

WINTER OPS

NEWSLETTER

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WINTER OPS: TIPS AND TECHNIQUES

Prepare for the coming winter season with the Winter Operations Advisor from Cirrus Design Flight Standards

Winter can be one of the most enjoyable seasons in which to fly. Cooler temperatures can lead to better aircraft performance and smoother air. However, pilots should consider some of the unique challenges they will face while flying in the winter environment. Some of the obvious changes could be colder temperatures, stronger winds, and aircraft icing. Pilots should also give some consideration to topics such as winter survival, airport conditions, braking action, and engine management.



This advisor from the Cirrus Flight Standards Department focuses on some of those lesser known or discussed procedures for operating aircraft in colder environments. Planning ahead

for winter survival, in the unlikely event of an emergency, could prove to be life-saving. Also focusing extra efforts on ensuring your aircraft and engine are properly warmed and pre-flighted prior to departure can prevent excessive wear on your engine. Airport operations can also change in winter months. Digging out after a major winter storm can take time. Pilots should be aware of how to operate when snow removal equipment is operating at the airport, along with proper taxiing techniques to move aircraft that are on a snow or ice covered airport.



Hazards of Winter

Winter flying comes with a unique set of challenges that pilot's must prepare for. Frost, snow, and /or ice may accumulate on your aircraft overnight. The best practice is to remove all frost, snow, and ice prior to attempting take off. Putting your aircraft in a heated hangar or the use of de-icing fluid can help clear the aircraft's surfaces.

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Winter Survival

While not pleasant to consider, pilots should be aware of the possibility of a forced landing in the winter months.

Winter can bring with it bitter cold temperatures and high winds. These conditions can make survival a challenge. Pilots should plan ahead and carry a survival kit on all



flights. Pilots are also encouraged to operate under either a VFR or IFR flight plan. When flying over sparsely populated terrain, pilots should consider routes that will keep them closest to major highways, towns, or airports in case an urgent situation develops.

Survival Kits

Survival kits for cold weather should contain at a minimum:

- Blankets
- Pyrotechnic devices
- Water
- Food



Preparing for the Elements

The contents of survival kits can vary and pilots should assess all applicable tools for survival. Examples of the contents that survival kits could include are:

- Blankets, hand warmers, gloves, hats
- Pyrotechnic devices, storm-proof matches, flares, flashlights, batteries
- Water, non-perishable food, zip lock bags
- Sunscreen, insect repellent, first aid kits
- Knives, safety whistles, snow shovel



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Braking Action

Braking action can be reported from pilot reports: good, fair, poor, and nil, or from MU (pronounced “myew”) values. MU values range from 0 to 100 (lowest to maximum friction values). MU values less than 40 are considered the point where aircraft braking performance starts to decrease. The closer the value gets to zero, the more braking action has deteriorated. Braking action reports and MU values should be used with caution.

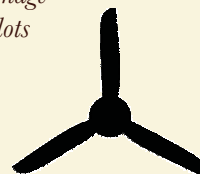
With the previous comments considered, Good braking action occurs when directional control of the aircraft is normal and deceleration is normal for the amount of braking applied. Fair (sometimes called medium) occurs when directional control may be slightly reduced and braking deceleration is noticeably reduced. Poor braking action occurs when directional control and braking deceleration is significantly reduced. Nil braking action occurs when deceleration is minimal to nonexistent and directional control may be uncertain. Pilots are strongly advised not to operate when nil conditions exist. (Reference: Air Line Pilot Nov/Dec 2006, Capt. Bill deGroh, “Rink or Runway”)

Pilots should exercise extreme caution when braking action is poor or less and / or MU values are less than 20. Consider wind direction and speed, runway distance, and alternate airports prior to attempting a landing.



Monitoring Your Engine

Special care should be given when pre-flighting a cold soaked engine. If the engine has been exposed to temperatures below 20 degrees fahrenheit for two hours or more, the use of an external pre-heater and external power are recommended for engine starting. Failure to properly pre-heat the engine may result in oil congealing within the engine, oil hoses, and oil cooler with subsequent loss of oil flow, possible internal damage to the engine, and subsequent engine failure. Pilots should install air restrictors when ambient temperatures fall below 20 degrees fahrenheit. Special care should be used to keep cylinder head temperatures as warm as possible when flying in cold weather.



When getting in or out of the aircraft, be careful as wing walks can be slick.

Buried Treasure?

After a major snowstorm, pilots may have to dig out their aircraft. When removing snow from around aircraft, take special care to prevent damage to the aircraft's exterior. Snow removal equipment may help, but ensure the operators are properly trained to work closely around aircraft. Pilots should consider shovels, brushes, and de-icing fluid to clear the aircraft of snow and ice. When tugging aircraft, use caution and drive slowly to prevent losing control of the tug or aircraft.

After the aircraft is removed, a good pre-heat of the aircraft may be the best way to remove ice and snow from the aircraft. Putting the aircraft in a heated hangar will also help to pre-heat and warm the engine prior to engine start. Obviously this process can take some time, and pilots should plan accordingly when conducting flight operations after a major snowstorm. Depending on the location, the airport itself may need time clearing runways, taxi-ways, and ramp areas. Use extra caution for snow removal equipment when operating after a snow storm.

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Ice Storms

Aside from the obvious dangers ice storms present to transportation, also consider the location of your aircraft during the storm. Ice storms can weigh down trees, power lines, and even roofs! Give careful consideration if forced to leave your aircraft in an ice storm. (Photos courtesy of Mike Young)

Conclusions

Flying during the winter months can provide beautiful scenery, smooth air, and great visibilities. As with all flights, pilots should consider any changes that have occurred since the last time they've flown. Colder temperatures, blowing snow, and snow removal operations are all things that could have an effect on the operation of the flight.

Spend time reflecting and considering the best route of flight. While not pleasant, in case of an emergency, carefully review airports along the intended route and consider re-routing the trip to stay near populated areas if flying in bitter cold, especially at night.

When operating at airports, realize that runways and taxi ways can change quickly before, during, and after a winter storm. Realize that braking action and MU value reports provide a basis upon

which to begin determining airport conditions. Extra consideration should be given to runway length and crosswind components. Cirrus encourages no more than a 10 knot crosswind component on a contaminated runway, or any runway that is not clear and dry.

Warming your aircraft prior to departure will help prevent excessive engine wear, and help to remove snow and ice from your aircraft prior to flight. Pilots can also use external pre-heaters and de-icing fluid to assist in cleaning the aircraft. Use extra caution when removing snow from around your aircraft to prevent inadvertently damaging the aircraft.

Taking a little additional planning and preparation before flying in the winter months can ensure that you and your passengers have safe and enjoyable flights and that you will reach your destinations safely.



WINTER OPS CHECKLIST

	Completed	Incomplete	Not Applicable
Preflight planning complete			
Weather checked			
Aircraft clear of snow / ice			
Airport sufficiently cleared of snow			
Survival equipment packed and checked			
Engine properly warmed before start			