

Air Grangers



Jan 2010 Edition

Next Meeting 1-11-2010 at 7:00 PM

EAA Chapter 1350 officers and members

Gary Brossett	David Barrett
Harold Jarman	Gardiner Mason
Glenn Morrow	Don Neuberg
Francis O'Shea	Bill Roberts
Jimmy Robinson	Dan Serrato

Officers

Glenn Morrow	— President
David Barrett	— Vice President
Jimmy Robinson	— Secretary, Newsletter Editor
Don Neuberg	— Treasurer, Membership Coor.
Dan Serrato	— Young Eagles Coordinator

What a meeting! Our December meeting was also our Christmas party. We had a great spread of food thanks to all of our members and there was more than enough for everybody. There was plenty of food for people to get their fill and we had a great time.

We had a short meeting after our party and Glenn handed out pins and award certificates. After this, it was cleanup time. It was a great meeting and party and we all enjoyed ourselves. It was a great way to end the year.

Our January meeting comes up on Monday and we will be having our meal-before-the-meeting. David Barrett will be providing everything and will also be discussing what's new in the EFIS market. He also brought up some ideas for discussions at meetings throughout the year. It's a new year with a brand new slate to fill up. Let's come up with some ideas for meetings and for chapter activities. Be thinking about what you think our chapter can do and what we can discuss and bring your ideas and suggestions to the next meeting.

Upcoming Chapter Events

Jan. 11, 2010 7:00 PM

Our meeting will be in the airport conference room. The meeting will be at 7:00 and our meal will be served at 6:30. David will taking care of the meal and promises that it will be good and that there will be plenty. So, make sure you make it to the meeting by 6:30 and bring your appetite and your ideas.

Jan. 16, 2010 8:00 — 10:30 AM Chapter Pancake Breakfast.

We will be having our monthly breakfast from 8:00 to 10:30. We need people to come at 7:30 and help set up, and also people at the end to help clean up. It has been a cold two weeks but the 10-day forecast calls for the weather to finally get warmer by Saturday, though with showers, big surprise. The breakfast is still a week away and that could change so invite someone to the breakfast and let's hope for the best.

Our December breakfast went off okay though it was somewhat cold and cloudy. The clouds were enough to keep anybody from flying in so it was mainly just chapter members at the breakfast.

We did have Larry Black come in from Auburn though and we still had a good time, even if it was cold. There weren't any pictures at this breakfast so let your imagination fill in the rest.

We didn't have much luck with weather in 2009 but maybe we'll have better luck in 2010. Let's at least make sure we support our own chapter and come to the breakfast when we can and also help with the setting up and cleaning up.

FAA Team - FAASafety.gov

Add some tools to your aeronautical knowledge toolbox. Check out the new course “**Aeronautical Decision Making for VFR Pilots**” available at www.FAASafety.gov. The course is based on the FAA’s Risk Management Handbook and free to the public.



Sun 'n Fun

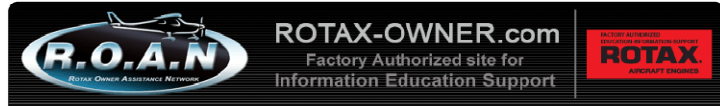
13-18 April

Forum and seminar schedules are available at <http://www.sun-n-fun.org/>



Thunderbirds

Sun 'n Fun
April 17-18



Is a Rotax engine in your future? See the new **Rotax 912 line maintenance manual** at <http://www.rotax-owner.com/manualsintro.htm>

*Air Show
season is
just around
the
corner!*



Blue Angels

Vidalia Onion Festival
Airshow

April 24-25

Wings Over Marietta

October 16-17



13th Annual

Thunder In The Valley Air Show
March 20 - 21, 2010
Columbus Airport (CSG),



With winter fully upon us, it's a time when cockpit windows are always closed, and CO₂ gas becomes a real danger. The following article addresses this.

