

Tuesday, October 25, 2011

Winter Flying Tips

Twenty Things You Can Do To Stay Safe and Have Fun

By Michael Vivion, Photos by James Lawrence

Winter is as inevitable as aging, and for pilots who live in or fly to the northern latitudes, every winter will present significant challenges. Even the most prepared aviator will occasionally get caught by one of Old Man Winter's little surprises. That said, some of my most memorable flights have taken place in the depths of winter. Let's consider some tips that can make your winter flying safer and more enjoyable:



1 Dress for the environment that you'll be flying over. More than one pilot has departed from an airport in relatively balmy weather, only to arrive at an airport that's locked up after hours, and where the weather is substantially colder/windier/raining/snowing. The worst-case scenario would result from an enroute engine failure, resulting in an off-airport landing, and the subsequent wait for search and rescue to arrive, possibly with injuries. Winter flying should dictate wearing clothing appropriate to walk around in the weather and terrain you're planning to fly over.

2 Preheat your engine. When temperatures drop below about 32 deg F, I apply preheat to my engine prior to start. While the engine manufacturers place the minimum temperature for start without preheat somewhat lower, I'm a firm believer in proper preheat any time the ambient temperature (or the overnight temperature if a morning launch) is below about 32 degrees F. There are a number of very efficient engine heaters available if you have access to electricity. Without electricity, you'll have to get a little more creative, but there are also combustion heaters that work well. In any case, gentle slow heat over several hours is always better than a short blast of very high heat. Remember—your goal is to get that essential heat to the very core of that engine, and that takes a little time to penetrate the mass of the engine.

3 You need to wrap that expensive engine in an insulated engine cover. This is to make that preheat really effective on an overnight stay or for parking your airplane outdoors for a few hours without heat during a stopover. If the ambient temperatures aren't really THAT cold, you may be able to get by with something as simple as an old sleeping bag or quilt draped over the cowling, but a good-quality engine cover is both efficient and easier to keep in place in even the windiest of conditions.



4 If you're going to park outdoors in temperatures that may dip below the freezing point, you also need to acquire a good set of wing covers and carry them with you. These aren't intended to protect the paint from oxidation, but rather, they prevent the buildup of frost or ice on the flying surfaces. And, don't forget that the horizontal tail is also an aerodynamic surface, and should be covered in frosty weather.

5 Does your airplane have a winterization kit? Many manufacturers provide an oil-cooler cover, some provide "winter fronts" to block off part of the air inlets. Be careful doing the MacGyver thing though, i.e. creating your own "homemade" winterization kit. First, check for factory-provided products. Modifying the air inlets to your engine can disrupt air flow through your cowling and cause damage to your engine. Neither the airframe manufacturer nor the FAA will look kindly on such unapproved modifications.

6 Are you night-current? These winter days are much shorter than summer ones, and during the fall transition, it's easy to forget just how much shorter the daylight is as we lose three to four minutes a day. Don't let yourself fall into the trap of departing in daylight on a cross-country flight home, only to realize midflight that your arrival will be more than one hour after sunset. Spend a little time reacquainting yourself with night operations BEFORE you find yourself on that late cross-country flight.

7 Speaking of night operations, when was the last time you checked the function of all the lights on your airplane? How about the batteries in your flashlight(s)? Checking the function of ALL the lights on your plane should be a mandatory preflight item, especially during these short winter days.

8 Even after sunrise, winter lighting isn't as good as during the summer. Often, we perform preflight inspections and secure our airplanes in marginal lighting during winter. Having a good, strong flashlight is a great plan, even if flying only in daylight hours. And, don't forget spare batteries for those flashlights. The old saying goes, "A flashlight is a storage container for dead batteries."

9 About preflight inspections, it's really easy to conduct a slightly more "concise" one when the temperature hovers well below the freezing point. Again, proper dress, including good gloves and a warm hat, permits us to maintain a modicum of comfort during the preflight inspection. And, the irony is that good preflight inspections are even more important during winter months. If you're blessed with a heated hangar, I'm envious, but good on you. Years ago, I found that my preflights were much more effective when we moved our airplanes from outside tiedowns in northern Alaska to a heated hangar. And, they didn't take as long....no wing/engine covers to remove and reinstall.

10 Is your airplane equipped with wheel fairings? Slush-covered runways and temperatures hovering close to the freezing point can fill those wheel fairings with ice. Climbing into freezing temperatures will freeze this slush. Consider this factor when flying a retractable as well, and let those wheels/tires hang out there in the breeze and spin a bit longer after takeoff from a slush-covered runway to dry them off a bit prior to retraction.

11 Is your airplane equipped with a carbon-monoxide detector? If not, install one. Inexpensive replaceable CO detectors are available, or do as I did and install a panel-mounted electronic CO detector, complete with warning alarm. As temperatures cool, we use the cabin heat more, and if



cracks have developed in the muffler system over the summer, your first indication of this potentially deadly threat might be a screaming headache or worse. CO is colorless, odorless and deadly. I've been exposed to CO once courtesy of a cracked muffler, and I can attest that you really don't want to go there. I was very fortunate to have survived that encounter.

