

Non-Towered Airport Traffic Patterns

Radio Calls and Other Thoughts in the Pattern

Article #3

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Radio calls in the non-towered traffic pattern can be interesting at times. I spend about 300 hours a year just in the traffic pattern. I would like to finish up my three-part series on non-towered traffic patterns discussing radio calls and several miscellaneous subjects that have not fit into the two previous articles.

RULE #1 Who You Are
 Where You Are
 What You Want to Do

Ok there you go. That's all you need to know about radio calls. Ok I'll continue with a bit more so you can get your money's worth from this article.

RULE # 2 Only 50% of what you say is heard

RULE # 3 The more you say, the less is heard.



That pretty much is all you need to understand about radio calls, especially in the non-towered traffic pattern. Let me explain some of the things you should consider when making a radio call, not all calls, just the ones in the non-towered environment.

First the AC 90-66B requires that you make certain calls at the non-towered airport.

- Between 10 to 8 miles out with position.
- Entering the traffic pattern.
- Each position within the traffic pattern.
- Use: *'airport name' Traffic*, at the beginning and *'airport name'* at the end of each transmission.

What is not required at non-towered airports.

- Taxi calls
- Upwind call
- Go around or low approach call

Because towered airports are limiting operations, both VFR and IFR training is being pushed out to the non-towered airports. These airports are becoming busy, and you must share the radio with everyone else. I want you to remember back when you were first learning to fly. When did your instructor have time to talk to you about that last pattern? That's right when the radio was quiet. What I'm saying here is that quiet time on the radio in a non-towered airport pattern is important for instruction flights. Using standard phraseology and keeping your call short and concise, is vital. You may not hear a lot of radio calls at the time you check in, but it is vital that you keep your calls short.

If you have a long conversation many airports' fixed base operators have a UNICOM separate from CTAF that you can use to discuss fueling, rental car, parking, and other non-essential conversations. CTAF must be reserved for safety related calls in the non-towered traffic pattern.

Ok you get it, keep it short. Let me discuss a few other "Dos" regarding radio calls in the non-towered traffic pattern. Please use one position in your calls. I cannot tell you how many times I have heard a radio call like this:

"Ahh Bremerton traffic, Cardinal November 123 Xray Bravo, ahhh, I'm about 3 miles East of, ahh Bremerton, I'll be maneuvering for a 45 to downwind for left traffic runway 20, and ahhh I have the AWOS."

Let me slice and dice this call for a minute or two as it breaks all three rules above. First, Advisory Circular 90-66B the bible on non-towered operations gives us all relief from full call signs. It says you can use an abbreviated call sign in the non-towered traffic pattern. Not at towered airports mind you, but non-towered airports. It also ruined my day when I read the Circular and it told me to stop using the color of my aircraft. So, there I admit, I'm not yet perfect after 50 years of flying. The use of type aircraft, in this case Cardinal is important. It gives others in the traffic pattern an idea of the speed that you will use in the traffic pattern.

As a pilot that flew turbojet aircraft for most of my career, I would put a plug in here for the jet jockeys. Please include "jet" in your call sign. AC 90-66B, as well as the aeronautical Information manual (AIM) directs pilots to use 1000 feet AGL for reciprocating aircraft, 1500 for turbojet aircraft and 500 feet for ultralights and similar aircraft. Reciprocating aircraft also are guided to use a pattern 1/2 to 1 mile from the runway and may not turn closer than 1/4 mile final. Jet traffic is 3 miles and a 3-mile final. It helps a great deal if pilots understand that a jet is not where they are looking for downwind or final traffic but will be seen further out. It is also important, in my opinion, to include "jet" so that flyers in the pattern not familiar with your type, understand you will be flying very fast in relation to normal aircraft in the non-towered environment.

Back to Who and where you are. The radio call should have sounded like this:

Who You Are *"Cardinal 3 xray bravo"...*

Where you are *"3 miles East"*

What you want to do, well I have a bit more slicing and dicing. "45 to Downwind" is two locations. Use one position in your call since Rule#2 is an important safety rule. If another pilot only hears half, which half did they hear 45, or downwind? You may laugh or be incredulous but in my 300 hours a year in the pattern I have seen this play out badly too many times to count.

Where you are and what you want to do can be shortened and readily understood in the non-towered pattern by using this terminology:

"3 mile 45, landing runway 20"

Not only does other traffic know where, they know what to expect in a short concise way.

No one in the traffic pattern cares that you have the AWOS, just leave it out as well as anything else that isn't Who, Where, What you are doing.

This is what I say: "*Bremerton Traffic, Cardinal 8XB, 3 mile 45, runway 20 Bremerton*"

If you forget what to say get off the radio. Remember the longer you talk, the longer you depress the mic button, the less people hear, and the less time there is for instruction to go on in the pattern. The most important point is that there is less time for critical position reports for the other aircraft in the pattern.

