

The Circle of Confusion PART II

by Matt McDaniel

In Part One of this series of articles, we discussed how to determine your aircraft's circling approach minimums based on the IAS you will be flying. We also reviewed circling radius safety zones, charting format differences and minimum circling bank angles. Building on that information, the discussion of circling approaches continues.

Flying the Circle

Flying the actual circling maneuver has its own unique challenges. Let's look at them one at a time.

Flying the Plane

I will briefly touch on some of the most important aspects, however it is best to seek instruction with a qualified CFII/CSIP to increase and maintain your proficiency in circling maneuvers. First, ensure that you are stabilized at the circling Minimum Descent Altitude (MDA) before reaching the Missed Approach Point (MAP). Whether you choose a "stabilized descent" or a "dive and drive" method is far less important than actually attaining the desired end result of that descent. Second, upon reaching MDA, you will almost certainly be required to maintain that altitude throughout a portion of the circling maneuver. Be familiar with what power setting is required to maintain level flight in the approach configuration (generally 50 percent flaps), factoring in your desired IAS, aircraft weight, temperature/dew point, altitude and wind conditions. Finally, be mentally prepared for the transition to visual conditions and maneuvering visually, rather than solely by reference to the instruments. This means being ready to make steeper banks (as necessary) than you generally would in IMC. Also, don't be afraid to make significant pitch, power and roll adjustments (as needed and within reason) to ensure you remain within the "circling radius" and remain VFR throughout the circle. Do not leave MDA (above or below) until you are in a normal position to land from that altitude. At that point, I suggest you verbalize, "Leaving MDA," to keep you mentally engaged with the maneuver and prepared for the final descent and landing, or the possibility of a below-MDA missed approach. [We will discuss missed approaches in Part 3 of this series.]

Circling at Controlled Airports

ATC will generally assign circling instructions, but remember it is always the pilot's responsibility to determine whether such instruction can be followed safely. Controlled airports also have the advantage of separating IFR traffic from VFR, or Special VFR traffic that might be working in the pattern. Both can greatly reduce the pilot's workload and increase safety. For example [refer to Figure 1], ATC says, "Plan to circle north for landing on runway 18." A quick review of the airport diagram takes all the mystery out of such a clearance. At Oshkosh, with such a clearance, the pilot would initially make a slight left turn to begin the circling maneuver on the north side of the airport. Then the circle becomes essentially a right-base-to-final visual traffic pattern for landing on 18. Be mindful of your distance from the airport (maximum of 1.5 miles, Category B). Also, know where to look for any vertical guidance, such as a VASI or PAPI, to aid in the final descent. If you use NOAA approach plates, the airport diagram is in the lower right corner of

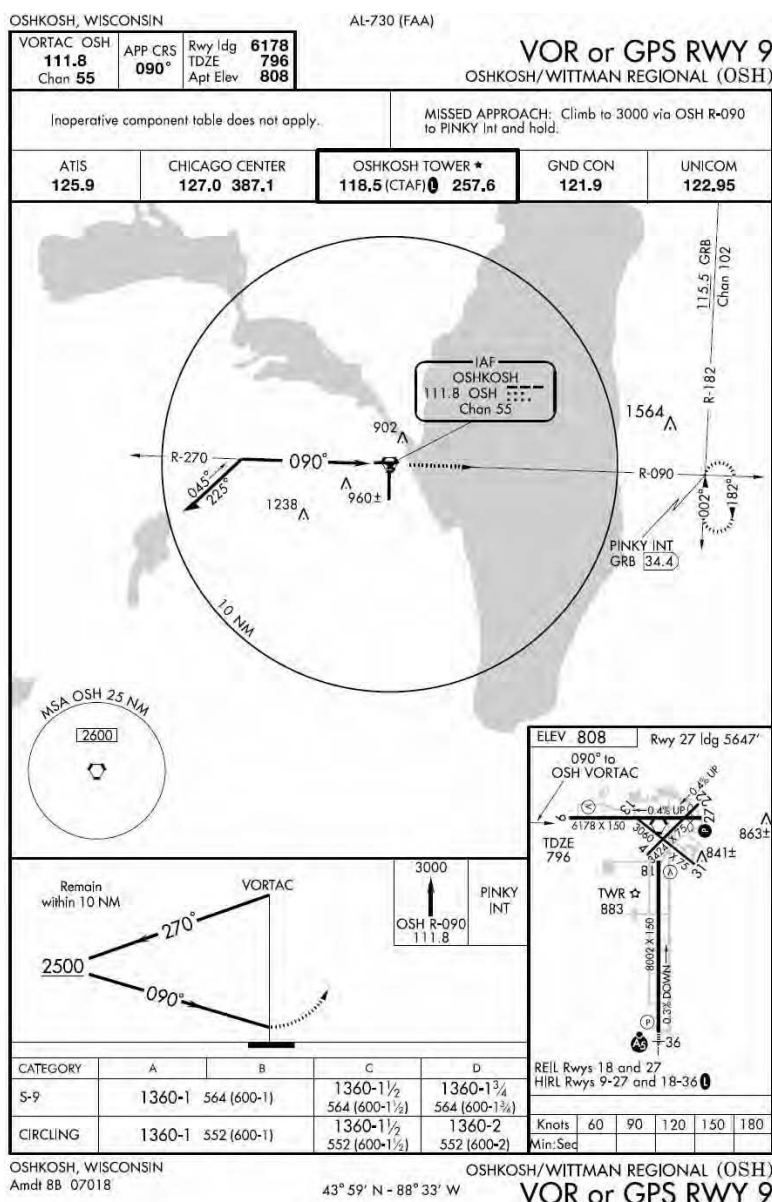


FIGURE 1
The Mecca of Aviation

the page (sometime lower left). In my opinion, this is one of the few distinct advantages of NOAA over Jeppesen. Jeppesen approach plates do not include an airport diagram; it publishes a separate airport diagram page, regardless of airport size. While this is helpful with regards to details and its larger size, it is difficult to reference during the approach as it is *not* on the actual approach plate. NOS, for the purpose of including more detail, does publish separate airport diagram pages for all large and many medium-sized airports.

