CALGARY ULTRALIGHT FLYING CLUB

Skywriter

Monthly Newsletter of the Calgary Ultralight Flying Club

August 2002

From The Cockpit

by Bob Kooyman

July has been a great month for flying, hot, clear and dry. It has also been a great month for the CUFC membership flying off to various places for business and pleasure.

The executive has also been busy and several moves will be occurring in the fall. The first move is our meeting site. We will hold our fall meetings in the new meeting room at the Air Museum on the second Thursday of September. Admission to the Museum before/after the meeting is free.

The demise of Cadvision is going to cause a move for our website also. Webmaster Dan Mitchell is looking at revamping the site and will be moving to a new host using our own Domain Name. The site will likely go down in mid-August to re-appear hopefully in September at the location.

High on the list of destinations was Bob Kirkby's wonderful fly-in breakfast on Saturday July 20th. Thanks to all the club members who attended. It was a perfect day for a fly-in with light winds and clear skies. I was quite exciting to walk around and see the variety of aircraft that flew in including five aircraft from the Lethbridge flying club. In fact, so many aircraft were present that Carl was hard pressed to find parking for them all.

I was unable to attend the Vulcan fly-on Sunday July 21st but I know a number of club members attended and I look forward to a discussion of this event at our September club meeting. Vulcan is a comfortable destination for ultralights (~80 miles) and we may want to organize a more formal club flyout next year.

I flew down to Vulcan the following weekend with Carl Forman in his C-172 in the company of Bob Kirkby and his son in the Starduster Two and Reid Huzzey in his bright red Challenger. The flight down was beautiful and smooth. It gave me an excellent opportunity to compare map, compass and GPS while playing with Carl's new Icom A-5 handheld radio. Despite the disparate performance of the three aircraft, we arrived at Vulcan within a couple of minutes of each other, "just like we planned". The breakfast at the golf course had gone up a bit but $5.50 for a plate filling three egg omlette with all the fixing plus $1.00 for coffee is hard to beat. We had a few heat bumps on the trip home but turbulence was minor and visibility was great.

The Club will be hosting its Annual Fly-In Breakfast at Chestermere-Kirkby on Saturday, 10 August (rain day Sunday 11 Aug). Bernie Kespe and Guy Christe do a wonderful job of organizing and cooking and deserve a big hand. Thanks also to Bob for volunteering his field as the destination. I look forward to visiting with the club members on this day.

While I write this, it is cold, wet and raining. For hanger flying, I found several interesting sites on the web to visit. For the Challenger owners/builders, I recommend a visit to Freedom Flite at www.ultralightassembly.com. Owner Terry Mayhew has developed a unique business building and repairing Challenges in the Muskoka, Ontario area. He has also developed a number of interesting modifications that may be of interest.

Club member Ken Beanland had a great site with excellent links to various supplies as well as a description of his Christavia MK1. Ken's web presence is at www.spots.ab.ca/~kbeanlan/.

Lastly, I happened upon an excellent reference library for U/L aircraft building a t http://exp-aircraft.com/library/library.com. Note that this URL does not have a www in it.

I look forward to seeing you all at the Club breakfast and in September. ✈

New Meeting Location

The September meeting will be at the Aerospace Museum on McKnight Blvd. We're going to give it a try to see what it would be like.

For Sale

Propeller - 3-blade ground adjustable IVOPROP, tractor, 72" dia, 30" to 70" pitch range, weighs 8 lbs., 5 hours TT. Not recommended for Rotax 'B' gear box. $725 OBO. Bernie Kespe 403-255-7419 or bernie.raymac@shaw.ca (07/02)

Fisher 404 - bi-plane, 65hp Rotax 532, VHF radio, excellent condition, easy to fly, $13,500 OBO, Ron (403) 207-1147 (07/02)

Piper Vagabond PA17 - 10hr since total rebuilt, Continental A65 10 hrs STOH, $25,000 OBO, Glen Clark, (403) 279-1036 (07/02)

