

## Lesson 3: Holding Patterns

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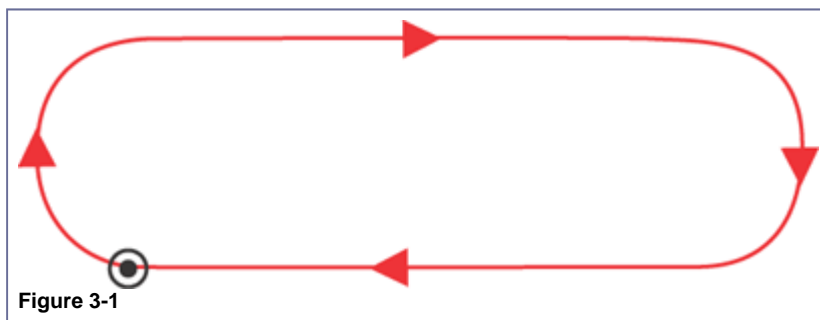
—by Rod Machado

You already learned how to fly a traffic pattern in a previous lesson. So what's the difference between flying a traffic pattern and flying a holding pattern? Well, you noticed that when you were flying a pattern, it was something you did visually. The hold patterns you will learn in this class are done exclusively during instrument flying.

When an airline captain comes over the intercom and says, "Umm... looks like we're gonna have to hold here for a while," you probably groan and think, "Great. A delay." Well you know more about instrument flying than you think you do, because that's exactly what holding is designed to do: delay an aircraft. An airplane can't just pull over to a rest area when ATC needs to delay its arrival somewhere because of traffic congestion or weather conditions. So the controller tells the pilot to fly a holding pattern.

### Hold That Pattern!

A standard holding pattern looks like an oval racetrack anchored at a holding fix—a VOR, nondirectional radio beacon (NDB), or intersection—as shown in Figure 3-1.

