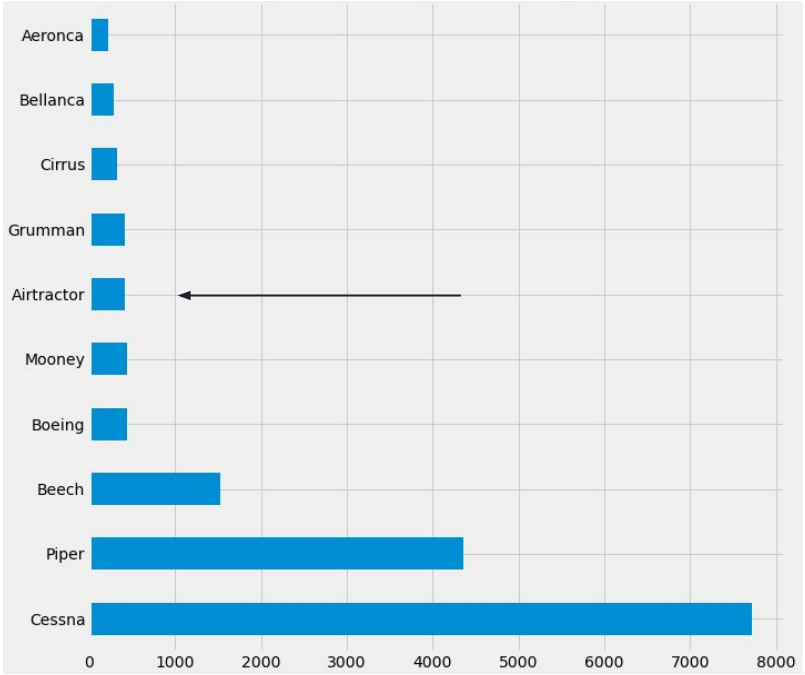
Average # of Injuries by Flight Purpose



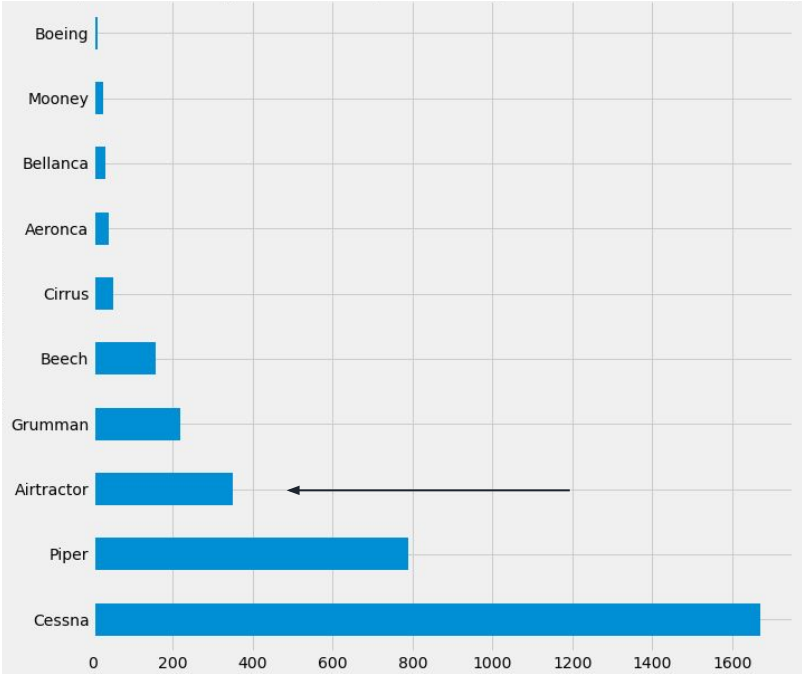
Aircraft Makes

Top 10 Makes by Flight Purpose

All Flights



Agricultural/Instructional Flights



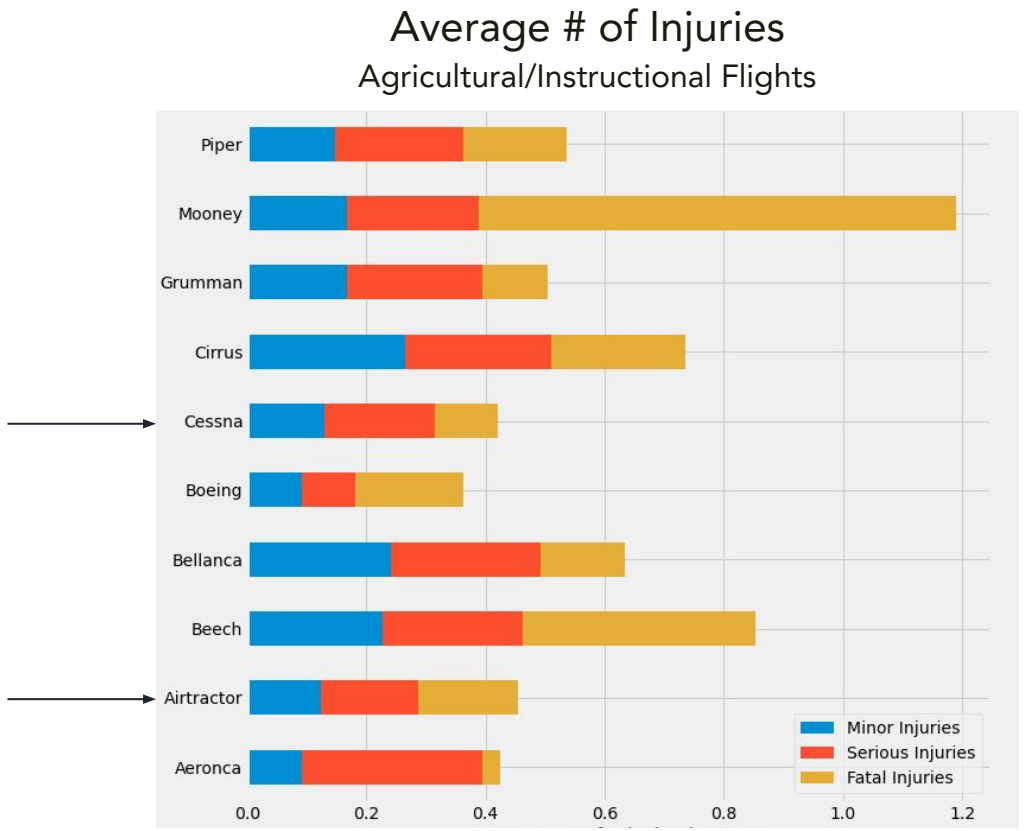
Aircraft Makes

Recommended Make

- AirTractor
- Cessna

Investment Considerations

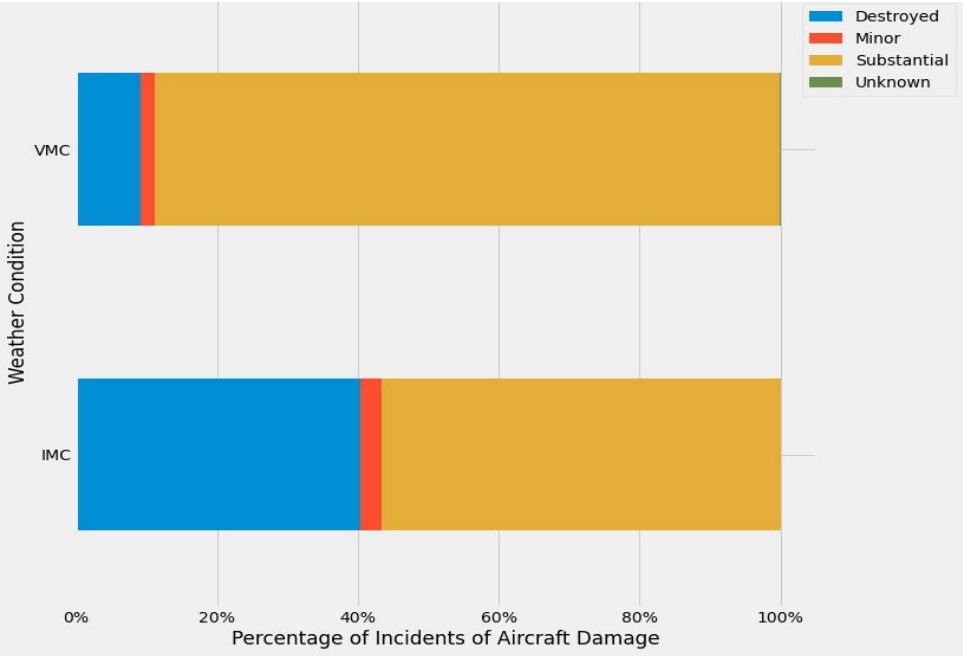
- Purpose of Make
- Ubiquity of Make