The Silent Killer: How To Prevent CO Poisoning in Your Airplane

You can't see it, smell it, or taste it, but it's a dangerous killer that can easily find its way inside your airplane. Known as the "silent killer," carbon monoxide (CO) can have deadly consequences if not detected early enough. Although CO poisoning can wreak havoc on a cockpit anytime of the year, it's during the winter season that it most often rears its ugly head. That's because most small airplanes use exhaust systems for cabin heat and windshield defrosting, the perfect conduit for CO gases created during engine combustion to sneak in.

Pilots can learn more about CO in Barry Ballenger's article "Plane Poison: The Dangers of Carbon Monoxide," in the November/December 2009 issue of FAA Aviation News. Ballenger urges pilots to take extra time to inspect the airplane's heating and defrost system during preflight. "Look for signs of deterioration, such as cracked or distorted components, torn flexible ducting, or loose or missing hardware," adds Ballenger. "Taking a few extra minutes to preflight exhaust system components may save your life."

The following article is really long, but is a very good one to read in light of the current freezing temperatures.

Cold weather flying

Aircraft preparation

During the pleasant days of summer, items of equipment may have 'disappeared'. Make sure the aircraft has serviceable pitot head covers, static vent plugs, control surface locks and, if parked outside, proper tie-downs. Having made sure you have got them – use them.

Some engines may need the aircraft manufacturer's approved winter cooling restrictor to allow the oil and cylinders to reach and maintain correct operating temperatures. After fitting, keep an eye on the oil temperature/cylinder head temperature, especially if the weather turns warmer.

The grade of engine oil may need to be changed when operating in colder conditions. Consult the Manufacturers Manual or Maintenance Organization.

Check that the cabin heater/demister is working properly before you really need to use it. A faulty cabin heater, either combustion or exhaust, can allow exhaust gases, including carbon monoxide, into the cabin. If in doubt, have the heater pressure-tested. Carbon monoxide is colorless, odorless, tasteless, insidious in its effects and lethal. One of the first symptoms may be a severe headache, drowsiness or dizziness.

'Spot' type carbon monoxide detectors only have a limited life when unwrapped. Use a 'fresh' one and read the instructions.

The pitot-static system should be checked for water which can freeze and block the system. If static drains are fitted, know where they are and how to use them.

The battery is worked harder in winter, so make sure it is in good condition and well charged. If you've had to make prolonged attempts to start the engine, when it does start allow plenty of time for the battery to re-charge before using heavy electrical loads. In a

single-engined aircraft it's all you are left with if the electrical charging system fails in flight.

Some aircraft require the addition of Iso-propyl alcohol in the fuel for operation in low ambient temperatures.

Check that all the airframe, propeller and windscreen systems are operating correctly. De-icing systems suffer from neglect and may prove faulty when required. Leaks may have developed in inflatable boots especially on the tailplane (due to stones thrown up by the landing gear/propellers), so check that they **ALL** inflate properly.

Make sure engine crankcase oil breather pipes are clear and free from deposits which can freeze, causing a pressure build-up that could force engine oil seals out of their housings.

Control cable tensions may need to be adjusted.

Flight preparation

If you are planning to visit another airport, make sure it is open. Mud, snow, flooding or frozen ruts may have necessitated closure. Remember also that daylight and airport operating hours are much shorter in winter.

Never fly in icing conditions for which the aircraft is not cleared. Do not be misled into thinking that because an aircraft is fitted with de-icing, or anti-icing, equipment, it is necessarily effective in all conditions. Most general aviation airplanes are not cleared for flight in icing conditions, although some protection may be given. Those cleared are generally cleared only for flight in light icing conditions (the equivalent of a build-up of 12 mm (1/2 inch) of ice in 40 nautical miles). General aviation helicopters are not cleared. (See Pilots' Operating Handbooks, Flight Manuals, etc.)

Continued flight into bad weather is the number one killer in general aviation. Get an up to date aviation weather forecast.

The most likely temperature range for airframe icing is from 0 to -10° C; it rarely occurs at -20° C or colder. Pay attention to any icing warnings. Note the freezing level, it can be surprisingly low even in Spring and Autumn; you may need to descend below it to melt an ice build-up; but beware of high ground. Remember also that altimeters over-read in very low air temperatures, by as much as several hundred feet. You can be lower than you think.