I have a short list of Do-Nots in the traffic pattern at non-towered airports. Topping that list is having lengthy conversations on CTAF. I hear everything from pilots setting up dates, talking to others in a formation, to instructors trying to instruct their solo students while flying with a second student in another plane. This is just not appropriate in the BUSY non-towered patterns. Each second they take on the radio is one that cannot be used for time critical position calls.

The second Do-Not is call your position to other aircraft using a clock position FROM your aircraft. This is a safety critical communication, trying to get another pilot's eyes on your position, that is very seldom done correctly. Everyone has seen Top Gun or some other fighter pilot movie. They all know about the clock positions...Not. I had a very humorous conversation with my grandkids about the analog clock they never used. I asked them, why do you have a clock in your room if you don't know how to read it? They answered it was just a decoration that Daddy put there. As a pilot young or old you need to understand the analog clock. When you need someone to see you and you are going to tell them where to look, do not use the clock position from your plane, they don't know where you are. They have no idea which way you are pointed or how you relate to them so telling them "*You are in my 2 o'clock*" tells them nothing. Instead use the clock position from their plane to you. "*Cardinal 8XB is in your right 2 o'clock*". This is how fighter pilots do it. In the heat of battle, you may get the clock position screwed up, but we always get the left and right correct. Adding it to the call gets them looking in the correct direction. You may in a tense situation confuse 10 o'clock and 2 o'clock, but at least the other pilot will look in the correct direction.

My long days in the traffic pattern would be so much more rewarding if I didn't hear someone say something like this. It happens nearly every day.

"Cessna 123 BB is 5 miles north I'm going to fly to the East of the field at 2500 feet then I'll descend to TPA and then maneuver for a 45 entry to the downwind to land on runway 02, I'll be parking at the transient ramp."

I think this is a symptom of so many people making up entries to non-towered airports that pilots don't know what to expect any longer. Because they see so many different entries, they feel obligated to explain to everyone what they are going to do. If you read my second in this series of articles you know where I stand on this. The FAA has only recommended three entries, and acknowledged in addition that pilots can do straight-ins. If we all stuck to the three standard entries the FAA recommends, making standard radio calls, limiting them to the ones recommended in AC90-66B what a wonderful world this would be.



"Bremerton Traffic, North American 72C, 8 North, landing 02 Bremerton"

"Bremerton Traffic, North American 72C, 3 mile 45, landing 02 Bremerton"

"Bremerton Traffic, North American 72C Downwind 02 Bremerton"

"Bremerton Traffic, North American 72C Right Base 02 Bremerton"

"Bremerton Traffic, North American 72C Final 02 Bremerton"

"Bremerton Traffic, North American 72C Clear 02 taxi transient Bremerton"

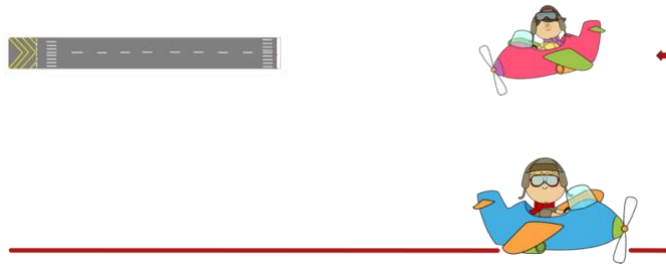
I included the taxi call at the end above. I am conflicted regarding taxi calls in general at non-towered airports. The non-towered airport I fly out of each day is BUSY. We have three flight schools, and we are a short distance from three other towered airports. There are over 20 flight schools in a 25-mile range. It is important for CFIs to instill good habits and one of those is remembering to call for taxi at towered airports. To help with this, the schools teach to call with taxi information at the non-towered airports. This call is not listed as recommended or

required in AIM, PHAK, PFHB, or AC 90-66B. Is it a good habit builder and good practice? Yes, it is...sometimes. When there are 5 aircraft in the non-towered traffic pattern every second is precious for those airborne. In a busy pattern taxi calls are the least of the airborne pilot's concerns. At what point do you suspend the taxi calls, well only you can judge. I have spoken to several DPEs who conduct check rides at my airport. All of them will not ding pilots who call taxiing in a busy environment even though not required, but they equally will not ding a pilot who looks over at them and says, "I would normally call CTAF with my taxi, but I can tell the pattern is busy, for safety reasons I will suspend the call today." Certainly, if the pattern is lonely and not being used call away. It is a good habit to build.

I would like to leave the radio call section by stating that there is no need to make a radio call departing the pattern. When you take off you can add departing and the direction, but airborne there is no need for "last call". I guess pilots began to use it so we would all remember them fondly, but it just adds useless information to the crowded radio frequency.

Let me turn to some other important considerations in the non-towered airport operations. As with many of my articles I want to refer to safety statistics. Most mid-air collisions occur on clear days and most occur in the afternoon. Most mid-air collisions occur near non-towered airports below 1000 feet AGL. 16% occur on downwind largely because a pilot cut short an entry, used a non-standard entry, or did not give right of way (ROW) to an aircraft in the pattern. 68% of all mid-air collisions occur on final at non-towered airports due to conflicts with straight-in traffic or because of wide, extended patterns.

