

# Turn Bank



OFFICIAL NEWSLETTER OF RAAC CHAPTER 85

June 2004



Don't forget the upcoming fly-in and celebration which will be held on July 3rd. Lots of hands equals lots of success!

This is Dave Sproul's workshop. Just cram full of harvards ready to be re-built to new condition. A beautiful sight. How do get a job like that?

The TURN AND BANK is the monthly publication of RAAC Chapter 85 and is intended to keep members informed as to the club's activities, and to promote safety and technical excellence in the field of sport aviation. No responsibility or liability is assumed, expressed or implied as to the content of articles contained in the Turn and Bank: the intention is to provide a forum for discussion and exchange of ideas.

Newsletter contributions should be mailed to Doug Brown, 9260 Pinewell Cr., Richmond, BC, V7A 2C6, no later than the 12th of each month. Or e-mailed to brown\_d@fc.sd36.bc.ca

Enquiries to the Membership Chairman should be mailed to Rob Prior, 3032 Carina Place, Burnaby, B.C., V3J 1B5

Regular chapter meetings are held on the first Tues. of each month at 20:00 (8pm) in the clubhouse:

Delta Airpark, 4103-104th Street Delta, B.C.

Clubhouse phone: 596-3644

Mailing Address: Chapter 85, RAAC

c/o Delta Heritage Airpark, 4103-104th St., RR#3, Delta, B.C. V4K-3N3

Executive meetings are on the third Tues. of each month at 19:30 (7:30 pm) in the clubhouse.

Chapter aircraft pilots, mail cheques

(Payable to RAAC Chapter 85) to:

Tedd McHenry

RAAC National Homepage: <http://www.raa.ca>

RAA Chapter 85 Homepage: [http://www.b4.ca/raa\\_85](http://www.b4.ca/raa_85)

Delta Heritage Air Park Homepage

<http://home.istar.ca/~bb4>

Source for CARS and Chapter 549 Airworthiness

Manual: <http://www.aerotraining.com>

For inspections of Amateur Built Aircraft Projects

contact MDRA Inspection Services ,

ph. 1-877-419-2111

fax 1-519-457-0980

email: [mdrainsp@on.aibn.com](mailto:mdrainsp@on.aibn.com)

## Inside this issue:

This is .....	page 2
Minutes of last meeting .....	page 3
Bulltin Board .....	page 4
Bash photos .....	page 5
Classified .....	page 7

In the next issue part 1 of Jim Hunter's article "And Save Your Butt"

### RECREATIONAL

AIRCRAFT  
ASSOCIATION  
CANADA

Delta Heritage Airpark  
Vancouver, B.C.



President:	Tim Baker	588-0333
Past President:	Tim Nicholas	572-1845
Vice President:	Gerard Van Dijk	830-9592
Secretary:	Jim Hunter	720-2114
Treasurer:	Don Souter	930-6243
Membership:	Rob Prior	422-8446
Librarian:	John Macready	984-6428
Program Chairman:	Francois Leh	813-7742
A/C Chairman:	Tedd McHenry	574-4764
Hangar, Workshop, and Building Committee		
Co-Chairmen:	Dan Weinkam	939-4745
	Dave Bell	
Newsletter:	Doug Brown	275-1405
Marketing:	Don Souter	572-6279
Check Pilots:	Tedd McHenry	574-4764
	Terry Wilshire	273-4741
	946-4152 (bus) 293-0663 (pager)	
	Francois Leh	813-7742
Directors:	Rob Prior	422-8446
	Dan McGowan	324-3348
	Bruce Prior	437-4219
	Paul Trudel	532-8570
	Bob Cutting	275-1603
	John Bell	596-8373
Builder's Counselors:		
Structures:	Dan McGowan	324-3348
Composites:	Gordon Hindle	535-0592
Propellers and Wood:	Colin Walker	581-9602
Engines:	John Blake	820-9088
Steel:	Pat O'Donnell	533-1839
Aluminum:	George Worden	433-5564
Computers in Aviation:	Rob Prior	422-8446
General:	Paul Trudel	532-8570


## Action, auction, auction!

We had the auction last month. Good items went cheap. Remember all proceeded go to our future clubhouse. For the next meeting the following items will be auctioned:

6.00 X 6 wheels, hubs, brakes etc  
Cessna axels  
Whelen replacement bulb  
Oil regulator for O-320  
Spinner  
Four venturies  
Breaklines  
Zenair stabilizer, rudder  
Lycoming crush plate & prop bolts O-320 camshaft (1400 hrs)

For future meetings bring stuff. Lots of stuff. Bring money to buy stuff. Lots of money to buy lots of stuff. None of the stuff can be left in the clubhouse. All money raised will be put into the clubhouse building fund.

