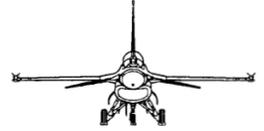


Shaw AFB, SC

Mid Air Collision Avoidance



The **F-16CJ** is a gray fighter aircraft 50 ft in length with a wingspan of 33 ft. It is a multirole fighter flying low level and at high speeds and the most prevalent aircraft around Shaw AFB.



The **A-10** is small and gray or green camouflaged. Usually flying VFR below 1,500 ft. It's dimensions are 53 ft in length with a wingspan of 58 ft and 15 ft in height.



The **F-15E** is a dark gray fighter aircraft 65 ft in length with a wingspan of 45 ft. It is a multirole fighter flying low level and at high speeds.



This material is for informational purposes only. It is not intended for flight planning, other than as a source of midair collision avoidance information. All information, routes, descriptions and procedures are subject to change. Consult the Airmans Information Manual or the Flight Information Publications for the current status of any information contained herein.



Each year more people get pilot's licenses and take to the air in increasing numbers. The once great open expanse of the skies are becoming crowded. As aircraft traffic increases, so does the potential of mid-air collisions. Mid-Air Collision Avoidance (MACA) is important for all pilots.

All pilots are considered very important to the Air Force. Aircraft are special machines. Avoidance of the needless destruction of either through mid-air collisions is a goal for all in the sky.

This display is presented to you by:

20th Fighter Wing Safety Office at Shaw AFB, SC.

Any questions, please call (803) 895-1985

No pilot is invulnerable to an in-flight collision. The most important guard against such mishaps is to know the limitation of the eye and how to scan effectively for other traffic.

LIMITATIONS OF THE HUMAN EYE: Nearly all midair collisions occur during the day in VFR conditions. The majority happen within five miles of an airport, on warm weekend afternoons. 77% of all midair collisions occur at or below 3,000 feet in the traffic patterns, primarily on final. Enroute midairs happen at or below 8,000 feet within 25 miles of an airport. Cause of mid air collisions? Failure to SEE AND AVOID system. In most cases at least one of the pilots involved could have seen the other in time to avoid contact, if he had just been using his eyes properly. We can "see" and identify only what the mind lets us see. A daydreaming pilot staring into space sees no approaching traffic.

ACCOMODATION: The time it takes to refocus on an area. It takes one to two seconds to refocus your eyes from inside the cockpit to an aircraft one mile away.

EMPTY FIELD MYOPIA: If there is little or nothing to focus on, we do not focus at all. We stare but see nothing.

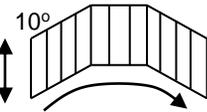
BINOCULAR VISION: If an object is visible to one eye but hidden from view from the other by a windshield post or another obstruction, the total image is blurred and not always acceptable to the mind.

TUNNEL VISION: Our eyes accept light rays from an arc of nearly 200 degrees but are limited to approximately 10-15 degrees in which they can actually focus and classify an object.

BLOSSOM EFFECT: At a distance an aircraft on a collision course will appear to be motionless. It will remain in a seemingly stationary position not growing in size and then suddenly "blossoms" into a huge mass filling one of your windows.

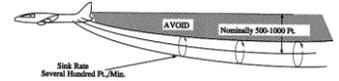
A SCANNING TECHNIQUE

Traffic detection can be made only through a series of eye fixations at different points in space. The windshield is divided into segments and the pilot methodically scans for traffic in each block of airspace in sequential order. Start at the far left of your visual area and make a methodical sweep to the right, pausing in each block of viewing area to focus your eyes. At the end of the scan, return to the instrument panel for a couple of seconds then start the scan over.



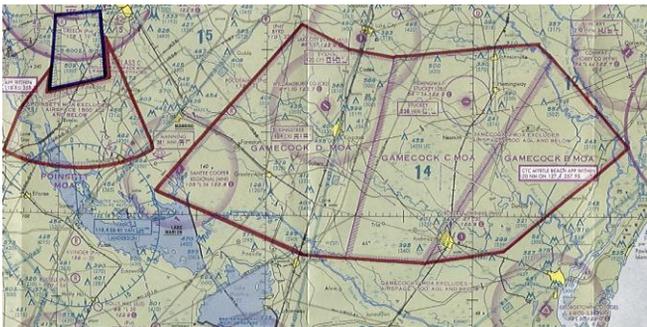
WAKE TURBULENCE

You may be able to see and avoid the big airplanes, but one thing you can't see is their wake turbulence. There is an area of potential disaster behind and below every large commercial and military aircraft. Wake turbulence can be deadly, especially when it happens close to the ground. All pilots flying in the vicinity of large aircraft should exercise extreme caution and ensure a 6 to 10 minute separation, depending on the type of aircraft. **WAKE TURBULENCE CAN BE SO SEVERE AS TO CAUSE**



USE CAUTION IN THE VICINITY OF SHAW AFB, R-6002 AND GAMECOCK MOAS

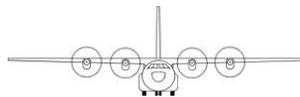
HIGH DENSITY FAST MOVING MILITARY AIRCRAFT OPERATE FROM SURFACE TO 18,000' MSL WITHIN THE INDICIATED BOUNDARIES



The **C-17 Globemaster:** These are large cargo aircraft that are used for a wide variety of missions. They may be seen in the local area flying low level, high speed routes such as IR-35 and IR-36



The **C-130** is gray or green camouflaged medium size transport for dropping troops and heavy equipment. It's dimensions are 100 ft in length with a wingspan of 133 ft and 39 ft in height.



10 SECONDS TO IMPACT

This is the actual size of each aircraft as they would appear to you from a head on collision course.



REACTION TIMES

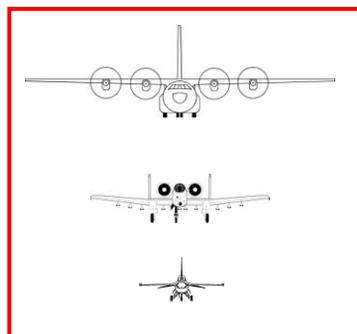
6 seconds to see, recognize, and analyze ...

4 seconds to decide and start evasive maneuver

2 seconds to gain enough space and clear ...

(10 seconds to impact;

12 seconds needed to avoid impact = 1.5 nm miles)



ONE MILE APART

His speed is 350 knots, your speed is 110 knots. Closure rate is 460 knots; 7.7 nm/minute; 777 ft/second; 2.5 football fields every second

