



**Experimental Aircraft  
Association Chapter 266,  
Montreal Canada**



- **President's Message**
- **Upcoming Events**
- **How to Beat Fuel Prices**
- **Jabiru Engine Upgrade**

**This month's contributors:**

**Bill Evans**  
**Scott Black**

**Next meeting: Apr. 26, 2012 at 7:30 PM**

**Evening Program:**

**Ronny Gosselin – Flitzer Biplane  
Challenger Montebello Fly-in Video  
EAA Engine Webinar Highlights**

**Location:**

**Room 204  
Penfield Building  
John Abbott College  
Ste. Anne de Bellevue**

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**Check out our website at: <http://eaa266.org>**

**Message from the President****Bill Evans**

Thanks to David Cyr who chaired the March Meeting while I basked in the sun and fun at Lakeland. I fear that Gord Larsen had more fun than I because I had trouble with my feet and didn't venture as far as previously.

Once Sun 'n Fun is behind us, it's safe to assume spring is here for good. So are spring weather changes and winds. Many of us do our annual inspections in the spring. It seems to make sense to inspect aircraft after winter storage or winter flying as the case may be. But there can be trap with this. Now the warm weather is near; the desire to fly is great. If you have an AME inspect your aircraft it's his job to be thorough. If you inspect your own aircraft it's your job too. For safety's sake, take a full day and perform a thorough inspection of your aircraft. It's one of the few things in life you will never regret.

I am told that very few private pilots will actually pull off a good of field landing following an engine failure. Far too many find themselves short and try to stretch the glide or make that low turn. We cannot count the stall/spin accidents across the world. Flight trainings is always a good idea. If you have not practiced emergency landings or have not flown for some time, I strongly recommend that you do some training this spring. Stay current!

The April Meeting will feature Ronny Gosselin who will present his Flitzer biplane. There will also be a video of the Chateau Montebello Fly-in this past winter. Scott Black is preparing to present one of the EAA webinars : the one on piston engine cylinders. It is well worth seeing. I look forward to see you there.

Bill Evans,  
EAA 266 Chapter President

**Upcoming Events****Bill Evans****June 10, St Lazare Flying Club Annual Fly-in Breakfast****July 7, EAA 266 Picnic on at Scott Black's new hangar at Lachute:**

- We will also be treated to a tour of the Puma factory.
- I expect that Tony Watkins of Bush Caddy will be present as will since he shares the same facility.
- Your Board have made arrangements to host this and to BBQ for you. By all means bring what you like, but we will be preparing with food for the others.
- Members are asked to provide plane rides to Lachute. CONTACT Michel Moreau.514-694-2129.

**May 5<sup>th</sup>, Jeunes en Vol /Young Eagles at Lachute:**

The day begins at 9 a.m. We also need volunteer pilots, as well as volunteer ground crews. Discounted Avgas will be offered to volunteers. For more information, please contact Francois Vrana [info@lachuteaviation.com](mailto:info@lachuteaviation.com) or 450-562-1330.

**May 12, Cornwall, ON:** COPA Flight 59 COPA for Kids with a rain date of May 19. For more information, please contact Ross Holden at 613 347-7451 or [rossholden46@hotmail.com](mailto:rossholden46@hotmail.com). Visit our website at [www.copaflight59cfc.ca](http://www.copaflight59cfc.ca)

**June 3, Smiths Falls, ON:** COPA Flight 100. The Smiths Falls Annual Fly-In Breakfast will be held this year on June 3. Fly in, drive in, rain or shine. For more information, please contact Andrew Boyd at [acboyd@gmail.com](mailto:acboyd@gmail.com) or 613-283-1148.

**June 9, Ottawa, ON:** Capital Classic Wings & Wheels (formerly Classic Air Rallye) held at the Canada Aviation and Space Museum grounds at the Rockcliffe Airport featuring warbirds, classic aircraft and vintage cars and flying displays. For further information, please contact Michel Cote at 819-684-9160 (aircraft) or Ben Loiselle at 613-829-2203. Check out our website at [Flightworks.ca](http://Flightworks.ca)

### How to Beat Rising Fuel Prices

Scott Black

As we get onto the 2012 flying season it seems that once again gas prices are creeping up. For those of us who have traditional aircraft engines who want to use 100LL the squeeze on our pocket books is even tighter. While it may seem that the only option is to take up soaring, there are ways to ensure that you make the best use possible of the gas you buy.