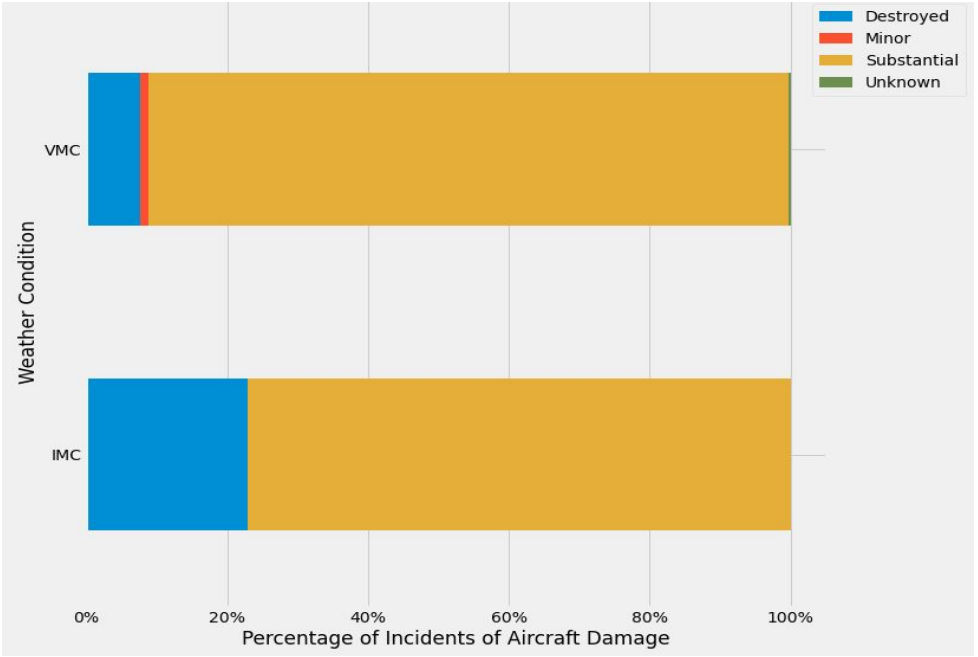
Weather Conditions

Level of Aircraft Damage by Weather Condition

All Flights



Agricultural/Instructional Flights



VMC: Visual Meteorological Conditions

IMC: Instrumental Meteorological Conditions

Recap

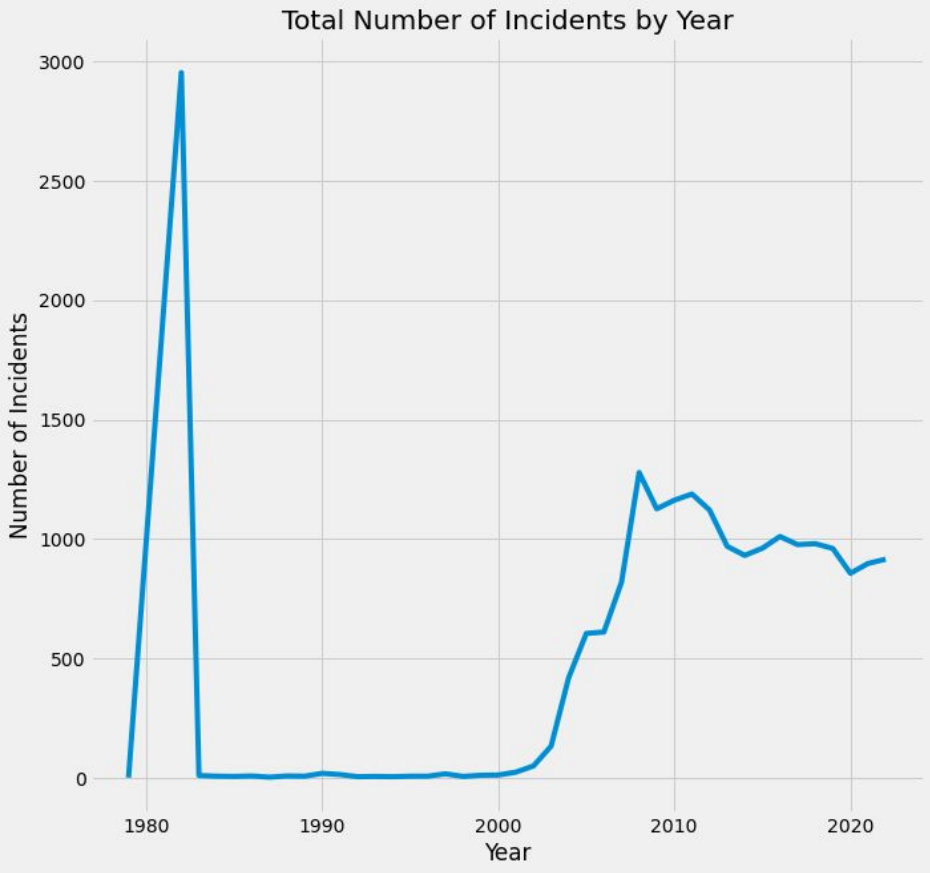
1. Recommended Industry:
   - Agriculture
   - Instruction
2. Recommended Aircraft:
   - AirTractor
   - Cessna
3. Risk Mitigation:
   - Weather Conditions
   - Pilot Competence

