



# Skywriter



Monthly Newsletter of the Calgary Ultralight Flying Club

## July 1999

### Across the Wing

by Wilf Stark

Prior to our two-month hiatus from our monthly meetings every summer, we usually say "See you in September, fellows, and remember to Fly Safely!". This exhortation has been on my mind the last week or so.

I had the opportunity recently, to converse with Ken McNeill on the telephone. We have a bit of an advantage with Ken, as he enjoys our club and newsletter sufficiently to once again have renewed as a member for '99. Those of you who are COPA members may also recognize his name as the current Chairman, a very demanding job.

Ken has opportunity to converse with Transport Canada at somewhat higher levels than we do. The sad start to '99 in terms of ultralight accidents resulting in serious injuries and deaths is an issue they are trying to come to terms with, amidst an onslaught of non-flying senior government bureaucrats and ministers who would like to take the position that the best way to "resolve those darn ultralights is to close them all down".

In 1998, TC reported 4 UL accidents that resulted in 7 fatalities. So far, in the first 5 months of 1999, there have been 6

accidents resulting in 10 fatalities, and 6 accidents resulting in serious injuries. Herb Cunningham, who has been a longtime member in COPA, EAA, RAA, etc. etc. pulls accident statistics from the TC database as these stats become available during the daily reports. Herb kindly forwarded a summary of '98 and '99 accidents on e-mail recently, which I will share with you in the fall.

The point to all this is that we need to become more pro-active in activities that will help us become safer pilots. Both Ken and Herb will do their best to help facilitate activities such as training seminars, recurrency exams and similar actions that are geared towards the ultralight pilot. We need to become more actively involved, so that we can have a hand in our own future. Both COPA and TC want to show 'faceless government' that we take this recreational pursuit seriously, and do not wish to have uninformed rulemakers panic-reacting 'for our own good'.

You can expect pilot proficiency and safety to become a more recurring theme at our future meetings. Herb put it quite succinctly in his e-mail summary that he sent me: "I believe that the industry has to take the lead in organizing safety seminars across the country to point

out to ultralight pilots that their ultralights are not safe toys. They have to be flown within their flight envelopes and they have to be maintained or they will injure or kill their occupants, the same as any other aircraft. This will not help the few who do not worry about licences or registration, but it can be a lifesaver for the average pilot who tries to live within the regulatory framework that is supposed to make flying as safe as possible."

The freedoms that come with our sport are incredible, especially when compared to the legal obligations that face the conventional licenced pilot and his/her conventional aircraft. 1999 may be one of the watershed years in which we have an opportunity to show that we are deserving of these freedoms. Expect that as one of the main themes during our remaining '99 meetings. See you in September. →



Does anyone know the owner of this chopper?

## You Never Fly Alone

by Ed D'Antoni

Late Sunday night of the May long weekend I came up with the bright idea of going for an early Monday morning flight. Knowing it was too late to find out if anyone else was doing any cross country flying that day I decided to go alone. That night I planned a triangular flight to Drumheller and Linden with a return to Stefanich Farm, my home field. After returning from the flight I ran into a club member who asked "aren't you worried about doing fairly long cross countries alone?" My response was no, and I explained my flight planning. Later the word "alone" kept popping into my mind, I have never felt "alone" when flying. I later concluded that if you do it right you never fly alone. If you file a flight plan you certainly are not alone. If you give en route locations to FSS you are not alone. If you are using a GPS you are not alone, you have a billion dollar satellite system accompanying you. If you do a hard landing and your emergency locator transmitter is triggered you will have a pile of satellites forwarding your location to search and rescue. If you don't turn it off you may soon have a helicopter flapping it's wings at you. If you don't close your flight plan you may have the same people flapping many things at you. Flying solo without any other aircraft accompanying

you certainly does not leave you alone in your part of the sky. This is the story of how I planned and executed my flight, and why I never feel alone in the sky.

First I read and printed the weather from the Internet, I then penciled in my route on the Calgary VFR chart, marking every 10 miles on each leg. I also copied the distances and track between airports from the Calgary VFR navigation chart, then frequencies and elevations from the Flight Supplement. The pertinent data is : Stefanich Farm to Drumheller, 53 Miles, Track 51 degrees Magnetic. Drumheller to Linden 33 miles, Track 261 M. Linden to Stefanich Farm 40 miles, Track 179 degrees M. The weather forecast gave wind 250 degrees M at 10 mph. My planned airspeed was 60 mph. The wind was forecast to change to SSE at 15 mph later that day. At the airfield I took out my trusty GPS, when it finally locked in it said "Batteries Low", no problem I always carry a second set. I knew the wind speed and wind direction to Drumheller and decided I would fly this leg without using a GPS. From the weather data I calculated my ground speed would be 68mph with a required heading of 31 degrees M. Estimated travel time was 46 minutes.

