publication agreement number 40050880

May - June 2014

RECREATIONAL RELYER

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

Don Benton's Rotec powered Kitfox

RAA
RECREATIONAL AIRCRAFT ASSOCIATION
RÉSEAU AÉRONEFS AMATEUR CANADA

From The President's Desk

Gary Wolf RAA 7379

Anti Spam Law

For many years RAA has offered its Announce email system that sends out notices of events and news that are pertinent to our sector of aviation. Canada's new anti-spam laws are so wide ranging that they affect even this type of emailing, so we are starting over with a new list.

We promise not to inundate you with emails, and we will not sell, lend or distribute your information. To become subscribed just send an email to subscribe@raa.ca . In the subject line please write "subscribe" and in the body of the email please give your name and membership number, if applicable. You will shortly begin receiving timely news and events emails from RAA Canada and you may unsubscribe at any time.

Industry Milestones

This year marks the 40th anniversary of the manufacture of Zenith aircraft in Canada. The company began in Chris Heintz's home workshop in Nobleton Ontario where he sold plans and components for his aircraft designs, and manufactured hundreds of wooden propellers. Soon he moved operations to the large Zenair facility at Midland Airport, and this has steadily expanded to include the manufacture of metal Zenith floats and lately Full Lotus inflatable floats. July 19th is the date of their open house and all are welcome.

Rotax also marks a milestone this year, the 25th anniversary of the 912 series of aircraft engine. It is surprising that some still think of the Rotax as the new kid on the block, but in the past quarter century the 912 series engines have changed the face of light aviation. Their light weight and small frontal area have made possible almost all of the light aircraft that have been designed since it was introduced to the aviation world. Recognizing the need to provide after sales service, Rotax has set up parts and service facilities worldwide, with hands-on training courses and online information and videos to ensure proper maintenance of their engines. No other manufacturer has even approached this level of service to their customers.

Toronto Aerosport at Baldwin Ontario has just inked the deal with Sonex to become their Canadian representatives for the full line of aircraft including the Sonex and the innovative single seat Onex. Toronto Aerosport offers flight training for the PP-UL and has already qualified the Sonex for Canada's Advanced UL category. A press release is in this issue.

Dave Hertner on London Ontario has recently purchased Fisher Flying products and is in process of setting up a new manufacturing facility in his area. David already manufactures subassemblies for other aircraft and Fisher is the logical next step. Dave has plans for more products and as they become available we will inform our members.

Chapter Status and Event Insurance

When sending in your chapter status reports please ensure that all names sent in as validation have current National RAA memberships, and make certain that these members maintain their memberships seamlessly. Your chapter's status must be current to be covered under the RAA's Chapter Liability Policy.

If you are promoting an event you would do well to let pilots know that you expect them to use normal circuit procedures when arriving and departing. The coverage is for fly-ins, not for airshows which are have an entirely different level of responsibilities.

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The Recreational Flyer is published bi-monthly by the Recreational Aircraft Association Publishing Company, Waterloo Airport, Breslau, ON N0B 1M0. 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. 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.

features

columns

A Corvair powered Zenith 601XL-B. George Gregory Photo.
On the cover: Don Benton's Rotec powered Kitfox. Gary Walsh photo.

Back In the Saddle

Getting your mojo back after a long build / By Dan Oldridge

IT'S BEEN A MERE FOUR WEEKS since the first flight of the "Fire Plane" I call Aerial One and as I reflect on the thirty-eight hours on the Hobbs meter I wonder where did all the time went and if I spent it wisely. Having just completed the building of my Just Aircraft Highlander, I also thought on how little time I had spent flying during the almost three years since I bought the kit.

At that time, a number of legitimate questions came to mind. Did I make the right choice in aircraft, did I build it correctly? Did I wire the panel correctly, and will everything work the way it's supposed to work? How do I get it to the airport, who is going to test fly it since I don't have one hundred hours as Pilot In Command on type, who is going to provide me with tail wheel transition training and what company is going to insure my plane and me? The list of questions was as long as the list of places I wanted to fly when the plane was done.

I had been looking at the Highlander for a number of years and considered it to be the ideal aircraft for my flight mission profile,

Left: Lake Erie shoreline. Below, all smiles. Who wouldn't be?

so in spite of any doubts that decision was already made and all of the feedback I heard from other builders reinforced the choice I had made three years earlier and helped to alleviate my concerns about the construction quality of the kit and my build techniques. It appeared that all of the questions would be answered during the next phase of the project… test flying the aircraft.

I began planning the test phase by looking for a well-seasoned pilot with lots of tail dragger time and preferably a high number of hours on make and model. Since there are very few Highlanders in Canada, that quickly became the biggest challenge in the entire process. I considered a number of pilots in the USA that have time on Highlanders and do transition training, but timing and cost were both factors that forced me to rule them out. I shopped around for test pilots locally and found one that would do it, but the firm he worked for wanted several thousand dollars for test flying and transition training. So, as I had done in the past, I spread the word among the local RAA members and got some great responses.

After considering a number of other local pilots, I was given the contact information of a pilot with over 4700 hours and about 2000 of those on tail draggers. I set up a meeting to discuss my needs and he came over to check out the plane before committing to do the test flight. I trust he was as impressed with the quality of my build as I was by his knowledge and demeanor, because he agreed to do the test flight as soon as I was able to get my insurance on the plane converted from "not in motion" to full coverage. I spent the next few days trying to get the three major aviation insurance companies to provide quotes that did not have unreasonable restrictions attached regarding the test pilot.

A word of advice to other builders… don't name the test pilot on your policy as a second pilot for your aircraft. The underwriters generally put conditions such as "any pilot with X number of hours and Y number of hours on type or Z number of hours on make and model". Once you name the test pilot, for some unknown reason they

want to put extra conditions and restrictions beyond those mentioned above. Case in point, they wanted me to have 5 hours dual before going solo or I would not be insured, which is a reasonable condition, but they also wanted my test pilot to have 5 hours dual with me before going solo! This strange condition doubled the insurers risk and liability for the test flight; obviously a decision that only an underwriter could come up with and make it sound like a reasonable request. That said, it meant that I could be in my plane for the test flight, which I considered a bonus!

Four things to think about

There are four major considerations that every amateur builder must weigh before the test flight:

The aircraft has been built by an amateur who may never have built an airplane before and is not something that has come out of a series of accurate, proven production jigs and fixtures.

Most homebuilders don't do a lot of flying while building their airplane or stop completely. Very few builders are current with their flying skills at the time of the first flight, especially to deal with serious problems on a first flight of a new, unproven airplane.

The aircraft, even if properly built, may have flight characteristics that will surprise you if you are not completely checked out in that type. All amateur built aircraft have some exceptional flight characteristics and although the best ones simply have responsive controls, others have high landing speeds or require unusual landing techniques.

The largest numbers of accidents in homebuilt aircraft occur on the first flight of the pilot in that aircraft. It is estimated that 40 to 50% of the accidents seem to indicate a lack of familiarity with the flight characteristics of the aircraft.

Similar to my Highlander, the Kitfox is a slow-moving, conservative design that takes off in almost no space at all, but the Kitfox has distinctly different handling characteristics. When you flare the Kitfox, it is so light that it lacks the inertia to keep flying, so it's quite easy to flare and drop it in hard. In England, 25% of the Kitfoxes have been totalled …thankfully without any fatalities due to the slow flying speed of the plane. At least one of the insurance companies that I was obtaining quotes from wanted to make certain that my plane wasn't a Kitfox before they would even provide a quote. I really like the Kitfox too, but my point here is that every plane has some exceptional flight characteristics that the pilot must learn and understand to fly it safely. My new Highlander is no exception.

Everything we do in life comes with inherent risks and most of us have developed coping skills throughout our lives to deal with them and mitigate any hazards we might face. Every task we do requires some risk/reward analysis be done before a go/no go decision can be made. Our brains automatically process the simple ones like whether to eat food that smells bad or run that yellow light you're approaching in your car. More difficult or complex tasks require more thorough analysis and use of best practices to get the best result and safest outcome. Test flying a plane is a high risk endeavour that requires careful consideration of the risks and rewards of each step taken and the mitigation techniques that can be applied to reduce the hazards to an acceptable level. Careful planning and deliberate steps are key to preparing for and responding to such hazards.

There are several books and thousands of other pieces of information regarding the best practices and methods for flight testing aircraft. Some are quite involved and obviously reflect the need to protect the test pilot and aircraft when new and unproven designs are being tested. Most of the kit aircraft on the market are time tested designs that will likely fly well and be quite safe to fly from the initial flight, but it certainly would not be prudent to immediately take the craft to its design limits either. Regardless of the system used for flight testing, one thing is apparent in all of them … develop a good plan and stick to it! Based on my Highlander's predicted flight characteristics, I developed a test plan that would start with the basics and expand the envelope toward the design limits of this aircraft.

The test flight preparation included:

- Reviewing weight and balance for minimum, maximum, normal and test flight conditions.
- Ensuring proper safety equipment was on-board the aircraft and outside safety crew in place.

Regardless of the system used for flight testing, one thing is apparent in all of them … develop a good plan and stick to it!

- Ensuring all required documentation was complete and on-board.
- Ensuring the airport was a safe place to conduct the tests and well away from populated areas.
- Running the engine for an extended period prior to the flight to ensure it was reliable.
- Checking the fuel condition, fuel level, fuel flow, valve position, radios, avionics, mags, etc.
- Preparing checklists for pre-flight, before starting, starting, before take-off, cruise, descent/landing, after landing and of course emergency procedures (both ground and air).

Additionally, conducting about one hour of slow speed taxi tests over varied surfaces to check the controls, tires, brakes and undercarriage components prior to flight.

Having prepared all we could for the test flight, it was time to finally take to the skies with C-FDEP. As I mentioned, due to a quirk in the insurance requirement, I got to be on board for the test flight of my Highlander. I relied heavily on the vast experience of my test pilot, who made me feel at ease with the process, having built and flown eight different homebuilt planes over the previous 25 or so years. After doing a circle check and double-checking the oil, brake fluid, coolant and fuel, we were ready to go.

The Highlander POH specifies the best angle of climb at 54 mph, which is about 1.5 times the aircraft's predicted lift-off speed. Coincidentally, the best glide speed is also listed as 54 mph. Maneuvering speed is listed in the POH as 80 mph, but we used a more conservative figure of 65 during the initial test flight. With these figures in mind and given the predicted short takeoff distance of my Highlander, we completed the first take-off without flaps and the elevator trim tab set to neutral. As the test pilot went to full throttle, I felt the full thrust of the Rotax 912uls and the 74" Prince propeller pushing me back in the seat. I know it's not a rocket ship by any means, but having flown mostly Diamond Katanas and Cessna 172's, which are primarily designed for good cruise speed, I was quite impressed by the take-off thrust of my little Highlander. The plane climbed rapidly and smoothly to circuit altitude where we flew a complete circuit, then landed uneventfully and taxied back to the hangar where we pulled off the cowlings and checked the engine compartment for any signs of leaks or unusual wear. One of my favourite moments was when the test pilot said to me, "Yesterday you had a project… today it's a real airplane!" What a great feeling of accomplishment (and relief) it is when your plane finally makes that transition!

With everything still looking normal, we taxied back out to the runway where we began a series of circuits that both tested the capabilities of the aircraft and began my training as a tail wheel pilot in the Highlander. As the test pilot passed control over to me, he kept his hands

First flight preparation.

and feet lightly on the controls sensing my inputs, coaching me along the way, and preparing for any major deviation I might take from the norm. After a number of low passes over the runway, getting lower and lower with each pass, I was getting more and more comfortable with how the landing would look and during each climb-out and descent; we tested and expanded the envelope of the plane a little more each pass. Given that the test flights took place in the evening, we were limited in how much we could do the first day, but we both felt it was a great first flight and were pleased with the way the plane performed during our testing and during our training on the second flight.

