



PUTTING WINGS ON YOUR DREAMS

Volume XIII

Issue #2

Wondering When the Fog Is Going to Lift?

Article submitted by Bill
McGlynn

We have all been there. You've got a plan to break out of ground effect and get some sunshine and blue sky for an hour or two. Then you wake up look out the window - "oh, no - more FOG!?" So you pull up Nampa on [Skyvector.com](http://skyvector.com) and put Nampa ASOS on speed dial and begin the frustrating wait - maybe a whole day spent doing this.

Here's a new tool you may want to check out. Apple Store is selling an app called "Skew-t Log Pro" for a one-time charge of \$9.99, (I don't think it's available on Android yet). What it does is put Skew-t output in your hand for any airport (or even lat/lon for almost any location), looking forward 5 hours. For those of you who don't know anything about

Skew-t, you can get a good overview here...<http://www.skewtlogpro.com/about-skew-t-log-p-charts/>

But basically, skew-t charts map temp, dew point and winds over a point (like KMAN), up through the atmosphere to roughly 60,000 ft. When temp and dew point intersect you have clouds - so if the lines are intersecting near ground level - you have fog. BTW - the lines don't have to actually intersect to have clouds. If the spread is between 0 and 5 degrees there could be a scattered or broken layer at that pressure altitude.

I was impressed that in a recent upgrade, the app creators added "route", so you're able to look at skew-t's along a line on a map representing your track between two airports. This feature is still a little

buggy, so it will probably take them a few months to get it working reliably, but hey, this is an ambitious upgrade, so it's worth a few crashes every once in awhile.

It doesn't answer all your weather questions but it's another good tool to have in your hand to help make those critical decisions while on the ground. Like all these tools, I always add a good amount of margin, especially when other tools are in disagreement, (like the webcams show low clouds but the skew-t says skies are clear). Keep in mind that flight into IMC is the most unforgiving killer of GA pilots with accidents in IMC resulting in 85% fatalities!

Area Forecasts Going Away

Another change on the horizon - the NWS is retiring the vaunted Area Forecast text product for a graphical tool.

You can view it here <http://new.aviationweather.gov/areafcst> The NWS is requesting feedback from pilots so they can make this tool a good resource for the GA community. Please have a look and take the SURVEY, (you'll see a tab at the top of the map page). It's great that they're asking for our input.



T-Craft Events to look forward to for the upcoming year.

- March weather class - Bill McGlynn
- March tour of Boise Tower - Jim Hudson
- April 2- Poker Run, Backcountry Presentation
- April -Tour of Boise Tower - Jim Hudson
- April 13- Mechanic's eye view of 686 J Eyre and Mike Metcalf
- April 26- Back Country Seminar
- May 03- Plane wash
- June 7- Shortfield landing Techniques - MAF - John Hook
- June 10-11- Garden Valley Fly-in
- October - Plane wash and Fall Wx Class

March 2016

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| 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| 27 | 28 | 29 | 30 | 31 | | |

Calendar of Events for March:

3/8/2016 – Board Meeting.
3/29/2016 – General Membership
March weather class - Bill McGlynn
March tour of Boise Tower - Jim Hudson
April 2- Poker Run, Backcountry
Presentation

Fuel Reimbursement

\$4.32 per gallon.

The fuel account balance as
of 01/31/16 was: 918 gallons.

Top flyers for the month

Jeff Adams 6.5
Andrew Hansen 5.5
Joe Bejsovec 4.8

Ratings

14 Student Pilots
58 Private Pilots
01 Recreational Pilots
09 Commercial Pilots

Accomplishments:

If you've achieved a new rating, BFR,
Solo, or other significant
accomplishment, please inform the
Membership Director Jim Hudson, or
Secretary/Newsletter editor Bert Osborn.