Take off was to the south, just north of Kirkby field I made my turn towards Drumheller and opened my flight plan. When I finished climbing to the planned 4000 ft. ASL and 30 degree heading I noticed the GPS was still running. It

showed track to Drumheller as 29 degrees, distance 55 miles, ground speed of 70 mph and estimated flight time 48 minutes. That was pretty close to my calculations so the winds and direction were as forecast. The 6:00 AM air was dead smooth, flying into the early morning sun was a problem, I was glad I decided to wear a baseball hat. Using the compass and fairly well defined landmarks I checked my progress en route. At 70 mph every 10 miles took about 9 minutes. I know the Drumheller Valley very well so about 20 mile out I put away the map and looked for a safe route over the valley. I checked the GPS for distance to Drumheller but it had turned itself off (dead batteries). The elevation of Drumheller is 2599', so I climbed another 100 feet to make sure I would cross the airport for a wind check at 1500 AGL. I looked over the inhospitable valley for suitable emergency landing spots. Just north of Horseshoe canyon is a golf course, west of that a large hay field. I made sure the hayfield or flat areas above the valley were always within gliding distance as I crossed the valley. I contacted FSS with my location and estimated arrival time at Drumheller. Total time from start up to shut down at Drumheller was 1.0 hours. There were a number of Skydivers tents and campers in the grassed area north of the terminal building, but no sign of life. Understandable though, it was only 7:00 AM. I entered the terminal building, called and closed my flight plan, put \$20 into the car fund box, signed out the car and drove down the winding gravel road into the Valley. At a local restaurant I ran into some old school friends, ate breakfast, and caught up on some history. I returned to the airport in time for a 10:00AM departure.

The wind sock indicated just a slight breeze out of the west, not knowing wind speed and direction, just a compass would not be much help on the next leg of the journey. I had never flown from Drumheller to Linden and the VFR chart didn't show many landmarks. The track to Linden was 260 M, 10 degrees to the north of due west. My plan was to estimate 10 degrees, then check and maintain the same compass heading to Linden. Beiseker is due west of Drumheller, should I have a  
(continued on page 3)

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problem I could simply turn south to Highway 9, the only significant highway in the area and follow it to Beiseker or Drumheller. I also had another back up plan, I put new batteries in my GPS and if all else fails I will turn it on. Being the brave soul that I am, I turned the GPS on as I taxied for take off on Runway 16. Runway 16 catapults you over the inhospitable terrain of the valley. I did as steep a climb as safe on take off and was able to start my left turn just past the end of the runway. I stayed in the circuit and departed to the north, never flying over the valley. Looking at the GPS I was surprised to see I had another tail wind. I crossed the Red Deer River Valley several miles upstream from Drumheller at a location where somewhat suitable emergency landings would be possible. The distance to Linden is only 33 miles and the town was visible shortly after crossing the valley. Total leg time between Drumheller and Linden was 0.6 hours (36 minutes). I had filed a flight plan to Calgary with a stop over at Linden. By the time I arrived at Linden the wind sock indicated at least a 10 mph wind from the south, the outside air temperature was reading 77 F and the air was getting bumpy. I landed on runway 16, taxied to within one block of the Homestead Restaurant only to find it was closed. Considering the high winds and rough air I re-filed my flight plan and took off for Stefanich farm. FSS asked me to confirm my ETA once I was airborne.

The route home is well defined with the town of Trochu just to the left 6 miles out, then 9 miles to Irricana. The town of Kathryn is 15 miles straight, leaving 12 more miles to my home field. If one really gets confused you can simply head for the Calgary Skyline. A word of caution though, watch for the massive north south group of power lines, if you cross them you are entering class C airspace. Following the power lines South you can see Stefanich Farm and Kirkby Field to the left, and if you continue past Calgary you will end up at the Indus Air Park. I used my GPS and followed the landmarks home. I did not have to follow the power lines. The 50 minute flight home through unstable air was tiring. There were times when I had



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put power to idle and was still climbing at 1000 feet per minute and others when full power was required to keep me at altitude. After a while I gave up and flew at whatever altitude the thermals took me to. Mindful of course of keeping low enough to stay out of controlled airspace. As I approached my home field "ATIS Calgary International" was broadcasting 20 mph winds at 130. That put them right between the runways so a crosswind landing was necessary. My choices were the 5000 ft. runway 10 or Runway 16. From 10 I would have to taxi over a mile to the hanger. My hanger was at the end of Runway 16. I chose 10, good thing, as when I was taxiing back turbulence on 16 where the terrain falls off to the left made it difficult to control the aircraft at taxi speeds. It is now legal to close your flight plan while still in the air, something I am in the habit of doing. Considering the winds I decided to wait until I was safely down before closing my flight plan. All in all it was a great finish to the long weekend. I covered 150 miles of territory, viewed some great scenery, met friends I hadn't seen for over 40 years, and it was not yet noon. My flight planning worked well for me. Having options, and knowing I was never alone kept my flight relaxing and made it very enjoyable.

Pre-planning a flight, filing flight plans and checking weather reports is something everyone should do before every flight, even if you are flying with other aircraft. If you don't do your own planning you will

not have many options if things go wrong. If you do not have time to pre-plan your flight, you really don't have time to go. I was once involved in a cross country where one flyer did absolutely no pre-planning, got separated from the group and lost. It was rather frustrating and fruitless searching the sky for the wayward aviator. I am sure it was even more embarrassing for the lost flyer knowing many people were hearing the conversations. When I was young and adventuresome we used to say "he who hesitates is lost", a wrong saying when preparing for a flight. Saying, without hesitation "sure I'll come along" can easily get you lost. (edantoni@hotmail.com)

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## The Lighter Side

"Renting airplanes is like renting sex: It's difficult to arrange on short notice on Saturday, the fun things always cost more, and someone's always looking at their watch."