One of the minor issues noticed was the plane's tendency to roll just slightly to the left, so I adjusted the washout eyebolt out one full turn, which corrected the problem on subsequent flights. Additionally, there was a tendency for me to apply more pressure on the left rudder than the right. This was solved simply by adjusting the rudder pedal turnbuckles a few turns to get them aligned better. Another minor issue that occurred was that the pilot side door kept popping open in flight; an issue that would be serious in some aircraft, but given that the Highlander is designed to allow the plane to fly with the doors open, it was a minor inconvenience that I solved by putting a small detent into the aluminum trim to hold the latch from rotating unexpectedly away from the closed position. During subsequent testing one day, we noticed bubbling under the fabric near the drain valve and found that there was a small leak just above the valve. By draining the system, removing the valve, applying sealant and reinstalling the valve I cured the problem, which had not shown up during my pressure testing of the fuel system a few months prior. After 38 hours on the Hobbs and about three dozen flights there have been no other issues found.

On the third and subsequent flights we determined the approximate stall speed and continued my tail wheel transition training, doing numerous circuits at uncontrolled grass strips near Brantford, Ontario. Given that much of the testing would be done once I was comfortable flying the tail wheel equipped craft, a lot of the time over the next couple of days was spent doing take-offs and landings of both three point and wheel landing variety. We found that the plane was docile and predictable as it neared stall speed with little to no tendency to drop a wing or buffet as the nose came up just before it stalled. The plane just sort of mushed and slowly dropped the nose before we added a bit of power to recover.

Most homebuilders don't do a lot of flying while building their airplane or stop completely. Very few builders are current with their flying skills at the time of the first flight, especially to deal with serious problems on a first flight of a new, unproven airplane.

Subsequent testing showed an indicated stall speed of 40 mph clean and 33 mph with full flaps after numerous test runs and varying conditions, although this changes somewhat with weight. After each test flight and training session, I pulled the engine cowlings off and did a thorough inspection of the engine compartment and checked the propeller safety wires for signs of movement in the bolts.

Prior to flight testing, I prepared a maintenance schedule and at the prescribed intervals checked the torque of the propeller bolts, changed the oil and filter, inspected the inside of the old filter and checked the magnetic plug for signs of metal filings in the oil. Remember that amateur built aircraft fall under the same requirements as certified aircraft in regard to maintenance logs according to CARs 571.10. Routine maintenance performed by the owner (Elementary Work) as well as any (Specialized Maintenance) performed by an AME need to be documented in the maintenance log or in the journey log if a single book is used to document it and it needs to be signed by the owner.

At twenty-five hours of flight time, I performed my prescribed maintenance, documented it and made an entry in my journey log that I had flown twenty-five trouble free hours. With my climb test report and journey log copies in hand; I headed to Hamilton to submit the information to Transport Canada to have the CA restrictions removed. I got a call later in the day to tell me my new CA was ready and went to pick it up. I had it in hand the next day when I took my first passenger up for a ride. My wife had not only put up with my crazy hobby as I built my plane, but served as safety crew on the ground during the initial flight tests. It was only fair that she should be given the opportunity, so we set out on a leisurely flight down to Lake Erie, along the shoreline from Port Dover to Port Bruce to see the sights then back to Brantford. The north shore of Lake Erie is a very scenic place to fly over with little harbour towns, sand cliffs and colourful waters ranging from blue to green, with every shade of turquoise in between. With its bowed Lexan doors and windows, the Highlander is excellent for sightseeing and aerial photography.

Overall I am quite pleased with the performance of my Highlander, which exhibits no signs of flutter and appears to have positive longitudinal stability although I have yet to conduct the in-depth testing of this quality of the aircraft. Overall stability and control of the aircraft is good at forward, mid and aft CG, but the Highlander in general likes a slightly aft Centre of Gravity. Control stick pressures are light and smooth with only small corrections required on the rudder to keep the plane straight and level. The stick forces appear to be well balanced and only a slight amount of rudder is required to start a smooth roll. In the turn there appears to be little to no adverse yaw. There is good rudder and elevator authority due to the large tail feathers on the Highlander. Rotation can occur as low as 30 mph if the plane is kept in ground effect for a few seconds to accelerate to a safe speed for climb out, but wheel take-offs average closer to 40 mph IAS and climb out speeds of 50 plus are reached within a couple of seconds.

As for performance of the aircraft, fully loaded to gross weight, my Highlander climbs at 640 fpm and lightly loaded exhibits a climb rate of about 1000 fpm at 55 mph indicated. The plane cruises at 80 mph at 4800 rpm and 90 at 5200 rpm and 100 mph

at 5500 rpm. A leisurely cruise at 60% power still yields a speed of 75 mph (65 Knots).

I performed a couple of different in-flight tests in an attempt to determine the accuracy of the ASI, and the results seem to indicate that it is reading just a bit low, but since these are not certified aircraft and certified parts, the important thing is that I recognize how the aircraft performs and reacts based on the ASI readings I am getting now. In the coming weeks I will be doing some additional pitot-static tests as well as verifying some of the data I have already gathered.

What's next for Aerial One? I have installed two custom iPad mounts that will allow me to run Foreflight on one screen and by adding a Stratus II, I will have subscription-free weather (near the US border), ADS-B traffic, moving map GPS, and backup attitude all on the other screen. At some point in the future, I hope to replace one of them with an MGL i-EFIS, which will become my primary flight instrument, while my Flight 2 and E1 become back-ups. I'm currently building a set of Zenair 1450 amphibs, which I expect to have completed and installed on C-FDEP by next summer. For now, the 21" tundra tires are a blast to fly on and allow me to land on grass strips and farm fields with ease.

As for the pilot, I now have over thirty hours on tail wheel, but like to joke that although I soloed on tail wheel after six hours, I spent the next six trying to repeat it. It takes persistence and a good instructor to get it figured out, but once you do it seems so simple you wonder what the big deal was. You literally have to stay on your toes though to keep the tail under control when you are on the ground and I hope that sooner or later I don't let my guard down or get cocky and ground loop the plane. For now, I am just happy to finally be flying the plane I have spent almost three years of my spare time building, and am very pleased with the positive reaction I get wherever I show it off. I have already been to two fly-ins and plan to go to several more RAA fly-ins this summer. All the kids seem to want their picture beside the Fire Plane … even the big kids. I love to share stories about building the plane and you might say I'm still all "Fired Up" about flying it too!

__Dan Oldridge__ is a retired firefighter who began his career in Cambridge, ON before eventually rising to the postion of senior manager in London. He is a member of RAA National and two local RAA chapters.

Afraid of FEAR

By Barry Meek

I'VE JUST FINISHED reading a book about life in a small town in Alaska. The author is a newspaper reporter in the town, and she paints a colorful, real and sometimes humorous picture of the people and events there. Having lived in Alaska for many years, the writer has come to know many of the intimate details of its people, and is probably accurate in her descriptions when she discusses the rather odd lifestyles of some of them.

Inevitably the stories involve transportation around the largest of the U.S. states, and that means discussions about airplanes. Bush planes in particular. I was a bit surprised to hear that someone who has lived up there for so many years, still has the big fear of flying. She describes several trips into and out of "the bush" and her home. Each time it's a story of being terrified half to death of the tiny planes, the crazy pilots, lost aircraft, and the retelling of crashes that killed old friends.

Everyone knows people who fold up and lose their logical thinking when confronted with boarding a "tiny plane", one with just four (or six) seats. To them, it's like stuffing themselves into a coffin. We as pilots, never experience what these folks go through, and thus don't totally understand the nature of their fears. I suppose it's not our job to know what's going on in their minds, but it ought to be to calm and reassure them about any danger they anticipate. And to be effective in doing that, words may not be enough. It takes a strong, calm and decisive attitude on the pilot's part. Basically the pilots needs an outwardly physical appearance of being in control.

Good pilots always use checklists. In my opinion, anyone who doesn't is an accident just waiting to happen. We also go through the passenger briefings completely and clearly prior to startup. But when you think about it, these two procedures can be enough

to scare the life out of the already nervous passenger. They go away with stories of the pilot who doesn't know what he's doing. "He needed to check notes before he took off"! And they don't feel comfortable being reminded that "In the unlikely event of finding ourselves upside down in the water, here's where the lifejackets are". I actually had an employer once who suggested I skip the checklist when passengers were on board!

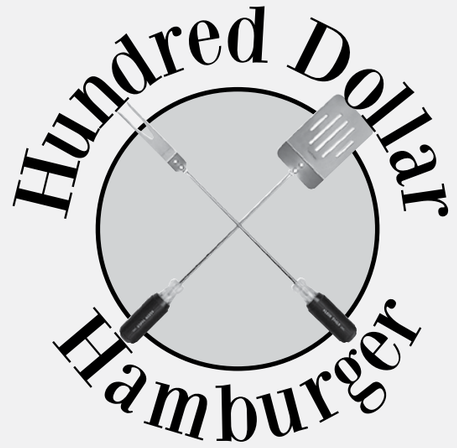
To the pilot, it's all good fun. But I will speak only for myself on this one. If I am flying in the back of a jet airliner, it's me who is the nervous flyer. Even with the little knowledge I have about the dynamics of an airplane crash, I know that there's a chance of surviving in a Cessna 180, particularly if I'm the one flying it. At least that's how I reassure myself. But if this Airbus goes down, there's no way I'm getting out of it alive. Over and over I hear how ridiculous this fear is. Airbuses just don't go down! Or it's very rare that they do. That may be true, but just the same, I always know I'm on the one that is going to explode in flight.

Just as it's the bush pilot's job to calm and reassure his passengers, the airline captain can work that magic on his passengers too. I recall flying from Calgary to Vancouver one dark and stormy night in the winter. Glancing out to the tarmac from my window seat, I was surprised to see the captain doing the walk-around was a fellow I knew well. It was prior to 9-11 when airline regulations still allowed passengers to visit the cockpit. Maybe I could make a request to the flight attendant to go up and talk to him after departure. But just then, another pilot I knew sat down beside me. He flew as a captain for the same airline. He had finished his rotation and caught this flight to deadhead home to Vancouver. A coincidence for sure, but here I was aboard a flight with two fellow pilots I respected and trusted. For the entire flight, we were buffeted around in a raging snowstorm, but my seatmate never once even glanced out the window or showed the slightest concern. We never discussed the turbulence, the weather, or anything that was initially going through my mind about the perceived danger I was facing. In spite of the seatbelt sign staying lit, it wasn't long before I felt pretty calm about it all.

The author of the book I've just finished describes some of the bravado actions and comments that came from a few pilots she had encountered. These pilots were what I would call "unprofessional". They have a responsibility, whether they know it or not, to their passengers as well as to their employers. At the end of the day, the pilot may return on time with an airplane that's not been bent, but his company may find that all the advertising they can do won't bring back the paying passengers he has scared off.

The stories of lost, crashed or broken airplanes, of people dying and of people surviving, will always be with us. But the statistics point to a safety record in aviation that's enviable among other forms of travel. I know it logically. I know that my chances of dying in a car crash are greater than of dying in an airliner going down. Sitting next to a pilot who actually flies the airliner, observing his demeanor, his outwardly calm appearance, did more than reading all the statistics. I'm hopeful that anyone with me when I'm at the controls will feel the same.

Barry Meek *is a retired ambulance paramedic, former broadcaster, mountain bike tour guide and commercial pilot. His articles have appeared in the COPA newsletter, the Aviation News Journal, and (of course) the Recreational Flyer. He resides on Gabriola Island in British Columbia.*



Fire, meat and airplanes: how to host a Fly-In with style and taste / by J. Childs.

NAPOLEON SAID THAT an army travels on its stomach and this is also true of pilots. A pilot will spend $100 to get to a fly-in to have a hamburger, and you had better make sure it was worth his while. A thin cheap burger on a pasty white bun is not going to cut it, especially if you offer only the bargain basement toppings to go on it. Yes, you fed them but not well.

