Suggested Traffic Patterns and Communications "Best Practice" Procedures to Avoid Midair Collisions at
Non Towered Airports and Provide Common Courtesy for All Pilots

It should be noted the basis of what is presented is based on experience, common sense and FAA documents:

- AC 90-66C Non-Towered Airport Flight Operations.
- AIM 4-1-9 , 4-3-3, 3-2 and FAA Pilot/Controller Glossary
- FAA Title 14 Part 91
- FAA Airplane Flying Handbook (FAA-H-8083-3C)
- FAA Weight-Shift Control Aircraft Flying Handbook (FAA-H-8083-5)
- FAA Pilots Handbook of Aeronautical Knowledge (FAA-H-8083-25B)
- FAA Aviation Instructor's Handbook (FAA-H-8083-9B)

Research on airport collision avoidance is mainly at towered airports. This is an effort to implement best practices at non towered airports to minimize midair collisions discussing common problems and offering practical solutions.

This goes beyond "See and Avoid", "Visual Scanning", "Lighting systems", AC 90-48E Pilots' Role in Collision Avoidance and Title 14 of the Code of Federal Regulations (14 CFR) part 91 sections related to preflight, right-of-way rules, operating on or in the vicinity of an airport, operations in classes of airspace, basic and special visual flight rules (VFR) minimums, VFR cruising altitudes, powered civil aircraft standard category and equipment requirements, and Automatic Dependent Surveillance-Broadcast (ADS-B): 91.103, 91.113, 91.126, 91.127, 91.155, 91.159, 91.205, 91.225, and 91.227.

It must be understood that the "See and Avoid", "Visual Scanning" and "Lighting systems" must be used as the basis of safety in the pattern. This provides an **ADDITIONAL TOOL** for non towered airports for safer traffic pattern procedures to avoid midair collisions and provide common courtesy for all pilots.

It should be noted this document is part of "all available information concerning that flight" as specified in Federal Statutes specifically:

"§ 91.103 Preflight action.

Each pilot in command shall, before beginning a flight, become familiar with all available information concerning that flight. This information ……"

Executive Summary:

This document is based on two fundamental "best practices" to minimize risk of midair collisions and provide common courtesy for all pilots:

- Part 1 - Pattern Operations:
    - Adjust speed and pattern size to account for different speed/category aircraft
    - How to enter the pattern
- Part 2 - Use proper communications techniques with efficient:
    - Who you are talking to, Who/what you are, **Where you are,** Your Intentions

Part 1 Pattern Operations

Background:
Aircraft have evolved to faster and more complex systems over the years. Many seasoned pilots learned in Classic Light Sport Aircraft such as Piper Cubs, Taylorcraft, Luscombe, Aeronca but to list a few.
Over time the industry has gone to faster and more complex aircraft. Pilots learn in a variety of speeds but typically do not learn how to deal with the faster verses the slower.

In 2004, the FAA developed the Sport Pilot and Light Sport Aircraft (LSA) rules to incorporate simple aircraft and allow older pilots to continue flying without FAA medicals. Additionally, new categories were added such as Weight Shift Control Trikes with the same speed limitations of the new and existing classic LSA airplanes.

- Problem: Many pilots have learned in faster aircraft and not been properly trained to deal with slower or faster aircraft. Their ability to deal with slower or faster aircraft was never taught and not understood. Therefore, what we have is a lack of basic Aeronautical Decision Making and Risk Management pilot skills in the pattern.
- Solution: Airport Management, CFI's and FAA FAAST team educate pilots on how to fly in the pattern with faster and slower aircraft. From the jets to the slower, from the twins/high performance GA to the slower, to the GA to the slower, to the LSA to the slower. This is well documented in the FAA resources but not commonly known or provided as training.

For the purpose of determining aircraft general speeds for this discussion, the following speeds will be used for typical speeds in the airport pattern:

- 25 to 50 knots: Ultralights (examples: low performance soaring trikes, slow Piper Cubs)
- 50 to 70 knots: Light Sport Aircraft (high performance trikes, faster Piper Cubs)
- 70 to 90 knots: Common low performance GA aircraft (Cessna 172, Piper Cherokee, Sling LSA)
- 90 to 120 knots: GA twin and high performance GA (Twins, RV's)
- 120 knots plus (Jets, turbine/props)

Available FAA resources to provide a solution

FAA Weight-Shift Control Aircraft Flying Handbook

In 2008, the FAA published the FAA Weight-Shift Control Aircraft Flying Handbook (FAA-H-8083-5) which provides the Weight-Shift Control Trike pilots and CFI's tools to understand the pattern size for the slower aircraft. Details are provided in Chapter 10 Airport Traffic Patterns see https://www.faa.gov/sites/faa.gov/files/regulations_policies/handbooks_manuals/aviation/FAA-H-8083-5.pdf.
This diagram is provided and has become a standard for slower aircraft speed range of 40 to 70 knots: Light Sport Aircraft (high performance trikes, Piper Cubs). Simply, slower speed - smaller pattern, faster speed - larger pattern so all aircraft go around the pattern in the same time period. We will use 5 minutes as the standard for aircraft to go around the pattern.

