T-CRAFT AERO CLUB

MONTHLY NEWSLETTER

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General Information

Burr! The only good thing that can be said of December was "Awesome Density Altitude!" With our improved aircraft performance we were fortunate tœnjoy quite a few sunny days and some great winter scenery from the air virtually everywhere we went. The extra down time was filled with study, so look for great tips and lessons in From the Membership/Safety Director, as well as Bill McGlynn's Member Contributor Article *"Engine Failure on Takeoff From Nampa."* The Maintenance Director has also researched cold engine starts and priming, sharing some great suggestions in Aircraft Maintenance. The **Election Committee** will be calling for your input and nominations for election during our 26 January 2010 Annual Meeting (open offices are: President, Secretary, Vice President, and Maintenance).

What is the technical name of this cloud?

Fuel re-imbursement for December 2009: $3.57/gal.

Current flying rates: ***152*** @ $51.00/hr wet, ***172s*** @ $72.00/hr wet, and ***182s*** @ $98.00/hr wet.

Please review your receipts and confirm $.25/gallon. Report any discrepancies **ASAP** to Dennis Wheeler.

Next Board Meeting: 12 January 2010, 7:00 p.m., T-Craft Hangar training room.

Next General Membership Meeting: 26 January 2010, 7:00 p.m., EAA/CAP Hangar, Nampa, Id., Annual Meeting and Elections.

Can you name the two landmarks in the photos below? [courtesy Reggie Sellers]

From the Membership Director

Dear Members,

Jared Watson joined T-Craft this past month. He has a Commercial Rating, an Instrument Rating, and is working for his CFI as part of his goal to make a career in aviation. We hope you'll welcome him warmly at the January 2010 Annual Meeting.

We currently have 81 members. Twenty members have joined us this year. Unfortunately twenty-one members left us, for a net loss of 1 member this year.

T-Craft is on Facebook !! We can now promote our club within this fast growing social network. It also gives members a place to share stories, comments, photos, videos, etc. Go to http://www.facebook.com/home.php?ref=home#/group.php?gid=164768522373

Our **January Training** meeting will be 7:00 PM Thursday, January 21, 2010 in the hanger – BFR preparation and the new Wings Program.

Training Podcasts:

Paul Chase informed me of some FREE podcasts from the University of North Dakota Aviation program. These podcasts cover Private, Commercial, and Instrument maneuvers and topics. They are very well done with good graphics and in-flight video. You can watch them on an ipod or download ITUNES and watch it on your computer. Download itunes here. http://www.apple.com/itunes/download/. Then go to this link: http://itunes.apple.com/WebObjects/MZStore.woa/wa/viewPodcast?id=120980516. Thanks Paul !!

Safety – Engine Failure on Takeoff

This month's Safety article "Engine Failure on Take-Off from Nampa" was written by Bill McGlynn. Bill documented the safety presentation he did in November (read his presentation later in this publication in our "Member Contributor Article"). Thanks Bill!

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Additional web tips on Engine Failure on take-off can be found on the *AOPA Air Safety* website. "Real Stories" documents a situation where a pilot narrowly performed the impossible return to runway after takeoff after his engine blew up - but highly recommends against it. Go to http://flash.aopa.org/asf/pilotstories/impossibleturn/

Pilot Workshops also has a web presentation on the subject: Often very informative, you can sign up for "*Tip of the Week*" at the following link http://www.pilotworkshop.com/tips/engine_failure_takeoff.htm.

Brad Mausling displays the stuffed animal he brought with him during his very first solo this month. Congratulations from all of us at T-Craft, Brad! [photo courtesy Bill Zerfas]

NEW MEMBER NOTICE!

T-Craft Board-approved members must be formally accepted into the Club by member vote during a General Membership Meeting. The next General Membership Meeting is scheduled for 26 January 2009.

Aircraft Maintenance

WARNING: Information provided may not be accurate. Consult Schedule Master and clipboards on hangar wall for the most recent information concerning your aircraft.
Got a squawk? Write the tachometer time on the Squawk Sheet. Sign your name, and include a phone number where you can be contacted. Document Hobbs time for all other recordings.

67375: Transponder appears to be working properly.

13686: Nothing to report.

4464R: In shop 12/7/09; one cylinder building zero pressure (possibly due to a stuck valve); exhaust stack is deteriorating; overhead cabin light rheostat being replaced.

1891X: Cylinder head temperature gauge in instrument block defective (Maintenance Director has located a new three-instrument block for $500.00. Board has approved purchase.)

800YD: Nothing to report.

7593S: Nothing to report.

[**Member Notice**: report **leaks IMMEDIATELY** to Maintenance.]

