November - December 2006

RECREATIONAL FLYER

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

A Classic Revisited:
Eric Munzer's

BD-4

RAA
RECREATIONAL AIRCRAFT ASSOCIATION
RÉSEAU AÉRONEFS AMATEUR CANADA

from the president's desk

Gary Wolf

REPAIRMAN'S CERTIFICATE

There was an overwhelming number of responses to last issue's query about whether Canada should adopt a repairman's certificate, as is done in the US. Only one member wished to see non-builders of amateur-builts required to go to an AME for their maintenance and annuals. Everyone else was unanimous in rejecting the proposal. The reasons varied widely but the responses made it clear that our safety record does not justify such a change. Our amateur-builts get rigorous precover and final inspections that result in a superior finished product, and most pilots will seek expert help when they do not feel confident in their own abilities to perform maintenance and annuals. Further, if the politics of US border crossing were to become more difficult for Canadian aircraft, it is unlikely that a repairman's certificate would be the solution.

As the builder of the plane, you are forever liable as its manufacturer, and an accident by a student ultralight pilot could result in your being named in a suit

COMMERCIAL FLIGHT TRAINING IN AMATEUR-BUILTS?

Many do not know this, but if you have sold an amateur-built that meets the ultralight definition of 1200 pounds/45mph stall, it could end up doing daily service in an ultralight flight training school. As the builder of the plane, you are forever liable as its manufacturer, and an accident by a student ultralight pilot could result in your being named in a suit. The reason for this exception to the intent of the amateur-built regs lies in the interpretation of the UL regs. Any plane that meets the UL definition may be flown by an UL pilot, no matter how it is registered. When you sell your amateur-built, you are assuming that for the most part the purchaser will be the pilot, and he will fly the usual 50-100 hours per year himself. How would you feel if subsequently the plane were resold and it ended up at an ultralight training unit?

Ultralight training may be performed in any plane that meets the ultralight definition. Some early Champs, Cubs, and Taylorcrafts could end up in ultralight flight training units, but the manufacturers of these planes knew when they made them that they could be used for flight training. Advanced Ultralights are affirmed by their manufacturers to meet the standards of DS 10141, and they are aware that their products could be used for ultralight training. Manufacturers of Basic Ultralights (BULA) are required to meet no standard of design or construction, and anyone using a BULA for flight training is aware of this. The builder of a 1200 pound Amateur-Built likely never intended to be on the hook for the rest of the plane's life as a training plane, but he will be if a subsequent owner decided to use it for this purpose. Please send your opinions to garywolf@rogers.com

LIGHT SPORT UPDATE

In January RAA Canada will be at the Transport Canada Technical Committee meetings that will deal with the industry recommendations that include the adoption of the US Light Sport regulations. Two and a half years have passed since the US allowed these aircraft, and it is certainly taking a long time to get Canada moving in the same direction. US manufacturers are selling these aircraft at a fast rate, while Canadian manufacturers are forced to sit on the sidelines. We were supposed to have had an interim remedy that would have provided test flight permits for Canadian manufacturers, but we have recently received news that manufacturers are still waiting. Meanwhile Van's

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On the Cover: *Eric Munzer's BD-4. 21 years young and still immaculate. George Gregory Photo.*

George Gregory

Canada's ARROW

The Avro Canada CF105Arrow jet interceptor fighter was possibly the greatest single Canadian engineering achievement of all time: a very advanced complex aircraft designed and built in only twenty-three months.

by Bill Tee

It seems that the government of the day was determined to eliminate totally all evidence of the Arrow and its very useful engine in hopes that it would all go away and the proud population of Canada would soon forget it.

Many innovations developed for the Arrow and its Iroquois engine were later incorporated into aircraft designs in foreign countries. Engine air intake ducts that we see on later foreign aircraft and the advanced technology of the Iroquois engine incorporated in the Olympus engine for the Concorde supersonic airliner are two examples; in fact, one Iroquois engine still exists in the UK. Also the French expressed an interest in buying the Iroquois for its fighter aircraft being developed. Cancellation of the Arrow was unfortunate but cancellation of a marketable engine to an ally was just plain stupid!

The Brits were interested in buying the five flying Arrows for research into delta wing flight but they were turned down. It seems that the government of the day was determined to eliminate totally all evidence of the Arrow and its very useful engine in hopes that it would all go away and the proud population of Canada would soon forget it. How wrong they were!

Avro Canada VP of Engineering, Jim Floyd, recently stated at the rollout of the Arrow model at Downsview that subsequent to a talk he presented in England re the Arrow, the Brits expressed an interest in buying a series of operational aircraft as it came very close to meeting the specifications they had written for a similar aircraft and they could see no reason to develop their own when one was already in production in a commonwealth country. Mr. Floyd stated that the export potential for the Arrow was there despite the lackluster attempt by the government of the day to flog it to the Yanks, knowing full well what the answer was to be. Some business people cannot see beyond the American – Canadian border, even today.

No, the Arrow has not gone away! In fact it is probably more revered and appreciated today than it ever was. During the presentation of the 100% scale Arrow model the looks of amazement by young people was worth the price of admission alone. One juvenile was heard to say "Canadians did all that 50 years ago"!

How did we come to have this physical example of one of Canada's greatest technical accomplishment? Well, some years ago, 1988 to be exact, a gentleman was invited as a guest speaker at a 30 year anniversary dinner of the first flight of the Arrow held at the Skyline Hotel near Pearson airport (now the Double tree International Plaza hotel). This gentleman was Mr. David Onley, science specialist with CITY-TV of Toronto.

Top, Opposite: Paul Cabot, curator of the Toronto Aerospace Museum, on the morning of the rollout. Gary Wolf photo.

Alan Greenwood

At the end of his illuminating talk Onley proposed that a full scale model of the Avro Arrow be constructed to provide Canadians with a physical legacy, a touchstone whose existence would let us see, touch and taste greatness. Future generations would be able to know and understand the base upon which this nation has been built in technology and aerospace.

A great deal of discussion took place subsequent to this suggestion but nothing was done about it. That is until in 1996 when the Canadian military decided to leave Base Downsview providing a facility for the Toronto Aerospace Museum to set up shop. Item one on the list was the construction of a museum quality full size reproduction of an all metal Avro Arrow. Even a full size Avro Jetliner replica was in the head of TAM's first CEO Robin Murray, a wonderful thought but a long way off if ever.

Shortly after the opening of the museum Claud Sherwood found out about it and during a visit became enamoured with the thought of a full size Arrow model. In fact so enamoured that he took the project in hand and shepherded it right on through to its present conclusion. Claud had an emotional attachment to the project as he was a draughftsman at Avro on the Arrow when the axe fell and he was out of work along with the rest of us. Claud went on to much greater things and his capabilities to organize

THE ARROW MODEL FROM A VOLUNTEER'S POINT OF VIEW

By Joe Foster RAA # 1823

I worked on the Avro Arrow model from beginning to end, so here are some of my recollections.

The first meeting to organize the Arrow model construction was in May 1998 at the Toronto Aerospace Museum. The museum had been in existence about 2 years, and word was put out about the project. That first meeting attracted about 20 people, and Claude Sherwood made his presentation. He led the project from start to finish.

Plans for the Arrow model were being drawn up by Claude and Stan Porter, both ex-Avro employees. It had been decided that it would be an all-metal design. Various corporate donors came on board with donations of sheet aluminum, square steel tube, and Bombardier donated mounds of hardware and surplus tooling, and their paint shop.

Bombardier also 'donated' trainees who were being taught aluminum fabrication. They were most valuable to show us volunteers how to cleco panels, countersink, and buck rivets. I myself had built a wooden Osprey 2 and needed to transition to metal fabrication.

Work sessions on the project occurred on Wednesday evenings and Saturdays at Downsview. As work progressed teams formed to build the cockpit, rudder/fin, outer wing, fuselage, etc., and to do specialities such as welding and metal milling. Some actual Arrow parts exist, of course, and the museum has a few. No original parts were built into the model; these are on separate display.

The internal structure is not at all like the real Arrow. The model fuselage is a space frame of welded stainless steel tubing, with aluminum panels rivetted on. There are no forged aluminum spars or castings; our limited workshop could not possibly do that kind of fabrication.

The wings are constructed of square tubing and aluminum panels, but due to the thinness of the wing and the outboard location of the main landing gear, tubing with thicker walls, and doubled-up tubing was used to ensure sufficient strength. Steps were taken to minimize dissimilar metal corrosion.

The model was never intended to hold engines, retract the gear, or have moving control surfaces, so the internal structure of welded tube was built solely to give the correct outside shape of the real Arrow. The control surfaces were made as separate parts, and all of these (rudder, elevators and ailerons) are mounted onto the airframe with hinges, but are non-moving. They look as if they could move.

Fibreglass/epoxy was necessary for the highly curved cockpit canopy, engine intakes, and radome. RAA member Bernie Dodd fabricated the engine intakes from foam and fibreglass. I and my team made the four clamshell canopy doors likewise. Both of these large items were not clearly outlined in any known available plans, but in the end they looked very correct. The clamshell doors can open electrically. The cockpit is fitted out with ex-CF-100 ejector seats (not correct but the best we could find), instruments, rows of switches in racks, etc. We had photos for reference and the museum had loads of surplus aircraft instruments available.

The landing gear was donated by Messier-Dowty. It was Dowty who

Opposite: Historian/Columnist Mike Filey's vintage Pontiac lends a certain ambience to the rollout.

the work at hand was right up his alley.

Soon a stress analyst, Stan Porter, who also worked on the Arrow came along and did all the number crunching to ensure that indeed the model was adequately strong enough that it was not going to collapse. Indeed it hasn't!

Word got out to industry and before long 1" x 0.6" and 1" x 0.3"stainless steel tubing from Associated Tube Industries and aluminum sheet metal from Alcan were donated. An enthusiastic group of volunteers, welders and sheet metal workers, gathered and began to put this raw material together. In the mean time Messier-Dowty heard of the project and offered to donate a replica landing gear, not only the main gear that they had supplied for the real thing but also the nose gear that was built for the original by Jarry Hydraulics.

At the end of his illuminating talk Onley proposed that a full scale model of the Avro Arrow be constructed to provide Canadians with a physical legacy, a touchstone whose existence would let us see, touch and taste greatness.

made the original gear 50 years ago. The donated gear is of steel tube and simulates the real thing nicely. The main gear is very heavy, and a bit scary to man-handle into position on the wing. Once we got it mounted it stayed there. Although the Arrow model was 'rolled out', it is not quite complete. We are still installing simulated brake lines and other hardware on the gear and in the three wheel wells.

The first seven years of volunteer work produced all major components – rudder, fin, 2 elevators, 2 ailerons, 2 inner wings, 2 outer wings, nose section, fuselage, 2 tail cones. All these parts were stored hither and yon in the museum. We had one bad case of hanger rash. When the Vimy Bomber Replica was visiting, a piece of our fuselage was placed outside and was blown a distance during a thunderstorm. Extensive repairs and plenty of grumbling ensued.

It then took a bit over a year to assemble all the parts into the final product. Somehow, somewhere a few leading edge pieces disappeared and had to be re-fabricated. Some volunteers, working elsewhere in Canada, did not come through with promised parts, and these had to be made at the eleventh hour. These are some of the normal problems which plague any large long-term project, and just have to be overcome.

Of the volunteers (we had over 150 all told), all were enthusiastic. It is not often one has the opportunity to rebuild a much-loved legend. The most valuable volunteers were ones with metal working experience and RELIABILITY. We did have a pretty good core of regulars, but at work sessions 4 might show up, or 14 might. It was difficult to plan for work to be available when the numbers varied like that. The job 'sputtered' along for the most part due to the 'entirely volunteer' aspect. Every once in a while the right kind of new volunteer showed up. Ken Small was one of these – when he mentioned that he was constructing a Hummelbird I put him to work immediately! The most people at any one work session occurred on the evening when a CBC crew was on hand for filming. Cameras always seem to attract a crowd. I asked the CBC guys to please come more often!

The project started in 1998 and the leadership estimated that it would be done in 3 years – HA! not unless a horde of ex-aviation workers appear. I suggested at least 5 years and was not taken seriously. It took 8+ years to finish. Those of us who have constructed an airplane will understand the folly of predicting a quick job.

The final product shows well. It looks right, properly proportioned, and no ghastly sags or crookedness built in. I often said that it just had to look good from 50 feet, and this was achieved. Being one of the builders, I do know where all the flaws are – the piece cut short and patched, the dent filled in ...numerous visitors are favourably impressed with our work. Canada really needed this plane reconstructed; it fills a hole that was too long empty.

The Arrow model represents the modern day talent of Canadians. We had a whole range of volunteers – young, old, male, female, new Canadians, ex-Avro guys. Some parts were fabricated elsewhere in the country and then brought to Downsview. This really was a cross-Canada project, and a work of love.