If you are likely to encounter ice en- route, have you room to descend to warmer air? Will the airspace or performance allow you to climb to cold, clear air? (Note that any ice build up may not melt and will degrade cruise performance). Can you land safely at your destination? If the answers to these questions are NO, don't go.

Prepare an accurate route plan with time markers, including an alternative in case you do encounter ice/snow. The countryside looks very different when covered by a blanket of snow and familiar landmarks may have disappeared.

Wet snow, slush or mud can seriously lengthen the take-off run or prevent take-off altogether. Check the Flight Manual and Airplane Performance, and allow a generous safety margin, especially from grass.

Have a cloth handy for de-misting the inside of the windows while taxiing.

Dress sensibly, (you should spend some time outside whilst pre-flying the aircraft), and

have additional warm clothing available in case of heater failure or a forced landing.

Some parts of the country will be pretty inhospitable in winter so, if you are in a single-engined aircraft, file a flight plan and carry a few survival items in case of a forced landing, e.g. warm clothing, silvered survival bag, torch/ mirror and whistle for signaling.

Be prepared to divert and carry a night- stop kit. Don't put pressure on yourself to get home if the weather deteriorates.

When snow has fallen, check SNOWTAMS in the NOTAM series, if available, to find out if your proposed destination, and alternate(s), are open and which operational areas have been cleared. If there is an eight digit code at the end of a METAR, it shows that winter conditions affect that aerodrome. It may be easiest to telephone them. The first two digits, of the eight digit code, are the runway and the last two the braking action. Know the effect that braking action described as, for example POOR, will have on the landing/abandoned take-off distance you need to have available. Bear in mind the effects of a crosswind combined with an icy runway.

Pre-flight

There may be a greater risk of water condensation in aircraft fuel tanks in winter. Drain fluid from all water drains (there can be as many as thirteen on some single-engined aircraft). Drain it into a clear container so that you can see any water. When refueling, ensure the aircraft is properly earthed. The very low humidity on a crisp, cold day can be conducive to a build-up of static electricity.

After flying high such that integral wing tank fuel has been 'cold soaked', and the ambient air is humid and cool, frost will form. If it is raining, almost invisible clear ice may form.

Tests have shown that frost, ice or snow with the thickness and surface roughness of medium or coarse sandpaper reduces lift by as much as 30% and increases drag by 40%. Even a small area can significantly affect the airflow, particularly on a laminar flow wing. Ensure that the entire aircraft is properly de-iced and check visually that all snow, ice and even frost, which can produce a severe loss of lift, is cleared. This includes difficult-to-see 'T' tails. If water has collected in a spinner or control surface and then frozen, this produces serious out-of-balance forces. There is no such thing as a little ice.

The most effective equipment for testing for the presence of frost and ice are your eyes and your hands.

The best way to remove snow is by using a broom or brush. Frozen snow, ice and frost can be removed by using approved de-icing fluid in a pressure sprayer similar to a garden sprayer. An alternative is to melt the ice with hot water and then leather the aircraft dry to prevent re-freezing. Make sure that control surface hinges, vents etc are not contaminated. A scraper might damage aircraft skins and transparencies.

Do not rely on snow blowing off during the take off run. The 'clean aircraft concept' is the only way to fly safely – there should be nothing on the outside of the aircraft that does not belong there.

Check that the pitot heater really is warming the pitot head – but don't burn your hand (use the back of it) or flatten the battery.

Beware of wheel fairings jammed full of mud, snow and slush – particularly mud, as it is dense and doesn't melt (on one occasion 41 kg, nearly 100 lb, of mud was removed from the three wheel fairings of a 4 seat tourer). If the fairings are removed, there may be a loss of performance and removal may invalidate the aircraft's C of A. Check that retractable gear mechanisms are not contaminated. Also, remove mud from the under-side and leading edge of wings and tail plane; it seriously affects airflow.

Water-soaked engine air intake filters can freeze and block the airflow.

If hand-swinging a propeller, perhaps because of a flat battery, move the aircraft to a part of the airfield which isn't slippery. Don't try it unless you've been trained. Use chocks and a qualified person in the cockpit.