Last year I did a major refit on my airplane which included, amongst many other things, switching the Stromberg carb for a Marvel-Schebler and installing a fuel flow sensor and cockpit instrument. The m-s carb has an accelerator pump, so no stumbling on go-arounds, particularly in winter, and it has a much more effective mixture control than the Stromberg. When I started leaning the engine I was in for a big surprise. With the old carb, I had always budgeted about 20 litres per hr for my cruise fuel burn. The new fuel flow gauge told me about the same thing, 19.8 l/hr at 2200rpm and around 100mph. When I started to lean, I could get the fuel flow down to 15 l/hr with no increase in CHT! My engine monitor has sensors for CHT on all cylinders so I could confirm that all cylinders are running at reasonable temperatures. This means that the engine had been running extremely rich and not only wasting all that fuel, but it was probably gumming up the engine with lead as well. Note that I am not running lean of peak. The distribution of the fuel-air mixture between cylinders in a carbureted engine is usually not even enough to do so, with one cylinder starting to run rough before the others. Initially I just leaned until the first sign of rough running. Now I just set the cruise fuel flow down to 15 l/hr since I am familiar with the numbers.

I spent just a bit under \$500 for the sensor and the instrument, which also serves as my fuel gauge. At current fuel prices my saving is about \$10/hr, so in 50 hrs it will have paid for itself. Similar instruments for certified airplanes are a bit more expensive but will still pay for themselves in a relatively short time. I am almost there now. With this gauge in the cockpit I am now more conscious of my fuel burn. If I go up for a leisurely evening cruise, not intending to get anywhere in particular, I can throttle back to 85mph and sip 12.5l/hr. That is squeezing the most fun possible out of my fuel bill. The other benefit is that my fuel quantity, which used to be provided by a float, is accurate to within 1 litre. The float indication was no better than a gross indication i.e. + or - 1/8 of the tank. If there is a leak the fuel flow won't indicate it, but since the tank is behind the instrument panel I think I will know about it. Also, there is provision to hook my existing float sensor to the gauge in addition to the fuel flow if I choose to do so.

GPS ground speed can be manually input into the gauge and it will calculate the range on the remaining fuel and it also shows the endurance in hrs.

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My fuel flow instrumentation has proven itself to be an excellent investment for fuel savings, keeping the engine clean and improved situational awareness in the cockpit.

The sensor I am using is the EI Red Cube (\$200) and the fuel flow instrument is the MGL Avionics FF-1 which sells for \$250. I obtained both at Aircraft Spruce. Installation was quite straight forward with just 3 wires – signal, +ve and ground. No calibration was required and it has proven to be quite accurate.

Scott Black  
Editor, EAA 266 Newsletter



### Engine Upgrade On Sonerai II

Bill Evans

My Sonerai's limited climb was a surprise in November 2007. There was also limited altitude. At 75% the service ceiling was perhaps 7500'. Not bad but not what you want for the mountains. I did a climb test in November 2010 at a gross of 1150 lbs, which means a useful load of 620 lbs. At that weight and OC temperature I get 450 fpm climb. It's not much. I have decided to install a more powerful engine to address the situation.

#### Experience

I hope that after 5 years flying and maintaining a Jabiru engine that I know something about them. The J3300a engine just seems to me to be a longer, more powerful version of what I have now (J2200a). It weighs 180 lbs, about the same as a VW 2100, if the VW has neither starter nor generator.

There are lots of Sonerai builders who say they will install the J3300 engine, but none I found who have. However it comes as a normal option for the Sonex. Jim Davis flies one. He tells me he climbs out at 1500 fpm and cruises at 170 IAS and things are not much different with a passenger.

