

Airplane Flying Handbook



U.S. Department
of Transportation
**Federal Aviation
Administration**



The collage features several key elements:

- Gauges:** A cluster of six instrument gauges including an altimeter, airspeed indicator, turn coordinator, heading indicator, and vertical speed indicator.
- Flight Path Diagram:** A circular diagram showing aircraft in various bank angles: Steeper bank, Shallowest bank, Shallower bank, and Steepest bank.
- Map:** A map of the United States divided into color-coded regions: AWP (Alaska/West), ANM (Northwest), ACE (Central), ASW (Southwest), and ASO (Southeast).
- Wind Diagram:** A diagram showing an aircraft's glide slope being adjusted for different wind conditions. A legend specifies:
 - 1. Strong Wind:** Set up closest base for steeper glide slope on final
 - 2. Medium Wind:** Set up closer base for steeper glide slope on final
 - 3. Light Wind:** Set up normal base for normal final
- Aircraft Diagrams:** Three diagrams at the bottom show aircraft in different bank angles with red arrows indicating lift and yellow arrows indicating drag.

encompassed by, the tasks within each area of operation in the appropriate PTS and ACS. Flight instructors and pilot applicants should always remember that safe, competent piloting requires a commitment to learning, planning, and risk management that goes beyond rote performance of maneuvers. Descriptions of tasks and information on how to perform maneuvers and procedures are contained in reference and teaching documents, such as this handbook. A list of reference documents is contained in the introduction section of each PTS and ACS. It is necessary that the latest version of the PTS and ACS, with all recent changes, be referenced for training. All recent versions and changes to the FAA PTS and ACS may be viewed or downloaded at www.faa.gov.

Safety of Flight Practices

In the interest of safety and good habit pattern formation, there are certain basic flight safety practices and procedures that must be emphasized by the flight instructor, and adhered to by both instructor and student, beginning with the very first dual instruction flight. These include, but are not limited to, collision avoidance procedures including proper scanning techniques and clearing procedures, runway incursion avoidance, stall awareness, positive transfer of controls, and flight deck workload management.

Collision Avoidance

All pilots must be alert to the potential for midair collision and impending loss of separation. The general operating and flight rules in 14 CFR part 91 set forth the concept of “See and Avoid.” This concept requires that vigilance shall be maintained at all times by each person operating an aircraft regardless of whether the operation is conducted under IFR or VFR. Pilots should also keep in mind their responsibility for continuously maintaining a vigilant lookout regardless of the type of aircraft being flown and the purpose of the flight. Most midair collision accidents and reported near midair collision incidents occur in good VFR weather conditions and during the hours of daylight. Most of these accident/incidents occur within 5 miles of an airport and/or near navigation aids. [Figure 1-11]

The “See and Avoid” concept relies on knowledge of the limitations of the human eye and the use of proper visual scanning techniques to help compensate for these limitations. Pilots should remain constantly alert to all traffic movement within their field of vision, as well as periodically scanning the entire visual field outside of their aircraft to ensure detection of conflicting traffic. Remember that the performance capabilities of many aircraft, in both speed and rates of climb/descent, result in high closure rates limiting the time available for detection, decision, and evasive action. [Figure 1-12]

The probability of spotting a potential collision threat increases with the time spent looking outside, but certain techniques

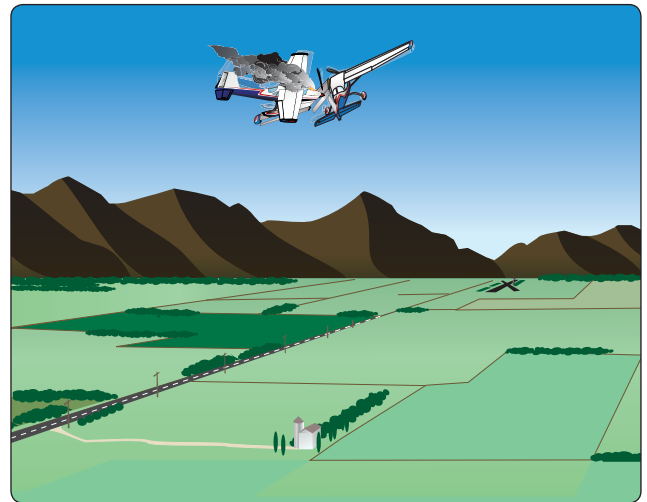


Figure 1-11. Most midair collision accidents occur in good weather.

may be used to increase the effectiveness of the scan time. The human eyes tend to focus somewhere, even in a featureless sky. In order to be most effective, the pilot should shift glances and refocus at intervals. Most pilots do this in the process of scanning the instrument panel, but it is also important to focus outside to set up the visual system for effective target acquisition. Pilots should also realize that their eyes may require several seconds to refocus when switching views between items on the instrument panel and distant objects.

Proper scanning requires the constant sharing of attention with other piloting tasks, thus it is easily degraded by such

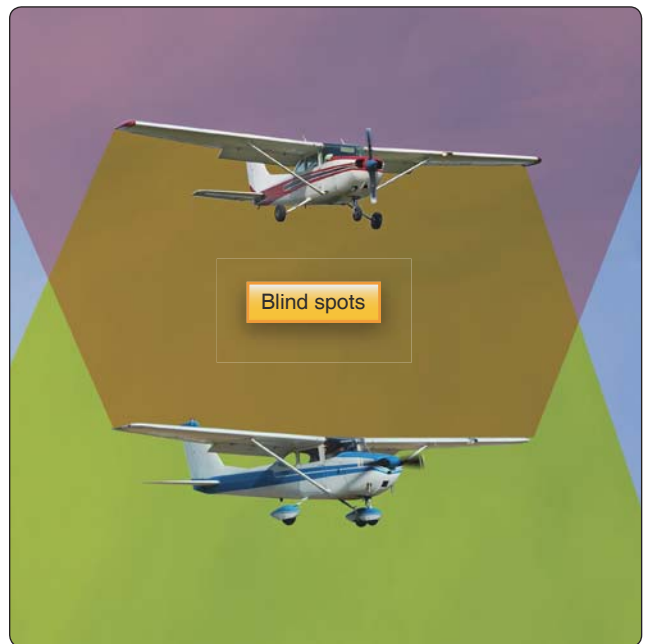


Figure 1-12. Proper scanning techniques can mitigate midair collisions. Pilots must be aware of potential blind spots and attempt to clear the entire area that they are maneuvering in.