Ramp and Taxi Safety

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Ramp and taxi accidents are among the most avoidable kind of accidents. While most of these accidents result only in property damage, some cause life-changing injuries or even death. A few simple techniques and practices can greatly reduce the risk of having a ramp or taxi accident.

Ramp safety practices must begin when we step onto the ramp, not when we board the aircraft. Vigilance is key and we must remain acutely aware of our surroundings. Situational awareness is just as necessary when we are pedestrians on a ramp as when we are pilots in the aircraft. Any distractions such as talking on the phone or texting should be avoided. If those activities are necessary, we should select a safe spot and remain there as we complete our communications. Minor pedestrian mishaps have included a bloody forehead after walking into the trailing edge of a Cessna wing or a pitot tube and falls associated with tripping over a tiedown rope or chock. Moderate pedestrian injuries have resulted from encounters with jet blast, including being struck by loose objects such as chocks propelled by the jet blast. Of course, any bodily contact with a spinning propeller, main rotor, or tail rotor almost always results in catastrophic injury or death. Always assume that any propeller is about to spin. We must never allow any part of your body to cross the rotation plane of any propeller unless it is necessary such as to remove engine cowl plugs. Recall that the ignition system in most small GA airplanes is wired such that a failure results in the ignition system being “ON.” A faulty ignition switch, a worn key, or a broken p-lead can result in the system providing spark for ignition if the propeller is turned, even if the ignition switch is in the “OFF” position. This failure will not be noted during normal operations because the engine is typically shut down by moving the mixture control to the “LEAN” position thereby starving the engine of fuel, not of spark. Here is one step we can take to reveal a failure such as this. Just prior to shutting the engine down after a flight, with the throttle at the idle stop, momentarily turn the ignition switch to the “OFF” position. Note the sound of the engine shutting down, then immediately return the ignition switch back to the “BOTH” position and proceed with a normal shutdown. Use caution to make sure the throttle is at the idle stop and only leave the ignition switch in the “OFF” position for a second or two. Not following those two steps can result in a backfire which can cause damage to the muffler.

Performing a thorough preflight inspection is critical to the safety of flight but carries its own risks. The hazards previously mentioned also apply while performing the preflight inspection. Additional hazards include climbing to visually verify fuel levels in a high-wing airplane, safely handling fuel samples, walking into pitot tubes, and more. These hazards are multiplied when an additional person, especially a non-pilot, is present during the preflight inspection.

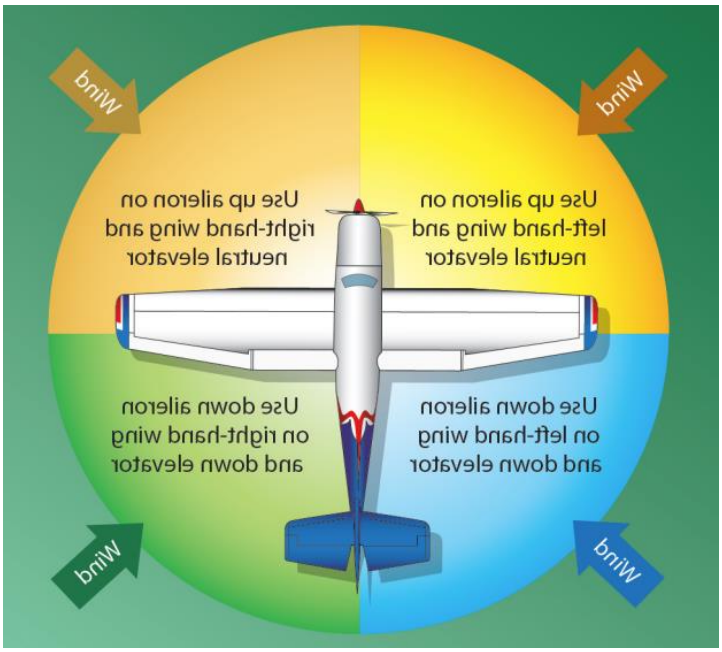
A few airplanes must be started by hand propping. Many airplanes can be started by hand propping in the event of a weak or dead battery. Hand propping is extremely dangerous and must only be performed by someone who has been adequately trained in the procedure. We will not address hand propping procedures here. Pilots should also be aware that even if an engine is started via hand propping, taking off with a weak or dead battery is not recommended. The aircraft’s charging system will not adequately charge the battery in the length of time it takes to taxi to the runway, do a runup, and takeoff. Several aircraft systems, especially landing gear retraction systems, depend on battery power to operate since the charging system alone cannot handle the electrical load.