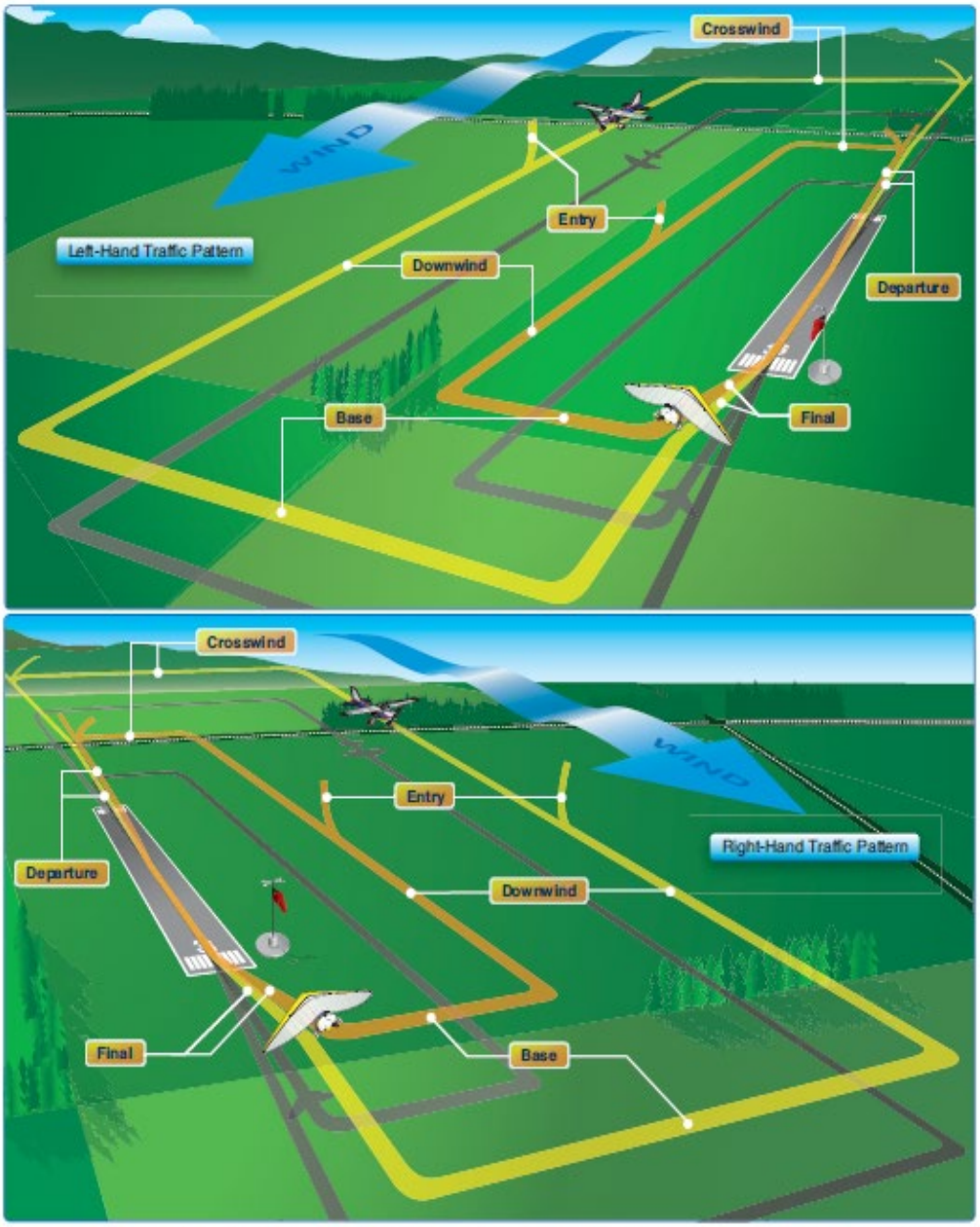

Figure 10-1. *Left and right hand traffic patterns. The WSC pattern altitude shown is the same as the airplane but the slower WSC aircraft uses a smaller "inside pattern" or "tight pattern."*

FAA Airplane Flying Handbook (FAA-H-8083-3C)

https://www.faa.gov/sites/faa.gov/files/regulations_policies/handbooks_manuals/aviation/airplane_handbook/00_afh_full.pdf

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"Aircraft speeds are restrained by 14 CFR part 91, section 91.117. When operating in the traffic pattern at most airports with an operating control tower, aircraft typically fly at airspeeds no greater than 200 knots (230 miles per hour (mph)). Sensible practice suggests flying at or below these speeds when operating in the traffic pattern of an airport without an operating control tower. **In any case, the pilot should adjust the airspeed, when necessary, so that it is compatible with the airspeed of other aircraft in the traffic pattern**."

page 8-5

"Before joining the downwind leg, adjust course or speed to fit the traffic. Once fitting into the flow of traffic, adjust power on the downwind leg to avoid flying too fast or too slow. Speeds recommended by the airplane manufacturer should be used. They will generally fall between 70 to 90 knots for typical piston single-engine airplanes."

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Transition to LSA - Speeds in the pattern tend to be in the 60-knot range.