My chapter has been hosting successful barbeques for many years and the secret is to give the pilots a quality meal that will get them coming back each year. The typical meal consists of a first rate burger on a great bun, with an interesting array of quality toppings. We always start with a tray of fresh vegetable as healthy snacks while the burgers are being broiled, and then a salad and a side dish as part of the meal.

The burger is the main course and the minimum you should use is a top quality 5 oz burger from President's Choice. Even better is to make your own burgers the day before. Check the grocery flyers and find which store has

A pilot will spend $100 to get to a fly-in to have a hamburger, and you had better make sure it was worth his while.

Top: Two eggs, 4 pounds of meat, spice, bread crumbs, make a dozen burgers. Above, some sort of burger press is vital

a special on lean on extra lean ground beef and allow 1/3 pound for each serving.

Per 12 burgers:
4 pounds of lean or extra lean ground beef
2 eggs
¾ cup Italian bread crumbs, Italpasta or similar
2 tablespoons Montreal Steak Spice

Scrunch this all up thoroughly and use a hamburger press to form patties 4" diameter and 7/8" thick. You are shooting for three per pound. If you hand form the patties they will not be uniform in thickness so the edges will burn and the centres will be raw. Use a press.

Layer the patties into plastic containers, more about these later, with waxed paper (not tin foil or plastic wrap) to separate the layers. Freeze the burgers overnight and transport them in a cooler with chill packs or ice.

Buns matter. Stay away from the pasty white bread buns in eight packs and head to the bakery section of your grocery. Even better, go to a real bakery and buy something with flavour and perhaps with sesame seeds. I use ciabatta buns from the local Italian bakery because they bake three times per day, and I buy them on the way to the event. Fresh is important.

Appetizers are simple. Get a celery and a small bag of baby carrots and wash them well. Cut the tops and the stump off the celery, slit the wide ones in half lengthwise, and cut to 5 or 6 inch lengths. You can pass the carrots and celery around to the pilots while they await the burgers.

A dozen eggs will make 24 devilled eggs, another nice appetizer. Boil the eggs for eight minutes, cool them off in cold water and cut in half. Scoop out the yolks and mash them with a few good dollops of mayonnaise and a teaspoon of curry powder. Then refill the halves with the yolk mixture using a teaspoon and a plastic gloved index finger. Arrange the eggs in a tray, cover

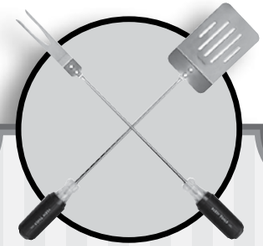
Three layers with waxed paper between, then freeze them overnight

with waxed paper, and keep them chilled until serving.

A salad is always well received and easy to make. Buy the three packs of romaine lettuce hearts, cut off the tops and stumps, and wash the leaves. Three romaine hearts will do for a dozen pilots. After draining, cut them lengthwise and then crosswise into strips 1" wide and place into a large salad bowl. Chop up a cucumber and when you are slicing the tomatoes for the burgers save the tops and bottoms and chop these up for the salad. I usually add some sesame seeds and use a vinaigrette dressing. Stay away from cream dressing on a hot day, and be certain to bring salad forks or tongs for serving.

Burger toppings can make or break the burger, and handling is a problem if you use a lot of jars. Get your relish, mayo, ketchup, and mustard in squeeze bottles. Stay away from the bright yellow cheapo mustard and buy Dijon in a squeeze bottle. A jar of salsa makes a nice addition but stay away from the hot, and buy mild or medium.

Dill pickles are usually available presliced and these are worth the price. For onions use Vidalia because they are sweet and do not cause heartburn. Slice the onions thin, 1/8 to 3/16", using a sharp knife. Tomatoes will usually yield 4 or 5 slices per unit if you have a sharp knife and cut 5/16-3/8" thick. Cut through parallels of latitude and save the tops and bottoms to be chopped for the salad. If pineapples are on sale I trim the exterior, slice in half vertically and



BBQ PARTS LIST

Burgers and buns
Condiments
Sliced Vidalia onions
Sliced tomatoes
Sliced dill pickles
Squeeze ketchup
Squeeze Dijon mustard
Squeeze green relish
Squeeze mayonnaise
Mild or medium salsa
Crudites
Celery stalks
Baby carrots
Sides:
Green salad
Devilled eggs

Support:

Coffee, cream, sugar cubes, water bottles
Styro cups and plates
Plastic forks. Stir sticks
Paper towels

Self serve for everything except the patties reduces the workload and allows you to concentrate on grilling your awesome burgers

then crosswise into half moons ¼" thick.

Make a pot of coffee and use real cream, not the awful powder, and use cubed sugar. A couple of 24 packs of bottled water will be handy too. Get lots if the day is hot.

Materials handling will be easy if you begin with a trip to Dollarama and buy their inexpensive Snaptite plastic containers. The 6 x 9's are sold in pairs for $1.50 and are great for sliced pickles, carrots, celery, and pineapple slices -get the green topped ones without the divider. The 8.5" square containers will hold four burgers per layer and the $1.50-$2.00 size will hold three layers, a dozen burgers.

You will also need Styrofoam cups and plates, plastic forks, and some stir sticks for coffee. A few rolls of paper towels will work as serviettes and also for cleanup.

How much does all of this cost? If you buy premium burgers or make your own from scratch when beef is $4.00 per pound, including condiments salad and side dishes, you will have spent about $4.00 per serving. Charge $6-7 and sell coffee separately and you will make a reasonable profit. Everyone will feel that they got well fed for reasonable money, and they will fly home happy. Mission accomplished.

Tech Tip: Stuck Bolts

This handy tech tip for loosening studs comes from the GRM Forum via Chris Horsten:

"Torch the offending stud and hit it with a candle," writes Petrolburner. "The wax pulls in and acts as a lubricant. If it turns a bit and then slows up, re-torch it and hit it with wax again. I used my torch and PB Blaster to no avail with a stuck exhaust manifold stud and got it out with wax."

One Man Airplane Factory

Sometimes it's hard to stop at one

By Gary Wolf

FOR MANY YEARS I had heard of a fellow who had spent his life building amateur aircraft and ultralights in the hangar at his own grass strip north of Toronto, and I had to meet this man in person. When I met Bob Briggs I was immediately impressed by this quiet, determined individual who moved and spoke as if he were thirty years younger than the age he claimed.

Bob Briggs was born in Yorkshire, and some of his earliest aviation memories are of Heinkels and Doerniers flying over and dropping bombs. He lied about his age and joined Air Cadets in Manchester, and got a ride in an Ansen. Like many kids, he built rubber powered free flight models but they seemed to have an affinity for the local river, which never did the tissue paper covering any good. Later he joined the RAF and trained on Manchesters, and then did a lot of flying as crew in a Mosquito, and afterwards in civilian life he was hired by Ferranti Electric.

Bob then came to Canada and first got work at Stelco in Hamilton, and then Northern Electric hired him away for research because of his Ferranti experience. The aviation bug had bit Bob and he got involved with Bensen Gyrocopters, building his first in 1956. That one did not fly

The RV-3 and the Pelican bring Bob's total up to 68 planes and rotorcraft

but Bob kept at it during the sixties and he built half a dozen, four powered by McCulloch and two by VW. He was also manufacturing rotor blades with a steel spar and wood flying surfaces and these were popular with the gyro crowd.

In 1958-59 Bob plansbuilt an Adams-Wilson helicopter powered by a Triumph 650 motorcycle engine. This used a wartime Harley shaft drive gearbox to take the power to the rotor and tail. He later restored the airframe of a Helicom helicopter, the forerunner of the Baby Belle.

In the sixties Bob was singing professionally with the Canadian Opera Company as a Tenor. He was based in Toronto, and travelled with their touring company all across Canada and the US. He was then hired by Lytton systems where they were building the inertial guidance system for the F-104, and later he went to Spar where he focused on measuring equipment during the Canadarm period.

All the while Bob maintained his interest in amateur aviation but now he turned to fixed wing VW powered aircraft. His first was an all metal Teenie 2 that he built in 1967 but he sold the plane before flying it. He then wanted to try wood and in the seventies built a Volksplane and next a Taylor Monoplane, also VW powered. After these he built a few more of the gyrocopters, including finishing one for someone else.

In 1977 Bob built his first Rand KR-2, a revolutionary plane at the time. He carved and sanded all the foam, covered it with glass, and sanded and filled some more, and powered it with a 2100 VW Revmaster. He found the plane to be delightful, especially the retract mechanism.

In the eighties the ultralight boom hit Canada and Bob bought one of the early Lazair kits with the tiny Pioneer chainsaw engines. He was living in the Niagara peninsula at the time and sometimes used this plane to commute to work. The Lazair became very popular but building the tapered wing was too complicated for many pilots who wanted to fly, not build. The manufacturer was growing by leaps and bounds as the ultralight boom spread, and could not handle any more work so they sent buyers to Bob for assembly. In all Bob built twenty-eight of these delightful planes and his feedback helped the manufacturer improve the design. The wings were quickly removable for transport but the inverted V-tail had a span of 9 ft at the tips. Bob designed a tail fold mechanism that allowed the two flying surfaces to fold together, and the factory quickly adopted this as a production change. Eventually he fitted a set of Zenair aluminum floats to this plane and enjoyed water flying. Ultraflight hired Bob to oversee their quality control and he made certain that all parts met the high standards required in aviation.

During this period the Lazair was constantly being fitted with larger engines because pilots wanted to be able to fly with floats, and Bob was kept busy with fitting and flight testing, They had designed belt reductions but settled on the less expensive direct drive as standard, using their own carbon fibre props. The company then made their own ground adjustable props but when Bob experienced the inflight loss of a blade the company quickly abandoned that innovation.

The last production Lazair that Bob built was for a fellow in Chicago.

continued on page 34

Flying on the Cheap

Building an inexpensive yet sophisticated fun flyer / By Ryan DeRot

I'VE ALWAYS BEEN INTERESTED in airplanes, but like so many of us, don't have the loose change to buy a factory built aircraft. Mitchell Wing's U2 seemed an attractive and affordable way to get into the air: as a flying wing it has a minimum structure, and as a motor glider it can be enjoyed without running the engine. Cheap to build, cheap to fly.What could be simpler? The decision was made to build.

The Mitchell Wing U2 was designed before the US ultralight rules came into force but fits comfortably into the Category 103 rules. Developed off the older sibling, the high wing B-10, it's arguably prettier and probably more efficient aircraft. As a primarily wood and foam aircraft (the fuselage, such as it is, is constructed of steel tube), it features a familiar, unintimidating medium in which to work.

The 34 foot span employs a modified Wormann FX-05-191 airfoil. Pitch and roll are controlled by elevons which are mounted aft of the trailing edge, and

Above: a European U2. Right, the outer panels of Ryan's project with the wingtip rudders.

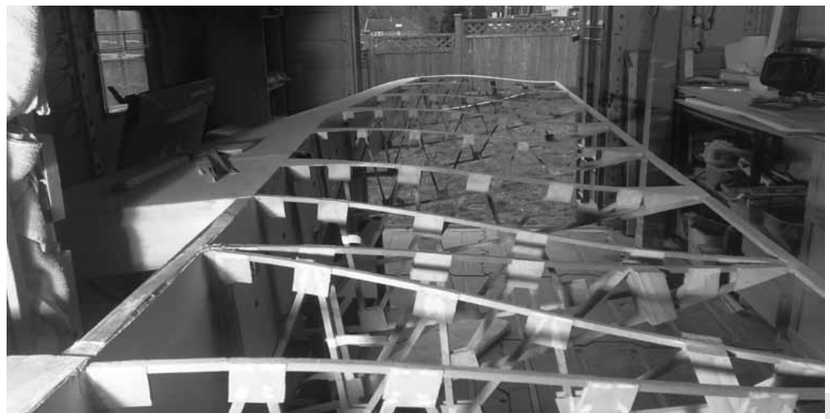
yaw by the wing-tip rudders. I've installed spoilers for glidepath control. A pusher motor tops off everything, and the design is capable of hosting from 25-40 horsepower engines. Performance-wise, it stalls at 26 mph and glides at 20:1 at 45 mph. The rate of climb with 20 hp is supposed to be 400 fpm, but with a larger engine, I hope for better.

