May - June 2010

# RECREATIONAL FLYER

Recreational Aircraft Association Canada www.raa.ca
The Voice of Canadian Amateur Aircraft Builders $6.95


## Fun For Four:
## Wayne Hadath's RV-10

RAA
RECREATIONAL AIRCRAFT ASSOCIATION
RÉSEAU AÉRONEFS AMATEUR CANADA

# From The President's Desk

*Gary Wolf*

### FIRST FLIGHT CHOICES

Every spring there is a batch of new planes completed, and sometimes rusty pilots who have not flown since the past fall end up in difficulty. We are all adults and we make our own choices but ego and convenience can intrude, sometimes with bad results.

Ask yourself -am I current and sharp enough to deal with an emergency if it happens on the first flight? And will there be a suitable field straight ahead where I can land if something goes wrong? If either answer is a no or a maybe, perhaps it is time to reconsider.

Recently there was a serious crash when a pilot chose to make his first flight from a field that was 2000 ft maximum, with water on three sides and a swamp on the fourth. When the engine failed in climbout at low altitude he had no choice but to try to turn back, with the usual dismal results.

Have your final inspection at a field that has a long runway with good approaches, and fly your 25 hours based there. If you have just spent the past years building the plane and have not been flying regularly, get someone who is current and sharp to do the first flight. If no one will do your first flight, then buy a block of training time with an instructor at that same field. Get yourself to the point where the emergency procedures become second nature and you know every inch of the terrain around the airport. And if the engine fails in climb, do not try a turnback.

### HAMILTON TC OFFICE

More than one member asked why in the last issue there was no harangue about the inefficiencies of the Hamilton TC office. The answer is that there have been staffing changes as a result of the exposure the office has received in the Rec Flyer. What we are now finding is polite and efficient handling of members' paperwork, and phone calls replied to within a reasonable time period. Pilots and builders are now being treated in a professional manner, a change that is greatly appreciated.

### MORE ON ECI CYLINDERS

Kelowna member Rupert Gruen has been working to interest other aviation organizations in propagating the warnings about ECI cylinder failures. His hangar neighbour died in the crash of an ECI-equipped Glastar when the head of one cylinder separated from the cylinder while the plane was over inhospitable terrain in BC.

*continued on page 37*

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# Features



# Columns

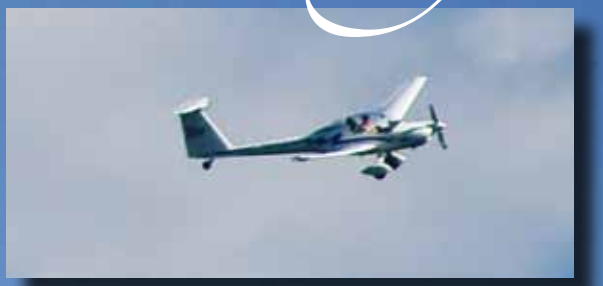


*On the Cover: Wayne Hadath's new RV-10. Gary Wolf photo.*

George Gregory

# Soaring

## For Awards



*For years Vancouver Soaring Association members have heard me decline the pursuit of soaring goals and awards. After decades of professional aviation, the last item on my list of desired achievements would have been badges, pins or recognition for soaring accomplishments. Perhaps this attitude arose from my aircraft choice, a touring motorglider – the ultimate compromise. Why would one seeking soaring accomplishments invest in a "glider" with a sink rate akin to a greased crow bar?* By Ken Armstrong

Frank Piltz, a Jazz captain and high performance glider owner gave me the answer. He decreed I should carry a Volkslogger to record my menial flights as all mileage accrues to the club to increase the total for the ON LINE contest. This device is a combination GPS and barograph that accurately logs and aircraft's flight and also shows when and if the engine is used.

Well, Frank's observation revealed the recording of flight achievements was obviously much bigger than me and who could say no to a group of people I had grown fond of? So, I started flying with a Volkslogger to help win one for the Gipper. Truth to tell, I loved reliving my afternoon flights over a cold one, stretched out on the sofa with the Strepla softward program recounting my flight in 3D graphics.

On 26 September 2009, the Volkslogger and I occupied the Diamond Super Diamona (aka Xtreme) as we launched ourselves into a common phenomenon – the harrowing Hope hurricane winds. A few days earlier the winds had been howling and I debated for several hours as to whether the mechanical turbulence was worth braving to achieve a potentially rewarding flight. After five minutes in the air I was fearing a structural failure and very agitated with thoughts of an ensuing landing in conditions that were challenging the wind sock to stay on the pole. (In fact, I helped replace the wind sock afterwards with airport manager, Laurie.) The few who observed my landing with one wing raising uncontrolled upward while the other reached for the ground thought they were witnessing an accident in progress. Eventually, the ailerons bit clean air and an near accident was narrowly missed, but, it really gave me a scare – and a lot of respect for what the wind can do amongst Hope's terrain. So, I was somewhat hesitant on the 26th even though several gliders had launched and

A FEW DAYS EARLIER THE WINDS HAD BEEN HOWLING AND I DEBATED FOR SEVERAL HOURS AS TO WHETHER THE MECHANICAL TURBULENCE WAS WORTH BRAVING TO ACHIEVE A POTENTIALLY REWARDING FLIGHT.

while they were unable to stay aloft they made mention of strong lift in the turbulent conditions, but, it was difficult to stay in the lift band. For the most part, they were pounded senseless in the strong mechanical turbulence and were unable to reach the base of the Dog mountain wave immediately northwest of the town and they were forced to return to our grass strip before structural failures reduced our fleet size. At any rate, with all the trial attempts, it seemed I should commit aviation since my heavier bird might handle the turbulence better and the engine would allow me to safely motor downwind of the ridge to search above the turbulent rotor cloud for the lift band. (In fact, one other glider eventually braved the wind sheer and after gaining some altitude on Hope Mountain and then Mt. Ogilvie eked out an entrance to the wave by climbing up the roughly nine thousand foot vertical wall of cloud.)

Since my flight would last 6.3 hours, (perhaps a little overkill for the 5 hour goal), it was necessary to penetrate into the smooth air as quickly as possible – no messing around with Hope Mountain as a stepping stone to the wave. I also have to admit I have never been good at noting my time off and a little "insurance" would be prudent. Perhaps this is a bit of an awkward confession for someone who flew ten thousand hours of commercial (billed) operations.

Arriving with a direct entry into the lift at approximately 3000 feet provided lots of time to look at the clouds that formed in that narrow gap about a hundred yards downwind of Dog Mountain. Mind you the cloud types didn't look like typical wave clouds, but then God doesn't have to follow the dictates of the meterological mental midgets. The Cap cloud on the ridgeline was constantly rushing across the barrier and burning off near the downwind base of the mountain and the clear space between it and the vertical wall of condensed water vapour was often less than 100 yards (or meters if you chose). Essentially, we climbed up with the standing lenticular off the downwind wingtip and the cap cloud a short distance off the upwind wing – most of the time. This vertical wave is rather common

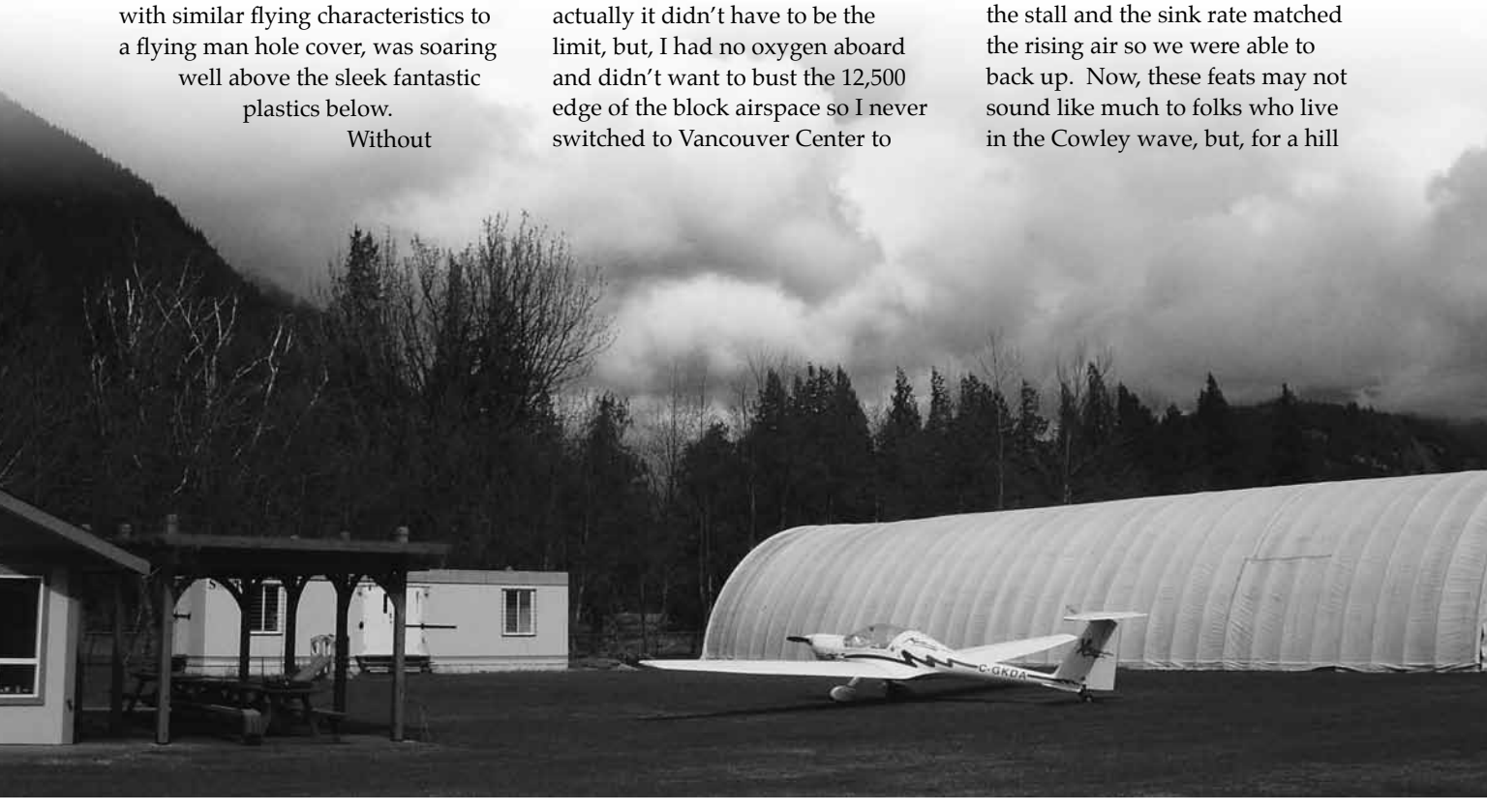
at Hope and in fact as one obtains altitude it is actually common to fly more upwind as the lennie leans upwind with increasing altitude. Eventually, one transitions slowly westward directly over and thousands of feet above the ridge line and in some cases, actually upwind of the hills. Although there are other locations where this vertical wave front is found, please don't ask me to explain this phenomenon. As they say, Shaded Hillside Interferential Turbulence or in other words S___ happens!

As the hours passed I would hear occasional calls on the glider frequency and would pass my progress and tips for getting into the strongest wave I have experienced at Hope – but tows to 2000 feet wouldn't permit entry. So, no one joined Gertrude (the HK 36R) and I. (It turns out that Ray Ochitwa had also entered the wave in his high performance pure glider – but, our paths never crossed.) I must confess, and pray for forgiveness, that I was inwardly gratified that my flying cow, you know, the one with similar flying characteristics to a flying man hole cover, was soaring well above the sleek fantastic plastics below.

## ...MOTHER NATURE WAS PUTTING ON A SHOW OF POWER.

Without goals nor an initial desire to seek an award, I actually had no idea of what was required to make a claim. I had fuzzy ideas that there was one accomplishment that demanded a 50 km flight and another that dictated a flight of five hours. Once, we had fluked in on a bladder busting 7.3 hour flight but, since we had not been in the habit of carrying one of the Volksloggers that Hans Baggli donated to the club – it wasn't recorded. As Gertrude effortlessly, smoothly and serenely lofted us towards controlled airspace the thought crept into my mind that there might be something claimable if enough altitude was gained and the flight lasted at least five hours. I had a new friend with me, a clean peanut butter container which had the ability to increase the comfort quotient and extend the flight duration so our only limit was the 12,500 foot base of the block airspace. Well, actually it didn't have to be the limit, but, I had no oxygen aboard and didn't want to bust the 12,500 edge of the block airspace so I never switched to Vancouver Center to request higher. That was a mistake. My ignorance of the award requirements precluded me from climing another 200 meters and meeting the requirement for a 3000 meter climb and a higher award – but, since Gertrude and I don't care, there is no issue…right? Arresting the 400 fpm climb at 12,500 provided a 2800 meter height gain from engine shut down and a personal best for me.

That day, I added another" helicopter" to my list of types flown (which incidentally is a world record) because Gertrude and I were able to hover directly above the mountain dome. At my min sink speed of 51 knots, the GPS showed a ground speed of nine knots. Gently raising her nose to a smidge above the 42 knot stall speed showed zero ground speed. As a matter of fact, the stall characteristics of this machine are so benign, I was able to haul her back to 35 knots in the stall and the sink rate matched the rising air so we were able to back up. Now, these feats may not sound like much to folks who live in the Cowley wave, but, for a hill



of 4500 feet ASL, mother nature was putting on a show of power. When we landed for late supper and Ray showed me his flight and we uploaded our data to the OLC, we learned Gertrude and I had the highest, farthest and longest duration flight in Canada for the day – and Ray was a very close second with only 1 kilometer difference – and no one else even close.