## AIRFrame



Aircraft Portraits

**Rob Prior**  
www.b4.ca/airframe  
rv7@b4.ca

3032 Carina Place, Burnaby, BC, V3J 1B5604/422.8446

## Lindair Services Ltd.



Announces A New Product Line  
To Save You Time And Money!  
**Superflight**  
Covering & Finishing System.  
Superflight 102 & Dacron Fabrics  
Call us for your recovering needs  
604-273-4511  
1-800-663-5829  
Support@lindairservices.com

### Minutes of the General Meeting, 4 May, 2004

**Call to order:** 8:00 PM by President Tim Baker

Hunter / Souter: that the Minutes of the General Meeting of 6 April, 2004 be adopted as printed in "Turn & Bank"

Discussion Carried

**Correspondence:** None received.

### Committee Reports:

**Treasury:** Verbal report by Treasurer Don Souter. Don says we are in good financial shape.

**Membership:** Rob Prior: About 98 members now and going up with a couple of new ones this night. .

**Buildings:** Dan Weinkam: Looking fine. ONLY members can rent our shop ( an insurance and liability thing) New rental rate is \$ 20 per day plus fair share of utilities used.

**Vice President:** Gerrard Van Dijk: All applaud Gerrard's efforts on the Bash.

Figures not all in yet but looks like it was a financial saw off. President Tim presented the last of the awards.

**Newsletter:** Doug Brown: Going well he says (and " T & B" looking very good we says !)

**Program:** As relayed to Tim from Francois: We think we will be having Dr. Paul Servenko, Regional Transport Canada Aviation Medicine Chief at the June GM. For this night, Librarian John Macready and his mate will have a flight simulator display. More than just games.

**Aircraft:** Howard Simpson: Turbi was flown an amazing 18.6 hours in April.

**RAAC:** Rob Prior: Rob didn't go to the RAAC AGM in Warton as he had planned to do . There was a sudden increase in air fares and a General Exec. consensus was that over \$ 1000 in mere air fare for a half day of actual RAAC business simply not a brainy proposition !

**Air Park Committee:** Terry Wilshire:  
\*\* Breakfast this coming Sunday.  
\*\* Committee had a positive meeting with two of the Delta Staff people. The

matter of Delta Council's attitude toward DHAP and its continued operation may come up to a Council vote as soon as June.

\*\* Delta Council is receiving a great mound of our letters and e mails as sent in by those of us who are for DHAP's continued operation and Terry urges those of us who have not written in to do so. Recollect that politicians count votes !

### Old Business:

Fly In July 3. We will again be getting representation from Antique Engine and Antique Car clubs.

### New Business:

Hunter / Munzer: that Chapter 85 donate \$ 500 to the Bursary Fund program for a student enrolled in the Aircraft Maintenance Engineer Program at BCIT.

Discussion Carried

Maynard / Garret: that we adjourn and so saying, it were did.

Jim Hunter, Secretary

# Bulletin Board

## About the Club Turbi

The Chapter Executive has decided to raise the hourly rate for the Turbi, and to change the rate structure. The Turbi isn't raising enough revenue to cover its costs. We hope to raise a bit more money with the new rate, and we also hope to discourage extremely short flights with the new rate structure. The new rate will be 60 dollars per hour, wet. There will be a 30 dollar minimum charge, per use. "Per use" means that you can do a short out-and-back with each leg less than 0.5 hours and only pay the minimum charge once, not on each leg. But if you make a single flight of less than 0.5 hours you pay 30 dollars. The new rate will take effect after the July general meeting.

While we encourage people to pay in advance, it's not strictly required by the rules. Please pay me Howard Simpson, by cash, cheque, or Visa. Most people come to a meeting and pay, but you can just send him a cheque by mail. There's a web site that shows everyone's account balance, and lists my postal address for people who want to send a cheque.

To fly the Turbi you must have a valid pilot license and medical, some previous taildragger time, be a paid-up member in good standing of Chapter 85, and pass a check ride with one of Chapter 85's check pilots. The check ride is good for 90 days. Check pilots are Terry Wilshire, and Francois Leh. Contact information for the check pilots is on the library chalkboard in the clubhouse.