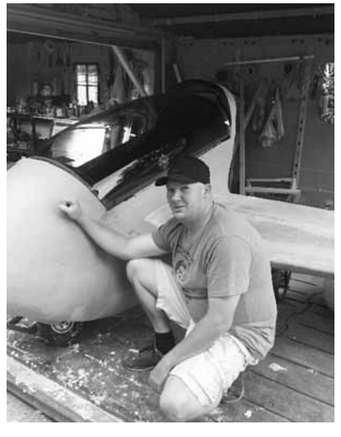
I started the build in 2011, beginning in the carport at home, but later expanding my work area by building a pair of 10x10 sheds to keep it secure and out of the elements. A friend from Nevada who had recently completed a U2 has been helping and advising on the build, which has kept me focused and supplied tips and tricks along the way.

My U2 project sports two 5 gallon tanks, spoilers, a canopy supplied by Todd's Canopies, and a shock absorber on the main gear. Motive power will be supplied by a Rotax 377.

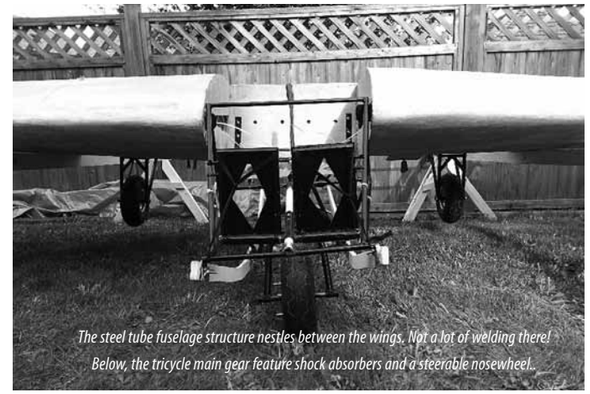
At this point, I've got about 700 hours into the aircraft, and have spent about $5,000; estimated cost to complete should bring it in around $7,000 dollars. I could have done it cheaper, but opted for a more powerful (read: expensive) engine, and - since I'm planning on flying in some of the most complicated airspace in the country with the inevitable class C airspace - also went for an electrical system replete with better instruments, transponder, strobe and beacon.

I hope to have it finished by the end of summer 2014. If you're interested in tracking my progress, check out www.pilot-a-U2.com. I'll be looking for hangar space to share or rent, preferably in the Langley, BC area. If anyone knows of available space, drop me a line at ryanderot@hotmail.com.





Below: typical elevon construction; lower centre, the author poses with his creation; lower right, the canopy profile does a lot to enhance the aircraft's appearance. Right, the inner wing portion ready for covering; the wing ribs are typical built-up wood truss ribs.



The steel tube fuselage structure nestles between the wings. Not a lot of welding there! Below, the tricycle main gear feature shock absorbers and a steerable nosewheel..

Ryan DeRot *grew up in South Africa and moved to the Vancouver area when he was 18 years old . He lives in Surrey, British Columbia and has worked for the airlines for the past 9 years.*

CARTER AVIATION'S JAY CARTER RECEIVES PRESTIGOUS AHS-INTERNATIONAL PAUL E. HAUETER AWARD

Alexandria, Virginia, March 31, 2014 – AHS International – The Vertical Flight Technical Society – today announced the 2014 recipients of its prestigious awards program, which has, since its establishment in 1944, paid tribute to the outstanding leaders of vertical flight and served as a catalyst for stimulating technological advances. This year's winners will be recognized at the 70th Annual Grand Awards Banquet on Wednesday, May 21, 2014 during AHS International's 70th Annual Forum & Technology Display at the Palais des congrès de Montréal, Québec, Canada.

The Society's Paul E. Haueter Award is presented each year to an individual or company that has made significant contributions to the development of vertical take-off and landing aircraft (VTOL) other than helicopters. This year, the Haueter Award will be given to Jay Carter, Jr., President, Chief Executive Officer and Principal Design Engineer, Carter Aviation Technologies, LLC, for his achievements in slowed-rotor compound aircraft designs capable of providing unprecedented improvements in rotorcraft operational flexibility, efficiency, speed and safety. Mr. Carter's contributions culminated during flight-testing in 2013 when Carter's 4□place second- generation Slowed□Rotor/Compound (SR/C) VTOL demonstrator consistently achieved level flight lift-to-draft values of nearly 12, exceeding values of conventional helicopters by a factor of 2.5.

Don Benton's Rotec powered Kitfox 4
by Don "Candy Man" Benton RAA 1856

I HAVE BUILT SEVERAL flying machines to date; in '82 a buddy & I each built a copy of a Lazair, and about '85 I built a plansbuilt Kitfox 1-type powered by a 2 stroke. That plane is still flying and was featured a year ago in Light Flight. Next I found a Zenair 600 started, and that took only 26 months to flying status as an amateur built. Originally I had a Subaru EA 81 but later switched to a Continental O-200. I flew the Zenair everywhere for ten years and eventually it was sold to a fellow in Chestermere Alberta.

Next I got the "need for speed" that gets many of us. I researched until an RV-9A project with impeccable workmanship became available. Three years after hauling it home I was in DEEP, but what a sweet unit that plane was. I could fly from my home in Brantford to Cornwall in two hours. While I was enjoying the RV I happened on an ad for an unstarted Kitfox Classic IV kit. If you are getting the idea that this is a habit, you are right. This came along at the right time because while I was enjoying the speed of the RV I was not that enthused about $185 fillups. Fuel is not going to decrease in price and I needed a retirement aircraft, so the Kitfox was worth a look. They are an aircraft with a good safety record, and the folding wings would allow putting the plane into my barn for the winter. After 166.5 hours of pleasurable flight the RV-9 got sold to a fellow in Quebec, and I was off to the next project!

Here I am 3 years after starting the Classic. I am actually the third owner of this kit since it was first delivered to Ontario. The second owner bought it from an estate sale but he had a shop full of RV-8 stuff and needed some room so we made the deal and I trailered it home. With a used kit there is always the possibility of parts being missing but I lucked out – this one was complete.

Next step was to find an engine… Originally I was looking for a Rotax 912 but I do not use a computer very much and I think that I misspelled and up came an ad for a Rotec radial engine for sale in the UK. This looked like a natural for my plane because of its nostalgic appearance and the fact that my plane is called a Classic. Kitfox even has a round bump cowl to imply a round engine so I started dealing with the seller. The engine had been in a Kitfox 5, a larger plane, and it had 41 hours and 15 minutes on it. The fellow would not move on price but it was still reasonable so I got his information and sent the payment by E-FUNDS.

Importing the R-2800 from the UK was not an issue, really. Pick a carrier, insure your merchandise, and wait for a call from the broker. We got the call and my wife and a friend with a pickup went over, and after some delay they trucked it home to my barn workshop where I had

the airframe components. I was now ready to begin.

The Kitfox fuselage was fully welded and powdercoated so there was little to do except clean out the holes and begin assembling. The wings came with the routed wood ribs and wood capstrips all epoxied in place, with the washout already set at the factory. The factory fuel tanks are fiberglass and they are structural parts that provide drag-antidrag at the root. I epoxied them into place and have been careful not to use fuel that has alcohol. I also epoxied in the butt ribs and did a lot of small endless tasks to finish the wings. There was the possibility of shortening the wings to the Speedster length but I decided that I wanted them full length because I go in and out of short airstrips a lot. After owning and hot rodding around in an RV for 3+ yrs. How "speedster" could it be?

The early Kitfox Junkers flaperons were pivoted from wood extensions of the wood wingribs, but this kit has the later aluminum angle hinges that are glued and riveted to the ribs' capstrips.

The tail parts are 4130 weldments and I glued in the airfoil shaped wood ribs that are part of the later kits. Early IV's had flat tail surfaces and the new ones are supposedly more efficient. There is no adjustment for incidence of the stab and I did not cut out the elevators for trim tabs. Once I have done more flying I will decide whether to do that but meanwhile if I need trim I will rivet on an aluminum tab.

The fabric supplied with the project was Ceconite 2.7 oz. There was more than ample fabric supplied as I didn't run out BUT I didn't have to peel any off and replace any either - just lucky I guess. I used Endura primer after sealing the fabric, and Endura 2 part epoxy paint with the flex agent - take no shortcuts here! The proper breathing equipment is a must and flow-through air while "attempting to paint "is also very desirable. The old adage about painting is still true, 90 % prep 10 % painting.

One of the reasons I purchased this project was that it came with the robust Grove gear. They mount to the original fuselage points without any welding, so very easy to fit. They are gun drilled, so not so many lines on the outside in the breeze. In my case the lines go through ahead of the rudder pedals and come out of the belly fabric right by the fittings in the Grove gear.

The kit brakes are Matco and I used them even though I prefer Cleveland. Tires are aero trainer 6.00 x 6 at this time. Then I went over to CYFD and peeked at Dan Oldridge's wheels, featured in last month's Recreational Flyer. I knew I had to get a set to go on my Kitfox or face embarrassment in my own backyard. Can't allow that so they have been ordered and will be on soon.

Because I routed the belly stringer all the way to the front instead of stopping at the wing strut pickup tube, it gave me a small tunnel for my 3/8" aluminum fuel line, also for electrical and some wiring for headsets to eliminate the clutter in the cabin area.

The only cables are for the rudder pedals. Kitfox sent 3/32 "and they are still in the box. I got some 1/8 " stainless in there as habitual offenders (builders) know that little stuff is only for trim systems. The control sticks are aluminum tubing and the linkage is all 4130 weldments changing to a 1 ½" tubing pushrod going back to the elevator horn. Flaperons are pushrod actuated with rod ends everywhere.

The windshield is a thicker premoulded item that warps around and over the top to provide excellent visibility, but on sunny days it can become a bit hot inside. Fortunately the doors are top hinged and they open briskly in flight to cool everything down. Even when the doors are shut they allow good sightlines because I used lexan from top to bottom.

Rigging the wings was straightforward – the 4130 lift struts came premade and powder coated, with rod ends at the top for adjustment. I used my digital level and everything went smoothly.

GAUGES AND STUFF

The panel is always personal no matter how basic you try to keep it. As with my RV-9A panel I gave it the Don Job, which is burled walnut arborite on the aluminum blank… people look at it and think I'm going to do that next time. The Lowes airplane depot has a mind boggling selection. One word though, the pretty pattern is thinner than paper,,one little scratch or one big scratch, it's over - hours wasted!

I have only one radio as of this writing a Flightcom 2 ¼ sq. I'm trying to be a good boy, and maybe Santa will bring a transponder this year. Ho ho ho! I am using a Spot Locator as ELT's are not mandatory for ultralight aircraft, and are heavy and expensive for what they do! Air Malaysia should have had one, millions not wasted! The panel gauges are all round like the engine. Some are mechanical and some digital but it is all day VFR for ultralights.

Kitfox supplies a fiberglass seat but I added a bit of reinforcement in case a second crew member is on the heavy side. The upholstery was ordered from the new Kitfox manufacturer and the fit was OK but not great.

FIREWALL FORWARD

The firewall forward was a major project. The stainless firewall was

Opposite, left: A secondary benefit of the larger tires is as a step to enter the cockpit. Opposite right, once the new 21" bush tires arrived, Don couldn't wait to install them. Below: gundrilled Grove gear comes with milled aluminum clamps that drop into the original Kitfox brackets.