Today, 3 May 2010, the wind is howling in Victoria and there is no doubt the faithful Dog Mountain Wave is active. I should note that the highest altitude achieved by myself was in the prototype 100 hp Diamond Katana (standard wing – not a glider) such is the power of flight in waves. In my limited soaring experiences it seems there are three components to successful soaring – from the perspective of being competitive. One is piloting skills, another is the glider's relative performance and the third is the prevailing weather conditions of the day. Since Gertrude and I are not at all competitive, one must conclude that we were very lucky to have encountered a particularly strong version of the rather consistent Dog Mountain wave that jumped up for my last soaring day of the season. However, the highlight of the flight followed since it was a Saturday and many of the VSA crowd were there for the weekend and much revelry followed. Many thanks to Frank for motivating me to carry a logger on flights, to Ray for guidance on downloading flights and to James Swank for his understanding and aid with the claim process. I now realize that laboring to find mother nature's secrets is a worthwhile effort because it not only provides satisfaction but also hones one's skills and provides goals and further motivation for flights. In fact, I can add that the flight challenges associated with soaring are the best flying I have ever done and this includes all of my experiences with over 400 aircraft types including hundreds of hours on military jets, dozens of helicopters and virtually every kind of flying found on the planet. Try it. Take the challenge of flying engineless. RAA


**Above: a Grob and HK 36 orbiting the knoll.**
**Left: 11,500 feet, a feathered prop and 9 knots groundspeed.**
**Opposite: Ken's Diamona nestled amongst the Vancouver Soaring Association's buildings at picturesque Hope Airport.**

*"The Lazair on floats is the most fun to fly aircraft… lifts off the water at about 12 - 15mph, and cruises along at a leisurely 50 mph, burning 7 liters per hour with its two 9.5 hp Rotax engines". Dennis Doersam*

# Let's Go Flying

## *A History of a Canadian Pioneer Airport*

*by Jill Oakes and Rick Riewe*

AS IN ALMOST EVERY grass roots airport, on a rainy Sunday afternoon, old timers swap flying stories … from the shady to the humourous. For the Springfield Flying Club at Lyncrest Airport, Winnipeg, one of those Sunday afternoons formed the beginning of "History of Lyncrest Airport", a book filled with stories and photos published by the Recreational Aviation Press (Google "lyncrest.org"). This pioneer airport was formally created with funds from Donald Paterson of the Paterson Grain Company in 1958. Initially it included a metal hangar, a small cinder block club house, a trailer, an outhouse and two grass runways: 17-35, 2500' x 100' and 27-09, 4000' x 100'. Later on, Don Paterson sold the property to the City of Winnipeg and pilots continued to use it informally as an airport. Eventually, pilots began leasing the land from the City of Winnipeg and a few new hangars were built.

Several times in the history of the Lyncrest Airport, pilots struggled to find the funds needed to save the airport from termination, never expecting to see their money returned. In 1975, the fledgling Springfield Flying Club [SFC] was required by the City to purchase liability insurance costing $500 within 5 days of receiving notice. No one had the cash; John Masniuk saved the airport by donating the money, never expecting to get paid back. Again in 1997, when the City decided to sell the land, members scrambled to find enough money to place an offer to purchase the land before it was sold to a developer. Thanks to the interest free loans ranging from $1000 to $5000 from the following 16 members, the sale of 110 acres to the SFC from the City of

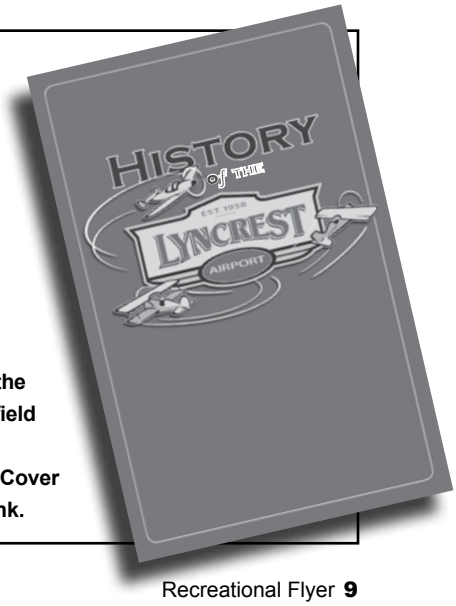
**Before Lyncrest Airport developed formal runways, farmer's fields in Winnipeg and the surrounding area were used as early as 1911 by barnstormers like the American aviator, Jimmy Ward and an unknown woman in their Shooting Star. Photo courtesy of the Archives of Manitoba.**

**Below, Shawn Wolk's Pietenpol was built in the Lyncrest area around 1930 and flew a leg of the Centennial Flight last year. Bob Hamel Photo.**

Winnipeg was finalized and the flying club now owned the land collectively: Jack Foster, Rick Grenkow, Bill Gibson, Bob Gibson, Jim Goold, Bob Hamel, Bryan Kirk, Ted Leach, Bill Lebrun, Tom Linklater, Leo Menard, Dan Montgomery, Garfield Oakman, Ken Podaima, Vic Préfontaine, and Tom Stoyka.

"These members never expected to get their money back. When I became President in 2001, paying back the 'founding' members was the first thing I did, I'd wanted to do so for some time – we never dreamed this airport would grow so fast!" recalls Vic Neudorf. The vision of these founding members created the land base critical to the long term survival of the Lyncrest Airport.

**Fifty years of determination, commitment and camaraderie shared by Lyncrest aviation enthusiasts built the foundation of one of Canada's leading flying club owned airports. The "History of Lyncrest Airport" is divided into four main sections: "Ready for Take-off", "Flight Planning", "$200 Hamburgers", and "80 in the Circuit". The book is packed with approximately 250 pages of stories and aircraft photos taken over the years: from Don Paterson's Widgeon in 1958 to George Hartwig's Volksplane in 1960, Shawn Wolk's 1930 Pietenpol, Peter Moodie's Fleet Canuck and Dennis Doersam's Laziar. The conclusion, "Turning Final", wraps up this period of aviation history and takes us into the next 50 years. The appendix includes an inventory of planes owned by club members and films or magazines that have covered airplanes stationed at Lyncrest Airport.**
**Copies of "History of Lyncrest Airport" are available by completing an order form found on the web at 'www.Lyncrest.org' or by contacting Jon Ayotte jayotte@mts.net, manager of Springfield Flying Club's pilot supply shop 'Fly and Shop' at Lyncrest Airport. T-shirts, mugs, caps and logos are also available as Lyncrest Airport celebrates the beginning of our next fifty years! Cover Design is by Karen Armstrong Design with artwork by Ray Renooy of Cosmic Ray in Oakbank.**



**Peter Moodie reports: "The Fleet Model 80 Canuck was originally a homebuilt designed by Robert Noury. Fleet bought the design rights as WW II ended in order to transition from war time production to a peace time market. The homebuilt prototype was tested by Borden Fawcett (my first instructor!) and subsequent testing at Fleet was done by Tommy Williams". Doyle Buehler photograph.**

Since then, the Recreational Aircraft Association (RAA) Workshop-Final Assembly Building, SFC Maintenance Building and over 40 hangars have been constructed by members who own over 100 aircraft. In 2006, to protect the airport from urban sprawl and allow adequate clearance for departure and arrival paths, 86 acres of adjacent land were purchased from the City of Winnipeg. Pilots have also personally purchased adjacent acreages, creating a buffer between the airport and housing developments. On Lyncrest Airport's 50th anniversary, construction began on the Lyncrest Flight Centre, a wheel chair accessible recreational aviation-focused centre with modern facilities. Donations of labour, materials and money from members, corporations and government completed the building in 2009. Jim Goold and Burt Barkman's remote controlled aircraft suspended 'in flight' throughout the room set the stage for more hangar flying in the new club house. At the grand opening, founding member George Hartwig revelled: "I never imagined in my wildest dreams that the Lyncrest Airport and the club house would look like this today!"

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# Alo... what?

*The Advantages of Alodine Anti-corrosion / By Ryan Gomes*

**Whether you are building a wooden, composite, or metal aircraft, every homebuilder has the chance to apply an anti-corrosion coating to the metal components or surfaces of their aircraft. I am here to explain the benefits of a particular chemical called Alodine.**

Alodine was developed in 1945 by former Parker Amchem Products incorporated (now Henkel), and has been used in aviation since. Much like Kleenex, the brand name Alodine has become a common name. The process is actually called Chromate Conversion and it provides an excellent anti-corrosion protection. The Chromate Conversion process is applied to chemically cleaned aluminum (or other metals) and chemically converts the surface of the metal. This results in a surface that is rich in Chromate Ions (which are aqueous corrosion inhibitors) that will provide an almost weightless corrosion protection.

**The Advantages**

Alodine is almost weightless, because it just changes the existing surface into a protective coating. The amount of dimensional change is negligible, it is less than 0.00001" in thin applications and 0.002" on thick ones. Unlike electrical anodizing, it still provides electrical conductivity. In many cases Alodine can be a replacement for primer, and has amazing adhesion qualities for aircraft paint.

In comparison to an anti-corrosion coating like Zinc Chromate, Alodine is much thinner and lighter. The recommended drying thickness of Zinc Chromate is 0.4 Mils which is equivalent to 0.0004" but builders sometimes slap it on like it is going out of style. By comparison Alodine is 1/25th of that thickness, so unlike Zinc Chromate there is no need to use a reamer to bring fastener holes back to spec. Zinc Chromate contains metal pigmentation and adds a significant amount of weight, whereas Alodine is simply transforming the surface of the metal, instead of adding to it.

As for the cost, 1 Gallon of Alodine will cost about 40 dollars. This is cheaper than 1 gallon of Zinc Chromate which is about 90 dollars. Either will require Metalprep 33 at 40 dollars per gallon. One gallon of Alodine will treat 400 square ft of aluminum.

Alodine is an excellent alternative for Float Plane builders, who are concerned about weight savings. The

**Like any chemical that is good for your plane, it is not good for you. Working with Alodine can be hazardous if you do not use the proper personal protective equipment.**

advantages definitely outweigh the disadvantages.

**The Disadvantages**

There are not many disadvantages, other than the amount of prep work involved in applying the Alodine. To get the maximum adhesion to the metal, Alodine requires that the metal be prepped with a metal etching solution (Alumiprep 33). Each part must be treated before assembly so the processing can add a significant amount of time to the build of your homebuilt project.

Setting up can be a little bit of an issue as well. If working with larger components, you might want to make rudimentary wood and polyethylene tanks to submerge whole parts, whereas smaller pieces may be swabbed with a brush and rinsed with water.

Temperature is also an issue that you may need to contend with; Henkel Products requires that the working temperature for Alodine 1201 should be anywhere from 70 to 100 Degrees F. This can be an issue for homebuilders who are working in unheated hangers in the winter.

**What you should be aware of**

Like any chemical that is good for your plane, it is not good for you. Working with Alodine can be hazardous if you do not use the proper personal protective equipment (PPE). Much like Zinc Chromate, Alodine is a chromic acid and therefore it is a carcinogen; repeated unprotected exposure can lead to many health problems down the road.

This is a very brief - I do emphasize brief - overview of some of the precautions that should be followed while working with Alodine 1201.

It is strongly recommended that ventilation is adequate when using Alodine1201, and a respirator should be worn. In the event that the ventilation is inadequate, a NIOSH/MSHA approved respirator must be worn.

Acid proof gloves, and fully enclosed goggles should be worn (face shield may be better, and if you are feeling really cautious, add an apron and boots as well. The most important thing to do is not get it on your skin.

Other than these health precautions, it is a very stable chemical; you do not have to worry about it spontaneously combusting in your flammables cabinet. However you must keep it from an open flame as it can produce cyanide when burnt.

This brief caution is not a replacement for the manufacturer's MSDS documentation, which may be found at the Henkel website www.henkelna.com/industrial/msds. Please fully read through MSDS for the chemicals you choose to use in the construction of your aircraft.

**How to perform a Chromate Conversion with Alodine 1201**

We are using Alodine 1201 because it can be brushed on full strength or immersed in a solution of 2/3rds water to 1/3rd Alodine. It is readily available at an aviation supply store such as Aircraft Spruce. To accompany this, we will also be using Alumiprep 33.

A list of what you need:

- Paint thinner or isopropyl alcohol
- Alodine 1201
- Alumiprep 33
- Scotch Brite (fine)
- Brush
- A supply of fresh Water
- Glass measuring cup
- 2 clean containers like styrofoam cups
- Clean cloths or paper towels

We will be performing the Brush method in this article.

In this case I have prepared a wing rib made of 0.025" 6061 –T6. Clean with fine Scotch Brite and paint thinner or Isopropyl Alcohol. This will give a bit of a brushed aluminum look. Scotch Brite leaves a very fine scratching that does not affect the integrity of the part. Rinse the part in water and dry with clean cloth or paper towel. This removes any burrs and grease on the metal surface.

In a styrofoam cup mix a solution of 1 parts Alumiprep to 5 parts water. If you have a piece of aluminum that is heavily corroded, mix to 2 parts water.

Apply the mixture to the surface of the aluminum. The manufacturer recommends that it be allowed to stand for 2 to 5 minutes but do not let it dry on the surface. If it does inadvertently dry, rewet it with fresh Alumiprep solution.

Rinse the part off with water.

To check that all oils and contaminants are removed from the surface of the metal, perform a water break test. Rinse in water and observe if there are droplets of water or if the water sheets off. If water droplets accumulate, then the surface is still oily. Rewet with Alumiprep solution and try it again.

Into another styrofoam cup pour some undiluted Alodine 1201. Use a brush and apply to the surface of your part. Do not allow the Alodine to dry -rewet if needed. Let the Alodine set for 2 to 5 minutes.

Rinse thoroughly with clean water, ensuring to remove all Alodine and any residue.

Now let the part dry. Drying may be aided with filtered low pressure shop air. Make sure that the parts do not exceed 140 Degrees F.