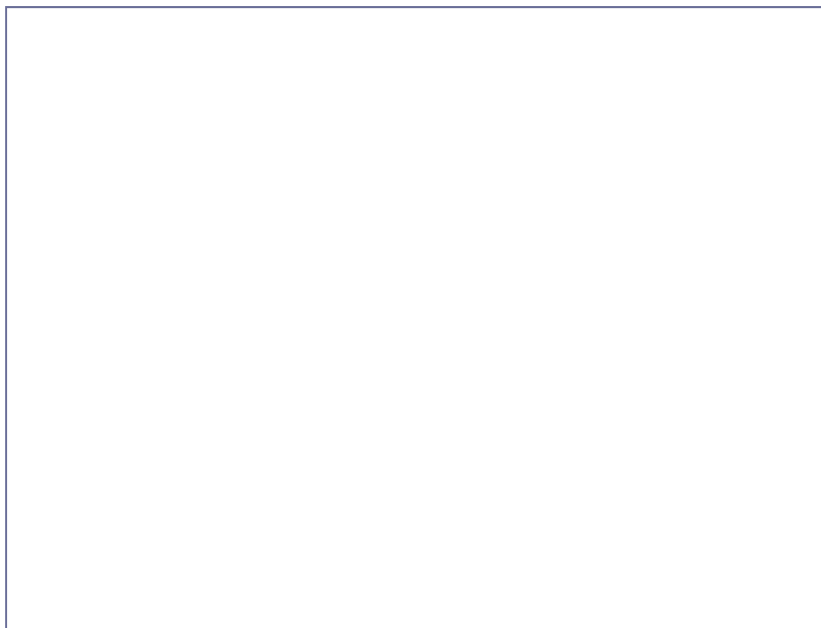


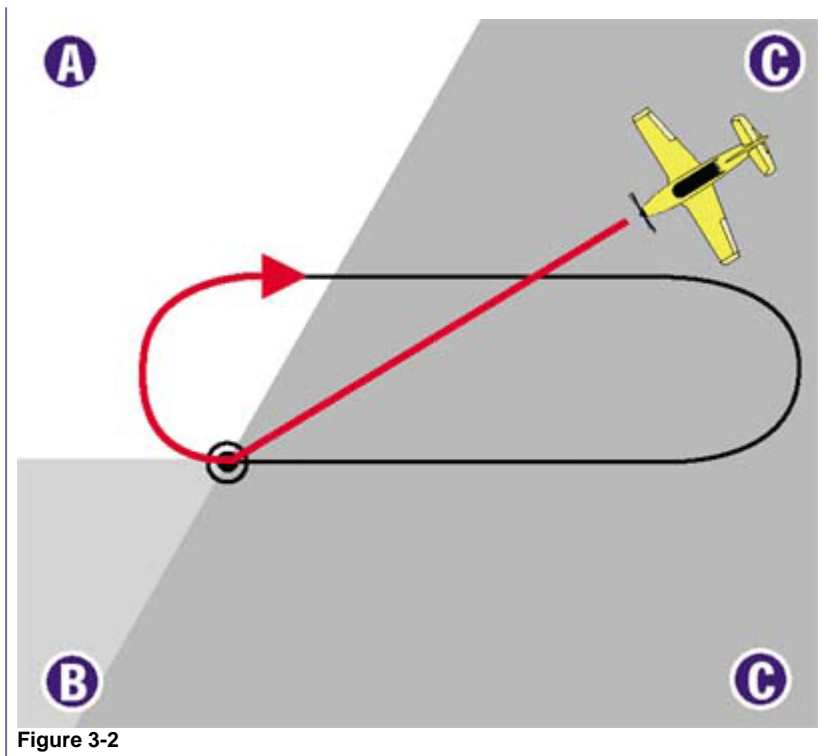
The two straight legs are called the inbound and outbound legs. In a standard holding pattern, you make all turns to the right (nonstandard patterns, therefore, have left turns). All turns should be at standard rate. How long are the legs of the pattern? Long enough so that flying the inbound leg will take about one minute. Wind will affect the leg length—so if there's wind, you need to adjust the length of the outbound leg so the next inbound leg will also take a minute.

Actually, flying a holding pattern is pretty easy, but figuring out how to enter one is something most pilots dread. To keep airplanes within protected airspace, the FAA recommends specific entry methods. Which entry method to use depends on your heading when you initially cross the holding fix.

### Direct Entry

Use a direct entry when approaching the holding fix in the same direction as the inbound leg (area C in Figure 3-2) .

