HOLD EVERYTHING!

It's not on the top-10 list of favorite procedures, but once you get slowed down and established, holding's not that bad.

by Harry Kraemer

I got the bad news during my preflight weather briefing. I was told to expect delays of up to an hour by the time that I arrived at my destination. The briefer said that the volume of traffic and the weather — low visibility and fog — would impact my arrival plans. When he said, "Delays," I said to myself, "Holding."

At least with the heads-up handed to me during the preflight briefing, I easily can make a useful plan. I can anticipate, for example, that I now will have to carry at least an extra hour of fuel.

My estimated time en route originally was calculated to be three hours, but due to the weather forecast I'm required to file an alternate, which as it turns out is an hour from my destination.

When I have calculated the fuel required by the regulations, I add the one-hour delay to my estimated time en route and the hour to my alternate plus an additional 45 minutes, giving me a total flight time and a fuel load of five hours and 45 minutes.

Expect the Hold

You can expect that ATC will be issuing holding instructions anytime the weather is IFR at your destination, when thunderstorms exist or if there is a large volume of traffic converging on and departing the airspace.

You also can expect holding instructions when there are aircraft ahead of you on the approach. In any case, by the time that you arrive in the terminal, be prepared to slow down.

From the pilot's point of view, holding procedures are simply time-killers. It's a box that you sit in while ATC attempts to create space between you and other aircraft or you and the weather. Once you become aware that holding is a probability, slow down — you are trying to burn time, not gas.

Pilots are expected to start a speed reduction when three minutes or less from the holding fix. The purpose of this speed reduction is to prevent overshooting or exceeding the holding airspace limits.

If it takes you longer than three minutes to slow down, you should start powering back earlier. Plan to cross the holding fix at or below the maximum holding speed. Speed and timing are what holding is all about.

Traffic Ahead

Occasionally when your destination is Boondock Municipal, an airport without a tower, and there is an aircraft ahead of you on the approach, you can anticipate holding instructions.

Recently while being vectored for the VOR 14 at Montgomery County Airport (KGAI), I was told that I was number two for the approach. Hearing that, I slowed my aircraft early, as I did not know what type of aircraft that I was following and I did not want to get too close.

With the power and flaps set, checklist complete, I paid close attention on the approach frequency to hear the progress of the aircraft that I was following.

First, I listened to hear if he made the approach, and second, to hear if he canceled IFR. When the weather is at minimums, the flight crew probably will hang onto their IFR all the way to the ramp and cancel on the air through a remote communications outlet if one is available.

If the flight can't reach ATC on an RCO, someone is going to have to leave the airplane and close the flight plan on a telephone. Unless the crew has a cell phone, plan on delay.

As you motor toward the approach and imagine the crew wandering around the terminal looking for a phone, ATC will be advising you to expect holding. If the flight lands and forgets to cancel, you will be holding until ATC can confirm that the airplane is on the ground.

Time to Burn

When holding is in your future, there is one thing that you will have in abundance, and that is time. I used the time inbound to make sure that I was familiar with the holding procedures for the approach and was prepared to hold.

A quick look at the en route chart and approach plate will reveal the charted holding patterns, and there's nothing wrong with asking ATC where you can expect the hold.

The flight that preceded me made the approach and landed; however, the pilot forgot to cancel his IFR flight plan. Approach could not clear me for the approach until the other pilot canceled or was confirmed to be on the ground, so I was cleared direct to FDK and was instructed to hold as published.

ATC was quick to contact the pilot, and I was cleared for the approach after holding for only a few minutes.

Land Instead

There may be times when holding may not always be the best solution. It is sometimes wiser to land.

I was approaching a line of thunderstorms while en route from Denver to Gaithersburg, Maryland, last summer when I noticed the line of storms was moving in the same direction as I was.

I queried and ATC informed me that no one had flown through the line of storms and that the impression was that the line was solid without any holes or weak spots in it.

