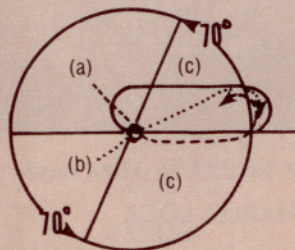


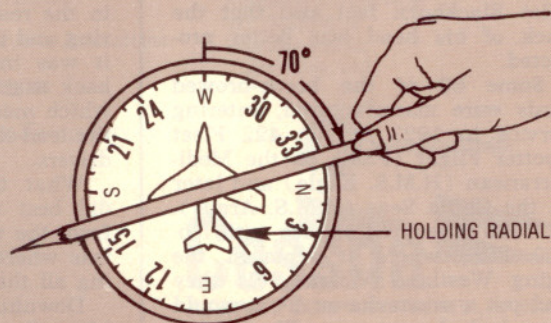
# Holding Is Easy . . . Got a Pencil?

## By-the-numbers method gets you into the proper pattern without mental gymnastics

by T.R. WHITE



**FIGURE 1 STANDARD PATTERN**  
— A NICE DIAGRAM, BUT NOT OF MUCH USE  
IN THE COCKPIT.



**FIGURE 2— A PENCIL (OR FINGER)**  
IS ALL THERE IS TO IT — JUST LOOK  
FOR THE HOLDING RADIAL.

■ ■ What? Another “easy” way to enter a holding pattern? Yes—and it’s so simple you’ll probably wonder why you hadn’t thought of it long ago.

I think anyone concerned with holding patterns, and methods of entering same, is familiar with the diagram shown in Figure 1, showing the 70-degree line cutting across the standard holding pattern. Now, if we try to envision this as we enter the holding pattern, during a busy IFR flight, we see the impracticality of it.

The problem is that this diagram is going to move, that is, rotate magnetically, as the radial changes with different holding situations. Thus you have 360 entry methods instead of just one. It is also predicated on the direction from which the aircraft is coming, and not the heading, with which we are more normally concerned. So we have a need for a simple method we can use in the cockpit; a method that uses as few variables as possible. The method proposed here is so simple that if you get the monkey through the FAA physical, I’ll teach him how to enter holding patterns.

This method will always have the same format; your cockpit procedure need never change. Speaking of the cockpit, let’s begin there, for that’s where we will be determining our holding pattern entries. We will use one cockpit instrument—the directional gyro; this will be the *only* thing we will have to look at when determining our holding entry. This instrument is in our normal scan, and thus eliminates the need to be scrawling diagrams on our kneeboard as the holding fix slides gracefully to our six o’clock position.

Let’s say you’re trucking inbound on the final leg to your destination and approach advises that you’ll have to hold. You get the airplane pointed towards the holding fix, but now you start to squirm because you have to figure out how to enter that mysterious oval in the sky. To set your mind at ease take your pencil and place it over the face of the directional gyro. This does three things: it keeps you from dropping your pencil; it diverts your thoughts from panic; and, it will show you how to make your holding entry.

The idea is that you hold the pencil (or any straight edge) over the center

of the directional gyro, rotated 70 degrees to the right of the lubber line (see Figure 2; we will deal with standard patterns, or right turns, first.) This procedure will *always* be the same, no matter how the holding clearance changes, or how complicated it becomes. Once you have mastered the task of placing the pencil rotated 70 degrees to the right, the rest is a piece of cake.

All you do now is look on the face of the directional gyro for the holding radial. That's right, just look on the DG for the directional equivalent of the holding radial given in the clearance (in Figure 2 we have found the 060 degree radial as an example). The location of this number in relation to your pencil will give your holding entry solution.

The basic method is depicted in Figure 3. If the holding radial is found *below* the pencil, it is a *direct* entry and, upon crossing the fix, you should note the time and turn *right*, outbound (heading will be the same as the

radial). If you find the radial in the 70-degree arc between the lubber line and the top of the pencil, you will make a teardrop entry (with *right* turns, *subtract* 30 degrees from the radial to determine your heading). If the holding radial falls in that *other* area between the lubber line and the bottom of the pencil, make a parallel entry and turn *left* to parallel the radial (the heading will be the same as the radial). Note that in both the direct and in the parallel entries you turn to a *heading* that is the same as the radial specified in the holding clearance. Now let's follow through with an example.

In Figure 3 we are heading 090°; let's assume we have been given a clearance to hold northwest on the 350° radial of the Whozits VOR. All we do now is place the pencil over the DG as in the illustration, 70 degrees to the right of the lubber line. Now, look for the holding radial—350—on the DG. We see that 350 lies in the sector between the lubber line and the bottom of the pencil,

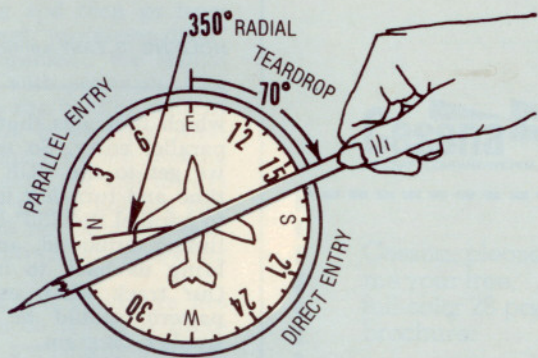
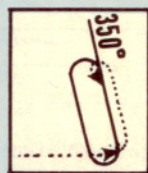


FIGURE 3 — STANDARD HOLDING, OR RIGHT TURNS.