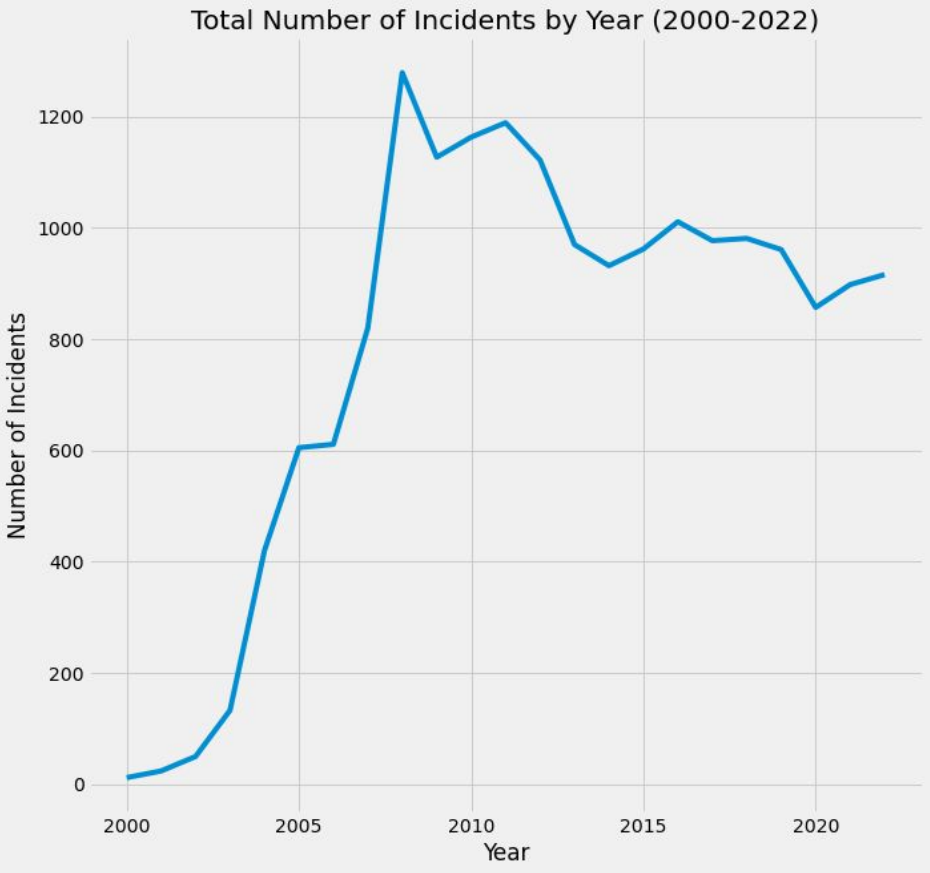
Next Steps

Expanded Data
- All Domestic Flights
- Focused Time Frame

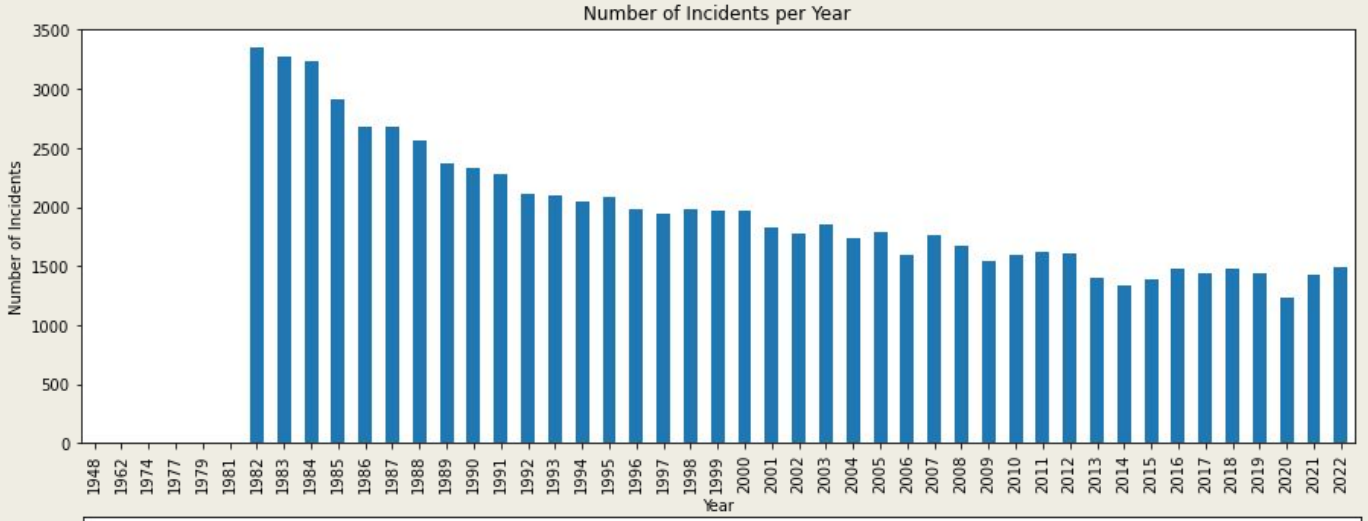
Financial Analysis
- Investment Costs
- Regulatory/Insurance Requirements
- Projected Profits

What’s going on with the yearly data?

