Airplane Selection

Analytical Note

Outline

1. Introduction

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2. Problem
3. Methodology
4. Findings
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Introduction

- The aviation industry is a high-opportunity, high-risk sector.
- General aviation has a fatality rate of 1.05 per 100,000 flight hours.
- Over 80% of recorded incidents involve private or instructional flights.
- Study spans 1982–2022, analyzing 30,000+ aviation incidents.
- **Goal:** Support safe aircraft procurement using historical data.

Problem & Objectives

- **Problem:**

- Aircraft safety varies across types and missions.
- Lack of structured safety metrics increases investment risk.
- **The objectives are**:
  1) Identify airplanes used for business and private operations.
  2) Compute risk indices based on injury severity and aircraft damage.
  3) Recommend aircraft models with the lowest safety risk for investment consideration.

Methodology

1. Selected Airplanes and Helicopters only.

2. Grouped flight purpose:

Business: Corporate, Ferry, Positioning

Private: Personal, Instructional

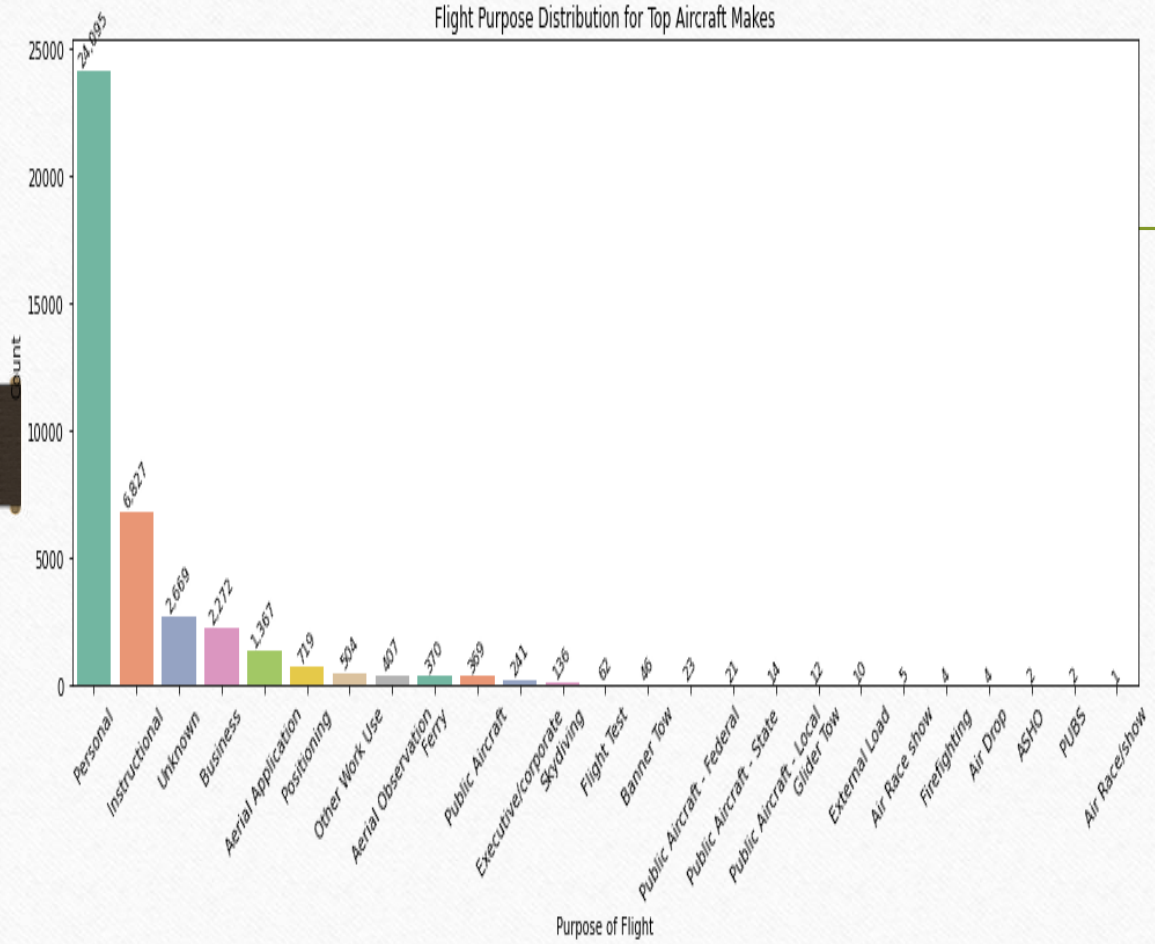
Safety Indices:

Survival Index % = (Uninjured / Total) × 100

Severity Index % = (Avg Damage Score / 3) × 100

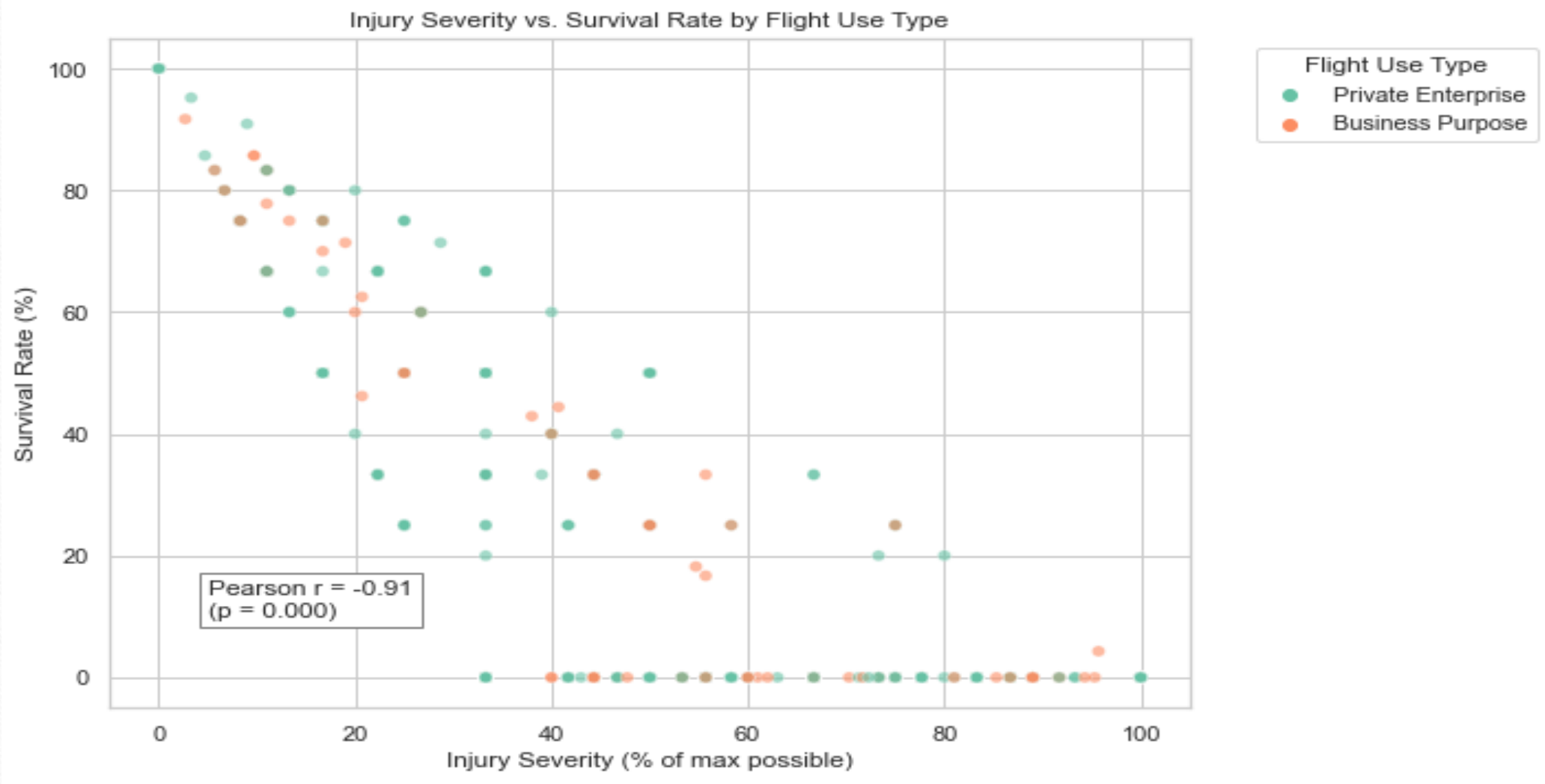
Minor = 1, Substantial = 2, Destroyed = 3