The surface of the part has now been converted with Alodine, ready for a long life in your project.

Dispose of the water according to your local by law recommendations. Do not dump down the drain into the water system.

# The ECI Cylinder AD and I, Part II

*Tom Martin*

Removing Hydraulic Lifters

In the last issue I reported on the problems that ECI had with some of their cylinders that were manufactured between 2002 and 2005. Unfortunately for me the six cylinders on my EVO F1 rocket were in this series.

I sent the cylinders back for either an inspection and rebuild or replacement if required. Mine were in the "A" group of cylinders. As reported in my last article the wait was long and I finally got them back in the last week of April. Four of my cylinders were replaced with brand new equipment and the other two were reworked to new standards. My cost was freight one way and my mechanic's costs for removal and replacement. Although the delays were long with not much information from ECI, at the end of the day they treated me very well and I am pleased with how it turned out.

Before shipping the cylinders back to Canada I had them sent to Lycon in California. This is a company that has a reputation for engine modifications, and have done many of the well known aerobatic performers engines as well as most of the Red Bull racers engines.

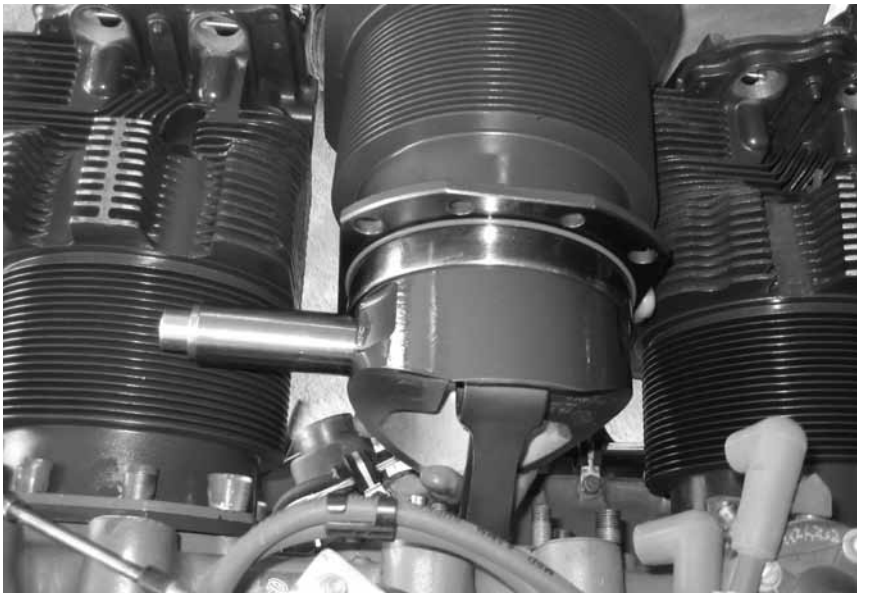
A couple of years ago an article in Kitplanes Magazine had detailed how Lycon had developed a CNC program that allows precision, repeatable, port and polish work on Lycoming cylinders. This allows a smoother flow of air into the cylinder and thus more horsepower. As I am always looking for areas of improvement the timing seemed right, so off they went directly from ECI to Lycon. Lycon promised me a five day turn around and they did the job in four days. As reported in the previous article, my pistons had experienced some increased wear due to piston ring blow by and had to be replaced. As an option Lycon offers coated pistons. This thin coating helps to protect the piston skirts and also to stop some of the heat transfer from the head of the piston. In the spirit of experimentation I opted for this treatment as well.

On April 26th, John Goris of Purple Hill Aviation helped me install the cylinders on my engine. The first step was to remove the valve lifters from the engine and bleed some of the oil from these simple devices. Essentially they are miniature hydraulic pistons that transfer oil from the engine through the push tubes and also maintain a constant pressure between the lifter and the valve tappet. Bleeding the oil from these lifters makes installing the push tubes and tappet assemblies much easier.

The cylinders arrive pre-oiled, with the pistons and rings installed. Each piston is carefully pulled out of its jug only until the pin can be removed. By positioning the cylinder up to the engine the piston pin can be aligned through the piston and connecting rod. The cylinder is then carefully pushed over the piston and seated against to the engine block. The cylinder base flanges and nuts are

then installed and the torque checked. Push tube covers, push tubes and tappet assemblies are then installed. With the addition of the valve cover the big parts are all in place. It just took a few hours to install all six cylinders but it took an additional full day for me to replace the baffles, fuel and spark systems, engine probes etc.

I now have 7.5 hours on the new cylinders and I believe the break in process is almost done. I ran the engine according to ECI break in procedures. They specified a partial throttle take off with the prop to remain at full fine for 3 to 5 minutes. After that, power settings of 24 squared, full rich, were to be maintained until engine temperatures peaked and came down or until oil consumption stabilized. I did not experience any high temperatures but there was some initial oil on the belly and increased oil consumption, one quart in 6 hours. The engine is quite smooth and getting better with each flight. According to Wayne Hadath it has a different sound than before surgery and it might be wishful thinking on my part but it seems to pull better as well. The first race of the season will tell the tale!



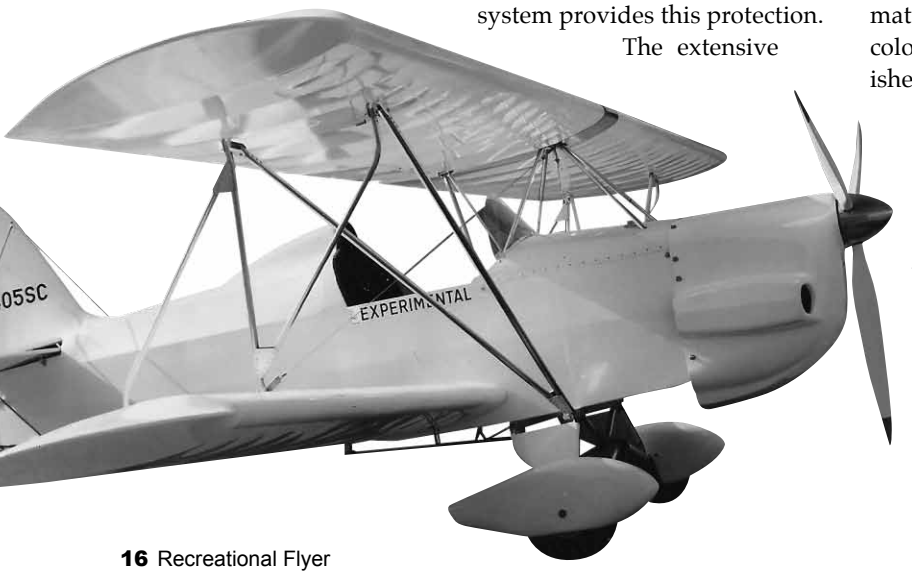

**From the top down: Installing cylinder and piston on the connection rod; Removing the piston pin; The cylinders in place**

# Transport Canada Approves HIPEC® Finishing System for use on type approved aircraft

*Big news for all of you out there who work with fabric covered aircraft. Many of you know of, or have met, Chris Falconar, at various events over the years including Oshkosh, Sun & Fun and Arlington. The big news is that Transport Canada has approved the HIPEC® Finishing System for use on type approved aircraft STC SA-09-03. By Gerald G. Kronstedt*

What does this mean for homebuilders? It means that we finally now have a complete aircraft finishing system that is proven, approved and right for our precious aircraft.

Have you ever wished you could have a finish that was not affected by years of exposure to temperature extremes? How about one that is not affected by long term exposure to the sun or one that retains its color and gloss under all environmental conditions? Truth be known, we have all earnestly desired that kind of utopian result. We have all wanted our aircraft to retain its beauty for many years without polishing and refinishing. Lab reports resulting from the years of development and testing show that the HIPEC® system provides this protection.




The extensive testing program through which Chris has put the HIPEC® system has demonstrated that it is virtually impermeable to and is not damaged or discolored by contact with liquids such as gasoline, water, seawater, varsol and glycol. The tests show it works under the harshest conditions and retains its beauty and integrity throughout.

When I read the reports Chris provided I was astounded. These reports seemed to contain the answers to so many questions regarding finishing aircraft, however, I had some other questions for him.

What about color selection? The range of color selection is huge, from black to white and every hue in between. It even comes in high gloss or matte. For warbird buffs, it comes in camouflage colors as well. It even is available in metallic finishes. The finishing imagination runs wild.

What about flammability? Chris' testing has shown that HIPEC® has a burn rate of only 20% to 30% of that of most of the alternative finishing systems. In other words, it burns very, very slowly.

What happens if I park my aircraft outside or if I live in a coastal environment? The HIPEC® system Chris has developed has proven to be effectively impervious to all types of environmental extremes. It retains its flexibility, will not crack or fade, will not peel, is undamaged by exposure to the ele-

ments and it retains its initial color and beauty for many years. Temperature extremes have little or no effect and salt air in coastal locales similarly causes no harm to the finish.

My next thought was that anything that is this good must be a bear to use and apply properly. Not so according to Chris. Compared to other finishing systems, the HIPEC® Finishing System is a virtual cake walk to use. It is simple to use, easy to apply and so long as the instructions are followed, nearly fool proof. Forget multiple coats and repeated sanding and rubbing. HIPEC® makes it easy.

How many of us really enjoy ribstitching? The HIPEC® Finishing System makes the need for ribstitching obsolete.

Finally, can I afford a system that is this good? How expensive is it? I was surprised to learn that the cost of using the HIPEC® Finishing System is competitive with and often significantly lower in cost than other systems you may consider.

Chris went on to tell me more about his system. His comments are summarized below.

The HIPEC® Finishing System can be used on other surfaces such as wood, metal or composite. So when you paint your aircraft you can use the same finish on fabric, metal, composite material and wood and it will all look great.

Five huge benefits of using the HIPEC® Finishing System include:

- Increased strength through continuous fabric attachment to rib capstrips yielding a more even loading of ribs. Furthermore, no holes are drilled into the ribs
- The promise of better performance resulting from smoother airflow over the wing as well as lighter weight.
- Easy to use and less labor required as riveting, ribstitching and taping are unnecessary. Lower costs as rivets, reinforcing tapes, surface tapes and extra coating to fill tapes are not required.
- Only one to three coats of HIPEC® products are required.
- Finally, in the event of damage it is simple to patch and repair.

Does this make my life better? You bet.

If you wish to contact Chris, and his company, check out his web site at HYPERLINK "Falconar%20Article%206.doc" hipec.falconaravia.com for further information on the HIPEC® Finishing System.

**Below, left: Chris Falconar discusses the HIPEC system standing on a sample wing panel. He's not a big man, so a larger individual demonstrates on the right.**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**http://www.ocis.net/tvsac/buyandsell.html**
**-more ads from our Kamloops chapter**
**http://www.lyncrest.org/sfcclassifieds.html**
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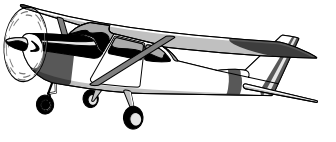

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Keith at 705-444-1422
ckweston2@sympatico.ca

# Across Canada

*RAA Chapters in Action*

**Above: Dave Walker's Minimax gets the once-over by Brandon members. Left: Brian McKiernan's Cozy Mk II.**

**Brandon Chapter**

On June 8, five aircraft and two van loads of people from Winnipeg joined the Brandon members of RAA to view some of our projects. As people arrived they gathered at the Commonwealth Air Training Plan Museum to view the artifacts. 22 persons sat down to lunch before proceeding to view Brian McKiernan's fibreglass Cozy mk ll. Construction is well underway with about '90% complete and 90% to go'. Then on to view the Sportsman 2+2, metal/composite under construction in the shop of François Carrard near Rivers. The wing jig attracted special attention. It is adjustable to compensate for even minute shifts in the concrete floor. The last project was a Mini-max being built by Dave Walker of Erickson. All of the projects were of excellent workmanship and each builder had developed unique approaches and sometimes ingenious tools/jigs to make the construction easier and more accurate. Many thanks to the people who displayed their projects and to the many members who came to view them; especially our Winnipeg members who travelled approximately 600 km round trip!

**Scarborough/Markham**

We wish to thank Philip Gray for coming forward at the last minute to talk to us about his experiences as a Lancaster bomber pilot towards the end of WWII. Philip described the training of these pilots in Arizona and Moncton, on aircraft that included the Tiger Moth, Oxford (2-engine), Wellington and finally

**Brandon Chapter's May 8 project visit included a stop to see a Sportsman 2+2, metal/composite under construction in the shop of François Carrard near Rivers**

the Lancaster. He participated in daylight raids by formations comprised of several hundred bombers in a single flight. Frequent targets were Dresden, Essen and Cologne. Bombs included the 4,000 lb "cookie" which was all too easy to touch off, and those of 8,000 lb, all the way up to the "Grand Slam" of 22,000 lb (10 tons). Philip is the author of a book published in 2005 entitled "Ghosts Of Targets Past (The Lives and Losses of a Lancaster Crew in 1944-45)". We give our thanks to Philip Gray for sharing some of these terrifying exploits with us.

**Chapter 85 Vancouver**

Chapter member Alex Doughty gave an informative talk on the airspace in the Fraser Valley/Vancouver/Victoria corridor, and coming changes to the same. The unique combination of geography, population centres and proximity to the US border have created the most complex airspace in the country, so his talk was timely and of great benefit.

On July 3 the Chapter will again host its annual fly-in. As usual, there will be a pancake breakfast, hot dog/hamburger lunch and an evening BBQ as well as various awards bestowed on deserving builders and pilots.

**Alaska Highway Flyers**
**Rust Remover Event**

The Alaska Highway Chapter of the Recreational Aircraft Association of Canada helped pilots in the region last week. A day of speakers helped polish and shine the minds of about 50 pilots at the North Caribou hanger at the Fort St. John Airport for a full Saturday.