Highest billing aircraft

13686 \$ 1,486.00
67375 \$ 1,161.00
7593S \$ 1,072.00

Hours flown for aircraft

67375 21.1
13686 19.3
4464R 11.9

Breakdown of Membership

87 Members

03 Social Members (non flying)
36 Class I Members (40%)
52 Class II Members (60%)

05 Air Transport Pilots
23 Instrument Pilots

Welcome New Members:

No new members this month

Congratulations to:

Preston Rufe for earning his CFII in
helicopters.

If you have news or pictures
that you would like to have
included in the newsletter
please submit them to Bert
Osborn at 1berto@cablone.net

Hourly Rates



N1227G
\$50.00



N67375
\$55.00



N4464R
\$75.00



N13686
\$77.00



N1891X
\$111.00



N9989E
\$114.00



N7593S
\$114.00

SQUAWKS

All aircraft are available for flight. February was a busy month as people were getting in their winter flying hours.

The radio on **N7593S** had been squawked because there was a problem with the PTT. **7593S** will have its annual in two weeks and the radio will be examined at that time.

N4464R had a power failure during a landing. The mechanic found a broken wire leading to the alternator. About 1 foot of wire was replaced. **64R** had its annual last month.

N13686 The fuel dipstick went missing and was replaced. Jim Eyre found the pilot side gas cap hanging loose.

1891X had been squawked for running rough. Mike Metcalf checked it out and reported no problems. It is very possible given the cold weather there was an issue with carburetor icing.

67375 had her annual. The mechanic found a crack in the "air

box". For the definition of an "air box" check with the maintenance director or read the article in submitted by Jim which appears below. The number 1 radio has been a squawked. The maintenance director may have found a brand new radio identical to the one in the airplane for less than 1/2 price.

1227G had a rough running engine squawk. The mechanic checked out the complaint and found the engine to be running fine. The problem may have been due to a missing fuel cap. The shoulder harnesses are awaiting installation.

HATS OFF TO:

Thanks to Carl Fetterman for donating his time and energy to repair the electric tow. Carl rebuilt several parts, straightened some of the frame and tensioning arms, installed a spring, and really cleaned it up. Carl did a great job. Thank you Carl.

Thanks to Jeff Aebishcher for providing a great program for the general membership meeting February, 23.

Ken Reed reports that he flew into Homedale several days ago and discovered a change. Runway 13 has had a 335 foot displaced threshold for some time. Now runway 31 also has a displaced threshold. It appears to be about 300 feet. At this time the new displaced threshold is not showing in either the AFD or in the airport info on Foreflight. Ken submitted a new comment to Foreflight, but it hasn't been processed yet.

MEMBERSHIP DUES

Effective February 1, 2016 membership dues dropped to \$60.00 per month. That rate combined with the low hourly charges for the airplanes makes T-Craft the leader in high quality, low cost flying.

REMINDER: MEMBERSHIP DUES ARE DUE AND PAYABLE BY THE 10TH OF EACH MONTH.

At the next board meeting, Gordon Hall and the ADS-B committee may have a report on the new Garmin ADS-B product. Membership Reminder: check the club calendar for upcoming events or calendar changes at <http://www.t-craft.org/calendar.htm>

Article submitted by James Eyre,
Director of Maintenance



CARBURETOR ICE & HEAT BOXES

Photos curtesy of Mike Metcalf

Since the beginnings of aviation and piston engines, carburetor icing has been a problem that mysteriously caused engine failure or interruptions of power. While modern engines and technology have eliminated carb icing with the use of fuel injections systems, many older aircraft engines (read t-craft) still use the time-tested carburetor to deliver the fuel mixture to

the cylinders.

Recognizing and effectively dealing with carburetor ice can mean the difference between a pleasant day at the airfield or serious injury or worse. Many pilots do not know how dangerous carburetor icing is until it is too late. Pilots never see the ice that develops in the carburetor. You can't smell it, taste it or breathe it. The single most telltale sign of this invisible demon is the way your engine starts to misbehave. Sputtering, coughing and a subsequent loss of power will make you sit up and take notice. This is a serious condition that requires evasive action before it develops into something much more serious. To what extent it worsens and causes trouble will be determined by the percentage of humidity, temperature and how much power is being applied. Under the "right" conditions, icing can begin, adhere strongly to the carburetor wall and cause fuel starvation within seconds. This is something you, as a mountain pilot, will not want to happen when you're 200 feet in the air on a backcountry strip. The conscientious pilot must understand how and why carburetor icing develops, and how to stop it before it starts.

