



Skywriter...



August 2014



Our fearless leader, Bashar Hussien, admires a fine example of a Zenair CH-750 in front of the EAA “One Week Wonder” pavilion at Airventure 2014. Bashar’s own CH-750 did not make the trip to Oshkosh this summer, but may someday. See Bashar’s article for more info on this years Airventure.

Monthly Newsletter of the Calgary Recreational & Ultralight Flying Club – COPA Flight 114
Our Mission: To promote safety and camaraderie amongst aviation enthusiasts.

From the Cockpit

By Bashar Hussien

Synopsis Oshkosh 2014

Going to Oshkosh 2014 was on my places to visit for a few years. I was told that for the first visit I should drive to Oshkosh and I may fly in after that. So I did. The event was one of the most mind-boggling events I have ever experienced. Over 10,000 airplanes of all shapes and sizes participated and showed off their beauty in and out of the skies. It was a massive pavilion dedicated to the kings of the sky, filled with many activities and forums to enjoy. It was an all around great experience for me.

One of the main attractions of Oshkosh 2014, the One Week Wonder, sure held up as a fan favorite as I watched over 12 companies and more than 5000 volunteers pitch in to build a complete airplane during the 7-day convention. The CH-750 Cruiser kit airplane was donated by Zenith Aircraft. All of the people looked very motivated and excited as they saw their work take shape into the charming two-seat Light Sport Airplane qualified Cruiser. Kiosks were also available in order to show people how to rivet properly and to see if they could participate in this wonderful experience. I participated in placing one rivet in the plane and I have my pin for that. The plan placed on the checklist board was to start the tail, a wing and the fuselage on Monday. By Tuesday the first wing should be completed, Wednesday and

Thursday would be left for the second wing, and by Friday it should look like an airplane. Sure enough on the 5th day of Oshkosh Airventure 2014, I went and saw the complete silver body of the airplane. The work was completed in one week and the plane is with EAA to be used for a good cause. The One Week Wonder inspired hope that one can do anything if the mind is set to it.

Another very interesting event I took a look at was in the Sonex Aircraft open house. The new Sonex Aero-Vee Turbo engine was unveiled. Sonex CEO Jeremy Monnett explained the benefits of this new engine. Monnett identified how the engine has been powered up from 80 hp to 100 hp, but he added that due to the turbocharger, this engine would



Calgary Recreational and Ultralight Flying Club

COPA Flight 114

Meetings are held on the second Wednesday of every month, except July and August, starting 7:00 PM at the Aerospace Museum, 4629 McCall Way NE Calgary.

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Skywriter

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called the "Fun Fly Zone". I saw the most unique and innovative flying gizmos in this category. These machines really make one ask how in the world does the pilot manage to stay on his seat. The Ultralights sector also featured participation, hands-on learning and flight demonstrations. There were also light planes powered by parachutes and trikes, hot air balloons, and most noticeably the emerging category electric-powered aircrafts. I got to the runway where I saw daily aircraft operations from morning until the evening. All I could think of while watching these small machines was how innovate and creative they are.



The category of gyrocopters was well represented this year. Daily they performed and presented the gyro capabilities and there were a few forums to highlight the modern gyros,

obviously focused on the improved safety features of today gyrocopters.

outperform engines rated at 120 hp to 130 hp. This increases the climb rate of the plane by about 200 to 300 feet per minute and cruise speed by another 25 mph. Next up I saw the Sonex plans for the SubSonex engine program and detailed the PBS TJ-100 Turbojet engine. I found it very interesting watching an engine with such power and yet relative small size just showing how far technology has taken us since the dawn of airplanes.

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My visit to Oshkosh would not have been complete without attending the Ultralights barn or what is

The 7-day marathon was a nice vacation I treated myself with. The massive air show displayed how far people have come in developing a truly enjoyable environment for those with the want to fly. An experience that one simply cannot forget for the epic proportions that it held. The grand stage of airplanes whether fighter jets, light sports, or ultralights is Oshkosh and I cannot wait to be there next year.



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CAVU Dreams

By Ken Beanlands

Photos by Ken Beanlands

Believe it or not, Chrissy did not turn a prop from July 14th until this morning, August 19th! I know that there is no real excuse for wasting all that great weather over the past month, but I at least have a good REASON. I also had no time available to get at the August Skywriter until today. I worked out the numbers and in a 25 day period, I worked 250 hours! Fortunately, things have settled down now.