\*\*\*

If God had meant man to fly, He would have given him more money.

\*\*\*

"Why did Santa Claus ask Rudolf to lead his sleigh team?"  
"Rudolf was the only one who was IFR current. "

## Destinations

by Andy Gustafsson

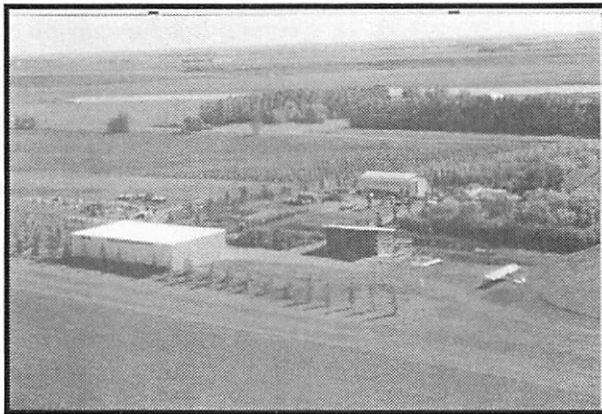
I'm back from a far away destination, my birthplace in Sweden. I spent 3 weeks there, taking care of business at our old farm. The trip over to Sweden is getting better and better, as new air routes are being initiated by the STAR-ALLIANCE group. Air Canada, Scandinavian Airlines, Lufthansa etc. As the hop from Toronto to Copenhagen was the inaugural flight in more than 16 years, we were treated royally. We were served some Danish specialities like smoked cured salmon and other fish dishes. Have you ever tried a glass of champagne at cruising altitude? I can tell you it goes right to your head.

Before departure I spoke to the captain and his first officer, a father and son crew. Could I possibly visit the flight deck? They said they would love to have me when they heard that I too was in command of my own aircraft. The Boeing 767 seems to be a very comfortable aircraft to fly, especially with its glass cockpit and auto pilot. Lars Jensen and his son Peter showed me what makes the aircraft "tick". Lars disconnected the auto pilot for a while and showed me how obedient this large aircraft really is. Cruising at 35,000 feet we ran into some clear air turbulence and after talking to Keflavik Greenland, we were given clearance to climb to flight level 370. The turbulence smoothed out and we could relax. I was occupying the navigators seat and had the best seat in the house. Flying in over Iceland in clear weather, and being able to see this volcanic island in all its splendor has to be the greatest. A gem in the North Atlantic. Only the space shuttle crew can have a better view. I spent a short and fascinating hour on the bridge with the sights imprinted on my retina.

This morning I could finally get my own set of wings out of the hangar and chose to

set my heading for Glenn Bishell's very nice facility just east of Crossfield. Taking off into a light westerly breeze I trimmed up the Challenger for the 40 minutes of scenic flight north from my Delacour strip. The Beiseker and Olds-Didsbury parachute jumpers were in the air as early as me, and "jumpers away" were announced continuously over the radio all the way to Crossfield.

I have been writing about this route before but it is worth mentioning again as the distance makes it a very relaxing flight, and

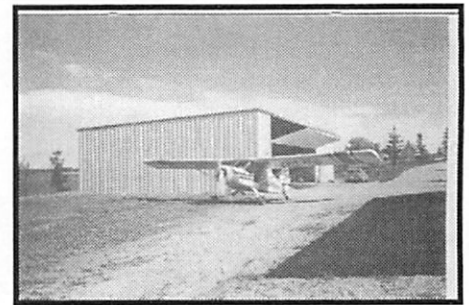


Glenn's new hangar with strip in foreground..

if you haven't been there, make it your next goal. Spotting the bright orange grain elevator gleaming in the sunlight, just a mile south of the Bishell strip, makes this destination a very easy place to find. Because of the close proximity to Old-Didsbury strip and the busy operation of the jumping school, it is advisable to announce your intentions over the radio, 123.2. But if you are NORDO its perfectly all right to visit anyway. Just follow procedures. I set up for a left hand circuit approach to runway 34, landed and shut down by Glenn's new hangar facility.

Glenn took me on the grand tour of his new building which houses not only hangar space. Wilf Stark has his -Eureka- aircraft manufacturing facility in the north end and from what I saw, there is plenty of room for Wilf to work. The Eureka looks very well made and will be an excellent choice for your future set of wings. (A plug for Wilf). A spiral staircase leads to the upstairs classroom and a long balcony overlooking

the hangar floor. A flying school is in the works and it will be a success as far as I can see.



Glenn's Bushmaster.

Glenn's I-registered Bushmaster was sitting outside and I said this kind of plane sure is what I would like to fly some day. So Glenn said for me to get in and Goran Homan could take me for a few circuits. As we both are pilots we were within the law and we took off into the increasing turbulence of the morning. The Bushmaster handled the bumps with ease and I felt comfortable in this solid and easy flying aircraft. We did a photo pass of the strip and after landing, I knew that my next aircraft will be a taildragger.

The windsock was hanging limp when I fired up my engine. Glenn gave me a fresh branch of Lilacs that filled the cockpit with its fragrance all the way home. The Cumulus clouds were starting to form and that meant a bumpy flight back to Calgary. The Challenger "slipped the surly bonds of earth" and I climbed to 4500' for the trip back. I looked down on the heavy traffic on the #2 highway as I passed over and felt pretty safe up there, high above the hazards of the road. I thought to myself, this is the only way to travel. The midday turbulence was building as I flew over dark summer follow fields and in to the rising air. I could see the altitude increase and I pushed the stick forward for the free ride.