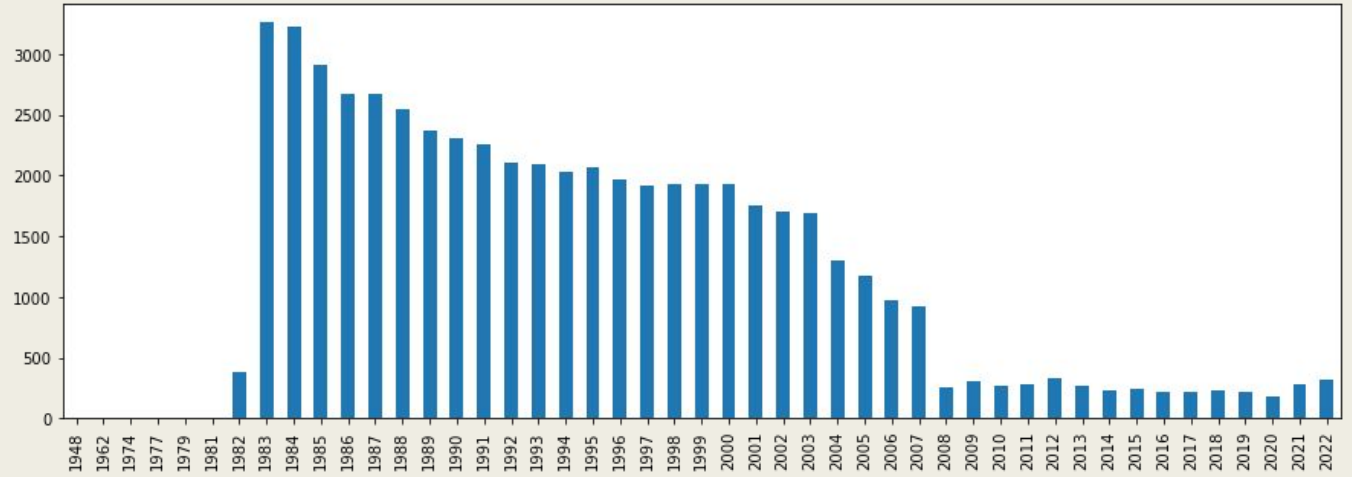




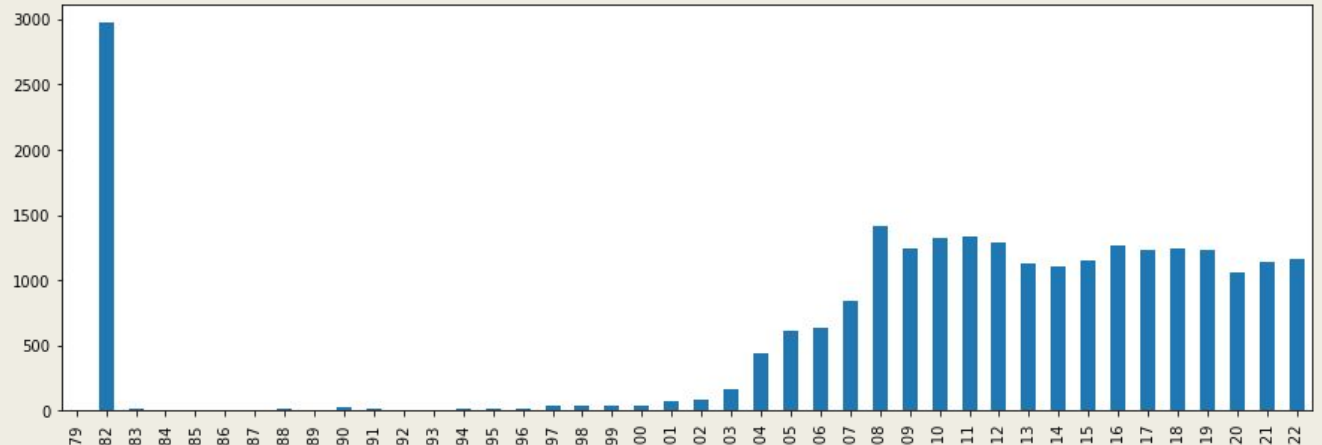
Total number of incidents per year:



Total number of **non-airplane** incidents per year:



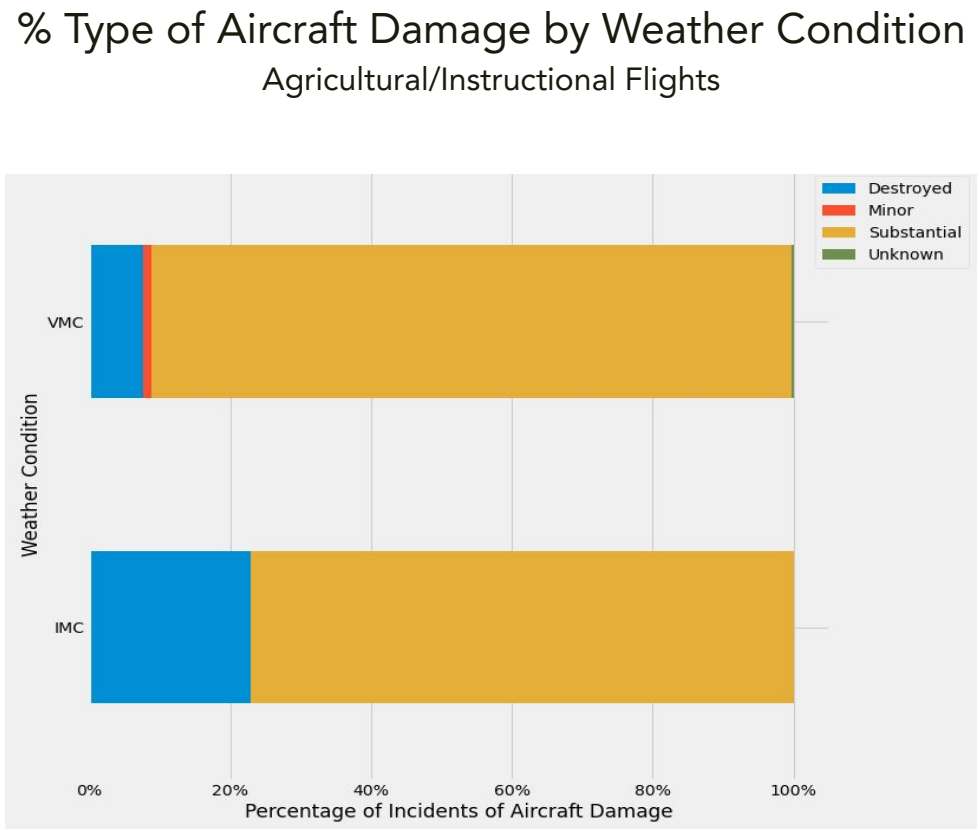
Total number of **airplane** incidents per year:



Weather Conditions

- Weather has the effect you would expect.
- If safety is the ultimate priority, be pickier about your weather conditions.