COSMOS Phase II Trike - 1997, loaded with extras, 582 Rotax, 6-blade prop, 14.9 wing, electric start, trailer, high-speed/two-step floats (new), BRS900. Hangared, 200 hours. $35,000 OBO. Call Ted (403) 722-3810 or trmatt@telusplanet.net (07/02)

Garmin GPSmap 295 - colour, best available. Sells for about $2,500.00, yours for $2,000.00. New, still in Box. Buzz Mawdsley 403-974-1205W 403-271-7931H (05/02)

Kolb Firestar - Single seat ultralight, excellent condition, good panel, Rotax 447, 160 hrs TTAE. 10 minute wing fold for easy storage. Complete with enclosed trailer which can be used as a hangar. Asking $15,000.00 For details and pictures contact Andy Cumming (403) 380-6291 or flyingac@hotmail.com (05/02)

Continental 65 - with prop, 300hrs, high compression pistons make it an 80hp, $5500. Call Don (250) 427-2046. (05/02)

Loran-C - Apollo 604 with antenna, works great, $150. Bob Kirkby (403) 569-9541. (04/02)

Propeller For Sale: 2-Blade wood, 68x32 tractor for Rotax 503DC. Leading edge protection, 60 hours TT, great condition. $350 CDN, obo. Includes bolts and mounting plate. Call Stu at (403) 255-6998 or e-mail ssimpson@telus.net for pictures. (02/02)

1995 TEAM Himax.- 314TT, 60hrs SMOH on Rotax 503DC, 2-blade ground adjustable prop, good panel, spinner, speed fairngs, VHF antenna, large cockpit, always hangared. Great performance and handling. Reduced to $8500. Call Stu at (403) 255-6998 or e-mail ssimpson@telus.net (02/02)

Tundra - two for sale, both with Rotax 503 and 100 hrs, one enclosed - $15,000 and one open - $14,000. Garrett Komm 257-3127 or 874-6447. (02/02)

Super Koala - Rotax 503, DCDI, Culver wood prop. Airspeed, Altimeter, Tach, CHT, EGT, Hour meter, Fuel gauge. Heated cockpit. Less than 200 TT on new engine and airframe. This is an attractive, predictable and easy to fly taildragger. Open to any serious offers. Dale (403)293-3826. (01/02)

Ads reprinted from the St. Albert Flying Club Newsletter

Zenair 601 UL - Jabiru engine, 100hrs, 500 TTAF, good radio & intercom, fresh annual, 100mph on 3gph, 5hr range, Dave 780-459-8535 or 458-8324.

Floats - with lockers, spray rails, water rudders and rigging. Suitable for ultralight or home built up to 1500 lbs, weight 130lbs, $3000 OBO. Reg Lukasik 780-459-0813.

Skywriter

Skywriter is the official newsletter of the Calgary Ultralight Flying Club and is published 12 times per year. Forward your articles and letters to:

Editor: Bob Kirkby 569-9541
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Assistant-editor: Bernie Kespe (see below)

Calgary Ultralight Flying Club

Meetings of the Calgary Ultralight Flying Club are held on the second Thursday of every month, except July and August, at 7:00 pm, at the Northeast Armoury, 1227 - 38 Avenue NE.

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Visit the CUFC web site:
www.cadvision.com/cufc/

Dawson Creek

Here we come!

This year's Alberta AirVenture Tour to Dawson Creek is scheduled for August 26 to 30 and planning is well underway. At a meeting organized by Stu Simpson on July 22nd most of the details were finalized. We have a tremendous amount of interest this year.