Opposite, top: The latest Kitfox 4 airfoil has a flat bottom instead of the earlier undercambered wing. Below, day VFR panel is well organized, with space ready for the Christmas transponder. A Tiny Tach is temporarily subbing for the panel gauge. Right, Clare Snyder and Don corrected the jetting and eliminated the misfire caused by plug fouling

prepunched for 912 component locations so I made stainless blanking plates for the unwanted holes. The R-2800 has an installed weight of 225 lb, while normal is a 2 cylinder 2 stroke engine of say 100 lbs or a 150 pound 912. When you put in 225 other parts must be moved for weight and balance, so the battery got married to the tail post, and an access window at rear left hand side allows a view to the battery and master solenoid.

The engine mount that came with my engine was for the Kitfox 5. Three of the mounting points lined up with the IV hard points and I had to remove and refit e the other two. Because of its weight the engine is hard up against the firewall and getting everything else fitted was a bit of a squeeze play. The Bing CV carb is fitted on centre and got an aluminum duct to accept the scat hose from the carb heat/cold air selector. This plane is registered as a basic UL so the regs do not require carb heat but it is awfully handy when the temp and dewpoint are close. I used a K&N washable air filter in the airbox …and more hoses!

Because this engine is a dry sump type it has an external oil pressure regulator and a continuous scavenge pump fitted, and this means more plumbing than usual. Oil comes from an outside tank to feed the oil pump, goes

to the external regulator, and returns to the engine (the extra pressure is bled off to the oil tank); oil flowing from inside the engine is collected via the scavenge and put back into the tank.

This project came with an injection moulded header tank; I put it on, took it off, and ordered a welded aluminum one, and I kind of wished I'd had aluminum wing tanks made at the same time. For a gascolator I used a Vans unit, and everything is plumbed with 3/8" aluminum. The R2800 comes with its own VW mechanical fuel pump and I have a supplementary Weldon electric pump that supplies 4 psi. The system has a fuel transducer and I can't remember if I calibrated it to Sips/Hr or Gulps/Hr but a ground check gives 37 gph. I use premium mogas or 100 ll avgas if I feel rich, as avgas is 1.90 per liter. It isn't like the old days when I could get change back from $20.

The cowlings are the usual Kitfox fiberglass moulded upper and lower main and the upper and lower knobby cowls. I shortened them to position the rolled lip just behind the exhaust ring, with the engine sticking out in the breeze.

IT'S ALL ABOUT THE ENGINE

Rotec makes a 400 cc cylinder and then 7 or 9 cylinder crankcases for 2800 or 3600 cc. Bore and stroke are 80 x 80 (mm) for both engines. My 2800 has a compression ratio of 8.5:1 and the heads have only two valves per cylinder and external pushrod tubes, just like in the olden days. Standard is short exhaust stubs but I lucked out with my engine because it included the optional $1900 collector ring that ends in two exhaust pipes at the bottom. There is no muffler, just the two open pipes and this engine is MEAN sounding!

The intake system is a plenum on the rear of the engine, fed through an S-shaped casting from the Bing CV carb. The mixture actually enters the plenum off-centre which contributes to the loping idle because of uneven fuel distribution at low rpms. Each cylinder has its own intake tract fed radially from the plenum. The bottom three cylinders have taps to allow accumulated oil to be drained before starting.

On the front of the engine is a polished dome that hides the planetary gear redrive. The ratio is 3:2 so at 3600 crank rpms the prop is turning only 2400. Each head has two motorcycle spark plugs close together, one fed from a magneto and the other from a Hall effect electronic ignition. There is virtually no mag drop, probably because the plugs as so close to each other.

The prop is a Powerfin 77 ½ ". I had wanted a big 2 blade but the hub wouldn't fit till I got 3 blade hub counter bored for drive lugs, and by then it was huge.

The Rotec is not a jump in, turn the key, and go flying type of engine. This engine has a ritual before starting, and it impresses anyone who has never seen what it used to take to go flying. Radials collect oil in the lower cylinders whenever they stop, and if it is not drained off turning the key can produce a hydraulic lock and a bent or broken connecting rod. There is no rushing it – this is going to take five or ten minutes, plenty of time to collect a crowd of the curious at a fly-in.

If you are environmentally concerned you will be carrying around some cutoff milk cartons and hanging them with wires and clothespins from the cylinders. Open up the three intake taps and slowly hand rotate the prop and watch the old *Texas Tea* drain out. There will usually be an inch or so in each carton. Then rotate by hand again for six blades and some more oil will come out of one side of the exhaust ring. Then you can close up the intake taps. Now you can climb in, turn on the fuel, flip on the ignitions, pull the mixture enrichener on the Bing and crank the starter. The engine will then belch out several very satisfying and impressive clouds of smoke and give the crowd a scare. The sound is ratchety at first but as soon as it warms up enough to take a bit of throttle the glorious sweet round engine sound fills the air and

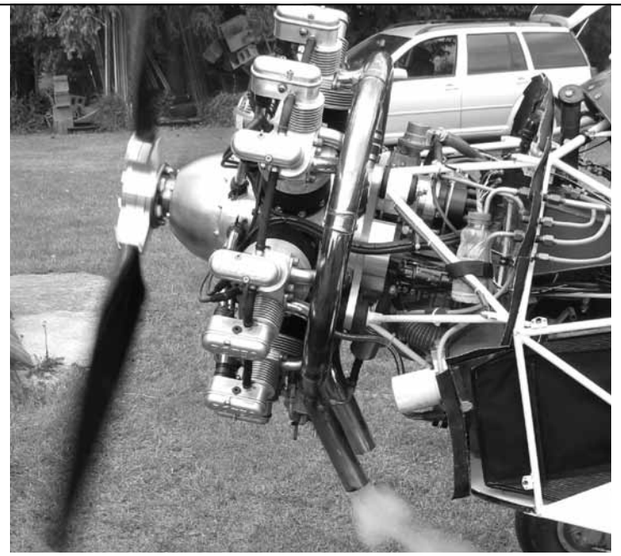
the huge prop blasts everything rearward. The sound is WOW! Once it has warmed up you are ready for some more 30's style adventure and someone will have to part the crowd so you can taxi away.

The Rotec idles at about 900 rpms and has a firing order of 1-3-5-7-2-4-6. There is always vibration but that is the Round Engine talking to you. Max oil temperature is 225F and I have never got close to that yet, but might on hot summer days. I am still learning the engine.

At first the engine was hard to start and reluctant to take throttle and I was having to use the enrichener to keep it running. Clare Snyder is the prez of the KW RAA chapter and he is also RAA Canada's Tech Advisor, and he came over to set matters right. He rejetted the idle mixture of the Bing carb and burnt out the accumulated oil from the plugs using a propane torch. Since then the engine has been starting and running happily.

What does the plane fly like? On the takeoff roll the tail lifts quickly, a lot is happening in those first few seconds, and the Kitfox gets off in 200 ft. With the current prop pitch it climbs at 1000 fpm at 60 mph. I might repitch it a bit finer. The airframe Vne is 125 mph and the plane will easily do 115 in level flight. It is happy at any airspeed from 70 to 110. On final I carry a bit of power to keep the plugs clean and maintain 55mph, 60 if there is a headwind. The engine cools down a bit in descent because it is completely uncowled, and I add a bit of power to round out for landing.

The plane is quite nimble and during a crosswind takeoff it is easy to lift one main and roll along on one wheel. There is no noticeable adverse yaw in flight, and this is a feature of the latest version of the Kitfox IV. The rudder is very powerful and sensitive and so are the flaperons. They do pitch the nose down though.



Pull the enrichener and key the starter. Smoke belches out, and the beautiful roar begins

I haven't been measuring fuel burn yet but the Aussies claim 22 litres per hour with high test. I'll know better in a few months what it really does. I have only landed it 25 times so far. I do not have any plans for long cross country trip yet. Right now I just want to enjoy the plane and get good at flying it. People ask me what I plan to build next and I can't say yet – this is my eighth aircraft and I still have some stuff in the shop to finish off for a friend. Meanwhile I plan to put as many hours on this beauty as I can manage this summer.

I want to give a BIG thanks to my wife Dorothy for allowing this Canadian Dream to happen. Also THANKS to Susan, Lynnette, Jojo, Connie and the others at Aircraft Spruce Brantford for being so helpful - see you soon!

Fisher Flying Products Changes Hands

Fisher Flying Products has been sold to Dave Hertner, owner of Effectus AeroProducts. He is planning to continue producing Fisher Flying Products kits and providing support for the Fisher Flying Community. Previously owned by another Canadian and based in Brampton, the new owner hoopes to headquarter in the London, ON area.

Dave has been a supplier to Fisher Flying Products for a number of years and is the builder of a Van's RV-10. There is a great deal going on during this transition and the former owner will be working behind the scenes for a while acting as a resource and mentor as Dave takes the reins.

Dave writes: "I am a confirmed aviation addict. The purchase of Fisher Flying Products is the next phase in my aviation adventure. I have been a pilot since I was 16 and have built a Van's RV-10 which is admittedly quite different from the offerings at Fisher Flying Products.

We are going to do our best to keep manufacturing these timeless and affordable aircraft kits. We are also looking forward to the many friendships that will develop with our customers worldwide".

P & M Aviation's Quik R is capable of over 100 mph.

Shifty Characters

Throwing your weight around can be fun / By George Gregory

Back in the 1970's, I owned a first-generation hang glider which I flew whenever I could on local hills. It was my first aircraft, bought back then for the princely sum of $500.

It was a lot of fun, but it was too basic and I was way too chicken to do much more than a sort of aerial tobogganing with it (never got more than about 20 feet AGL). The "harness" such as it was, was a plastic swing seat manufactured by the Irwin Toy company (!) with a thankfully stout rope passing underneath it and up to the hang point. It remains the most elemental type of flying I've ever done, dirt simple, cheap, and fun.

Higher aspect, double surfaced strutted wings have offered significant performance improvements and modern harnesses are safe and comfortable. Prices for new wings have gone up, but compared to conventional aviation are still really affordable.

Somewhere in the mix someone thought of putting a motor on the things, and then seats. These larger, powered cousins - trikes, as they are commonly known - have themselves become quite sophisticated and capable of speeds of over 100 mph. I've always wanted to see what they were like to fly, and the chance came up at a recent airshow where demo rides were being offered.

My flight was in a snazzy yellow Scout XC manufactured by Northwing, a major Washington state trike manufacturer. They offer a range of aircraft ranging from about $16,000 for a single place soaring trike to over $50,000 for a fancy Rotax 912 powered two place with all the fixings.

After signing the requisite releases and handing over some cash, my instructor Clyde strapped me in to the back seat. In two place trikes, the passenger sits higher than the fellow in front of him and the "dual controls" consist of a pair of D-shaped handles that are bolted on to the triangular control bar for access. Directional control on the ground is by foot petals connected to the nosewheel

Trikes come in a variety of flavours. Here's a small single place electric trike.

and that at least was familiar.

After a few directions and the standard passenger briefing, he started up the Rotax and we taxiied out to the runway. We moved onto the active, Clyde applied power and we were off.

Acceleration felt very solid, and we were climbing at what seemed a crazy angle. It was noisy, fast, and *really* windy. As it happens we were only cruising about 60mph, but in the open breeze and with shorts and a T-Shirt, it felt like a rocket sled (I couldn't help wondering what flying a Breezy would be like, which would cruise at least 20 mph faster with even less structure around the pilot). I noticed how the wind pulled my helmeted head around when I tried to look to the side; getting anything out of the saddlebags or my pocket (like a camera) was out of the question unless it was secured somehow. I didn't fancy losing my iPhone over the side or through the propeller so it stayed in my pocket.

Flying a trike is somewhat different than the hang glider but mainly in quality. The principles of control are the same but the increased weight is quite noticable.. Because it's the wing that changes direction, the rest sort of follows along. Control inputs are opposite to what us fixed wing types are used to: push means up, pull means down, and to turn you push the control bar opposite the direction you want to turn, since you want to put your weight on the inside of the turn.