- VMC: “Visual Meteorological Conditions”
- IMC “Instrumental Meteorological Conditions”



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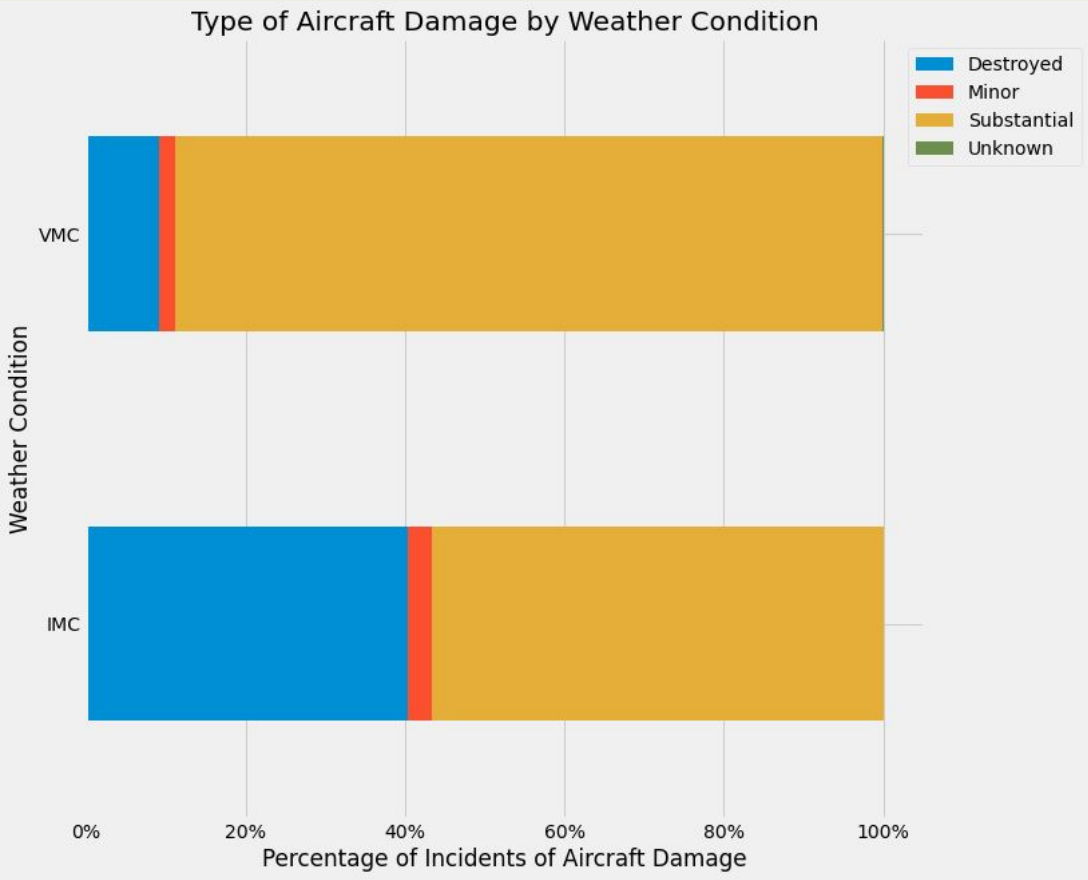