So far the following people are planning on joining the flight:

1. Stu Simpson in his Bushmaster
2. Carl Forman in his MiniMax
3. Glen Bishell in his Bushmaster
4. Reid Hussey in his Challenger
5. Allan Botting in his Challenger
6. Dave Conquergood in his Pietenpol
7. Glen & Kay Clark in their Piper Cub
8. Andy Gustafsson in his Merlin
9. Bob Kirkby in his Starduster Too
10. Gerry MacDonald in his Cessna 182

From the Lethbridge club:

11. Joe Harrington in his Beaver RX550
12. Han LeBlanc in his Challenger
13. Larry Oddan in his Cuby II

Some of the St. Alberta Flying Club people might join up in Drayton Valley.

The all-important ground crew will be made up of: Bruce Piepgrass, Bob Kooyman, Mac Harrison, Doug Fortune, Adrian Anderson and Alice Bishell.

There's still time! Contact Stu Simpson if you would like to join the fun.

My Merlin Project Part 6

by Andy Gustafsson

In my last update in the July issue of the Skywriter I had finished the fuselage with the paint job and instrument installation. The time has now come to choose an engine for my aircraft. Several engine options are suited for the Merlin. The airplane flies just fine on the Rotax 582. It does not have the performance of a Pilatus Porter PC-6 but again adequate. My oldest son, however kept talking me into the Rotax 912, 80 hp engine. I had the opportunity to pilot a Katana with the same type of engine last year in Sweden and was impressed with its quiet and smooth performance. So I succumbed to the pressure and ordered a Pilatus PC-6, no no, I mean a 912 Rotax.

There is lots of room for the 4-cylinder engine under the new Merlin fiberglass cowling. It is bolted down on four rubber "lord-mounts" on the engine mount that effectively eliminates engine vibrations. Since it has what is called a dry sump and being a 4-stroke engine, it needs a remote oil tank that is, in this case mounted on the firewall. Oil is drawn from the tank, through the oil cooler and into the engine. The 912 also has liquid cooled heads and needs a small radiator. I made all the necessary brackets and hung the oil cooler behind the radiator, away from the engine cradle and vibrations. Why behind the rad? On cooler days the engine oil is cooled too efficiently out in the fresh ram air, so heat from the rad helps the oil cooler to get up to its right operating temperature. All hoses needed are easily routed to the designated connectors on the rad or cooler. On my installation the need for 90 degree elbows in the radiator hose connections were totally eliminated. All hoses are routed away from hot exhaust pipes. The source of cabin heat is not finalized yet but could be harnessed from the heat that comes off the oil cooler. More on that later. The exhaust system was installed before any oil or coolant hoses. The whole engine package fits well without cramping any components thanks to the roomy cowling. The new cowling gives the Merlin a very distinctive and complete look.

The wing covering and fabric preparation before painting can sometimes seem like a never-ending venture. I kept working away on it and before I knew it, it was done. You need to take your time with the fabric covering. Any little flaw will show later after painting. Use your iron to flatten down all pinked finishing tape edges, and run your finger down them to make sure that all edges are as smooth as can be. Fabric covering and the techniques should be studied carefully and understood before starting this important task.

Andy's Merlin almost ready to fly.

I installed a landing light in the left wing that will have a clear lens on the leading edge. To smoothly bend a piece of Lexan is not the easiest task. Maybe someone can give me some advice on that. I intend to have a 50-watt halogen bulb in the landing light and another 50-watt bulb on top of the tail, blinking slowly, and alternating between them. This way only 50 watts are drawn at any given time. The landing light can, of course, be turned on steady as well, if I choose to. I'm hoping this alternating arrangement will make me more visible in the air. The pitot tube is also located in the left wing and is connected to the airspeed indicator by a hose. I have painted the wings and the tail feathers as well as the fuselage white with blue trim. My favorite colors someone said. I think it looks crisp.

Under a blistering hot sun outside of my garage, I mounted the wings and hooked up the aileron control tubes. Everything fits very nicely and with zero play, without any binding. It's amazing how many people show up when an airplane sits in your driveway. Pictures are being taken and some people keep coming back day after day. When they ask what kind of airplane I am building and I tell them "its an ultra-light", they say "I thought it was a real airplane". "Well, it is a real airplane, isn't it." I get the feeling that what we aircraft enthusiasts are doing in our garages is quite rare among the general public. Everyone let me know that if I need a hand just call on him or her.