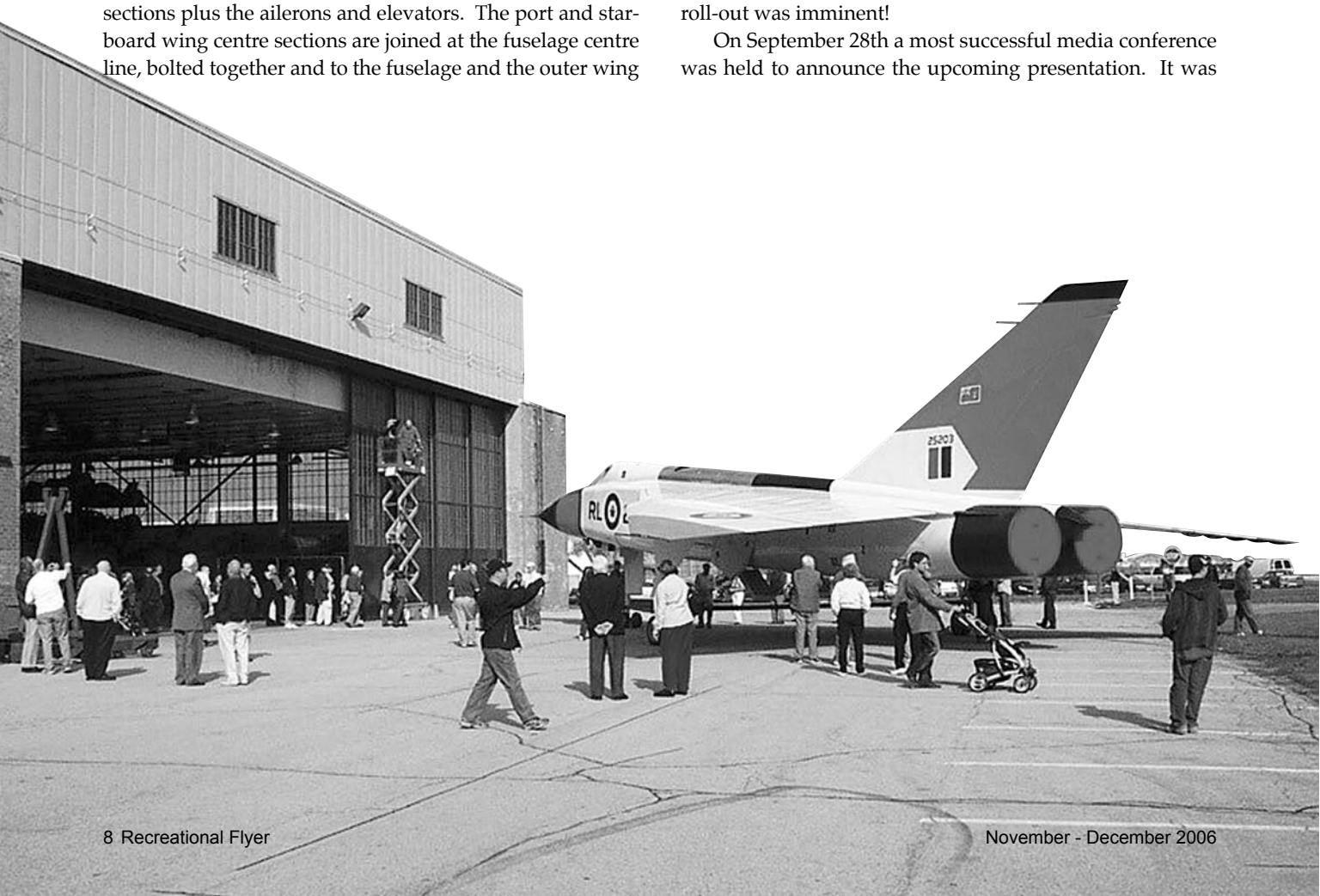
The replica's nose section. The nose section of one of the actual Arrows retained for experimental work at the Institute of Aviation Medicine, and was given to the Canada Aviation Museum (Ottawa) in 1965.

The format of construction was done in a manner of the original. Although it was not the original type framing it was done in easily managed sections and then bolted together. The fuselage was constructed in four welded frame sections plus the tail pipes with the nose section being the first to be completed. The wing was built in four sections plus the ailerons and elevators. The port and starboard wing centre sections are joined at the fuselage centre line, bolted together and to the fuselage and the outer wing panels, outboard of the saw tooth on the leading edge, were added on with the original method of bolted connections.

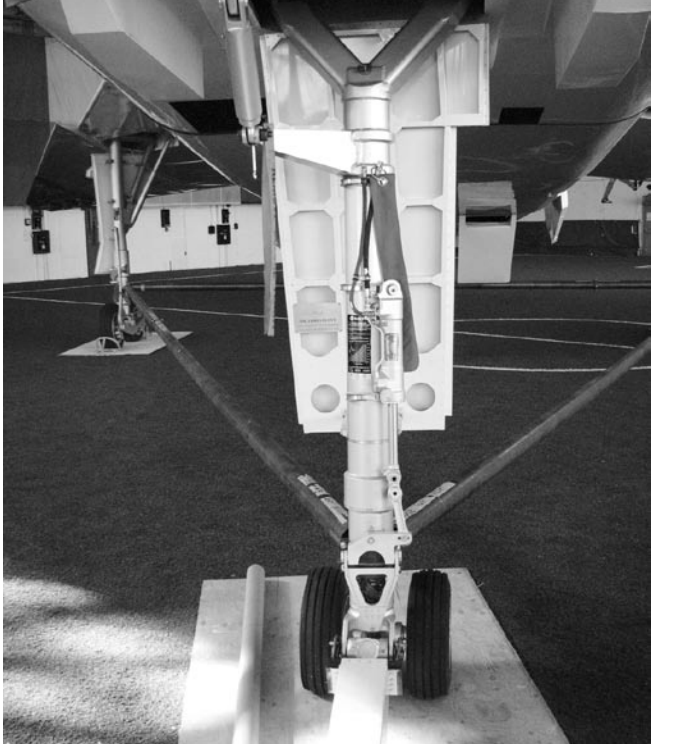
Paint was donated by Sico Industries, Paint Division and the application was done free by Bombardier Aerospace's deHavilland division at Downsview.

After many optimistic completion dates the day was finally here for the public presentation of this great celebration of Canadian ingenuity and dedication. The official roll-out was imminent!

On September 28th a most successful media conference was held to announce the upcoming presentation. It was



The replication of the gear is perfect. Gary Wolf photo. Below: Undercarriage attached and partly retracted



a PR person's delight. All the print and electronic media were there and the display of cameras would have done credit to the most famous movie star. Talks were given by the folks who had the most responsibility for the project and they did themselves proud.

A week later on October 5th a fund raising gala was held under the wings of the Arrow replica and was another success story with over 250 people attending. The following Saturday an event was held for museum members and those who were employed by Avro Canada and Orenda Engines. A greater number of old gate badges were on display that I ever thought existed. It seems that I was not the only one who failed to hand this item in at the gate when I left Avro for the last time.

The next day, Sunday October 8th was the first of two days when the public was welcomed free of charge with only a donation of their choice suggested. It is estimated that at least 3000 to 3500 people attended to admire the

All in all, the whole episode was a great experience with many people introduced to the Toronto Aerospace Museum and a great period in Canadian aviation history.

Arrow as it sat outside its hangar in the beautiful sunlight of that day. At 2:00 PM the official public roll-out ceremony was performed and talks were presented by the principles of the project and a few politicians, including the anti aviation mayor of Toronto. A great time was had by all!

Thanksgiving day Monday October 9th was a second public day but the attendance of about 2000 people was somewhat less than the day before but still very satisfying to see such a turnout. Both days were celebrated by the flying of a 1/12 scale ducted fan powered model of the Arrow. It put on a superb show with high speed runs and aileron rolls.

All in all, the whole episode was a great experience with many people introduced to the Toronto Aerospace Museum and a great period in Canadian aviation history. I would like to invite anyone who visits or lives in the Toronto area to come on over to Downsview and see the TAM including the full size replica of the world famous Avro Arrow. For more details contact the museum on E mail at www.torontoaerospacemuseum.com or phone 416 638-6078.

Watch for information on the next Wings and Wheels event at the Toronto Aerospace Museum. That will be the weekend of 26 / 27 May 2007 when the 60th anniversary of the deHavilland DHC2 Beaver will be celebrated at Downsview.

RAA

For more, visit:
www.torontoaerospacemuseum.com.
www.aviation.technomuses.ca/collections/artifacts/aircraft/AvroCanadaCF-105Arrow.shtml

Top: rear end of replica starts to take shape. Alan Greenwood Photo.
Left: About as opposite to the Arrow as you can get: Besides the Arrow, the Museum has the successful U of T Ornithopter. Gary Wolf photo.

All The Right Stuff

Story and Photos by Tom Martin

After attending the first annual Rocket 100 race

at Taylor Texas we started our return trip the next day, November 12, 06. Ed Perl was my passenger in my Team Rocket EVO 1 and Wayne Hadath was flying with us, in his F1 rocket. Early in the morning we checked the weather and it was obvious that we were not going to get farther north than the southern border of Ohio. Rather than sit around we decided to take a short hop, fifty minutes south, down to see the museum at Galveston Texas. The airport is right on the coast of the Gulf of Mexico and the visibility was spectacular.

We stayed there for a couple of hours and then started our trip north. Based on forecasts Louisville Ky was as far north as we were going to able to get so we set that as our destination. For this portion of the trip we had no wind to a slight tailwind and we were seeing ground speeds in the 190 to 200 knot range. Life was good. This route took us over central Louisiana. This region is thinly forested, mostly uninhabited with clearings few, and far apart. It is used extensively by the US government and there are quite a few MOAs, Military Operation Areas, that need to be flown around, under, or over. We were enjoying the scenery and chatting back and forth between the aircraft. As I was more heavily loaded, with a passenger, Wayne would go up and down in search of better winds. This worked well as he has a problem holding altitude anyway. For some reason he is reluctant to give in to the seductive new crop of autopilots. 5500 feet seemed to be the best compromise and Louisiana left us and we were now flying over eastern Arkansas. Our track skirted along west of the Mississippi River and we were enjoying the majesty of that busy thoroughfare. We flew west of Memphis and by this time a couple of hours had gone by and we were looking for a fuel stop within the next half hour.

Things had been going too well. About 15 minutes north of Memphis

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Philip Woolley, winner of the RAA-Canada award for the best kit built aircraft at Kemble. Above, in flight.

THE WEATHER of August 18, 19 & 20 was just awful with intermittent low cloud and rain showers.

1t was extremely disappointing for the organizers to have just over 600 aircraft fly in to an event that just a few years ago had close to three times that many arrivals from all across Europe and indeed from the USA. Very few aircraft showed up from the continent.

One of the 18 aircraft flown in from Germany was a Jodel type that arrived on the Wednesday before the event. It was apparently successfully landed in a bit of a cross wind only to have its landing gear collapse on roll-out. However airframe damage was minimal and a spare replacement gear was being shipped from Germany so the bird could be flown home again.

Twelve aircraft arrived from France and 15 USA registered UK based aircraft arrived on site. Four planes each

As aviators, we all know how the weather affects aviation activities. The 2006 air rally of the Popular Flying Association [PFA] of the UK was no exception.

By Bill Tee

showed up from Ireland and Belgium and three from Sweden. Two each arrived from Denmark, Holland and Hungary. One each arrived from Luxembourg, Austria and the Czech republic,

Despite the negative aspects of the show it was what I consider a great success and a credit to the organizer Cliff Mort and his great troop of volunteers. Although the numbers were not what were expected I am convinced that all who attended really enjoyed themselves. I know that I did!

One aspect of the great hospitality that I am used to receiving over there was the great round of applause that I received when I presented the new RAA-Canada award (the old one was filled up after 12 years) at the Saturday night awards ceremony to the PFA president Air Marshall Ian MacFadyen, CB, OBE. The flattering introduction of myself by chief judge Stuart MacConnacher was a moment of pride for me as a representative of all my fellow RAA members.

Soon after my presentation to the President of PFA the award was passed on to a very deserving RV6 builder Philip Woolley for the best kit built aircraft at the show.

Kemble 2006

Philip describes his profession as a motor trader with a 'Porsche specialty'. If the workmanship in Philip's plane is any indication of how he treats Porsche cars, then I would surely want to have him work on mine, if I had one.

In order to achieve the perfection that was evident in this aircraft over its eleven years in construction Philip remade most all of the plastic fairing pieces himself. These items were made in carbon fibre in order to save weight. Carbon fibre was also used to manufacture side trim panels for the cockpit.