During the engine run-up, check that use of carburetor heat gives a satisfactory drop in rpm or manifold pressure.

Check any de-icing boots, particularly the tailplane, for condition, holes etc. Wiping the boots with approved anti-icing fluid will enhance their resistance to ice build up.

Departure

Remember that taxiways and aerodrome obstructions may be hidden by snow, so ask if you are not certain.

Check the cabin heater/demister operation as early as possible. Be prepared to use the DV window.

Taxi slowly to avoid throwing up snow and slush into wheel wells or onto the aircraft's surfaces. Taxiing slowly is safer in case the tires slide on an icy surface. Stop well clear of obstructions if there is any doubt about braking effectiveness.

Allow gyro instruments extra time to spin-up when they are cold.

You may consider using a 'Soft Field' take off technique – if so be sure that you are fully aware of recommended procedures.

Ensure that no carburetor ice is present prior to take-off by carrying out a 15 second carb heat check, both during power checks and before take-off. Ensure the engine is developing full power before taking off.

En route

After take-off on a slushy or snowy runway, select the gear UP-DOWN-UP. This may loosen accumulated slush before it freezes the gear in the up position.

Monitor VOLMET and turn back or divert early if the weather deteriorates. Don't wait until you are in a blinding snowstorm or covered in ice.

Carburetor icing is one of the worst enemies. The chart shows when it is most likely to occur. (See also Leaflet No 14 – 'Piston Engine Icing'.)

Carburetor ice forms stealthily, so monitor engine instruments for loss of rpm (fixed pitch propeller) or manifold pressure (constant speed propeller), which may mean carb ice is forming.

Apply full carb heat periodically (every 10-15 minutes) and keep it on long enough to be ef-

fective. As a guide, carb heat should be applied for a minimum of 15 seconds, or longer if necessary. The engine may run roughly for a short period while the ice melts.

Use carb heat as an intermittent ON/ OFF control – either full hot or full cold. Do not use carb heat continuously or at high power settings unless the Handbook/Flight Manual allows it. At low power settings, eg descent, the application of heat before reducing power, and its continuous use while power is low, is recommended.

During a descent, when using small throttle openings, with full carb heat, increase rpm periodically to warm the engine.
Remember carb heat increases fuel consumption.

At low rpm, use full heat but if appropriate cancel it prior to touchdown in accordance with Manual/Handbook instructions.

In the absence of dew point information assume high humidity when:

- the ground is wet (even dew)
- in precipitation or fog
- just below cloud base

If the aircraft has de-icing boots, it's a good idea to cycle the boots from time to time, even when ice is not expected. This prevents the valves in pneumatic systems from sticking.

If you are flying just above clouds to stay clear of airframe icing, remember that the cloud tops will quickly rise as you fly:

- across high ground;
- towards a warm, cold or occluded front;
- towards a low pressure area.

If you fly into the top of clouds, the concentration of water droplets is often greatest near the cloud top and ice could build up quickly.

Airframe Icing is most frequently encountered within convective clouds, Cumulus or Cumulonimbus (CU/CB) where the build up of ice can be very rapid. In these clouds the icing layer can be several thousand feet thick and a dramatic change of altitude will be required to avoid icing. It is better to avoid flying through these clouds if you can, either by turning back or changing your route.

Icing can also occur in thin layered clouds, especially during the winter. During the autumn, winter and spring an extensive sheet of Stratocumulus (SC) may frequently form just below a temperature inversion, with the temperature in the cloud between 0 to -10° C. Such clouds may only be one to two thousand feet deep but within the cloud layer ice may build up quickly. This icing can be avoided by descending below the cloud, provided there is sufficient height available above the ground, or by climbing above the cloud layer.

If you see ice forming anywhere on the aircraft, act promptly to get out of the conditions, don't wait until the aircraft is loaded with ice. Ice forms easiest on thin edges. As the tailplane generally has a smaller leading edge radius than the wing it means that if you can see it on the wing, the tailplane (or propeller blades) will already have a heavier load. Pilots have reported that ice builds up 3 to 6 times faster on the tailplane than the wing and up to double that on a windshield wiper arm. On some aircraft the tailplane cannot be seen from the cockpit. In fact the pencil like OAT probe is often the first place ice forms. If ice does form, keep the speed up; don't fly too slowly. The stall speed will have increased. The Manual/Handbook may give a minimum speed to cope with increased drag and weight due to ice

build - up.

