Dangerous Situation Awareness

Dangerous Situation Awareness: Now that we are familiar with the airport, it is time to think about what is going on around you. There are many things that you'll want to think about when we are in the traffic pattern.

Collision Avoidance: Collision avoidance is the most important thing to teach and continue to learn about. No matter how many hours you have, you can still be involved in a midair collision. I know firsthand. My ex-roommate was a flight instructor with quite a few hours; he was killed in a midair collision in April 1993. From this loss, I feel I have a duty to do anything I can to prevent midair collisions. The first thing I can do is to make sure that every student I fly with is fully aware of their situation every time they are in an aircraft.

Statistics I obtained from AOPA state that 82% of all midair collisions happen when a faster low-wing aircraft is closing in on a slower high-wing aircraft from behind. 5% of all collisions were head-on.77% were below 3,000 AGL, and 49% were below 500 AGL. The majority was within 5 miles of the airport. In other words, when you get within the area of an airport, you had better watch out. In addition, according to the statistics, most accidents occur in the traffic pattern and on final approach. The FAA reports that the causes of most of the accidents was the fact that the pilots did not see the other aircraft. In most cases, one of the pilots could have avoided the accident. This is something that we must always be aware of, and that is why you are reading this lesson.

Many factors contribute to midair collisions: fatigue, stress, daydreaming, improper scanning, and failure to listen up. However, as the FAA states, at least one of the pilots could have avoided the collision. Therefore, eyes are the main problem. Many pilots do not know how to use their eyes.

There are many factors that can affect your vision: lack of sleep, a long flight, visibility, the party last night, etc. As a pilot, we must make sure that we are in good health and ready to fly. Once we are in the air, we must use scanning techniques properly. Remember that if we do not look in one spot for at least two seconds, we will not see what is there. Therefore, make sure you look and find what you are looking for. If you have children, you may want to give them incentives when you are flying. A flight instructor at the last Flight Instructor seminar I attended said she paid her children 25 cents each time they spotted another aircraft. She said it started to get expensive, but how much is your life worth?

We will discuss situations involving the airport vicinity. The purpose of the lesson is to learn to always be aware of the hazards associated with the airport to avoid the midair collision.

I will try to help you decide when you have gotten into a situation that could be potentially dangerous for you and other aircraft on the field. An accident will rarely "just happen;" there will be several factors that lead up to the accident. The point of this lesson is to get you to think in a way that will automatically alert you to the situation. You should first consider whether this is a controlled field or an uncontrolled field. You would probably think that most of the midair collisions happen at the uncontrolled airport*Wrong*! At the controlled airport, pilots tend to relax more because big brother in the control tower is watching. You have to remember that the controller is just there to help you. Depending on the airspace, the responsibility of the controller will vary. Therefore, the responsibility is on you. Do you remember FAR Part 91.3? You are directly responsible for the operation of the aircraft. Therefore, you must protect yourself. Just knowing you are flying into a controlled airport should make know you are already in a situation that is statistically the highest for a midair collision.

The main type of midair collision is when a slower high-wing aircraft is being overtaken by a faster high-wing aircraft. The two end up in each other's blind spot, and the collision occurs. Therefore, we want to know about the aircraft in front of us as well as behind us. If you are flying a C-152 and there is a twin Comanche behind you, guess what—you are in a potentially devastating position. The first thing to do is get a basic knowledge of the aircraft at your base airport, and then at nearby airports, depending on what type of airport it is.

Knowing the Airport, and Situational Awareness: I know you cannot learn everything about an airport the first time you fly into it, but I am sure that you have a base airport. Once we learn what we should know about our base airport, then we can apply these things to an unknown airport. Ask yourself what is at the airport: is there a lot of flight training in the area, where are the instrument approaches, is there high-density commercial traffic, are there ultralights, etc. All of these different conditions can be hazards.

We want to be concerned with any factors that could be related to the midair collision. I am not just talking about looking for another aircraft, but also considering what situation you are getting yourself into. Many factors contribute to the midair, so I will talk about many statistics and analyze the things you should be looking for.

Knowing Other Aircraft: Again, most midair collisions occur on final approach when a faster low-wing aircraft is overtaking a slower high-wing aircraft. If you remember from the book, the two different types of aircraft have blind spots. Collisions occur when the two aircraft are in each other's blind spots. The first thing we must be able to recognize is that the aircraft that could be a threat to us or that we could be a threat to another aircraft. Below is a list of different aircraft. I have put the high-wing aircraft on the left and the low-wing aircraft on the right. As the list progress, the aircraft speed increases. These are only a few of the aircraft you will encounter. Once you have been in the flight environment for awhile, you will start to recognize the different types of aircraft and the potential dangers they have.

High-Wing	**Low-Wing**
C-152	Cherokee
Katana (Not high-wing, but same danger—I will explain)	Seminole/Warrior/Dutchess
C-172	Seneca/Arrow
C-172/RG	C-310
C-177/RG	Twin Camanche
C-206	Bonanza/C-340
C-210	C-421