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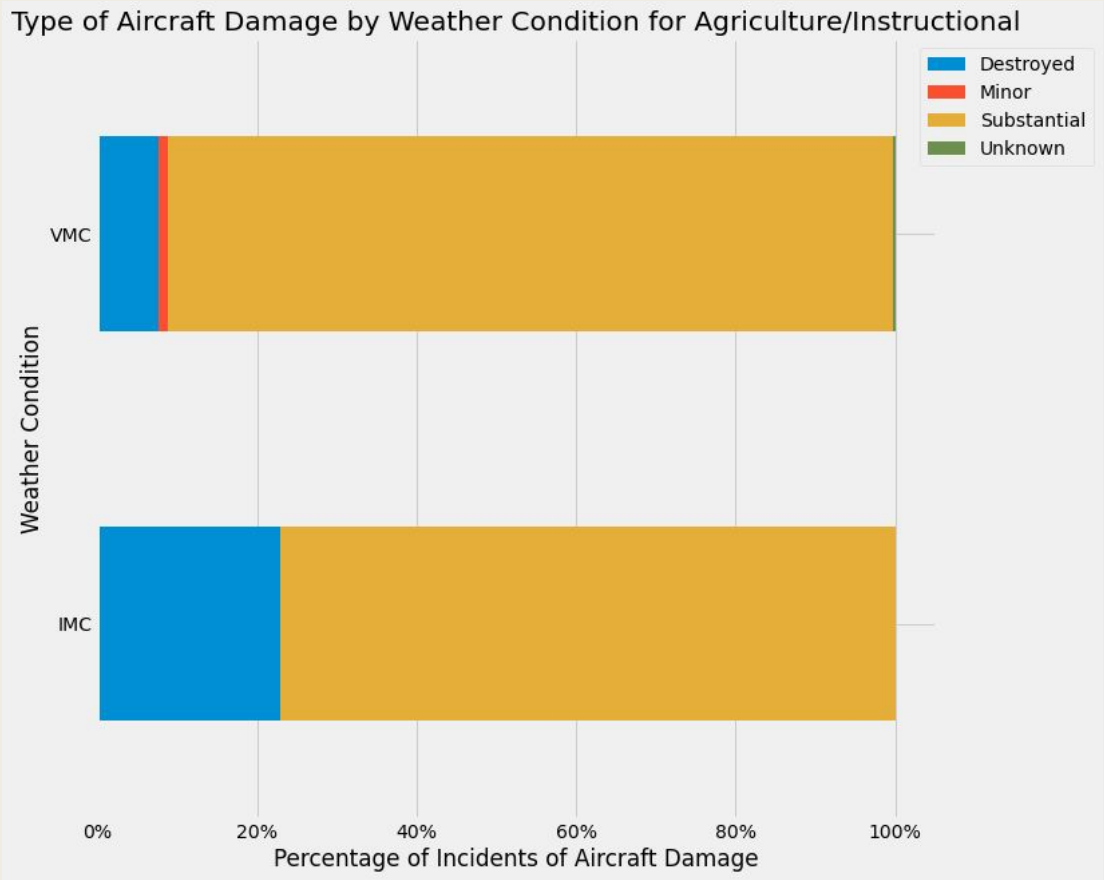
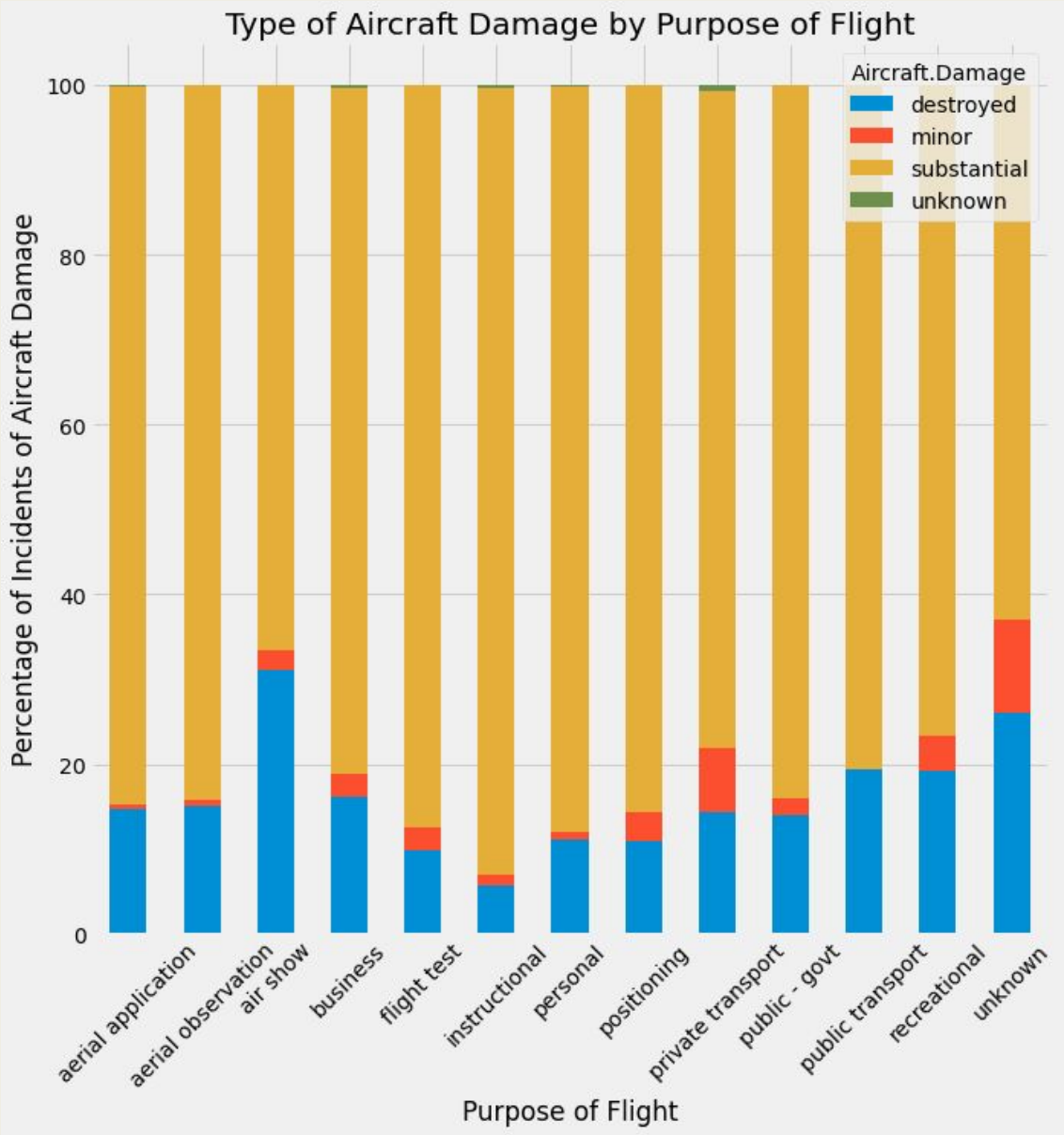


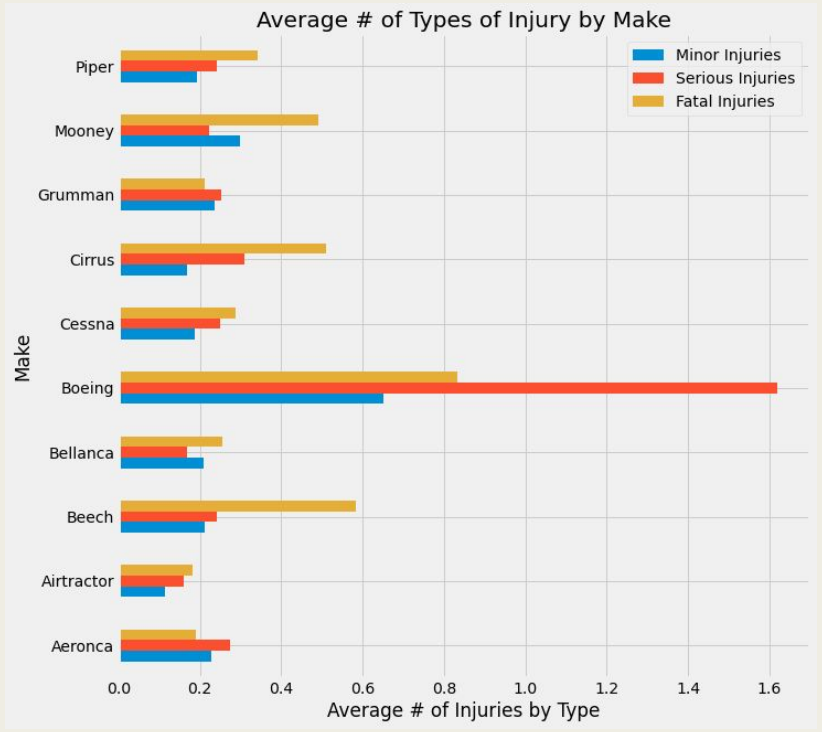
- Aircrafts are more likely to be ‘destroyed’ in air shows

