



EAA Chapter 100 February 2023 Newsletter

<http://eaa100.org>

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EAA Chapter 100 is a nonprofit association involved in the promotion of aviation through adult and youth education, hands-on training, building and maintenance of experimental aircraft, and through community awareness programs.

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Reader submissions and comments are strongly encouraged.

February Meeting

– Dwayne Hora

Reminders:

Next Chapter meeting is on Friday, February 10, at 7 pm at the Dodge Center Airport Admin Building. I will not be attending the February meetings (in Texas 1/28–2/19). VP Ken Chase will be conducting the February meeting. BoD meeting February 28.

Dwayne Hora
EAA Chapter 100
President



FAA Winter Flying Tips

-- FAA

Editor: This is a continuation taken from FAA Winter Flying Tips P-8740-24.pdf. For the complete article please use url: <https://www.faasafety.gov/files/gslac/library/documents/2020/Oct/262416/FAA%20Winter%20Flying%20Tips%20P-8740-24.pdf>

Operation of Aircraft

Aircraft Preheat

Low temperatures can change the viscosity of engine oil, batteries can lose a high percentage of their effectiveness, instruments can stick, and warning lights, when "pushed to test," can stick in the pushed position. Because of the above, preheat of engines as well as cockpit before starting is considered advisable in low temperatures. Use extreme caution in the preheat process to avoid fire. The following precautions are recommended:

- Preheat the aircraft by storing in a heated hangar, if possible.
- Use only heaters that are in good condition and do not fuel the heater while it is running.

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A Note from the Treasurer

-- Chris Budahn

Just one final reminder that the chapter dues are \$10 per year. I'm looking forward to an active year with a strong chapter. It will be exciting to watch the progress of those who have started build projects recently.

Happy Flying,

Chris Budahn
6525 County 30 BLVD
Kenyon, MN 55946



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- During the heating process, do not leave the aircraft unattended. Keep a fire extinguisher handy for the attendant.
- Do not place heat ducting so it will blow hot air directly on parts of the aircraft; such as, upholstery, canvas engine covers, flexible fuel, oil and hydraulic lines or other items that may cause fires.
- Be sure to follow the manufacturer's procedures.

Engine Starts

In moderately cold weather, engines are sometimes started without preheat. Particular care is recommended during this type of start. Oil is partially congealed and turning the engines is difficult for the starter or by hand. There is a tendency to overprime, which results in washed-down cylinder walls and possible scouring of the walls. This also results in poor compression and, consequently, harder starting. Sometimes aircraft fires have been started by overprime, when the engine fires and the exhaust system contains raw fuel. Other fires are caused by backfires through the carburetor. It is good practice to have a fireguard handy during these starts. Another cold start problem that plagues an unpreheated engine is icing over the spark plug electrodes. This happens when an engine only fires a few revolutions and then quits. There has been sufficient combustion to cause some water in the cylinders but insufficient combustion to heat them up. This little bit of water condenses on the spark plug electrodes, freezes to ice, and shorts them out. The only remedy is heat. When no large heat source is available, the plugs are removed from the engine and heated to the point where no more moisture is present. Engines can quit during prolonged idling because sufficient heat is not produced to keep the plugs from fouling out. Engines which quit under these circumstances are frequently found to have iced-over plugs. After the engine starts, use of carburetor heat may assist in fuel vaporization until the engine obtains sufficient heat.

Radios

Radios should not be tuned prior to starting. Radios

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Secretary Comments

-- Jeff Hanson

EAA Chapter 100

Chapter 100 meetings

Here are the minutes from the January meeting:

- 10 members and 3 guests present
- Brad reported that the artwork is in for the Chapter T-shirts and the aprons are done.
- Brad brought up replacing the sectional displayed on the FBO wall. Measurements were taken and it will be looked into.
- The calendar was passed around for meeting host sign-ups. A number of months were filled but there are still openings. Please consider it and let Dwayne know if you are interested. If you have a project you are working on, consider hosting a meeting at your shop. Everyone would enjoy it.
- Young Eagles dates were announced. The Spring event will be May 20th with a rain date of the 27th and the Fall date is set for September 16th with a rain date of the 23rd.
- Gordy brought up that there are a number of miscellaneous avionics accessories in the Chapter inventory that are free to give away if you have a use for them. Feel free to browse the stock and let Gordy know if you want something.
- Ken Chase brought up the topic of chapter enthusiasm and discussion followed. If anybody has ideas for chapter functions or projects, please bring them to the next meeting. We are looking for ideas.
- Gordy presented the idea of the chapter building a selection of pedal planes to be raffled off at the pancake breakfast or other chapter/community events. The idea was met with positive feedback. More discussion to follow.