#### What's the up side?

- **Power:** The J2200a is rated at 80 hp. The Jabiru 3300a engine has seen 127 hp on the test stand.
- **Range:** It is more than just speed and fuel. It's also knees and back. That is say 1hr 45 minutes, presently 265 miles. With the 3300 engine it is more like 343 miles. It may not seem like much but it turns quite a few 3 stop trips into 1 stop trips. Hamilton, Halifax and Val D'or become manageable fly outs, rather than layovers.

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- **Takeoff:** With the J2200a I am limited to say 2500' runways. Hopefully 130 HP will get me off the ground in 1100'. I'm hopeful that airports like St Lazare, Valleyfield, Ile Perrot, Hawkesbury East, even Lancaster may be possible.
- **Passengers:** While Gord Larsen and Bruce Olson have flown my Sonerai in tandem (November 2007), it has not been an everyday activity due to the limited climb performance. However the mission for the aircraft originally was for a 2 seat aircraft. The J3300 reinstates the mission. My kids may get to fly yet, if I can fly it well.
- **Power Loss:** If you have a 4 cylinder engine, even the loss of one can be critical. With a 6 cylinder engine producing 1/3 more HP than you need to take off and climb, a partial power loss due to a bad plug or magneto is noticed but less critical to flight.
- **Cooling:** I worked hard to provide adequate cooling for the J2200 engine cylinders during climb. The 2200 fins are fairly small. The cooling flow and baffles need to be perfect to keep the head temperatures down. The J3300a engine has new heads and better air scoops. The heads have longer fins and cool better. I expect to climb out at 90mph to 130 mph (cruise climb) with CHT's in the green.
- **Go around:** Once I'm on the flare with the 2200, it takes some time to re-gain enough airspeed to climb-out with confidence, perhaps 5 seconds to get airborne. I can likely use 120 hp at 70 mph and those HP would likely enable me to get back into the air more or less at will and establish a climb right away.
- **Aerobatics:** 75 HP is just not enough power to make rolls and loops convincing. 120 HP may be. Andrew Boyd says he'll train me.

### What are the Trade-offs?

- Costs- I think I paid a lot of money for this 3300 engine. There are also additional costs. I've needed to buy an ignition coil, 2 rotors, two distributor caps, carburetor and engine fuel pump and will need to rework the airbox for a 2 1/4" carb intake, \$1000 + on parts. However my 200 hour 2200 engine is popular with the ultralight pilots. Good engines are selling used for \$7000 in the US and UK and since there are *none* available here, may be selling at a high price. This has cost me money but I may regain much of it later.
- Duration- My SII holds 16 gals. Including climb, that presently results in 4 hrs 20 minutes until fuel exhaustion. The 3300 engine will run 3 hours until fuel is exhausted.
  - Fuel- The 2200 burns 17 litres/hour, the 3300 engine burns 21 at same RPM.
  - Fuel cost – at \$1.85, it costs \$7. 50 more per hour flown.
  - Weight- Empty weight is now 530 lbs, the lightest Sonerai II flying. Installing the J3300 engine means 50 lbs more. Useful load is now 620 lbs. Fuel is 96 lbs. I weigh 260 lbs. Baggage is 15 lbs Thus the passenger can weigh 264 lbs. With the 3300engine the passenger must not exceed 214 lbs.
- What stays the same?
  - Electric fuel pump and hoses
  - Cowl flaps. Why are they adequate? The climb and cruise are faster.
  - Cowling
  - Most of the engine wiring and indication remains unchanged or is simplified.
- What's different?
  - The J3300 engine weighs 50 lbs more than the 2200 engine.
  - The carb NACA duct will need to be enlarged to 2 1/4" as will the SCAT hoses.

- Electric carb heat
- An additional oil cooler will be required
- Oil cooler hoses may need to be longer as it's close now.
- The alternator and regulator are 1 piece but produce 3 times the current. There is now a fan belt though the aftermarket alternator has the same CG arm.
- A new engine mount will be required.
- New engine controls
- Both EGT and CHT indication uses 6 probes. Thus 2 new switches are needed.
- I'll need a new prop,
- The cowling air inlets need to be opened out to fit the air scoops.

More to come....

