



COPA Safety Program: Spring Flying and PDM Seminar – Frequently Asked Questions

Questions for our Sponsor: Tanis Aircraft Products

**(Answered by Doug Evink, President and CEO, Tanis Aircraft Products)*

- 1. How important is the oil vs cyl head temp spread if you fly immediately fly/start up after preheat?**
You have stated a very important point about using preheating systems that are not a Tanis multipoint system. It is very important that once you preheat you fly and get your oil up to temperature to ensure that the moisture that has condensed on the top of your engine gets expelled from the engine and that all parts of your engine get bathed in oil. The other point of using a sump only preheating system is that you should only use that system for 2 to 4 hours prior to flight. If you were to plugged a sump only system in a day before or if the weather doesn't allow you to fly that moisture will reside on the condensed surface until the next time you fly. Some oxidation or rust can start in as little as 24 hours. Here is a link to our website that shows you some additional information: <https://www.tanisaircraft.com/why-tanis>.
- 2. Is there a chart that Tanis has that gives ballpark time to heat up a 4-cylinder relative to ambient temperature? I use a remote cellular switch to turn on the heater.**
The chart of a temperature mapping of a Cessna 172 with a 4-cylinder engine can be accessed here: <https://copanational.org/download/2075/copa-safety-program/38357/tanis-aircraft-products-chart-172-temp-map-with-cabin-heater>. This aircraft was in an unheated hangar with no cover our cowl plugs. We did a dual test with one thermocouple in the cockpit. This aircraft had our Tanis engine system and our avionics/cabin heater. This was when we were certifying the avionics/cabin heater. The pink line is the interior temperature of the aircraft.
- 3. Roughly, what's the cost to equip a 172?**
The retail cost of our four-cylinder STCed system is \$820.00 and \$10.00 for the bonding adhesive. Normal install time is 2 to 4 hours. Here is a link to that system on our website. You can download installation instructions and other documents from our website. <https://www.tanisaircraft.com/product/piston-preheat/tsp4cyl-2925-115>.
- 4. Any Tanis products for glass screens?**
We have a certified avionics/cabin heater that we developed specifically for glass cockpits. Here is a link to that item form our website: <https://www.tanisaircraft.com/shop/av-cabin-heater>

Advance, promote and preserve the Canadian freedom to fly.

75 Albert Street, Suite 903, Ottawa, ON K1P 5E7 •

613-236-4901 www.copanational.org • 

@COPAnational

5. **What is the risk of the condensation?**

The risk of condensation is that condensation/water on a bare metal surface will start to oxidize/rust in as few as 24 hours. This process will degrade and pit the metal surface which can lead to premature overhaul or replacement.

6. **How about preheating with an interior car warmer with a fan sitting on top of the cylinders and engine are enclosed with a wraparound insulated engine blanket?**

There are several concerns in using interior car warmers. They are made by several different manufacturers and many have elements that run above ignition temperatures (ones that glow red) which you do not want under the cowl. Two additional issues are the amount of time it takes to heat something up with air and when heating from the outside 50% of the heat generated is lost to the environment due to the air movement. Our 4-cylinder system only uses 240 watts of electricity where you would need at least a 1500-watt heater and you would need to run that heater 4 to 10 times longer to get similar results. The largest concern is that those heaters are not certified to be used with in an aircraft and if damage or a fire happens your insurance may not cover the loss.

Seminar Questions

1. **How do we ensure that we actually see our own bad historical bad decisions instead of normalizing them? Is there a good way to reliably self-examine so that we can determine that we have been “Getting Away with It” for a while?**

This is a very profound and deep question. COPA suggests establishing a set of good standards or minimums, such as those that can be created with the AOPA tool, one should take a few moments after each flight to do an unbiased assessment of the flight to see where we might have strayed from our best practices and standards.