Because of a special system putting 4 pipes of the fuel injected Superior XP360 engine into one the kit supplied cowl would not fit so Philip made his own. Being a fan of the Lopresti

One aspect of the great hospitality...was the great round of applause that I received when I presented the new RAA-Canada award

Above: A beautifully restored Hawker Hurricane: about as British as you can get. It won the Concours d'Elegance and Joh Randall trophy for best vintage aircraft.
Left, from top down: Swalesong, a Luton Minor built in the '40's. It marked the beginning of what later became the PFA; Swalesong II (immediately beneath) followed, first flying in 1973, Powered by a Continental GPU of 90 hp.
A Pietenpol was in attendance as well; the UK boasts some of the prettiest examples built.
The author with Philip Woolley, winner of the RAA-Canada award for the best kit built aircraft at Kemble.

design philosophy he used the round air inlets as used on later Mooneys among others. Molds were made for this and now he can manufacture cowls for anyone who may want one and may put them on the market. Cruise speed is claimed to be 160 knots at 22 squared with a fuel consumption of 10 US GPH. Phil now has his sights trained on a 300 HP F1 Rocket. If this comes to be it also should also be a real winner.

Another award winning aircraft

of note was a beautifully restored real Hawker Hurricane 1 that won the Concours d' Elegance and John Randall trophy for the best vintage aircraft. It was a pleasure to talk to the people who accompanied this aircraft. They were genuinely interested in showing it off and willingly answered all questions thrown at them.. I noted that there was a hand starter hole in the side of the V12 Merlin engine cowling. I know that RR Kestrel V12 engines had a manual start but did not know that about the Merlin. It turns out that there is a manual starting facility on both sides of the engine. The kind gentleman to whom I was talking showed me where the starting handles were clipped into each wheel well for storage. He removed one and showed me how it was placed in the cowl and how it would be turned to start the engine if the battery was dead. The exhaust stacks were only inches away from the irk who would be charged with this duty. I was told that to settle a debate as to whether of not the system would actually work a pair of energetic individuals plugged their handles into the direct drive starting shaft and began to turn the engine. Apparently the rate of propeller rotation was akin to the rotation of the hands on a clock, but it started! Who'd have thunk it!

This year celebrated the 60th anniversary of the Popular Flying Association. In light of that fact some artifacts of its early days were trotted out for the appreciation of all those who admire what those who went before them achieved.

One very early representative of the history of the PFA was a parasol wing single seat Luton LA4 Minor G-AMAW, christened Swalesong, built between 1946 to 1948 by Flt Lt James Coates, DFC, from plans in Practical Mechanics magazine. Sitka Spruce material was supplied from the wing spars of a surplus Airspeed Horsa glider left over from WW2. The initial engine was the Scott flying Squirrel. Although this aircraft was not registered until 1950 it somehow managed to get airborne during the 1948/49 period. Strange how these things can happen! This is the aircraft that began the Ultralight Aircraft Association which later became the Popular Flying Association.

Never one to rest on his laurels, Coates designed and built over a five year period a sleek low wing aircraft known as Swalesong II. This all wood aircraft was powered with a Continental PC60 ground power unit of 90 HP. Even the wheels were machined from solid aluminum. Such detail undoubtedly contributed to its 5 year construction period. It made its first flight on 10 September 1973 at Bush Green airfield.

Swalesong II was stored in its custom built shed where it languished for 15 years until Barry Plumb discovered it and brought it out to see the light of day again.

A very thorough inspection was done and the

Kemble 2006

aircraft was deemed to be still airworthy. It subsequently was reregistered and was flown into the rally by Neil Plumb. It will subsequently be a museum piece.

Barry explained that the most difficult part of getting this historical aircraft into the air again was the fact that when it was put into storage in 1991 the fuel tank was half full and the shut off valve was left open. Needless to say the gums formed by the aged fuel were a major problem in getting the engine to run again. Perseverance paid off though and with an intense cleaning of the fuel system and fresh fuel the engine once again came to life after its long rest. It performed flawlessly in getting the aircraft to Kemble.

Another historical aircraft on display was the Luton Duet, basically a Luton Minor split down the middle by Coates and widened out to accommodate two people side by side by Arthur Ord-Hume in 1964. A similar concept in North America is the side by side Corben Junior Ace derived from the single seater Corben Baby Ace.

This example flew first on 2 July 1973 and was flown until 1989 by Alf Knowles. It flew again in 1992 and now has over 900 hours to its credit. It is still flown with its C90-8 engine from its base at Egglesford, Devon by present owners Jeff Halgrave and Richard Weber who flew it into this event.

Subsequent to my weekend at the rally I proceeded to the middle of England where Derby Airport is located. I wanted to review the progress on the DH88 Comet racer Black Magic about which I wrote last year. Unfortunately I have nothing to report regarding the progress of that project. In fact the progress was a slight bit negative as some of what was together last year was now apart.

However in touring the airport I did have chance to

Left, Top Down:
A Druine Turbulent sports wheel pants and a pressure cowling;
A tri-gear Moni.
An Evektor Eurostar. Engine options include 80 HP Rotax 912 UL engine, a 100 HP Rotax 912 ULS or 80 HP Jabiru 2200.Over 500 of these ultralights have been delivered.
A Czech Aircraft works "Sport Cruiser". This LSA is the latest offering from the folks who brought us the Mermaid amphibious aircraft
Opposite, top: A few more of Kemble's denizens. No info on them, but the top one looks like a Tri-Zenith.

view in detail two Cessna 172's which had been converted to Thielert diesel engines, a conversion of a Mercedes car engine. If you are so inclined to make this change I suggest from my observations that you seriously and thoroughly review all the facts and figures of this conversion and speak to those who have been there. As well as positives there are a number of negatives to be considered.

Another item at Derby Airport that may interest C 172 owners was the simple [drill one small hole] 'Power Flow' exhaust conversion that is claimed to increase power output by up to 23 HP. Martin Jones who runs Derby Airport says that it really does work. Of course he sells them too!

All in all despite the spotty weather a good time was had by all there including myself. It is a great misfortune that the event was not better attended. Unfortunately it has been officially decided that this one big annual event will be discontinued, at least for 2007. Instead there will be up to four regional events put on by PFA struts [their chapters], some in conjunction with other events. Pity! My dilemma now is to decide which event to attend since I hardly have the resources to take in more than one.

Enjoy the sky!

RAA

Newsworthy

IMPORT CHANGES

MD-RA has now been given sole responsibility for the inspection and paperwork for all imports of amateur-built aircraft. MD-RA may be reached at 1-877-419-2111 or at www.md-ra.com. Keep in mind that if the amateur-built aircraft is US registered it must have flown 100 hours minimum air time, which does not include taxi time. As before, the import inspection will be essentially the same as the final inspection for a Canadian amateur-built aircraft

NEW SPRUCE WAREHOUSE GRAND OPENING

Aircraft Spruce and Kitplane Builders in Mississauga Ontario have joined forces to warehouse materials and popular hard parts at their location on Meyerside Drive. Saturday December 2nd is the date of the open house to showcase the new business. Many RAA members are planning to attend this grand opening. See you there! www.aircraftspruce.ca 905-795-2278.

ENGLISH WHEEL COURSE

Are you interested in a course on metalworking with the English Wheel? RAA Winnipeg is offering a course at Carmen Manitoba in February/March 2007. Contact jill_oakes@umanitoba for details.

CAN-ZAC AVIATION TO OFFER ZENITH FLOATS

For homebuilders, winter in Canada tends to be much more a time for building aircraft than flying them. For the owners of CAN-ZAC Aviation Ltd., the Canadian dealers for Zenith and Zenair aircraft kits, this is certainly an understatement. Earlier in the summer, they were granted the rights to take over manufacturing of the Zenair line of floats for homebuilt and ultralight aircraft. Through the fall they have been busy making plans and tooling up for the challenge of supplying these quality floats to an ever expanding global market.

"For the past several years, the Zenair floats have been manufactured in Eastern Europe" explains CAN-ZAC president Mark Townsend, "and this has meant long lead times and high shipping costs for prospective buyers in North America". "CAN-ZAC is changing that! We are proud to bring the manufacturing of Zenair floats back home to Canada where they originated from the drawing board of Chris Heintz – widely known for his design of safe and easy-to-build line of kit aircraft."

CAN-ZAC's plan is simple – start with making the floats for which the demand is greatest and then expand production to make floats and install kits for the rest of the Zenith/Zenair line of kit aircraft followed by manufacturing of install kits for other popular kit and ultralight aircraft. "This means our first job is to supply 3-wheeled amphibious, all-metal floats with install kits for the Zenith STOL CH 701" says Townsend. "The 1150's will do the job perfectly for the 701".

Manufacturing will begin at the CAN-ZAC shop in Alma, Ontario but, larger facilities are currently being sought that will permit higher levels of production after the product line hits the market.

When asked about the popularity of the 4-wheeled version of the floats Townsend responded "Well the 4-wheeled version doesn't rely on the nose-wheel of the airplane and allows the airframe to sit higher off the water. That said, the smaller front wheels (in the 4-wheel version) aren't as suitable for grass strips or bringing your floatplane up onto the beach at your cottage. Still the 4-wheeled version will be next on our plate for those who prefer that style."

While the prices are not set yet, they will be competitive with the floats from the former manufacturer and with the lower shipping costs, this will mean significant savings to those who dream of float flying in Canada. When can you expect to be able to get your hands of a set of Zenair floats from CAN-ZAC? "We should be able to supply our first customers this spring after we have done sufficient testing of the product." says Townsend.

When asked about kits or plans for the floats Townsend replied, "It will take a while to complete all the drawings and assembly manuals and test the kit with builders so don't look for kit floats for 2 – 3 years." CAN-ZAC Aviation does not plan to sell design and construction drawings for the floats in the foreseeable future.

For more information contact Mark Townsend (519) 590-7601 or email president@can-zacaviation.com www.can-zacaviation.com

Across Canada

RAA Chapters in Action

OSHAWA CHAPTER

HAWKE FIELD - September 7, 2003:That was the place and the day when Ross Ferguson's magnificent replica Spitfire was publicly unveiled. It was our 8th annual Barn Yard Fly-In, one that many visitors and members of Oshawa District RAA members will remember in the years to come. A "tip of the hat" goes not only to Ross but to Fly-In Chairman Wayne McCarron, the Fly-In team leaders and the hard working group of members, assisted by some wives and several COPA members. They took our annual Barn Yard Fly-In to a new level this year and the weather cooperated.

Our Fly-In log lists 117 aircraft lining the aircraft parking area at Hawke Field, among them two replica Spitfires, two gyrocopters, a helicopter, and at least a dozen show quality homebuilts, war birds and restored aircraft along with the many other homebuilts, certifieds, ultralights and trikes. A powered parachute arrived by car but as the day wound down there were so many airplanes still to leave that the pilot decided not to fly. Seeing so many planes was a great site but to me the most satisfying part of it all were the comments from visiting pilots as they were preparing to leave. Several praised both our hosts, Karen and Hannu Halminen for the beautiful site they provided at Hawke Field, and the daylong dedication and enthusiasm of the chapter's "on field" crew - from our eagle eyed radio staff with their new base radio in their new tower and the marshals with their new fluorescent paddles who guided the planes to their parking area, to the members who had the sometimes difficult job of

pushing the planes back into their parking spots.

"It was the best ever," said one pilot. Others asked where we found so much good help and several mentioned the new feature this year – runway markings painted on the grass by Reg Gardner and Rudy Riss which were highly visible from the air. Reg also supplied the radios that kept the ground crew in touch with each other.

HELP KINETTES PROJECTS

Everyone seemed to enjoy the free corn, and food thanks to the Kinettes of Bowmanville. And we can feel good knowing the proceeds will help finance the Kinettes good works. The corn cookers were provided by Eastman Steeves and Hannu.

Security worked unobtrusively but well, which is the way it should work There were only a few problems -- the most worrisome being a couple of children unaccompanied by parents wandering into the aircraft parking area and, in two or three instances, groups of adults talking and walking with their backs to aircraft taxiing out, ignoring the waving and shouting of marshals and security.

The Chadburn Squadron Air Cadets did a great job of keeping automobile and motorcycle traffic from blocking the driveway entrance area around the hangar, sometimes a problem in previous years, and getting drivers to go all the way back to the car park area. And with so many "drive in" visitors this year it was often a long way back.

Fortunately they were not needed but we felt reassured by the presence of professional Fire Fighter Tony McCraw, Paramedic Ed McDiarmid, Danielle Richards who looked after our First Aid Station and Doug Millson who brought a large farm tractor with fork lifts to be used in the rescue if any one should become trapped in an overturned aircraft.

A special thanks to those members who came early to set up tents, chairs and tables for the RAA's seminar held in the hangar and for the RAA booth where we sold hats and magazines. Many where still there at the end of the day to put things away and help clean up.