"We invite all the pilots we can find, from commercial folk to recreational pilots to our annual "Rust Remover," said Jim Eglinski. "We call it a Rust Remover day and we intended to get rid of the rust between our ears."

"And, it's one of the ways to do the required recurrency," said Heath Tanner.

Ryan Croteau, Flight Instructor at Adventure Aviation at the Fort St. John reminded pilots about

*continued on page 32*

## A Fund Raising Idea From the Brandon Chapter

**Over the past few years our membership has been seeking ways in which to promote aviation; particularly recreational aviation, among our youth.**
**Claren Turner, a Chapter member and retired educator, noticed that the local School Division had few resources for teachers of grade 6 science (in the Manitoba curriculum this includes flight). He made a habit of visiting bookstores and magazine sellers to obtain free, stale-dated magazines and inexpensive books from shops, yard sales, etc. These were divided into some twenty-five (25) large boxes with roughly equal amounts of a wide variety of flying magazines. He distributed these to two school divisions – some 23 different schools. Individual teachers received these as a classroom resource. This was the first time many teachers realized the breadth of pictures and articles that were available. Many were amazed at this gift!**
**The Challenge: Match our effort! Locate/assemble and distribute aviation-related magazine resource packages to every appropriate school in your area. - Ken Fox**

emergency procedures. "Sit down and renew acquaintance with your Canadian Flight Supplement," he said. "The big paperback is published each 56 days and is chock full of the procedures you need, might need, will need."

Croteau listed some of the requirements for a pilot's license. "Over the years things change, including the hours in the air required before doing the flight test," he said, as he asked the crowd how many hours they'd logged before going solo. Adults might forget a lot of things from their youth, but it appears every pilot remembers their first solo.

"Give yourself a quiz about procedures. Keep checklists handy," he said.

Croteau said, "keep flying: follow procedures and check your equipment. For instance, if the radio fails, confirm volume levels, frequency for the area, circuit breakers, toggle switches, and even then keep talking. Maybe they can hear you and the problem is your headset."

Flight Service Specialist, John Nickolchuk, from Nav Canada in Edmonton, talked about flight plans. "Always use Zulu time was Nickolchuk's first example for clarity in communication." He had lots of reminders.

"There are the forms, of course and you can file on-line, by phone or by radio. You can tell your plan to a responsible person," Nickolchuk said, "but make sure of three important points if you use a friend or relative. They need to know who to call and you need to know they will call when you are overdue. For an effective search make sure they have all the information about you, your plane and your plans."

"Nav Canada starts a communications search within 30 minutes prior to your stated overdue time (estimated time of arrival plus the Search and Rescue time you specify on your plan.) We

*continued on page 36*

**The Alaska Highway Chapter's Annual Rust Remover Even was well attended. It has proved an excellent way for pilots to meet their recurrency requirements and improve safelty. Above, Lori Ackerman, Heath Tanner and Kim Loberg helped with the festivities.**

# Four Fun

## Wayne Hadath's RV-10 supplies fun for the whole family

**Wayne Hadath caused himself some problems when he finished his F-1 Rocket and began taking his wife and kids on trips. The problem was that they all wanted to go and the Rocket had only one passenger seat. It became evident that Wayne would have to build another plane with seats for four and he began the search for the right design.**

**by Wayne Hadath and Gary Wolf / photos by Karen Stemmler**


He eliminated composite planes immediately because the material is messy to work with, so that shut out the Lancair and Glasair. He wanted something that would make short work of cross country trips in Canada and the US so that left out the dream Tundra and the Murphy's, both nice planes but the kids will sit still for only so long in a plane. The list became shortened to either building a Vans RV-10 or restoring a Beech 18. The Beech wingspan is wider than the inside dimension of Wayne's 50 ft hangar, so the RV-10 was the choice. Simple.

Wayne did not get the chance to fly a -10 before buying but he sat in the factory plane at Oshkosh and saw that it had the necessary width and legroom to be comfortable on trips. Several of his racing friends whose opinions he respected spoke well of the plane, and Van's has a reputation for providing accurate performance specifications. The plane would be roomy and fast, so the cheque was sent off to Van's. Shortly a transport truck pulled up to the hangar and the boxes were forklifted off.

Wayne has a lot of experience with Rockets, having built his racing plane from a slowbuild parts kit without plans to use for guidance. By comparison the fastbuild CNC RV-10 is a snap together plane…at least the metal part is. One of the boxes contained the already-built wings that looked like they required only the installation of the wingtips. The fuselage cabin section arrived already partly built in its huge wooden box. The tailcone and empennage were loose pieces in another few boxes. It looked as if a month might put the plane together. Not so, because the cabin top and doors are fiberglass. More about this later.

CNC has revolutionized the

**Elevators are counterbalanced and both have electric trim.**
**Below, Wayne made fairing pieces to smooth airflow into the pressure cowl.**

*CNC has revolutionized the aluminum kit business*

aluminum kit business. A sheet of aluminum can have all holes drilled and all cutouts routed or punched, all with incredible accuracy. The part is then registered in a CNC press and the forming operations are performed. If the machinery is in good tune all the parts will fit together and the structure will of necessity be in alignment. To test this Wayne clecoed together the horizontal stab, and found that every hole matched its partner and the finished part was dead straight in all planes. The rear spar of the stab holds the elevator hinges and every one of these was also a dead-on fit. A straight laser line can be shot through the centres of all the hinge pivot bearings. After this test fit the parts were disassembled for dimpling and internal chemical prep, then riveted together with one side open for precover inspection. The elevator trim tab hinges come as blanks so the builder must lay out and drill their holes. The stab mounting brackets are the most complex bit of work in the whole kit. Angle stock is provided and the builder must saw the shapes out and drill the mounting holes, using the supplied builder's manual for dimensions. The builder's manual includes perspective drawings of all subassemblies and some dimensioned layouts of parts to be builder-fabricated, but these are definitely not construction blueprints.

The next step was the tailcone, and this again required some actual layout and hole drilling, probably to satisfy the 51% requirements. In particular the upper longeron must be cut to length, formed to a curve in a vise, and fitted to the bulkheads and skins.

In the Quickbuild the wings come mostly assembled, with only the wingtips and the bottom skins to be fitted. The bottom skins come tack riveted in place and this is one of the few areas where the parts did not fit perfectly. The edge next to the spar needs to be trimmed or when it is riveted it will oilcan.

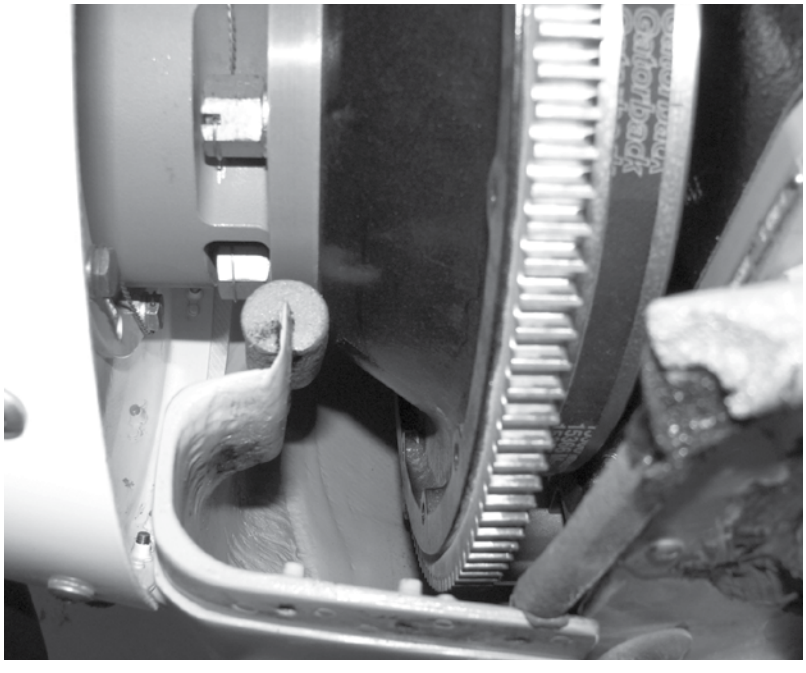
When assembling the wings to the carry throughs it is evident that the factory holds very tight tolerances. Every bolt attaching the main spar to the forward carrythrough was a perfect fit in its hole. The rear spar root hole must be drilled to final size but it comes pilot drilled to 1/8" and lined up perfectly. The fuel tanks are completely fabricated and fitted and hold 113 litres per side. The fuel caps and fittings are part of the kit but fuel senders must be ordered separately so Wayne ordered his from Van's. He found that because of wing dihedral and tank cross section the senders are linear only in the bottom half of the range. Wayne calibrated his Dynon fuel gauges by adding two gallons of 100LL at a time, and while he was doing this he also calibrated a dipstick as backup.

The cabin aluminum parts arrive assembled and mostly riveted but the cowl and the interior panels require some fit/drill/dimple work from the builder. The real work for Wayne was in fitting the fiberglass upper section and the doors, this because he wanted a painted cabin instead of carrying the weight of upholstery. Many hours were spent in finishing the inside of the fiberglass castings. If he had chosen to buy an interior package the time to fit the fiberglass would have been halved.

All window parts came oversize and it is necessary for the builder to trim using the Vans-supplied dremel wheels. Wayne added an internal dam around the base of the windshield to improve rigidity. The door and rear windows normally get glued into recesses but Wayne glassed them in from the outside as well.

Cabin doors are where the kit could use some improvement. The inner and outer shells must be assembled by the builder and this can result in vary-

**Left, The propshaft is sealed with a foam ring, as on Wayne's Rocket. Right, Dave Hertner of London makes these improved axle spacers.**



*Both of the kids had the same complaints though – where is the push to talk for the back seat passengers, and where are the cupholders? Wayne has no intention of installing either.*

ing door strength. Wayne feels that it would make more sense for the doors to be factory bonded in jigs. The supplied latches came in for modification too. Normally the aluminum lock pins have a chisel nose but Wayne made stainless steel bullet shaped pins, the better to find their way into the epoxy and flox sockets that Wayne created.

The RV-10 doors are normally fitted with a large balloon type seal that takes up the slack in the doorframe. Instead created a pocket for the door to sit into, using one layer of vinyl tape as barrier and to give one a few thou clearance. He buttered the doorframes with a mixture of epoxy and flox, squashed door in and scraped off excess. This was very labour intensive but the doors now fit tightly with no requirement for weatherstripping. The door hinges normally have a lot of fore and aft play so Wayne spent time some time shimming the hinges with washers. These doors now close solidly and securely. Wayne says that the RV-10 is a metal airplane but every builder must come to terms with the fact that there is a lot of fiberglass work. A lot of fiberglass work.

Firewall forward is straightforward for anyone who has already done this sort of work. Wayne was pleased with the performance and reliability of the engine in his F-1 Rocket so he ordered another IO-540 260 hp engine with dual conventional mags from Bart Lalonde of Aero Sport Power in Kamloops. All plumbing and wiring was done to the certified standard with brand new parts. As he did with his Rocket, Wayne created an aluminum pressure plenum which he says is

not any more work than the usual baffling with rubber edging. The advantage is excellent control of the cooling air so that all cylinders run at the same temperature. To improve the inflow of air to the plenum Wayne made aluminum and fiberglass fairing pieces for the air nostrils, similar to the ones on his Rocket. He also made a seal for the crank snout, similar to the one in his Rocket.

Injection is the Bendix system and the boost pump is the Airflow Performance pump recommended and sold by Van's. The alternate air system was featured in the March/April issue of the Rec Flyer. The stainless exhaust is by Vetterman and incorporates a straight through stainless muffler for each bank of the engine, giving a throaty but subdued exhaust note.

The MT three blade wood-composite constant speed prop was chosen because it is light and is the recommended prop for this plane. The three blade MT makes cowl removal challenging but the climb and cruise performance make up for this inconvenience.The prop was ordered through Van's from MT in Germany and was shipped to Hope Aero for assembly and setup. The MT balances and tracks well and is very smooth.

The panel is supplied as a .063" aluminum blank and everything must be custom fitted. Wayne split his vertically into three pieces for ease of servicing. The RV-10 panel and glare shield are built as a subassembly and then fitted to the plane. This allows the builder to fit all instruments, radio trays, and wiring on the bench.

There is no access from the top but there is not a lot of under panel work required. All the wire, switches, and circuit breakers are aircraft grade and the wiring diagram was developed from the basic Van's wiring diagram. The panel is basic VFR, set up the sight lines of a pilot in the left seat. It consists of a Dynon D180 which is a split screen engine monitor and EFIS, a Garmin 696 GPS for navigation, and a vertical card compass. The radio stack is a Garmin 240 audio panel, a Garmin SL 40 Com, and a Garmin GTX 327 Mode C transponder with an ACK altitude encoder. The Dynon can be used as an altitude encoder but Wayne decided to keep the two systems separate because of the altitudes and speeds he will be flying. He wants to be sure that the big boys can pick him up on their TCAS.

The panel has no steam gauges because Wayne's experience with the Rocket made him comfortable enough not to carry the weight of conventional gauges for backup. There were some snags found on initial startup but most


## Van's RV-10

**Exterior Dimensions**

Span ..... 31 ft 9in.
Length ..... 24 ft 5 in.
Height ..... 8 ft 8 in.
Wing Area ..... 148 sq ft.

**Weights**

Empty Weight 1520-1630 lbs to correspond with engine choices.
Gross Weight ..... 2700 lbs.