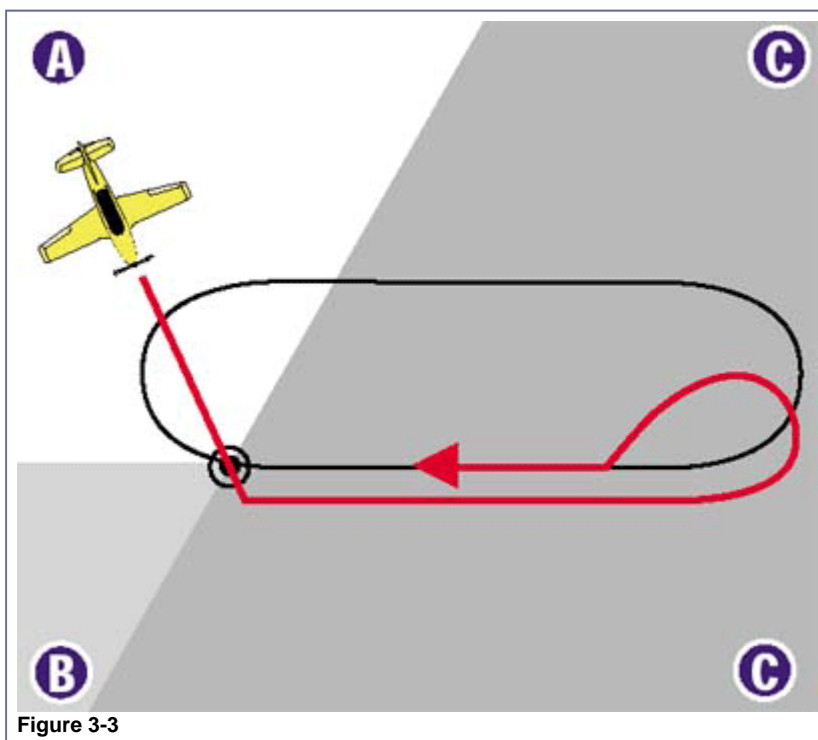




Fly to the fix and turn right (for a standard holding pattern) or left (for a nonstandard holding pattern), and proceed with the holding pattern.

## Parallel Entry

Use a parallel entry when approaching the holding fix in the opposite direction as the inbound leg and ending up outside the racetrack after crossing the fix (area A in Figure 3-3).



Turn parallel to the inbound course, fly outbound for one minute, and then turn toward the racetrack to intercept the inbound course. Return to the fix, and proceed with the holding pattern.

## Teardrop Entry

Use a teardrop entry when approaching the holding fix in the opposite direction as the inbound leg but ending up inside the racetrack after crossing the fix (area B in Figure 3-4).

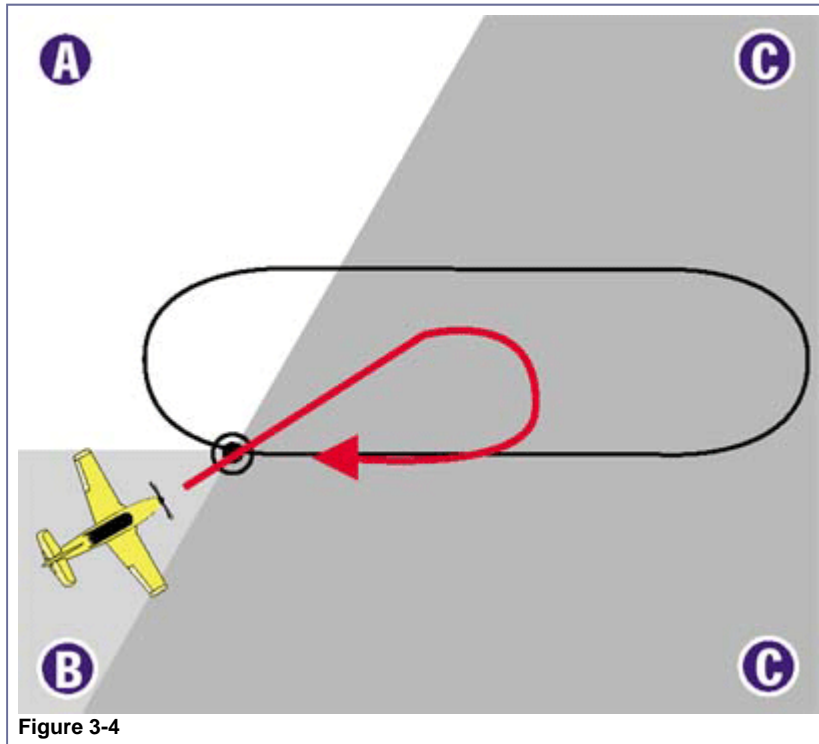


Figure 3-4

At the fix, turn toward the racetrack to a heading that's 30 degrees off the outbound-leg heading. Hold that heading for one minute, and then turn in the opposite direction to intercept the inbound course. Return to the fix, and proceed with the holding pattern.

Sound complicated? Most pilots think so. Luckily, a simple, direct entry is the most common entry type, since a controller will usually tell you to hold as you approach an intersection along your route of flight. Practicing holds is a great way to exercise your instrument flying skills, and should the day come when a controller tells you to hold, you'll know what to do. Right now, click the **Fly This Lesson Now** link to practice what you just learned. Then, strut your stuff for the examiner in the Instrument Rating Checkride. Good Luck!

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