



Midair Collision Avoidance

YOUR ROLE IN COLLISION AVOIDANCE

Recent studies of midair collisions involving aircraft by the National Transportation Safety Board (NTSB) determined that:

- Most of the aircraft involved in collisions are engaged in recreational flying, not on any type of flight plan.
- Most midair collisions occur in VFR weather conditions during weekend daylight hours.
- The vast majority of accidents occurred at or near uncontrolled airports and at altitudes below 1000 feet.
- Pilots of all experience levels were involved in midair collisions, from pilots on their first solo ride, to 20,000-hour veterans.
- Flight instructors were on board the aircraft 37 percent of the accidents in the study.
- Most collisions occur in daylight with visibility greater than 3 miles.

Here's how **you** can contribute to professional flying and reduce the odds of becoming involved in a midair collision.

1. Practice the "see and avoid" concept at all times regardless of whether the operation is conducted under Instrument (IFR) or Visual (VFR) Flight Rules.
2. Under IFR control, don't always count on ATC to keep you away from other aircraft. They're human, and can make mistakes.
3. Understand the limitations of your eyes and use proper visual scanning techniques. Remember, if another aircraft appears to have no relative motion, but is increasing in size, it is likely to be on a collision course with you.
4. Execute appropriate clearing procedures before all climbs, descents, turns, training maneuvers, or aerobatics.
5. Be aware of the type airspace in which you intend to operate in and comply with the applicable rules.
6. Adhere to the necessary communications requirements.
7. Traffic advisories should be requested and used when available to assist the pilot's own visual scanning -- advisories in no way lessen the pilot's obligation to see and avoid.
8. If not practical to initiate radio contact for traffic information, at least monitor the appropriate frequency.
9. Make Frequent position reports along your route and AT UNCONTROLLED AIRPORTS BROADCAST YOUR POSITION AND INTENTIONS ON COMMON TRAFFIC ADVISORY FREQUENCY (CTAF).
10. Make your aircraft as visible as possible - turn on exterior lights below 10,000 MSL and landing lights when operating within 10 miles of any airport, in conditions of reduced visibility, where any bird activity is expected or under special VFR clearance.

11. If the aircraft is equipped with a transponder, turn it on and adjust it to reply on both Mode 3/A and Mode C (if installed). Transponders substantially increase the capability of radar to see all aircraft and the MODE C feature enables the controller to quickly determine where potential traffic conflicts exist. Even VFR pilots who are not in contact with ATC will be afforded greater protection from IFR aircraft receiving traffic advisories.

IN ACCORDANCE WITH FAR PART 91.215, WHILE IN CONTROLLED AIRSPACE, EACH PILOT OPERATING AN AIRCRAFT EQUIPPED WITH AN OPERABLE/MAINTAINED ATC TRANSPONDER SHALL OPERATE THE TRANSPONDER, INCLUDING MODE C IF INSTALLED, ON THE APPROPRIATE MODE OR AS ASSIGNED BY ATC. IN CLASS G AIRSPACE, THE TRANSPONDER SHOULD BE OPERATING WHILE AIRBORNE UNLESS OTHERWISE REQUESTED BY ATC.

12. **ABOVE ALL, AVOID COMPLACENCY.**

VISION IN FLIGHT

The most advanced piece of flight equipment in any aircraft is the human eye, and since the number one cause of Midair Collisions is the failure to adhere to the see-and-avoid concept, efficient use of visual techniques and knowledge of the eye's limitations will help pilots avoid collisions. Your vision's clarity is influenced by some characteristics of the objects you are viewing, including:

- a. Your distance from the object
- b. The size, shape, and movement of the object
- c. The amount of light reflected by the object
- d. The object's contrast with the surrounding environment

You cannot see all objects in your field of vision with equal clarity. Visual acuity is best in a central area of about 10 to 15 degrees and decreases steadily toward the periphery of the visual field. A similar limitation of the eyes is binocular vision. For the brain to believe what is being seen, visual cues must be received from both eyes. The mind seldom believes that the object is really there if it is visible to one eye but obstructed from the other by a strut or windshield frame.

A visual limitation that few pilots are aware of is the time the eyes require to focus on an object. Focusing is all automatic reaction, but to change focus from a nearby object, such as an instrument panel, to an aircraft one mile away, may take two or more seconds.

PROPER CLEARING/SCANNING TECHNIQUES

An efficient scan pattern is paramount to visual collision avoidance procedures. In developing a proper scan technique, remember that when your head is in motion, vision is blurred and the brain will not be able to identify conflicting traffic. Therefore a constant motion scan across the windscreen is practically useless.

A proper scan technique is to divide your field of vision into blocks approximately 10 to 15 degrees wide. Examine each block individually using a system that you find comfortable (e.g. from left to right or starting from the left and moving to the right, then back to the left again). This method enables you to detect any movement in a single block. It takes only a few seconds to focus on a single block and detect conflicting traffic.

A moving target attracts attention and is relatively easy to see. A stationary target or one that is not moving in your windscreen is very difficult to detect and is the one that can result in a MIDAIR COLLISION.

The time to perceive and recognize an aircraft, become aware of a collision potential and decide on appropriate action, may vary from as little as 2 seconds to as much as 10 seconds or more depending on the pilot, type of aircraft and

geometry of the closing situation. Aircraft reaction time must also be added. By the way, any evasive maneuver contemplated should include maintaining visual contact with the other aircraft if practical.

RADAR ADVISORY SERVICE

As an aid to mid-air collision avoidance, Ú['dæ] å Approach Control provides radar advisories to VFR aircraft upon request. A transponder is required within Class C Airspace. To obtain radar advisories, state your position, altitude, and intentions, then request radar advisories. Once radar contact is established, traffic advisories will be issued for IFR and known VFR traffic (controller workload permitting).