My GPS ticked off mile after mile and soon I set up for a landing on rwy 09 at my home strip. The "killer cow" is no longer protecting my little airport. She has been summoned to grace "among them clouds in the green pastures forever".

Happy landings. →

## Katana anyone?

By Carl Forman

I've been acquainted with Mike Dupuis for many years. Mike runs the Springbank branch of the Calgary Flight Training Center. When Mike offered a chance for a free demo ride in the new Continental IO240 - 125 horse powered Katana, I jumped at the chance. The time for the ride was Sunday July 12 in the mid afternoon. The winds were out of the southeast at about twenty miles per hour favoring runway 16 with a noticeable cross wind component from the left.

I got there early and had time to kick tires. Looking at the Katana and comparing it to Cessnas that I am experienced with, brought to my attention the changes in aircraft technology that we have seen over the last thirty years. The use of composite materials allowed for a very aerodynamic rivet free structure.



Tight cowling, good wing root design and the thin tail structure gave the impression that this airplane was going to fly pretty fast. The T-tail, exaggerated bulge for the cockpit and high aspect ratio wings with slightly upturned tips also contributed to the modern look.

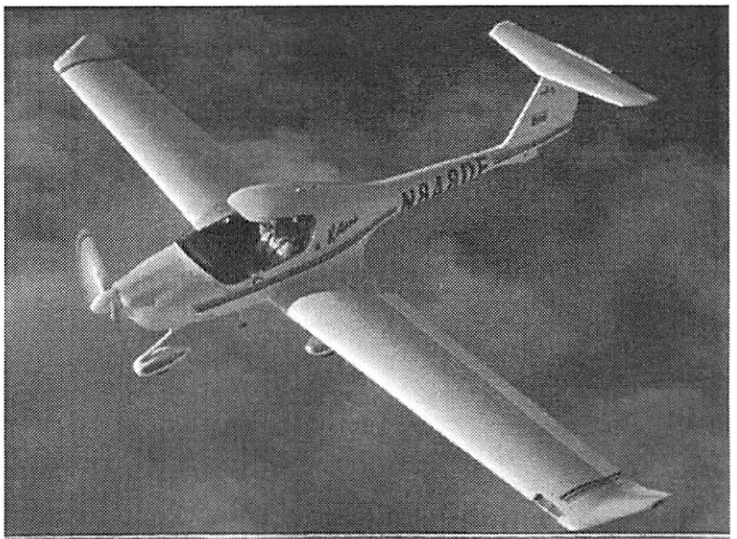
The canopy raises about a foot at the back and then hinges upward at the front to provide lots of clearance for entry. There are steps protruding from each side. One foot on the step and a hand on the grip and you can swing into the cockpit. Once inside the modern design continues to make itself apparent. The rudder pedal position is adjustable and the seat is stationary. The supine seating position is amazingly comfortable and I found out later helps spread turbulence

loads evenly over your body. The fuel-injected engine has an alternate air source in place of mixture control. The panel had a set of modern avionics including GPS. Trim tab control was electric with a well-placed toggle switch at your fingertips. The trim indicator is a vertical set of bars. If the top bar is lit up, you are trimmed in a nose heavy position and so forth.

My pilot, Mark, asked a few questions and it quickly became apparent that he expected me to do most of the flying. After engine start up and taxi clearance, I was off to runway sixteen. Steering is by differential braking and to my surprise, far from being skittish, it was quite solid. Considerable control input was required

to change direction. On takeoff, I was warned about engine torque pulling us to the left. I expected the pull to be increased by the crosswind

from the left. Once lined up with the runway and with flaps in takeoff position, I advanced the throttle to full power and the Katana responded by accelerating vigorously down the runway. The anticipated left turn was easily counteracted and rotation speed of 50 knots was reached in about 10 seconds. Because the aircraft has a fairly high power to weight ratio, the ground affect phase of the takeoff was brief and rate of climb was a very respectable 500 and 900 feet per minute. I flew straight south for fifteen miles leveled off at sixty five hundred feet. Full throttle showed 120 knots which trued out to about 135 knots (i.e. 155 miles per hour). I had time to do a steep turn in each direction. Considerable stick input was required to get the Katana to bank. Once banked, it



seemed quite happy to stay banked. The turn to the right resulted in a quick two hundred-foot elevation gain. Mark said that gaining altitude in a right turn this was quite common until you got used to the aircraft. The view out the glass canopy was astounding. It was interesting to look over the wing. The wing is thirty six feet long and one hundred and twenty five square feet. It is mounted low on the aircraft. Compared to my Minimax with a twenty-five foot, one hundred and thirteen square foot wing mounted just below shoulder level, the Katana's wing hardly obscures downward vision at all. All too soon it was time to head back to Springbank. Slowing down for the circuit is a time consuming process because the Katana doesn't slow down very quickly. First reduce power, pull back on the stick to maintain altitude and continuously trim the airplane until flap speed is reached. Flaps can then be lowered and power increased. Final approach is at about seventy knots and touchdown occurs at about forty knots. Due to slightly higher speeds compared to a Cessna, quite a lot of runway is required to slow it down.

