

# Personal Aircraft Minimums

From AOPA ASF Backcountry Safety Seminar

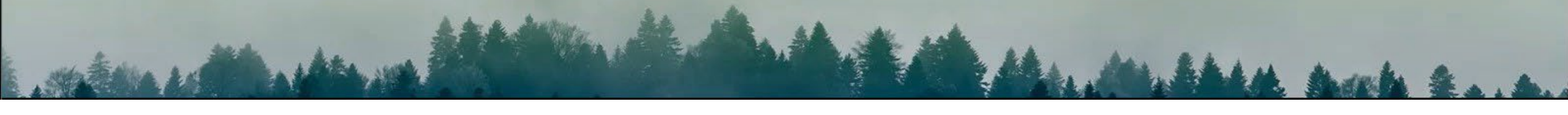
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# Pilots Personal Skills Assessment (PPSA)

Jason Sneed and Mark Patey

**A simple tool for better Understanding and  
Quantifying your own**

**Personal Aircraft Minimums (PAM)**



# The Problem...An objective way to measure skill level and readiness for back country flying for any pilot in any aircraft

**Professional Kodiak Pilot**



**Weekend Warrior Cub Pilot**



**How can each pilot (different skills and backgrounds in aircraft with different capabilities) determine what airstrips they can safely access?**



# Solving For Personal Aircraft Minimums (PAM)

**Purpose: Measure a pilot's outcomes WITH A PARTICULAR aircraft to more effectively predict safe go/no-go decisions into various backcountry airstrips.**

## Definitions

**(P) Pilot; (A) Aircraft; (S) Safety Multiplier; (Sd) Safety Multiplier for Distance; (Sw) Safety Multiplier for Width**

**(N) Net outcome of a particular pilot in a particular aircraft**

**$(P)+(A)=(N)$**

**(Nd) Net outcome in distance**

**(Nw) Net outcome in width**

**Future Modules (not used today) but important for full assessment of readiness for b/c flying**


*(Nt) Net outcome landing in a turn*

*(No) Net outcome over 50' obstacle*

*(Nh) Net outcome on slope greater than 5%*

*(Ns) Net outcome altitude needed for stall recovery*

*(Nms) Moose stall Recover net outcome*



# Solving For Personal Aircraft Minimums (PAM)

$$\text{Pilot(P)} + \text{Aircraft(A)} = \text{Net Outcome (N)}$$

## STEP ONE... Finding Net Outcomes for Landing Distance (Nd)

1. Make or designate a touch-down line.
2. Observer with radio (safe separation) who can see line.
3. Perform 10 landings.
  - Call touchdown relative to line (distance).
  - Observer calls actual distance.
  - Measure roll-out distance (total distance to full stop landing)
4. Record roll out distance from the line, NOT from touch down.
  - Short of the line, add 100 foot penalty to the total distance.

(Nd) = Longest rollout distance of 10 consecutive landings.





# Solving For Personal Aircraft Minimums (PAM)

## **STEP TWO...Finding Net Outcomes for Landing Width (Nw)**

1. Same process as finding Nd (can be done simultaneously)
2. Record max distance **in feet** deviated from centerline at any point from touch down to rollout stop.

$(Nw) = \text{Max Deviation from centerline during 10 landings.}$

(Not the average...the worst)



# Solving For Personal Aircraft Minimums (PAM)

## **STEP THREE...Multiply Net Results for both (Nd) and (Nw) by a margin of Safety (S)**

- For (Nd) we chose a safety multiplier of 2 ( $S_d = 2$ ) Multiply  $N_d \times 2$
- For (Nw) we chose a safety multiplier of 10 ( $S_w = 10$ ) Multiply  $N_w \times 10$

Example: Worst distance, 560 feet; worst drift from c/l, 6 ft.

- Score: ( $N_d$ )=560 and ( $N_w$ )=6
- Apply base line safety margins.  $560 \times (S_d) = 1,140$  and  $6 \times (S_w) = 60$
- Baseline PAM(Personal Aircraft Minimums) would start with a runway in the back country no Shorter than 1,140' long and 60' wide.

\*Assuming density altitude and other environmental factors are similar





# PAM use in the backcountry

## **Professional Kodiak Pilot**

**Nd was 752' and Nw was 4'**

**Add Base Line Safety Multipliers**

**(Nd)x2=1504 and (Nw)x10=40'**

**BASE PAM is 1504 / 40**



## **Weekend Warrior Cub Pilot**

**Nd was 610' and Nw was 7'**

**Add base line safety multipliers**

**(Nd)x2=1220 and (Dw)x10=70**

**Base PAM is 1220 / 70**



Tool is under construction...watch our YT channel for more!



# TLAR Won't Cut It

Really need to dig in and get specific answers for the following:

- How many feet do I need to land and stop my airplane?
- How many feet do I need to take off in my airplane?
- What is my exact stall speed at a given travelling weight?
- What degree of bank angle can I do safely at 1, 2, or 5 knots over stall speed?



# Top 5 Skills

- On spot and on speed – every time
- Slow flight – must be comfortable and confident in this
- Stall recognition and recovery – must be comfortable in all phases and recover quickly with minimal altitude loss
- Precise short field and soft field takeoffs and landings
- Headwork



# The Fine Art of Observation

# Can I Land There?



- Better – Can I take off from there?
- Is the strip long enough?
- How many feet long?
- What are the winds?
- Sloped?
- Rough, how rough?



# Can I Land There?

- Obstacles to dodge?
- Is it wide enough?
- What is the density altitude?
- How heavy am I?
- Is it ONE WAY?
- Do I need to use water?





# Can I Takeoff?

- Same considerations as for landing
- Do I have room?
- Departure path
- Winds – headwind vs tailwind