Contributions to our Chapter Activities section are encouraged. Keep your fellow members updated on what is happening across Canada! Send your reports and newsletters to :

Recreational Aircraft Association

Brampton Airport, RR#1,
Caledon ON L7C 2B2
Telephone: 905-838-1357 Fax: 905-838-1359
Member's Toll Free line: 1-800-387-1028
email: raa@zing-net.ca

Winner of the draw for a ride in the Waco was Kyle Vowles of Bailieboro.
Don Dutton

Thompson Valley Sport Aircraft Club (Kamloops)

President Dick Suttie reports that his Beaver UL is running but one carb has been giving trouble. Switching all of the internal parts to another Bing body corrected the problems, so the conclusion is that there might be porosity in the casting. Camille Villeneve has been putting the hours on his new Proton UL. Dick and Bill Huxley have been busy hanging doors on the hangar using Bill's "patent pending" operating mechanism that includes a chain fall and a rail. The members have certainly been enjoying the new deck on the clubhouse during the chapter barbecues. Camille has received a request from an Englishman living in France. He is looking for information on a Canadian twin engined ultralight from the eighties -the Toucan. If you know anythng about these rare planes, please contact t.br@free.france . The TVSAC chapter newsletter may be read online at http://www.ocis.net/tvsac/

RAA Calgary

President Calvin Thorne reports that he has been busy with the preliminary weight and balance of his amateur-built Vision, and that he has found an very good online weight and balance spreadsheet at www.kcdawnpatrol.com/wghtbal.htm <http://www.kcdawnpatrol.com/wghtbal.htm> . This may be downloaded and is customizable for individual applications. It is possible to test extreme conditions to see how they affect weight and balance, and the minimum and maximum conditions may then be determined.

Paul Swift reports that in New Zealand there is a group that has found a PBY Catalina and is actively restoring it to flyable status. Paul feels that there many large aircraft are left to rot because of the expense of moving, hangaring, and restoration. His plan is to visit the Shuttleworth Collection in England where all collected aircraft are maintained in flying condition. www.airchive.com <http://www.airchive.com> is a website with links to an extensive collection of lists that deal with scrap and salvage aircraft, including a Boeing 747-100 for $15,000.

Calgary Chapter has two local builder assist centres. Shane at Innovative Wings operates one of them. The other is Custom Aircrafters, operated by member Ralph Inkster rvinkster@shaw.ca at Springbank Airport. Ralph is also the Aircraft Spruce for this area.

The next chapter meeting will be January 22, 2007 at 7:00pm, held at the SAIT.

RAA Ottawa Rideau

November's meeting of RAA Ottawa Rideau was addressed by member Cary Beasley who gave an inter-

President David Stroud (l) and Secretary/Newsletter Editor Bill Reed display the drawings for David's Fairchild 51 project.

esting presentation on composites, and how to test the strength of the finished layups. The chapter elections were again "hotly contested", and the new President is David Stroud. Harvey Rule is VP and Michel Tondreau has been elected Treasurer. Bill Reed will take the position of chapter Secretary and Newsletter Editor.

December's meeting will be at David Stroud's house where he will show the progress on his Fairchild 51 project. This plane has a gross of 4000 pounds, seats four, and carries 400 litres of fuel, burning it at the rate of 43 litres per hour, for a duration of 8 hours at 100 mph cruise speed. There will be no meeting in January, and February's meeting will be a dinner at the Swan on the Rideau at 6:00pm on February 7th.

Tom Bennett will be in charge of preparations for the March ski fly-in and is asking for help with cutting trees and brush. Harvey Rule will be in charge of the chapter's summer fly-in in June.

Kitchener-Waterloo Chapter

The KW chapter November meeting was addressed by Don VanRaay of VR3 Engineering, the company that machines and supplies kits of prefitted tubing for fuselages. Don explained that the joints are so accurately fitted by his CNC machining centre that jigging is almost unnecessary. One of the chapter members remarked that VR3 was doing for tube construction what prepunched kits had done for aluminum aircraft construction.

The December meeting was the chapter's annual Christmas party, hosted by Mike Thorpe, with assistance from Bob McNichol. Their humorous aviation related skits had everyone in stitches, even throughout the door prize giving. Tom Mills presented the Larry Edwards Memorial Award to Clare Snyder for his willingness to assist chapter members during the 2006 year. Mike Thorpe reflected on the contribution that recently deceased chapter member Aranka Rakanovic had made for many years to the operation of our chapter. She will be missed.

Mike Thorpe will be the speaker at the January meeting at the Air cadet building at CYKF. Mike will discuss the construction of his Hi-Max with Muk Tuk wood floats that was once a cover shot for the Rec Flyer. He will play the video of his flight from Southern Ontario to Manitoulin Island and points beyond. Guests are welcome but please contact clare@snyder.on.ca to confirm your seat.

RAA London-St.Thomas

RAA London-St.Thomas has been busy building airplanes this year. Regional Director Tom Martin finished and flew his F-1 Rocket EVO with its tapered wing. Ed Perl finished his RV-7 with a 180 hp Aerosport engine and glass panel. Jim and Bruce Armstrong completed the thirty-one year construction process of their second Pietenpol Aircamper with a C-85 and a larger fuel tank than their first Piet has. John Vanderzyde and Clayton Hefley completed and flew their 200 hp fuel injected RV-6. Most recently Brent Davies ended a six year build by flying his Murphy Moose, powered by a Robinson Corvette engine conversion. He next plans to install Clamar 3500 amphibs so that he can fish the lakes of Northern Ontario, using the Moose as his cottage.

Jack Schenck tried a different sort of flying this fall when his wife and son presented him with a "Tandem Discovery Flight" certificate from the High Perspective, the hang gliding school east of Toronto. The winch launch took Jack and his instructor to 1500 ft where they chased thermals for 20 minutes, then landed with a 50 ft rollout. Denny Knott reports that the chapter Skyhopper project has its wings ready for cover, and the engine will be tested with the prop from Howard Faulkner's Emeraude.

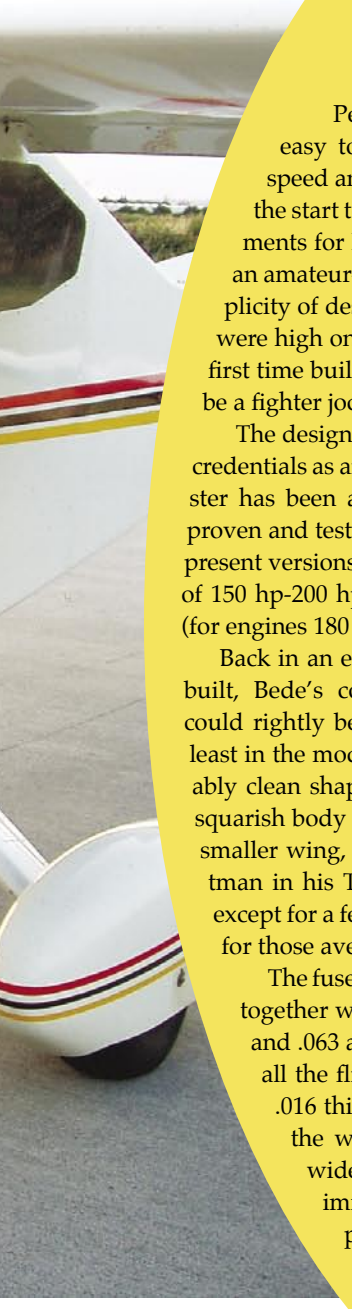
The November meeting of the chapter saw our members making the drive to Brantford to meet with members there at Bob Nelles' hangar. Six members displayed their amateur-built planes and answered questions. Gary Walsh displayed his amphib Kitfox, David Moore showed his 160 hp Sidewinder, and John Koning presented his Daphne, a Tailwind with a larger wing and different airfoil. Peter Bullman and Ed Johancsik showed their Tailwinds, and Russ Norman was there with his bright yellow Mustang 11. December's meeting was a planning night for the executive, and on January 2nd the chapter will recognize members' achievements at our awards night.

Eric Munzer's

BD-IIII

Text and photos by George Gregory

In The Time Before RV's, the Sonex, or even the Varieze, the BD-4 sprung forth from Jim Bede's fertile mind. It was the late 1960's, when the majority of homebuilts were plans-built, and completion rates for such aircraft were dismal.



People needed a useful aircraft that was easy to build, well engineered, with useful speed and payload. It would be designed from the start to meet or exceed the structural requirements for FAR part 23, but was intended only as an amateur-built, high performance kitplane. Simplicity of design with sound construction practices were high on Bede's priority list; something for the first time builder, and something you didn't have to be a fighter jock to fly.

The design was a hit, and helped establish Bede's credentials as an innovative designer. The boxy speedster has been around now for 38 years and is well proven and tested. It's been refined over the years; the present versions are designated the BD-4B (for engines of 150 hp-200 hp), and a stretched version the BD-4C (for engines 180 hp - 300 hp).

Back in an era when most homebuilts were plans-built, Bede's concept was truly revolutionary, and could rightly be considered the first true kitplane, at least in the modern sense. His design yields a reasonably clean shape for high cruise perfomance, and its squarish body generates aerodynamic lift, allowing a smaller wing, a trick used by the famous Steve Wittman in his Tailwind design. Welding is eschewed except for a few small fittings that can be farmed out for those averse to picking up a torch.

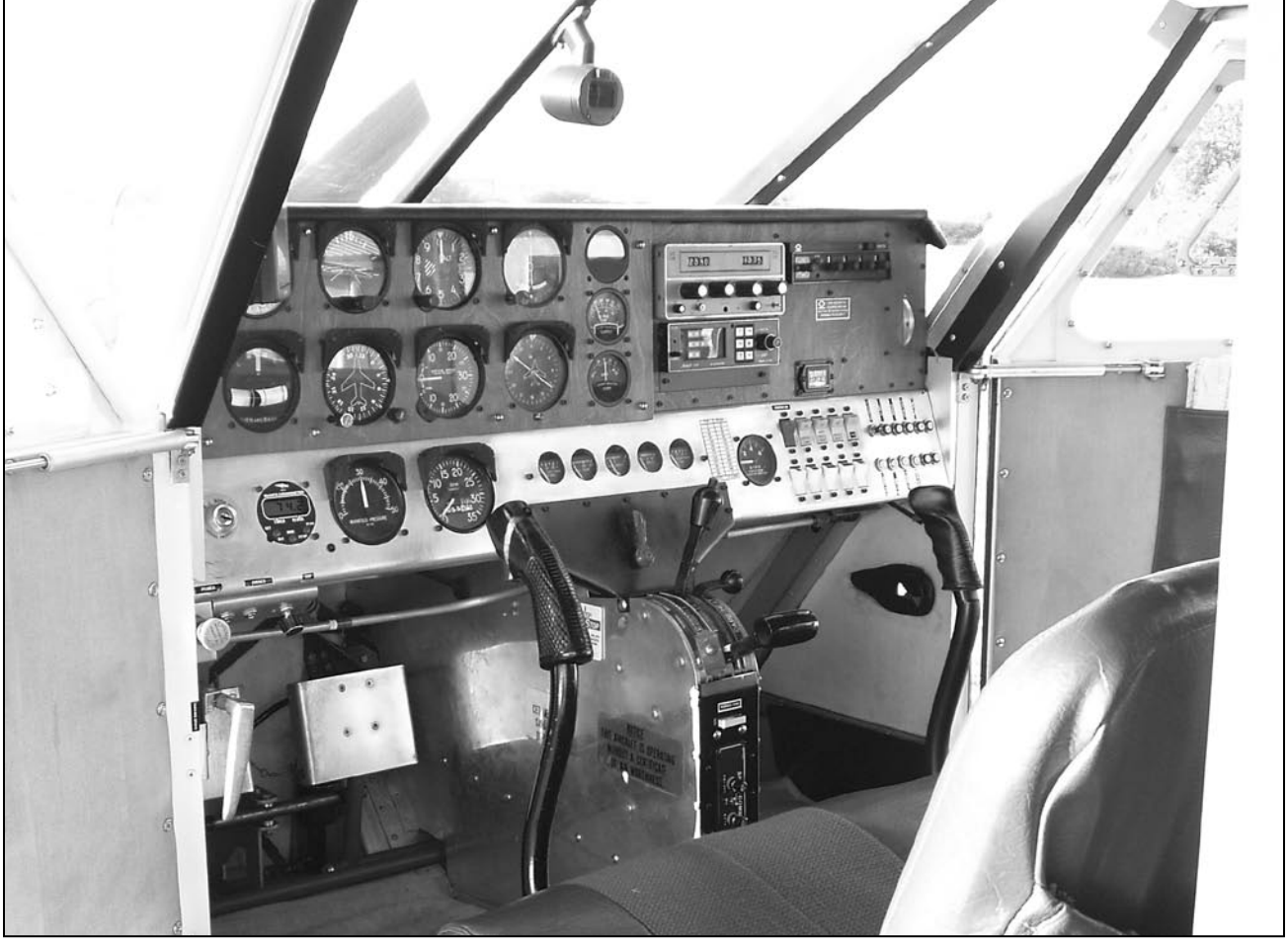
The fuselage consists of aluminum angle bolted together with countersunk AN509 bolts and nuts and .063 aluminum gussets. This structure takes all the flight loads; aluminum skins of .020 or .016 thickness bonded and riveted on to keep the wind out. The cabin itself is 42 inches wide, a tad wider than a Cessna 172. Not immense, but adequate for average size pilots. The cabin can be built in a 2 or 4 seat configuration depending on the engine used; any engine over 150 horsepower allows the use of back seats. However, the BD-4's loading envelope is somewhat narrower than some production aircraft, so if you're filling the seats you'd better not put anything in baggage area (one wonders if the "C" version might be a little more flexible with its stretched fuselage and larger engine up front). The panel is big enough to accomodate whatever instruments the builder can afford all the way up to full IFR.