So, what was keeping me so busy? Well, that story begins in mid-May with the annual inspection of Iain & Dave Colquhoun's beautiful 1953 Cessna 170B in Indus. Three hours into the inspection revealed an oil filter full of expensive shiny bits. Yup, it was producing metal. There seemed to be both magnetic and non-magnetic bits suggesting that the metal was coming from a couple of different places. Considering that the engine was last overhauled in the '60's and was only a couple dozen hours from TBO, it was decided that the engine had to be removed.

For the next month, considerable time was spent talking to vendors and overhaul shops to try and determine the best course of action. There was a lot to consider. The simplest option was to sell the plane as-is and buy something else. However, the plane was an otherwise fine specimen of the classic design having a simple, but functional panel, a nice paint job and relative low total airframe hours.

The second option was to overhaul the original engine and reinstall it. This presented us with a couple of problems. First and foremost was whether or not the core components of the engine (ie. crankshaft, crankcase and camshaft) were reusable. Unfortunately, the 145 hp Continental C-145 and its replacement, the O-300 are no longer supported by the manufacturer. Parts are becoming more and more scarce and expensive as overhaul shops scrounge the few remaining serviceable, used items. Fortunately, this engine core was still rebuildable but would still be quite expensive to overhaul.

Obviously, more than just the engine gets replaced when it's time for overhaul. The aircraft manufacturer will usually recommend replacing the exhaust, baffles, engine controls and performing a non-destructive test of the engine mount. More often than not, the mounts come back with cracks that need to be repaired or replaced.

This brought us to the third option. Instead of reinstalling an orphaned engine, why not go with a newer, more powerful engine. The Lycoming O-360 is arguably the most reliable piston engine made. It's only slightly heavier than the C-145 and produces 35 more horsepower! However, it is drastically different from the C-145 in that it's a four-cylinder rather than a 6 and uses a rear Dynafocal mount system rather than the bed-style mount of the Continental. Obviously, it's not a simple matter of replacing just the engine.

In fact, to use the O-360 on the 170B, the engine mount, exhaust, baffles, oil cooler, engine accessories, propeller and spinner all have to be replaced with new components. The cowl also needs significant modification to accommodate the wider engine and the large ring gear mounted up front.

Fortunately, there's a kit for that! The one we considered was from Del-Air in California. The only things not included in the Del-Air kit were the engine, prop and a few minor hardware pieces salvaged from the Continental. Engine controls are reused as well.

Alberta Aero Engines in Edmonton offered to trade us an O-360 core for the C-145 core we removed, helping make this option more reasonable. The Continental overhaul was about 25% more than the Lycoming which also help offset the cost of the kit and new prop. The cost of replacing the baffles, exhaust and mount for the C-145 brought the cost difference between these two options even closer together. Finally, the performance and resale value of the O-360 powered 170 was significantly better than the C-145 powered plane. After considerable research and deliberation, it was decided that the 170B would receive a rebuilt Lycoming O-360-A4M using the Del-Air kit.

The order for the engine, prop and kit were placed and initial indications were that the kit would arrive on the 7th of July and the engine on the 14th. Perfect! It would take a week or so to get the plane far enough along to install the engine. I also had a two week, full-time teaching stint book in at SAIT for the first two weeks of August and my wife was going to be away in Newfoundland for the last two weeks of July leaving me to take care of the two pups. No problem. The kit would be mostly done by the time Renee left and finishing the estimated 95 hours of work should be easy to accomplish in the four weeks I had before classes started.

Well, we all know what happens with plans! The kit ACTUALLY showed up on July 21st and the engine on the 28th! I now had two weeks to do the install, two weeks in which I was responsible for getting the dogs out for two walks a day! Well, there was nothing for it but to dig in and get 'er done. By the end of the two

weeks, I still had lots of work to do, so I ended up spending my evenings and weekends while at SAIT either working in the shop or down in Indus. Iain was a big help in the last couple of weeks and spent nearly as much time in Indus working on the plane as I did.