We taxied in and I got out. I was no worse for the experience except that my face had deformed into a permanent grin and I felt a little foolish since I was unable to look cool after the flight. If you want to get one of these sporty machines, it can be arranged.

The price is about \$115,000 U.S. dollars.

# Classified

**Head Set** - Aviation Communications Inc. head set \$125. Call Bob Kirkby 569-9541 (7/99)

**Fuel Gauges** - Sky Sports' capacitive fuel gauge for dual tanks. 2 probes and one gauge with switch, \$50. Call Bob Kirkby 569-9541 (7/99)

**For Rent** - Fully enclosed T-hangar at Chestermere-Kirkby Field. Will accommodate 30 ft wingspan. \$60 per month. Call Bob 569-9541 (6/99)

**Chinook WT II** - single place, 1983, warp wing, "0" time 277 Rotax, can be seen at Indus Airfield, \$3,500 OBO. Dan 403-243-7934 H or 403-230-6415 W (6/99)

**Wanted** - Low-time 2-stroke engine between 40 and 65 hp for newly built trike. Call Ron Linkes 250-389-0800. (4/99)

**Lazair A-87** - has 3<sup>rd</sup> engine, 3/4 enclosure pod, wider landing gear, always hangared, includes enclosed trailer, \$5500. Betty Whitney 403-684-3459. (4/99)

**KR-2 Sport Plane** - 35 hr TT, 1834cc HAPI VW conversion with dual ignition, carb heat, oil cooler, cruises at 125mph, full power 155mph, registered as homebuilt. 1/2 share \$7000 including flight training and ultralight pilot permit. J.T. Hibberd 617-1831. (3/99)

**Murphy Elite Tail Section** - horizontal stab, elevator, rudder, 75% complete waiting for inspection, includes approx. 1000 clecos, \$6000. Dave Dedul, 403-823-2214. (3/99)

**Suzuki engine** - 3 cylinder, 65 HP @ 5500, with belt reduction drive 2.21:1, can be seen running, \$3000. Ken Johnson 546-2586. (3/99)

**Challenger** - Single place, 288 hr TTSN, Rotax 447 CDI, Instruments: Tack, compass, altimeter, air speed, CHT, Gas gauge, Hr meter, 12-volt power outlet, radio antenna, (GPS & mount optional), fully enclosed with cabin heat, ski package, tundra tires &

reg. wheels with pants included, always hangared, at Indus, \$9,800.00. Ray at 403-274-4388, office 275-6540, cell 540-2492. (3/99)

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**Mini-Max** - Rotax 447, GSC Ground adjustable prop, Full panel, always hangared, only 114 hours since new. This great flying, well known little airplane can be seen at Transport Canada's photo album at: [www.tc.gc.ca/aviation/GENERAL/RECAVI/Pictures.htm](http://www.tc.gc.ca/aviation/GENERAL/RECAVI/Pictures.htm) Dale 293-3826, e-mail: [dacl@cybersurf.net](mailto:dacl@cybersurf.net) (10/98)

Forward ads to Bob Kirkby 569-9541.

## Flying Events

**July 10<sup>th</sup>, Moose Jaw, SA**  
Saskatchewan Airshow at CFB Moose Jaw

**July 17<sup>th</sup>, Chestermere-Kirkby Field**  
Annual fly-in pancake breakfast, 8:00 am to 12:00 noon, for more information contact Bob Kirkby at 403-569-9541.

**July 18<sup>th</sup>, Vulcan, AB**  
Vulcan Flying Club annual fly-in breakfast, 8-11:30 am, contact Jack Deans 403-485-6484

**July 28<sup>th</sup> to Aug 3<sup>rd</sup>, Oshkosh**

### Skywriter

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

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e-mail: [kirkby@telusplanet.net](mailto:kirkby@telusplanet.net)

Assistant-editor: Bernie Kespe (see below)

### Calgary Ultralight Flying Club

Meetings of the Calgary Ultralight Flying Club are held on the second Thursday of every month, except July and August, at 7:30 pm, at the Northeast Armoury, 1227 - 38 Avenue NE.

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EAA Airventure, Oshkosh, Wisconsin