Respectfully submitted,

Jeff Hanson

Chapter Secretary

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should be turned on after the aircraft electrical power is stabilized, be allowed to warm up for a few minutes, and then be tuned to the desired frequency.

Ice, Snow, and Frost

A common winter accident is trying to take off with frost on the wing surface. It is recommended that all frost, snow, and ice be removed before attempting flight. It is best to place the aircraft in a heated hangar. If so, make sure the water does not run into the control surface hinges or crevices and freeze when the aircraft is taken outside. Don't count on the snow blowing off on the takeoff roll. There is often frost adhering to the wing surface below the snow. Alcohol or one of the ice removal compounds can be used. Caution should be used if an aircraft is taken from a heated hangar and allowed to sit outside for an extended length of time when it is snowing. The falling snow may melt on contact with the aircraft surfaces and then refreeze. It may look like freshly fallen snow but it usually will not blow away when the aircraft takes off. If an aircraft is parked in an area of blowing snow, special attention should be given to openings in the aircraft where snow can enter, freeze solid, and obstruct operation. These openings should be free of snow and ice before flight. Some of these areas are as follows:

- Pitot tubes
- Heater intakes
- Carburetor intakes
- Anti-torque and elevator controls
- Main wheel and tail wheel wells, where snow can freeze around elevator and rudder controls.

Fuel Vents

Fuel tank vents should be checked before each flight. A vent plugged by ice or snow can cause engine stoppage, collapse of the tank, and possibly very expensive damage.

Taxi

Braking action on ice or snow is generally poor. Short turns and quick stops should be avoided. Do not taxi

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through small snowdrifts or snow banks along the edge of the runway. Often there is solid ice under the snow. If you are operating on skis, avoid sharp turns, as this puts torque on the landing gear in excess of that for which it was designed. Also for ski operation, make sure safety cables and shock cords on the front of the skis are carefully inspected. If these cables or shock cords should break on takeoff, the nose of the ski can fall down to a near vertical position which seriously affects the [aerodynamics](#) efficiency of the aircraft and creates a landing hazard. If it is necessary to taxi downwind with either wheels or skis and the wind is strong, get help or don't go. Remember, when you are operating on skis, you have no brakes and no traction in a crosswind. On a hard-packed or icy surface, the aircraft will slide sideways in a crosswind and directional control is minimal particularly during taxiing and landing roll when the control surfaces are ineffective.

Takeoff

Takeoffs in cold weather offer some distinct advantages, but they also offer some special problems. A few points to remember are as follows:

- Do not overboost supercharged engines. This is easy to do because at very low density altitude, the engine "thinks" it is operating as much as 8,000 feet below sea level in certain situations. Care should be exercised in operating normally aspirated engines. Power output increases at about 1% for each ten degrees of temperature below that of standard air. At -40 degree F, an engine will develop 10 percent more than rated power even though RPM and MP limits are not exceeded.
- If the temperature rises, do not expect the same performance from your aircraft as when it was operated at the lower density altitudes of cold weather.
- Use carburetor heat as required. In some cases, it is necessary to use heat to vaporize the fuel. Gasoline does not vaporize readily at very cold temperatures. Do not use carburetor heat in such a manner that it raises the mixture temperature barely to freezing or just a little below. In such cases, it may

be inducing carburetor icing. An accurate mixture temperature gauge is a good investment for cold weather operation. It may be best to use carburetor heat on takeoff in very cold weather in extreme cases.