The earliest piston aviation engines dating back to the Wright Brothers used a primitive carburetor (invented in 1882) to deliver vaporized fuel to the internal combustion engines to promote combustion. A piston engine must be supplied with a mixture of fuel vapor (not liquid fuel) within the optional ratios to operate properly. The earliest carburetor required no mechanical or electrical power, had a few moving parts and was an ingenious invention. As is often the case with new inventions there was a downside –the problem that this design promotes icing in the carburetor. The float-type carburetor (on our aircraft) contains a venturi, a float chamber to contain fuel, a discharge nozzle and throttle plate. The main disadvantage to a float-type carburetor is that the vaporization of fuel from the discharge nozzle along with the pressure drop in the venturi causes a significant reduction in temperature. This temperature reduction can vary, depending on factors such as OAT, humidity, power setting, and type of fuel being used.

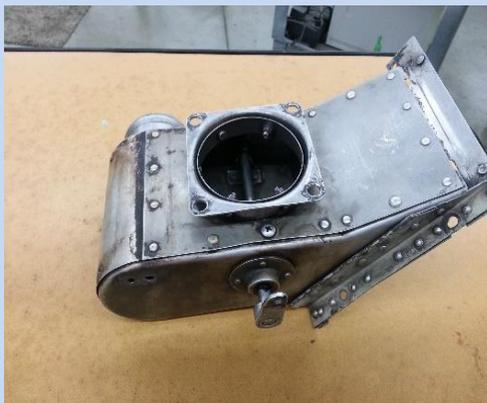
If there is sufficient water vapor in the air and the temperature reduction lowers to the freezing point of water than ice forms in the venturi and throttle butterfly. The temperature of

the throttle butterfly and associated metal parts can be below freezing and once moisture makes contact with these cool parts, ice forms – even in summer is possible, especially in older Cessna aircraft. Although carburetor icing can develop at ANY temperature and altitude, it is generally accepted that OATs in the 45 to 70 degree Fahrenheit range and 60 percent humidity are ideal conditions for carburetor icing. That’s not to say that it can’t happen at 80 degrees above or 10 below zero. A rainy night before the flight, with high humidity and temperatures between those figures is the recipe for icing. If the dew point is high, watch out!

Actual mechanics of the carburetor contribute to the problem simply by design. As the gas and air mixture are forced into the venturi, evaporation begins. It’s much like pouring rubbing alcohol on your skin. It feels cold when it starts to evaporate. In the airplane’s carburetor the mixture starts this process but much faster. The more power you add the faster the process. Scientist call this action “heat evaporation”. The 100LL we use absorbs heat as quickly as possible in order to become a gaseous element. The venturi action then accelerates the process, and ultimately, icing develops.

Our engines depend upon air induction and proper fuel mixture to provide them with a proper “blend” of the two. When the fuel mixture hasn’t been properly leaned, a greater amount of fuel than necessary is allowed into the carburetor. This creates fuel waste, possible spark plug fouling and lowered horsepower. These problems become critical to takeoff or to the power needed for a go-around. With the changes in altitude, temperature and power settings during a typical flight there are multiple opportunities for carburetor icing to go undetected until engine power output is severely compromised. A carb heat gauge (64R & 89E for example) is a nice to have option, especially due to the induction design and carburetor location under the engine.

The signs of carburetor icing can be a gradual decrease in engine rpm (or manifold pressure) when operating at a fixed throttle setting as well as backfiring or a rough running engine. When operating w/o benefit of a carb temp gauge, full carb heat should be routinely used. However, in the case of severe icing or extremely rough running engine it may be necessary to operate at a partial heat setting, gradually feeding full heat to prevent rapid ice melting and a total engine failure.