Once I was given control it felt quite sensitive in pitch, but very heavy in roll. This makes sense when you realize you're pushing about 500 pounds of airframe and engine, but it was entirely controllable. As well, I was in the back seat and had to content myself with pushing on D-handles that extended back from the control bar. It was easy to move the bar back and forth, but I ran out of arm moving the bar from side to side, and couldn't change my grip like the PIC who has the entire width of the bar right in front of him to work hand-over-hand if need be. That said, I had plenty of authority to move the aircraft and if anything I was worried about overcontrolling it. Turns are accomplished by first pushing your weight in the direction you want to turn, then pushing out slightly on the bar the same way you'd apply a touch of up elevator in a turn. It's a lot more physical than a stick and rudder.

In level flight, you have to relax and let the wing find its own trim, something that took a little getting used to. Increases in power result in a climb rather than an acceleration; if you want to go faster, conscious effort is needed to pull the wing in a bit as you feed in the power.

We were all over the sky while I relearned my hang glider inputs, but eventually was carving S-turns and 360's all over the place. I could get used to this.

Despite an ambient temperature in the 30's I was almost cold in my shirt and shorts. A flight suit of some sort would be nice even on hot days.

Other significant differences: you can't lift the nose of the undercarriage by pitching the wing up. And trikes don't do negative g maneuvers.

The wings on topless trikes fold up in about 15 minutes, meaning the aircraft is easily trailerable. It's simply a matter of undoing a few cables, removing the battens and ribs from the wing (slim aluminum tubes that slide into sleeves sewn into the wing fabric), folding the leading edges back (the struts pivot back with the leading edge), and then rolling and bagging the fabric. Gas struts on the mast allow the whole wing to be moved forward and down to a place where the wing is easy for one person to fold up.

I had plenty of authority to move the aircraft and if anything I was worried about overcontrolling it... It's a lot more physical than a stick and rudder.

Trike wings are covered with Dacron and do not have UV protection on them, so it's mandatory to cover or otherwise get them out of the sun when they are not being flown.

The wing inself has no moving parts, so maintenance is greatly simplified. And that's a significant point: there's less to break so there's less to fix.

Challenges

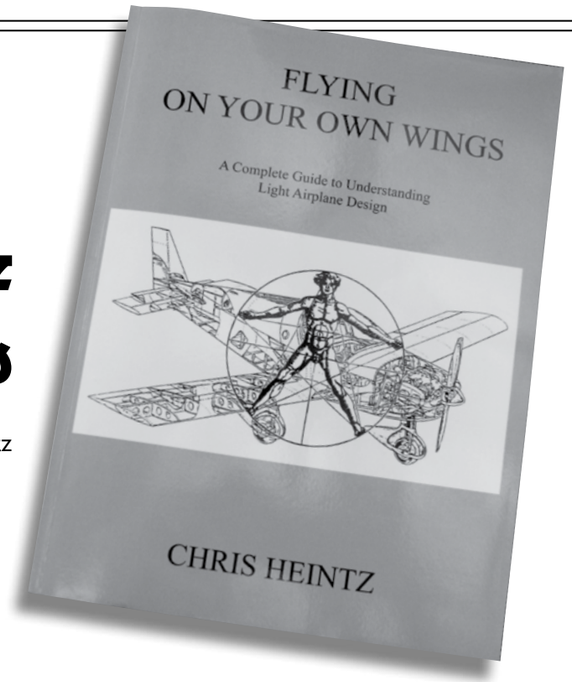
One of the biggest obstacles to the expansion of the sport has been a lack of instructors. When the federal government in the Excited States introduced the Light Sport Aircraft category, it affected a lot of the trike instructors who would have had to invest in expensive recertification to accommodate the new rules when the heavier trikes were reclassifed as Light Sport. Rather than relicense, they just dropped out.

For the amount of fun per dollar, these aircraft represent good value. They appeal more to the Jet-ski and motorcycle crowd than what we would call traditional pilots; but that image could work in their favour towards reinvigorating sport flight to the general public. To the non-aviator, they're a little less intimidating than conventional aircraft; they have sort of a counter-culture allure. Trikes aren't for everyone, just like motorcycles aren't for everyone. And the analogy between cars to airplanes and motorcycles to trikes seems appropriate; these aircraft have plenty of power and are quite manoeuvrable, but are limited in their practicality by cruise speed, exposure to the elements and cargo capacity. These issues could be addressed with fuller enclosures and perhaps aerodynamic assists for roll control, but whether it's worth the trouble depends on the pilot. I suspect the whole open air thing is part of the appeal.

As a flight experience trikes are a great alternative and worth a look, but it depends on what you're after. It's hard to imagine a simpler machine. If you just want to relish the sensation of flight, why not give it a look?

Flying On Your Own Wings

by Chris Heintz



THIS DESIGN BOOK BY CHRIS HEINTZ has been a long time in arriving. Fifteen years ago when I first met him we discussed the possibility of his writing a manual to walk the novice through the whole process of designing a light aircraft. It was not until Chris retired that he could devote the time, and he has now produced a very complete book for those who wish to understand what it takes to end up with a useful metal aircraft.

For someone like myself whose math training ended in the sixties the calculations can be a bit difficult, but the many illustrations and Chris's straightforward writing style make understandable the considerations of aerodynamics and the requirements of structure. He has wide ranging experience, having designed everything from the fabric Zipper ultralight through a host of ultralight, amateur, and certified aircraft, up to the four seat CH640 and the twin engine Gemini, and many are used as examples to illustrate the engineering math and science.

The chapter on structures is especially thorough, with over sixty pages devoted to this aspect of design. This section combines math with practical concerns such as whether a long thin rivet will actually expand evenly down its length to fill the hole completely. He also cautions the would-be designer to check the quality of rivets these days as they are mostly imported and might not meet their claimed shear strength. In the book the author shows a simple way to evaluate rivet strength. Chris also offers practical suggestions, such as making all vertical spar stiffeners the same thickness, although they could theoretically be thinner near the outboard end of the spar. Why do this? It prevents mixing thin with thick, and the possibility of ending up with the weak ones down at the root where the loads are highest. The weight saving would be minimal and not worth the trouble. This manual provides all the theory but emphasizes simple and safe practice.

In Chapter VI Chris walks the novice through thirty pages of the design of a light two seat metal aircraft. He gives rules of thumb for control surface areas and deflections to obtain pleasant and safe handling characteristics, exactly what the would-be designer needs to know to keep himself out of deep water. Chapter VII then follows with descriptions of how to ground and flight test the finished aircraft using little more than a G meter, tape measure, fish scale, and a stop watch.

Flying On Your Own Wings would be the perfect holiday beach read for a techie. Bring along a calculator, some pencils and notebooks, and come home much smarter than you were at the beginning of the week.

Flying On Your Own Wings (third edition)
Author -Chris Heintz.
Trafford Publishing
ISBN 978-1-4251-8828-3 (sc)


The rubber covering means that more hand torque can be applied without discomfort

Tool Box Toy

A really neat gadget for quick adjustments / RAA

Harbor Freight sells a handy little socket wrench too in the shape of a small puck. Set into the perimeter are socket wrenches that have been double broached to fit both metric and inch sizes. The 1/4" socket is blind and six pointed so that it can also work to drive 1/4 hex screwdriver bits. All other sockets are clear through and in line with their polar opposites so that the wrench can be slid down a long stud to tighten a nut.

Inch sizes are 1/4, 5/16, 3/8, 7/16, 1/2, 9/16, 5/8, and 11/16 of an inch; Metric sizes are (in mm) : 6, 8, 10, 11, 13, 14, 16, and 17. It would have been nice to have a 12mm but the half inch had to choose which way to go and chose 13mm.

The tool is approximately 2" diameter and 1" thick, with a weight of 3/4 pound. Price is $10 but on sale it gets as low as $3.99. The downside is that the Harbor Freight chain is in the US so unless you live hear a border you would have to pay shipping. Check their online flyers for specials by googling, and note the American spelling of "harbor."

Harbor Freight Universal Grip Wrench, #60435

One Man Factory / cont'd from page 18

That one had two inboard Rotax 185's with reduction drives and at outboard stations were two Pioneer direct drive chainsaw engines. Starting four 2-strokes and keeping them running was a real challenge, but the owner was happy. By this time the ultralight market was changing – people wanted bigger and faster enclosed planes like the Fisher, and Ultraflight closed their doors. Bob eventually sold his own Lazair but he recently tracked it down and tried to buy it back but the owner will not part with it.

In 1985 Bob bought a farm near Shelburne Ontario, built a large hangar and a heated workshop, and cut and rolled his 2500 ft airstrip. An earlier rural home had a rudimentary strip but finally he had a real aviation facility. The building itch got Bob again so he built another KR-2, again retractable, and again powered it with a Revmaster 2100. That one was so clean that it would do nearly 200 mph in a low and over and a climb at that speed would get him to circuit altitude in 15 seconds. He loved that plane and flew it all over Southern Ontario.

After that Bob built a couple of UFM Easy Riser tailless biplanes, interesting minimalist aircraft with a pusher engine. Later he built the Easy Risers that were used in the movie Fly Away Home, about Bill Lishman's bird migration work. These were initially built as gliders, and some of the movie shots were in tow from a boat. In all Bob built eight Easy Risers for others and one for himself. There were also a couple of single place Challengers and then he built his own version of a 2 place Challenger with a truss tailcone and the engine up high using a gearbox instead of belt drive.

In 1990 Bob became impressed with the Vans RV-4 so he bought a kit, kept his head down, and finished it in one year. He was working part time as a rural school bus driver so he was able to devote ten hours a day to the project. He used a 150 hp Lycoming O-320 with a wood prop and enjoyed the plane for three years. He flew it to Oshkosh a few years later and an American bought it and flew it home. Bob immediately went to the Ultravia booth and bought a Pelican kit.

[Bob] built the Easy Risers that were used in the movie Fly Away Home, about Bill Lishman's bird migration work.

Bob built the Pelican and powered it with a Subaru and a Dave Johnson redrive for power. He enjoyed that plane for awhile but again got the bug for another Vans RV. This time he found an RV-6A kit that had been started and almost immediately stopped. This one took two years to build because of family commitments, and because Bob built his own Lycoming, beginning with an Apache core. He liked the -6A for its cockpit, but not as much as the -4.

In 1997 Bob bought a Hummelbird that was partly built, and completed it with an engine kit supplied by Morry Hummel. He flew this plane locally for six months and sold it to someone up north. Later he had a second one that he also bought as a project and completed. Bob weighs less than 150 pounds so these planes worked well for him.

The next plane was a Rans Coyote 6 ES, without question one of Bob's favourite planes. It performed very well and was quiet inside. He only did one of these, and it had a lovely 912 engine. While enjoying the Rans he helped a neighbour by building the wings for his Kolb, completed the build of the fuselage, then painted the project. Bob does all of his own paintwork because he could not afford to hire it out professionally. He prefers Imron and does careful prep work. The results are not show quality but his planes look every bit as good as most professional jobs.

In the late 90's Bob did a major restoration on an Avid Flyer that had been sunk. Most of the damage was caused by the retrieval, with the wings full of water and very heavy as a result. The 582 was torn apart and rebuilt and he flew that plane for a couple of years. About this time was when he did his last two Easy Risers for the Fly Away Home movie.

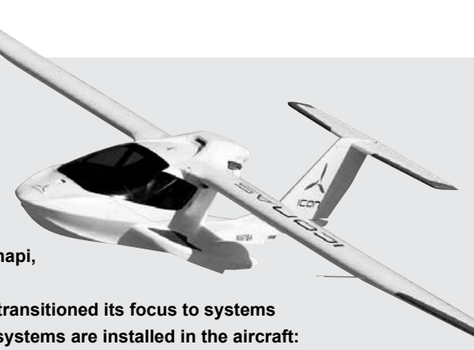
At the turn of the century the RV-4 bug got Bob again but that one took a couple of years because he wasn't working as determinedly. After that he built another RV-6A and used a 150 hp Lycoming from a Cessna, so he had to make the changes to incorporate a fuel pump. Bob prefers the 150 hp because he can use auto fuel, and thereby claim the Ontario road tax rebate.