Jeff Adams with Jim Hudson and 93S, Summer of 2009 [photo courtesy Jim Hudson]

Musings from your Director of Maintenance

Probably the most important factor in starting an aircraft engine is achieving a fuel/air mixture that is satisfactory for combustion. Many pilots are unaware or ignore the change of starting procedure needed to successfully start under varying temperature conditions. An important part of the engine starting procedure is the priming technique involved.

When priming a carbureted engine, the pilot's plan must consider the temperature, 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 number of cylinders that are primed must be considered since the total fuel delivered by the primer is divided and sent to these cylinders. Over priming can cause a flooded intake resulting in a "hydraulic lock" event and subsequent engine malfunction or failure. If you over prime, or flood the engine, make certain that all fuel has drained from the intake manifold and/or cylinder prior to attempting engine starting.

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. 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. 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.

Engine ground operation greatly influences formation of lead salt deposits on spark plugs and exhaust valve stems. **LEAN the mixture** for current conditions. Proper operation of the engine on the ground (warm-up, taxi and engine shut-down) can greatly reduce the deposition rate and deposit formation, which cause spark plug fouling and exhaust valve sticking. It takes experience to learn to correctly lean a particular aircraft. As you gain that experience you will find that it saves gallons of fuel and helps the engine run better. Engine manufacturers strongly suggest that pilots lean appropriately anytime they are below 75% power, regardless of altitude.

Can you hurt the engine by leaning too much? Yes, at higher power settings. There is one time that over leaning isn't a problem and that is when running at just above idle power during ground operations. During a long taxi, a lengthy wait for takeoff clearance, or for the instructor to run out of breathe, you can lean the engine aggressively w/o risk of damage. Just don't forget to enrich the mixture before takeoff.

The engine should be operated at engine speeds between 1000 – 1200 RPM after starting and during the initial warm-up period. Avoid prolonged closed throttle idle engine speed operation (when possible). The engine's fuel system is slightly rich at closed throttle idle and this ends up with Mr. Plug having a sooty face. At engine speeds from 1000 to 1200 RPM, the spark plug core temperatures are hot enough to activate the lead scavenging agents contained in the fuel that retards formation of the lead salt deposits. Avoid rapid engine speed changes after start-up and use only the power settings required for taxi.

Prior to engine shutdown maintain between 1000 and 1200 RPM until **operating temperatures** have **stabilized**. Increase RPM slightly 5-10 seconds, reduce to 1000 RPM and shutdown immediately using mixture control.

Let's take our little bird **(N67375)** as an example. She has 3 primer lines. In working her difficult starting problem it was discussed that perhaps we pilots were over priming the engine. Much like an automatic choke in your car, **375** may not want to be loaded with extra fuel when starting. With our aircraft being preheated during this time of year I've found that if I attempt a start first w/o priming and giving the prop a couple of swings, that -- if she doesn't crank -- I relax a moment (allowing the starter to cool) and then load up the primer and give her one (1) good shot. Be prepared to crank immediately after

priming. The primer should have a good amount of resistance when pushing in (you know it is loaded up). Hopefully this method will give us better starts especially with **375**.

Clearing a fouled plug: If the magneto check before or after flight reveals any roughness caused by fouled spark plug(s) – ***(1)*** place magneto switch on **BOTH**, ***(2)*** open the throttle slowly and smoothly to 2200 RPM, ***(3)*** lean the mixture as far as possible maintaining a smooth engine. After several seconds return to full rich and recheck the magneto. If two such attempts do not clear the fouled plug report the problem to maintenance ASAP.

At what RPM should you check magnetos? Use what airplane manual says. Checking at a lower than indicated RPM may give a higher than normal mag drop. **Is the actual mag drop in RPM very important?** No – We are more concerned that the mag drop is less than 50 RPM between the two mags and smooth, rather than whether it's 50-75 or 150. Again it should be within the limits indicated in the aircraft manual. If in doubt about any mag drop, be suspicious of a hot mag. Reduce engine RPM to idle, turn magneto switch to off and see if engine dies out. If it keeps running beware hot magneto. If in doubt please contact maintenance.

All single engine aircraft have similarities in how they start, move and fly. However they also have individual differences. Each bird in our T-Craft fleet is unique in its own way, and our aircraft engines are extremely reliable when properly cared for and can deliver years of safe flight.

BTW - attempting to start your engine with a partially discharged aircraft battery may result in damage to the starter relay, with possible engine kickback resulting in a broken starter adapter clutch spring (ouch $$$).

