

The Last Three Minutes (published in AircraftOwner.com February 2012)

It's still winter over much of the country, although thankfully for pilots the cold and ice have been mostly non-existent. But even though the ice is missing, the clouds are still present, and we are still flying instrument approaches, looking for a runway.

So let's assume that you have executed three turns in holding at an enroute fix, proceeded to the initial approach fix, executed the procedure turn, and now find yourself proceeding inbound to the final approach fix. No matter what you have done to this point, how you perform in the next few minutes will determine whether you successfully break out of the weather and land, or reach the missed approach point with no plan for a following step and become another FAA statistic. Let me share some options for success for that portion of the approach that begins at the final approach fix (FAF) and ends at touchdown, either at your filed destination or at an alternate.

All approaches are not the same. This seems obvious, since there are precision approaches and non-precision approaches, and there are several types of each. But I "approach" each instrument approach differently depending on some other factors. These are:

- Are we flying a Cessna 172, a Beech Bonanza or something bigger?
- Will this be a straight-in approach to straight-in landing, or will there be some more maneuvering required after leaving the final approach fix?
- Is there a passenger in the front seat, and is that passenger a pilot qualified and current in the aircraft?

- Is the weather at our destination at minimums, well above minimums, or probably below minimums?

Let's start with airplane type. We know that we need to fly a stabilized approach from the FAF on in. If we don't have to make changes in configuration or airspeed, the entire process is going to go much easier. But a few thoughts for those pilots who are flying lower performance aircraft. (And I am defining "low performance" as the Cessna 172 \ Cherokee Archer \ LSA type of aircraft.) In this type of aircraft, I will generally not slow to the final approach airspeed with flaps extended. Instead, I will generally fly the airspeed at the top of the white arc and leave the flaps up. There are two reasons for this. First, by flying at a higher airspeed, I have better aileron-rudder-elevator response, which makes it easier to fly a more precise approach. Second, instead of flying at the 70 – 80 KIAS I am flying at 90 – 105 KIAS (depending on the airplane) which gets me through this stuff a little faster.

At missed approach point, if I decide to go missed approach, the flaps are already up which makes missed approach easier. If I decide to land, I can either extend the flaps (this is why I keep the airspeed below the top of the white arc) or I can land no-flap.

There is a definite down-side to the decision to fly final at a higher airspeed. That airspeed needs to bleed off sometime prior to landing. I find personally in the lower-performance airplanes I can bleed off the airspeed easily on short final by lowering the flaps. And I will be ready to make the trim changes that will be required with decreasing airspeed. Please note: this is a technique for the low and slow

crowd. When flying a retractable-gear airplane, I will always have the gear down prior to the FAF and I will extend the flaps at least to the "approach" position prior to the final approach fix.. (More on flaps later.)

Straight-in approach or circling? This relates back to flap and gear position decisions when leaving the FAF. If I am planning on flying a circling approach in a low performance aircraft, I will leave flaps up. If I am flying a high-performance aircraft, I will lower (and check) the gear and I will lower the flaps to "approach" prior to the FAF. In either case, I will lower the flaps to full (if required) when I roll out on final, in a position to land.

Passengers on board? Another pilot in the right seat? With another qualified pilot, one pilot can fly the approach, and the other can call altitudes and perform other co-pilot tasks (radio calls, frequency changes, etc.) The pilot not flying is also the pilot looking for the runway environment. When the runway is in sight, the pilot not flying announces "runway in sight", takes over and lands. Otherwise, the pilot not flying calls the missed approach point and flying pilot stays on the gauges and executes the missed approach. Do not expect this procedure to work if the pilot not flying has not been fully briefed on his duties or if he is not proficient in landing in inclement weather. There are other variations on this, of course. The most important aspect of a two-pilot procedure is that both pilots must understand their roles.

So what if the right seat passenger is not a qualified pilot? You still have some great options. Before you leave the FAF, you should have a good idea of the ceiling and visibility to expect. Tell you your passenger to let you know when you expect to break out of the clouds, and what you expect to see. I

ask my passengers to tell me when they see the ground and when they see runway lights. I also tell them what the runway environment should look like when they see it. (aligned with runway, angling toward it, etc.) By utilizing my passenger, I can get a bit of comfort when I break out of the clouds when expected, and I don't have to switch my vision from instruments to outside quite so soon. One of the most critical points in the approach is the switch from instruments to visual, so it is best not to put yourself in a position where you have to continuously go back and forth between inside and outside unless you really have to.

