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# EAA Chapter 569 Newsletter

Lincoln, NE



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## Meeting Announcement

### No meeting in December.

We'll have a Business Meeting via Zoom in December. Watch your email for the invite.

Also, the Chapter 569 Christmas Party originally scheduled for December 5<sup>th</sup> has been postponed.



### President's Message Tom Winter

I close as I began, with gratitude. Leaving office, I feel sort of like a guest leaving a banquet, and thanking his host! Tom Trumble, our incoming president, has been a wonderworking vice president, treasurer Cristi Higgins has been a wonderful go-to resource. Jerry Mulliken has served well as our secretary, and I look forward to Don Osborne stepping in as vice president. And Doug Volkmer is the glue holding it all together, continuing as webmaster and newsletter editor.

I thank them all for agreeing to serve the Chapter in 2021.

And I must speak of Lori Oliveros: When we put her officially in charge of the Fly in Breakfast, we learned what a great manager she is. Where do you find such people? Why, in the EAA, of course!

Yes, I enjoyed being chapter president this year, and even enjoyed trying to tie it all together in spite of the pandemic. Our zoom meetings got the "business" attended to swiftly, directly — and closed by being Max Headroom style get-togethers. This pandemic is now worse than ever, but the darkness is greatest before the dawn.

### Tom Sawyer and Jimmy Olsen Aloft in the PIREPS Press Plane

*By Tom Winter*

Tom Sawyer never ever had a GPS, but he did Fly: Mark Twain wrote a novella in which Tom and Huck were up in an airship. They were over the Sahara Desert admiring the dunes and philosophizing over the limits of human mortality inspired by seeing the dried out remains of a sandstormed caravan down below when they had to go back because Tom's corncob pipe broke apart. Corncob pipes aren't forever, and what you gonna do? Yup. have to go back to Aunt Polly.

And as for Jimmy Olsen, cub reporter for the Daily Planet, there are some local airport news stories he's been following. We were up two hours today. No GPS, so Tom and Jimmy found their way by pilotage: compass heading, windage correction, landmarks, chart, just like they taught in pilot school. Start on the ground with the chart, select the compass heading, then, when up, make the wind correction, then match landmarks to the chart. Of course, in our private pilot training, we worked out the wind correction on the ground, with the

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E6-B. Ha! Instead of turning the whiz wheel, sight a landmark ahead that is on our course, and swing the nose around until — no matter where the nose is aimed, we are actually going on course. And THAT gives the wind correction. I miss the GPS only for the groundspeed and the ETA. The rest: all good. The view: Eastern Nebraska, with all the Pleistocene glacial till hills that I hate as a bicyclist, never fails to provide an interesting landscape. Hills, streams and streamlets, little canyons... Often Tom Sawyer wants to be down there exploring, or be at play on that isle. Platte and Loup just like the Mississippi: Tom Sawyer should be on that island.

On the ground, Tom Sawyer turns into Jimmy Olsen, who interviewed a city council member who was at the Fremont Airport:

The Fremont Airport Advisory Committee has approved Davis Design's plan for their new terminal. Yay! (Tom is irrepressible.) The Fremont City Council will vote it up or down Tuesday night. So, as you are reading this, it has already happened. I'm betting that the City Council is down with the governor's goal that Costco — with their new \$450M campus with 800 employees — has a great experience with Fremont, and that the new terminal building will be voted up with hosannas. "What we're focused on (now) is making sure their experience with this (Fremont) plant

is a great one," the governor said at the Costco opening. Davis is also, as you read here last month, the company designing the upgrades for the Lincoln Airport terminal. An off note: When Fisher Foods was pressing chickens near downtown Lincoln, there was a chicken-processing-plant smell. Like feathers being burned or something.

At Seward, we caught Greg Whisler and four A&P employees at lunch in the hangar loft. They are busy.

The ten nested T hangars, that the Seward Airport Authority put in for in August 2018, are up, and they are filling up. They are beautiful, and as you taxi by the "new car smell" simply radiates.