If your aircraft is equipped with a heated pitot tube, turn it on prior to takeoff. It is wise to anticipate the loss of an airspeed indicator or most any other instrument during a cold weather takeoff – especially if the cabin section has not been preheated. During climbout, keep a close watch on head temperature gauges. Due to restrictions (baffles) to cooling air flow installed for cold weather operation and the possibility of extreme temperature inversions, it is possible to overheat the engine at normal climb speeds. If the head temperature nears the critical stage, increase the airspeed or open the cowl flaps or both.

En Route

Weather

Weather conditions vary considerably in cold climates. In the more remote sections of the world weather reporting stations are generally few and far between and reliance must be placed on pilot reports. However, don't be lured into adverse weather by a good pilot report. Winter weather is often very changeable; one pilot may give a good report and five or ten minutes later VFR may not be possible. Remember, mountain flying and bad weather don't mix. Set personal limits and stick to them. Snow showers are, of course, quite prevalent in colder climates. When penetration is made of a snow shower, the pilot may suddenly find himself without visibility and in IFR conditions. Snow showers will often start with light snow and build. Another hazard which has claimed as its victims some very competent pilots is the "whiteout." This condition is one where within the pilot's visibility range there are no contrasting ground features. Obviously the smaller the visibility range the more chance there is of a whiteout; however, whiteout can occur in good visibility conditions. A whiteout condition calls for an immediate shift to instrument flight. The pilot should be prepared for this both from the standpoint of training and aircraft equipment.

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Newsletter Editor

-- Art Howard

Jean and I left Minnesota on Wednesday, January 11, 2023. We arrived in Florida on Saturday, January 14, after visiting my daughter in Tennessee. Sunday, January 22, we arrived in Indiantown, Florida and our boat was launched on Monday.

Unfortunately, someone messed with the power distribution and switched the neutral with the hot wire for 120 volts and my boat shut down all electrical. It monitors for the correct polarity, which is very important if you are at a dock in salt water! The result was the battery maintainer was off and the dehumidifier was off. We are now cleaning a lot of mold from every thing in the living area of the boat. Certainly has set us back on enjoying the warmer weather here. The good side is we have not shoveled any snow since arriving in Indiantown!

I scheduled CFI Spin Training and flew in an Extra EA-300. We were at a 1,000 feet on take-off by the time we reached the end of the runway! It was certainly an interesting flight. By the time I passed the spin test, I was ready to land. I am just not used to flying in an aerobatic aircraft! We pulled three plus G's and one negative G at various times during the flight. The negative occurred when the instructor went inverted in level flight to check the tightness of our harness. We also wore parachutes. Another memorable flight in my aviation journey!

See you around the patch

I need more articles from the membership. Please send your articles and pictures to alhowar@attglobal.net.

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Carburetor Ice

Three categories of carburetor ice are:

- **Impact ice** - Formed by impact of moist air at temperatures between 15 and 32 degrees F on air-

scoops, throttle plates, heat valves, etc. Usually forms when visible moisture such as rain, snow, sleet, or clouds are present. Most rapid accumulation can be anticipated at 25 degrees F.

- **Fuel ice** - Forms at and downstream of the point where fuel is introduced, and occurs when the moisture content of the air freezes as a result of the cooling caused by vaporization. It generally occurs between 40 and 80 degrees F, but may occur at even higher temperatures. It can occur whenever the relative humidity is more than 50 percent.
- **Throttle ice** - Forms at or near a partly closed throttle valve. The water vapor in the induction air condenses and freezes due to the venturi effect cooling as the air passes the throttle valve. Since the temperature drop is usually around 5 degrees F, the best temperatures for forming throttle ice would be 32 to 37 degrees F although a combination of fuel and throttle ice could occur at higher ambient temperatures.

In general, carburetor ice will form in temperatures between 32 and 50 degrees F when the relative humidity is 50 percent or more. If visible moisture is present, it will form at temperatures between 15 and 32 degrees F. A carburetor air temperature (CAT) gauge is extremely helpful to keep the temperatures within the carburetor in the proper range. Partial carburetor heat is not recommended if a CAT gauge is not installed. Partial throttle (cruise or letdown) is the most critical time for carburetor ice. The recommended practice is to apply carburetor heat before reducing power and to use partial power during letdown to prevent icing and overcooling the engine.

