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# Safety

## *from the Ground Up*

### *A Look at Ramp Risk Management*

Preparing for a flight takes a good deal of planning and coordination. It involves everything from factoring in fuel requirements and weight and balance information to researching weather and any NOTAMs or TFRs that may affect your flight. With so much to do—often under the duress of multiple time constraints—it is easy to overlook another important component of a safe flight: ground safety.

If you have seen images of cargo containers sucked into jet engines, you know how dangerous an airport ramp can be. While GA airports are not typical places to find 100,000-lb.-rated turbofans capable of ingesting nearly anything in sight, there are numerous hazards of which you should be aware. Some of these can put you at risk well before you even reach your airplane. This article provides advice on how to avoid ramp accidents and ensure that your next flight is safe from the ground up.

#### **It All Starts at Home**

On the morning of a long-awaited weekend flight, it is uncanny how events seem to conspire against getting started on schedule. Whether it

is missing car keys, refereeing a pop-up family squabble, or a last-minute scramble to find your pilot certificate, distractions can leave you little free time to focus on important preflight duties.

Instead of reviewing the latest weather data or fine-tuning details of your flight, you are now stressed and rushing to get to the airport on time. This harried pace may cause you to skimp on a detailed preflight inspection, which can be a deadly mistake. Being in a hurry can also quickly contribute to a lack of awareness, one of the most common causes of accidents and incidents on the ramp.

Just as a good pilot “stays ahead” of the airplane during flight, it is also good practice on the ground. Anticipate distractions and build in extra time the day of your flight to address them. Prepare maps, charts, and flight planning documents the day before your flight. You may even want to lay out your clothes, stuff snacks in your flight bag, and mentally review what you will need to do the day of your flight. Taking care of small tasks in advance can make the difference in setting up a safe, smooth, and distraction-free start to your flight.

## Clothes Make the Pilot

Sometimes ground safety can be as close to us as the clothes on our backs. Matching your attire with the weather offers several benefits. On cold, blustery winter mornings I have often regretted not having worn an extra layer of clothes or a pair of good insulated gloves, especially as icy drops of avgas splash on my hands during fuel inspection. Cold hands can make for an uncomfortable preflight and may cause some pilots to speed through their checks.

Remember, that while it is good to keep your mitts covered up, you may still need bare skin to check for frost on the airframe or to inspect areas where bulky gloves might inhibit access. Also, remember proper shoes. Especially in winter, slippery hazards, such as oil, fuel, and other aircraft fluids, are “rampant” at airports. These hazards, coupled with or sometimes obscured by snow and ice, can make for a treacherous stroll from the FBO to the aircraft. A slip-resistant shoe or boot will provide the needed extra traction.

## Air Traffic Safety Day

FAA’s concern for ground safety goes beyond pilots and mechanics. On January 27, 2011, the agency’s Air Traffic Organization (ATO) Office of Safety will host a nationwide Safety Day campaign to promote safety and health both on and off the job for the ATO workforce. The event, “Safety from the Ground Up,” will feature messages from ATO COO Hank Krakowski and other guest speakers and showcase several new training videos. ATO employees will be able to view the event via live Webcast.



Another preflight clothing consideration may depend on whether you plan to be involved with fueling. Materials like nylon, Dacron®, or wool are especially prone to accumulating and discharging static electricity. As fun as it may be to zap an unsuspecting victim, offloading excess electrons around a fuel source may elicit a more volatile reaction.

Exercise extreme care when you are in close proximity to fuel. Bonding, or connecting yourself to a conductor, is the best way to equalize an electrical charge. That means, in addition to ensuring the aircraft and any fueling equipment are grounded, grab onto a metal piece of the aircraft for a few seconds to balance any excess charge you or your clothing have gathered. You might be surprised how much static a typical winter jacket can accumulate. Think twice before removing that jacket anywhere near a fuel source. Anyone who has experienced a powerful shock after taking off and hanging up a wool coat can only imagine how that might play out with fuel vapors present.

On the topic of fuel safety, there is another unlikely source of static electricity that can be extremely dangerous: pouring avgas from or into plastic containers. Placing an avgas-approved container on the ground before filling and using an electrically conductive filter can eliminate static build-up created by pumping or pouring fuel. To remove static build-up on the container’s exterior, wipe any spilled fuel from the container with a damp cloth.