The stall warning system may be iced up or otherwise affected. It is in any case designed and calibrated to provide indication of wing stall, not the tailplane!

If you've got a big build-up of ice, the drag and weight are increasing while the climb performance is decreasing so you can't climb to get above it. High ground may prevent you from descending.

Tell ATC so that others can be warned.

Most of the time snow, which is already frozen, will not stick to an aircraft, but occasionally wet snow with high moisture content will stick. Treat it like ice.

Freezing rain can occur during the winter months either at or near the ground, or in a layer above the ground. It occurs when warm moist air is moving into a cold region. The invading warm moist air may cause a layer of air, where the temperature is higher than zero° C, to overrun a much colder layer beneath where the temperatures are below zero° C. Under these conditions precipitation forming in the high cloud layers will melt to form rain as it falls through the warm air which will then fall into the sub-freezing layer beneath. This rain will quickly freeze again in the cold air forming a solid layer of clear ice over everything. This clear ice will build up very quickly and be difficult to 'shake off'.

Freezing rain is the most severe form of airframe icing. It can be encountered in flight up to altitudes of 10 000 feet, or it may be encountered on the ground or when flying close to the ground. Aircraft parked outside will be quickly coated with a layer of clear ice, and similarly aircraft in flight. If such conditions are encountered in flight near the ground it is best to land as soon as possible, or if the severe icing is encountered at a higher altitude descend, if possible, into a warmer layer below.

If you are in trouble, tell someone clearly and in good time and make sure the transponder is ON and set to code 7700. The Emergency Services can receive it for other pilots to know.

Summary

- Stay out of icing conditions for which the aircraft has NOT been cleared.
- Note freezing level in the aviation weather forecast. Don't go unless the aircraft is equipped for the conditions.
- Have warm clothing available for pre-flight and in case of heater failure or forced landing.
- Mud, snow and slush will lengthen take off and landing runs. Work out your distances.
- Remove all frost, ice and snow from the aircraft – there is no such thing as a little ice.
- Check carefully that all essential electrical services, especially pitot heat, are working properly.
- Check that the heater/demister are effective. Watch out for any signs of carbon monoxide poisoning.
- Be extra vigilant for carb ice.
- If ice does start to form, act promptly, get out of the conditions by descending (beware of high ground), climbing or diverting.
- If you encounter ice, tell ATC so that others can be warned.
- During the approach if you suspect tailplane ice, or suffer a severe pitch down, **RETRACT THE FLAPS.**
- If you have to land with an iced up airplane, add at least 20% to the approach speed.
- Snow covered, icy or muddy runways will make the landing run much longer and crosswinds harder to handle.

THERE IS NO SUCH THING AS A LITTLE ICE



Here comes our January meeting and along with it, our January meal David Barrett will be providing the meal and it promises to be good.

David will be bringing lasagna, salad, and drinks. If anybody else wants to bring anything else to add to it, David will probably welcome any additions.

It should be a good meal so make sure you don't miss it. Yes, it will be cold, but the meal that we will be having and a great meeting is a good reason to get out and come to the airport.



Upcoming Events

Jan 11 – EAA Chapter 1350 monthly meeting 7:00 at the FBO

Jan 16 – EAA Chapter 1350 pancake breakfast 8:00 –10:30 at LaGrange Callaway Airport. Volunteers and eaters needed!

Feb 6 – Pancake breakfast 8:00 –10:30 at LZU, Lawrenceville, Georgia

Not much else going on since it's winter. Warm weather and the airshow is coming though and there should be no shortage of events in a couple of months.

What are members have been up to, where they've been flying, what they have built

NEXT MEETING WILL BE JANUARY 11, 2010 AT 7:00 P.M.



**TREAT SOMEONE TO
DINNER AND INVITE
THEM TO THE MEETING!**