The biggest part of the install was the cowl modification. A new two-piece nose cap for the cowl came to replace the original one. Holes had to be positioned and cut in the upper cowling to install the supplied blisters that accommodate the wider engine. The lower cowl was also equipped with a new air filter assembly. By the time it was all done, the cowl modifications made up about half the work required (and they still haven't been painted!).

The kit also included new oil pressure, oil temperature, fuel pressure and ammeter gauges as the old ones simply don't have the range of movement required for the new engine. The plane is fitted with both an engine driven fuel pump and an auxiliary electric pump as the original fuel lines will not deliver enough fuel through gravity alone. The fuel pumps are the simplest ways to get the required fuel flow without replacing the entire fuel system.

The tachometer needed to be reworked with a new green arc and red line. The O-360 is limited in this airframe to only 5 minutes at 180 hp. Maximum continuous power is 145. Of course, that gives plenty of time to take-off and climb, especially considering the new climb rate... oops, spoilers... you'll need to keep reading for that information! ☺

By August 10th I had finally finished most of the install work and the weight and balance. We removed the bottom plugs and motored the engine to pre-oil the engine and confirm fuel pressure. On August 12th we ran the engine and everything went well except for a minor leak in the fuel pressure line and some minor adjustments to the idle and idle mixture settings.

We also got a reading on static RPM. The STC allows for a constant speed prop or one of two fixed pitch props. We chose the Sensenich fixed prop. The STC doesn't specify a propeller pitch but instead, they give you a static RPM range that the engine must make at full power. For the Sensenich, the range is



First trial fit of the modified cowl. Blisters yet to be installed.

2325-2425 RPM. We hit 2367... right in the middle of the range! This was great as it meant that the propeller didn't have to come off for a repitch.

I spent two days working on the paperwork and by Wednesday evening everything was done. We hadn't planned to fly that evening, but with the plane ready and an hour of daylight left, Iain and Dave decided it was time to see the fruits of our labour.

Not having flown the plane prior to the conversion, I wasn't really sure what the benchmark should be. However, seeing the plane get airborne in the first 1/3 of runway 34 and be close to 500' as it passed over Highway 22, I suspected that it was the performance was satisfactory, despite the 25°C air temperature.

As the plane taxied back and stopped, Dave jumped out with a huge grin on his face and said "Ken, jump in... you gotta try this out!" I did a circuit with Dave and saw what he was talking about. Again, we were off the ground in about 600-700' after a very spirited acceleration. The climb rate touched 1200 fpm as we left the ground, but stabilized at 1000 fpm. I asked Iain what the original performance was like and found out that they would take up about 3/4 of the runway for take-off and generally see 300-400 fpm with the same load and OAT. We only did one circuit before landing just before official night so we didn't get to investigate the cruise numbers.

So far, the only issue we've had post-installation was an oil leak at the oil temperature bulb. It took a while to track down but was easily fixed when we finally found the source. Iain and I did get out for another flight Saturday afternoon. The maximum cruise speed



some experience with this kit earlier this spring when I annualled a 1956 C-172 with the same conversion. The owner was also gracious enough to give me access to the 172 while I was working on the 170, which was a big help.

With the combination of the 170 project and instructing at SAIT, the month was a bust for flying. Of course, with the end of the work comes the end of the fine summer flying weather. Oh well, my favorite time to fly is quickly approaching and I do plan on putting in a few hours over the next couple of months. Speaking of which, I will be teaching at

SAIT again this fall, filling in for an instructor who is retiring at the end of August while they find his replacement.

Well, that's it for this month. Remember that our first fall meeting will be on Wednesday, September 10th at 7 PM. I look forward to seeing everyone and hearing all your summer flying stories. →

has improved from 95 mph to a solid 115 mph. Fuel burn has stabilized to about 9 gph, but they have been running the engine right at the maximum continuous power setting (2500 rpm) during the break-in period. I suspect that once they get the oil consumption stabilized and start running at a more sedate 2200-2300 rpm, they will likely see more economical numbers than the C-145. They have also commented that the new engine is quieter than the Continental. The only real negative to the project was the increase in weight. We saw about a 70 lb increase in empty weight with the new engine, which still leaves over 800 lbs useful, including unusable fuel.

