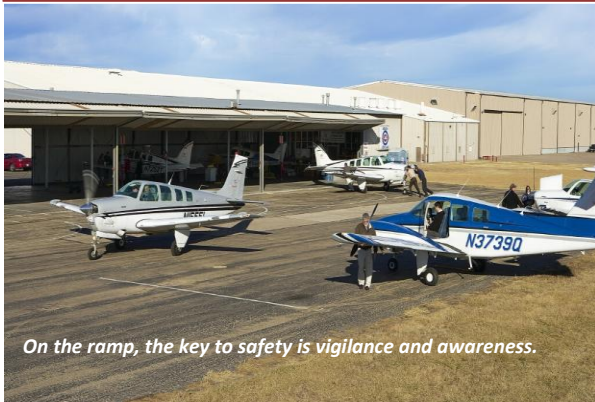# SAFETY BRIEF

Ramp Operations

On the ramp, the key to safety is vigilance and awareness.

When the door of the FBO opens and you step onto the flight line, you're entering a world filled with spinning propellers and moving vehicles. It's an exciting place, but one where the penalties for carelessness or complacency can be very harsh.

The Facts

Over the ten-year period that ended in 2008, 350 aircraft accidents occurred in the ramp area. While only a small percentage of these accidents proved fatal, over 80% caused substantial damage to other aircraft and property on the ground. In 18% of the accidents, death or serious injury resulted from people walking into moving propellers. 62% of all ramp accidents occurred during taxi: Most involved collisions with other aircraft or buildings. Ultimately, however, t**he most common accident causes were carelessness and/or a lack of awareness.**

Hazards

Hazards on the ramp can come from many directions, and in unexpected places. Even straightforward tasks like preflighting a high- wing airplane presents multiple opportunities to trip and fall, or inadvertently walk into sharp surfaces (wing trailing edges, pitot tubes, etc.). Here are a few pointers to help you anticipate danger and manage the risks.

Get the big picture: Know how traffic flows around the taxi and tiedown areas, and always keep a lookout for aircraft in motion. That goes double at unfamiliar airports. On arrival, if you're not sure where to park, radio the FBO and ask. Then, after shutdown, be especially careful walking in the ramp area. There may be more traffic than you're used to, and it may come from unexpected directions.

Don't rely on your ears: Ramp noise is a major factor that can mask danger. The sounds of aircraft in the pattern, jets idling on the ramp, and noisy fuel trucks can be distracting, and can keep you from hearing someone yell "clear!" or other warnings of impending danger. Ear protection can help prevent hearing loss, but it can also block critical warnings.

Look out below (and above): On the ramp, tripping hazards abound. Fuel hoses, ground wires, tiedowns, chocks, and other items can send you sprawling—and the consequences can be much worse than a skinned knee.. That said, don't fixate on the ground. In everyday life, most of us don't expect to encounter many hazards at eye level and above, so it's all too easy to walk straight into aircraft wing or tail surfaces when not paying attention.

Don't be a litterbug: Foreign object debris (FOD) is anything on the ramp that could damage aircraft, propellers, or jet engines. Eating, drinking, and smoking on the ramp are distractions, and often result in leftover wrappers or cups that can be sucked into engines, or blown around by jet or prop blast. Leave all trash in the FBO before entering the ramp area. Smoking should never be allowed on

the ramp, not only because of FOD, but because of open flame around fuel. Keep an eye out for rocks, stray tools, and sharp metal objects (e.g., nails, screws) that can damage aircraft or tires. If you see something, pick it up and throw it away.

Be careful in the car: If you're allowed to drive on the ramp, remember that road rules do not necessarily apply. On taxiways, drive along the centerline to remain visible and clear of parked aircraft. Always drive slowly, and stop and look before pulling out from around buildings and other blind spots. If you have visitors or passengers that are going to be driving on the ramp, brief them ahead of time so they know where to go, and to familiarize them with pavement markings.

> *"… Aircraft ALWAYS have the right-of-way over vehicles when maneuvering on non-movement areas. Aircraft also have the right-of-way on the movement areas, except when the Airport Traffic Control Tower (ATCT) has specifically instructed an aircraft to hold or give way to vehicle(s) on a runway or taxiway."*
>
> ⁻ FAA Advisory Circular 150/5210-20

Preflight and Propellers

Preflight distractions can impact safety both on the ramp and during your upcoming flight. Unless you're giving a flight lesson, conduct the preflight without discussion or interruption: You can explain things to passengers after you're finished.

Avoid walking under or through the prop rotation area (even a stationary propeller can cause painful scrapes or bruises if walked into), and stay clear except when checking the blades, spinner, and air inlets. With piston aircraft, **do not rotate the prop by hand unless you are prepared for the engine to start.**

A hot magneto can lie dormant until it is too late. As a general rule, treat all propellers as though the engine magnetos are HOT. Approach a propeller only after you've ensured the ignition is OFF and the keys are in your pocket.

> *Hot magnetos happen when the P-lead breaks and the magneto becomes ungrounded. This can cause an engine to start just from having the propeller pulled through. To check for a hot magneto you should:*
>
> 1. *Just prior to shutdown, reduce power to idle*
> 2. *Slowly move the key through the Left, Right, and then OFF positions. The RPM should drop at each magneto position and stop in the OFF position*
> 3. *After the engine has shut down, pull the mixture to idle-cutoff.*
>
> *If the engine continues to run in the OFF position, shut the engine down with the mixture and mark the aircraft as having a hot magneto.*

Never hand-prop an aircraft without appropriate training. Numerous deaths and serious injuries have resulted from hand-propping gone awry.

With turboprop aircraft, take the extra time to put on propeller guards (especially with free turbine engines). Even a light breeze can cause a propeller to spin, which may cause injury.

> "**T**he airplane started moving, and as he tried to grab the door handle the horizontal stabilator struck him, knocking him to the ground. The airplane continued to the west where it contacted the left wing of a Diamond DA40. The airplane continued westbound across the ramp where its left wing contacted a light pole, turning the airplane around 180 degrees. The airplane then traveled east, back across the ramp, where it contacted the tail of a Cessna 150E. The airplane came to rest after contacting the nose and left wing of a Grumman AA-1B."
> - *Narrative from an NTSB accident report.*

Jets and Helicopters

Never walk behind a running jet aircraft, no matter how small the engines look. At high power settings, exhaust from the engines on even the smallest jets can reach speeds near 200 mph (category five hurricanes are measured with wind speeds of 155 mph or higher!) Jets have also been known to suck in loose clothing, hats, and even unsuspecting humans from the front!

Helicopter rotor blades hang dangerously low when the aircraft is parked, and the tail rotor is often difficult to see. Just like jets and props, rotor wash from a helicopter can kick up debris and blow hats and other objects across the ramp. Unless properly trained or under the supervision of the flight crew, never approach a running helicopter for any reason.

Passenger Safety

Always stay with non-pilot passengers when they're on the ramp. Every year, there are accident cases where passengers are seriously or fatally injured by walking into a prop.

Remind passengers to stay clear of any aircraft with a running engine, or with its strobe or beacon lights on. In fact, it's a good idea to steer clear of aircraft anytime pilots are in the cockpit: There's a good chance that the engine will be starting soon. Once in the aircraft with the engine running, be sure that nobody leaves the aircraft without first shutting down the engine(s).

Summary

Safety on the ramp is just as important as safety in the air. Remember these key points:

- Look out for FOD
- Drive slowly – yield to aircraft
- Treat all magnetos as hot
- Stay clear of running engines – front and back
- Look down, look up, and look out

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