The wings are another Bede innovation. They feature a 3 piece aluminum tube spar - a section that passes through the cabin and extends outwards, and then the wing panels that slide onto this centre section with their own tubular spars. Specially molded panel-rib modules slide onto the spar and are bonded in place; each panel interlocks with its neighbour, and these same panels can be sealed and used as fuel tanks. Simply decide the range you want and seal the appropriate number of panel ribs for the required fuel capacity. In practice, it's been found that the fibreglass panels tend to leak after a while, and many builders opt for a more conventional metal skinned wing (still utilizing the tube spar) that is now offered, featuring metal honeycomb ribs bonded to an .020 aluminum skin.

The airfoil is a modified 64-415 with no twist or dihedral; being of a rectangular planform, the wing stalls at the roots first, so no washout is required. The stall is docile and quite managable. The flaps have 10, 20, and 30 degree increments of extension, but are fairly small: Eric says they are not terribly effective on his Bede. The aircraft is stressed of 9 G's positive and negative at 1400 lbs; at full gross of 2000 lbs., 6.3 G's either way. It's strong.

The vertical fin and rudder are of aluminum construction with channel spars and 3 ribs, all blind riveted together; the horizontal tail of the BD-4 is a smallish, all flying unit that pivots around its 2.5 inch tubular centre spar, with eight ribs and .020 skin riveted on. By production aircraft standards, all the surfaces seem on the small side, but they have plenty of authority and seem well matched to the aircraft.

The BD-4 can be built either as a tricycle undercarriage or a taildragger, though the nosewheel version is considered definitive. As originally configured, the



castoring nosewheel was actually a tailwheel from another design, and many builders have found this to be just too darn small, installing larger nosewheels; Eric has done so and considers it the most important modification on his aircraft. The mains are of normal size and are mounted on a simple flat stock gear like those found on older Cessnas.

Eric's BD-4

Chapter 85's Eric Munzer immigrated to Canada from Switzerland in 1970 after a stint in the Swiss Air Force flying Vampire jets. He'd read about the BD-4 in the late 60's (Jim Bede debuted the aircraft at Rockford in 1968) and in 1975 purchased a project started by another homebuilder. Over the years that followed, he kept looking for BD-4's at airshows to maintain enthusiasm levels, and the finally met fellow builder Fred Hinsch, also of the Vancouver area and likewise a member of the Vancouver chapter. By now his ardor had cooled a little, but when Fred invited him over for a look at his work, the fires were lit again, and building continued apace. Eventually Fred came over for a look at Eric's work, and his (by now) flagging enthusiasm was likewise rekindled - and so it went, back and forth, encouraging, challenging, and advising each other until both projects were finished.

Eric had built a lot of airplane before he had his first inspection. Nervous, he had hoped to soften up the inspector with coffee and donuts before the Blessed Event, but the Transport Canada guy got right to his work, not saying anything for some time. A certain amount of nervous tension had built up before he finally indicated an interest in the refreshments and affirmation: "I wish everyone built like this". Whew!

Eric's aircraft is entirely scratch build except for the

Top: Eric's panel is complete and businesslike.
Left: A larger nosewheel was a top priority with Eric's BD-4. He considers it the single most beneficial modification to his airplane.

The rear bulkhead pops out to reveal a usable baggage area. Balance is a consideration, however: if you're filling the back seats you'd better leave it empty. Below: although the plans call for simply bonding the skin into place (the skin is not load bearing), Eric opted for rivets to supplement the bonding process.

wing rib modules, the wheel pants and cowling, and was 10 years in the making. The spars are salvaged from Grumman Yankees (a.k.a. the BD-1) which share the same tubular wing spar. It took the spars from two Yankees to make up the required span for the BD-4; Eric's aircraft features the extended wing of nearly 30 feet, a requirement in Canada due to wing loading requirements. A considerable engineering effort was required to prove to Transport Canada that the splices were airworthy, but in the end he prevailed. His first flight took place in August of 1985.

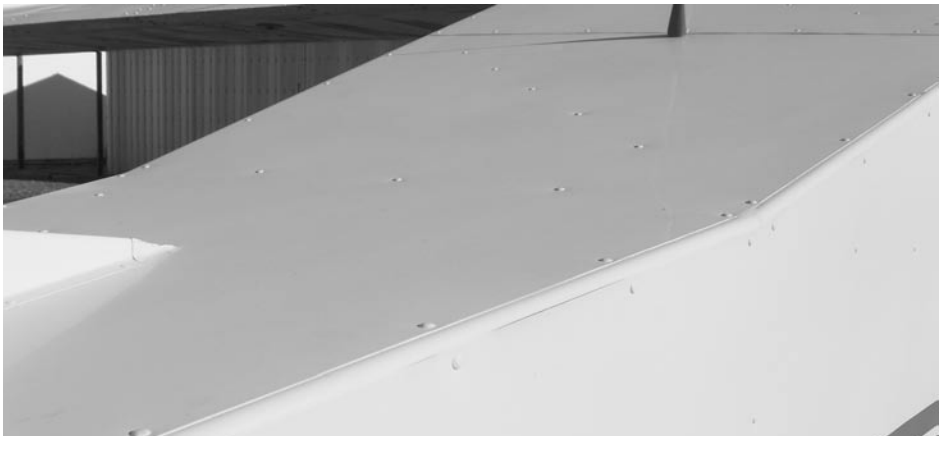
Back in the days when it was tied down next to Langey's tower I remember admiring his BD-4 and its functional, clean construction. The panel has an almost military look to it, and sports a console similar to Piper products for the throttle, prop and carb heat controls - minus the plastic (much nicer in my estimation). The upholstry is simple and tasteful, and the back seat folds forward to reveal a 2.5 square foot baggage area. Eric's BD-4 can carry about 800 pounds of payload.

Flying It

I met Eric on a sunny fall day ready to commit aviation. He'd been away to Europe for two months, but the Bede started on the first try, eager to spread its wings. Getting aboard was a little tricker than my Cessna due to the sticks on the floor, but after a quick briefing from Eric proved to be a piece of cake. One thing that surprised me was that the tubular spar passing through the cabin didn't interfere with my head or my vision forward; though if you weren't strapped in tight you could get quite a knock on it if you decelerated suddenly.

Our mission for the day was a pie run to Chilliwack (almost assumed in our neck of the woods, given the quality of the eats at the airport there). After a check with the tower, Eric rolled onto Langley's runway 01 and we were off. The Lycoming 0-320 teamed with a Hartzell constant speed prop provided solid acceleration and we settled down to about 700 fpm cruise climb, though maximum performance climbs are more in the order of about 12-1300 fpm. Noise levels were about average.

We cruised at about 150 mph running 2400 rpm and 24 inches of manifold pressure; a bumpy eastern outflow from the mountains precluded a more accurate speed measurement, but Eric says 150-160 cruise is about right for his airplane.



BD-4 *Specs (source: www.bedecorp.com)*

Engine	*150 hp*	*180 hp*	*200 hp*
Max Gross Weight:	2000 lbs	2400 lbs	2400 lbs
Empty Weight:	990 lbs	1250 lbs	1250 lbs
Useful Load:	1010 lbs	1150 lbs	1150 lbs
Wing Loading (lbs/sq.ft):	19.20	23.53	23.53
Power Loading (lbs/hp):	12.00	13.33	12.00
Cruise Speed - 75% power:	172 mph	192 mph	198 mph
Cruise Speed - 65% power:	165 mph	174 mph	180 mph
Stall Speed - flaps down:	52 mph	55 mph	55 mph
Stall Speed - flaps up:	58 mph	61 mph	61 mph
Rate of Climb - maximum:	1250 fpm	1400 fpm	1700 fpm
Take Off Run:	650 ft	600 ft	600 ft
Take off Run over 50' Obst.:	1100 ft	1000 ft	1000 ft
Landing roll:	600 ft	600 ft	600 ft
Maximum Range:	900 miles	900 miles	900 miles
Wing Span (standard)	25.58 ft		
Wing Span (extended)	29.58 ft		
Length	21.38 (B version)		22.6 (C version)
Height	7.23 ft		
Cabin width	42 in.		
Cabin length	89 in		

Plans and Kits: Tennesee Valley Aviation Products www.tvap.com
www.bedecorp.com

Information: BD-4 homepage http://bd-4.org
http://home.centurytel.net/nicewarner/

He gave me control of the airplane, and I started with a series of S-turns back and forth and found the controls reasonably well harmonized. The small control surfaces had plenty of authority and were not overly light with plenty of feedback to the stick. The aircraft felt precise (I'm told the right stick has bit of play in it, but I didn't notice). The trim was *very* powerful and required only minute adjustments to be effective. Turns are best initiated with a bit of rudder, which, though small, has plenty of authority. Roll-yaw coupling was excellent, not unlike a Cessna - you could fly with your feet for brief periods while opening maps and so on. It's easy to pick up a wing with rudder control alone.

Stalls are sort of a non-event; rather that a clean break, you get sort of a 2000 fpm mush around 55 mph clean. Later, Eric demonstrated this when we came in a bit high back to Langley's 2100 foot strip; it's great for adjusting the glide angle, and the ailerons remained effective. The flaps are small and not as effective as some aircraft at adjusting the steepness of the approach, so this is good to know. Approaches are normally flown at about 95 mph, and landing about 80.

This is a great aircraft, conservatively designed, giving good performance for the dollar with predictable handling and good cross-country potential

As built, Eric's BD-4 has about a 600 mile range, but builders can add tankage depending on how many wing bays they want to use for fuel storage, whether they opt for fibreglass or metal wings; a range of 900 miles is possible.

My overall impression? This is a great aircraft, conservatively designed, giving good performance for the dollar with predictable handling and good cross-country potential. It's been around a long time, and is well tested. The option of going to 4 seats is intriguing, though the load distribution issues preclude long cross country trips with all the seats filled. I wonder if anyone's ever though of a belly pod to put baggage in a more advantageous loading position? A big engine might address that issue; and of course the "C" version is 7 inches longer and assumes motors up to 300 horsepower with a MTOW of 2400 pounds.

Bede's cruiser is a lot sportier than your average Cessna, but isn't going to break your bank account: the kits (remember this is a 4-place aircraft with the larger engines) start at about $23,000 USD for the kit with the 10 foot wings, and $1000 more for the 12 foot wings. If I were building right now, I'd give it a serious look.

Right: the flap handle is over the pilot's head. The spar carry-through was not the problem one would expect.

Yes, we were there! Rocketeers at Galveston's Scholes Field

Right Stuff *Continued from page 11*

there was a sudden and very attention getting roar in the cockpit. I could feel vibrations in the floor and through the firewall. A quick check of the engine monitor showed nothing wrong but I knew we had a potentially major problem. I called out for my passenger, Ed, to find an airport. Meanwhile I reduced power, and noticed both a reduction in vibration and noise. It was still very loud, alarmingly so, and it was coming from the engine compartment. Ed was having some problems getting orientated with map so I hit the nearest button on the GPS. There was an airport immediately behind us, 2nm, so punched it in and turned left. I radioed Wayne, that we had a problem and that we were going down - now! I gave him the designator 7M4, Osceola, AR and then returned to the business of getting the airplane on the ground fast. By this time my guess was an exhaust problem and I had concerns about hot gasses

in the engine compartment. All of this happened in less than 30 seconds. I was now on course for the airport at a rapid rate of descent. I kept partial power in place until I was sure that we had the airport and then I joined a straight in downwind for the main runway. Usually if you pull the throttle back too far, too fast, on this airplane it gives a very impressive backfiring display. Now it sounded down right scary. On short final I fully reduced power and dropped in for an uneventful, but loud, landing. A very short taxi off the main runway, and I quickly shut it down. Now it was quiet, we were safe, and there was no fire; big sigh of relief. Meanwhile Wayne had joined us on the ground. At the time I was not aware of the fact that he had done a high speed pass over the runway to make sure that we had gotten down safely. I would guess that we were on the ground in less than two minutes. We were very fortunate not to have had this happen over Louisiana! Wayne disputes my memory of having made a transmission to him regarding the airport. I may not have, or I did and it was too loud to be clear, or he forgot: things were happening fast and at that time I was not really all that concerned about him! He thought I was going to land on the road. This is the second time that Wayne has thought that I was going to land on a road when a perfectly good runway was available. Sometimes I wonder about that boy.

