Personal Aircraft Minimums

From AOPA ASF Backcountry Safety Seminar

Pilots Personal Skills Assessment (PPSA)
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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)

Pilot(P) + Aircraft(A) = 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.
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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) = Max Deviation from centerline during 10 landings.

(Not the average…the worst)
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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 Nd x 2
- For (Nw) we chose a safety multiplier of 10 \( (S_w) = 10 \) Multiply Nw x 10

Example: Worst distance, 560 feet; worst drift from c/l, 6 ft.
- Score: \( (Nd) = 560 \) and \( (Nw) = 6 \)
- 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