At Omaha Approach, there's a controller who habitually recites "five" as "nine." Pronouncing by the book and distinctly speaking "Two eight eight FIFE Sierra" is no help. He still says "Nine." Not "niner," the by-the-book pronunciation, but "Nine." Today it mattered. Approach told me to contact Lincoln Tower. Tower told me to contact Approach. Approach sent me back to try Tower again. Why? Approach had put on the wrong tail number. They make up something. Never again. I have checked the FAA Registry, and next time he wants me flying around under a pseudonym, I'll tell him "2889 Sierra is registered to a Cessna in Kodiak, Alaska. THIS is 2885 S."

## Cold Weather Operations

*From Lycoming*

A note that came in the mail from a Flyer reader included a suggestion that went something like this, "How about an article dealing more extensively with the cold-start problem?" This suggestion was a good one as it provided an opportunity to share information about a variety of cold-weather considerations to help get the engine started and to keep it operating during cold-weather conditions.

Although the suggestion made in the first paragraph was aimed at helping with cold-weather starting, this article has been expanded to include tips and information on preflight, starting, in-flight safety and engine operational considerations. Keep in mind that this material deals with normal cold-weather operation experienced at temperatures to -25° F, and not the extremely low temperatures that may be found in Arctic regions. Operation in those regions may require more specialized knowledge.

Let's start with the general health of the engine. When attempting a start under adverse conditions, it is imperative that the engine be well maintained and in excellent operating condition. Spark plugs and magneto points should be properly gapped and ready to function effectively. In addition to the ignition system, the proper functioning of other systems such as induction, priming, exhaust and carburetor heat can have an effect on the starting and operation of the engine.

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Regular maintenance should include having the heating system checked for leaks. This cold-weather tip is worthy of a separate little sentence all its own – remember, you can't smell carbon monoxide.

In cold weather, preheat is another factor that must be considered prior to starting the engine. There are specific guidelines in Lycoming service instructions which establish when preheat should be used, but how much, or the method of preheat is generally left to the good judgment of the pilot or maintenance person doing the preheating. Use of the heated dip stick is not recommended by Lycoming, although most other methods are considered to be satisfactory. For most Lycoming models, preheat should be applied anytime temperatures are at 10° F or lower. The exception to this rule is the 76 series models that include the O-320-H, and the O/LO-360-E. These engines should be preheated when temperatures are below 20° F. It is recommended that these guidelines be followed even when multi-viscosity oil is being used. In addition to hard starting, failure to preheat the entire engine and oil supply system as recommended may result in minor amounts of abnormal wear to internal engine parts, and eventually to reduced engine performance and shortened TBO time.

Water is one of the most likely contaminants of aviation gasoline. The engine will not run on water, and although we may get away with small amounts of moisture in the fuel during warm weather, flight into freezing temperatures makes any amount of moisture in the fuel

system very critical. Even a tiny bubble of moisture may freeze in the fuel line and totally cut off the flow of fuel. Two steps should be taken to avoid this problem. First, avoid water contamination if possible. Keep fuel tanks full to prevent condensation, and be sure fuel caps do not allow leakage if the aircraft is parked outside in rain or snow. Second, look for contamination before every flight by religiously draining fuel tanks and sumps.

If flight is planned for bad weather, the preflight inspection should include observation of the relief opening in the engine breather tube so that any freezing of moisture at the end of the breather will not result in a loss of engine oil.

Once on board the aircraft, check the fuel-selector valve for freedom of movement. It may be frozen fast (this has happened), and you'd better find out while still on the ground.

Most of the time, we think of starting any engine as a very simple process. Just engage the starter, and listen for the engine to start purring. Unfortunately, when the weather turns cold, it is not always that simple. When dealing with a reciprocating aircraft engine, it may be essential to get a start on the first try in order to avoid icing over the spark plugs and making an immediate start impossible. In order to achieve a start on the first try, there are a number of factors to be considered. Those factors will be discussed in the following paragraphs.