Let me describe the airport. It is in the middle of a rural agricultural area with a few scattered fields of unharvested cotton. The runway was quite nice but the buildings were old and had a very abandoned look to them. The mice and rats had moved out years ago. There is no shop or mechanic on the field. The village was miles away and there were very few homes close to us. By this time I was under the plane and had discovered that yes, it was an exhaust issue. My tail pipe, on the left side had broken at the ball joint just aft of the number five cylinder. It was three o'clock, Sunday afternoon, in the middle of nowhere.

Out came the tools and we start to take the cowling off. A local gentleman, Jim, slowly walked over to us from a hangar he had been working in. He was sympathetic and lent us a need socket wrench. A silver Dodge pickup truck, complete with rear window gun rack, pulled into the lane and parked a couple of hundred feet from us. The two occupants of the truck sat and watched us. The duelling banjos theme song from the movie Deliverance started to echo in my mind. With the cowling removed I was starting to feel a bit discouraged about repairs to this exhaust system. I had one hose clamp and I was thinking that with another clamp and an old license plate I might be able to make a patch that would hold. Flying with this kind of band aid fix was not a very appealing option.

Then, with the three of us, not counting the local and the observing pickup boys, discussing our options the light bulb came on and I started to laugh. Wayne had, in his baggage compartment a complete brand new exhaust system that we were taking back to Ontario for another builder! Before we left Mark Fredrick's Team Rocket shop he had asked if we would mind delivering the exhaust system. It was a big box and we did not really want to take it but it would help Mark and the builder out so we crammed it in before our departure. What are the odds of having an exhaust failure in an aircraft and having a complete new system that would bolt right on? We were all laughing by now. With the exception of the boys in the truck, they were still watching.

This is about the time the police showed up.

A squad car pulled right in front of the plane and the officer leaned out the window and asked if we had a problem. He was polite but quite serious. After we explained the situation he got out and motioned to the pickup truck boys. They pulled their truck over in front of Wayne's plane; we were not going anywhere. It turns out that the pickup truck boys had been over at the gun club shooting rounds and I had startled them when I went over at high speed, making a

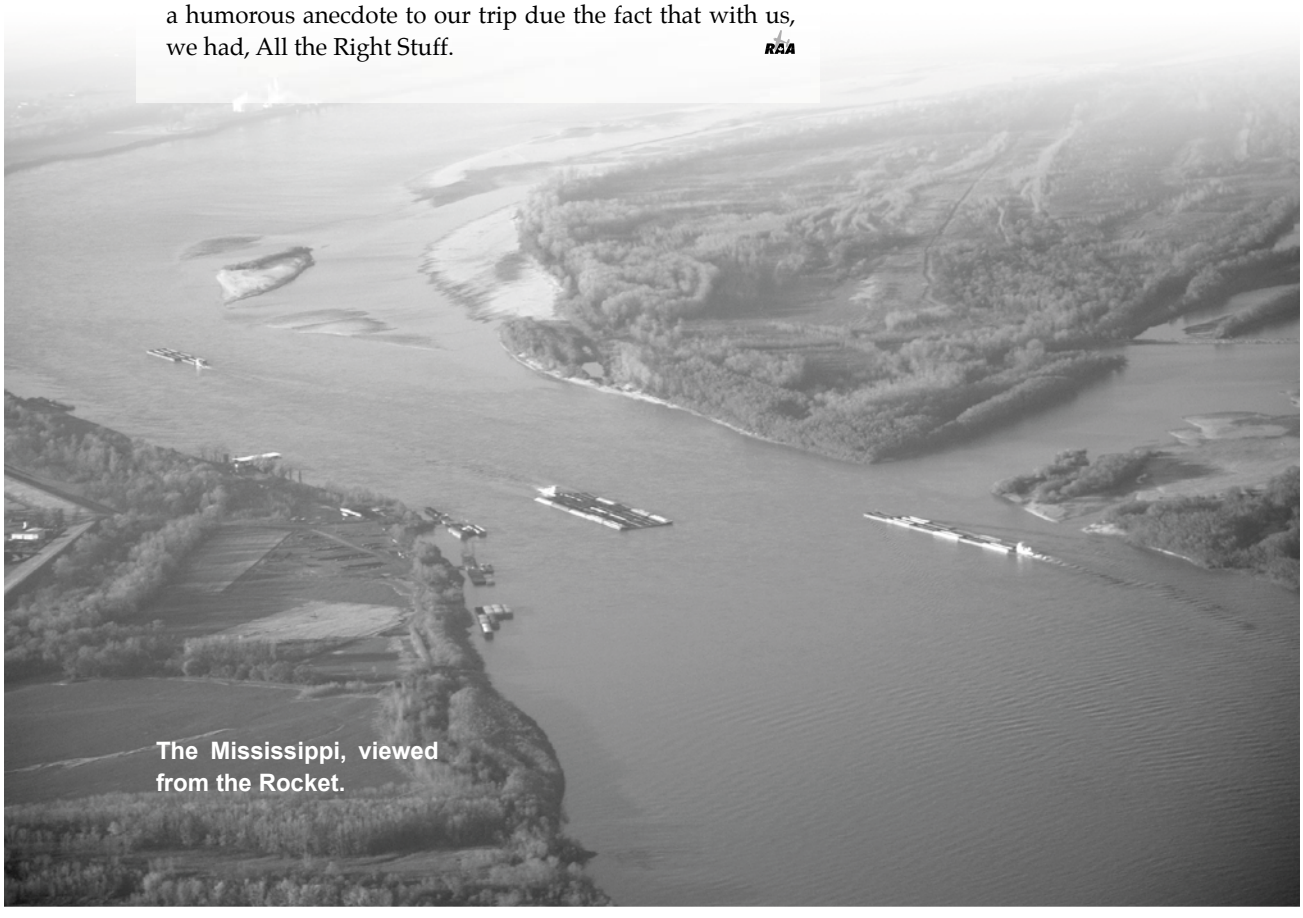
bunch of noise. These unmuffled six cylinder engines have a very nice sound under normal circumstances but having the pipe broken off in the cowling, and the back fires, really upped the sound effects. Then Wayne roared past them at probably 250 mph while checking to see if I was on the ground ok. The locals probably thought they were under attack, and from the gun club they called the cops.

While I was busy removing the old system, Ed and Wayne reassured the residents that we were legitimate and the air warmed considerably. The cop was now quite helpful and offered us transportation for supplies if needed. The replacement went fast and within forty five minutes the cowlings were back on. By this time the airport manager had shown up and Wayne and I both fuelled up from a suspiciously old tank. While paying for the fuel, cash only, the manager told us that we were his first fuel customers that month! This was not very reassuring but our options were limited.

With two hours of daylight left we set course north for Bowling Green, Kentucky. We spent the night there, and part of the next day, while waiting for the ceilings to lift before our trip was continued.

The mystery of the broken exhaust remains just that. This is the first such failure the manufacturer has had of this nature and he has thousands of similar systems in use. It was a potentially dangerous situation that turned out to be a humorous anecdote to our trip due the fact that with us, we had, All the Right Stuff. RAA

While I was busy removing the old system, Ed and Wayne reassured the residents that we were legitimate and the air warmed considerably.



The Mississippi, viewed from the Rocket.

The Night Before Christmas...

'Twas the night before Christmas and out on the ramp
not an airplane was stirring, not even a Champ

The aircraft were fastened to the tiedowns with care
in hopes that come morning they still would be there.

The fuel trucks were nestled, all snug in their spots,
while peak gusts from two-zero reached 39 knots.

And I at the fuel desk, now finally caught up,
had just settled comfortable down on my butt.

Whenever the radio, there arose such a clatter
I turned up the scanner to see what was the matter.

A voice clearly heard over static and snow,
asked for clearance to land at the airport below.

He barked out his transmission so lively and quick,
I could have sworn that the call sign he uses was "St. Nick".

Away to the window I flew like a flash
Sure that it was only Horizon's late Dash.

Then he called his position and there could be no denial,
"This is St. Nicholas One and I'm turning on final".

When what to my wondering eyes should appear,
A Rutan Sleigh, and eight Rotax Reindeer.

He flew the approach on glideslopes he came,
As he passed all the fixes he called them by name:

"Now Ringo! Now Tolga! Now Trini and Bacun
On Comet! On Cupid!" What pills was he takin'?

Those last couple of fixes left controllers confused
They called down to the office to give me the news,

The message they left was both urgent and dour;
"When Santa lands, could he please call the tower?"

He landed like silk with the sled runners sparking,
Then I heard "Exit at Charlie" and "Taxi to parking."

So up to the offices the coursers they flew,
with loud airplane noise and St. Nicholas too.

He stepped out of the sleigh, but before he could talk
I had run out to him with my best set of chocks.

He was dressed in all fur, which was covered with frost
and his beard was all blackened from reindeer exhaust.

His breath smelled like peppermint gone lightly stale
and he smoked on a pipe, but he didn't inhale.

He had a broad face and his armpits were smelly,
and his boots were as black as a cropduster's belly

He was chubby and plump, a right jolly old fool,
and he kindly informed me that he needed some fuel.

A wink of his eye and a twist of his toes
led me to know he was desperate to powder his nose.

I spoke not a word but went straight to my work,
and I filled up the sleigh, but I spilled like a jerk.

He came out of the restroom with a sigh of relief
and then picked up a phone for a flight service brief.

And I thought, as he silently scribed in his log,
That with Rudolph he could land in eighth-mile fog.

Next, he completed his preflight, from the front to the rear,
then he put on his headset and I heard him yell "Clear!"

And laying a finger on his push-talk,
He called up the tower for his clearance and squawk.

"Straight out on two-zero" the tower called forth,
"and watch for a Cessna straight in from the North".

But I heard him exclaim 'ere he climbed in the night,
"Happy Christmas to all, I have traffic in sight".

By Phyllis Moses

Product Reviews

by Gary Wolf

BOELUBE LUBRICANT

BOELUBE IS A SUPERB cutting and forming lubricant that is a lot easier to use than a conventional cutting fluid or an oil. The soft paste is easy to apply to the tip of a drill and it will help you to make clean holes in steel and aluminum. A minuscule amount is necessary and there will be none of that cleanup that is necessary with liquid cutting oils. This will be appreciated by anyone who has been drilling holes while lying inside the tailcone of a fuselage. One other benefit is that your drill bits will stay sharp longer, and this means that your battery drill will make more holes before requiring a recharge. Thread cutting will be improved too, and your fine thread taps will last longer. Boelube is also good for sticky clecoes. A bit of paste on the tip will keep the barbs sliding easily.

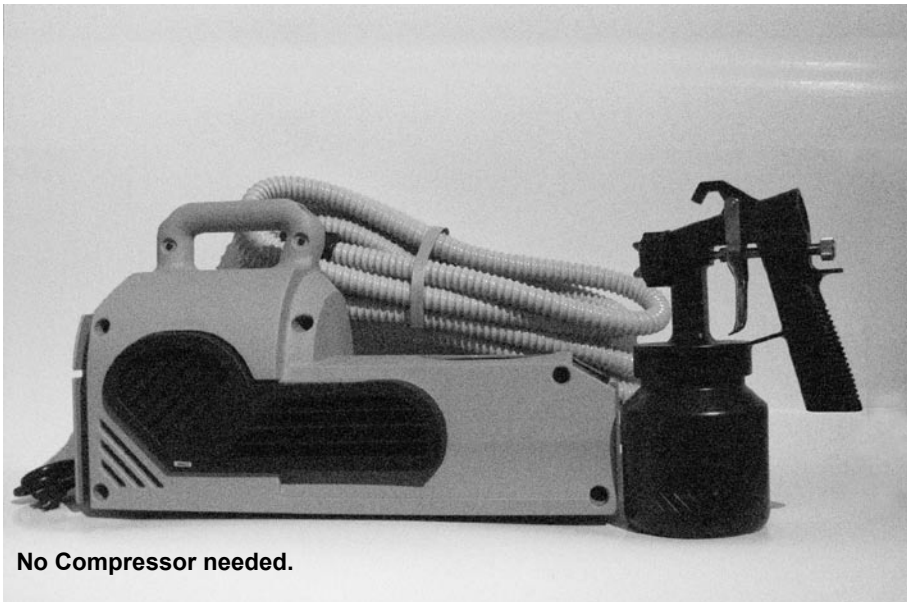
Boelube also comes in a handy rub stick that looks like a very dry wax. It is especially good for lubricating canopy slide rails and the ends of Bowden cables. New nutplates benefit from Boelube too. Initial insertion of a screw into a new nutplate can be very frustrating. It is not unusual to strip 10% of these at first use. If you use Boelube on the screw, it is likely that every one will work the first time out.

Boelube is non toxic and non allergenic. Cleanup may be done with water based cleaners. The manufacturer claims that it is even compatible with some paints, but check this first on a sample. Many aircraft supply houses carry Boelube in paste, rubstick, or liquid form. The stick is usually $3.00, and the paste is under $10. For the True Believers, 5 gallon pails are about $100.