The ailerons are of "Junkers" type, which mean they are hanging aft and below the wing. The aileron deflection is designed to minimize adverse yaw. For example, in a left turn the left aileron is moved to the up position while the right aileron stays almost flat, and visa versa for the right turn, resulting in no drag on the "up" wing.

My Merlin is now sitting at Indus airport where I am doing the final assembly. What sometimes seems to take a couple of days will take a couple of weeks. There is still a lot of work remaining to get everything installed and adjusted the way it should be. The wing installation went well with everything fitting snug and precise. The whole assembly is totally square. Something that I emphasized was the free and easy aileron movement. There is no binding or play in any of the pivot points in the aileron linkage. It is designed to be simple and that is what gives it the solid feel.

Next month I hope to have test flown my Merlin, so stay tuned. ✈

Float Flying in the Okanagan

by Brian Vasseur

Beatrice and I decided to take a trip to BC and find something exciting to do. After trying sailing without wind and racing a jetski at a rental cost higher than a Cessna we decided to do a float plane charter flight.

At the Grand Hotel in Kelowna there was a floatplane parked at the pier with a booth selling tour flights under the name AirHart. We figured out that 1/2 hour ought to be enough. After some tense negotiation and lots of crying Beatrice agreed to let me sit in front. Apparently she can't stand to see a grown man cry.

The airplane was a 172XP, basically a 200 horsepower Skyhawk on floats. I thought about asking to see the last C of A since it was a rather tired looking plane, but decided against it since I really didn't figure that they would try and run without the maintenance being current. Very quickly after startup I realized that this operation was quite likely the marine version of Derry Air.

We started up and immediately taxied out of the bay. As soon as we got past the no-wake markers the water rudders came up, a quick mag check and we were taking off. We gained altitude and we turned north from Kelowna to fly along the lake and sight see. Since the pilot knew Beatrice and I were also pilots he turned control over ot me.

I did a quick scan of the instruments to make sure everything was OK. The tach was placarded 100rpm low, that was OK, but we were showing only about 8gph pulling 23 inches MP, too low for a TSIO360. When I asked about it he just said that at the last 100 hour they checked it and it must just be reading low since we had to be pulling 10gph at this power setting.

I also had to quckly abandon the idea of any IFR flight since the horizon was tilted off at about 50 degrees and the suction guage was clockwise all the way to the pins. The turn and bank seemed to work so I figured on a perfectly clear day this was just one of those maintenance things put off due to cost. The fuel tanks were on both but the left guage was below the E with the right guage about 1/2 tanks. We were definitely going to keep this flight under 1/2 hour although I was pretty sure there had to be fuel in both tanks.

Since we were straight and level anyway at 2500MSL I relaxed and enjoyed the sights, and at the north end of the lake we passed thru the mountains over the golf course to Kalmalka lake. There's some incredibly nice houses along the beach, many for $500K plus. A bit out of my price range but they were nice to look at. If you were someone who really liked water this would be a place you would really be happy.

Kalmalka is a beautiful lake, crystal ckear and blue right to the bottom. We stayed close to the west edge of the lake at 2500 since the Kelowna runway is right in line with the east bank of the lake. The pilot pointed out all the sights, and turned out to be a fairly good tour guide. Having headsets made for a quiet flight and easy to talk back and forth. Beatrice kept pretty quiet in the back, maybe plotting how to get me to change seats. The houses on Okanagan lake were nicer but it's easy to see why Kalmalka is such a nice camping spot. We eventually passed the end of woods lake and then turned to follow the north end of Kelowna back to the Grand Hotel. I started to descend and as soon as we got back to the lake I handled the controls back to the pilot. In hindsight this might not have been the best decision since this is when I started to get really nervous.