Although it might be good procedure to use an external power source for starting during very cold weather, most of us expect our battery to do the job. We should

remember that the battery is handicapped by cold weather. Particularly when a single-viscosity oil is being used, the colder the temperature, the more cranking energy required. Combine this with reduced battery output at lower temperatures, and it can be a serious handicap.

While on the subject of batteries, remember that freezing temperatures provide a perfect opportunity to destroy an aircraft battery. The battery with a full charge survives nicely, but one that is discharged will freeze. Once this happens, the problem can only be remedied by replacing the battery, so it is very worthwhile to take preventive measures. Should the battery be run down during an attempt to start, do not leave it; get it charged immediately. And finally, be absolutely certain that the master switch is always OFF while the aircraft is parked between flights. If left on, the battery will discharge and freeze. These rather minor mistakes can be quite expensive.

Oil is another factor to be considered in the cold-weather starting process. All oils are affected by temperature and tend to thicken as the temperature drops. The engine may be reluctant to turn over when the oil is stiff; a summer weight oil is not suitable in cold weather. It is also the condition which brings out the primary advantage of multiviscosity oils and of preheating. Because multiviscosity oils are thinner (lower viscosity), they allow the engine to be turned over more easily. The easier and quicker oil flow also promotes faster lubrication of internal engine parts

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when the engine does start. Since the proper oil viscosity is so important in all aspects of engine starting and operation, the recommendations of oil grade vs. temperature range shown in Lycoming Service Instruction No. 1014 should be followed.

Probably the most important factor in starting an engine is achieving a fuel/air mixture that is satisfactory for combustion. Since the engine usually starts very easily, many pilots are unaware of or ignore the change of starting procedure needed to successfully start under varying temperature conditions. In warm weather, the air is less dense, and therefore must be mixed with a lesser amount of fuel than in cold weather. In addition to this, in warm weather, the fuel will vaporize readily and make starting easier. Simply stated, as temperatures go down it becomes more and more important that we have a plan for priming that will achieve the correct fuel/air mixture.

When priming a carbureted engine, the pilot's plan must consider the temperature, the number of cylinders which have priming lines installed, and the number of strokes of the primer needed to produce the correct fuel/air mixture. The primer lines are ordered or installed by the airframe manufacturer and not all aircraft are configured the same. Some aircraft have actually been produced with only one cylinder being primed, and these engines are extremely hard to start in cold weather. The number of cylinders that are primed must be considered since the total fuel delivered by the primer will be divided and sent to

these cylinders. As the air becomes colder and denser, the amount of primer used must be increased, but the number of strokes to be used should be planned as a result of some trial and error experimentation for each aircraft a pilot flies. When the correct number of primer strokes for each temperature range has been established, the engine will usually start very quickly. We may find that an engine starts easily when one stroke of the primer is used in the 60° range, two strokes in the 50° range, three strokes in the 40° range, etc. This is an example of the trial and error we might use to establish the number of primer strokes to use under any particular temperature condition.

While discussing the priming of an engine, there have been situations where primer lines become clogged. This makes engine starting difficult and negates any trial and error experimentation that may have been done. When maintenance is done on an aircraft before the start of winter, it may be wise to have those primer lines checked to ensure that fuel will flow through them.

The amount of fuel needed to achieve the correct fuel/air mixture for starting a fuel-injected engine is controlled by timing rather than number of primer strokes. With the electric fuel pump on, moving the mixture control to the rich position allows fuel to flow to the cylinders. For cold-weather starting, it may be necessary to keep the mixture control in rich somewhat longer than in warm weather.

The fuel part of the fuel/air mixture may be the part we have the most control over during the engine start, but keep in mind that the

amount of throttle opening does have an effect on the air that is pumped through the engine. Just as we compensate for cold/dense air by adding more fuel for start, it may also be appropriate to reduce the air part of the mixture when the temperature is very cold. For example, if the throttle is normally set open one-half inch for warm weather starting, it may be helpful to reduce this to one-quarter inch in cold weather. Again, it will require some experimentation to determine what is needed to achieve the correct fuel/air mixture for any particular aircraft at any temperature range.