Top:Boelube is available as a paste or as a rub stick
Above: A bit on the tip of a drill makes the cutting edge last a lot longer, even when drilling 4130

HVLP Turbine spray machine

TOM MILLS AND WAYNE HADATH were both faced with having to paint their planes this fall. Tom's Cub has a fabric covered tube fuselage, and Wayne's F-1 Rocket is sheet aluminum. Tom had already bought the Princess Auto HVLP (high volume low pressure) spray setup at $129 because it would have cost $150 to rent one at the local rent-all. Wayne bought his own HVLP a month later when they were on sale at $99, figuring that at that price he could use it for painting his fence if it proved unsuitable for the Rocket. Both painted their planes and both were very happy with the Princess machines. One major advantage of a turbine HVLP is that there is no need for an air compressor or moisture precipitator. The whole machine weighs under ten pounds and runs from any 110 v circuit.



No Compressor needed.

Tom's Cub was first brushed with Randolph nitrate dope, and the HVLP was used to apply the butyrate coats. The fuselage was on a rotisserie, so he could position it optimally at all times. Tom was pleased with the lack of overspray for health and vision reasons. The pattern of the gun may be adjusted to become narrow enough for small parts and tight corners, and it puts down a good wet coat with the paint ending up on the part instead of in the air. Tom was pleased at the savings in paint, at least 25% compared to a conventional high pressure gun.

Wayne was spraying a two part epoxy, and his Rocket was fully assembled and sitting on its gear. He found that the HVLP resulted in less overspray than even the small touchup gun he had initially been using for the tight spots. Painting the underside of the plane saw Wayne lying on his back to paint, and the lack of overspray was definitely appreciated at that time. Wayne did find that after five hours of continuous painting, the gun stopped abruptly because it had become plugged. A good cleaning was performed and the rest of the plane was painted uneventfully. Wayne recommends cleaning every two hours if you are using a catalyzed paint system.

The Princess HVLP gun comes fitted with a large diameter nozzle, and both Tom and Wayne recommend installing the supplied smaller nozzle for aircraft use. One caveat is to keep the turbine's inlet air filter clean. With Latex paints the foam filter can be washed out with soap and water. For solvent-based paints it must be replaced. Princess does not sell replacement filters but anyone could snip their own from furnace filter foam.

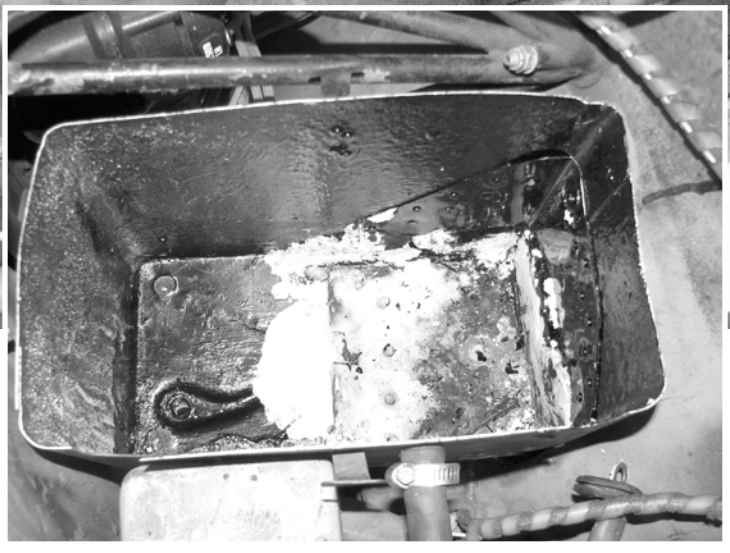
Now that Wayne has finished his Rocket, there is some payback to do on the homefront. He will now be reinstalling the larger nozzle to apply latex paint to his basement walls.

Princess Auto HVLP spray machine #0450070, $129 , or $99 on sale. Rating: Two painted thumbs up.

Santa Claus, like all pilots, gets regular visits from Transport Canada, and it was shortly before Christmas when the TC examiner arrived. In preparation, Santa had the elves wash the sled and bathe all the reindeer. Santa got his logbook out and made sure all his paperwork was in order. The examiner walked slowly around the sled. He checked the reindeer harnesses, the landing gear, and Rudolf's nose. He painstakingly reviewed Santa's weight and balance calculations for the sled's enormous payload. Finally, they were ready for the checkride. santa got in, fastened his seatbelt and shoulder harness, and checked the compass. Then the examiner hopped in carrying, to Santa's surprise, a shotgun. "What's that for?" asked Santa incredulously. The examiner winked and said, "I'm not supposed to tell you this, but you're gonna lose an engine on takeoff."

Technical Stuff

The hose provides positive pressure from the engine cowling. However... Below, inset: Not pretty: despite the ventilation, the acid has eaten holes in the bottom and in the mounts. Even certified aircraft can suffer from poor design decisions.



END OF SEASON BATTERY CHECK

The battery box shown here is in a certified Mooney (not an amateur-built) and it shows that even certified planes can suffer from doubtful design decisions. The box has been severely damaged by acid vapours from a standard Gill non-sealed lead-acid battery. Despite that the aluminum battery box had been internally painted with a thick coating of acid-proof paint, large holes had been eaten right through the floor of the box.

Mooney applies positive air pressure to the box, taking ram air from the dam above the cylinders, but this has proven to be insufficient to provide ventilation of this particular battery box. One popular alternative to the conventional battery is the Absorbed Glass Mat (AGM) battery, which does not gas off to the atmosphere.

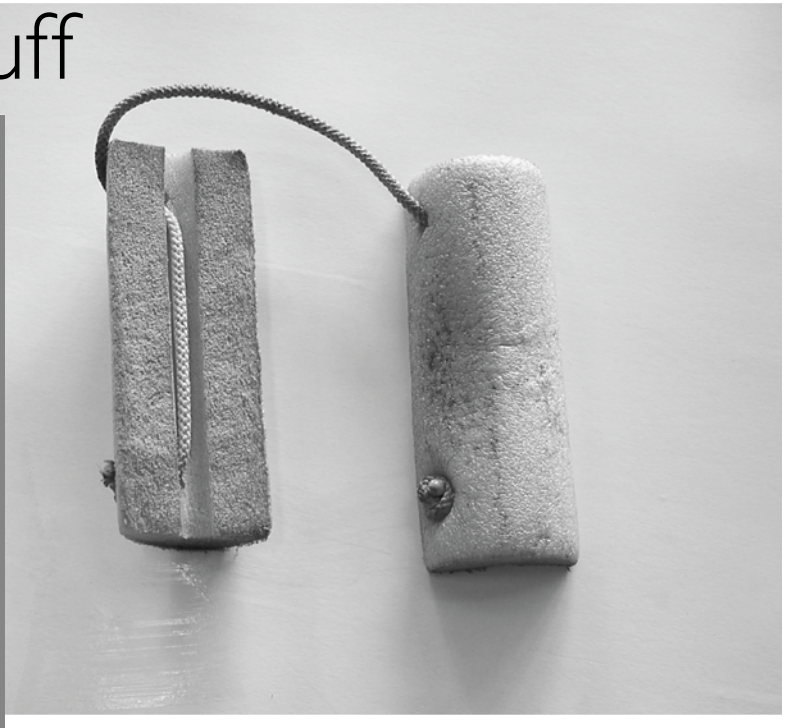
It is now winter, and if you have not already done so, it would be a good idea to remove your battery to a warm place and put it on a trickle charger occasionally. Many of us now use glass panels and electronic engine management systems that depend on the battery, so its condition is very important. While you have the battery out, have a look at the box and its mounts to see if acid vapours have inflicted any damage. No one flying in turbulence has ever had anything good to say about a battery box flopping around the engine compartment or the cabin.

Economical Wheel Chock

Summer's over, the kids are done with their pool noodles, right? Recycle those worn out toys! Slit an old pool noodle lengthwise, poke a couple of holes in each half, and knot some rope. Sneak down to the airport when nobody's looking and use with aircraft.

Oh yeah. Don't forget to buy the kids nice new noodles in the spring...

These weigh almost nothing, yet conform to varying surfaces and do the job.



President's Message

(continued from page 2)

has tested their RV-12, Cessna has its own LS, Luscombe has announced that they are producing for this category, and Zenith is selling 601 XL's and 701 SP's as fast as they can produce them.

One advantage that the Americans have is that their new Sport Pilot ticket uses an ordinary driver's license as its medical. Many older pilots are deciding that they no longer need a Private ticket and that they would be happy to fly a 1320 pound two seat plane for recreation. Chris Heintz of Zenith Aircraft has told me that this is the reason for the success of the Light Sport category. The Sport Pilot license is essentially the same as our Rec Perrmit, with the exception of the medical validation. At this point Transport appears to be against the adoption of a driver's license as medical validation for the Canadian Rec Permit. How do yuo feel about this? Please send your response to garywolf@rogers.com .

Without proof of insurance many chapters would not be allowed to hold their meetings and fly-ins at airports or rural airstrips, and it is largely paid out of your membership dues

CHAPTER FEES and STATUS REPORTS

In January RAA will again be writing a $12,000 cheque for the insurance policy that covers all of your chapter meetings, fly-ins, and other events to the limit of $5 million. Without proof of insurance many chapters would not be allowed to hold their meetings and fly-ins at airports or rural airstrips, and it is largely paid out of your membership dues. Some chapters allow non-national members to be chapter members, and five years ago the members attending the Winnipeg AGM decided to invoke a $15 annual charge to non-national members, so that they would be paying their share of the insurance policy. This $15 is still in effect but it is now the end of 2006 and some chapters have not yet sent in their fees. There is not a lot of choice in this matter. If we do not pay the insurance premium, that will be the end of chapter insurance. Please make certain that your chapter's non-national members are paying their fair share. Your dues are subsidizing the ones that do not.

Every chapter of RAA Canada must submit an annual report that states the names, membership numbers and expiry dates of the executive. This is the time that elections are normally held in chapters, so please have your new chapter membership secretary contact the office to send in the information. Chapters that neglect this simple requirement do not have chapter status, and the insurance policy does not cover them. It is difficult to believe that pilots capable earning a license cannot send in five names, but this does happen every year. Keep your chapter events insured - send in the new status report posthaste. Call Marina at 1-800-387-1028 .

AIRCRAFT SPRUCE CANADA

December 2nd was the date of the grand opening of the new Aircraft Spruce store in Toronto. Paul and Sean Fleming have now branched out from their original Kitplane Builders builder assist facilty, to set up a second store to stock and distribute Aircraft Spruce inventory this side of the border. If the opening day was any indication of interest, the Flemings will be doing a land office business. Customers were stacked three deep at the cash registers, and the aisles were packed with builders filling their baskets with tools, parts, and books. The rear warehouse is well stocked with sheet aluminum, 4130 steel tube, hardware, and composite and finishing supplies. RAA Canada had its display at the event and it looked as if every member in the province braved the snowstorms to get there. Members were pleased to find that the Flemings have a wide inventory that is stocked in depth, and they were happy with the prices. The Flemings are currently open every day but Sunday and they are now asking if members would make use of

Sunday shopping. www.aircraftspruce.ca has their contact information. Make certain to let them know that you are a member of RAA Canada.

RAA AGM and CHARITABLE APPLICATION

Two years ago Mac Mazurek of Chatham made a presentation to the members at the Wiarton AGM to take responsibilty for gaining charitable status for RAA Canada. This would enable members to receive tax receipts for donations to the organization. Mac formed a committee with Jill Oakes of Winnipeg and Dave Gladman of St. Catharines, and they have recently informed the Board of RAA Canada that CCRA will require a change to our bylaws. A change of this sort would require a meeting of the general membership, and the next one planned is the AGM. We are considering holding the AGM early in 2007, most likely in March. The Board is now investigating possibilities for an interesting location for the event and we will let you know in the January issue of the Rec Flyer.

Keep your plane warm,

Gary Wolf
RAA # 7379

ATC: "Alitalia 345 continue taxi holding position 26 South via Tango check for workers along taxiway".
AZA: "Ali345 Taxi 26 Left a via Tango. Workers checked - all are working".

Cessna 152: "Flight Level Three Thousand, Seven Hundred"
Controller: "Roger, contact Houston Space Center"

Keep in Touch With Your Board of Directors!

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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 :raac@inforamp.net
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.

Advertising Policy
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The Recreational Aircraft Association Canada does not assume responsibility for advertisements, but does exercise care to restrict advertising to responsible, reliable individuals.
Please note: Ads running more than 3 issues must be renewed to guarantee continued display in the magazine.

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The Recreational Flyer is devoted to the aerospace sciences. The intention of the magazine is to promote education and safety through its members to the general public. Material in the Flyer is contributed by aerospace engineers, designers, builders and restorers of aviation devices and vehicles, used in an amateur capacity, as well as by other interested persons, publications and organizations. Contributions to the Recreational Flyer are voluntary and without remuneration. Opinions expressed in articles and letters do not necessarily reflect those of the Recreational Aircraft Association Canada. Accuracy of the material presented is solely the responsibility of the author or contributor. The Recreational Aircraft Association Canada does not guarantee or endorse any product offered through articles or advertising. The Flyer and its publisher welcomes constructive criticism and reports of inferior merchandise or services offered through advertising in the publication.