About 1000 feet north of the Grand Hotel is a sawmill. We passed directly over it and began the turn south to land. Instead of going another 500 feet west over the water the pilot turned directly towards the Grand hotel and started the landing. Lots of flaps and we were lined up directly with the no wake markers. We ended up passing over the houses at about 150 AGL and just cleared the bird sanctuary. This was the shortest taxi and probably the smoothest water since there was about a 10-15kt wind making it a bit rough.

The landing was basically uneventful, but I wasn't at all comfortable with the thought of what would happen if we had hit a calm as we passed over the beach at such a low altitude. We were able to *(continued on page 5)*

Flying Events

August 10 - Calgary Ultralight Flying Club fly-in breakfast at Chestermere-Kirkby Field. Contact Bernie Kespe 255-7419.

August 11 - Westlock fly-in breakfast and air show. Breakfast starts 8:00am and air show starts 11:00am. Info Bill Baker 780-349-6606.

August 11 - Pincher Creek annual fly-in breakfast, 8am to noon, info call 403-627-3080.

August 17 - Fly-out to Vulcan to meet up with the Lethbridge Club for breakfast at the golf course. Contact Dave Procyshen for details 403-257-8064. (Rain date is August 18.)

August 25 - Hanna Fly-in Breakfast 7am to 1pm, Mark Fredericks 403-854-4522.

August 26-30 - 2002 Alberta Air Adventure Tour to Dawson Creek. To join contact Stu Simpson 255-6998.

September 2 - Stettler fly-in breakfast, 7am to noon, info call 403-742-6657.

September 8 - St. Albert Flying Club annual Fred Herzog memorial fly-in breakfast, 7:30am to 10:30am, info call Ben 780-458-1606.

September 8 - Calgary Ultralight Flying Club BBQ at Dave Boulton's airstirp. Contact Bernie Kespe 255-7419.

September 14 - Glen Bishell's annual fly-in and all-day BBQ at Carstairs-Bishell airfield. From 8:00 am on.

September 15 - Rocky Mountain House Air Show and Fly-in Breakfast. Info 403-845-4742.

Float Flying - *continued from page 4*

quickly taxi back to the pier where the next group was waiting. As we walked back up the pier the pilot mentioned that he was getting concerned about the wind since just fairly recently had had the wind blow him over turing a taxi. I made a half hearted joke about his insurance company and we parted company.

Overall it was a nice flight and a good way to see the area, but I would have expected a tour company to put more emphasis on some of the little details. I can imagine some people would be a bit unnerved to be looking at the instruments and seeing the fuel guages on empty or the horizon tilted out of alignment. Even staying out over the water on landing might help to reassure your passengers. Given a chance I'd do the flight again, but I think next time I'll ask more questions to reassure myself that the operator would make me feel comfortable. It's a tough business though and it was clear this operation wasn't making these guys rich.

It's hard to know how to size up a tour trip like this up front. A freshly painted airplane might seem like it's part of a well run operation, or it could be a new startup or a new pilot without lots of experience. The pilot we had seemed completely comfortable in the airplane, and it was evident from the way he handled the plane that he' d spent a lot of hours in that seat. Was he so comfortable with this plane that he knew the approach was safe, or was he too comfortable with the plane and maybe too much in a rush to get the next group out before the weather got bad.

If I were to do this again I'd ask a few more questions and hope I can make some kind of informed decision. It's hard though when your a passenger and trying to enjoy the experience as well so you have to have some trust in Transport to ensure the operators in business are safe. In the end I still had a good time and I think a float flying tour is a great way to see someplace new. ✈

Mail Bag

Editor:

One comment on the "Beware the Wind" article in the July issue.