Overall, they are quite happy with the conversion and have no regrets. From my perspective, I'd have no problems doing another Del-Air kit in the future. The STC also covers the Cessna 172 line, with the later models being a bit simpler as they already have a similar Lycoming O-320 to begin with. Fortunately, I did get



FOR SALE



1995 Rans Coyote II S6-ES For Sale: Rotax 912UL (80HP). 250 Hrs. 116 Wing. GSC 2 blade ground adjustable prop. Cruise 100+ MPH burning 3.5 gph of premium auto fuel. Registered as Amateur-built. Recovered in 2007 and also added many updates at that time. Excellent condition. \$30000.00 For more information contact John Munchrath at 403-901-9661 or email john.munchrath@figment.ca (01/13)

1960 CESSNA 150 FOR SALE. 7780 TTSN Approx 1260 SMOH Running excellent. Low oil consumption. Nav / Com. Intercom. ELT. Transponder. New ignition wiring harness. All new engine hoses. 2010 full strip and new paint. All new glass. All new exterior plastic. Seats and interior in good condition. Oleo and Shimmy Dampener O/H'd. Hangered and Flown. Great toy or time builder. Hanger space may be available at Carstairs GCB2. Contact Alex Fox \$25,400.00 403-337-0126 (06/13)

EA81 Aircraft Engine For Sale. 100 HP. 2.2 to 1 belt redrive by Reductions. Leburg electronic ignition. I have a second Leburg ignition so it can be dualled. Ran with Aeroconversions Aerocarb. Manuals for everything. Stratus Stainless steel muffler and exhaust. Custom rad with AN-20 fittings and braided stainless hoses. Engine mount fits a Kitfox IV. Very low hours. Please Contact Tim Vader at vadert@shaw.ca or 403 620-3848

KR2 For Sale: NOT AN OLD FARTS AIRPLANE! Air frame TT 30 hours. Engine Continental A 65/75 TSMOH 970, No Electrics, No Electronics \$12,000.00 OBO. Glen Clarke 403-279-1036 clarkekg@telus.net (11/11)→

FLYING EVENTS

WEEKLY Lethbridge, AB – The Lethbridge Sport Flyers (COPA Flight 24) would like to invite you to our weekly Saturday morning breakfast, 7:30 am, held at Smitty's Pancake House, 2053 Magrath Dr. S. in Lethbridge, Alberta. To contact us please call our club President, Brian Wilson 403-345-6603 or send us an email at Lethbridge-Sport-Flyers@telus.net.

MONTHLY First Thursday of every month High River Airport (CEN4), AB – EAA Chapter 1410 Monthly Meeting at the Air Cadet Hanger the 18:30hrs to 21:00hrs. Come by and visit! Please contact Paul evenings at 403-271-5330 or eaahighriver@shaw.ca or visit www.eaahighriver.org for more details.

August 23rd, Rocky Mountain House, AB (CYRM) – COPA Flight 166/Rocky Mountain Airport Fly-In Breakfast from 07:00 till 12:00. Co-ordinates are N52 25 47 W 114 54 15. For more information, please contact W.J.Horemans at wij@xplornet.com.

August 23rd, Claresholm, AB (CEJ4) – Fly-In Breakfast from 8:00 a.m. until 11:00 a.m. Sponsored by Town of Claresholm, Chamber of Commerce, and put on by Lions Club. Rides to/from town available (museum, murals, etc.) co-ordinates for the event is N50 00 17 W113 37 48 (NDB-408). For more information, please contact Murray at 403-625-3782 or frameaviation@hotmail.com.

September 1st, Stettler, AB (EJ3) – COPA Flight 135 Stettler Flying Club annual Fly-In breakfast Labour Day Monday. All you can eat pancakes, eggs, ham & sausages from 8:00 a.m. until 11:00 a.m. For more information, please see sites.google.com/site/stettlerflyingclub or contact stettlerflyingclub@gmail.com.

September 28th, High River, AB (CEN4) – High River Airport Fly-in Breakfast from 08:00 to 11:00 in conjunction with the Annual River Classics Car Club Show & Shine in downtown High River. Co-ordinates for the event are Lat. (N) 50 32 01; Long. (W) 113 50 34. For more information, please contact Jim Bleaney at j-sbleaney@shaw.ca →