**Loadings**

Wing Loading ..... 18.6 lb/sq ft.
Power Loadin ..... 13.5-10.4 lb/hp

**Powerplant/Systems:**

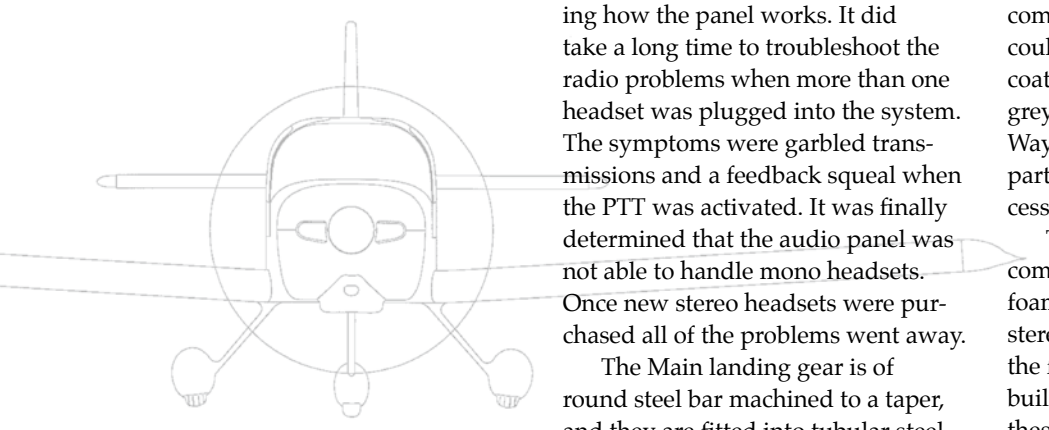
Engine ..... 210-260 hp
Propeller Hartzell C/S
Fuel Capacity 60 US gal
Baggage ..... 100 lbs

| **Light Weight (2200 lbs)** | 210 hp* | 235 hp | 260 hp |
|---|---|---|---|
| Top Speed | 200 mph | 204 mph | 211 mph |
| Cruise [75% @ 8000 ft] | 190 mph | 194 mph | 201 mph |
| Cruise [55% @ 8000 ft] | 170 mph | 174 mph | 180 mph |
| Stall Speed | 57 mph | 57 mph | 57 mph |
| Takeoff Distance | 475 ft | 415 ft | 360 ft |
| Landing Distance | 500 ft | 500 ft | 525 ft |
| Rate of Climb | 1,400 fpm | 1,669 fpm | 1,950 fpm |
| Ceiling (est) | 17,077 ft | 20,538 ft | 24,000 ft |

| **Gross Weight (2700 lb)** | 210 hp* | 235 hp | 260 hp |
|---|---|---|---|
| Empty Weight | 1,520 lbs | 1,585 lbs | 1,600 lbs |
| Top Speed | 197 mph | 201 mph | 208 mph |
| Cruise [75% @ 8000 ft] | 186 mph | 190 mph | 197 mph |
| Cruise [55% @ 8000 ft] | 166 mph | 170 mph | 176 mph |
| Stall Speed | 63 mph | 63 mph | 63 mph |
| Takeoff Distance | 686 ft | 583 ft | 500 ft |
| Landing Distance | 650 ft | 650 ft | 650 ft |
| Rate of Climb | 1150 fpm | 1,221 fpm | 1,450 fpm |
| Ceiling (est) | 13,678 ft | 16,839 ft | 20,000 ft |

| **Range** | | | |
|---|---|---|---|
| Range [75% @ 8000 ft] | 951 sm | 883 sm | 825 sm |
| Range [55% @ 8000 ft] | 1,153 sm | 1070 sm | 1000 sm |

*Empty weight and performance measured with Hartzell 2-blade constant speed propeller.*



*The RV-10 is a complete kit that demonstrates what is possible using current manufacturing technology.*

were cured by the pilot understanding how the panel works. It did take a long time to troubleshoot the radio problems when more than one headset was plugged into the system. The symptoms were garbled transmissions and a feedback squeal when the PTT was activated. It was finally determined that the audio panel was not able to handle mono headsets. Once new stereo headsets were purchased all of the problems went away.

The Main landing gear is of round steel bar machined to a taper, and they are fitted into tubular steel sockets that are bolted into the main structure. All holes are drilled and alignment has been factory set. The nose gear is a formed tubular member that has rubber in compression for suspension and a castering aluminum nose wheel fork for steering. Fibreglass wheelpants are included with the kit and now that the test period is finished Wayne is fitting them. Ever rigorous, Wayne has made wing jacks to allow the landing gear to assume the flight attitude before aligning and fitting the pants to the main gearlegs. To keep the plane from moving on the jacks Wayne drilled the hangar floor and epoxied in an eyebolt. This allows the tail to be pulled down for nose wheel service using a ratchet strap.

Brake calipers are Cleveland and master cylinders are Matco. Because they are Matco and have no return springs the builder must be very careful not to have any binding in the master cylinder mounts or the brakes will drag. The rudder pedals are of the hanging type and the builder must make the links that join them to the rudder cable tabs. Van's says to make all tabs the same dimension but Wayne found that he had to modify their lengths or the rudder would not be centered when the pedals are neutral. The nosewheel is Matco and the method used to secure the wheel to the axle is prone to problems. Wayne purchased an aftermarket solution from another Canadian RV builder in London.

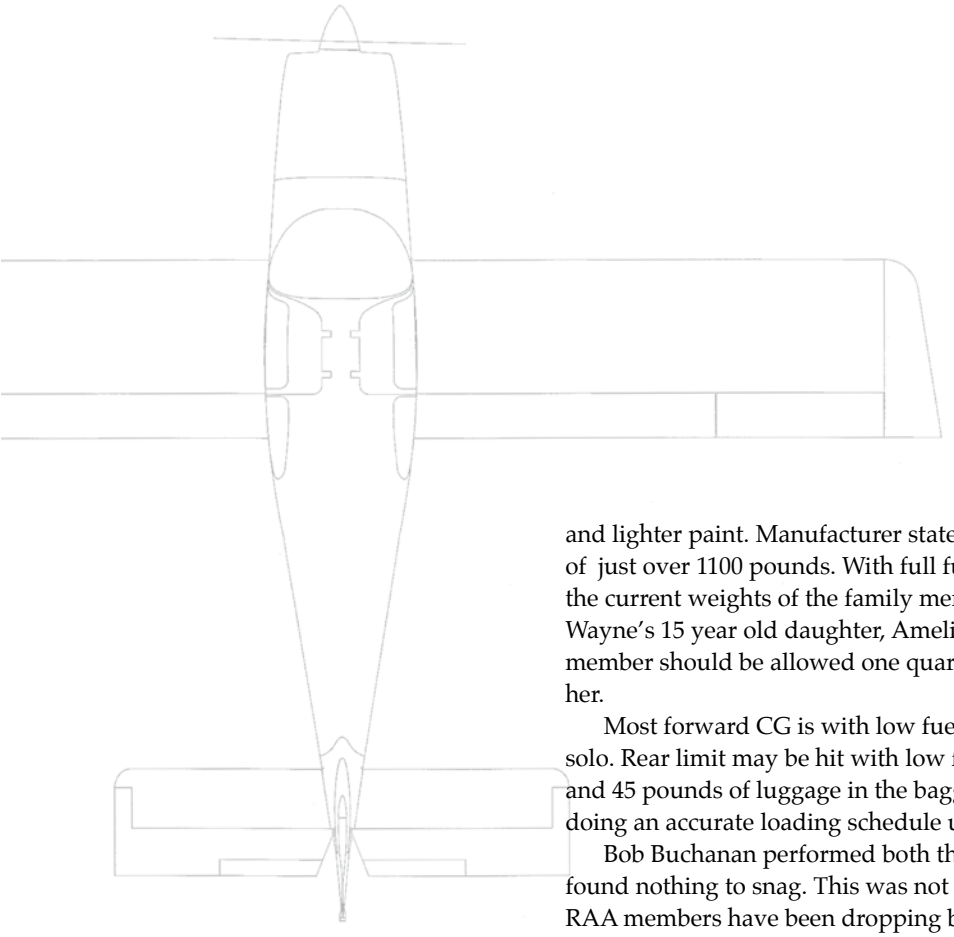
The interior of the quickbuild comes primed. All metal parts that could be removed went to the power coater for finishing in a matching grey. The interior was then painted by Wayne with good results with A two part automotive enamel and a Princess Auto mini gravity feed gun.

The front seat frames and sliders come built and include the memory foam cushions ready to be upholstered. The rear seat pan is part of the fuselage floor structure and the builder does some of the fitting on these parts. Rear cushions are not part of the kit so when he ordered his upholstery from Flight Line Interiors in Wisconsin they supplied the foam. Abbey is very good to deal with, and has competitive prices and excellent quality materials and fit.

All of the exterior metal was scotchbrited and chemically etched with Alumaprep 33, then rinsed and dried. Before priming, the entire surface was wiped down with a primer wash and gone over with a tack free cloth. The tack free cloth might not seem that important but it has a marked impact on the quality of the paintwork. The paint itself is a Sherwin Williams two part epoxy primer in dove grey. Between two and three coats were applied with sanding between applications. A Princess Auto $99 turbine and plastic spray gun were used with very good results and minimal overspray.

As on his F1 Rocket Wayne has decided that he will later apply some silly design on this airplane too. This time because of the fiberglass cabin the design will be in white. Currently a bunny theme has the most votes.

Weight and balance were accomplished with the RAA scales and Terry Elgood's W&B sheets. Terry lives in Vernon BC and provided telephone and email assistance during the W&B. The empty weight came out some twenty pounds lighter than the factory demo plane, 1594 vs 1620 pounds. This is largely because of the lighter MT prop, the simpler interior



and lighter paint. Manufacturer stated gross is 2700 pounds, allowing a payload of just over 1100 pounds. With full fuel this leaves 746 pounds for crew and at the current weights of the family members each can take 25 pounds of luggage. Wayne's 15 year old daughter, Amelia is the lightest and feels that each family member should be allowed one quarter of the payload, with more luggage for her.

Most forward CG is with low fuel, no baggage, and a 125 pound pilot flying solo. Rear limit may be hit with low fuel, a light pilot, two rear seat passengers, and 45 pounds of luggage in the baggage compartment. Wayne recommends doing an accurate loading schedule using the RAA scales.

Bob Buchanan performed both the precover and final inspections and found nothing to snag. This was not a surprise because every Wednesday RAA members have been dropping by for coffee, and critiquing the plane has been an ongoing process during the build. First flight was to be performed by former Canadian Unlimited Aerobatic Champion Gerry Younger and one of his conditions was that he and an AME would go completely over the plane again before committing to the air. First flight was April 23rd and Gerry reported that it was pleasantly uneventful. Wayne flew the 25 hours off by May 11th and took his paperwork to Mike Skoczen at TC's Hamilton office. Mike completed the paperwork inspection early the next morning and Wayne was on his way. Wayne's first flight outside the 25 nm radius was to Tom Martin's 2500 ft grass strip for coffee and a pat on the back.

How does it fly? Compared to a Rocket it is a creampuff. There is little P- factor and the tricycle gear makes landings very easy. The Fowler flaps are very effective and largely unnecessary.

I asked Wayne to describe the taxi and flying characteristics of the RV-10. "I had some initial concerns about the ground handling due to the castering nose wheel but these turned out to be unjustified. The aircraft steers very well and easily with differential braking and it is surprising how maneuverable it is. The visibility on the ground and in the air are excellent for the pilot and passengers.

The aircraft is very quiet and ventilation is good except when taxiing on a hot sunny day. The front seats are fore and aft adjustable and the memory foam and lumbar support make for a comfortable ride. Twice during the initial 25 hours I flew for over three hours and both times found that I had not reached my bottom limit.

The RV-10 is a good compromise with 150 square feet of wing and 260 horsepower. The flaps are reflexed so Van's recommends that takeoff be

*Its cost, speed, economy, and carrying capacity make the RV-10 a great choice when it comes to a four seat cross country machine.*

performed with some flap on. For takeoff full power is applied with a slight backpressure on the stick. With the six cylinder 260 hp IO 540 the roll is surprisingly short. Van's says 360 to 500 feet depending on weight. My home airport has 7500 feet of runway and I do not use much of it.

With a single pilot and therefore a forward CG the elevator forces are a bit heavy, and in a full flap landing they are very heavy on the pullup for final flare. The elevator force becomes ordinary once the airplane is loaded.

Once I am at 300 ft on takeoff I bring the rpms back to 2400 and climb out at 105 knots, giving a solid climb rate of over 1500 fpm and good forward visibility. I have just installed wheelpants and gear fairings and I am experiencing 165 knots at 24 squared in level flight, burning 16 gph. The plane has excellent stability in cruise and is easily trimmed I am not an IFR pilot but I guess that it would be a good IFR platform. I installed aileron trim on this aircraft and I am glad that I did. Aileron trim needs to be used to compensate for aircraft loading and fuel burn. The RV-10 comes stock with brackets for an autopilot but I chose not to go this route ans I will be strictly Day/Night VFR.

The aircraft has positive stability in pitch and neutral stability in roll, and its wing loading is heavy enough that it rides quite well in bumpy air. Maximum speed is listed as 207 mph but before I had fairings and wheel-pants I was not able to achieve this.

Stalls are very gentle with a solid prebuffet warning. During the testing I was getting power off stalls at 58 knots, and full flap stalls at 50 knots. In aggressive power off stalls I was able to get the right wing to drop, and yes and overcorrection with opposite rudder will start a spin. Van's does not recommend deliberately spinning the RV-10 so this is as far as I took it. The RV-10 comes stock with a stall warning horn and I had contemplated not installing it. I am glad that I did because it gives a warning about 8 knots before the stall.

In the circuit the RV-10 is an air traffic controller's dream. It can keep up with just about anything and can stay behind all but the slowest Cubs. I approach and land power off from circuit height at 80 knots, and try to touch down as if the plane were a taildragger. On rollout I hold the nose wheel off as long as possible. On e no flap landing I can keep the nose off the ground considerably longer than with full flaps, due no doubt to the higher touchdown speed. With a solo pilot I prefer no more than half flaps for landing. The large wing makes the descent seem Cub-like compared to the F1 Rocket.