2. **Where can we access the AOPA VFR Pilot Personal Minimums checklist and contract?**

The AOPA VFR Pilot Minimums Contract can be accessed here: <https://www.aopa.org/-/media/Files/AOPA/Home/Pilot-Resources/Personal-Minimums-Contracts/PersonalMinimumsContractVFR.pdf>.

3. **Does COPA have any lists of problematic OTC medications?**

There is a COPA Guide on medications that can be accessed in the members only section.

4. **Are there future seminars focused on weather phenomena, understanding general weather, decoding charts and forecasts?**

COPA will make an effort to include seasonal weather phenomena. We encourage you to use online learning tools for decoding charts. We also strongly recommend the use of the AIM publication; it has an excellent section on weather charts and such.

Advance, promote and preserve the Canadian freedom to fly.

75 Albert Street, Suite 903, Ottawa, ON K1P 5E7 •

613-236-4901 www.copanational.org • 

@COPAnational

5. **For the spring flying presentation, are we assuming Celsius for the -5- and +5-degrees danger range for icing?**
Not exactly. The range of +5 to –5 was singled out as the area with the GREATEST risk of severe carb icing. The actual range of potential icing is much greater and was depicted accurately on the icing risk chart that was used in the presentation.
6. **What carburetor temperature is needed to prevent icing? And how frequent/long is carb heating recommended to be used on every flight?**
You need to get the carb air temperature ABOVE +5 and preferably above +10 degrees Celsius.
7. **Is it acceptable fly with the carb heat on the entire flight during moderate or severe carb icing conditions?**
IF you are actually IN SEVERE CARB ICING conditions and you are experiencing the carb icing that is requiring continuous use of CARB HEAT then you should change your flight path to remove yourself from these severe conditions!
8. **Regarding airframe icing, are there any other conditions that can cause airframe icing, apart from precipitation and flying through cloud? Is it possible to accumulate any icing in clear weather?**
If you are flying in air that has a very good spread between air temp and dew point and you are clear of all cloud and precipitation then the chances of accumulating significant icing are very low. You may accrete a small amount of very light rim icing in air temps that are near zero or when there is a small air temp/dew point spread.
9. **Where can we access the carburetor icing and temperature dewpoint chart?**
The TC AIM has that chart in it. It is also available as a poster from TC.
10. **Can carb icing can happen even in mid-summer with very high humidity? What if clouds are not present?**
Not normally no, once the temperatures are above +15 degrees Celsius.
11. **Can you comment on the relationship between % humidity and dewpoint?**
% humidity or “Relative humidity” is the ratio between air temperature and the dew point. The closer the spread between the two temps, the higher the RH.

Advance, promote and preserve the Canadian freedom to fly.

75 Albert Street, Suite 903, Ottawa, ON K1P 5E7 •

613-236-4901 www.copanational.org • 

@COPAnational

Questions about the COPA Safety Program

- 1. Where can I access recordings for the COPA Safety Program seminars?**
Recordings of seminars within the COPA Safety Program are made available in the members-only section of the COPA website, under the documents section: copanational.org/en/safety-seminar-recordings (please sign-in to view the page).
- 2. Which seminars qualify for Transport Canada's two-year pilot recurrency training requirements?**
The February 20, Spring Flying and PDM seminar does not qualify as a 2-year recurrency requirement. Pilot recurrency training seminars will be offered in the months of March, June, September and December.
- 3. What other seminar topics will be covered this year in COPA's Safety Program?**
To view a full schedule of upcoming topics, please visit the following link: copanational.org/en/safety
- 4. I have suggestions for future seminar topics, where do I send my ideas?**
If you attended the live seminar, please fill out the following survey: <https://www.surveymonkey.com/r/H2CX8JT>. We ask you provide your feedback by February 26, 2021.

If you did not attend the seminar and are watching a recording, please email your suggestions to copa@copanational.org with the subject line: COPA Safety Program – Seminar Ideas.

Advance, promote and preserve the Canadian freedom to fly.

75 Albert Street, Suite 903, Ottawa, ON K1P 5E7 •

613-236-4901 www.copanational.org • 

@COPAnational