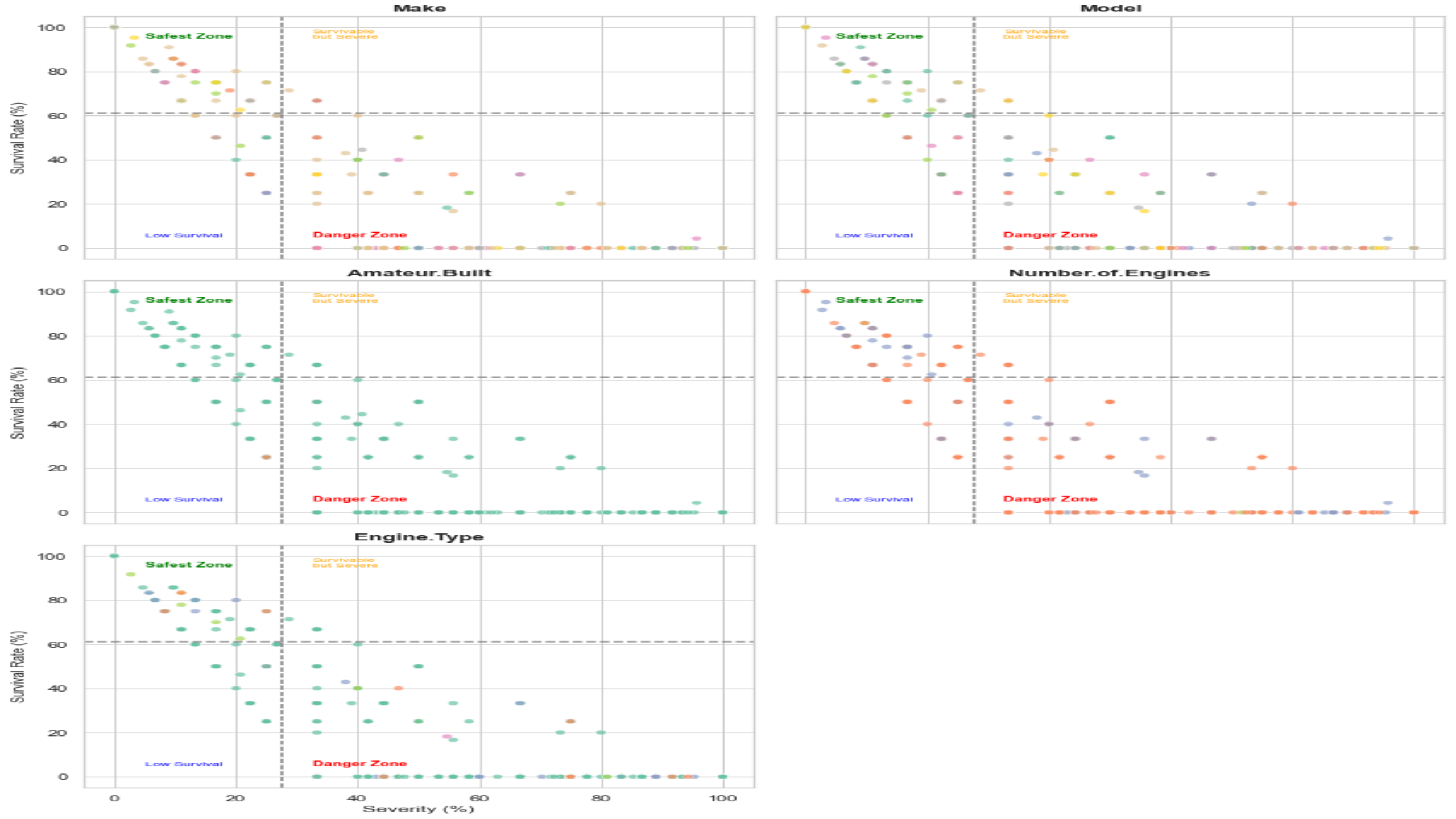
Findings: Flight Purpose Distribution



- Personal and instructional flights account for over 80% of incidents.
- Business flights form a minority but remain critical for procurement analysis.
- Risk profiles differ by flight mission type.
- Need to assess safety relative to usage context.

Survival vs Severity




Make
Model
Amateur.Built
Number.of.Engines
Engine.Type
Safest Zone
Survivable but Severe
Low Survival
Danger Zone
Survival Rate (%)
Severity (%)
0
20
40
60
80
100

MAKE	MODEL	AMATEUR BUILT	NO. OF ENGINES	ENGINE TYPE	COUNT	AVG SEVERITY	SAFETY SCORE
SAVAGE AIR LLC	EPIC LT	YES	1	TURBO PROP	1	0.0%	100.0%
MURPHY AIRCRAFT	MURPHY REBEL	YES	1	RECIPROCATING	1	0.0%	100.0%
NORD (SNCAN)	STAMPE SV4C	NO	1	RECIPROCATING	1	0.0%	100.0%
NORMAN	QUAD CITY CHALLENGER	NO	1	RECIPROCATING	1	0.0%	100.0%
NORTH AMERICAN	0-47B	NO	1	RECIPROCATING	1	0.0%	100.0%
NORTH AMERICAN	AT	NO	1	RECIPROCATING	1	0.0%	100.0%
NORTH AMERICAN	AT 6D	NO	1	RECIPROCATING	1	0.0%	100.0%
NORTH AMERICAN	AT 6F	NO	1	RECIPROCATING	1	0.0%	100.0%
NORTH AMERICAN	AT-6	NO	2	RECIPROCATING	1	0.0%	100.0%
NORTH AMERICAN	AT-6C	NO	1	RECIPROCATING	6	0.0%	100.0%
NORTH AMERICAN	AT-6D	NO	1	N/A	2	0.0%	100.0%
NORTH AMERICAN	AT-6D	NO	1	RECIPROCATING	2	0.0%	100.0%
NORTH AMERICAN	AT-6F	NO	1	N/A	1	0.0%	100.0%
NORTH AMERICAN	AT-6F	NO	1	RECIPROCATING	1	0.0%	100.0%
NORTH AMERICAN	AT-6G	NO	2	RECIPROCATING	1	0.0%	100.0%

Questions?

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