Government regulators have required carburetor heater systems on aircraft since the early days of aviation. These systems must be fully operational for every flight (do you check carb heat during static run up). Our systems are properly maintained by Aero Services however things can go astray before inspections. Carburetor heater box normally uses filtered ram air to supply the engine air intake system. A diverter valve or butterfly similar to a throttle butterfly is used to select hot air drawn from the exhaust manifold heat shroud or filtered, unheated air.

The butterfly valve is normally in the cold position and can be moved to the heat position by means of a push-pull cable in the flight management deck (no longer PC to use “cockpit”) of the aircraft. The normal position allows for full filtered air during flight or ground operations. Our

capable team of mechanics at Aero Services do a great job of carefully inspecting cabin heat shrouds, ducting and valves and repairing as necessary before returning an aircraft to service.

Carburetor heat boxes have been troublesome since the requirement to have them back in the early days of aviation. While there have been some improvements to the manufacturing processes, these boxes take a beating from vibration. If you have the chance, stand back and take a look at the carb heat box installation when the lower cowling is off. This will give you some insight as to the ruggedness needed of the installation and requirement for frequent inspections and maintenance.

The dangers of operating w/o a properly functioning carb heat system can be many, as it's not just to prevent or remove ice but to provide an alternate air source should the cold outside air ice over or plug up the air intake with trash, bugs, or dirt. We try and not wait until something breaks to fix it (hence 100 hour & Annual inspections) but rather inspect and repair to prevent failures or expensive damage to the aircraft, engine and associated equipment.

Under certain conditions carb icing can occur while taxiing. If you don't leave the carb heat on for at least 10 seconds during run-up check the ice might not melt and could cause lower power output during takeoff and possibly engine failure. It is extremely important the function of carburetor heat be checked on every preflight run-up to ensure it is operating correctly. A larger than normal carb heat drop or no drop during run up should be reported to maintenance. These squawks should be investigated ASAP.

FINAL THOUGHTS: Our carburetor heat systems are maintained in good condition. Always



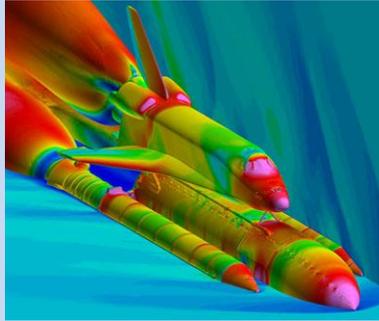
use carb heat well in advance of engine power reductions such as when doing extended low power glides or when preparing to land. Clear the engine often while at low power settings to ensure that the carb heater is supplying sufficiently heated air and that the engine is still responding to throttle input. Review any specific information to your airplane or general documentation to stay informed. Remember, know your carburetor and its symptoms of ice danger. Someday

it may save you.

Remember, that a good pilot is always learning. Fly safe, have fun and as Jim Hudson says – “don't do anything stupid”!

The Art and Science of Flying

April 23, 2016 from 8:00 am until 5:00 pm.



The Art and Science of Flying Ground School will take place at Jackson Jet Center, Boise Airport, Hosted by Ponderosa Aero Club and promoted as “a fun workshop that explores the magic and mechanics of flight,” this FAA Wings-approved event includes dynamic discussions, interactive activities, and door prizes. According to co-presenter Rich Stowell, “In addition to a totally different view of flying for pilots, this is a community outreach program for school teachers and students to learn more about science, technology, engineering, and math through the lens of aviation.” The registration fee, which includes lunch, is \$50/person until March 25th; \$59/person after. Event sponsors and partners so far include Idaho Division of Aeronautics, Idaho STEM Action Center, FAA Boise FSDO, Jackson Jet Center, Coca-Cola, and others.

To register and/or help us promote the event, or if you can assist with procuring sponsors, please contact Sharki Kontra at ArtandScienceBOI@gmail.com or visit www.ArtandScienceofFlying.com

In Additional information about the workshop and application can be found at this link: [Art and Science of Flight](http://ArtandScienceofFlight)