

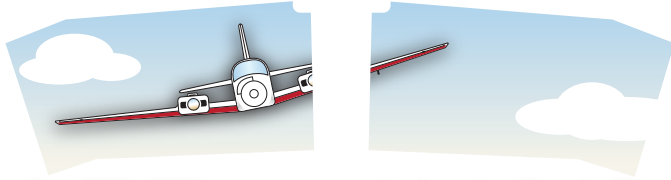
CALLBACK

From NASA's Aviation Safety Reporting System



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SEE and AVOID

The number of midair collisions in the United States has averaged 30 per year since 1978.¹ These accidents primarily involve General Aviation aircraft, but Air Carrier, Corporate and other operators are by no means immune from potentially serious airborne conflicts.

In the preceding 12 month period, over 4,000 in-flight traffic conflicts were reported to NASA ASRS. Of these, 235 met the ASRS criteria (within 500 feet) for a Near Midair Collision (NMAC). Nearly half of these NMAC's involved Air Carrier, Corporate and Air Taxi operations.

Technological advances such as the Traffic Collision Avoidance System (TCAS) and Conflict Alert (CA) have enhanced the ability of pilots and controllers respectively to resolve airborne conflicts before they become critical, but the following ASRS reports show that the "see and avoid" principle remains a crucial aspect of collision avoidance in visual conditions.

Watch Out for the "Other Guy"

You may be following all the rules, but there is no guarantee that everyone else is. This SF340 flight crew had an all-too-close encounter when a crop duster approached out of the sun, at the wrong altitude and apparently not watching out for traffic.

■ *While level at 8,000 feet, we experienced a near collision with a turboprop crop duster. The other aircraft was coming from our 11 o'clock position and traveling northwest to southeast. It passed 300-500 feet in front of our aircraft and less than 100 feet above our altitude. The duster was so close that we could feel its wake turbulence as it went by. Our TCAS was operating and showed no other aircraft. Center and Approach Control gave no traffic warnings. No evasive action was taken as the encounter was over before we could take any.*

We were doing everything correctly at the time of the incident. All of our checklists were complete and there was very little distraction inside our cockpit. We had

followed all ATC instructions and our aircraft was in the correct location for our flight plan and ATC guidance. It is possible that the crop duster was blocked by my sun visor and possibly the window pillar, as this creates a blind spot in the direction of the other aircraft. That aircraft was also coming at us from the sun and at the wrong altitude for the direction of flight. Although we had all of our exterior lights on and were following instructions and standard operating procedures, it's always necessary to watch out for "the other guy." Even if TCAS is installed and you're under ATC direction, "see and avoid" is still every pilot's responsibility.

And... Watch Out for the *Other, Other Guy*

An air carrier crew maneuvered to avoid one aircraft only to be confronted by something else that was difficult to make out. The Captain's keen eye saved the day and confirmed that seeing traffic is a key factor in avoiding it.

■ *Approach Control called traffic at our 10 to 11 o'clock, VFR, 400 feet below us and not in communication with ATC. The First Officer and I both saw the traffic. The TCAS showed the traffic as well. It was going to pass from our left to right and our paths were going to cross. I asked the First Officer to ask for a left deviation so we would pass behind the traffic for added safety. The deviation was approved and we turned 10 to 15 degrees to the left.*

On the new heading, I thought I saw additional traffic at our 12 o'clock, same altitude. I asked the First Officer if he saw anything and he replied, "No." I looked at the TCAS display and no traffic was shown there either. I continued to look and try to discern what I was seeing, if anything.... I started to make something out and said, "It looks like a big bird." The First Officer replied, "Yes, I see something too." About that time, the object came into focus as it made a left bank. I could tell then that it was a hang glider and we were on a collision course at a high closure rate.

I immediately disconnected the autopilot and made a descending right turn. The hang glider passed off our left wing within 500 feet horizontal and at our altitude.

We informed ATC of the near miss and they were just as surprised as we were to hear of a glider at that altitude....

Who's on Base

Tower assumed that the reporter's aircraft would "beat" another aircraft to the runway. The reporter assumed that

the other aircraft would make a 45-degree entry to the left downwind. The result was not a “towering” success.