During my private pilot training, I had the opportunity to practice a crosswind landing under turbulent conditions. The instruction given was to use a much higher approach speed so that if the head wind component suddenly dropped, there would be additional airspeed available to prevent stalling. The airport was Kamloops, BC. Instead of the normal 60-70kt approach speed I opted for 80 kts. This meant the nose would be lower during the landing, putting added stress on the nose gear. The aim of this exercise was to land with all three gear contacting the runway at the same time for maximum control.

My solution was to carry the 80 kts right down to the runway threshold. Normally, one does not use flaps in strong crosswinds because it can cause directional control problems. I flew the aircraft onto the ground in level attitude, maintaining a higher than normal power setting to reduce the descent rate. Then if the wind changed direction abruptly or the headwind component became a tail wind, I would be low enough that a stall would not damage the aircraft and the higher landing speed would increase control effectiveness. Of course, the float combined with the higher landing speed caused much runway to be used up and heavy braking was required to stop. The heavy braking also greatly reduced the transition time where flight controls lose effectiveness and the landing gear gain effectiveness.

One also needs to understand that different aircraft react differently to high landing speeds. The low wing Piper Archer I was flying liked being flown onto the runway while some aircraft don't. High wing aircraft are more susceptible to gusts and crosswinds than low wing aircraft but low wing aircraft tend to float longer. So take your pick.

From the article, it is not clear whether the pilot was carrying out a landing using normal procedures although it appears likely. Whenever the wind speed or direction changes rapidly during an approach the first action should be to apply power and increase airspeed, as the pilot in the newsletter tried to do, albeit, far too late even though he was aware of the changing wind direction of 90 degrees.

From my successful landing I can tell you it was one of the most stressful landings I've made. The emphasis must be to maintain flying speed at all costs and during gusty conditions, an airspeed well in excess of normal approach speed must be used to increase control authority to battle gusts. Here again, experience will teach you the best speed to use. A general rule of thumb is to increase landing speed 1/2 of the gust speed up to a maximum of 10kts or mph.

From what I've read, ultralight aircraft slow down very quickly when power is reduced and are far more affected by gusts because of the lighter wing loading and lower landing speeds. If all else fails, landing across the runway into the wind is far less risky than battling a strong gusty crosswind. This reminds me of the Piper Cub pilot who said the runway was only two hundred feet long but it was several thousand feet wide.

Well, that's my point of view. The writer seemed interested in trying to figure out a solution to the problem. Perhaps this input might help?

David Coldwell, Calgary

Avoiding seizures in Two-Stroke Engines

by Bruce Piepgrass

I am no export when it comes to engines. But since the engine is the single most expensive part of most ultralights, I want to be able to protect my investment. I believe that my best protection will be to have a good understanding of how to operate it to avoid the most common and costly problems. Perhaps the most costly event (as well as a potentially dangerous one) is a piston seizure. This is something that I definitely want to avoid!

One source of information that many people turn to these days is the internet, and I have, on occasion, found some interesting information on the subject of engines. I can't vouch for the accuracy of this information, but you may find it interesting too.

It seems that the four most common reasons for seizures are piston expansion, piston melting, lack of lubrication and foreign objects. The last two are more of a maintenance issue, so I am more interested in the mysteries of the first two.

Perhaps two of the most important indicators of the health of a two-stroke engine are the cylinder head temperature (CHT), and exhaust temperature (EGT). We all know that both temperatures must be kept from getting too high. But both temperatures going up is less dangerous than just the EGT going up by its self. The explanation makes sense once you understand the reasons.

The CHT, of course, gives an indication of the temperatures of the cylinder. Since it is a bit difficult to but a temperature probe on the piston, we use the EGT as an indicator. The higher the EGT, the hotter the piston. Now, metal expands as it gets hotter, and there is not a lot of clearance between the sides of the piston and the walls of the cylinder. So, if the piston gets a lot hotter than the cylinder, the clearance will get smaller and smaller.