## No Fooling with FOD

One of the biggest enemies of aircraft on the ground is foreign object debris, or FOD. Often as small as a bolt or a misplaced screwdriver, these hard-to-see and unassuming hazards can wreak havoc on an aircraft, causing tire blow-outs, cracked windshields, propeller damage, and more. Before your flight and while taxiing, keep a constant eye out for anything that is out of place. Secure and dispose of the object if possible, or communicate to any available airport personnel about the FOD hazard.

This excerpt from an Aviation Safety Reporting System (ASRS) report shows how easily a lack of awareness can lead to mistakes, especially when FOD is involved:

*During a preflight inspection with a first-time flight student, both the instructor and student used a collapsible ladder to check the fuel tanks*

of a Cessna 172. Distracted by the student's numerous questions, the instructor lost track of the ladder and did not notice it had been placed forward of the right wing. After engine-start and completing the preflight checklist, they began taxiing in a right turn when the right gear and propeller immediately struck the forgotten ladder, cutting it to pieces.

Fortunately, no one involved in this incident was injured. The aircraft suffered minor damage (I can't say the same for the ladder). Student and instructor both learned a valuable lesson about losing awareness of their environment.

To avoid overlooking any FOD, stand back after preflighting and carefully examine the aircraft from a distance. It also allows you to get a big picture of your aircraft, i.e., checking the symmetry of the flight controls and the overall integrity of the airframe. Another tip is to take a walk around your aircraft, which may also be a last chance to catch those critical Remove Before Flight safety covers. It only takes a few seconds, but this final glance can help you see things that are hard to catch up close.

### Let's Get Totally Clear!

Sadly, some ramp accidents involving people are not much different from how the ladder fared in the ASRS report. The culprit here is another insidious foe: a moving propeller.

During my first flight lesson I was baffled by the instructor's direction to open the aircraft window and scream "Clear!" to an otherwise deserted airport ramp. But once the engine roared to life, I quickly realized the power of the 72-inch metal blade spinning inches in front of me. Not that I could see it. Rotating at 1,000 rpm, the propeller was little more than a translucent gray blur.

Despite verbal warnings, the use of beacon lights to signal that someone is running or about to start an engine, and even the sheer noise of the engine, government data show that each year people are injured or killed by walking into a moving propeller. If you have passengers who may not be familiar with airport ramp hazards, be sure to advise them to stay clear of any aircraft with an engine running or one with strobe and/or beacon lights on. This is especially important at night when a spinning prop can be easily cloaked in darkness.

A final note on propellers: Always treat a prop as if the magneto were hot, or, in other words, with the engine able to start with a pull on the prop. Never



lean against a prop. During inspection, ensure the ignition is in the off position.

### Towing the Line

Sound ramp safety practices do not only apply before takeoff. After your safe arrival comes the tricky matter of parking your aircraft. Ask for help if you are unfamiliar with parking procedures. A tow bar can be a big help getting into a tight spot, but make sure you are familiar with how to use it. Connecting a tow bar incorrectly can damage your aircraft and could cause you serious injury. Whenever possible, have someone assist you when positioning an aircraft into a parking spot. The extra set of eyes will help you steer clear of other aircraft and keep you from straining your back.

Ramp accidents do not always get the same attention as other types of accidents, which makes it even more important to take steps to avoid them. By keeping a vigilant eye to your surroundings, taking precautions as needed for the environment, and properly following procedures, you will help keep yourself safe both in the air and on the ground. ✈️

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### For More Information

#### FAA Advisory Circular 150/5380-5B – Debris Hazards at Civil Airports

[www.faa.gov/airports/resources/advisory\\_circulars/media/150-5380-5B/150\\_5380\\_5b.PDF](http://www.faa.gov/airports/resources/advisory_circulars/media/150-5380-5B/150_5380_5b.PDF)

#### FAA Advisory Circular 150/5210-24 – Airport FOD Management

[www.faa.gov/documentLibrary/media/Advisory\\_Circular/150\\_5210\\_24.pdf](http://www.faa.gov/documentLibrary/media/Advisory_Circular/150_5210_24.pdf)

#### Aeronautical Information Manual – Chapter 4, Section 3-23, Use of Aircraft Lights

[www.faa.gov/air\\_traffic/publications/ATpubs/AIM/Chap4/aim0403.html](http://www.faa.gov/air_traffic/publications/ATpubs/AIM/Chap4/aim0403.html)