Circling at Uncontrolled Airports

The “uncontrolled” circle is always going to be more challenging for the pilot. A whole myriad of responsibilities are heaped upon the pilot that are generally taken care of by ATC at a controlled field. These include:

- **To which runway do I circle?** Obviously, wind, runway conditions and facilities should be the primary components of your choice. Obtain the wind information from Approach Control, Center, FSS, or any available automated weather facility as early as possible. Apply that to a review of the airport diagram and choose accordingly, based on your comfort level with crosswinds and various runway lengths/widths/conditions. Don’t forget to factor in the possibility of VFR traffic in the pattern. What runway are they using? Listen and announce on CTAF *before* you begin the final approach segment and again before and during the circling maneuver.

Assume you are landing at OSH (Figure 1) after Tower has closed for the night. Note the asterisk adjacent to the tower frequency, denoting part-time Tower hours (details in the AFD and other sources). You are coming from the Northwest. Winds are strong from due North, but ILS 36 is inoperable, so Center vectors you onto the GPS 9 approach. I’d plan to circle to 36 and to look for a PAPI [a “P” in a circle on the left side of the runway corresponding to actual location on the field, in airport diagram] when I get within visual range of it. Remember, in this example, at MDA you are already over 400 feet *below* pattern altitude. Be patient and maintain MDA until you are in a normal position to leave that altitude.


- **Which way do I circle?** Again, you have a lot of factors to consider. Remember you are entering a *visual* environment, whether the weather conditions are technically VFR or not. You must always consider the possibility of other traffic being present (even non-radio aircraft). Therefore, you should always endeavor to circle in such a manner as to put you into the normal flow of traffic at the airport (i.e., enter the VFR pattern for the chosen landing runway). Does that runway have left or right traffic? Must I overfly the airport first, to enter that pattern? Are there any terrain factors or circling limitations that will influence my decision? Going back to our OSH GPS 9 Circle 36 example, you determine that Runway 36 has left traffic. That information can be found in the AFD, on the Sectional, or right on the Airport Diagram of JEPP charts. You’d simply make a 45-degree right turn to put you on a 45-degree entry to the left downwind for Runway 36. Over-flying the airport is unnecessary and this circle would essentially be a normal pattern, albeit beginning at only 552 feet AGL.

- **When do I commence the circle?** Anytime you have achieved visual conditions pursuant with the published minimums and you are in a position to do so. Remember to strive to blend into the pattern as seamlessly and unobtrusively as possible. You do *not* necessarily have the right-of-way over VFR aircraft in the pattern.

- **Lighting:** At night, you are responsible for ensuring the runway lights and/or beacon are on. When, where and how will you activate the lights? Remember that not all airports with Pilot Controlled Lighting (PCL) use their CTAF for that purpose. Some airports use a separate frequency for this purpose, which should be noted in the AFD and on the approach plates. It is embarrassing to have to go missed, in above minimums, because you could not see the dark airport.

- **Communications:** We already discussed the need to communicate your position and intentions on CTAF. However, be careful to use terminology that is meaningful to *all* pilots, not just IFR pilots; remember, there may be VFR traffic at the airport. Saying something like, “Oshkosh Traffic, Cirrus 123CD is procedure turn inbound, GPS 9 circle 36,” doesn’t mean much to the VFR-only pilot. It would be better to say, “Oshkosh Traffic, Cirrus, 7 miles west, straight in instrument approach runway 9, planning to enter left downwind for landing 36.” That, along with subsequent similar updates, can be easily understood by a VFR pilot, making the airport environment safer for both of you.

- **The Airspace:** A question I get all the time from pilots is, “Why is that VFR traffic flying anyway?” Especially at uncontrolled fields, you need to be aware of what type of airspace overlies the airport. Most often, non-towered airports with instrument approaches have a transition area that lowers Class E (general controlled) Airspace from its normal 1,200 foot floor down to 700 feet AGL. If the weather is IFR, there *should* not be VFR traffic in that area, above 700 feet AGL, however, what about below 700 feet? That would be Class G (uncontrolled) airspace and VFR pilots may legally fly there with only one mile visibility while remaining clear of clouds for the purpose of pattern operations, even at night [FAR 91.155 (a)&(b)(2)]. Therefore, just because the ceiling is 800 OVC with one mile visibility, don’t assume, “It’s IFR; I’ve got the place to myself.” In Class G airspace, those weather conditions are not IFR and that VFR pilot practicing touch-n-go’s is doing so legally.

In the third and final installment of this series, we will discuss some of the common ATC and pilot aspects of circling approaches, missing a circling approach and a couple of the more unusual circling procedures currently in use. 

About the Author: *Matthew McDaniel is a Master CFII, MEI, Advanced & Instrument Ground Instructor, an ATP, and one of the original CSIP’s. He owns Progressive Aviation Services, LLC (www.progaviation.com) and has specialized in Cirrus instruction since 2001. He is also an airline pilot, currently flying the Boeing 717. In 18 years of flying, he has logged nearly 9,000 hours total and 4,000 hours of instruction-given. Matt can be reached at: matt@progaviation.com or (414) 339-4990.*