**July 31<sup>st</sup> to Aug 1<sup>st</sup>, Red Deer**  
Red Deer Airshow, Snowbirds perform

**August 4<sup>th</sup>, Cranbrook, BC**  
Cranbrook Airshow, Snowbirds perform

**August 14<sup>th</sup> - 15<sup>th</sup>, Lethbridge, AB**  
Lethbridge International Airshow



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## Feature Kit

### The 'E-Z Flyer'

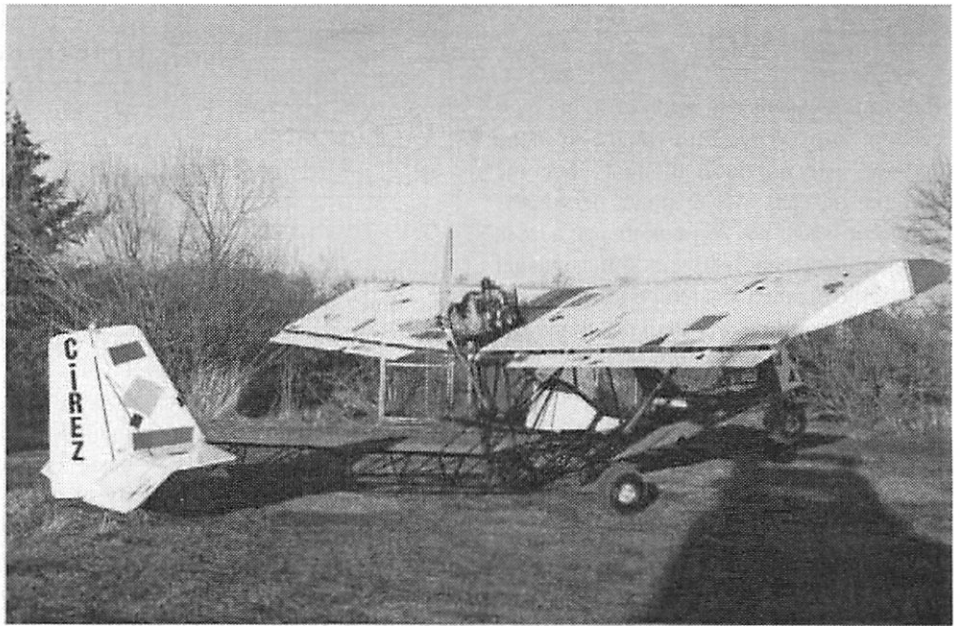
Rugged construction, Easy assembly, Exceptional visibility, Easy to fly, Comfortable, Roomy, & Exciting! ...What more could you ask for?

Ideal for off-airport operations, the EZ Flyer was designed and built as a strong, inexpensive, easy-to-fly open air flying machine. Excellent flight characteristics and ease of handling were key design criteria.

This exciting-to-fly tandem two-seater has accumulated over 500 hours of testing on the prototype, in a demanding flight school environment. It has proven itself as an incredibly rugged and easy-to-fly aircraft. To date, the prototype has been flown successfully by over 73 different pilots, most of whom have less than 20 hours of total flight experience! The EZ Flyer provides delightful "adventure in flight" for both novice and experienced pilots.

Offering unsurpassed visibility, you are hard-pressed to even see the wings when looking over your shoulder... Built around a strong, welded 4130 aircraft-grade Chromoly-steel fuselage reminiscent of the famous Breezy, this little bird is fast gaining a reputation for ruggedness and dependability. The EZ Flyer uses the proven Merlin GT wings and tail section - a design with a much higher gross weight of 1300 pounds.

Another key feature of this sturdy EZ



Flyer is the roominess of its tandem seating - no crunching up of limbs to squeeze into this aircraft! A large nose cone and windshield provide ample protection from the wind, and superior visibility has been achieved with the pusher prop design. This aircraft is focused on strength, dependability, and excitement all wrapped into one very complete package that offers lots of adventure for the true recreational flyer.

#### AIRCRAFT SPECIFICATIONS

Build time - 180 - 200 hours  
 Gross weight - 1050 lbs.  
 Empty weight - 469 lbs.  
 Useful load - 581 lbs.  
 Length - 21 ft.  
 Height - 6 ft.  
 Wing span - 26 ft  
 Wing area - 165 sq. ft.  
 Wing loading - 6.36 lbs./ sq. ft @ gross wt  
 G loading - +4 / -2  
 Engine - Rotax 503 (52 hp), Rotax 582 or 618  
 Undercarriage - Tricycle  
 Seating - Tandem  
 Main gear - Solid spring steel  
 Wheels - Hegar rims with brakes (Matco optional)  
 Tires - Large tundra - 18 inch  
 Airframe - Welded 4130 chromoly steel

Wings - Aluminum "D"-Cell construction  
 Ribs - Aluminum and Styrofoam  
 Covering - PolyFiber/Stits

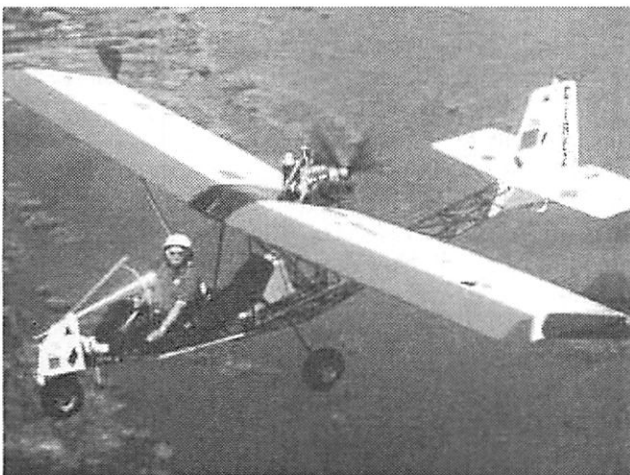
#### PERFORMANCE WITH ROTAX 503

Horsepower - 52 hp  
 Take off distance - 150 ft solo/ 325 ft gross  
 Landing distance - 150 ft solo/ 200 ft gross  
 Rate of climb - 650 fpm solo/ 450 fpm gross  
 Stall speed - (power off) - 30 mph  
 Cruise speed - 65 mph @ 5500 rpm  
 Never exceed speed - 100 mph  
 Max. 90 deg. crosswind 25 mph  
 Fuel capacity - 9 gallons

For additional information contact:

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Watch for the new "TWIN EZ" which is now undergoing flight tests and should be available in the near future.