12 And, on the subject of carbon monoxide, pay particular attention during your preflight inspections to the exhaust system on your aircraft. A VERY close inspection of this critical system in the fall is a great idea and could save your life. Look for cracks, loose clamps, etc. Talk to your mechanic for tips on what to look for.

13 Do you carry survival gear in your airplane? You should—even if you never really need it—it's insurance, after all. Carrying some survival gear can offer alternatives when you divert due to weather to a small field with no services, and where everything is locked up. In the fall, I go over my survival gear and replace summer sleeping bags with cold-weather sleeping bags. At the same time, I verify that my survival kit is up to date, change out a few "summer" items for "winter" items, and ensure that everything is in good condition. There are a number of good internet resources on building a survival kit. One of my favorites is "Equipped To Survive" (www.equipped.com) written by Doug Ritter. Do a little research, and you'll be able to put together a good survival kit on your own or purchase one already made up.

14 I carry a Portable Locator Beacon along with a few items of personal survival gear on my person any time I fly. The latest generation of PLBs are slightly larger than a cell phone and cost less than \$300. In an emergency, these devices can send a signal to the Rescue Coordination Center and get help on the way. The poor man's PLB: a cell phone. That said, cellular coverage is very spotty outside towns. And, if you crash in town, you probably won't need either a PLB or a cell phone.

15 Consider a SPOT personal tracker, a Spidertracks unit or one of the other flight-tracking devices now available. The capability to communicate, albeit one way, with loved ones and friends of your status, and to provide a data track in the event of an unforeseen diversion or accident, can be even more important in cold weather than during summer months. Time can be of the essence with injuries and hypothermia in cold weather.

RESOURCES



Tanis Aircraft Products
www.tanisaircraft.com



Bruce's Aircraft Covers
www.aircraftcovers.com



If you keep your plane tied down at an outside location, then it's a good idea to wrap the engine in a good-quality insulated engine cover. You should also consider using a set of wing covers.

16 When was the last time you checked your tire inflation? Aircraft tires contain a low volume of air, and cold temperatures can decrease the tire pressure substantially. Tires are the Rodney Dangerfield of the airplane world: They don't get any respect. It's hard to visually observe low tire pressures, particularly if the airplane is equipped with wheel fairings. If your tire pressure is low to start with, flight into

colder temperatures (or rolling the airplane from a warm hangar into wintry outdoor temperatures) can lower the pressure even further. Low tire pressure may cause a tire to slip on the rim during a landing, shearing a valve stem. The result: flat tire and immobile airplane in the middle of a runway. If this happens while operating at an uncontrolled airport near dark, you've created a real hazard, and in any case, it's not going to be fun getting the thing fixed in the cold and dark.

17 A careful check of your airplane's battery at the onset of winter weather will save you considerable trouble once temperatures drop. Frequently, a weak battery will suffice right up till the temperatures drop a bit, then, "Click...." nothing. A check of electrolyte levels and battery voltage is easy and is considered preventive (as in owner-performed) maintenance. If your airplane is flown infrequently in winter, consider having a low-voltage battery maintainer (trickle charger) installed to keep it charged between flights. All batteries will lose some of their charge between cycles, and if you fly infrequently, the cold can really sap that charge.

18 The end of summer is also a good time to change your engine oil to remove contaminants and moisture from the engine and start the winter with fresh oil. If you run straight-weight oil in summer, you may want to switch to multiviscosity oil in winter. It might just pay for itself in reduced engine wear and the ability to start that one time when your engine got a LITTLE cooler than you'd like prior to a start.

19 Sometime between the first hard frost and the onset of really cold weather, take the opportunity to thoroughly clean your windshield and windows. If, like me, you park in an unheated hangar or worse yet, outdoors, this might be your last chance to thoroughly clean that collection of bugs off the windows before spring. Your airplane will also benefit from a thorough airframe wash before winter—all those bugs create drag.

20 We need to recalibrate our thinking about flying weather as we go into winter. While our biggest concerns in summer may be convective activity and occasional low ceilings, winter weather presents very different challenges to flight safety. Icing is a very real threat; winds are often stronger and frequently gusty. And, winter-weather systems often move faster and are more "energetic" than summer systems. As a

consequence, we need to shift our weather THINKING to more of a strategic mind-set, as opposed to the more tactical approach we may be able to get away with in summer flying.

Planning a cross-country flight of any significant distance in winter should include a good bit of planning well before the planned trip, and if at all possible, dates should be flexible. Remember the winter aviator's mantra: "If you have time to spare, go by air."

So, there you have it: Some ideas to help you get out and enjoy some winter flying while caring for your airplane in what can be very challenging weather conditions. But, as I noted at the beginning of this article, winter flights can be very enjoyable and safe with just a little preparation and care. Go enjoy the smoothest air of the year, along with some gorgeous sunsets and sunrises, without having to get out of bed at 4 a.m.