When an engine does not start easily, it can be frustrating. Of course, this can occur at any time of the year, and it is very tempting to just keep grinding away with the starter in an attempt to get it going. Should this happen to you, RELAX. Take care of that starter, or it may fail. The general rule for starters is that they should only be operated for short periods, and then allowed to cool. If engine start has not occurred after three 10-second periods of operation with a pause between each, a five-minute cooling off period is required. Without this time limit for operation and an adequate cooling off period, the starter will overheat and is likely to be damaged or to fail completely.

The previous paragraphs have addressed several issues that relate to the cold-weather preflight and the cold-weather start. There are other cold-weather items that should be considered in the operation of the engine.

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Assuming the engine has kicked off, check for an indication of oil pressure. Learn the characteristics relative to response of oil pressure indications of your aircraft/engine combination. On most single-engine aircraft, an almost immediate response is noted. On twin-engine aircraft, the response may be much slower. On some twins, the oil pressure may go up, and during warm-up, may drop again for a short period of time, then again rise to normal. All cases mentioned may be normal, but the important thing is to know what to expect from your aircraft/engine combination.

After start, do not idle engine below 1000 RPM. It's not good practice to idle engines below 1000 RPM at any time. This is particularly true during cold weather to prevent lead fouling of spark plugs. (Exception – Piper Pressurized Navajo)

Now, here's a tip for novice pilots. When setting up for cruise configuration, be precise, read your instruments and remember what you read. Example: If you decide on 22" of manifold pressure, set it right on 22. If the RPM is to be 2350, make it 2350. Select an altitude. Trim the aircraft to hold that selected altitude. Note airspeed. Now, if anything changes, barring turbulent air, it has to be a change in power. Perhaps it is carburetor or induction-air icing. Suppose you picked up a bit of carburetor ice, and the engine suffers a slight power loss. There will be a slight drop in manifold pressure, a loss in airspeed, and the aircraft will want to lose altitude, and if you hold altitude, you'll find back pressure on the wheel is required. Therefore, even though

you didn't discover the power loss through instrument scanning, you'll get a warning through the "heavy" wheel or stick.

During flight in very low temperatures, exercise constant speed props about every 30 minutes to help prevent congealing of oil in the prop dome.

Should one engine of a twin, for any reason, indicate the prop must be feathered, don't tarry too long with reduced power in very cold weather. At reduced power, the oil may congeal making feathering an impossibility.

A tip for every pilot, don't run one set of fuel tanks nearly dry before switching tanks. Switch with plenty of fuel remaining in the tanks first used. This is "money in the bank," should you find the selector valve frozen.

Although carburetor ice is not necessarily a wintertime phenomena, a check of carburetor heat should be made during the engine runup. Generally speaking, we can say that carburetor heat should never be used for takeoff, but there is one exception. This exception occurs when operating in temperatures so cold that application of carburetor heat produces a rise in RPM. Most pilots will never find themselves in circumstances which require use of carburetor heat for takeoff and climb; those who fly carbureted engines will almost certainly have occasion to use carburetor heat during cruise or let down. Use of the full-hot or full-cold position is recommended. An intermediate setting should only be selected if the aircraft is equipped with a carburetor air temperature (CAT) gauge.

Engine operating temperature is another item that is not usually given enough consideration in cold weather. We usually are very cautious about high oil temperature which we know is detrimental to good engine health, while a low oil temperature is easier to accept. The desired oil temperature range for Lycoming engines is from 165° to 220° F. If the aircraft has a winterization kit, it should be installed when operating in outside air temperatures (OAT) that are below the 40° to 45° F range. If no winterization kit is supplied and the engine is not equipped with a thermostatic bypass valve, it may be necessary to improvise a means of blocking off a portion of the airflow to the oil cooler. Keeping the oil temperature above the minimum recommended temperature is a factor in engine longevity. Low operating temperatures do not vaporize the moisture that collects in the oil as the engine breathes damp air for normal combustion. When minimum recommended oil temperatures are not maintained, oil should be changed more frequently than the normally recommended 50-hour change cycle. This is necessary in order to eliminate the moisture that collects and contaminates the oil.