Once in the aircraft, our responsibility expands to the safety of others and the avoidance of property damage. Prior to engine start we must establish beyond doubt that everyone is well clear of the propeller and is aware that we are about to put it in motion. In addition to looking around, there are two steps to follow. The first is to activate the rotating beacon/anticollision light. That serves as a signal to anyone in the immediate vicinity that the aircraft is about to start. Next, through an open window, provide a loud, “CLEAR PROP” announcement. Do a slow count to five so that anyone nearby has time to recognize the announcement and react. A quick “CLEAR PROP” yell immediately followed by starter activation is not sufficient.

Once the engine is running, we must never, ever, allow anyone to exit or enter our airplane. If someone must exit or enter, we must shut down the engine. When ready to go again, we must use the appropriate checklist for engine start. While the engine is running, we must be vigilant for anything that may come in close proximity to the propeller. This includes people, animals, vehicles, or other aircraft. We must be ready to shut down the engine quickly if a potential conflict becomes evident. The fastest way to stop the propeller is to turn off the ignition switch rather than to pull the mixture control to full lean.

Next comes the taxi phase of flight. Preparation is just as important for taxi as it is for flight. We must familiarize ourselves with the airport layout and follow an airport diagram. If at a controlled airport, we must copy our taxi clearance and fully understand it. If in doubt, ask ATC.

We must correctly position the controls for taxiing in wind. The diagram below (graphic source: FAA) shows the correct control positions in regard to a tricycle gear airplane.



Common taxi accidents include striking another aircraft, a vehicle, a sign, a building, or a fence. We know that generally, if we keep the nosewheel on the center line of a taxiway, we will be clear of obstacles. That works providing no one has parked an aircraft or vehicle such that it extends into the safe zone. Constant vigilance is needed as we taxi. We must have briefed our passengers prior to engine start on sterile cockpit procedures which simply means no conversation that is not necessary for the operation of the aircraft during critical phases of flight. Taxi is a critical phase of flight. We must put all our attention into the safe taxi. Radios and other avionics should be set prior to taxi. The setting of flaps and other checklist items must wait until the airplane is stopped in the runup area. This also applies to taxi after landing. Flaps, trim, lights, avionics, and other items must wait until the airplane has exited the runway and is stopped on a taxiway.

Safety in the runup area requires a bit of planning. All airports are different so we need to adapt to the situation. Sometimes we cannot be in the ideal position due to the layout and the present traffic load. But when possible, we want to avoid being positioned directly in front of or directly behind an airplane that will be doing a runup. Being behind and airplane running at high RPM means that any debris will be blown into our aircraft with substantial force. Being positioned directly in front of the runup airplane puts us at risk if the pilot fails to hold the brakes securely. This is not a small risk. A significant number of accidents have occurred when a pilot fails to secure the airplane from forward movement during a runup. And, since we do not want to be one of those pilots, we must not only set the parking brake but also hold the toe brakes during the runup. Glancing up between checklist items to make sure the airplane is not moving is also a good practice. A finger placed on the just completed checklist item before looking up will assure that nothing is skipped.

Taxiing to the ramp or hangar requires the same vigilance as taxiing out for takeoff. However, if the flight was long or difficult, the pilot may be suffering from fatigue. We need to recognize that and focus on the task of taxiing. Remember that the flight is not complete until the airplane is in the hangar or tied down.