Reminders – altitudes, times, and airspeeds. One of the luxuries of a crew environment is having someone else set frequencies, talk on the radio, and remind you of timings and altitudes and dme's. When I have a person qualified to do so, I ask that person to call all of my checkpoints and altitudes. (Hint. You want a reminder when approaching a point or an altitude, not when you just went past it.)

If you don't have a passenger who can do this, do it yourself. On my approaches, I am continuously saying aloud things like, "passing 2,500 for 1,200. Passing 2,000 for 1,200. 500 above. 200 above, 100 above." And "passing 3 dme, looking for 6. passing 5 dme, looking for 6" or "one minute down, going to 3 minutes 30 seconds. Two minutes down, going to 3 minutes 30 seconds." By saying these aloud to yourself, you reinforce the situation much more than just by looking at the information. You force yourself to say and to hear the information as well as seeing it. So you are using three senses to interpret the data instead of one. Secondly, you are constantly making yourself aware of how further you need to go before the next action, be it a step down fix or a MAP / DH

Finally, what is your plan "B?" What is going to happen at the missed approach point? Before reaching the FAF, you should have a pretty good idea of whether it is unlikely that you will fly the missed approach (weather is well above minimums) you might fly the missed approach (weather close to minimums) or you are pretty certain that you will fly the missed approach.

If the first situation exists, if you are flying an approach where you are assured of breaking out at 1,000 to 1,200 agl, you will pretty much be VFR for the last part of the approach. Thus, you can mentally prepare yourself for a landing and remaining VFR if you have to go around for any reason.

If the second or third situation exists, then you need to assume that you will fly the missed approach. And it is not enough to tell yourself that you might fly the missed approach. You need to plan every step from the FAF on to the alternate. So some thoughts about your action at the MAP.

Before I start my approach in marginal conditions, I will plan and commit myself to an alternate. This may or may not be the alternate that I filed. Remember that the alternate that you filed has to have reported / forecast weather AT THE TIME OF FILING of 600-2 or 800-2, depending on the available approach procedures. But when the time comes that you really need to land, the weather need only be above minimums

So, as I start my descent at the FAF my plan is this

1. Descend to Minimum Descent Altitude or Decision Height.
2. Continue to the Missed Approach Point
3. Add power and climb, and contact approach control that I

am executing the missed approach.

4. And then, when tower or Approach Control asks the inevitable question, "Understand you are missed approach. What are your intentions?", I will have an answer and I won't be flailing around saying, in essence, "I don't know. What do you want to do?"
5. Oh, and if I do see the runway, then I can complete the approach and land.

Note that my assumption when starting this approach is that I will go missed. With that mindset, I am much more willing to go to my alternate than to press on in unsafe conditions. The other reason I brief myself that I am going to the alternate is that pilots naturally seem to dislike changing plans or admitting that they were unsuccessful. If your "Plan A" is to go to the alternate, then there is no change in plans when that occurs. And you have not been unsuccessful in this approach. You flew the approach and didn't see the runway in time to land. End of discussion.

Older pilots are always being asked if the correct decision is to try the approach again. I contend that the answer is "maybe, but usually not" If you flew the approach to the best of your ability and did not see the field early enough to land, it's not going to get any better on the second pass. The idea that pulls on the unsuspecting pilot is the one says, "If we go just a little lower at the end we will see the runway early enough to land." This is the same idea that follows later with, "The pilot made a controlled descent into the terrain. Fatal to all on board."

So, where does all of this leave us? Let's go back to the point prior to takeoff when many of these possibilities are

known. Before takeoff, we know the airplane, the weather, the passenger(s) and the probable approach. So, much of the last three minutes can be prepared and briefed at that time. As you approach the FAF, it is merely a

matter of making one last review of the details and letting down for a successful conclusion.

Fly safe.

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