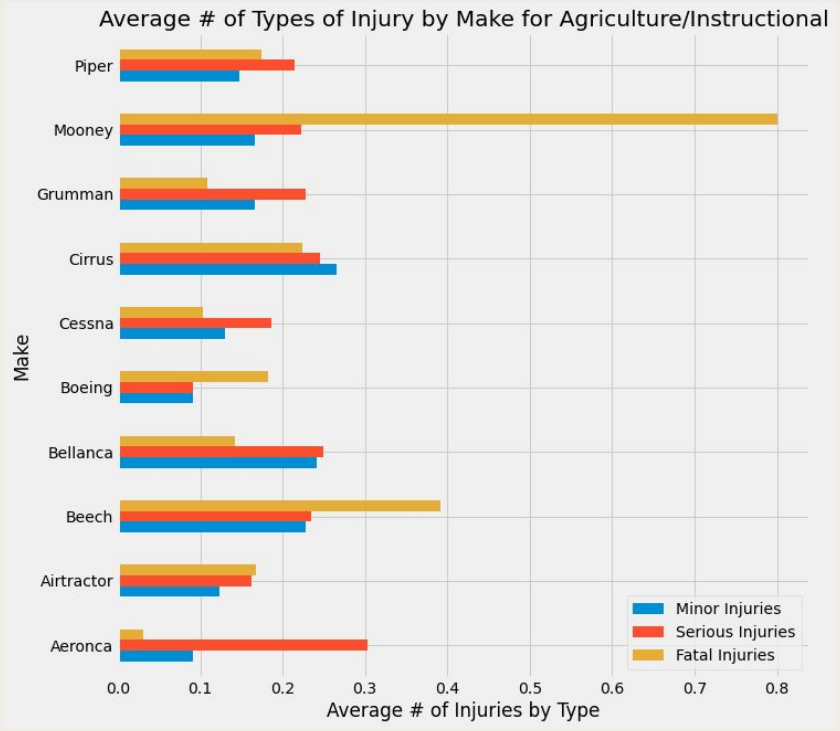
- Least % of destroyed is instructional

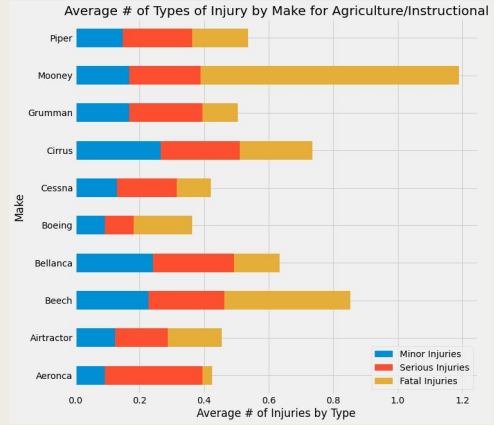


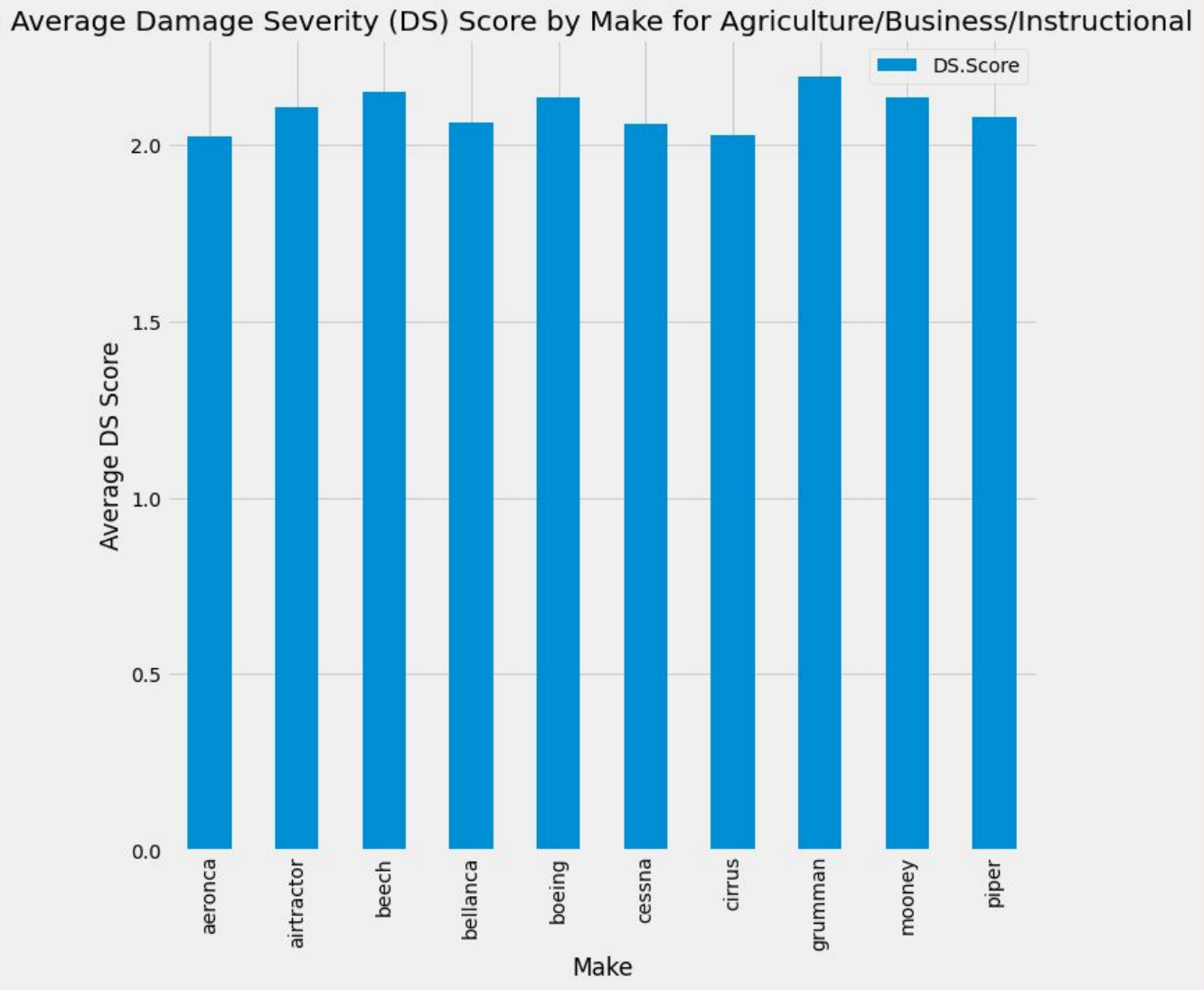
Recommended Make: AirTractor or Cessna

- Cessna injuries: higher raw numbers; lower averages
- AirTractors are similarly safe, and designed for aerial application