And finally, power-off letdowns should be avoided. This is especially applicable to cold-weather operations when shock-cooling of the cylinder heads is likely. It is recommended that cylinder head temperature change not exceed 50° F per minute. Plan ahead, reduce power gradually and maintain some power throughout

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the descent. Also keep the fuel/air mixture leaned out during the descent. If an exhaust gas temperature gauge is installed with a normally aspirated engine, keep it peaked to ensure the greatest possible engine heat for the power setting selected; for a turbocharged installation, lean to peak during descent unless otherwise specified in the Pilot's Operating Handbook, or under conditions where the limiting turbine inlet temperature would be exceeded.

Exposure to snow, frost and cold weather while flying requires the consideration of many factors, both airframe and engine related. This discussion deals with issues relating to the engine. While there may be other issues, those items which are asked about most frequently have been discussed. Safer flying and longer engine life could result from careful consideration of the material addressed.

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### Minutes of the Club Meeting

The meeting was called to order on November 18<sup>th</sup> by President Tom Winter at 7 pm and was held via teleconference Zoom. More than a dozen people were logged in.

Agenda items –

1. Consider cancellation of Nov. 21 Crete flight breakfast, and the Dec. 5 Christmas Party.
2. Vote on the slate of officers for 2021

For President: Tom Trumble  
For Vice President: Don Osborne  
For Treasurer: Cristi Higgins  
For Secretary: Jerry Mulliken

Dennis Crispin moved, Lyle Eisenhower seconded to accept the officers slate as proposed. Motion carried.

A lengthy discussion followed concerning the meeting cancellations, due to the increased precautions being urged by health authorities around the Covid-19 pandemic. The board and members attending agreed that the November breakfast should be canceled, and the Christmas party postponed indefinitely. The question of holding the December breakfast will be considered at the December meeting. There was no consensus as to when or if the Christmas party should be held.

The treasurer's report by Cristi Higgins showed that \$3,085.28 is in the checking account, \$1,474.79 is in the breakfast account and the club holds a \$10,000 CD, with interest coming to the checking account.

Tom Winter reported receiving the Chapter Service awards from EAA headquarters. These will be distributed at the next physical meeting.

New grills for cooking breakfast have been purchased for the club. These will save a great deal of labor, especially at cleanup.

There was discussion about privacy settings for the membership roster on the national EAA website.

Trumble suggested making the info visible to national EAA members.

The next board meeting via Zoom is scheduled for Dec. 16, 2020. No member meeting is planned for December.

Respectfully submitted,  
Jerry Mulliken, Secretary



## News from EAA Headquarters

### EAA Mourns Death of Audrey Poberezny

The EAA community and all of aviation were saddened on Sunday, November 1, as Audrey Poberezny, wife of EAA's late founder Paul Poberezny, [died peacefully](#) in Oshkosh, Wisconsin, at age 95.

It is often said that behind every success, there are the unsung heroes that made it possible. For EAA, that was a role that was successfully executed by Audrey Ruesch Poberezny with grace, determination, and wisdom. EAA and all of its members over nearly 70 years owe her an immeasurable debt of gratitude.

"Audrey was indeed EAA's First Lady and the quiet power behind the leader in EAA's formation and development," said Jack J. Pelton, EAA CEO and Chairman of the Board. "She supported Paul from the very earliest days of EAA, from

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being the sounding board for ideas and balancing the books, to answering the phone and typing out membership cards. Audrey did whatever needed to be done, but never sought the spotlight for herself. Her understanding of people was also a gift that helped EAA grow and thrive into its unique place in aviation, and her warmth will be remembered by all who knew her."

### **E-AB Fatal Accident Total Drops Again, Below FAA Not-to-Exceed Goal**

Safety totals for experimental amateur-built aircraft continued the decade-long improvement trend in 2020, as fatal accident totals finished below the FAA not-to-exceed number for the 12 months ending September 30, 2020.