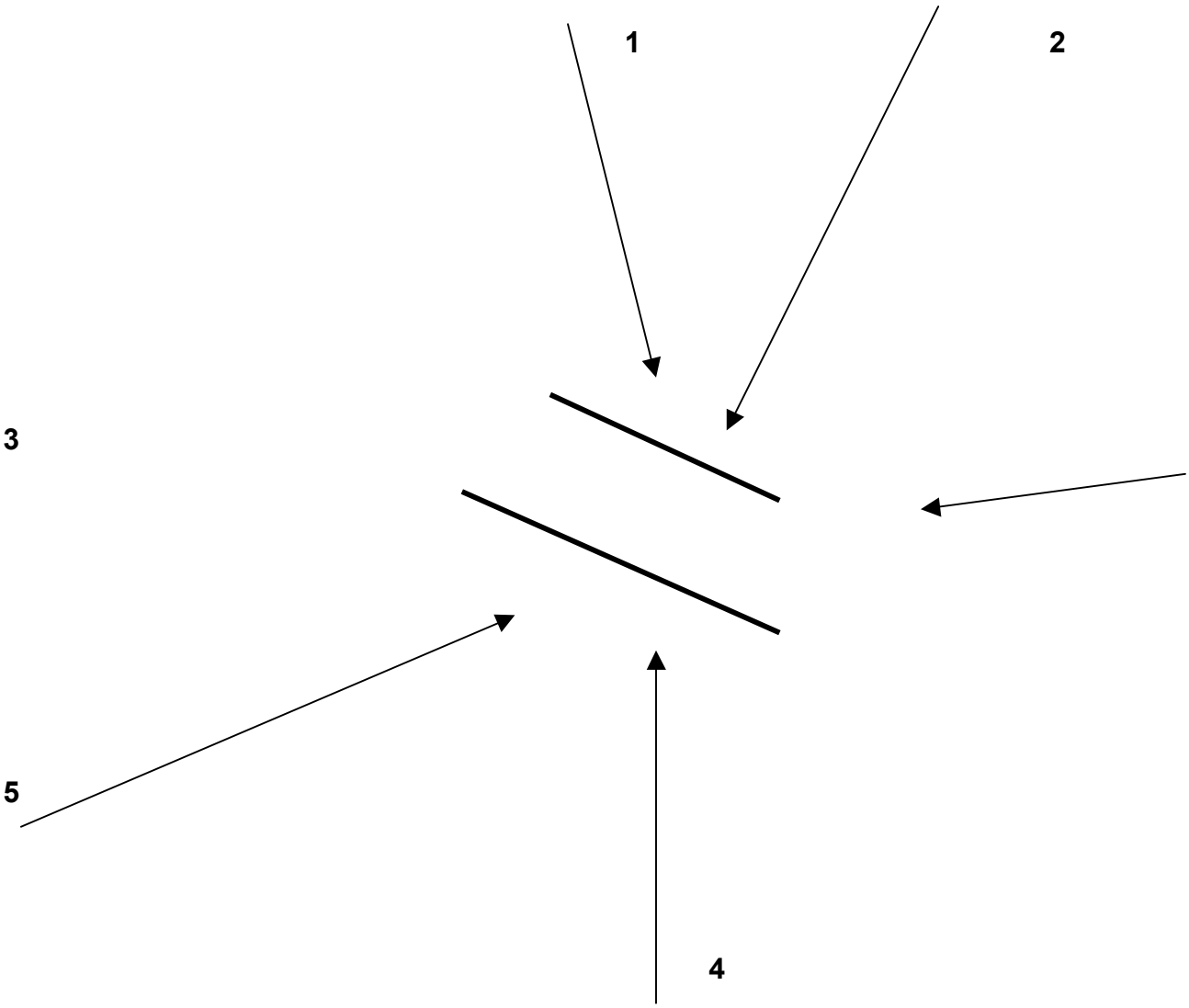
If you are in one type of aircraft, and you hear that an aircraft from the other column is in the traffic pattern, you should be aware that you are in a dangerous situation. The other aircraft may be far away from you, but the possibility is there. Remember that the controller is not responsible for you in VFR conditions. Depending on the airspace, the controller's responsibility will vary. You should always remember that you are the pilot in command of your aircraft. It is your duty to make sure that you see and avoid the other aircraft. If there is some emergency, remember FAR Part 91.3. If you feel you are in an emergency situation, do what you have to do to save your life and the lives in the other aircraft.

Listening to the Radio: The first tool you have to help you when you approach an airport is the radio. Many times, you do not turn the radio onto the control tower frequency until you have to. If

you listen in while you are still a little farther out, you might hear information that warns you of possible trouble. If you hear an aircraft on the instrument approach, you should instinctively look to see where the approach is. (Look for this especially when you fly to another airport. You should be aware of the traffic patterns of other runways in use at that airport.) On the radios, many of the aircraft listed above are not commonly called by their name. For example, the C-310, C-340, and C-421 are all commonly called twin Cessnas. Therefore, if you hear a twin Cessna in the traffic pattern, this should immediately alert you to the possibility of danger. If you are behind and you know you are slower, there is nothing to worry about. If you are in front, do everything you can to make sure you see the aircraft. ***Now you know why I want you to be able to know what your aircraft is doing by looking at your wing.*** If you are able to fly the aircraft by looking at any part of it, then the aircraft becomes part of what you are focusing on while you are looking for traffic. For example, ATC tells you that there is traffic at three o'clock, so you would look off of the right wing. Is there any reason why you should go into a turn to either side if you can see the wing and the horizon? No. At the same time, you can look for traffic that could be a hazard to you. This is why attitude flying is so important. In VFR conditions, you should be able to put the aircraft in any configuration while you are looking anywhere outside the aircraft.

Instrument Approaches: Know where the instrument approaches are at the airport you are flying into. The instrument approach procedures are much different from the standard VFR traffic pattern. The different types of instrument approaches are: VOR, NDB, ILS, Localizer, and GPS. All of these approaches are a straight flight path into the airport. The key is to know what direction the aircraft coming in on the approach is in relation to you.

Below is what this all looks like at Falcon Field in Mesa, Arizona. Look at all these things at your own airport.



1: Aircraft coming from the Sky Harbor airport.
2: Aircraft coming from Scottsdale airport and the NDB Charlie instrument approach.
3: Aircraft coming from Fountain Hills.
4: Aircraft coming from Apache Junction.
5: Aircraft coming from Chandler and Gateway airports.