I mentioned before that the FAA recommends that patterns, specifically downwind legs, be flown within 1/2 to 1 mile from the landing runway. In no case will final be shorter than 1/4 mile, but if the downwind is 1/2 to 1 mile, by logic the final shouldn't be more than a mile either. Mid-air collisions occur because pilots extend downwind and final so far out that another pilot entering the pattern loses track of where they are, turns base and final right in front of the extended pattern. This is the same issue, different cause, with pattern versus straight-in conflicts. I'm not discussing ROW as I have in previous articles, just reminding pilots that ROW doesn't matter to you most likely if you are involved in a mid-air.



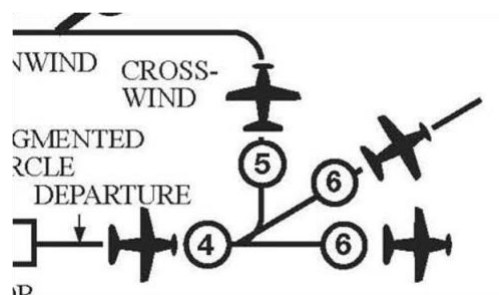
Turn base in the pattern 45 degrees from the touchdown point on the runway. If there is traffic on final delaying your turn, turn base when you are abeam final traffic. This works for touch and go as well as full stops if the final traffic is a similar type and speed or faster. If the final traffic is more than 20 mph slower wait to turn final when final traffic passes the trailing edge of your wing. If final traffic is faster, a jet or twin, do not turn base in front of them unless you are turning the 1-mile base or less and traffic is outside of 5 miles.

CFIs need to teach proper pattern spacing and not let new students or poorly trained pilots extend the pattern unnecessarily. While letting pilots make mistakes is good for teaching, it isn't the time and place to let pilots do this in the non-towered traffic pattern. 62% of all mid-air collisions involve a dual flight.

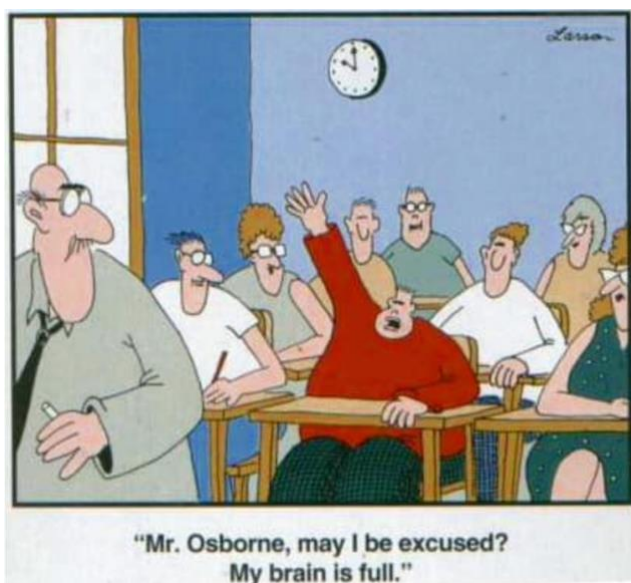
After a missed approach or go around in VMC conditions, clear the runway to the upwind side. It provides better visibility of traffic below and gives you an escape should traffic be climbing up into your altitude.

I would like to turn now to departures from the non-towered traffic pattern. There are only two described and recommended in FAA publications (#6 below). The first is simply departing straight out from the runway until at an altitude above and clear of traffic pattern, then proceeding in any direction you desire. The second departure is to turn 45 degrees toward the pattern side of the runway climbing above and well clear of the traffic pattern before resuming any course you would like.

Excerpt from the AIM & AC90-66B



Like their entries to non-towered patterns, pilots make up the darndest departures. The most common departure I see is the downwind departure from a non-towered airport. Often used at towered airports, the non-towered traffic pattern depiction does not include a downwind departure. On occasion, while on downwind, I have found myself following an aircraft in front of me as they fly off to places unknown. When there are many aircraft in the pattern it is very easy to lose track and not know the aircraft in front is departing. This in my opinion is reason enough to stop the practice of downwind departures. Probably the most important reason though for stopping the practice of downwind departures is more of a safety issue. In a busy pattern, conflicts occur where 45-degree entry meets the downwind. Any way we can decrease the number of aircraft in the pattern will help decrease conflicts. It is a matter of safety to depart the traffic pattern as soon as possible. Prolonging your time in the busy non-towered pattern increases the conflicts. Imagine being the pilot flying a 45-degree entry, then having to give way by aborting the entry only to find out that the downwind aircraft is departing the area. With either recommended departure the pilot can easily depart like the downwind by first exiting as depicted, climbing above the pattern, and then turning to fly in any direction including over the pattern. Using the standard and recommended departures leaves no doubt as to what you are doing.



That's my 25 cents (inflation), try to break the accident chain early with preventive measures. Over and out.