# Bing Carbs

Has your pleasant afternoon of flying ever been interrupted by a little roughness in the engine? All previous thoughts become unimportant as you respond nervously, "There it is again!" A quick glance across the instrument panel shows nothing unusual except the exhaust gas temperature (EGT) is running a little lower than usual and the rpm is down a few hundred turns. You decide to scoot for the airstrip and check this out.

Before removing any major engine parts, it's a good idea to check the thermometer and the calendar. Your engine could have a case of carb richness brought on by a seasonal weather change. Like all other carburetors, your Rotax-mounted Bing is influenced by temperature and altitude.

Hot weather and/or high altitude cause the engine to combine the same amount of gasoline with thinner air, and this can make the fuel mixture so rich that it runs rough. If your engine ran fine all winter and the roughness came when the temperature rose to the 80-90F range, chances are the jetting needs to be changed.

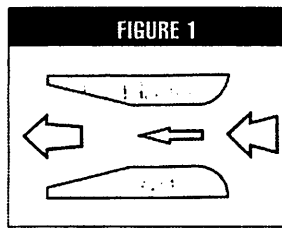
## Joining the Jet Set

This is no news to pilots who are used to aircraft powered by conventional engines where the fuel mixture is an important feature of the control group. But the two stroke engine, popular on the ultralight/homebuilt market, seldom has this feature.

Rotax has altitude compensating carburetors available that work quite well, but they are an accessory and are rarely included in a kit. This means the Rotax or similar two-stroke owner who flies through large temperature or altitude variations may need to either buy the altitude compensating carburetors or change carb jets to keep his engine running in top shape.

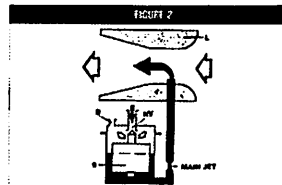
## Carb Fact

To get a handle on fuel mixture problems, we need to know how a carburetor works.



on the same principal. With knowledge of the inner workings of the device, we can see what we need to do when changes are in order.

All carburetors use the principal of a venturi. (See Figure 1.) A basic law of physics states, "As the velocity of a fluid (air in this case) increases, the pressure of the fluid decreases." In a given period of time, the amount of air entering a carburetor must be equal to the amount of air exiting a carburetor. On its way through the carburetor, the air flow encounters a venturi and has to speed up to get past the restriction and exit at the same rate as it enters. How can it speed up? Pressure is the only available source of energy to boost its speed through the venturi restriction.



The faster the air must travel to get through the venturi, the lower the pressure will be at that point of restriction. This means an inlet opening placed at the point of lowest pressure will have suction present. A look down the throat of any carburetor will reveal the venturi, and in the center of this restriction the main jet of the carburetor feeds fuel into the engine. Low pressure in the venturi allows fuel to be drawn from the float bowl.

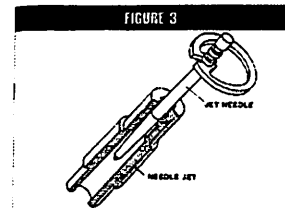
## Bing Carb Details

Figure 2 illustrates fuel entering through the needle valve NV and controlled by float S. The atmospheric pressure entering the float bowl through port B is greater than the pressure in the venturi throat; therefore fuel is drawn up through the main jet and into the engine, as indicated by the black arrow. Figure 2 illustrates the process when the throttle is between three-quarters open and wide open. Mixture is controlled entirely by the main jet size.

All round slide-type carburetors such as Mikuni, Keihin, Amal, Uel Orto and Bing operate

What about mid-throttle settings? Additional restrictions are placed in the fuel path between the main jet and the venturi. These restrictions are known as the needle and the needle jet. Together they control the mixture from one quarter to three quarters throttle. (See Figure 3.)

At full throttle the needle is withdrawn far enough from the needle jet so that it

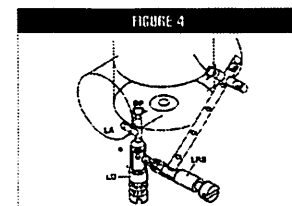


presents no hindrance to the fuel flow, but when the carb slide begins to close, the needle is

lowered into its needle jet, and soon the hole in the needle jet becomes smaller than the hole in the main jet, and the fuel ratio is changed to a leaner condition.

An engine can generally be run at a leaner condition at partial throttle than at full throttle because full power demands more fuel than partial-power settings. The mixture is controlled by the location of the needle position, which may be raised or lowered by the setting of the needle clip. If the range of the needle clip is not sufficient to give the proper mixture, then the needle jet itself can be changed.

The mixture between one-eighth and one-quarter throttle is controlled by the



beveled portion of the carburetor slide, also called the cutaway, and by the boost port. The

owner will not have to change these unless fairly radical changes have been made to the intake timing of the engine.

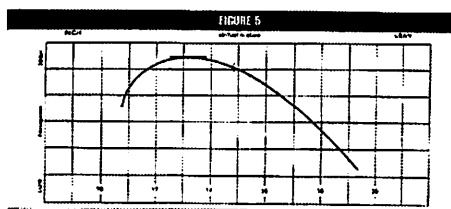
The throttle mixture from closed to one-eighth throttle is controlled by the idle jet LD and the air idle screw LRS in Figure 4. Now the air is cut off from the venturi and must enter through the idle passage by the paths indicated by either of the two arrows shown in Figure 4. The resulting mixture will enter the engine from port LA.