Bill Evans



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**Unclassified****Free Ads for Paid-Up Members**

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**For Sale:** 1980 Pober Pixie P9 Built by Dale Lamport. C-GTLQ.

1 Place, open-cockpit, parasol wing, 65 HP Continental. TTAF & ESOH = 521.

Registered "Amateur Built". Visit [www.greatplains.com/pixie.html](http://www.greatplains.com/pixie.html) for basic data (VW Engine).

Inexpensive, fun flying. Phone **Winston Smith** 613-528-4752 or [pwsmith@cnwl.igs.net](mailto:pwsmith@cnwl.igs.net)

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**For Sale:** Jack Geall is selling his [Zenith CH-200](#) project along with many aviation tools and completed E-Z-E Lift 1650 Floats. For the complete list of items, please refer to the classifieds section of the [January 2008 Newsletter](#). Call 819-274-2275 or 450-689-0359 or email [jackgeall@sympatico.ca](mailto:jackgeall@sympatico.ca)

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**For Sale:** Lycoming O-290G, comes with aircraft oil pan, mags and carburetor. Never operated on an aircraft (was on a propeller driven ski sled) but unknown hours. Call **Pierre Leduc**: 514-817-8421 [pierreleduc0@videotron.ca](mailto:pierreleduc0@videotron.ca). Also, have C-75, C-85, C-145, O-200, O-300 Continental cylinders, a nice Hartzell prop for a C-180 (O-470), a few tail wheel assemblies, C-140 struts, a C-140 right wing, C-180 landing gears, a few 6" wheels as well as transponders and other parts and radios.

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Tie Downs & your Hangar Space now available at CLA6 25 min. from Isle au Torte Bridge off Hwy 401: Lancaster Airpark Inc: N45 12.00' W074 21.75'. 145' ASL. 2400ft x 125ft grass runway 07/25 22111 Old Hwy #2, Bainsville, ON Call **Gord Larsen**...514-697-5259 or 514-262-2470

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**For Sale:** Brand-new [Super Rebel](#) Tri-gear kit that can be upgraded to a Moose, selling for \$24,000 (list price is \$50,000). Contact Gerald Crouse at 506-455-5527 or email: [cggnb@nb.sympatico.ca](mailto:cggnb@nb.sympatico.ca)

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**For Sale:** Durand Mark V homebuilt on floats. Negative stagger wing all metal two seat biplane. Lycoming O-320 160 hp engine and new propeller. Built in 1989 and has relatively few hours on it. Wings are being adapted (leading edge and trailing flaps) for easier water landing. Plane is in Eastern Townships, Quebec, floats and wings are in Cornwall, Ontario. Contact: Thompson Hickey at (705) 267-0371, e-mail: [hickeyjt@persona.ca](mailto:hickeyjt@persona.ca)

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**For Sale:** Rand KR-1 project. Fuselage, wings, controls and empennage are ready for finishing. Wood/foam panel construction. Retractable main gear is installed. Includes Karmann Ghia 1600 engine. Always stored indoors. No damage visible. Asking \$5000. Contact Bill Evans at 514-907-4919 - friend of owner.

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**Wanted:** Used David Clark Headset. Must be in working condition. Prefer noise reduction. Doug Ford Ph 514-620-2902

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**For Sale:** 2 ea. H - Type shoulder harness 2 inch, black with metal to metal fittings. New never used, from Aircraft Spruce, no lap belts, \$100.00. Also, hangar doors (sliding) complete with rails for 40 foot hangar. Door height is 11'5½" all metal. As removed from hangar at Cornwall. \$1200.00. Ed Hannaford. [Skyranch33@sympatico.ca](mailto:Skyranch33@sympatico.ca).

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**For Sale:** 1975 Piper Warrior and lots of engine, airframe, and electronic equipment. Michael Halle 514-631-6676

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**For Rent:** Hangar space in Lachute. In-floor heating, AC, bathroom, equipped for building with shop air and ventilator fan for painting, competitive rates. A great place to keep your airplane or assemble and finish your project. Scott Black (514) 867-7319

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Annual Dues: Sept 1st to Aug 31st: \$25

**Make cheque payable to: EAA Chapter 266**

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