Over the 12-month period from October 1, 2019, through September 30, 2020, which mirrors the federal government fiscal year, total fatal accidents in experimental aircraft dropped more than 15 percent from the previous year, to 44 total fatal accidents including 32 in amateur-built aircraft — an 18 percent drop. The 44 fatal accidents were eight percent below the FAA's not-to-exceed number of 48 for fiscal year 2020.

"This is outstanding news as far as the continuing trend of lower accident totals in experimental category and amateur-built aircraft, especially as total flight hours increased over the past 12 months," said Sean Elliott, EAA's vice president of advocacy and safety. "The FAA continues to challenge

our community by lowering the not-to-exceed number each year and we have met that challenge over the past decade, as we have seen fatal accident totals drop by nearly 40 percent for both experimental and amateur-built aircraft over the past decade."

As a comparison, experimental category fatal accidents totaled 73 for the yearlong period ending on September 30, 2011, with 51 of those in amateur-built aircraft. Along with the amateur-built subcategory, the FAA's experimental category includes other aircraft groups such as experimental/exhibition, experimental/light-sport aircraft, and research-and-development aircraft, among others.

The drop in experimental category accidents mirrors and, in some cases, exceeds the decline in overall general aviation fatal accidents over the past decade. Elliott noted that the overall fatal accident numbers for experimental category aircraft remain much lower than other recreational pursuits, such as boating and driving all-terrain vehicles.

EAA has worked closely with the FAA and NTSB on recommendations to reduce fatal accidents, including through participation in the FAA General Aviation Joint Steering Committee. Efforts have also included thousands of copies of the EAA Flight Test Manual now in the hands of amateur-built aircraft owners and the increasing use of an additional safety pilot during initial flight testing in amateur-built aircraft. Other safety initiatives ranging from

regular safety webinars and the annual Founder's Innovations Prize have also put the spotlight on safety for experimental category aircraft.

"While we are seeing already very small numbers, the continual emphasis on safety for all of us can never be overstated," Elliott said. "This is a trend that must continue as we pursue ever-higher levels of safety. We must focus on training, safety enhancements, and good pilot skills to complement the ever-improving technology in today's aircraft cockpits."

### **FAA Requests Data From Private Airport Owners**

Private airports may be listed as "closed indefinitely" within the FAA's airports database if the agency has not heard from the owner of a private-use facility since January 2018. Airport owners can verify and update their information with the FAA through the [Airport Data and Information Portal](#) (ADIP) online, or by reaching out to their [FAA regional airports office](#).

The list of airports that may be closed indefinitely can be found on the ADIP website under quick links as "Private Airport Report."

#### **Events**

**Dec-Jan**, EAA Webinars. [Click here for more information.](#)

**Dec 5** – ~~Chapter 569 Christmas Party – Villa Amore Italian Restaurant – 5:30pm~~ **Postponed**

And finally ...

## Airworthy!

*By Doug Volkmer*

This year will be a year that most people would just as soon forget. There will, however, be one day in 2020 that I'll always remember. The day the FAA came and inspected my RV-7.

I arrived early at the hangar that morning. I did a thorough inspection of the plane, looking it over as if I was going to take it for a flight. I checked everything. Nuts, safety wire, cotter pins where needed, etc. Everything looked good to me. I then grabbed the broom and swept the hangar floor, burning off some nervous energy. I think I had the cleanest hangar floor at the airport that morning!

Rick and his partner arrived shortly before 8:00am. Armed with their mirrors and flashlights, they began their inspection. They looked it over really good, crawling around underneath and inside. I anxiously paced the ramp while they did their thing. In the end, they said I did a wonderful job building it and issued me my special airworthiness certificate. They did point out a minor squawk that I was able to address right away.

Now what? I need to close it back up and prepare for the first flight. I have someone lined up for that who has a heckuva lot more entries in his logbook than I do. He's also done a handful of first flights.

Can't wait to fly this thing!



**The all important Special Airworthiness Certificate, the end result of an educational and recreational journey.**

John Cox  
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*May your holidays glow  
bright and all your dreams  
take flight.*