■ *It was VFR— clear with unlimited ceiling. I was instructing in the right seat. We contacted Tower just south of [the] Class D [airspace]. We received instructions to make left traffic and were cleared to land. We executed a 45-degree entry to a left downwind. Abeam the Tower, I requested a short approach to give the student a simulated engine-out arrival.*

The Tower Controller had cleared another aircraft to “enter left traffic.” He told me later that he thought we would beat the aircraft to the runway. Just past abeam the runway end, the other aircraft established not on a downwind, but perpendicular to the runway on a left base and streaked in front of us (... way inside the normal power-on base leg area). I took the controls and executed an evasive turn to the right....

The other aircraft clearly didn’t follow instructions to enter the pattern for left traffic and instead headed directly to a left base entry. We received no traffic advisories on the conflict and came very close to colliding with the other aircraft. We saw and avoided, fortunately. [I] really wouldn’t like to come that close to a midair again.

“Climb! Climb! Climb!”

While Air Traffic Control did call out traffic to this MD-80 Flight Crew, it was a third pair of eyes in the jumpseat that provided the critical “see and avoid” aspect in this near collision.

■ *We were on the [Arrival] at 9,000 feet MSL. The First Officer was the Pilot Flying. Center called traffic at 12 o’clock, 8,600 feet, climbing. I don’t recall there being any range. Not seeing the traffic, I checked TCAS and it showed only one target at two o’clock several miles out and climbing. I found that traffic and it appeared that it would pass behind us. The First Officer also spotted the two o’clock traffic.*

While the First Officer and I were looking out the right side of the aircraft, the cockpit jumpseat rider said, “There he is; straight ahead.” As I turned to look out the front window, the jumpseat rider started yelling, “Climb! Climb! Climb!”

The First Officer immediately started a climb. Another aircraft, not shown by TCAS, flew under our right wing at approximately 100-200 feet. As the other aircraft passed, the TCAS announced “clear of conflict” and showed a yellow diamond at our position, even though it never issued an RA (Resolution Advisory) or a TA (Traffic Advisory).

Neither I nor the First Officer saw the traffic. The observer said it was a red and white twin and it was close enough that he could see into the cockpit.

Easing Out of Formation

On short final, a Cessna 172 got so close to a B757 on final for a parallel runway that separating safely became a concern for the First Officer who submitted this report.

■ *Checking in with the Tower, we were advised of traffic, a Mooney, which we both saw. The visual approach was normal until short final. I commented to the Captain that if I had to go-around, I was concerned about avoiding the Mooney.*

Below 400 feet, I heard the TCAS “traffic” call. I looked up from my primary scan on the runway and said that I had the Mooney in sight. I was unaware that the TCAS alert was not for the Mooney!

After the 300-foot callout, I noticed something to my left. I looked and saw a Cessna through the Captain’s window. It was very close and I feared a collision. The Cessna was in a shallow left turn, descending. It was less than 100 feet away and we had wing tip overlap. I thought quickly about my options and to go-around meant that our wing would hit him. If I turned right in avoidance, my left wing would have come up to impact the Cessna. I believed the only option was to continue straight and duck under him. I could not use much pitch input for fear of impact with the ground.

The Cessna had overshot the left runway final and had come into our space. We were at reference speed plus five knots so we passed him very quickly.

The Tower did not issue a traffic callout to us about the Cessna.... Tower stated that the person responsible for traffic separation was briefing someone else during the incident and that they failed to notify us of the traffic. He stated that the Cessna had been informed of our position and had a visual on us.

I believe that if I had not had many hours of formation time, we probably would have hit that Cessna.

Additional NASA ASRS reports on NMAC’s can be found in the NMAC Database Report Set at: <http://asrs.arc.nasa.gov/search/reportsets.html>

¹ FAA statistic cited at SeeAndAvoid.org, a website created by the Air National Guard Aviation Safety Division with the ultimate goal of eliminating midair collisions and reducing close calls.

ASRS Alerts Issued in July 2011	
Subject of Alert	No. of Alerts
Aircraft or aircraft equipment	1
Airport facility or procedure	2
ATC equipment or procedure	3
Maintenance procedure	3
Company policies	1
Other	1
TOTAL	11

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July 2011 Report Intake	
Air Carrier/Air Taxi Pilots	3099
General Aviation Pilots	832
Controllers	613
Cabin	406
Mechanics	156
Dispatcher	63
Military/Other	14
TOTAL	5183