Look at it this way. Here are four possible situations:

1) Cool (small) piston + Cool (small) cylinder = no problem.
2) Cool (small) piston + Hot (big) cylinder = no problem.
3) Hot (big) piston + Hot (big) cylinder = no problem.
4) Hot (big) piston + Cool (small) cylinder = BIG PROBLEM.

Ok, now that we know why high EGT and low CHT is bad, how do we avoid them? The first way was taught to me the first time I took a flying lesson. When you start your engine, it is important to allow it to warm up a bit before we give it full throttle. The engine will be cold when it starts. Rotax two-stroke engines use a piston made of aluminum, and a cylinder sleeve made of cast iron. Since the aluminum expands faster than iron, the piston will expand faster than the cylinder. If you give it too much throttle too soon, the piston will expand too fast. Hot (big) piston + Cool (small) cylinder = BIG PROBLEM.

But seizures also happen once the engine is warmed up. So, what affects the CHT and EGT while the engine is running? Lets assume that the engine is running properly and is being cooled sufficiently for normal operation. The two biggest factors are the carburetor jetting and the propeller loading. The jetting is straight forward enough. Larger jets give a richer mixture The extra fuel will absorb heat and decrease the CHT and the EGT. Smaller jets will increase the CHT and the EGT.

The prop load is a bit more complex. If you increase the load on the engine by going to a larger prop, or by increasing the pitch of the prop, the EGT *will* go down and CHT will tend to go up. Within limits, this is not dangerous, however, the engine will not be able to reach its maximum RPM, and therefore it will not develop full power.

On the other hand, if you reduce the load on the engine by going to a smaller prop, or by decreasing the pitch of the prop, the CHT will go down and the EGT will go up. This is dangerous. (See point 4 above.) Now you may say that your engine has the correct size propeller. At full throttle in level flight it just reaches the maximum allowable RPM. However, there is another way to reduce the load on your engine. When you go into a dive, your air speed increases. You can reduce the throttle a bit and still maintain the same air speed. But the extra air speed means that the engine doesn't have to work as hard to maintain the same RPM. You are actually reducing the load on the engine. If the dive lasts long enough, and the CHT may go low enough and the EGT may go high enough to risking serious damage to you engine. The noise level could suddenly drop dramatically.

One way to avoid this is to throttle back to idle. The carburetor is designed to have an extra rich mixture an idle. This should reduce the problem. But don't leave it at idle for to long or it may load up with excess unburned fuel, and it could die on you when you throttle up.

Now, as I said at the beginning, I am no export. And I could be passing on incorrect information, or I may have made mistakes in explaining it. However, some of you may find it interesting, or even helpful.

Good luck and fly safe! ✈

The Extended Annual

by Brian Vasseur

Since becoming an owner of the Rans S12 with Wilf Stark I had decided that a full inspection of the airplane was in order. Previously I had written about the cost of getting the rotary valve leak repaired and now I'll describe why a currently flying airplane needed so much work to fly again. 335 hours isn't a lot of flying, but 10 years and lots of grass strips do take their toll on an airplane.

Starting from the front, the nose gear is a tube in tube arrangement with an internal spring and slotted hole to allow for some shock absorption. Due to poor design, there isn't sufficient overlap of the tubes to prevent the slot from wearing from a rectangle to a triangle. The price was $100 to repair it or $85 to replace it. This could have been left another year or two, but it had already been left three. Since I plan to fly a few places on pavement I wanted a nose gear that didn't wander all over.

Next was the instrument panel. Previously we had a fire in the panel so it was time to rewire it to prevent further adventures. This could have been done in about 5 hours. Instead I refaced and repainted it, changed out the toggle switches to flat switches, mounted the Delcom radio, lowered the panel and installed the radio connections right into the panel. I guess about 100 hours of work to do this.

A new voltage regulator meant checking the wiring. Finding hidden fuses and splices inside the conduit meant it might be a good idea to replace the whole works. It also meant replacing the ends of the battery cable since a bad crimp had allowed the 4ga cable to release from the connector. (Had this happened in the air it would have caused a fire, and possibly a battery explosion.) The new wires are now anchored so they don't hang from the connectors.