FAA Advisory AC 90-66C Non-Towered Airport Flight Operations

https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_90-66C.pdf

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"11 RECOMMENDED STANDARD TRAFFIC PATTERN. The following information is intended to supplement the AIM, Paragraph 4-3-3, Traffic Patterns, and the PHAK, Chapter 14. Further, during preflight planning, you should check the Chart Supplement information for the airport of destination and **in addition to obtaining airport information, check for any airport remarks and/or special procedures.** This information can alert you to takeoff, landing, or other procedures, and ensure you are familiar with all available information regarding that airport."

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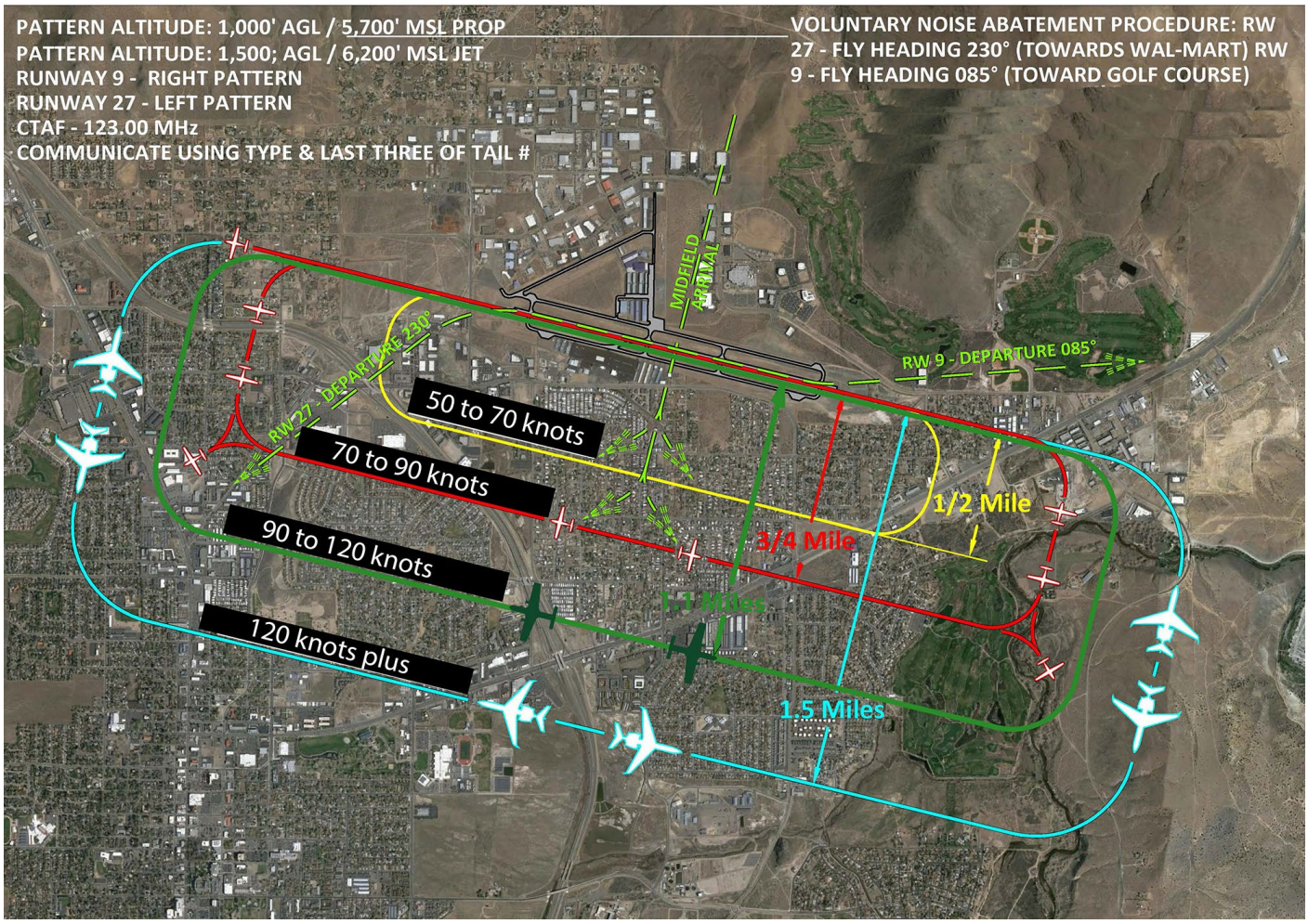
End of paragraph "Traffic Pattern Altitudes" - **A pilot may vary the size of the traffic pattern depending on the aircraft's performance characteristics.**

Summary of FAA available resources to provide a solution

As clearly recommended in multiple FAA publications: Before you enter the pattern and while in the pattern, adjust speed and pattern size to adjust for slower and faster aircraft. Simply using common sense: slower aircraft do smaller patterns, faster aircraft do larger patterns.

This is what CXP has done and developed a solution to for speed differences with the diagram resulting in about 5 minutes for each aircraft to go around the pattern:



This diagram uses the FAA references for speed and provides a leadership example for the understanding of the full speed range for pilots.

How to enter the pattern:

There are two practical ways to enter the airport pattern. At Carson City, entering the pattern from the West, South or the South-East, it is the typical forty five leg to the midfield down wind entry.

From the East, North to North-West there are two options.