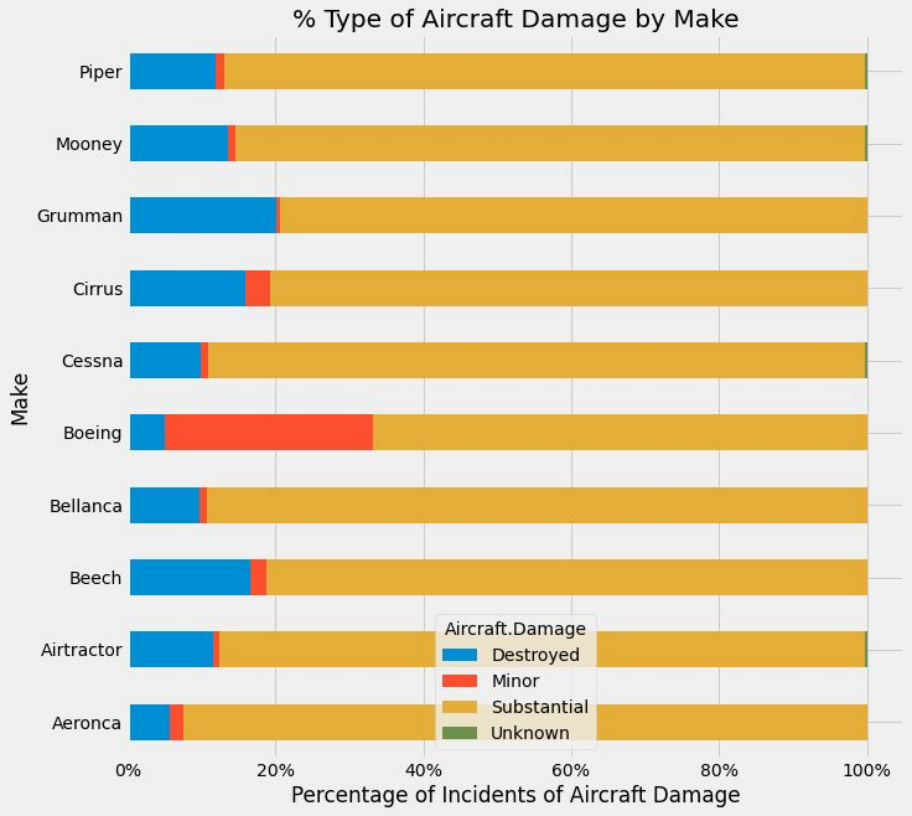
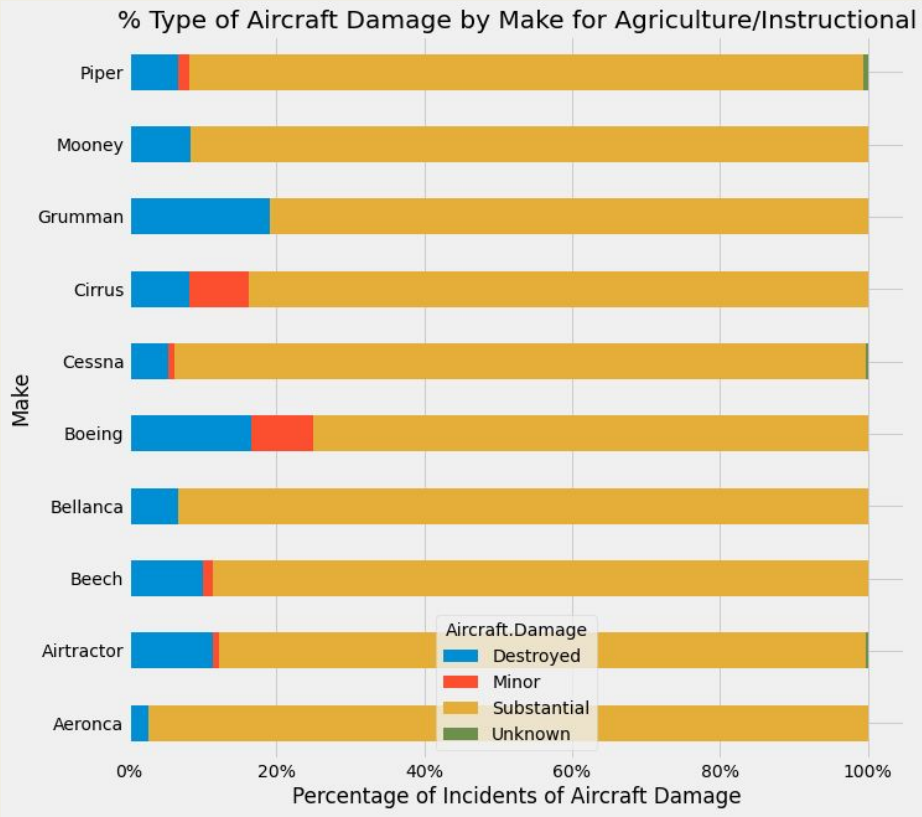




What about damage to the plane -- not just the people in it?

Making a 'DS.Score' column that takes the 'Aircraft.damage' column and reassigns each category a number:

- 'destroyed' -> 3
- 'substantial' -> 2
- 'minor' -> 1

For the time being, 'unknown' is left as such.

- The DS Score on the previous slide is trying to give a quantified measure for these data
- **Slight preference for AirTractor over Cessna** -- substantial damage (vis-a-vis minor) is slightly less likely for an AirTractor