For Sale

McCauley IC160/CTM7557 , with logs - $1,000 . Prop bushings set Lycoming O320 diameter 5/8" drilled 7/16" - $150 Bill Smith evergreeninternation al@sympatico.ca 705 526 9279

SPACEWALKER 2 : 38 Hrs. Engine and airframe. Lycoming 0-290-D2 135 HP. Full Flow Oil Filter Cyl. Head Temp. Gauge Oil Pressure and Temp Gauge Electric fuel gauge all tanks Electric start Val Comm 760 radio Narco Transponder mode C ELT Fitted Intercomm Fitted 18 Gal Main tank 2 - 5 Gal wing tanks Polished prop and Spinner Absolutely outstanding aircraft. $23,000.00 CDN. O.B.O. George 403-931-3449 George@ace-aero.com e-mail for pictures

For Sale - one three blade 68" warp drive prop for Rotax 582 engine, one blade missing Contact Don (519) 372-1383 or kinger@bmts.com.

For Sale: Zenair Zodiac 1996. Cont. 0-200 125 hrs. A/F 340 hrs. Beautiful flyer. Photos available on request. Must sell, bought RV. Asking $34,000 CDN. 519-442-2962 dorothybenton@hotmail.com

For sale: 3 sets of axles, 1 π" x .120" 4130 steel tube. Mains are 8" long, nose is 9" long. No fittings cut or welded, no holes drilled, just the plain tube. Offers on one or more sets. Proceeds to RAA-Toronto Region. Ken Yates, 905-857-3218, kennan@rogers.com.

Stolp Starduster II, 200 HP, C/S, Inverted, Canopy, 300 TT, $35,000, PA22/20 Super Pacer project, wings ready for inspection, fuselage lengthened & painted, every thing here to complete, 200 HP, 3 pld C/S McCauley, 2400 Floats $40,000. Buy both, fly the Starduster finish the Pacer, good deal for both. 1-250-785-6789 Jim. Central Time.

Scales Available to RAA members

RAAC has sets of electronic scales that are available to members across the country for doing the weight and balance calculations on their aircraft. Here Member Gary Walsh uses the scales to verify the C of G on his amphib Kitfox. Only $30 for weighing. Contact the RAA office at 1-800-387-1028 to reserve a set.

AIRSTRIP, new 42X40 hangers, trout stream, stocked trout ponds, sugar bush (with marketable timber) Fruit trees for U-pick, newly renovated bungalow with gorgeous views of the ponds, bush and runway. 61 Acres, $359.000.00 Ayton On. 519-665-2496

For Sale: Hush-A-Com 2-place intercom with 2 headsets and boom mics. Voice-activated, operates on 9V or acft power. Has its own PTT switch. Exclnt cond; no tears, breaks, or corrosion. $250 or B.O. Ken Yates 905-857-3218, kennan@rogers.com

Rotax 912 80 hp rebuilt from a Diamond Katana core, by a fully qualified Rotax factory trained technician. $10,000. Please call Jake at 519-648-2044

McCauley fixed pitch prop 1C1601 CTM 7553, from a 150 hp C-172, 75" pitched to 53". Included prop logbook. Asking $900. Contact Adler Aviation 51-648-3886

2006 Challenger 2. 15 TTSN Rotax 503 elec. start, full enclosure and most options. All flight and dual Engine instruments.Priced well below replacement cost. Great fun flyer. Built by experienced builder. Why wait - fly now. $25,000 Cdn. Call 905 892 9649 or rjohnson18@cogeco.ca for additional information or pictures.

1 Set of Zodiac 601 Wings HD complete with wing lockers and joiner plates. Total time 450 HRS. No damage. Asking $1950.00 CN. 2 New Zodiac series Canopies grey tinted, still with flanges and paper covered. Asking $ 550.00 CN each. Please contact Erwin Hornemann @ 905 457 3716, ore Email me @ erwin.hornemann@sympatico.ca

CF-VML (Classed as "Amateur built") 1968 Taylor Mono Plane Aircraft legal to return to flight. 150 hours TTAF (flown with VW engine), One owner ago removed VW engine. A75 with very low time slick mag's 150hours SMOH added and current owner and signed off by Ministry. Currently based at CYKF (Waterloo)Too many projects on the go this one needs a new home. Willing to part out. Call Darren Pond 519-651-2522 or pilotpond@rogers.com for details.Asking $4000 for engine and $3000 for fuselage or best offer. I have over $12k invested.

continues

EA81 subaru engine by NSI, 110 hp. model .complete firewall forward. Presently flying on a kitfox model 5 ,includes a in-flight adjustable propeller,(model cap 140). Total time since new 70 hrs. Asking $ 14500 or best offer.call yvon at 1-705-967-5311 after 6 pm. or at work 1-705-897-3333

EA-81 by Reductions, 105 hp at 4500 rpm. Holley carb and stainless exhaust, chrome valve covers and oil pan.Unit comes with a new 72 inch Warp Drive prop. Engine has run up time only due to a change of plans. Paid $6000:: Picture available∑MAKE ME AN OFFER. bwkirk@mts.net or 204 488 0829

Warp Drive 72 in , 3 blade RH prop.,"HPL" hub good for 912/914 or Subaru. New in box. New price $675 US, Sell for $450 Can. OBO bwkirk@mts.net or 204-488 0829

Avid Catalina complete kit. Purchased in 1999 for $22,900, will sell in a weak moment for $15,000CDN. 613-756-3815 or 613-281-7027

1995 Buzzard Special, registered in ultralight category extremely stable performer 80 hp Rotax 912 with 200 hrs 80 mph cruise at 75% power, 6 month written warranty, $32,900 or $9,900 less engine and equipment, also has mount for Rotax 582. Call Mac at Macpat Rotac Service Center 519 848 3392 or macpat@bellnet.ca

2 Zenith 300 projects 30% completed. Excellent workmanship. Price of materials only. $3000 Ayton On 519-665-2496

1 Pair of Zenith CH-200/300 wheel pants. Ken Yates 905-857-3218; kennan@rogers com

1941 Taylorcraft with Lycoming 65, approx 500 hours on engine, about 2400 on airframe. Cream with red trim excellent condition, in annual until June 2007. $18K OBO. Owner recently deceased. Please contact Glen Morrison at 519-837-1068.

1996 Zenair Zodiac, Cont. 0-200 161 hrs. A/F 374 hrs. Beautiful flyer. Photos available on request. Must sell, bought RV-9a. Asking $28,000 CDN. 519-442-2962 dorothybenton@hotmail.com

1975 Cessna 150M C-GEBX. 5006 TT, 1671 SMOH Continental 0-200A. Annual completed July 2006. Wheel Fairings, Nav/Com intercom. Mogas STC. $26,000. Markham Airport.
Call John Parker @ 416-444-3015 or e-mail to john.lynn.parker@sympatico.ca

Modified A-75 Continental, balanced , no electrical , 64 hours AMO , dual advance magnetos , cross exhaust , price: CD$ 10 000 Call for details: (905) 484 - 0804 Rob

Aeronca Champ, 1946 3500 total 1200 eng. C85-8F complete restoration May/05, new spars, new mags, 5 gal wing tanks, New tires,Scott tail Wheel, Handbrake,Stitts covering,White, New interior,Everything replaced with newparts, Immaculate. $35,000.00 CDN, located, Calgary. 403-931-3449, George

Zenith Tri-Z project. All aluminum and 4130 steel for Tri-Z, including stainless steel firewall, and fibreglass cowling. Includes a pickled zero time C-145 6 cylinder built by a certified engine mechanic. Many parts are already fabricated including wing spars and ribs, elevator assembly and wheel parts. Plane and engine manuals are included. $17 K OBO. Call Bob Higgins at 905-827-0204

For Sale - Lycoming 0-320H2/160HP engine. All logs, certified, cylinders 2 and 4 overhauled, 1900 hrs. $8000. Contact Don 519-372-1383 or kinger@bmts.com

Modified A-75 Continental, balanced, no electrical , 64 hours AMO , dual advance magnetos , cross exhaust , price: CD$ 10 000 Call for details: (905) 484 - 0804 Rob

C-85 cylinders complete with pistons, rings. $800.00 phone for details. 519 323-0026

0320 cylinders, complete. $1,000.00 OBO Phone 519 -323 -0026

Wanted

Wanting to buy a 150 hp Piper Pacer. 604 536 5155, or email ddanylyshyn@hotmail.com
Wanted to purchase good or rebuild able IO 540 for Steen Sky bolt project, also any airframe or parts for the same. Wanted to purchase FLYING OR PROJECT DR1 Fokker Tri Plane. OFFICE 1-705-653-4525 or davidcarlaw@prototyperesearch.com

Ads run for a maximum three issues depending on space available. Please direct all classified inquiries and ad cancellations to wolfpack@sentex.net

On The Internet:
http://www.ocis.net/tvsac/buyandsell.html -more ads from our Kamloops chapter
http://www.lyncrest.org/sfcclassifieds.html -more ads from our Winnipeg chapter

New In Canadian Skies

Ken Lehman's Murphy Rebel

Ken's Rebel features a Subaru EJ22 with dual independent EFI and electrical systems streamline flow radiator inlet duct below the cowling (as detailed by Kuchemann) - it cools perfectly on ground and in flight. Ken's Rebel features a Marcotte M200 psru with a 1.92:1 ratio.

Stall speed at 40 knots, cruise is from 75 knots at 4000 rpm (14 liters/hour mogas) to 95 kts at 4400 rpm at 20 liters/hr.

Rate of climb is over 800 fpm and max speed is 105 kts indicated. Ken's airplane weighs 1040 lbs empty, and has a range of 700 nm. Construction took 9 years which includes about 3 years of engine development. Since its first flight, Ken has enjoyed 50 hours of delightful flying so far.

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. President Jacques Genest president@raa415.qc.ca (450) 447-9042

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: Fourth Monday 7:30 pm, Lake Simcoe Regional Airport. Contact Treas.Gene Bemus 705-325-7585 gene@encode.com

COBDEN: 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 the first Thursday of every month, at 7:30 p.m. except July and August, at the Collingwood Airport or at off-site locations as projects dictate. For more information, contact Keith Weston, 705-444-1422 or e-mail at kcweston@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 Editor Frank Ball fdnmeball@sympatico.ca 905 822-5371

HAMILTON: Second Friday 8:00 pm Months of Feb, April, June, Aug, Oct, Dec, at Hamilton Airport. Contact Pres. Brian Kenney, 905-336-5190

KENT FLYING MACHINES: First Tuesday 7:30 pm at various locations. Contact President , Mac Mazurek 519-692-5309 macmaz@mnsi.net

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 arankaddd@rogers.com for information, or call 519-885-1155.

LONDON-ST. THOMAS: First Tuesday 7:30 pm. At the Air Force Association Building, London Airport. Contact President Angus McKenzie 519-652-2734 angus@lweb.net

MIDLAND-HURONIA: First Tuesday 7:30 pm Huronia Airport. Contact Secretary, Ted Aldred 705-526-4909 wings@csolve.net

NIAGARA REGION: Second Monday 7:30 pm at Niagara District Airport. Contact Pres. Len Pettersen swedishcowboy29@aol.com

OSHAWA DISTRICT: Last Monday at 7:30 pm at Oshawa Airport, 420 Wing RCAF Assoc. Contact President Chris Gardiner 905-668-5703 cgardn628@rogers.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. Contact: Ed Melanson 519-665-2161 meled@wightman.ca

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 8 pm at Ch 41 Hangar on north end of Brampton Airport Contact: President, Earl Trimble 905-787-8524 northerntailwind@aol.com

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.

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. Contact Jill Oakes 204-261-1007 raa_wpg_executive@yahoogroups.com

SASKATCHEWAN
NORTH SASKATCHEWAN: Third Monday 7:30 pm at Westwind, Hangar #3. Contact President Garth Pippin for info at 306-666-4476

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 Calvin Thorne at 403 932-4325 or email: cbthorne@telus.net
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 7:30 pm RAAC Club Rooms, Airport. Contact Secretary, Boyne Lewis 403-527-9571 handblewis@thehat.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 8pm, Delta Heritage Airpark RAA Clubhouse. 4103-104th Street, Delta. Contact President Gerard Van Dijk 604-319-0264, vandijkg@yahoo.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: Third Wednesday of the month (except July & August) at 7:30 PM, alternating locations: even numbered months in Fort St. John and odd months in Dawson Creek. Phone Richard Lawrence for location, details at 250-782-2421.
Chapter executives please advise of changes as they occur. For further information regarding chapter activities contact RAA Canada, Brampton Airport, 13691 McLaughlin Rd. Cheltenham, ON L0P 1C0 Tel. 905-838-1357, Fax 905-838-1359 or call toll free 1-800-387-1028