The rate is \$60 per hour wet, with a \$30 minimum per trip. There is a set of Chapter rules for flying the airplane, which I won't detail here, but they are in a binder in the hanger near the Turbi if you wish to read them. When you do a check ride you'll be asked to sign a form saying you've read them. But here are some highlights.

The Turbi has \$300,000 liability insurance per seat, plus third-party liability of \$1,000,000, and \$25,000 not-in-motion hull coverage (with a \$500 deductible). Note that there is no in-motion coverage. Chapter 85's policy is that any damage that happens to the airplane when you have signed it out is your responsibility. You must pay for the repairs or make the repairs yourself. (Except, of course, for routine maintenance.)

The airplane is maintained by Howard Simpson and anyone

whose arm he can twist to help him. The very low rental rate of the Turbi is due in no small part to the free maintenance Howard and others provide. If you fly the airplane, I strongly encourage you to offer some of your time to help him maintain it. You don't need any expertise, Howard provides all of that. But an extra pair of hands, or even just someone to bring back a hot coffee from the pilot's room on a cold day, is a big help.

Booking the Turbi is a very informal process. Just write down the date and time on the big chalkboard in the clubhouse. The main purpose of the Turbi is to help pilots maintain proficiency while they build, it is mostly flown on local circuit-and-bump flights. But cross-country flights are perfectly okay.

If you plan to take the airplane overnight, or for more than two hours on a weekend or holiday, you need the approval of the Aircraft Chairman or a Chapter officer. Remember, though, that the airplane has no transponder, so there are some limits on where you can go.

The Turbi is a delightful airplane to fly. It gives all the joy of a classic, tandem seat taildragger, but it is very easy to handle on the ground and in the air. I sometimes call it the "very poor man's RV-4."

**Last Meeting:** Many thanks to John McReady and Al McDougal for their awesome presentation of the flight simulation software. Very cool!



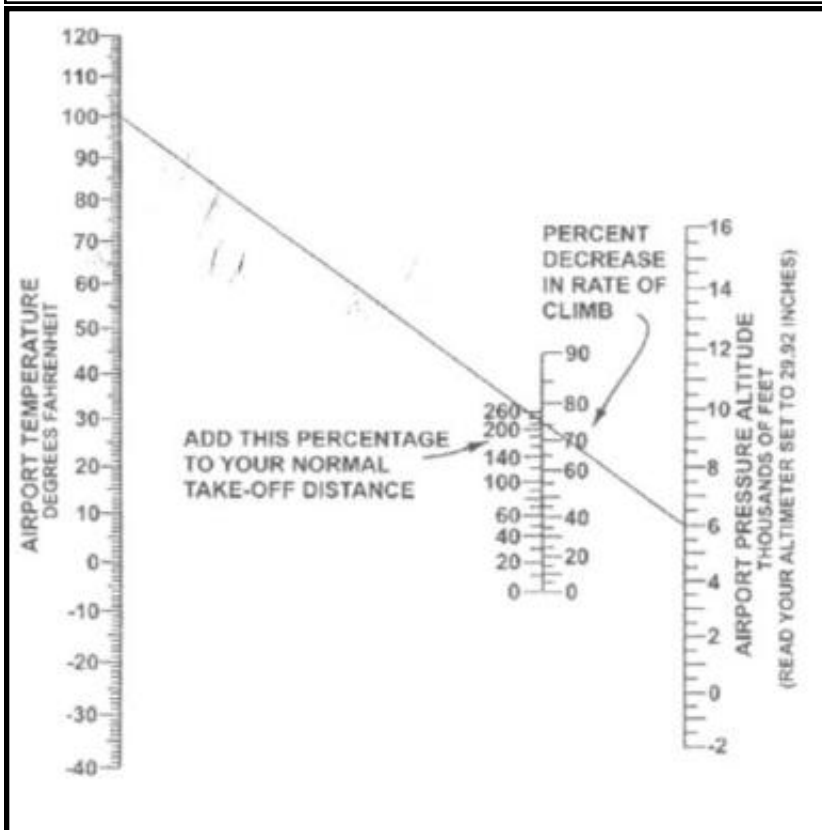
**What's in store for next meeting.** Have you wondered lately just how long you will be able to keep flying? Will a health issue stop me from doing what I enjoy so much? Come to the next meeting to listen and talk to Paul Cervenko about this very thing. Paul is directly involved in pilot medical administration.