- Classic cross over mid field above pattern altitude going far south OUT OF THE PATTERN and do a right turn, commonly known as the teardrop, to enter the forty five leg of the pattern or
- cross over mid field and join the downwind mid field directly.

It has been determined, this crossing over the midfield into the teardrop, if the pattern is not crowded may not be the best option, so the FAA has recently added the direct midfield entry to the procedures in the Airplane Flying Handbook and the AC 90-66C Non Towered Airport Flight Operations. Why has this changed? It was found that if the pattern is not crowded or aircraft is not in the downwind leg of the pattern, it is easier and safer to enter directly into the mid field downwind avoiding other aircraft that may be coming in for the forty five.

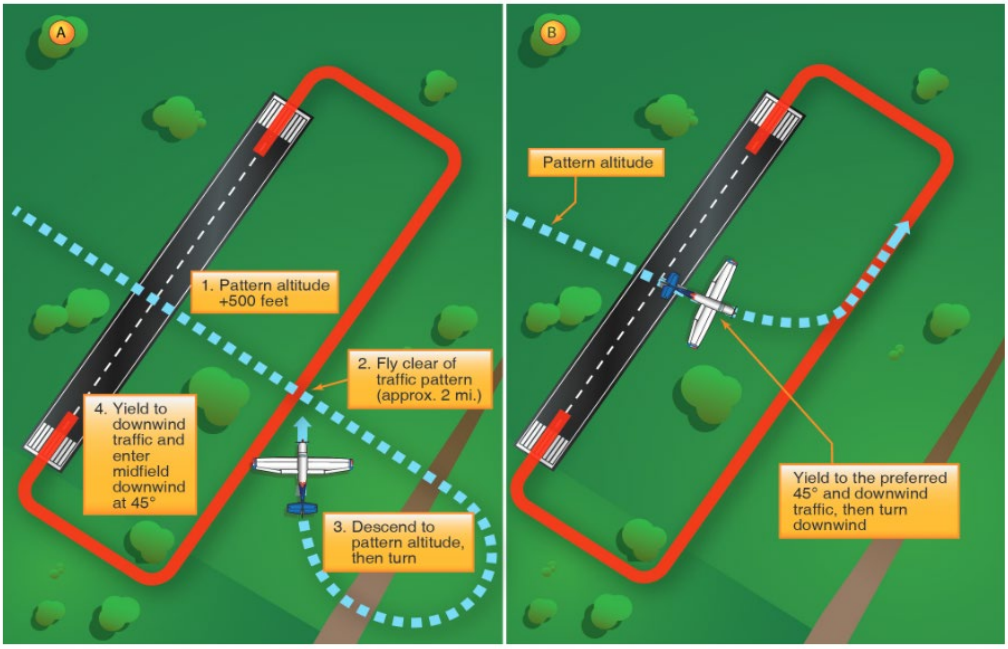
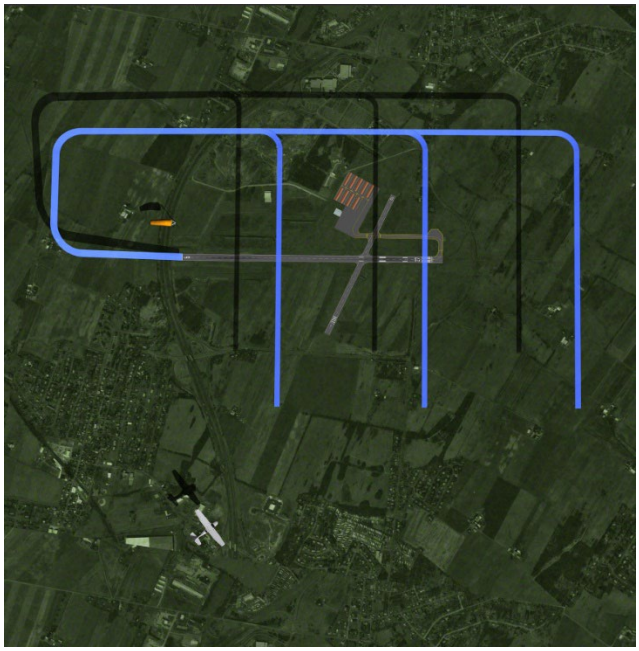


Figure 8-3. Preferred *entry from upwind leg side of airport (A). Alternate midfield entry from upwind leg side of airport (B).*

It was found that if pilots flew over the pattern when they could have entered the downwind directly, they were now in the jet pattern (1500 AGL) and other aircraft could be coming in on the forty five creating an additional hazard.

It is common, especially for slower aircraft to cross over midfield when the pattern is clear, proceed south out of the pattern to enter a 45 and have additional problems trying to teardrop into a forty five as other traffic show up.

Additionally, there are different ways to enter the downwind directly from the cross wind as shown in this diagram"



Generally at CXP, if entering the pattern from the East, North to North-West, use pilot judgement to determine the traffic in the pattern and if it is easy to enter into the down wind directly than do so. Always remember to give way to the 45 degree pattern entry aircraft and the downwind aircraft. If the pattern is crowded and not able to get into the downwind directly, cross over 2000 AGL to stay above the jet pattern altitude, go south to get out of the pattern (approx 3 miles) and do teardrop into a forty five pattern entry.