The aircraft does well in cross-wind landings because the rudder is large enough to give positive steering while taking off or landing, and the plane is very gentle in both. Now that I have enough time in type I would have no concerns landing this plane in a 2000 foot grass strip. It could be flown from shorter strips but my personal minima require 2000 ft.

Would I change anything if I were doing it over? I chose a panel layout with the EFIS and GPS in front of the pilot and the radio stack in the centre to allow the copilot to do radio work, If I were to redo it I would move the radio stack to the left of the panel and position the GPS and EFIS more towards the centre so they could be seen and manipulated by the copilot. All things considered I would rate the RV-10 as a very pleasant aircraft to fly. It is comfortable and roomy, with good visibility. I think it's a keeper."

The RV-10 is a complete kit that demonstrates what is possible using current manufacturing technology. It results in a safe, well built aircraft with great assets. Its cost, speed, economy, and carrying capacity make the RV-10 a great choice when it comes to a four seat cross country machine.

Putting matters into perspective,

**Opposite: Unlimited aerobatic champion Gerry Younger did the first flight and gave Wayne his transition training. Right, the pressure cowl. The long snake of silicone seal prevents chafing against the fibreglass engine cover.**

even a match hole plane quickbuild plane is a huge user of time and money and Wayne has over 3000 hours and $150,000 invested in the RV-10. Did he get value for money? Wayne thinks so – in the certified world a new plane with this capability would be unaffordable to him. And he takes comfort that his family will be flying in a plane that was built and is maintained by himself.

Wayne's first family trip was to take them for an afternoon flight to celebrate the 70th birthday of an old friend in a town a short flight north of Kitchener, what a way to spend an afternoon together. He did not anticipate that there would be so much chatter in the headsets with four excited people onboard. Thank goodness for the pilot isolate on the audio panel. Both of the kids had the same complaints though – where is the push to talk for the back seat passengers, and where are the cupholders? Wayne has no intention of installing either.

In July Wayne will be participating in Charles Schultz's Snoopy Senior Hockey Tournament in Santa Rosa California, and the whole family will be going on this cross country flight. As soon as school ends it will be off to California, and who knows after that - perhaps a trip up the coast to Vancouver.

Wayne has one big concern with all of this. Initially Wayne had wanted a 4 seat taildragger but Van's sells the RV-10 only with a nose wheel. Wayne lives ever fearful that Van's may bring out a taildragger version and here we go all over again!

---

*-Shortly after just landing at a big international airport in his Cessna 150, our hero strolls into the busy airport cafeteria for a bite to eat. He finds an empty table by the window to keep an eye on the airport comings and goings. Shortly thereafter, a striking woman walks up and asks to share his table. Naturally, he invites her to sit down.*

*After several minutes of small talk, the woman asks if he is a pilot. He responds, "Why, yes, I am -- I fly a C-150." Knowing next to nothing about airplanes, she asks him what a C-150 is. The pilot looks out the window and spots a C-130 Hercules taxing out for takeoff.*

*Pointing to it, he tells his companion, "See that plane over there? That is a C-130. I fly a C-150!"*


figure 1


figure 2

# The Nuts and Bolts of Self-Locking Nuts and Bolts

*Michael Adam*

BOLTS KEEP PARTS TOGETHER, whether they are used in Tension (where the bolt holds something together with the head and the nut) or in Shear (where the bolt stops movement of something 90 degrees to itself). Structural bolts are display certain characteristics – they are stronger in shear than in tension; they are strongest when properly tensioned (torqued); and their size is determined by strength requirements for where the bolt is intended to be used.

Bolts, nuts and washers wear out over time and with use. Washers are the softest parts of the assembly. Never reuse washers in critical applications after torque has been applied. Nuts are designed to wear faster than bolts. For self locking nuts, it is acceptable to reuse them as long as there is still some locking action. Bolts are meant to last the longest and can be re-used as long as they have not experienced over-heating, have not been over torqued, have not been subjected to bending, have not had their threads bottomed out, or have any visible damage or corrosion.

MS20365 (AN365) low-temperature self-locking nuts are used on bolts or machine screws, and are prevented from vibrating loose by an elastic insert. This plastic insert has a hole slightly smaller than the diameter of the threads on which it fits. When the bolt enters the insert, it tries to force it out of the nut. Because the nut insert hole is smaller than the bolt it creates so much friction between all of the threads that are in contact that the nut cannot vibrate loose. Self-locking nuts should not be used in any location where the nut or the bolt is subject to rotation.

The bolt does not actually cut threads into the insert, but rather forces its way into the resilient material. Since no permanent threads are made in the insert, these nuts may be reused many times. They are reusable as long as there is enough friction between the nut and the bolt that the nut cannot be turned down by hand, requiring

a wrench instead. A tap must never be run through a self-locking nut to make it easier to screw onto the bolt because this will destroy the locking ability of the nut.

Nuts must be screwed down onto the bolt until at least all of the chamfer on the end of the bolt protrudes through the insert (fig. 1). If the bolt is not chamfered, at least one thread and not more than three threads should protrude through the nut (fig. 2).

Should there be more than three threads exposed (fig. 3), there is danger of "bottoming out" the nut and under-torqueing the assembly, as well as creating a stress point that may fail. If more than three threads are exposed, either use the correct length bolt or install a washer.

Low-temperature nuts should not be used in any location where the temperature will exceed 250* F. In applications where temperatures exceed 250* F high-temperature lock nuts, such as the MS21045 (AN363), can be used up to 450* F, or MS21046 can be used up to 800* F.

Rather than using a plastic insert to provide the locking action, there are several ways that the nut can be made to grip the bolt. Some nuts have a portion of the end slotted and the slots squeezed together. This gives the end of the nut a slightly smaller diameter than the body, and the threads will grip the bolt. Others have the end of the nut squeezed into a slightly oval shape, and as the bolt screws up through the threads it must make the hole round. This provides gripping action.


figure 3

Shear self-locking nuts such as the MS20346A (AN364) resemble the MS20365 self-locking nut, but they are thin and approved only for shear loads. They are made to be used on clevis bolts that do not have drilled shanks. RAA

# SlickStart Mags

**By David Stroud**
**RAA Chapter 4928**


**I FOUND MYSELF in need of a Shower of Sparks or Starter Vibrator having swapped out my older Lycoming 0-235 C for a newer 0-235C1B this Spring. The 0-235C was starting and running fine and had the Slick mag upgrade kit installed years ago, but the oil pan gasket was leaking more than I would like and the temptation of some extra horses under the hood combined with a very good ebay deal was more than my conscience could handle.**

**I soon discovered that the left mag had a second set of points retarded to about TDC rather than the impulse coupled single set of points in my old engine. Some type of Starter Vibrator or Shower of Sparks would be in order. A quick visit to the good ol' internet got me up to speed as fast as I'm comfortable with and the SlickStart came into view as the modern way to go for just over**



**Above, left: The magic box with only four connections. Right, Installed on engine mount.**

**$500 Canadian. Totally solid state, very easy to install and a very effective aid to start any engine equipped with the correct mag. The VERY EASY TO INSTALL claim is huge to me, as I have some built in aversion for dealing with electrical things and in fact, will admit outright intimidation with some things I cannot see...such as electricity.**

**Champion Aerospace makes the SlickStart and their website has all the necessary documentation for installation as well as STC info for those that need it. Joe Logie is the tech guru to call if you need clarification or reassurance. I don't have a key on my panel to start the engine, just an on/off toggle switch for each mag and a momentary toggle for the starter and that turned out to be the simplest solution for the SlickStart anyway. No work required on the switches at all. The entire kit is very complete, right down to cable ties, connectors, wire, and a nice little 5 amp fuse setup. There are only four connections to make and they go to the left mag ground, the left mag P lead terminal, the left mag retard breaker terminal and the switched side of the starter solenoid with the fuse installed in that line. The SlickStart box is installed on the engine side of the firewall can be placed pretty much anywhere so I mounted mine right on the engine mount itself with a couple of adel clamps.**

**Safety is a huge issue when messing with ignition parts and adequate measures must be taken to perform the SlickStart installation. My prop was already off so I just disconnected the negative side of the battery and took out the lower plugs just for good measure. Bob Nuckolls has a very good article on the care and feeding on Starting vibrator systems on his website, the Aeroelectric connection including several versions of switching the systems. A Google search will generate plenty of hits on SlickStart and all I've read is positive. How effective is the Slickstart ? Plenty, I'm told. For instance, if the starter button is pushed even with a battery too weak to spin the starter motor, the engine may start with a simple nudge of the prop past top dead center. It doesn't take much juice to make the SlickStart do it's thing. Apparently it will do much better than an impulse mag with over or under primed engines and those with fouled plugs too. With an impulse mag you get one spark at a predetermined lag to light the fire but with the SlickStart or Vibrator system you get a continuous machine gun type of spark over a larger range of lag so a quick start is much more likely. I haven't tried my SlickStart at the time of this writing, but I'm sure looking forward to it this weekend.** RAA

*In the days of the Northrop F-89 Scorpions, the Air Force pilot at an interceptor squadron was driving to work one day when he got caught in a speed trap on a road that ran very near to the end of the runway. He argued his case with the local cops, but to no avail.*

*Steaming mad and more than a little frustrated, he stormed into Operations demanding that an F-89 be readied for him immediately. Firing up the engines, he taxied to the active runway and took off.*

*Shortly after getting airborne, he declared an emergency and reversed course back to the field. Of course, being the good pilot that he was and ever-mindful not to exceed the max landing weight of his Scorpion, and having a fuel dumping system installed, he dumped his excess fuel...just as he reached the road near the end of the runway.*

*The fuel-drenched cops packed up their radar and weren't seen anywhere near that area again for a very long time.*

# Coming Events

**June 26, 2010 Langley BC Fly-In.**

**July 3, 2010 Chapter 85 Fly-In Delta Heritage AirPark, Delta, BC. For more information Tim Nicholas 604-240-3271**

**SUNDAY, JULY 18, 2010 10th Annual R.A.A Chapter 4928 FLY - IN**
**KARS RIDEAU VALLEY AIRPARK**
**C PL3 just south of Ottawa, Ont. N45 06 W75 38 Elevation, 286 ft. RWY. 26-08 Comm 123.4 Dilworth Road, just east of highway 416 FLY IN--DRIVE IN--WALK IN, RAIN or SHINE**
**FOOD, Hamburgers, Hotdogs, Cold drinks Served from 11am to 2:30 pm**
**NEW THIS YEAR**
**Overnight camping, arrive Saturday. Limited indoor bunkhouse space available by prior reservation. Food and refreshments available for Saturday lunch and Supper. Breakfast Sunday, ALL BY PRIOR RESERVATION. Regular Sunday BBQ as usual. For further information E-Mail Dave Stroud dstroud@xplornet.com**

## RAA Executive Director NOMINATION FORMS 2010

Photo Copy This Page

To Nominate National Executive Director, fill in name

Nomination for _____National Director

I,_____ _____ _____
Nominee's Signature Printed RAA #
Being an RAA member in good standing, accept nomination
Note - Nominee's signature constitues acceptance of nomination

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*Note - Five Nominators are required; it is good practice to obtain several additional nominators in case of an inadvertent lapsed membership by a nominator.*
*Three seats on the Board of RAA Canada are expiring this year, and we need your help in running this national organization. Please photocopy this form and have five National members sign. Send it to Cheif Electoral Officer Bill Rice by July 31, 2010. The nominations will be posted in the September-October issue, plus on the Announce e-mail list, and the www.raa.ca website.*

Complete the above, and forward before July 31, 2010 to-
*Bill Rice, RR#3, 22027 Prospect Hill Road, Ilderton Ontario N0M-2A0*

*Chapters / continued from page 21*

check enroute stations for reports too," Nickolchuk said.

"When we phone the contact number we get a lot of embarrassed 'sorry, I forgot to close my flight plan,' comments," he said. "An hour overdue on a flight plan and we file an aviation occurrence. Then others are brought into the picture."

"The RCMP and the DND Rescue Coordination Centre are contacted as well as likely landing spots along your route of flight," Nickolchuk added.

"Plan your flight, tell us and then follow your route," said Nickolchuk. "When you want or need to change your course, due to weather or joy, radio in and tell someone. The search area is a lot smaller when they only have to search half the length of your trip."

With a choice of pizza for lunch, there was time for the crowd to meet one another. "We used to need to go to Vernon or Edmonton for this update," said Heath Tanner, "but it was four days away from work and then the one in Edmonton stopped happening so we decided to organize one locally."

Pilots showed up for the pancake breakfast – that's one way to get things started on time. "In the first couple years we relied heavily on regional assistance for speakers, such as Josef Villiger from Hythe," Tanner added. "These days Transport Canada has figured out the value of locally organized training and they joyfully travel to help."

"Jason Rule, from Transport Canada in Vancouver, even helped set up the room," introduced Eglinski. "For a good flight," Rule said, "know the weather, your own abilities, physical fitness and the aircraft."

After a quick reminder about legal requirements, Rule discussed the need to maintain proficiency. "In addition to the legal requirements of documents, health, flying hours and such, pilot proficiency is critical.

**John Nickolchuk (top) and and Dr. John Moody were amogst the speakers at the Rust Remover.**

You enjoyed practicing manoeuvres as a student, so spend some time regularly practicing slow flight, cross wind landings and forced approaches. Do it for fun."

"Take someone along to debrief you over a coffee on the ground," he added."

The pilots in the room differed in whether they flew for recreation or pay, cross country or on local sightseeing trips, but everyone interviewed, enjoys airplanes.