We are not planning formal presentations after this month due to the nice long daylight hours. Perhaps a visit to Boundary Bay to see the Zephyr being built might work out.

# And Save Your Butt

By Jim Hunter

This cautionary tale begins on a fine day of our last, late , much missed Summer.. An awkward squad is slopping many layers of paint onto our poor club house in naive hopes that if we get it thick enough the sad structure will endure for another thirty years. A task to numb even our minds so conversation soon deteriorates to matters aeronautical and one member relates that his airplane is taking an inordinate distance in becoming air borne and is climbing feebly when it does. He attributes this to some messing that he had been doing to his tail wheel but another squaddy mentions that it had been very warm of late and had our boy not consulted his Koch Chart to see what was happening to him.. To this our hero confessed that he had never heard of a Koch Chart and so for the benefit of all equally unknowing, we present a Koch Chart and an accompanying example. Look it over and then we shall play around with it.



Example: The diagonal line shows that 230% must be added for a temperature of 100 degrees and a pressure altitude of 6,000 feet. Therefore, if your standard temperature sea level take-off distance, in order to climb to 50 feet, normally requires 1,000 feet of runway, it would become 3,300 feet under the conditions shown. In addition, the rate of climb would be decreased 76%. Also, if your normal sea level rate of climb is 500 feet per minute, it would become 120 feet per minute.

This chart indicates typical representative values for “personal” airplanes. For exact values consult your airplane flight manual. The chart may be conservative for airplanes with supercharged engines. Also remember that long grass, sand, mud or deep snow can easily double your take-off distance.

From your study of the Koch Chart you will see that it is only usable if you have some numbers to plug into it. And where do you get these numbers? Simple, as the owner of a Certified airplane you go to your Pilot's Manual and you will see a table giving your airplane's performance. ( BUT ! BUT !BUT ! \*\*\* )

Now a cautionary note! With your performance table you should ( and probably do not ) have words to the effect that “THIS TABLE SHOWS AIRCRAFT PERFORMANCE ON AN ICAO STANDARD DAY. UNDER OTHER CONDITIONS AIRCRAFT PERFORMANCE MAY BE- -” etc and so forth which brings us to the famous “ICAO Standard Day”.

The “ICAO Standard Day” is the internationally agreed upon “ benchmark” as it were against which aircraft performance is measured ICAO being the “International Civil Aviation Organization” an agency of the UN but based, oddly, in Montreal. and the ICAO Standard Day prescribes a day on which the Temperature is 59 Degrees Fahrenheit ( 15 Celsius ) and the Atmospheric Pressure is 29.92 Inches of Mercury. These are not merely arbitrary figures; they represent a yearly average of temperature and pressure as measured at 40 Degrees North Latitude.

Now the “ICAO Standard Day“ seldom happens for more than a few seconds in the real world so the prototype models of your airplane were flight tested in whatever conditions happened to be obtaining at the time and the data gained was passed to the Boffins who, using formulae, probably Pi, some roots, square and even worse and other Diabolical Arts manipulated these numbers and cunningly presented them as though they had been achieved on an “ICAO Standard Day” . And thus, the table of performance for your airplane !

But another cautionary missive ! The prototype airplanes tested were doubtless of brand new manufacture and properly rigged and set up. The engines would have been new and giving their rated performance and the props would be factory adjusted or bent or carved to achieve a specified result. Now your airplane although duly Certified and conscientiously maintained by a competent AME will have endured the agonies that you have inflicted upon it and may be just a little out of rig. Your engine, although still reliable may be getting a wee bit weary and so the wily birdman such as your self might perhaps consider the published performance figures as being a little optimistic! Build into your planning a little, or even a bunch of cackle factor !

So let's make a trip! You have been on the Prairies and are headed back to the Coast. You are at Pincher Creek, Alberta. Field elevation is 3903 feet and the temperature is 115 degrees Fahrenheit. There's no tower here to give you the temperature so you get it from the thermometer which you, of course, always have with you. You have full fuel, full allowable baggage and your passenger is another chap of weight about equal to yours so your airplane is pretty close to all up gross weight !

Your airplane is a Cessna 150 L and its performance ( as extracted from the Net ) is:

Power: 100 HP Continental  
Top Speed: 106 kts.  
Cruise Speed: 102 kts.  
Stall Speed ( dirty ) 42 kts.