Bob's son bought his own Pelican from the factory with the airframe already built, but Bob did the installation of a Rotax 914 turbo, and then the panel and the controls. Bob's original Pelican was up for sale recently so he bought it back and removed the Subaru, and he will next install a 100 hp Rotax 912S with new controls, and a new panel. Both of these planes are out in the hangar, and in the workshop is an RV-3 that he is refurbishing. Among the upgrades are a 160 hp Lycoming and a new canopy, and of course paintwork.

The RV-3 and the Pelican bring Bob's total up to 68 planes and rotorcraft. People ask him how he manages to get these planes built and the secret is that he keeps focused. He looks at the light at the end of the tunnel and keeps heading towards it. He wants to finish the plane and fly it. Bob plans for the future but he lives in the present. His hangar and workshop are uncluttered so that he can keep his mind uncluttered. He has a lathe, a bandsaw and a drill press but no other large machine tools. There is no coffee maker or couch, and there is only one stool to sit on while checking a manual or the laptop for information. Bob uses the internet only for email or to find information, and he does not waste time on television.

Bob keeps his work organized and only one project gets into the workshop at a time, again to retain focus, and there is usually one flyable plane while another is being built. The workshop is adjacent to the house so Bob has always been available to his family, and a spare set of hands is always available. You might think that Bob is an aviation hermit but he and his wife had fifty years together before she passed away, and together they raised a family.

Bob describes himself as an avid builder but more than that he is an avid flyer - what he loves best is flying the plane when it is finished. There are many ways to live a life, and Bob's way is far from the worst.



ICON PROGRESS

The ICON team continues intensive work on the build of Engineering Serial Number 1 (ESN-1), the first production prototype A5 to be built using production tooling. Composite components are coming together to form the airframe, with numerous critical structural bonds completed on the wings, tail, and fuselage at ICON's Tehachapi, California, facility.

With the assembly of the aircraft's structure approaching completion, the team has transitioned its focus to systems integration, which is the next phase of the build. During this process, the following systems are installed in the aircraft: electrical, flight controls, propulsion, interior, landing gear, and parachute.

Additionally, the team has started the structural build of ESN-2, the second production prototype aircraft, which will undergo structural testing later this year. The third A5 to be manufactured using production tooling will be delivered to ICON's first customer once it is complete in early 2015.

New Plant Location

ICON Aircraft has selected Vacaville, California, as its new home. Later this year the company will begin moving into a 140,000-square-foot facility adjacent to the airport in Vacaville. This facility will consolidate all company functions, including aircraft design, manufacturing, sales, training, service, and corporate headquarters.

The new global headquarters will play a critical role in delivering their offerings to the aviation public. It will be a world-class facility located in an area that offers ideal flying weather nearly year-round and provides access to great sport flying terrain, including several lakes, making it ideal for customer flight training. Additionally, the site allows easy access to compelling recreation destinations, including the San Francisco Bay Area, Wine Country, and Sacramento. ICON aircraft will offer factory tours, demo flights, and customer deliveries on site.

RAA Chapters and Meetings Across Canada

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

ATLANTIC REGION

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

QUEBEC REGION

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

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

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

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

ASSOC DES CONSTRUCTUERS D'AVIONS EXPERIMENTAUX DE QUEBEC (QUEBEC): Third Monday 7:30 pm at Les Ailes Quebecoises, Quebec City Airport.

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

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

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

ONTARIO

BARRIE/ORILLIA CHAPTER 4th Monday of the month at 6:00 PM at the Lake Simcoe Regional Airport for the months of June, July & August (BBQ nights) For other months contact Dave Evans at david.evans2@sympatico.ca or 705 728 8742

COBDEN: Third Thursday of the month at the Cobden airfield clubhouse 20:00 hrs. President - Grantley Este 613 432 0797 este@compmore.net

COLLINGWOOD AND DISTRICT; The Collingwood and District RAA, Chapter 4904, meets every first Thursday of every. month, at 7:30 PM except July and August, at the Collingwood Airport or at off-site locations as projects dictate. The January meeting is a club banquet held at a local establishment. For more information contact Pres. George Elliott gaelliott@sympatico.ca 705-445-7054

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

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

KENT FLYING MACHINES: First Tuesday 7:00 pm at various locations. Contact President Paul Perry 519-351-6251 pkperry@teksavvy.com

KITCHENER-WATERLOO: Kitchener-Waterloo: New Meeting Time. We now meet the Second Monday of each month at 7:30pm in the upstairs meeting room of the Air Cadet building at CYKF, except during the summer months when we have fly-ins instead.Please contact Clare Snyder clare@snyder.on.ca

LONDON/ST. THOMAS: First Tuesday 7:30 p.m. At the Air Force Association building at the London Airport. Contact President Phil Hicks p.hicks@tvdsb.on.ca 519-452-0986

MIDLAND/HURONIA

Meeting: First Tuesday, 7:30 pm at Midland/Huronia airport (CYEE) terminal building. Contacts: President Ian Reed – 705-549-0572, Secretary Ray McNally – 705-533-4998, E-mail – raa.midland@gmail.com .

NIAGARA REGION: Second Mondat at 5:30 pm in the orange hangar at Niagara Central Airport June to September. Contact Pres. Elizabeth Murphy at murphage@cogeco.ca , www.raaniagara.ca

OSHAWA DISTRICT: Last Monday at 7:30 PM at the Oshawa Airport, South side, 420 Wing RCAF Assoc. Contact President: Jim Morrison ,905 434 5638 jamesmorrison190@msn.com

OTTAWA/RIDEAU: Kars, Ont. 1st Tuesday. Contact: Secretary, Bill Reed 613-858-7333 bill@ncf.ca

SAUGEEN: Third Saturday for breakfast at Hanover Airport. President: Barry Tschirhart P.O. Box 1238 27 Ridout Street Walkerton, Ontario. Home: 519-881-0305 Cell: 519-881-6020. Meetings are held every second Tuesday evening, at 7:30pm. Location(s) Saugeen Municipal Airport, Kincardine or Port Elgin. All interested pilots are welcome. Email: barry.tschirhart@bell.net

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

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

TORONTO: First Monday 7:30 pm at Hangar 41 on north end of Brampton Airport. Contact: President Fred Grootarz - Tel: (905) 212-9333, Cell: (647) 290-9170; e-mail: fred@acronav.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.ca

MANITOBA

BRANDON: Brandon Chapter RAA meets on the second Monday of each month at the Commonwealth Air Training Plan Museum at 7:30 PM except in the months of July and August. Contact Pres. John Robinson 204-728-1240.

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

SASKATCHEWAN

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

ALBERTA

CALGARY chapter meets every 4th Monday each month with exception of holiday Mondays and July & August. Meetings from 19:00-22:00 are held at the Southern Alberta Institute of Technologies (SAIT) Training Hangar at the Calgary Airport. Join us for builder discussions, site visits, tech. tips, fly out weekends and more. Contact President Bob White 403-472-1035 pittsflyer111b@gmail.com

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

GRANDE PRAIRIE: Third Tuesday, (September to April), 7:30, 2nd floor boardroom of the Grande Prairie Terminal Building. Summer events on an informal schedule. For more information contact Lee Merlo at 780-518-4254 or e-mail arniesusanmeyer@gmail.com

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 Mekong Restaurant.1030 Harvey Ave. Dinner at 6:00pm, meeting at 7:30pm Contact President, Cameron Bottrill 250-558-5551 moneypit@uniserve.net

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

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

CHAPTER 85 RAA (DELTA): First Tuesday 7:30pm, Delta Heritage Airpark RAA Clubhouse. 4103-104th Street, Delta. Contact President President: John Macready jmacready@shaw.ca. Website www.raa85.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 - zzALASKA HIGHWAY: meetings held every third Thursday of every month (except July & August) at the Taylor Fire Hall at 7:30 p.m. For more information call Gerry at 250-782-4707 or Heath at 250-785-4758.

Chapter executives, please advise of changes as they occur. For further information regarding chapter activities contact RAA Canada, Waterloo Airport, Breslau ON N0B 1M0 Telephone: 519-648-3030 *Member's Toll Free line: 1-800-387-1028*

Emails can be sent to President Gary Wolf at: **garywolf@rogers.com** *and George Gregory at* **gregdesign@telus.net.**

Classified Ads

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

The Recreational Flyer is pleased to offer you colour advertising within the magazine. Previously limited to the back cover, we have added 4 new colour pages which will be available with limited space for your advertising needs. Our rates for both black and white and colour ads remain very competitive and you reach a captive and qualified audience. Emails can be sent to President Gary Wolf at: **garywolf@rogers.com** *and George Gregory at* **gregdesign@telus.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: *The Recreational Flyer Publisher reserves the right to refuse any or all advertising for any reason stated or unstated.*
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.

Recreational Aircraft Association Canada
President: Gary Wolf / Treasurer: Wayne Hadath

Recreational Flyer Magazine

Registration Mail Publication No. 09869

Contributing Editors:
Gary Wolf, Don Dutton, George Gregory, Wayne Hadath, Tom Martin
Art Director and Layout: George Gregory. Printed by Rose Printing Orillia, ON

The Recreational Flyer is published bi-monthly by the Recreational Aircraft Association Publishing Company, Waterloo Airport, Breslau ON N0B 1M0. Toll Free line: 1-800-387 1028
Purchased separately, membership in RAA Canada is $35.00 per year, subscription to Rec Flyer is $35.00 per year; subscribers are elegible for reduced membership fees of $15.00 per year. Rec Flyer to have a single issue price is $6.95.

For Sale

1960 BELLANCA CRUISEMASTER 2555 TT 260 HP IO-470F A fast aircraft with good short field performance and triple tail style. Full size nosewheel suitable for grass fields.1000 mile range. Gami injectors, engine analyser,white polyurethane paint . Otherwise stock. Have paperwork to turn it into an amateur built.
$65,000.00 Richard 705-749-3721

ACEY DEUCY 2 seat open cockpit project. Fabric covering completed and painted. Engine Continental 0200A rebuilt with logs. New Warp Drive 3 blade ground adjustable prop. B and C Light weight starter and alternator. Full instruments and guages in rear cockpit basic flight instruments in front cockpit. Full electrics. Aluminum fuel tank. Radio included. ELT included. Gross weight 1230lbs. Estimated 50hours to final inspection. Asking $18000. Will sell only as a package. Many extras. 905-786-2482.

STINSON 108-3, a classic aircraft for sale. Airframe 2365TT. Franklin 165 hp engine 998 TT, 82 hours since top overhaul. Fabric in 2005, float kit, wheel pants, spare engine parts, 2 metal props - seaplane and cruise. 26K OBO. Medical forces sale, can qualify for OM 250-991-7958 Quesnel BC.

CAVALIER 102.5, "Aero Sport Power" O-320-B2B; 182 TTSN. Sensenich metal prop. Airframe was totally rebuilt in 1997; 1750# GW, 622 lb useful load; VFR instruments + Garman GTX 327 TXP Mode C & Val Radio; Trutrak Turn & Bank; Kept in heated hangar; 8/10 inside and out. $25,950 OBO. cavalier102@uniserve.com or 250-558-5551. Ask for Cameron.

WANTED: CONTINENTAL A65 PARTS: Pistons, cylinders, carb, magnetos, rocker covers, spyder, cams, etc. Also interested in complete engines up to C90. Email Chris at cphorsten@yahoo.ca or call 416-918-6569.