Dr. Richard Moody, Aviation Medical Examiner, in Fort St. John, B.C., said his responsibility "is to perform the pilot examination and report to the minister."

Even a student pilot must have a current medical certificate to fly solo, so "from my office, the form goes to the Regional Aviation Medical Officer (RAMO) for review and approval is mailed to the pilot. That goes for an upgrade in category, too." Thus a private pilot moving to commercial status needs approval from RAMO. It can't be done locally."

"There are minimum medical standards under international agreement for countries such as Canada who have signed protocols with the International Civil Aviation Organization (ICAO)," said Moody.

Moody explained that the medical covers vision, hearing and general health. In years past, the minimums were pretty cut and dried, and he added "but some common sense and flexibility is creeping in." The use of a tested regimen to control high blood pressure is now accepted, for instance.

Correctly, the pilot is the best place for health safety to be handled. "The regulations regarding the prohibition regarding a pilot exercising the privileges to fly regularly use the words 'could impair' the ability of the pilot," Moody said. "Every pilot is expected to act responsibly and ground themselves in the case of a new medical illness or new medication that may impair their ability to fly."

Serious as the training sessions were at times, fun was part of the agenda. Lori Ackerman and Kim Loberg made the breakfast and then presented Heath Tanner with a candle to celebrate his birthday. It was in a muffin, appropriate to the seriousness of health and a plus or minus age.

All in all, the Alaska Highway Chapter pulled together speakers gave reminders on electronics, health, mechanics, weather and even pilot smarts. Pilots flew or drove in from around the Peace and from Spirit River and Grande Prairie too. The room erupted into an applause of thanks to finish the day.

RAA Board member Tom Martin has been documenting his experiences with the recall of a batch of ECI cylinders in this magazine but it now appears that the stated batch of serial numbers might have to be widened.

Recently a Cessna 172 suffered the same failure mode on one of its ECI cylinders, and the owner of that plane wrote that the serial number of the failed cylinder was not one of the batch stated by ECI as being defective.

Transport Canada does not inform owners of non-certified products of AD's, nor is there any legal requirement for owners to act on the information in the AD. Amateur aviation has a good safety culture but it is sometimes hard to get the safety information out to the builders and pilots. Please bring the ECI cautions to the attention of your chapter members. If some are not national RAA members, hand them your recent copies of the Rec Flyer for the details.

**FAA AND CANADIAN BUILDER ASSIST**

Canada has allowed professional builder assist for nearly a decade now, legitimizing what had previously been clandestine, and the results have been good. Builders' logs contain the information on what has been subcontracted and to whom. In the USA the FAA has for many years turned a blind eye to professional assistance, despite that "two weeks to taxi" shops have been advertising openly for many years.

It appears that the FAA has now opened its eyes and they are looking at planes that have received builder assist in Canada. Recently an American DAR refused to come to Canada to inspect a US aircraft that was being constructed in a Canadian shop.

Canadian builders who might someday wish to sell their Canadian-registered planes into the US must be aware that the FAA will not register a plane that has had more than 49% of the build completed by the kit manufacturer or the assist shop.

By comparison, Canada qualifies a kit for the Amateur Built category if the kit manufacturer has performed no more than 49% of the work. However the Canadian purchaser can then take that kit to a professional shop and contract out the rest of the work. The purchaser must direct the work that is being subcontracted, and he must be present at all inspections to answer the questions of the MD-RA Inspector. If the project gets sold during the build process the current owner of the project must be present and answer the questions.

The registration document will list the last owner of the project as the manufacturer of the finished plane, so he will forever be responsible for it, no matter who actually did the physical work. RAA

## Keep in Touch With Your Board of Directors!

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***To submit or delete a classified ad, please send to classified@raa.ca and place "RAA ad" in the subject line.***

*The Recreational Flyer is pleased to offer you colour advertising within the magazine. Previously limited to the back cover, we have added 4 new colour pages which will be available with limited space for your advertising needs. Our rates for both black and white and colour ads remain very competitive and you reach a captive and qualified audience.*

*Ads can be emailed to :* ***classified@raa.ca***

*Deadline for submissions is the first of the month preceding date of issue.*
*Artwork: Rates apply to camera ready artwork. Digital files are preferred and should be sent as email and in .txt format, PDF, JPEG, MS WORD, Photoshop or other common file types. Advertising is payable prior to printing of magazine unless other arrangements have been made. Payment is in Canadian funds. 10% Discount applies to one year (6 issues) insertion paid in advance. Commercial Classified ad rates 1/8 page minimum.*

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***Please note: Ads running more than 3 issues must be renewed to guarantee continued display in the magazine.***


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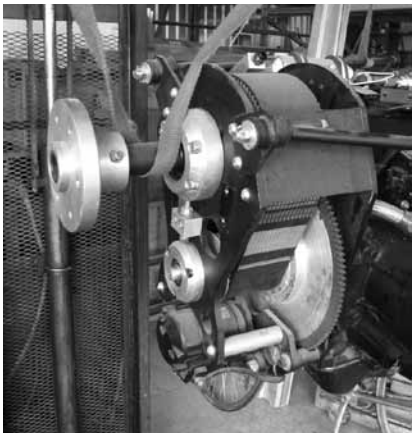
## For Sale



**Brand new Crossflow redrive for Subaru EA 81 with flywheel and starter. RAA is handling the sale of this redrive for the estate of the late Mike Davy. $1200. This is a complete bolt-on unit. Please contact garywolf@rogers.com or call 519-648-3030 Jun09**

Zenith CH-250 Project For Sale. Tricycle configuration First inspection done. Ready for rigging. Have 3 in 1 engine gauge, VSI, ALT, Compass, Tack, and air speed gauges. Have a dinafolcal engine mount for 0320 engine, prop, some pneumatic tools. Plus lots of old news letters for the project and pictures of different configurations. $10,000.00 Ph. 604-859-6884, John.


SIDEWINDER. All metal two seats. Equipped with Lycoming O-290-D engine with logs. 3-blade ground adjustable Wrap Drive Prop. Bendix / King KY97A radio, Icom portable standby radio; transponder / c. Full cockpit & panel lighting; strobes, nav lights & L/L lights. Ready for MD/ RA final preflight inspection. All drawings and building manuals included. $20,000 CDN. Call Norm @ 519-745-7971 or e-mail

Idservice@rogers.com. June/10

FOR SALE: ZENITH CH-300 on floats. First flight, Sept 1983, total hours 575 (300 on floats since July 1993). Engine O-320-C2A zero timed in 1999 now with 170 hours. panel, no radio. Prop McAuly 1A175/GM8241 new in 1993, Floats Zenair 1850. Location Lake Muskoka. $30,0000 George 705 445 7054 Collingwood Aug09

(1) 1967 C-172, 3155 TT, Cont. 0-300, 1005 SMOH, new windshield, new battery in 2007, new paint in 2005, a working DME, two 720 com. radios, a ELT, current annual until Nov.09. $41,000. (2) 40' X 30' Calhoun structure hangar at Earlton,CYXR, 5' high steel walls, 10' high doors, fabrene roof, put up in Nov. 2004, will hold a C-172. $12,000. Phone 705-544-8743 or whiteheadbj@msn.com Aug09

For Sale: Avid Flyer Mark IV STOL wing. 800 TT, folding wings, 1150 lb gross, 540 lb useful load. Engine liquid cooled 582C 50 SOH. Registered as homebuilt, restored 2005. 720 channel Com, ELT, new 3 blade GSC prop, new wheels, tires and brakes. Cruises at 90 mph, stalls 32, low cost and lotsa fun flying. Skis and some parts included. Asking $16K. Email planes1057@hotmail.com. Phone Tom 780-632-9396 days, Lowell 780-632-2931 evenings. Oct09

For sale/trade: 0290D2, good but scored crank journal, no accessories, dismantled $2000.00. Also, Revmaster mount and electrics $500.00. Bendix dual mag $500.00. Call 519-692-5309 for details. macmaz@mnsi.net Oct09

For Sale: Avid Speedwings new and uncovered, at the ladder stage,with factory made flaperons. $500. Avid stabilizer $100. Avid stab lower braces $75. One jury strut assy $30. As a batch - $575. garywolf@rogers.com 519-648-3030 Oct09

For Sale: McCauley propeller 1A101DCM6948 modified to a GCM6948 that takes a prop extension. Prop is in good condition and removed from Cessna 150 for age. Last major overhaul by Western Propeller Jan 1991 and has about 1090hrs since then. Because of the modification for a prop extension, prop cannot be recertified. Good for your homebuilt powered by a Continental O-200. Price $700 Cdn. Call Don Bentley 250-764-0880 Oct09

For Sale: I have an Rv 6A, nose wheel and main gear legs, fairings, gear attachments,motor mount etc would like to sell or trade for complete tail wheel components, if you know of anyone interested please have them contact me at rosymury@aol.com. Oct09

Murphy Super Rebel Kit SR2500 (Moose) Complete airframe kit. Tricycle landing gear. In factory crate. $15,000.00 Larry 905 460-0880, work 905 677-8300 or email lawrence.strilchuk@sympatico.ca Oct09

Zenair Zodiac 601HDS Tricycle gear, registered 1993, Rotax 912 UL, ARPLAST flight adjustable prop.. 756 hrs TT. ICOM A-4, 2 headsets, GARMIN 95 GPS, Vacuum AH. Stainless exhaust, new upper paint 3 years ago. Canopy cover. Cruise 120 mph. Asking $28,000 CDN. At Oshawa. Dave, 416-282-5252 Oct09

Cessna 150H, 3980 TTAF, 1820 SMOH, KX145 NavCom, Icom 200 Com, Narco Mode C, paint 8/10, interior 7/10, 4 new cyls/321hrs $19500 gbemus@rogers.com Dec09

For sale, new RV9A parts; Lycoming conical engine mount, 3 L/G legs with mounting brackets, nose wheel, fairings. All the parts I didn't use when I converted to tailwheel. Approximate cost to buy $3000. Contact Terry Elgood for list at TMB_Elgood@shaw.ca or 250-503-5188 Feb 10

Early model Zodiac HDS Speed Wing spars, ribs & plans. $400 or best offer. F.O.B. Don Benton 1-519-442-2962 dorothybenton@hotmail.com Apr10

1995 Buzzard Special taildragger. Rotax 912 80 hp. Very smooth and quiet. Always hangared . 3 Blade Warp Drive prop. 80mph cruise @ 75% power . Take off in 200ft. Heavy duty wide landing gear. Differential hydraulic brakes . Extra wide cabin . Large baggage area . Built in intercom and radio antenna . Landing light. 20gal. fuel capacity. In cab trim . Very stable in rough air . Constructing Zenair 750...need to sell. $27,500 Call Mac 519-831-0967 or macpat@bellnet.ca Apr10

One set of aluminum floats for sale. Were built for a Super Koala ultralight. Gross weight of Koala is 830 lbs.Approx. 12 feet in length. The floats are very light in weight. Similar to a Murphy float design. Pump out ports in each compartment. Rudder on right float. Asking $2500.00 OBO. Contact, Richard at 250-374-6136 e-mail: richard_suttie@telus.net Apr10

MINI-MAX ttsn 217 seoh 29.8. Rotax 447 new GSC prop. skis. radio. always hangared. excellent condition $11,900.00 obo
Lazair project. ttsn 123 hrs. total new Ceconite

2.7 covering. ROTAX 248 24 hp engines and 4017 props. skis. $4900.00 obo
New Colin Walker prop SAE1 6856 epoxy LE $500.00 GSC 48" prop with adjustable hub Rotax 75mm bolt pattern.$200.00 Scott tailwheel, C65 to C90 Starter, Cessna 180 generator, NAS3 carburetor Stromberg. All for $200.00 Contact 780-460-6841 (Home) J J Williams 780-945-0411 (cell) June/10

Beaver RX 550 serial number BRX0090. 503 Rotax with electric start. Single ignition, dual carbs. Full dash, Altimeter, Vertical speed, Tach, dual EGTs, single CHT, Compass, Hour meter, Capacitive fuel probe and gauge, Airspeed, Slip indicator. Hydraulic disc brakes, individual heel operated. Airframe was totally rebuilt by an AME 4 or 5 years ago. All flying surfaces covered with aircraft fabric. Wings totally rebuilt with turnbuckles in every bay of the wing. Covered with fabric. Has flaps on the wings. Engine has low hours as crosshatch still on cylinders. Checked and regasketed as actual hours not known. 10.9 hours since check on engine. Larger 600 x 6 tires.One of the nicest Beavers around!! Asking $11,500.00 OBO. Located in Kamloops, B.C. Richard 250-374-6136 richard_suttie@telus.net Apr10

ED RILEY'S BD-5B: Bare Weight 561 lb. Fuselage; Stretched (Kieth Hinshaw Kit); Belly-scoop Cooling; Taxi Cooling Fan. VHF Antennea Skin mounted on Vert Stab; Barber Pole. Matco Wheels and Brakes. Three Gear Doors Fitted; Windshield Defrost Fan; External Plug-in for Battery Boost or Charge; Wings: Standard "B".: Rib Spacing 5 3/8" (Preformed Kit) Auxilliary Wing Main Spar (use optional) ; Leading Edge Mounted Land Lights; Wing Tip Mounted Nav and Strobe Lights. Fuel Guage in Skin. June/10
Instruments: Vertical Card Compass; Altimeter (feet); ASI (mph) Manifold Pres (inches); Empty Hole (3 1/8") VSI; T & B (electric); RPM (digital); Exhaust Gas Temp; Coolant Temp; Volts; "G" Meter; Oil Temp; Oil Prss; Hobbs Engine Time/Power: Zero Time Honda Civic 1200cc Turbo; Forged Aluminum Racing Pistons: Power Regrind Valve Cam: Two Coil, Two Breaker Point Ignition, Gated. Power Train: Jerry Kauth System; IVO Prop, Three Blade Electric Variable Pitch. Built & Painted by; Ed Riley. Asking $20,000. Phone/Fax 250-339-2887 egariley@shaw.ca June/10

