ON ZERO/ZERO LANDINGS

BY

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There are good reasons why pilots should avoid descending below the minimum prescribed altitude at the end of an instrument approach. There is a series of permissible errors in altimeter settings and instrument inaccuracies that can easily eat up the 200-foot margin prescribed for most standard ILS approaches. Going below minimums is an extremely effective way of killing yourself.

But. That little word precedes some of the most ridiculous things people say. And I'm about to launch into a discussion of how to land without being able to see anything, an absurd proposition. I have my reasons; but I sincerely hope that neither you nor I will ever have occasion to attempt what I am about to discuss. Life's too short.

Suppose you're aloft at night and some things go wrong and the headwind has eaten up most of your fuel and, to cut to the chase, you're up that familiar creek without a paddle. There's fog. All airports within range are reporting zero/zero, that is, zero ceiling and zero visibility. Ducks are walking and you're down to your last fifteen minutes of fuel.

Readers of these essays know that I am a very conservative pilot when it comes to fuel planning and decisions involving weather. So I find it incredible that anyone like me could ever find himself in such a situation. Prudent planning and sane

decision-making should make this kind of situation unlikely, and it usually does, but I have to justify this essay, so here goes.

Before I go any farther, I must mention that some blind landings are not quite so unthinkable. I remember my first flying instructor taking me up at night in a Cessna 150 and getting into the subject of engine failures at night. Henry, my instructor, posed the question, "What would be your best option, right now, if you had to make a forced landing?" We were out over the middle of a dark swamp in New Orleans East, in the days before the Interstate 10 was even a gleam in its daddy's eye.

Henry's solution was to turn into the wind, as best you could determine its direction. Then you'd drop full flaps and slow the plane down to just above stall speed, suck it up and accept whatever fate has in store for you. His argument was that you'd be going around thirty-five miles per hour forward and maybe three or four hundred feet per minute downward. At those speeds, flying a crashworthy bird like the Cessna, you'd have to hit something pretty solid to hurt yourself. If you wanted to see what you were about to hit, you'd turn on your landing light. Otherwise, you'd just sit there and take it like a man.

That's not exactly a totally blind landing, but it comes pretty close, if you don't have any visual help in picking a place to park at night over unlit terrain.

The other example that comes to mind is that of the glassy water landing in a seaplane. At least when you're doing one of those, you can pick your area and be fairly sure that there are no obvious obstacles in your landing path. The technique for this

kind of operation is about the same as that for a forced landing at night, except that you may have power available, giving you a little more control over your arrival. You slow the plane down as much as you dare, with full flaps. Then you set up a slow, power-on descent, let's say two to three hundred feet per minute, and hold the nose a couple of bars high on the attitude indicator. Then you just hold on and wait for it to happen. If you do it right, it's one of the smoothest touchdowns you'll ever make.

Okay, back to the last-fifteen-minutes-of-fuel scenario. To make this work, you have to have an ILS approach handy, along with all of the radio receivers appropriate to that kind of approach. It would also be good to have an approach plate for whatever ILS you've chosen for your return to earth. It is to be hoped that the air is smooth and the wind negligible. Fortunately, that's often the case when you get those low clouds and high grass conditions.

It's also to be hoped that you have been practicing your nice, stable ILS approaches, and that you are otherwise current on instruments. We're going to take that as a given, for purposes of this discussion. If these prerequisites are not in place, well, everyone's gotta die of something. Take it out over the lake and use the engine-out-at-night technique for ditching, in hopes that you won't kill anyone else.

You manage to intercept the localizer a couple of miles outside of the outer marker. You don't want to waste gas dragging flaps through the air, and you *might* want to consider keeping the gear up, for the same reason. Depends on how slim your margin of fuel is, at that time.

Get the thing slowed down to the minimum speed you consider necessary for good control on final approach. We're working on a controlled crash on an open field here, not on a beautiful landing.

Intercepting the glide slope, you start downhill. Your rate of descent is not too high, since your ground speed has been minimized. If you are a competent gauge gaper, you have figured out what I call the "magic number" by this time. The magic number is the heading you have to fly to keep the localizer needle centered. I've read that we're supposed to fly magic number +/- 5^{o} outside the marker and magic number +/- 2^{o} from there to the runway. But I must admit that I have seldom been proficient enough to hold a heading reliably within those tolerances. I give myself magic number +/- 5^{o} all the way down. It works.

So now you have a stabilized approach, coming down the glide slope at about three to five hundred feet per minute, and you've got it nailed. You may or may not have a current altimeter setting. You didn't tell me whether or not your comm. radios were working.

Pretty soon you're going to cross the middle marker. That will put you somewhere like two hundred feet above the runway's elevation, with about 45 seconds to a minute to go. Here's where things start getting tight. You have to hold that magic heading and start raising you nose. You don't want to hit the ground in a nose-low attitude. Like the blanked-out seaplane pilot, you need to use the combination of pitch and power to maintain that slightly nose-high attitude with about a 200

foot-per-minute descent. Keep the wings absolutely level, and if your cellphone rings, don't answer it.

Sometime within the next sixty seconds you should be on the ground. If you're a really good heading-holder, you might be somewhere on the runway. If you should happen to luck out and touch down on a hard surface, try to continue using your feet to keep the localizer needle as close to centered as possible until you get the thing stopped. Otherwise, you'll probably be out in the weeds, picking runway light hardware out of your prop and landing gear. But that's okay. That's what you've got insurance for. As soon as you think you've come to a stop, pop open your door, release your seatbelt, take off your headphones, and exit right smartly. No telling what you might have broken when you hit, and there might be gasoline leaking out on the ground, if you had any left at the time of the crash.

I'm not trying to be facetious here. I'm trying to dramatize the folly of this procedure if you have any other options. But it's probably better, if you ever have to make one of these arrivals, if your instructor has given you the opportunity to practice it under the hood, with that friend and mentor standing by to keep the shiny side up and the greasy side down, if things don't go exactly right.

With most of my instrument students, we eventually do the Jimmy Doolittle lesson. Jimmy's the first guy ever to accomplish an entirely blind flight, from takeoff to touchdown to full stop. Most of my students want to do it several times. It's best if you have a very calm night and an instructor you trust to keep you between the runway lights.

I hope my students emerge from this experience with an enhanced sense of motivation and self-confidence. *Been there, done that, got the T-shirt.* But I also hope I've been successful in developing their judgment and decision-making skills to the point where they'll never get into this kind of situation in the first place.