New hoses were installed throughout the airplane to replace those in questionable shape, and new filters all around.

Remove the carbs, clean the air filters, disassemble the carbs and check for contamination. The float bowls were full of crap and took several hours to clean. The filters are easy to clean but you must use K&N filter oil. Do not use any kind of mineral oil, it absorbs water. In case anyone needs it, I have enough filter oil to do about another 5000 air filters.

The IVO prop in a pusher configuration had taken a lot of abuse, along with an 8mm bolt that fell off the engine. A marine repair shop repaired the gelcoat on all three blades and I got new stainless steel leading edge.

Remove the exhaust, degrease and beadblast it all, repaint with high temperature paint, reface the manifold and install new gaskets.

The wheels got new tubes, not because they were flat, but because flat tires seem to be a common problem we all suffer with.

Finally, anything rubber that looked like it was deteriorating such as spark plug caps or carb sockets got replaced.

We didn't spend too much money, under $1000 for everything. What we ended up with is an airplane that not only has no outstanding issues, but also looks a lot better than it did. S-12's are selling for $20K US on Barnstormers, and I sure feel like the repairs we did will add a lot of value to the airplane if we choose to sell it.

If you've got a lot of hours on your plane or if it's been flying for a lot of years it might be time to do a major review of everything from front to back. When you take the time to look closely at every bolt, wiring connector, rubber hose and paint chip you might find a lot more than you expect. ✈

A New Radial from Rotec Engineering

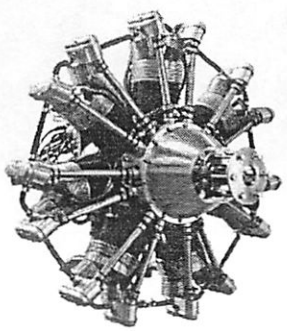
There's nothing quite like the big round engine on a Waco or Yak-52 and now there's one you can attach to your Kitfox.

Rotec Engineering, out of Australia, has developed a smaller-sized, 7-cylinder, four-stroke, 110-hp radial called the Fireball 7 that it thinks will be a hit in the non-certified smaller kitplane market. For $15,000, you'll own an engine with a one-year, 200-hour warranty with everything you need except oil tank and motor mount.

For more info visit their web site:
http://www.rotecradialengines.com/
or contact their US distributor:

Custom Craft LLC. USA
Boggstown, Indiana

Phone: 317 7295588



Lake Geneva Challenge

by Ed D'Antoni

Two of my son's classmates in U of Victoria's MBA program used our home as a base of operations as they toured Alberta during stampede week. They are both Swiss born and educated Mechanical Engineers interested in Aviation. There is no provision for ultralight flying in Switzerland, however their Amateur Built rules are similar to those in Canada. To their wives chagrin they spent a lot of time going over the Avid under construction in my garage. One morning Philippo told us he had a dream that he remained in Canada to build an aircraft while his wife went back to Switzerland to work. That's really dreaming!

Every two years a contest is held to see who can fly the farthest into Lake Geneva in a man powered object launched from a ramp. The rules are simple, The object must be deemed safe by the organizing committee, maximum weight 100 kg, maximum wing area 30 square metres and all power must be supplied by the pilot and up to six people. The pictures are of Philippo's team's efforts. Their aircraft, except for the controls was entirely made of composite materials, weight without pilot was 40 Kg. The aircraft was mounted on a dolly that separated from the aircraft on take off. (This is a one-time use aircraft). Launch power was a system of pulleys with a negative mechanical advantage. This was necessary as the calculated take off speed of the vehicle was 16 kph, a speed the launch members could not reach on foot. Unfortunately on take off the dolly was caught between the ramp and the aircraft resulting in a poor launch as shown in the photographs. The total project cost was about $400, I hope to be able to provide more contest photo's.