For Sale: C 90 engine core $2500. Four overhauled cylinders with new pistons and rings $1000. As a package, $3200. Bob 519-884-9094 June/10

Zenith 701 on Czech amphibs with rebuilt 80 hp Rotax 912. Registered Amateur Built. $30K OBO 519-372-1383 kinger@distributel.net June/10

Acro Sport II project. Tacked fuselage, wings ready to cover, tail feathers, wheels, tires, brakes, instruments, fuel tank, windscreens, hardware, much more. $8,500.00. lussierm@telusplanet.net June/10

For sale KR-2 fuselage in boat stage and metal kit for retractable landing gear castings $300.00 call Ian 604-856-1159 or email tri-pyramid@telus.net

For Sale: Lycoming 0-235-C engine, disassembled, rebuild started,crank good, needs carb and ring gear hub. $1800.00. Tom at 1-519-822-6693, 1-519-638-5075, millfly@sympatico.ca June/10

For Sale: CH-701, Basic Ultralight, Rotax-912, jeep gear, gull wing doors, $24,500. Tom 1-519-822-6693, 1-519-638-5075, millfly@sympatico.ca June/10

C-IGVE Cara-two (Karatoo) 2 seat basic UL with overhauled Continental 75 hp engine and Zenith wood prop. Steel tube and fabric taildragger fuselage with all metal wing. Day vfr panel, no electrics, 600-6 wheels with disc brakes. $12000 OBO Bill Rice 519-461-1894 June/10

C-ICPZ Silverbird single seat Basic UL with aluminum fuselage, all metal wings, HAPI VW 1600 direct drive engine with dual ignition and Ellison carb/injector, day VFR panel. First $5000 takes it all Bill Rice 519-461-1894 June/10

C-IFWE Cloud Chaser single seat Basic UL that began life as a Schweitzer 126B sailplane. 40 ft span all metal wing, steel tube and fabric fuselage and tailfeathers, tricycle gear with telescoping nose strut and fibreglass main gear. Powered by electric start Kawasaki 440 with belt redrive and IVO prop. Day VFR panel. plexiglass canopy. $7000 OBO Bill Rice 519-461-1894 June/10

## Wanted

Wanted- Great Plains only VW dual spark plug heads, Aerovee 29mm Injector Carb or similar Revflo in good condition, or even Ellison ESF 2, low time Slick 4316 mag, Great Plains only complete Force One Prop Hub. John Donaldson, 519-426-8583, jdonaldson@kwic.com near Simcoe ON. Dec09

Wanted: Geshwender redrive for my Spitfire project. 519-692-5309 macmaz@mnsi.net Oct09

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# New In Canadian Skies


## Bob McDonald's Zenith 750

Attached is a picture of my Zenair CH750 "White Lightning". It's powered by the Rotax 912ULS 100 hp with a 2000 hr TBO. The panel has a Dynon D180 Flight Deck, Bendix/King AV80R GPS, ICOM A210 radio and a GARMIN GTX 327 Mode C transponder. It's the first Advanced Ultra Light Aircraft registered CH750 in Canada. Build time was 8 weeks at Can-Zac's hangar #41 in Kitchener under the "Power Build" program.
Cruise is 100 mph with a 6 hour endurance.

# RAA Chapters and Meetings Across Canada

*The following is a list of active RAA Chapters. New members and other interested people are encouraged to contact chapter presidents to confirm meetings as places and times may vary.*

*ATLANTIC REGION*

*HAVELOCK NB: Weekly Sunday morning get together year round, all aviation enthusiasts welcome. Havelock Flying Club - 25 mi west of Moncton. Contact Sterling Goddard 506-856-2211 sterling_goddard@hotmail.com*

*QUEBEC REGION*

*COTE NORD (BAIE COMEAU): Meeting times to be advised. Contact Pres.Gabriel Chouinard, 418-296-6180.*

*LES AILES FERMONTOISES (FERMONT): First Sunday 7:30 pm at 24 Iberville, Fermont. Contact Pres. Serge Mihelic, 418-287-3340.*

*MONTREAL (LONGUEUIL): Chapter 415, Meeting in French second Wednesday at 8 pm, at CEGEP Edouard Montpetit 5555 Place de la Savane, St. Hubert, PQ. Contact president Normand Rioux at NRIOUX@lapresse.ca*

*OUATOUAIS/GATINEAU: Every Saturday 9:00 am to noon at the restaurant l9Aileron in the airport terminal. Contact Ms N.C. Kroft, Gatineau Airport, 819-669-0164.*

*ASSOC DES CONSTRUCTUERS D'AVIONS EXPERIMENTAUX DE QUEBEC (QUEBEC): Third Monday 7:30 pm at Les Ailes Quebecoises, Quebec City Airport. Contact Pres. Ray Fiset, 418-871-3781. rayfiset@qc.aira.com*

*ASSOC AEROSPORTIVE DE RIMOUSKI: First Saturday at 9:00 am, La Cage aux Sports, Rimouski. Contact Pres. Bruno Albert, 418-735-5324.*

*ASSOC DES PILOTES ET CONSTRUCTEURS DU SAGUENAY-LAC ST JEAN: Third Wednesday 7:00 pm at Exact Air, St Honore Airport, CYRC. Contact Marc Tremblay, 418-548-3660*

*SHERBROOKE LES FAUCHEURS de MARGUERITES. Contact Real Paquette 819-878-3998 lesfaucheurs@hotmail.com*

*ONTARIO*

*BARRIE/ORILLIA CHAPTER Fourth Monday 7:30 PM Lake Simcoe Regional Airport Contact Secretary Dave Evans 705 728 8742*

*E-mail david.evans2@sympatico.caCOBDEN: Third Thursday 8:30 pm at Club House, Cobden Airport. Contact Pres. Clare Strutt, 819-647-5651.*

*COLLINGWOOD AND DISTRICT; The Collingwood and District RAA, Chapter 4904, meets every first Thursday of every. month, at 7:30 PM except July and August, at the Collingwood Airport or at off-site locations as projects dictate. The January meeting is a club banquet held at a local establishment. For more information contact Pres. Keith Weston at 705-444-1422 or e-mail at ckweston2@sympatico.ca*

*EXETER: Second Monday 7:30 pm at Summers-Sexsmith Airfield, Winters-Exeter Legion. Contact Pres. Ron Helm, ron.helm@sympatico.ca 519 235-2644*

*FLAMBOROUGH: Second Thursday 8:00 pm at Flamborough Airpark. Contact Pres. Karl Wettlaufer 905 876-2551 or lazykfarm@sympatico.ca*

*KENT FLYING MACHINES: First Tuesday 7:30 pm at various locations. Contact President , Jim Easter 519-676-4019 jim.easter@teksavvy.com.*

*KITCHENER-WATERLOO: Meets the third Monday of each month in the upstairs meeting room of the cadet building at CYKF, except during the summer months when we have fly-ins instead. Please contact Clare Snyder clare@snyder.on.ca*

*LONDON/ST. THOMAS: First Tuesday 7:30 p.m. At the Air Force Association building at the London Airport. Contact President Angus McKenzie at 519-652-2734 or angus.mckenzie@sympatico.ca*

*MIDLAND-HURONIA: First Tuesday 7:30 pm Huronia Airport. Contact Tom Massey 705-526-5304, fax 526-5310*

*NIAGARA REGION: Second Monday 7:30 pm at Niagara District Airport, CARES Building. Contact Pres. Elizabeth Murphy at murphage@cogeco.ca, www.raa-niagara.ca*

*OSHAWA DISTRICT: Last Monday at 7:30 PM at the Oshawa Airport, South side, 420 Wing RCAF Assoc.*

*Contact President: Jim Morrison ,905 434 5638 jamesmorrison190@msn.com*

*OWEN SOUND Contact President Roger Foster 519-923-5183 rpfoster@bmts.com*

*OTTAWA/RIDEAU: Kars, Ont. 1st Tuesday. Contact: Secretary, Bill Reed 613-831-8762 bill@ncf.ca*

*SAUGEEN: Third Saturday for breakfast at Hanover Airport.*

*YQG AMATEUR AVIATION GROUP (WINDSOR): Forth Monday, 7:30 pm Windsor Flying Club, Airport Road, Contact: Kris Browne e_kris_browne@hotmail.com*

*SCARBOROUGH/MARKHAM: Third Thursday 7:30 pm Buttonville Airport, Buttonville Flying Clubhouse. Contact Bob Stobie 416-497-2808 bstobie@pathcom.com*

*TORONTO: First Monday 7:30 pm at Hangar 41 on north end of Brampton Airport. Contact: President Brian Heinmiller 905-877-7947 b.j.heinmiller@sympatico.ca*

*TORONTO ROTORCRAFT CLUB: Meets 3rd. Friday except July, August, December and holiday weekends at 7:30 pm Etobicoke Civic Centre, 399 The West Mall (at Burnhamthorpe), Toronto. Contact Jerry Forest, Pres. 416 244-4122 or gyro_jerry@hotmail.com.*

*WIARTON: Bruce Peninsula Chapter #51 breakfast meetings start at 8:30am on the second Saturday of each month in the Gallery of Early CanadianFlight/Roof Top Cafe at Wiarton-Keppel Airport. As there are sometime changes, contact Brian Reis at 519-534-4090 or earlycanflight@symptico.ca*

*MANITOBA*

*BRANDON: Brandon Chapter RAA meets on the second Monday of each month at the*

*Commonwealth Air Training Plan Museum at 7:30 PM except in the months of July and August. Contact Pres. John Robinson 204-728-1240.*

*WINNIPEG: Winnipeg Area Chapter: Third Thursday, 7:30 pm RAA Hangar, Lyncrest Airport or other location as arranged. Contact President Ben Toenders at 204-895-8779 or email raa@mts.net. No meetings June, July & Aug. RAA Winnipeg info also available at Springfield Flying Center website at http://www.lyncrest.org/sfcraac.html.*

*SASKATCHEWAN*

*Chapter 4901 North Saskatchewan. Meetings: Second Tuesday of the month 7:30pm Prairie Partners Aero Club Martensville, Sk. info at www.raa4901.com. Brian Caithcart is the chapter president. Contact email: president@raa4901.com.*

*ALBERTA*

*CALGARY chapter meets every 4th Monday each month with exception of holiday Mondays and July & August. Meetings from 19:00-22:00 are held at the Southern Alberta Institute of Technologies (SAIT) Training Hangar at the Calgary Airport. Join us for builder discussions, site visits, tech. tips, fly out weekends and more. Contact president President Gene Lukan at 403 932-4238*

*EDMONTON HOMEBUILT AIRCRAFT ASSOC: First Tuesday 7:30 pm EAHS boardroom. Contact President Bill Boyes 780-485-7088*

*GRANDE PRAIRIE: Third Tuesday, Chandelle Aviation Hangar, contact Jordie Carlson at 780-538-3800 work. or 780-538-3979 evenings. Email: jcarlson@telusplanet.net*

*MEDICINE HAT: Last Thursday of the month, 7:00PM, RAAC clubrooms, airport. Contact Boyne Lewis at (403) 527-9571or E mail balewis@shaw.ca*

*BRITISH COLUMBIA*

*ABBOTSFORD: Third Wednesday 7:30 pm Abbotsford Flying Club, Abbotsford Airport. Contact President, John Vlake 604-820-9088 email javlakeca@yahoo.ca*

*DUNCAN: Second Tuesday 7 pm members homes (rotating basis). Contact Pres. Howard Rolston, 250-246-3756.*

*OKANAGAN VALLEY: First Thursday of every month except July and August (no meetings) at the Kelowna Yacht Club. Dinner at 6:00pm, meeting at 7:30pm Contact President, Cameron Bottrill 250-558-5551 moneypit@junction.net*

*QUESNEL: First Monday/Month 7:00 p.m. at Old Terminal Building, CYQZ Airport. Contact President Jerry Van Halderen 250-249-5151 email: jjwvanhalderen@shaw.ca*

*SUNCOAST RAA CHAPTER 580: Second Sunday 13:30 pm Sechelt Airport Clubhouse, sometimes members homes. Contact Pres. Gene Hogan, 604-886-7645*

*CHAPTER 85 RAA (DELTA): First Tuesday 7:30pm, Delta Heritage Airpark RAA Clubhouse. 4103-104th Street, Delta. Contact President President: Tim Nicholas vibraanalysis@shaw.biz.ca. Website http://raa85.b4.ca.*

*VANCOUVER ISLAND AVIATION SOCIETY (VICTORIA): Third Monday 7:30 pm Victoria Flying Club Lounge. Contact Pres. Roger Damico, 250-744-7472.*

*THOMPSON VALLEY SPORT AIRCRAFT CLUB: Second Thursday of the month 7:30 pm Knutsford Club, contact President - Dick Suttie Phone 250-374-6136 e-mail - richard_suttie@telus.net*

*ALASKA HIGHWAY: meetings held every third Thursday of every month (except July & August) at the Taylor Fire Hall at 7:30 p.m. For more information call Richard at 782-2421 or Heath at 785-4758.*

*Chapter executives please advise of changes as they occur. For further information regarding chapter activities contact RAA Canada, 13691 McLaughlin Rd, R R 1, Caledon, ON L7C 2B2 Telephone: 905-838-1357 Fax: 905-838-1359 or call toll free: 1-800-387-1028 email: raa@zing-net.ca www.raa.ca*

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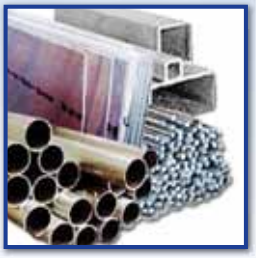
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