



## Personal Minimums for Wind

The GAJSC has determined that a significant number of general aviation accidents could be avoided if pilots were to establish personal minimums for flight in windy conditions. Identifying and adhering to personal wind limitations can significantly reduce the number of wind-related aircraft accidents.



**If the wind sock looks like this** and it's not aligned with the runway, consider a tune-up with your favorite CFI.

*Wind socks must withstand wind speeds of up to 75 knots. They must be fully extended in 15 knot winds and must rotate to indicate wind direction in winds of 3 knots or greater.*

Of course the big question is, how much wind can you handle? There are at least two factors to consider before answering that question and neither one is straight forward.

### #1: How much wind can the airplane handle?

The pilot handbook for airplanes manufactured from 1975 to the present will contain a Maximum Cross Wind Component or Velocity in the Normal Operations section. This is not a limitation but rather the maximum cross wind experienced in the course of flight testing for certification. Could the airplane be controllable in more wind? Possibly. But you won't know without conducting some tests of your own.

What we do know is that the airplane will be controllable with less cross wind. FAA Type Certification Rules require that airplanes must handle safely on the ground in a 90 degree cross wind of  $.2 V_{so}$ , e.g., an airplane that stalls at 49 knots will be controllable on the ground with just under 10 knots of wind. Will it handle more? Possibly. But for sure it will be controllable with less.

### #2: How much wind can the pilot handle?

Pilot performance varies considerably from day to day and even hour to hour. Some of the factors include:

- ✓ Total pilot experience;
- ✓ Experience in aircraft type;
- ✓ Mission imperative; and
- ✓ Stress, hunger and fatigue.

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## Establish a Baseline

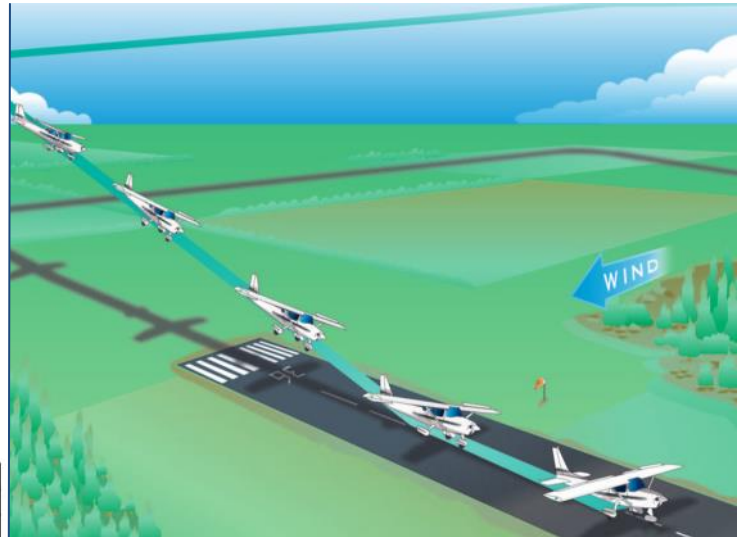
We need to establish a pilot performance baseline — your personal, documented, demonstration of performance — in order to establish personal minimums. We suggest you document your wind performance at least once a year with a CFI. Try to pick a day when you can experience actual cross-wind conditions in the airplane you usually fly loaded to your typical mission weight. Select an airfield that’s typical for the missions you fly.

My Short Field Performance			
Aircraft		Gross Weight	Test Weight
Airfield		Elevation	Density Alt.
Wind Direction		Wind Speed	X-Wind Comp
IAS		Landing Dist.	Flap Setting
Takeoff Flap		Rotation Speed	
Rotation Speed x.70		Vx	Vy
Distance to Rotation		Distance to 50'	

Here’s a chart that some pilots use to document their wind, takeoff and landing performance.

Once you’ve completed the chart you’ll have a performance baseline to work with. You can adjust the performance expectations to compensate for human factors addressed earlier, and you can adjust your baseline as you gain experience, skill and with a CFI to get an objective assessment of your capabilities. A flight instructor may offer suggestions and instruction for improving your baseline performance.

Devote some time and money to practice your piloting skills in actual windy conditions. Concentrate on flying as precisely as you can compensating for wind and predicting your performance. Work toward flying a base to final turn that aligns you perfectly with the runway and maintain that alignment all the way through the approach, landing and roll out.



Be aware that many airports are subject to local wind challenges including wind shear and turbulence. Mountain airports in particular require careful planning and prior knowledge to ensure safe operations. Consult a local CFI or experienced pilot before flying to unfamiliar mountain or back country fields.

You should consider adjusting your personal minimums to compensate for fields with wind shear potential. Local knowledge is key to avoiding nasty surprises. If you’re flying to desert destinations, planning for arrivals before noon will definitely make for a smoother flight with less turbulence and fewer thunderstorms to deal with.

## Resources

- ✓ **Off Airport Ops Guide for baseline and cross wind component information:**  
<http://1.usa.gov/1R4Qhjb>
- ✓ **Personal Minimums Checklist:**  
<http://1.usa.gov/1FGeMkX>
- ✓ **Airplane Flying Handbook chapter 8:**  
<http://1.usa.gov/18orxyp>

