



LANDING DISTANCE AND WINDS

A good landing makes economical use of the available space. It's wasteful to let lots of runway slide uselessly beneath an aircraft that's aimed at a badly chosen touchdown point. It's equally wasteful to let surplus airspeed spoil things. Extra airspeed causes the aircraft to float during the roundout and flare, delaying the moment when it's possible to touch down in the correct attitude, at minimum controllable airspeed.



Wind is important too, making it essential to know wind speed and direction before landing. At nontowered airports where there's a choice of runways, it's not always the longest that gives the best results. "The effect of wind is large and deserves proper consideration when predicting landing distance. Since the airplane will land at a particular airspeed independent of the wind, the principal effect of wind on landing distance is due to the change in the groundspeed at which the airplane touches down," explains [Chapter 9 of the *Pilot's Handbook of Aeronautical Knowledge*](#).

You may know that headwinds improve landing and takeoff performance, and tailwinds hurt, but how much they differ emerges in Chapter 9's comparison of two scenarios: A headwind velocity that is 10 percent of your landing airspeed reduces landing distance about 19 percent. But add 10 percent of your landing airspeed to a tailwind, and your landing distance increases about 21 percent! Combine that with excess airspeed and a short runway, and trouble lurks. See the Dec. 13, 2003, "[Training Tip: Grasping Groundspeed](#)."

That elevated risk is why runway operations in tailwinds are frowned upon under all but the most urgent circumstances. You've probably seen them done by other pilots. "Many people believe in things that they have never seen—like Bigfoot or extraterrestrials. Tailwind landings are just the opposite: Nobody believes in them, yet everyone has seen one," cautioned the February 2004 [AOPA Flight Training column "Accident Analysis: Tailwind Landings."](#) The column adds, "Where you don't see them is in training, because in most cases, landing with a tailwind is a very bad idea that thumbs its nose at just about every fundamental concept a student pilot learns about how to return an aircraft safely and correctly to earth."

Headwinds are bad news in cruise, but when you're on the ground, or when it's time to land, seek them.