Gross weight: 1600 lbs. ( empty -1060 lbs )  
Fuel capacity: 26 gallons ( US )  
Range: 303 nm.

Takeoff:

Ground Roll: 735 feet  
Over 50 foot obstacle : 1385 feet

Landing:

Ground Roll: 445 feet  
Over 50 foot obstacle : 1075 feet

Rate Of Climb: 670 feet per minute

Ceiling : 12650 feet.

Be it of significance and perhaps to make a point - there is no reference in this table of performance as it's being in relation to the “ICAO Standard Day” nor is “Maneuvering Speed” given which, we understand, is mandated by the ICAO ! So what can you rely upon ?

So, with your Koch Chart, your airplane's performance data and the Pincher Creek information and before your take off, calculate:

- \*\* The length of your take off roll.
- \*\* The length of take off roll to clear a 50 foot obstacle.
- \*\* Your rate of climb after you settle down into the climb.

And so you take off !!

\*\* Unscientific, but did your body and moist palms suggest that Dr. Koch may have been right about the length of the take off roll ?

\*\* What does your VSI say is your initial rate of climb ? Does it confirm or contradict your Koch Chart predictions ?

Climb to 6000 and calculate your rate of climb by your Koch Chart. You are busy so have your passenger do this. Giving

him a simple task requiring intense concentration should take his mind off your brilliant take off..

But something new is added - Adiabatic Lapse Rate. The Average Adiabatic Lapse Rate says that temperature diminishes 3.3 degrees Fahrenheit for every 1000 ` of altitude gained. Therefore, temperature at 6000 ` should be about 106 F.

\*\* What does the Koch Chart say your rate of climb should be ? Does your VSI agree or disagree with this. ?

Climb to 7000` and do another Koch calculation of rate of climb. Temperature should be about 102 F.

\*\* Does your VSI agree with the Koch prediction ?

Climb to 8000` You now know about Adiabatic Lapse Rate therefore you calculate the temperature !

\*\* What does the Koch Chart say your rate of climb should be at this altitude ? Does your VSI concur ? If the two rates don't agree, by how far do they differ?

Now at 8000` you should be getting into The Rocks so perhaps it's a good opportunity to explore your options.

\*\* How much "climability " is left in your airplane ? Could you make it to 10000` if you wanted to. ? What, by the Koch Chart, would be your rate of climb at 10000` ( Temperature at 10000` should be about 91 F ) ?

So you can choose to continue your flight at 8000` or -

You decide that it's the wrong people in the wrong airplane in the wrong place on the wrong day and decide to return to Pincher Creek .-

A little Mountain Flying Lore here - -

\*\* Could you safely, staying well above the stall , maintain 8000` and execute a 180 degree turn to return to Pincher Creek ? Recollect that you have been climbing on the sunny side of the valley ; as you cross to the cool side, you will meet subsiding air .

Might it be sharper to go to your Maneuvering Speed and not worry about maintaining 8000` ?

And so back to Pincher Creek. It isn't a retreat - call it a tactical withdrawal and, for something to do on your descent, calculate the length of your landing roll !

( The temperature at Pincher Creek is still about 115 F ) Aren't you glad the runway is over 6000 ` long ?

And so to tie down and rest, alive. with ,perhaps, a moment of contemplation for your alter egos who elected to continue their flight !

" BUT ! BUT ! BUT ! \*\* " says you. " That's fine for the plutocrats in their store -boughten airplanes with their pre digested Pilot's Manuals and performance numbers. I fly a one- off homebuilt of my own design. Where do I get these fancy performance figures?" OR , " I built an example of a popular amateur built design but every builder does his differently . The designer gives performance numbers but they were for the example that he built and I have a smaller engine. He says for example, ` Rate of Climb` - 1100 feet per minute but I have no idea of the conditions under which he got this figure so I need to develop numbers for my self ! " and so it goes !

"Unlax!" says we. " Next month in "AND SAVE YOUR BUTT - 2 " we shall offer some ways for the un- Certified but otherwise equally righteous of the brethren to develop some performance figures of their own - particularly the ones that use the " ICAO Standard Day" and the "Koch Chart".