I could hear on the frequency that many flights were holding. The pilots were going to wait it out, hoping for a hole or for the line to dissipate.

I calculated my fuel to see how long that I could hold before I was nibbling on my reserves. I could hold for just over an hour. The line was not showing any signs of dissipating, so I decided to land, refuel and wait out the weather on the ground.

It was two hours before the line started to break up. When I had filed and launched again, I heard pilots on the air who were requesting destination changes. They needed to refuel.

Course Reversal

Holding patterns often are part of instrument approach procedures. In this case the holding pattern is used for a course reversal.

Since the racetrack, as it is sometimes called, is a part of the procedure, I suggest that you get your high-performance aircraft slowed down and configured for the approach 10 to 15 miles from the initial approach fix. The distance may vary for different aircraft.

When configuring my aircraft, for example, the first thing that I do is to set the power to my predetermined approach power setting (15 inches manifold pressure). As the aircraft is slowing down to my approach flap setting airspeed, I complete my descent and the approach checklist.

Once I am within my approach flap airspeed (163 knots indicated airspeed), I set the flaps to 15 degrees. I fly this configuration until the final approach fix or glideslope intercept on an ILS.

Although when holding en route a simple power reduction is all that is needed to slow the aircraft to the proper holding speed, if I am approaching a holding pattern from which I will start the approach, I will have the power and approach flaps set prior to crossing the holding fix.

In the Stack

If you are stacked up in a holding pattern and you will be descending in the holding pattern for the approach, you also may want to have approach flaps in, which will allow a good rate of descent without increasing airspeed.

The timing inbound at or below 14,000 feet MSL should be one minute. A complete holding pattern will take four minutes to fly when the flight is at or below 14,000 feet. Above 14,000 feet MSL the timing inbound should be 1 1/2 minutes.

Adjustments should be made on the outbound leg so that you have the proper timing inbound. If you find that the inbound leg only took 45 seconds, you will need to lengthen the outbound leg. The normal procedure is to lengthen the outbound leg by the same amount of time that the inbound leg was short.

If the inbound leg was one minute and 30 seconds in headwinds, for example, you'll need to shorten the outbound leg by the same amount of time that the inbound leg was over — 30 seconds.

Making EFC Time

ATC may specify a time for you to leave a holding fix. To accomplish this, you may need to modify your timing to comply with the "depart holding fix time."

For example, if you cross the fix (inbound) at 1330Z and ATC instructs you to depart the fix at 1335Z, a four-minute pattern is going to bring you to the fix early, and twice around will get you there late. Adding half a minute on the outbound and inbound legs will set you up to depart the fix on time.

ATC will give you four bits of information in the clearance. They will tell you where to hold by giving you a holding fix and a direction.

"Hold west on Victor 120," should signify to you that your holding course will be 270 degrees, and that will be the holding course that you will fly to the fix every time that you make a circuit. ATC will tell you if the hold is non-standard, or left turns, and they will give you an expect further clearance time.

Kitchen Holds

You can practice holds in your kitchen some night by drawing a small triangle on a piece of paper and giving yourself holding instructions. "Hold north, left turns."

Put the pencil on the triangle and draw a line north — that's the holding course. Now "fly" the pencil back to the fix and "turn" left, drawing the outbound leg, turn and head back to the fix. Try one to the right using the same holding course.

The holding pattern is a track to be followed. When foul winds are afoot, it'll take a couple of turns to establish a working wind correction for each leg.

Too much work? So what else have you got to do? Be sure that you get an EFC time, and be sure that you make the obligatory reports: time and altitude reaching the fix, and report leaving the hold.

You may not look forward to ATC instructions to hold, but if you manage the power, get slowed down early, review the holding fix, sketch the pattern on the chart and get the heading and timing nailed, the hold is easy to manage during rush hour. And it sure beats parking on a freeway.

Harry Kraemer is a 6,000-hour corporate pilot and CFII who lives near Washington, D.C.