1974 WITTMAN TAILWIND W8, for sale because Transport does not want old pilots flying. C-FSNY has a C-90-14F Continental with compressions 80-70-74-76. Prop is a 3 blade IVO (great prop - easy to change pitch) This plane will fly at 150 mph at 5000 ft at 75% power (measured with a GPS 4 leg measure) Uses 4 imperial gallons per hour (18.24 litres) Capacity 20 imperial gallons.Fuselage was recovered in 2012. with Ceconite. Com transceiver and 1 transponder (not working at the moment). You must have tailwheel time. I will check you out but will NOT teach you to fly. $12,000. Jack Steele, Brockville ON 613-865-8107 jsteele@cogeco.ca

HANGAR FOR RENT at YKF (Kitchener-Waterloo) Available immediately 40 x 40 feet, concrete floor, Bi-fold door, unheated, with hydro for engine pre-heating and extra lighting. Good access to taxiway, close to RWY 32 The hangar is large enough to accommodate two small aircraft. Rent is $400.- per month plus HST For more info contact Rudy Hane at 519 648-3006 519 648-3006 FREE

FOR SALE Glasair Super II (can be FT or RG your choice). Fuselage complete with professional interior. Control cables to engine and to flaps, ailerons and empenage installed Panel complete with instruments. FWF complete and ready for engine. Lyc IO-360-B1E TTSN 250hrs TTSOH 0hrs, Hartzell c/s prop TTSN 26hrs TTSOH 0hrs . Needs wings (either FT or RG), landing gear and lower cowl. Call Dan 519 371 4673 for pics and specs.$55,000 OBO, located in Owen Sound Ont.

Hangar For Sale at Sundridge Ontario, beside CPE6 airpark. Hangar is a wood framed building with steel siding, roof, and doors, with a gravel floor. 40x40x10 on 7.5 acres. Taxes last year were $352. Asking $50,000. Phone 705-386-9080. Email whiteheadbj@msn.com

KR 2 TRIGEAR, 2180 cc Great Planes VW, 3.5 gph @ 130mph cruise, TTAE/TTAF 54 int/ext 10/10 $15000 call Ray Larson {905}892-6389 (SEE PIC)

RV6 for sale $72,000, 410 hrs TT, Lycoming A1A 180 hp, Sensenich Fixed Pitch Propeller, JPI Fuel Flow Gauge, Dynon D10A and autopilot servos, Dynon Heated Pitot, Kannad 406 ELT, GPS Garmin Aera 560, Transponder KT76A, Odessey Battery, Bell Tailwheel Yoke, Stereo Intercom PM3000, Garmin SL30, ADF KR87, Certified for IFR, Call George at 647 588 8544

1995 Sirocco MJ5, all wood with 248 hrs., for sale. Has 3.8 liter Ford V6 engine with Blanton reduction drive and three blade Warp Drive propeller and retractable gear. VFR including Val Com radio and Mode C transponder. Engine needs overhaul (or replacement) $15,000 or best offer. Alknud@shaw.ca or 780-476-5348

CNC3 BRAMPTON, HANGAR SPACE FOR RENT. Suitable for high wing. Heating, electricity and bi-fold door. $335 monthly. 905-861-9535 Paul Horsten.

FOR SALE MINI MAX. TTSN220 TSEO40. In wing tank. New ICOM radio. Always hangared. Aluminum skis. 447 Rotax.
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FOR SALE C-85 complete exhaust system. $250.00 plus shipping.Contact by phone only at 780-460-6841 (Alberta)

Sump for O-360, complete and in good shape, includes heater and rear mounted carb. This was removed from a Sundowner. Asking $500 OBO. Located at my hangar in Hanover Ontario, will ship, postage or UPS extra. Please call 519-881-6019 between 9 am and 8 pm EST or email to fleetair@wightman.com

4 Pietenpol lift struts for sale.They are brand new and are made from 4130 streamline tubing bought from Aircraft Spruce Part # 03-00192. Wall thickness 0.065. major axis 2.697", minor axis 1.143"
These have been epoxy primed and painted black -price: $1500. pjb@ornithopter-pilot.com Ontario

Ellison EFS-3 injector with one hour running time. Spruce price is over $1000 US. This one is $650 CDN. garywolf@rogers.com

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Classifieds On The Internet:
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http://www.lyncrest.org/sfcclassifieds.html - more ads from our Winnipeg chapter

Across Canada

RAA Chapters in Action

Chapter 85 Vancouver

The tour of the BCIT Campus held on June 3 of this year. Stephan Forsythe, the previous RAA bursary recipient and Ralph Heldt, a BCIT Aerospace Program instructor led the tour. Twenty three members attended. It was a comprehensive illustration of the academic and technological scope of the program. We were impressed by the quality of the facilities and the dedication of the students. Thanks to BCIT Gordon Turner, Associate Dean, for helping to facilitate this tour. We had a greater appreciation of the purpose of our bursary contribution.

Our aircraft committee had identified two possible aircraft for consideration of purchase by the chapter. The committee, previously given the terms of reference, decided that an amateur built aircraft was not in the cards as it would be out of the range of our budget. The aircraft committee presented two aircraft, a Cessna 150 and an Ercoupe as potential examples for the chapter to acquire. The aircraft chairman was in favor of an aircraft suitable for conversion to Owner's Maintenance. The Cessna 150 although in wonderful shape and ready to go was expensive at $27,000 dollars and was thought to be too good an aircraft for Owners Maintenance. A discussion amongst the members ensued regarding our mission statement, that being the promotion of amateur built aircraft. A motion to exclude the purchase of a certified aircraft ruled out the Cessna 150. It was decided in the end that the chapter would pursue the acquisition of an amateur built aircraft.

Top: Chapter members at the recent visit to the BCIT Aerospace facility tour. Above, Chapter 85's new tent had roof issues at its inaugural use but chapter volunteers bravely soldiered on; Paul Trudel's Coot at the Langley Fly-in.

Chapter 85's Fly-In was a success even with inclement weather threatening. Clockwise from top left: a young aviatrix gets to try on the resident Stearman; Chapter 85 member Dave Marsden, builder and designer of the Skylark sport plane; a chapter member with his Sonex project was there to display his project; chapter members talk airplanes after marshalling some aircraft in.

The vote was 13-4 for the ABA. The members of the aircraft committee submitted their resignation. There was much consternation about the decision.

Our chapter contributed an exhibit for the Langley Fly In on June 21. Dave Marsden brought his Skylark and John Macready and Peter Lenger took the chapter exhibit material to be set up. It turned out that the new tent purchased from Costco did not have a roof. The exhibit had to be "jury" rigged to allow the volunteers to be under a canopy and out of the sun. The weather was great that day very sunny and not too hot. We had a few visitors to our exhibit. The opportunity to contribute to the event gave us a little practice in setting up our own display. We incorporated some new photographs for our pictorial display which will be used for future events.

The Annual Delta Airpark Fly In was held on June 28, the next week. Although the weather had been sunny all week, the weekend was forecast to be raining. Sure enough Saturday morning was still very wet but by the time we met at the airpark some breaks in the clouds were happening. The Fly-In teams had been put together previously and were briefed and ready to go. Somehow everything fell into place, this display tents had arrived and were erected the day before, the airfield had been prepared and other infrastructure items acquired. The breakfast team managed to roll out 102 breakfasts to give the attendees some energy to partake in the activities. Ginny Ivanicki prepared a great barbeque lunch for everyone and those arriving by air were given this free of charge. The exhibitors included RAA Chapter 85, COPA and The Boundary Bay Flying Club, CASARA, the Ninety Nines and Calvin Owen Jones who contributed his photography display. A total of fifteen aircraft arrived including 20 aircrew. Airports represented included Boundary Bay, Qualicum, Nanimo, Duncan, Victoria, Pitt Meadows and Langley. In all, the day turned out to be successful in term of the event being held although attendance was down from previous years because of the weather.

Chapter 85 will continue to pursue the acquisition of a chapter aircraft. We intend to ask the members to form a committee to select one suitable for us. The executive believes that the members should bring forth the plan to do this. This may not happen this year.

RAA Scarborough/Markham Chapter

At our May meeting, we showed "Memphis Belle" (107

minutes) starring Matthew Modine, Eric Stoltz and (somewhat surprisingly) Harry Connick Jr. This is the story in 1943 of the 25th and final mission to complete their tour of duty of the 10-man crew of the Memphis Belle, a B-17 Flying Fortress. It joins 350 aircraft of the US 8th Army Air Force flying from England on a daylight strategic bombing raid to hit an aircraft factory in Bremen, Germany. "The Battle of Britain" would seem to be a timeless classic. Some of us felt, however, that "Memphis Belle" has not very well withstood the test of time. It is, perhaps, somewhat "overly economical with the truth", to coin a phrase!

As usual, we intend to hold BBQs again this year on the third Thursday in July (17th) and August (21st) commencing at 6 p.m. Jack Fornear has spoken to Al Rubin who has agreed that we can hold the BBQs at Markham Airport. ALL chapter members are welcome to attend(!) This is a return to something we did a number of years ago. Bob Stobie and associates will arrange to bring the BBQ equipment and basic food. We shall continue to follow the usual practices. Please give $3.00 to Bob Stobie. For that sum, the Chapter provides hamburgers and hot dogs with condiments, and soft drinks. Please bring a salad or a dessert to round out the fare. And don't forget to bring your own chairs.

RAA London-St. Thomas

Dave Hertner informed that he has his gear reduction unit returned and it is performing admirably on the test stand. He continued to tell that he is building a Fisher Flying product as he now owns the company. Dave is presently considering becoming the Canadian agent for D-moteur Belgium Built aircraft engine.

Dan Oldridge informed that he now has the required 25 hours flown off his Just Highlander and has its C of A.

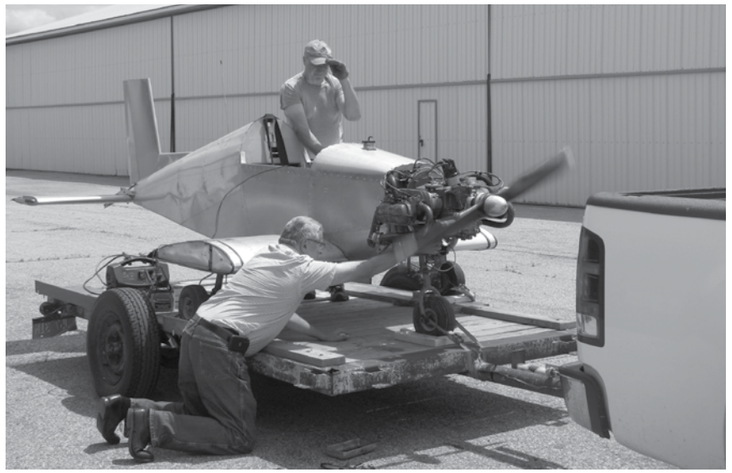
Gary Bishop noted that he has wings ready to cover and has purchased a tig welder.

Phil noted that he has leading edge installed and that flush riveting on its curved shape makes aircraft building a family project.

Chris Staines told that he is working on the flaps of his VP-4.

Roland Kriening showed pictures of his Murphy Rebel project and described the building of it, and transporting it to Mark Matthys' Warren Field. When Roland and family moved to London, he specified a large basement window be installed. Thus it followed that one of the pictures showed a wing being extracted through it. Roland had experience with a Zenith 601 and also started a RV with its bucked rivet construction.

He put that aside and purchased a barely started Murphy Rebel kit. This has worked out well except that it is an early kit and present Rebel kits have many little differences from the early ones. This has meant that on the occasion when he has required a replacement part, Roland has been compelled to fabricate it himself. A Honda Fit based engine has been chosen. This liquid cooled engine has required cowling modification but would appear to be an ideal compliment to the Rebel airframe. Roland ended by pointing out that the Rebel has some 35,000 rivet. He didn't mention that even when the kit has holes where the rivets go, the holes must be drilled up to size and deburred.



Clare Snyder got Bill Wojcik's Teenie 2 VW engine adjusted for its first startup at a KW RAA chapter lunch, very entertaining for the members and nice for Bill.

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