To prevent carb ice:

- Use carb heat ground check
- Use heat in the icing range
- Use heat on approach and descent

Warning signs of carb ice include:

- Loss of rpm (fixed pitch)
- Drop in manifold pressure (constant speed); rough running

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Pilot response to warning signs should be:

- Apply full carb heat immediately (may run rough initially for short time while ice melts)

In the chart below, the red hatch marks indicate conditions known to be favorable for carburetor icing. The severity of this problem varies with different types, but this chart is a guide for the typical light aircraft. Light icing over a prolonged period may become serious. When you receive a weather briefing, note the temperature and relative humidity and consult this chart

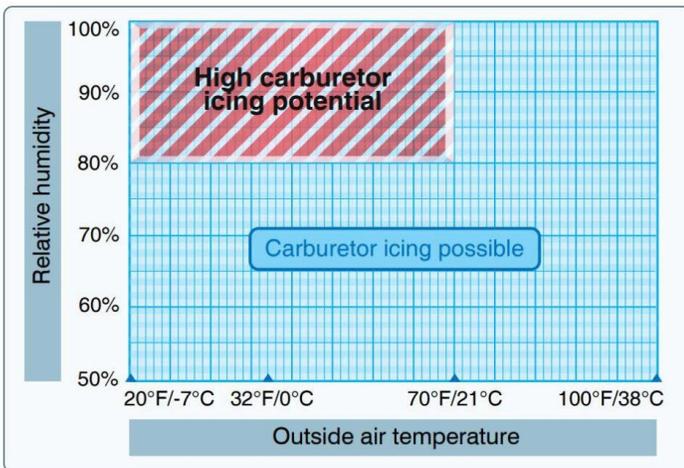


Figure 7-12. Although carburetor ice is most likely to form when the temperature and humidity are in ranges indicated by this chart, carburetor icing is possible under conditions not depicted.

Carbon Monoxide Poisoning

Don't count on symptoms of carbon monoxide to warn you: It's colorless, odorless, and tasteless, although it is usually found with exhaust gases and fumes. If you smell fumes or feel any of the following symptoms, you should assume that carbon monoxide is present.

Initial symptoms include feelings of sluggishness, warmth, and tightness across forehead, followed by headache, throbbing, pressure at the temples and ringing in the ears. Severe headache, nausea, dizziness, and dimming of vision may follow. If any of the above conditions exist, take the following precautions:

- Shut off the cabin heater or any other opening to the engine compartment.
- Open a fresh air source immediately.
- Don't smoke.

EAA Young Eagles Pilot Requirements

-- EAA

Editor: This is from the EAA Young Eagles **Pilot Guidelines** brochure: **Pilot Requirements**

The Young Eagles pilot requirements are basic, but **MUST** be followed.

- ◆ Be a current EAA® member and hold an appropriate airman's certificate (sport pilot or greater)
- ◆ Possess a current medical certificate (if applicable)
- ◆ Be current to carry passengers in the aircraft you plan to use
- ◆ Have a current flight review
- ◆ Complete the Young Eagles registration form before the flight, including parent or legal guardian signature, and pilot signature
- ◆ Conduct flights in an aircraft that is in airworthy condition
- ◆ Have aircraft passenger liability insurance for the aircraft used (owned, rented, or borrowed)
- ◆ Adhere to all applicable Federal Air Rules (FARs)
- ◆ Complete both the online training and basic background check as a part of EAA's Youth Protection Policy. For more information, visit EAA.org/YouthProtection.

Editor: Make sure you are current to fly Young Eagles at the EAA Chapter 100 Young Eagles events.

- Use 100 percent oxygen if available.
- Land as soon as possible.
- Be sure the source of the contamination is corrected before further flight

Spatial disorientation can also be expected any time the pilot continues VFR flight into adverse weather conditions. Flying low over an open body of water during low visibility and a ragged ceiling is another ideal situation for disorientation.

Editor: To be continued in the March Newsletter. If you cannot wait, please use url at the beginning of this article to read the rest of this Winter Flying Tips article.

Note: Even in March, there can be cold winter temperatures!