To summarize: if the engine of an airplane is permitted to idle at low RPM (closed throttle) for a long period of time while on the ground

(a) A hydraulic lock may develop in one or more cylinders
(b) The lean mixture may cause the engine to miss or quit
(c) The result may be an excessively high oil pressure, and/or
(d) The spark plugs may become fouled (sooty faced)

Safe, fun, enjoyable flying to you all,

Jim Eyre, Maintenance Director

From the Board

Our next General Membership Meeting will be 26 January 2010. The Board will present its Annual Report for 2009. We will also hold our **Annual Elections**. Offices open for nominations include: President, Secretary, Vice President, and Maintenance. If you're interested in running for office, e-mail the Secretary (jlvanho@msn.com) to get a copy of the job descriptions for these offices.

Got A Paper Certificate? Replace It Now

If your FAA pilot certificate is printed on paper, it's going to expire on March 31, unless you replace it with a new plastic certificate. To get the new counterfeit-resistant certificates, you have to fill out a form and mail it to the FAA in Oklahoma City along with $2 for each certificate you want to replace, or you can do it online. Either way, the new certificate won't list your original date of issue, so you might want to keep that old dog-eared piece of paper to prove your longevity. If you apply by mail, it's going to take four to six weeks, and up to 10 days for online processing, so don't put it off till the last minute or you could find yourself grounded. Some non-pilot certificates, such as those for flight engineers and mechanics, are good for another three years but then they will also have to be replaced. Student certificates are not affected.

While you're at it, you can ask the FAA to issue you a new certificate number that is not your social security number. There is no additional charge to make this change.

Go to http://www.faa.gov/licenses_certifics/airmen_certification/expiring_paper_certificates/ for more information and the forms you need, or to make your request online.

Jim Hudson has set out ***Personal Minimums sheets*** around our hangar for our preflight use. Make good use of them, and feel free to suggest improvements.

The purpose of the 90 Day Attendance Policy is to create and build friendships, encourage camaraderie, provide learning opportunities, and instill pride of ownership in our club. You can and will be suspended from scheduling aircraft if you fail to meet the requirements of this policy. To comply, members can attend Board Meetings, monthly ground schools, a General Membership Meeting, or other Club functions each month. Contact Jim Hudson if you have questions.

Upcoming Local and Regional Events

Happy New Year!

Member Contributor Article

Engine Failure on Takeoff from Nampa

Bill McGlynn, November 12, 2009

With the cold months of winter now upon us, we will all likely do more pattern work on our takeoffs and landings, and most of that will be done at Nampa. Although the likelihood of an engine failure on takeoff is remote, it's behooves us all to keep an engine failure included in our takeoff checklist.

Remarkably, 22% of all accidents are due to some kind of engine failure, but of all forced landings only 5.2% resulted in a fatality. In fact, in 69% of forced landings the occupants walked away from the aircraft, basically uninjured. So the odds are with us that if we should ever experience an engine failure on takeoff, we too could be among the 69% that walk away.

How to be amongst the 69% that walk away

First of all, there are things we can do to help avoid an engine failure on takeoff. Of the 22% of accidents attributable to engine failure, 50% of them were due to fuel related issues. Here are a few things you should keep in mind when doing your preflight check:

- Check fuel for water. Condensation can build up in the wing tanks or the fuel source. If you find water in the fuel, keep draining the sump until you are sure you got it all.
- Ensure your fuel selector is set to a full tank, or both and that you have sufficient fuel.
- Do a thorough run-up to be confident that you will get full power at takeoff.
- Review your "Abort" plan – mentally review what I will do if my engine dies during take-off.
- Check your RPMs once you start your takeoff roll and be sure you have full power. If you have any doubt, now is the time to abort the takeoff.

Once you are airborne keep the following facts in mind:

- Most engine failures occur at the point of a power change – manifold pressure is decreased, RPMs are adjusted, or mixture is modified. Wait to make changes until you have a margin of altitude that will help in case of a power loss.
- Have a target landing zone in mind for an emergency landing. We will review some likely candidates for an emergency off-field landing near Nampa.
- Do not try to return to the airfield unless you are almost at pattern altitude. There are many pilot epitaphs that read "Attempted the impossible turn".

Although it's easy to say land straight ahead, it is very tempting to try to get the beloved airplane back safely to the airport. But even in perfect conditions, with expert pilots flying a familiar airplane, the odds of a successful turn back to the airport is one out of five at best. Keep in mind that when the engine quits, your heart will almost jump out of your chest, and your mind will go wild for a second or two before you yell out loud to yourself to "FLY THE AIRPLANE". This will cost you valuable altitude and airspeed.