This direct mid field entry verses teardrop decision is further explained at https://airfactsjournal.com/2024/09/whats-wrong-with-the-teardrop-pattern-entry/

The FAA Pilots Handbook of Aeronautical Knowledge (FAA-H-8083-25B) Chapter 2 Aeronautical Decision Making along with Risk Management is the foundation for flying in the pattern, specifically "Situational Awareness" of:

- Where you are in the pattern or entering the pattern
- Who and what is in the pattern, their speeds and position
- Determining risks for the situation
- Identifying solutions to minimize risks and performing the best course of action to minimize risks (adjusting speed, entry and pattern size) for all.

HOW DO WE ACCOMPLISH THIS?: Communication: the additional tool/solution covered in Part 2

Part 2
Suggested Self Announce "best practice" Communications to Avoid Midair Collisions at
Non Towered Airports

It should be noted that AC 90-66C Non-Towered Airport Flight Operations Page 6 Section 9.5
"Prior to Takeoff, VFR or IFR, Traffic Verification, and Communications. Communication at non-towered airports or at airports where the control tower is closed is critical. Pilots are reminded that in these cases surveillance of other traffic by the air traffic controller is removed from the safety picture; hence, you are assuming this role. All traffic, whether IFR or VFR, should, at a minimum, monitor the CTAF. For departures a minimum of 10 minutes prior to taxi and arrivals a minimum of 10 miles out from the airport, you should broadcast your intentions. **The importance of air-to-air communications cannot be overemphasized. Failure to follow this communication protocol has contributed to near midair collisions (NMAC), and as such could be considered careless and reckless operation of an aircraft**".

It should be noted that specific rules applicable here as an example are
91.103 Preflight action
91.111 Operating near other aircraft
91.113 Right of way rules
91.126 Operating on or in the vicinity of an airport in Class G airspace
91.127 Operating on or in the vicinity of an airport in Class E airspace

The essence of best practices for basic communications which every transmission should follow:

1. Who you are talking to
2. Who/what you are
3. **Where you are**
4. Your Intentions

As discussed in detail, the biggest problem and critically important basic problem is pilots broadcasting "where you are"

Formation flying and flights of two or more communications protocol:
It should be noted that during a flight of two or more, formation flying, typically entering or in the pattern:

- the formation/group is typically on a separate frequency to coordinate with each other
- group leader should be coordinating with the air traffic as to position and intentions, and
- every member of the group should additionally be monitoring the CTAF frequency to be aware of the other traffic and avoid mid-air scenarios.
- overall, the group leader and the individual PIC in the group are all responsible for the coordination and safety entering, exiting and in the pattern.

Typically, the group, if they are identifying as a flight of two (or three, etc…) should be within 500 feet of each other so their broadcast location is recognizable and they are not spread out to far to create confusion to avoid mid-air collisions.

Basic communications tips

Keep transmissions as short as possible

- No unnecessary phrases/words such as "this is", "we are", "about", "approximately", "currently". These provide no additional information, sound unprofessional and clog up the CTAF for vital communications.
- No "from the field" or "from airport". When you are reporting your position from an airport, it is obvious you are in relation to the airport. Example: Eight miles south west (not "from the field").

Use appropriate terminology

- Experimental is commonly used but does little to identify your type. We can have experimental jets or experimental STOL aircraft. Experimental is only required at towered airports, not non-towered airports
- Abbreviated aircraft type/ID can be used, as long as you are clear as to what you are so others can identify you visually, determine speed and by type/ID.
- Avoid "two" or "four" in transmissions since this can be confused with runway numbers 2 or 4 or distance. Turning final to (two) four can mean runway two four or runway four.
- No decimals for distance, round to the nearest mile since this can create confusion as to actual distance from airport if the point or decimal is missed.
- Avoid saying "active runway" but use the actual runway being used "two seven" to be clear. Entering active can be entering two seven or niner which is an unsafe call.