---

# CLASSIFIED

---

## DEMEL AIRCRAFT CORPORATION

### Parts and Supplies

Brackett Air Filters  
Gill Batteries  
Red Ram 20w50 oil  
Champion Oil Filters  
Engine Gaskets  
Spark Plugs  
Scat/Cat Tube  
Ameri-King ELT  
Windshields  
Instruments  
Control Cable  
Tires/Brakes

We carry a HUGE Selection of AN hardware  
DEMEL AIRCRAFT CORP.  
RR#2,SITE 30,COMP 27 PENTICTON AIRPORT  
PENTICTON,BC V2A 6J7  
(250)490-9532 1-888-490-9532  
FAX:(250)490-9538

DEMEL AIRCRAFT CORPORATION  
Parts and Supplies

Shock Cords  
Sitka Spruce  
Baltic Birch Plywood  
Spars/Ribs  
4130 tube/sheet  
2024T3/6061T6  
Tube/Sheet Aluminum  
Building/Repair Tools  
Poly Fiber Coverings  
Dealer Inquiries for  
RANDOLPH products

### 100% Canadian!

---

**Classified Ads are free (within reason) to members. Display Ad rates are:**  
**Business Card:\$25 per year**  
**1/4 page:.....\$10/month .....\$100/yr**  
**1/2 page .....\$15/month .....\$150/yr**  
**1 page:.....\$25/month .....\$250/yr**  
**Ads that have been in for more than 6 months are subject to removal if space is required for other stuff. Please contact Doug the editor if you want it kept in.**

FOR SALE: SIROCCO PROJECT  
THE SIROCCO AD~REVISED  
PLEASE READ ON ~

The engine and ass't bits -gone  
The undercarriage inc. wheels,brakes-gone  
Tail Wheel & spring - gone  
But remaining -  
Fuselage - finished  
Tail group - finished  
Control components - finished except for cable  
Many- hole panel done - no instruments.  
Ribs ,minor spars and wing diaphragms done  
Two spar -grade spruce planks , almost enough to do the spar.  
To good to let go. Call and we will work it out.  
Jim Hunter 576 - 2678 cel. 720 - 2114

WANTED: PA 18 or PA 20/22 Wings.  
Some damage OK 946-5881

FOR SALE:1957 Tripacer Wings uncovered,all reworked.New leading edge.New ashtip. All Zinc Chromate ready to fabric. Included:2-18 gal.gas tank,2 -gast ank cover,landing light,aileron and flap,front and rear struts.Asking \$4000 Canadian.  
Roger Gauthier (Kelowna)(250)-763-1529 (250)212-0832 (cel)

FOR SALE: 6 Factory new Franklin 180 hp cylinders includes installed valves \$300 each,will not part out.  
Tim Novak 271-8586

FOR SALE:Softcom 2 place Intercom ATC-2Y,with accessories \$110.  
Stuart Gear (604)941-9402  
E-mail:sgear@infoserve.net

FOR SALE:1-Miller 200 amp ac/dc H.F. Tig/stick welding machine -220V 1 ph. \$1200.1-Miller 120 amp MIG (wire) welding machine,110 volt.Portable sheet metal type,c/w gas kit (almost new)-\$800.  
Pat O 'Donnell 533-1839

FOR SALE:Murphy type floats 1500 's. \$9600 CDN.New,comp [lete with rudders.  
Harold Schapansky (604)826-5068

FOR SALE:4130 Annealed Gauge Plate now in stock,.025 to .375.We will sell you

the plate or laser cut the parts.  
Industrial Laser Cutting ltd.  
(604)946-4152,Fax:(604)946-4153  
E-mail:tmw@industriallaser.com

FOR SALE:Zenith 250 plans and parts, wing rib moulds \$360.Christavia Mk IV project,4130 steel tube,wing ribs,flaps ailerons,gear legs,wheels and brakes, tail stab and rudder,\$3600.  
Paul Trudel 532-8570

WANTED: Person to help finish Paradyne advanced concept aircraft. Should be good with electrical, etc. Contact Norm Helmer at (604) 527-8970 Room 1136, George Derby Centre.

Our late member Grant Neal's blueprints for the T18 he had been working on have been made available. If anyone wishes to make an offer, please contact Dirk Post, 604 536 6129 or email dndpost@shaw.ca

FOR SALE:One set of 1500 Murphy floats ready to go.Ole #45-3931 198 st.Langley BC 514-1280

FOR SALE:Minimax Ultralight 1300, currently flying. Fully enclosed, electric start, Zenoha D50, 50 hrs. TT, 3 fuel tanks, \$10,000 Cdn OBO  
250 457 9130 dberwin@goldtrail.com