ENTRY DIAGRAM

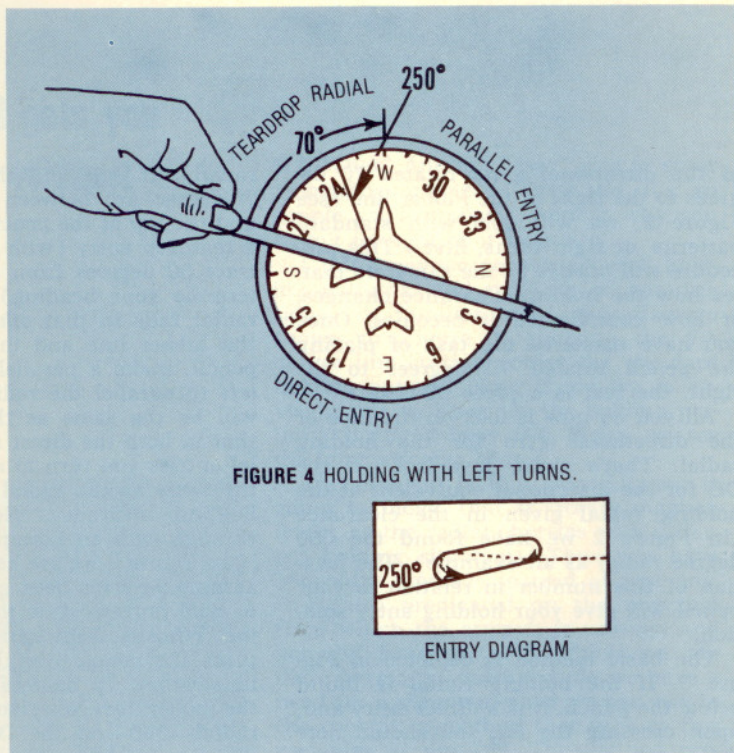


FIGURE 4 HOLDING WITH LEFT TURNS.

HOLDING IS EASY *continued*

which indicates that we should make a parallel entry. So we know that when we get to the VOR we will check the time and turn *left* to a heading of 350° to parallel the 350° holding radial. After timing outbound, another left turn will bring us back to intercept the radial. Our track when entering the holding pattern should be as shown in the smaller diagram.

For holding patterns with *left* turns, simply rotate the pencil 70 degrees to the *left* of the lubber line instead of to the right. Figure 4 shows the correct procedure. The same principles apply in determining your entry method: below the pencil, direct entry (turn left); lubber line to the top of the pencil, teardrop (with *left* turns, add 30 degrees to the holding radial to determine your heading); lubber line to the bottom of the pencil, parallel entry, turn right (heading again is the same as the radial).

Now take another look at Figure 4. Our heading is 270. Let's say our clear-

ance is to hold southwest of the Whozits VOR on the 250 radial, left turns. Place the pencil 70 degrees to the left of the lubber line and look for the holding radial. We see that 250 falls in the teardrop entry sector, between the lubber line and the top of the pencil. So we know that over the Whozits VOR we will note the time and then turn to a heading of 280 (remember, for a teardrop with *left* turns, add 30 degrees to the holding radial to find your entry heading). After timing outbound, a left turn will bring you back to intercept the radial. The proper entry track is shown in the smaller diagram.

A few notes of explanation are now in order. We have used the term "holding radial." When holding on a VOR this is simply the radial specified in the holding clearance. When holding along an airway, it is the magnetic heading of the airway in the direction of holding. And, if for some masochistic reason you are holding on a non-directional beacon or a compass locator, the "holding radial" is the same as the magnetic bearing from the station given in the holding clearance.

There may be some skeptics who would ask why bother with such a specific procedure to determine a holding entry; why not, say, just turn in the direction of holding and then go from there. I think the word "professionalism" best refutes this argument. We should always strive to fly with precision; why not be as precise in the holding pattern as we are on the ILS. If we know what kind of a holding entry we are making and execute it properly, we will always know where we are in the holding pattern, orientation will not be a problem, and we can concentrate on preparing for the approach.

The simplicity of this procedure lies in the fact that you do the *same thing every time* that you are confronted with a holding situation—all you have to remember is which way to hold the pencil. Everything (the directional gyro is "everything") is right there in front of you, no drawing of diagrams or squirming contortions with charts; all you need is your pencil.

Try a couple examples yourself; use a piece of scratch paper as your DG, radials pulled out of the air, and your pencil. I think you'll see the simplicity of the method. Practice it, and the next time you're in the soup it'll keep an unexpected "hold" from blowing your mind. □