Basic communication tips

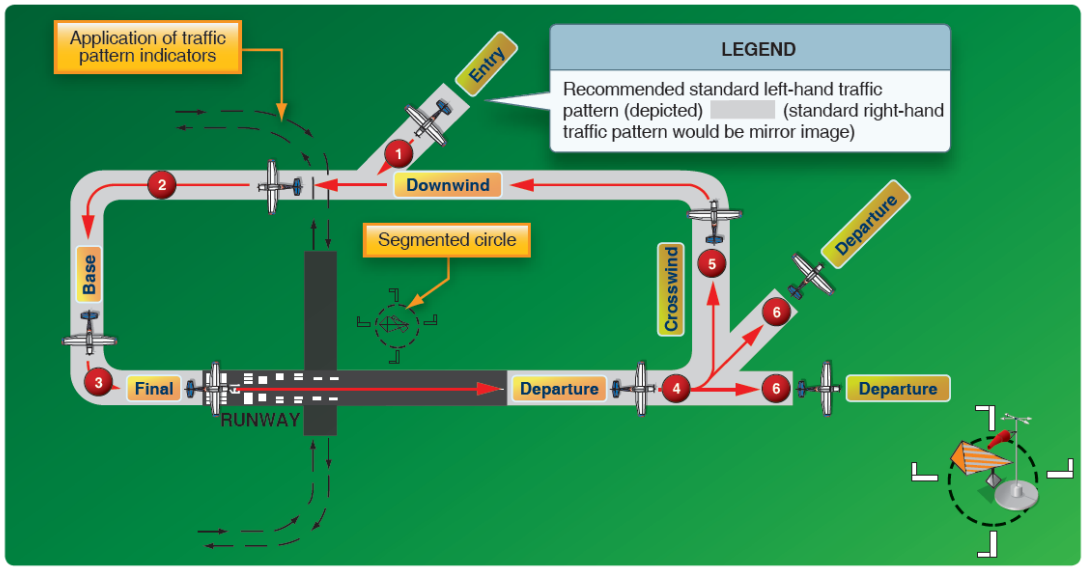
- Note in your transmissions or receiving transmissions, only part of the transmission may be heard, so take this into account. As an example, no "simulated engine out" since someone may only hear "engine out" and telling people in the pattern your specific training maneuver is unnecessary and unprofessional, (short approach) is typically used for "simulated engine out" training.
- Listen before you transmit so as not to interrupt active communications. Many times, you can get the information you need by just listening to others on the appropriate CTAF/AWOS frequency inbound.
- Think about what you are going to say before transmitting. Think then push PPT, not push PPT than think.
- Push the transmit button, then start talking and speak clearly at a moderate rate.
- If you are significantly slow or fast, state your speed during your initial transmissions. As an example: Light Sport or Ultralight indicates slow aircraft, jet or twin indicates fast aircraft.
- Generally, the more crowded the pattern, the more points within the pattern you want to announce so everyone knows where you are. Keep it brief.
- Best to announce "turning" crosswind, downwind, base or final because it is easiest for other aircraft to see you when you are turning with different angles/perspectives.
- If you are slow and doing a smaller pattern, in certain cases you may want to announce “tight pattern” (or “inside pattern”) so other aircraft know you are flying a smaller pattern close to the runway. Faster aircraft doing bigger patterns typically say "wide pattern".
- If there are other airports using the same frequency (example 122.9), make sure to state the airport at the beginning and end of each transmission so there is no confusion for the airport you are at. Dayton and Silver Springs are a good example of this. Who you are calling first "Carson Traffic", airport at end "Carson"
- At nontowered airports the full N number is not required (towered airports it is initially) and the N number can be shortened to keep transmissions short. Many times, the type of aircraft is more helpful so pilots know what to look for and how fast it is traveling.
- If you are not the only type of similar aircraft in the pattern such as a Cessna, Trike, Cub, then the last three alpha numeric’s of N number should be used to differentiate between similar types of aircraft.

Basic Phraseology- commonly misunderstood terminology

DEPARTING is defined by the FAA in AC 90-66C specifically AC 90-66C Appendix A-1: **"Departure—Departing the airport's traffic area.** The flight path which begins **after takeoff** and continues straight ahead along the extended runway centerline. ***Note: The departure climb continues until reaching a point at least 1/2 mile beyond the departure end of the runway and within 300 feet of the traffic pattern altitude, and the aircraft continues on its direction of flight away from the airport."***

This is also defined in diagram AC 90-66C A-2

Simply: departure is your position after liftoff and EXITING the pattern, **not entering the runway for takeoff and not staying in the pattern.**



Broadcasting "Departing Runway Two Seven".

Problem:

- People say this in the runup area before they start moving, holding up any surface runway crossing and confusing those in pattern since no one is moving.
- Typically, people say this as they enter the runway for takeoff. **This unfortunately has become the incorrect default assumption (pilots say, others listen and copy) - which is a basic problem, simply not correct FAA defined terminology.**
- Pilots say this when they are rolling before they are airborne.
- Pilots say this once they are airborne over the runway (which is the correct terminology as defined by the FAA if you are leaving the pattern),
- Pilots say this on a departure leg (which is the correct terminology for intent but the position, departure leg, should be used as the position),
- Pilots say this turning cross wind. "Departing two seven on a downwind" without position.
- Pilots say this on downwind as they plan to exit the pattern to the East. There have been near midair's with aircraft entering the pattern from a 45 into a downwind and looking for aircraft taking off.
- Pilots say "departing the active runway" for taxi way A3 rather than "clear of two seven"

Solution

- Saying "Entering two seven for takeoff" or "Taking two seven for takeoff" **specifies the actual location**. AFTER LOCATION announcement, providing intentions such as "departing to south" or "closed traffic" **after** location is intentions. Generally, avoid using the term **"departure"** since it can be misleading and increase the chance of midair's unless you are airborne and/or departing the pattern as defined in current AC 90-66.

Broadcasting "Forty five to downwind"

Problem

- People say this when they are starting the forty five leg and it is confusing as to whether they are starting the forty five or entering the downwind.
- People say this when they are entering a downwind from a forty five and it is confusing as to if they are starting the forty five or starting the downwind.
- No idea where you are, how far out, miles from airport.

Solution

- Just like all other airport pattern calls - not needed to say next leg of pattern. That would be like saying "turning downwind to a base" which would be confusing as to where the aircraft is in pattern.
- To provide the position when starting a forty five say "**three mile forty five for left traffic two seven**". This is an actual position.
- When entering the mid field downwind say "turning mid field down wind" or just "mid field downwind". No one cares that you were on a forty five they care where you are "midfield downwind" and what you are going to do – intentions- "full stop two seven or touch and go two seven".

