

Crosswind Landing Survey Results

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Xwind, LLC conducted an online survey during 2007 to evaluate pilot knowledge and confidence regarding crosswind landings. Here are the conclusions that we reached by looking at the data collected. For those pilots who took time to participate, we extend our gratitude. We can't guarantee that these results are valid, but you may find these insights useful.

About the survey

The survey asked for 17 identifying responses such as name, flight time, highest certificate held, and number of crosswind landings over 10 knots. It also asked for answers to 26 multiple choice questions with four choices per question. The goal of all questions was to identify a pilot's technical knowledge of crosswind landings, obtain a self evaluation of their own performance regarding crosswinds, and to see if there were any correlations to crosswind skill, confidence, flight time, or years of experience, etc.

An automated grading system verified that responses were valid and then scored the test and assigned an experience and confidence score. It also calculated hours per year, hours per landing, and total crosswind landing time in minutes. An imaginary 10,000 hour ATP instructor with total confidence and high crosswind experience was used as a standard to measure all participants. Nine experience factors were used to produce a final experience rating.

Participants were reminded that the questions only apply to a single engine, tricycle gear aircraft.

About the Participants

There were 136 valid participants included in the survey database - 7 Student Pilots, 73 Private, 21 Commercial, 20 Instructor, 13 ATP, and 2 Sport Pilots.

Results

We have done our best to avoid reading too much into the results. But, we find the following conclusion to be credible and interesting.

A pilot must have over 3000 flight hours to routinely rate themselves confident in a crosswind.

Pilots with over 3000 hours always rated themselves confident with crosswinds. Under 3000 hours pilots might rate themselves anywhere from low to high in their confidence. Pilots with less than 3000 hours are more likely to need some help with crosswind landings.

25% of pilots don't know that bank angle controls lateral position over the runway.

This was true for ATP rated pilots as well. As expected, student pilots scored the lowest and instructors scored highest. Still, one in four pilots could not identify this vital concept related to crosswind landings.

All pilots know that if the wind speed remains the same and wind direction changes, that the crosswind component will change.

This one was surprising because other questions that seemed easier were answered incorrectly. It is odd that this one is well known but that bank angle control of lateral position is not well known. It was great to see that even students knew this one. However, it seemed odd that a pilot would know this and not know the more vital issue that bank angle controls lateral position.

Private Pilots were the best at estimating crosswind components correctly.

This one was very surprising. Private pilots scored better at estimating crosswinds than, Commercial, ATP, and Instructors! The questions asked what the component of crosswind would be at 30 and 45 degrees off the nose. ATPs scored half of what private pilots scored. This could indicate that experienced private pilots must be better at this because their equipment is more susceptible to the wind.

64% of all pilots believe that an airplane must be forced on the ground at high speed in a crosswind.

This is one of the most significant flaws in crosswind landing training and this survey seems to capture the concept. When given the option in the answers, 64% of all pilots would choose to land an aircraft at the “highest possible speed” in a crosswind rather than slow down once the plane has neared the runway. There is a strong belief that the aircraft should be planted at high speed. This can lead to loss of control and yet the majority of pilots would choose this method. Again, the questions were only dealing with landing a light aircraft in a modest crosswind (15 knots).

73% of all pilots refuse to go back airborne if the aircraft demands it during touchdown.

If an aircraft touches down nicely in a crosswind and the wheels are all on the ground and then a gust sends the airspeed way over touchdown speed, the aircraft will announce this situation by sliding downwind, lifting a main gear off the ground, and/or porpoising. It would be best to encourage the aircraft to go back to flight and back to the slip while the airspeed is high. Very few pilots recognized that as an option in the questions. Answers indicate that a large majority of pilots would press forward harder on the yoke and hope that things calmed down before the aircraft left the runway. It may indicate that this is the message being delivered in training.

We strongly believe that this is a key factor that leads to loss of directional control. When an aircraft is wings level on the ground at high speed in a crosswind, it is not positioned to fly and there may not be sufficient ground friction to steer.

Higher flight experience resulted in higher test scores.

This indicates that pilots gain their technical understanding of crosswind landings through trial and error and time more than from instruction. This is why Xwind believes that a device is needed to provide that level of technical insight, trial and error, and time to nail down crosswind skill in a meaningful way.

Higher flight experience resulted in higher confidence ratings.

This is exactly what was expected. Student pilots rated themselves with much less confidence than private pilots and so on up the experience scale. So, even if pilots pretended that they were confident in the survey, on average, the results were exactly what we would all expect. More flight experience results in more confidence.

Summary

There could be other interesting facts to be gleaned from the results. However, your eyes may be glazing over by now.

At Xwind, we believe that there is a better way to impart a high level of skill, technical knowledge, and confidence without risking aircraft to get it done. Since crosswinds are the number one cause of weather related accidents, we believe that our trainer is the answer that will help pilots identify areas to improve and provide them with the tool to do it in complete safety.

At Xwind, we expect to improve how crosswind skill is obtained and maintained and to make this technology available at an affordable cost.

Again, thanks to all who participated. We welcome your ideas and comments and encourage you to take the Xwind training no matter what your skill level. You will see an immediate improvement in your skill.

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For information about NTSB data visit: http://www.nts.gov/publictn/A_Stat.htm