Wake Turbulance

Flying through the wake of a large airplane can easily cause an uncontrollable roll that may be impossible to recover. The only safe procedure is avoidance.

Wake Turbulence is caused by the high pressure beneath the wing of an aircraft curling over the wingtip to the lower pressure on top of the wing. This causes a horizontal vortex rotating counterclockwise behind the right wing and clockwise behind the left, as viewed from behind. The larger the airplane and the slower it is going the worse the vortices, because the pressure differential is greater between the bottom and top of the wing. Once created, wingtip vortices slowly settle downward and drift with the wind.

To avoid Wake Turbulence do not fly close behind and below large aircraft, particularly close to the ground, where there is little room or time to recover. Time is your best ally. The more time between you and a preceding airplane, the more the vortices will have dissipated. When landing, stay above the flight path of aircraft landing ahead and land beyond where it did. If landing behind a departing airplane, land before the point where it lifted off. Do not fly through the flight path of either. When departing behind another departing plane, give it some time and then takeoff before its liftoff point. Try to climb out upwind of its flight path, since the vortices will drift downwind. When taking off after a large airplane just landed, give it a couple of minutes and if the runway is long enough, takeoff beyond the touchdown point of the landing aircraft.

Controllers will often warn of potential Wake Turbulence. Believe them. However, do not count on them. Evaluate every situation yourself.

Never attempt to fly with frost on any of the airfoils. Frost on the wings, or the tail surfaces, destroys the laminar flow of air across the surface causing a significant loss of lift.

Any amount of frost will do this. It does not have to be thick. As the air passes over the rough frost, the layer next to the surface burbles and breaks free, causing a stall if extensive enough. Unfortunately, the stall frequently occurs close to the ground shortly after takeoff.

To eliminate this problem, keep the aircraft under cover. If it does get frost, clean it ALL off before flight. Turning the aircraft into the sun while doing the rest of the preflight may quicken the thawing process.

If you don't like surprises when you fly, check NOTAMS before each flight. Even if you are just going for a local ride, it would be nice to know if there are any navaids out of service, or any runway or airport closings. NOTAMS will warn you of restrictions due to airshows, sporting events and some political activities. Even something as simple as a model rocketry gathering could be unnerving if you were out sightseeing at low altitudes.

Recent terrorist activities have shown how quickly restrictions can be placed on aviation.

Checking NOTAMS is the best way to be informed of the latest aviation system changes that could affect your flight.

Before making turns in the traffic pattern look over your shoulder for traffic that may be closer to the runway than you. In a high-wing airplane it is important to look under the wing as soon as you complete a turn to make sure there is no traffic closer in coming at you.

On base, before turning final, look out the extended final approach to make sure there is no traffic further out on final making a long straight-in approach.

Always listen carefully on the radio (at both controlled and non-towered airports) for the position of other aircraft. At non-towered airports, make frequent position reports approaching the airport, in the pattern and on the ground before taxiing onto the runway.

If there are instrument approach procedures approved for your airport, it is a good idea to know which direction they come from and which direction the missed approaches go. Find out where the outer markers and procedure turns are located. When other aircraft call at these positions, you will know where to look.

If you are making an instrument approach (for real or practice) listen for traffic in the pattern and make frequent position announcements.

Be aware of overtaking situations with faster or slower aircraft. You could be either one.

When forced to make a go-around by other traffic in front of you, maneuver (usually to the right) to keep the other aircraft in sight.

Sometimes we overshoot the turn to final approach. Regardless of the reason, it is not a good idea to steepen the turn to correct this situation. A steep turn can easily lead to an accelerated stall.

The best way to correct for an overshoot is to continue a normal banked turn until close to the extended runway centerline. Then reverse the bank to line up with the centerline and make a normal approach.

If the overshoot is too drastic to comfortably correct, or the altitude becomes too abnormal, a go-around is in order. Remember, a go-around is less embarrassing, and expensive, than an accident.