Position reporting problem 1 – "Using Miscellaneous Landmarks"

Problem

- People use position reporting points that confuse others who are not familiar with the area. Examples of this are over the golf course (of which we are surrounded by golf courses), over the Ormsby house (which closed years ago), over the highway (of which we are surrounded), over the hills (of which we are surrounded), over prison hill (which stretches towards Minden, over the prison (of which there are two), over the high school. None of these are recognizable to non Carson pilots and confusing overall.

Solution

- Two miles south west, three miles south east, etc. Simple direction and distance is best location and understandable to all. This utilizes our modern GPS technology.

Position reporting problem 2 – "Combining Position and Intentions"

Problem

- Pilots many times provide intentions and do not report position first. A typical example of this is "crossing midfield to down wind". This sounds like a position report crossing over runway, but many times this is used when pilots are no where near crossing over midfield and north or east planning (intentions) of crossing over midfield. Many times pilots report intentions and not actual position so this is confusing to pilots trying to "see and avoid" aircraft entering pattern

Solution

- Always state position before intentions. "Eight miles North East seven thousand, plan on crossing over (intentions……)"

No "Line up and wait"

This phrase is specifically for towered airports and NOT used at non towered airports (see Pilot/Controller Glossary). It is an unsafe operation and should not be used at non-towered airports. Simply hold short and enter the runway for takeoff.

No "Traffic Please Advise" FAA prohibited phrase for advising pilots what to do.

Nontowered airports self announce CTAF examples

Good Examples of Aircraft type/ID for reference:
Cessna - Two Three Alpha, Cessna Twin - One Two Alpha, Citation Jet Four Bravo Charlie, Light-Sport Sling - Eight Sierra Lima, Light Sport Trike - Six Papa Hotel, Skylane - Three Four Alpha, Yellow Talorcraft One Alpha Papa, Skycatcher Two Bravo Yankee, R V Three Gulf Bravo, Red biplane – Seven Six Tango, Piper amfib - Nine Two Whisky, Yellow Cub Six Six Niner .....

Bad examples or aircraft type/ID: Experimental 1234NG (no idea if it is Light Sport at 50-70 knots or Jet at 200 knots). Saying experimental at a non towered airport is not needed. This bad habit has carried over from the towered airports 91.319(d)(3) requirement.

Taxi to takeoff and exit pattern/depart airport at nontowered airport

Pre Taxi

- Check internal communications and push-to-talk broadcast functionality.
- Listen to AWOS/ASOS and other traffic to make sure radio is receiving.

Taxiing

- Who you are calling *(Carson Traffic)*
- What and who you are *(Cessna Two Three Alpha)*
- Where you are and what you are doing *(Taxiing across two seven midfield*) Note: use **Taxing** not crossing since someone can think you are in the air using the word "crossing")
- When clear of runway *Cessna Two Three Alpha* clear of two seven.

After run up and pre takeoff checklist, taxi to hold short line (Announce if other aircraft approaching on taxiway)

Getting ready to enter runway for takeoff but waiting for other aircraft on final approach

- Who you are calling *(Carson Traffic)*
- What and who you are *(Cessna Two Three Alpha)*
- Where you are *(Holding short for traffic on final two seven)*

Entering runway, once runway is clear of traffic and no one is on final approach

- Who you are calling *(Carson Traffic)*
- What and who you are *(Cessna Two Three Alpha)*
- **Where you are *(entering two seven for takeoff)***
- What your intentions are *(will depart pattern on forty five to the south west, Carson)*
- or *(closed traffic touch and goes)* or (any other intent after takeoff)

Note 1: When you are broadcasting and identifying who you are talking at first, say "Carson traffic". At the end of the transmission just say "Carson", not "Carson Traffic". Sometimes If there are no other airports on the same frequency and you are in the pattern, the Carson Traffic or Carson can be dropped if the pattern is really busy to simply shorten the transmission.

Note 2: We are using the word "turning" in many of the examples since it is better to announce before or during your turn since you are more visible. You obviously eliminate the word "turning " if you are already on the leg of the pattern.

Note 3: You can also get rid of "runway". If you are at Carson you announce 27 or 9er (not zero nine), it is obvious you are talking about the runway. There are no taxiways, pattern legs or anything else (two seven or niner).

In the pattern doing touch/goes, stop/goes or full stop

Entering runway, once runway is clear of traffic, no one is on final approach and runway is clear ahead of you

- Who you are calling *(Carson Traffic)*
- What and who you are *(Cessna Two Three Alpha)*
- Where you are (*Entering two seven for takeoff) NO departing….*
- What your intentions are (*closed left traffic two seven, Carson)*

You takeoff and are on a departure/upwind leg ready to turn first left hand turn onto crosswind leg

- Who you are calling *(Carson Traffic)*
- What and who you are *(Cessna Two Three Alpha)*
- Where you are (*turning left cross wind Two Seven)*
- What your intentions are (*closed left traffic two seven, Carson)*

You are mid field downwind

- Who you are calling *(Carson Traffic), w*hat and who you are *(Cessna Two Three Alpha)*
- Where you are (*mid field downwind two seven), w*hat your intentions are (*touch and go, Carson)*