The first thing you need to do (once you regain your senses) is to get the attitude of the airplane to a nose-low condition that will achieve best glide. This takes some practice, so put this exercise on your list for winter flying. Get yourself to a safe altitude in a practice area, fly the plane at your typical take-off speed and climb attitude, pull the power to simulate an engine failure, and practice getting the plane to glide speed while memorizing the plane's attitude. This attitude is the same as cruise pitch attitude - full up trim without power will set this very close to best glide speed. The goal is to remember what the view looks like over the cowl of the airplane, so if you have to do this in an emergency, you will be able to do it without paying attention to the airspeed indicator. This is also the time that you would want to know approximately where you would prefer to land, because you will have precious little time left in the air.

Nampa and surroundings

Most of the takeoffs at Nampa are from **Runway 11**, since it is the preferred calm air departure, so let's look at your options there first.

Southeast of Runway 11, Nampa, ID [photos courtesy Bill McGlynn]

There are basically two pastures off the southeast end of **Runway 11**. The pasture closest to the departure end of the runway on the east side of Happy Valley Road is smoothest (greenest), and doesn't have power lines in the way (they are buried just south of the extended center line for Runway 11). It is also fairly close to the end of the runway, so you may be too high to make this work. The second field is a bit farther, but has two challenges – it has power lines extending along the east/west dirt driveway that would need to be cleared, and the pasture is not smooth, having several drainage ditches running through it.

Happy Valley Road is a consideration, but every time I have driven by the road is busy and, inevitably, there will be a UPS truck in the way the day you draw the 'engine fail' card. I highly recommend you drive this area on your way to fly someday, and check out these areas from the ground, then again from the air, and make a plan how you will set up for a landing.

Runway 29 is more challenging. There are no grassy fields within the likely glide range if the engine fails on takeoff. A better alternative to taking on the traffic on Garrity Blvd may be landing on Kings Road. Other than the street lights at the intersection of Garrity Blvd and Kings Road, there are very few obstructions down the road. There are a power lines and telephone wires crossing Kings Road, but it's at the north end of the street. If you get down quickly, they can most likely be avoided. Landing on Kings Road would require about a 45 degree right turn, followed by a fairly precise landing down the middle of the street. Drive this sometime, and consider your choices both from the ground and then from the air.

You may find some other choices that look better than what I've described here. Just remember, don't attempt to make your landing too fancy. You're going to be putting almost all your wits into flying the plane. Focusing on a destination is going to help tremendously, especially if it is night time.

If you're flying to another airport, check out the options for an emergency landing while overflying the field. Also check out Google Earth beforehand, so you have a better idea of the lay of the land before arriving.

You might also want to consider briefing your passengers on what you may ask of them should an emergency arise. Some people recommend unlatching or opening a door to accommodate a quick exit after landing. A good acronym for remembering how to brief your passengers is SAFETY:

- S = seats, how to adjust them and where you want them to sit, (forward or back), and seat belts, as well as should harnesses.
- A = air – if a passenger should become airsick, where are the airsickness bags. Where is the air inlet to make them more comfortable?
- F = fire extinguisher – location and the passenger's role (if it's required).
- E = exit – what they could do to achieve a fast exit of the airplane, should that be required, (e.g., you may ask them to open a door in flight).
- T = talking – when it's appropriate to chat and ask questions, and when you need them to be quiet. This also includes instructing them how to help look for traffic with you when you're near a busy area.
- Y = yes we will have fun and you will be safe; yes ask questions, but I'll only operate the aircraft in a manner that keep us safe (e.g., don't ask me to buzz your house).

The good news is – engine failure on takeoff is definitely a survivable emergency. Your odds go up dramatically if you are prepared, so take time this winter to think through how you would handle an engine failure during takeoff.

Reminders

Answers concerning our Club, Policies, or even locating a **New Member Application Form** for your friend or family member can be found on the T-Craft website: www.t-craft.org.

T-Craft Business Cards and Pamphlets are available. Share them with friends and acquaintances in the community who may be looking for piloting opportunities.

Properly sign out your aircraft, including the correct designation; for example, Local, Cross Country, Maintenance, Replacement Aircraft Search, etc. If an aircraft moves, breathes, or sneezes, it MUST be correctly documented for maintenance and billing.

Delete the remainder of any unused flight time from Schedule Master immediately after landing. Somebody may be able to use that time.

T-Craft Members are responsible for keeping their **contact information** (phone numbers, email addresses, postal address) updated in Schedule Master. To check or update your information, login to Schedule Master, click the "User" tab at the top, then click the link that says "Click here to edit your user info".

Ask any Board Member for a copy of any of the Minutes, or you can e-mail the Secretary (jlvanho@msn.com), and have a copy sent right to your home.

Got something aviation **you want to sell**? Post it in the T-Craft Newsletter. Send your advertisement to the Secretary, jlvanho@msn.com.

Remembering the Summer of 2009, Garden Valley, Idaho

Coming Home