The jet size determines the maximum amount of fuel available when the slide of the carburetor is closed and the air screw means this amount as the screw is opened. If opening has an effect on the engine idle ability, then the jet is too large and must be changed.

### Determining Settings

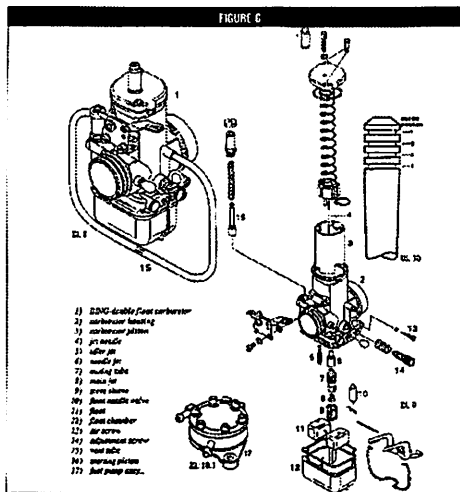
Now that we know how the slide type of carburetor works, we need to look at the intended goal for the carburetor settings. This can be seen in Figure 5. Laboratory tests have proved the perfect fuel mixture is one that will be totally consumed in the



combustion process and is a ratio of one pound of fuel for every 14.8 pounds of air. But this ratio creates too much heat and does not produce maximum power. The ratio of 1:12.5-13.8 produces cooler cylinder temperatures and more power at full throttle. Therefore we are aiming for this slightly richer mixture as shown in Figure 5. This is why your engine may run cooler exhaust gas temperatures (EGTs) at full throttle than with partial throttle, all depending on how the carburetor is jetted.

Returning to the scenario where you detected engine roughness when flying at cruise power (maybe 5500-5800 rpm for the average Rotax 582), let's begin diagnosis with this question: "Is the problem carburetion?" The best indicators of what is happening in the combustion chamber are the individual-cylinder EGT gauges. If both EGT needles are down on heat during rough running, then it is likely that the jetting of the carbs is too rich. If both gauges indicate high temperature, the mixture is too lean. If only one needle is unusually up or down, it is indicative of a problem in one cylinder only and not a jet maladjustment brought on by weather or altitude.

Because the problem appeared at cruise, and the EGT gauges indicated lower than



normal temperature, the cure is to lower the needle in the carburetors. See Figure 6, item No. 4 and III. 10. Lowering the needle means that less of the needle is withdrawn from the needle jet during operation and therefore the carb runs leaner. Lowering the needle one notch usually does the trick.

A recent service bulletin from Rotax advises 582 owners to inspect their carburetor needles for excessive wear, which may be noted where the needles pass through the needle jets under cruise operation. This will appear as an hourglass-shape wear mark on the needle and will cause the engine to run richer as this wear continues. There will also be wear where the needle clip grips the needle. This check should be part of your 50-hour inspection.

What if the problem appears under full power? If the symptom came on gradually and new plugs were not the cure, a low EGT would mean you need to go down one size on the main jet of the engine (item No. 8 in Figure 6). The converse is true. high EGTs indicate that main jetting needs to be larger.

A richness problem may also be brought on by the float needle (item No. 10 in Figure 6) wearing out or malfunctioning. This will usually appear in one carburetor before the other and often is indicated by the carb float bowl running over when the plane is parked.

After a successful flight during which your engine operated properly, make a mental note of the gasoline level in the float bowl

of your carburetors. This will give you a comparison when troubleshooting for a problem needle valve that is letting too much fuel into the float chamber. The only sure cure is to replace the needle valve. The float level may be adjusted by bending the brass arms that ride on the floats, but this is not a recommended procedure to change the mixture in a Bing carburetor. The arms should be parallel with the lid of the carb bowl when the carburetor is held inverted.

A lean problem at full throttle may be caused by insufficient fuel flow caused by a weak fuel pump, plugged fuel filters, kinked hoses or poor tank venting. The entire fuel system should be checked when any malfunction occurs.

The Rotax engine idles at 2000 rpm and should idle smoothly at that speed. Owners often find that the engine begins to run rough on idle after the break-in period, and this is caused by an idle mixture that is too rich. After the engine is broken in it will run more freely, requiring the mixture to be leaned to maintain smooth idle. If opening the air idle screw does not cure this problem, you need to consider changing the idle jet (Figure 6, item No. 5) to a smaller size. Remember that opening the air idle screw makes the carb run leaner, and the jet size should be reduced until this screw will control the idle speed of the engine. The slides may become worn in the carburetors, causing poor idle characteristics. This should not be a concern until after 1000 hours of use as long as good air filters are cleaned and kept in place.

Elevated EGTs when flying to lower elevations and/or colder winter conditions may be the sign that it is time to richen the mixture. These indications are accurate for the 582 Rotax equipped with CDI ignition. On a Rotax 532 or other engines equipped with ignition points, high climbing EGTs could mean an ignition point problem.

Jets are available from Rotax or motorcycle and snowmobile dealers selling Bing-equipped products. Check with the company selling your kit. →

## Members of the St. Albert Flying club Visit Indus in June



From left to right:

*Henry Plaquin  
Ron Swan  
Marty Slater  
Ed Dumas and  
Dan Pandur*

Photos by Graham Millington



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### Notice

CUFC BBQ to be held on Saturday, August 21 at Dave Bolton's airstrip.

Look for details in the August issue of Skywriter.