You are on the downwind ready to turn base

- Who you are calling *(Carson Traffic), w*hat and who you are *(Cessna Two Three Alpha)*
- Where you are (*turning left base Two Seven), w*hat your intentions are (*full stop, Carson)*

You are on the base leg ready to turn onto final

- Who you are calling *(Carson Traffic), w*hat and who you are *(Cessna Two Three Alpha)*
- Where you are (*turning final), w*hat your intentions are (*full stop two seven, Carson)*

You landed and are exiting runway to taxiway

- Who you are calling *(Carson Traffic), w*hat and who you are *(Cessna Two Three Alpha)*
- Where you are (*clear two seven Alpha three)*
- Intentions (*Taxing to fuel pumps)*

Approaching a non towered airport

Minimum 10 miles from airport broadcast your position and intentions.

- Who you are calling *(Carson Traffic)*
- What and who you are *(Cessna Two Three Alpha)*
- Approaching an airport it may be appropriate to state your speed if you think you are going slower or faster than the other aircraft *(flying 55 knots or 200 knots)*
- Where you are *(ten miles west nine thousand)*
- What your intentions are *(inbound)*

*Note: A*t this point it is not necessary to claim any runway or pattern direction. You can decide this as you get closer and listen to what is happening with the CTAF and AWOS.

- Ask for any airport traffic if you like *(any traffic in the area? NOT "TRAFFIC PLEASE ADVISE")*—This is where you can find out the active pattern depending on wind conditions. If you were in the pattern and heard this question, you could provide this information to incoming aircraft as a courtesy, such as doing a typical announcement as to your position and intent. No asking "traffic please advise" per FAA direction.

Entering pattern on a forty five from West, South or South -East

- Who you are calling *(Carson Traffic)*
- What and who you are *(Cessna Two Three Alpha)*
- Where you are *(five miles southwest six thousand),*
- What your intentions *(starting forty-five left traffic two seven)*
    - Or position/intentions *(Starting five mile forty five - left traffic two seven)*

Note: the previous discussion "forty five to downwind" problem: this call is the solution - **position**, intentions.

Entering the Pattern from the East, North and North-West

As was discussed in Part 1, the decision must be made based on traffic density to:

- Descend into a mid field cross wind cross over the runway and enter the downwind mid field directly or
- Cross over above pattern altitude go south out of the pattern and teardrop into the forty five

At this point let's say you are three miles north of the runway and decide the pattern is clear and you decide to go directly into the midfield downwind:

- Who you are calling *(Carson Traffic)*
- What and who you are *(Cessna Two Three Alpha)*
- Where you are *(three miles north six thousand),*
- What your intentions *(descending for direct mid field downwind entry left traffic two seven)*
- May want to say: *(Looking for traffic)*

At this point let's say you are three miles north of the runway and decide the pattern is crowded and you decide to fly over the top and go south of the pattern and do a teardrop into the forty five:

- Who you are calling *(Carson Traffic)*
- What and who you are *(Cessna Two Three Alpha)*
- Where you are *(three miles north six thousand five hundred),*
- What your intentions *(will fly over midfield and do a teardrop too a forty five two seven)*
- May want to say: *(Looking for traffic)*

When two miles south of pattern, three to four miles south of airport starting the right turn to enter the forty five:

- Who you are calling *(Carson Traffic)*
- What and who you are *(Cessna Two Three Alpha)*
- Where you are *(three miles South six thousand),*

- What your intentions *(starting teardrop descent turn for forty five left traffic)*

Since this is a critical time to be aware of traffic high wing/low wing, may want to say: *(Looking for traffic)*
Once starting the forty five, use the same previous "Entering pattern on a forty five from West, South or South -East"

In pattern mid field downwind for ALL closed and entering pattern

- Who you are calling *(Carson Traffic)*
- What and who you are *(Cessna Two Three Alpha)*
- Where you are *(midfield downwind left traffic two seven),*
- What your intentions *(touch and go, Carson)*

Follow previous radio calls for turning base, final and exiting runway.

Solution/Recommendations to Part 1 Airport Operations and Part 2 Communications

The last reference document is a solution to the pattern procedures/speed differences and communications through basic pilot education:
FAA Aviation Instructor's Handbook (FAA-H-8083-9B)
https://www.faa.gov/sites/faa.gov/files/regulations_policies/handbooks_manuals/aviation/aviation_instructors_handbook/aviation_instructors_handbook.pdf
Simply, education/training, going back to the basics with the FAA Aviation Instructor's Handbook can provide us guidance for this important safety issue.

With the current state of training, established "primal" and learning, human behavior and numerous other learning challenges, how specifically do we educate the pilots and instructors on safe and courteous non-towered airport operations and communications:

- Do your best to communicate, others listen and hopefully will follow your example
- Attend FAAST team safety meetings on pattern procedures/proper communications.
- Publish a modified version of this document to enhance the current CXP pattern diagram along with the communication procedures on the CXP website.
- CFI's use this document during flight reviews.
- Address non standard unsafe traffic operations and near mis with individuals as identified in a friendly manor for all to learn.

The following cards have been developed as a tool we can all use that summarizes some of ther radio calls listed above.

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