

# TURN AND BANK

July-August 2012



One of the major issues we are addressing this summer is an occurrence with the Turbi. On Monday August 20 the Turbi accidentally hit a metal sign while on a landing role at Rowena's. There was moderate damage to the starboard



aileron, the rear spar cap and the outboard hinge. Because of the uncertainty about the extent of damage, the airplane was grounded until the executive could discuss a plan for retrieval. At the August executive meeting a decision was

made to dismantle the aircraft and return it to Delta Air Park. Because of much disagreement about this process, the executive decided to send Paul Trudel and Mark ter Keurs to the site to inspect the aircraft and prepare a damage report. It was recommended by this group that the aircraft be repaired on site and flown back. We will complete the process when all questions have been answered, the repair has been done, the proper documentation is in place, a ferry transport approval has been obtained and Transport Canada is made aware. We intend to make all decisions by the book and ensure the process is as safe as possible if the aircraft is returned by ferry flight.

Elections are coming up. The October general meeting will be dedicated to electing a new executive committee. If you have any inclination to serve your chapter more actively I encourage you to submit your name for election. There will be several positions available on the executive, some appointments and at least three directors are required. Bruce Prior is in charge of the nominations and Raymond Colley will be the chairman for the election process. Please contact Bruce if you would like to run for a position.

The chapter is looking for people to organize major events such as the Christmas party and our Annual Awards Banquet in March 2013. If you think you would like to take on one of these responsibilities please let an executive member know about it.

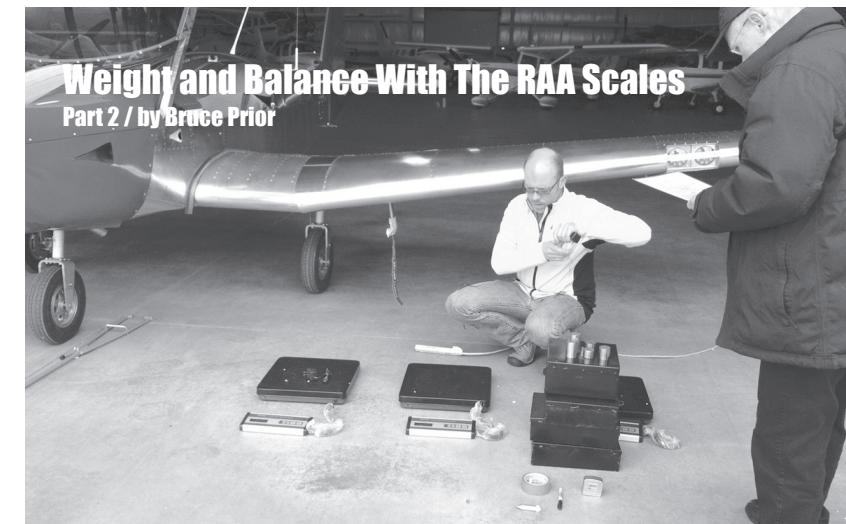
The weather has been great for late summer flying. If you want a unique mountain experience you can always see Francois Leh at Glacier Air for some time amongst the peaks of Garibaldi Park!

Clockwise from top left: Alex Routh showing prospective aviators how it's done at the Boundary Bay Airshow; Gerard Van Dijk with the club's new compressor; the refurbished engine shop and below that the squeaky-clean paint room. Bottom left, The Turbi Recovery Team: left to right Mark ter Keurs and Paul Trudel. Above that, Mark ter Keurs applying the final precise touches to the fabric and Paul Trudel giving expert advice.

wall or have founding members' planes pictures please contact her. 8x10, 5x7, 7x8 or 4x6 frame sizes are available.

The Turn and Bank is a Publication of Chapter 85 of the Recreational Aircraft Association of Canada. We are located at Delta Heritage Air Park 4103 104 St, Delta, BC V4K 3N3.

Design and printing by George Gregory. Any suggestions, pictures or newsletter contributions can be emailed to George Gregory at george@sidekickgraphics.com



The next issue was fuel and oil on board. The tanks were quite full but not completely full. Since this weighing was an exercise only, I didn't concern myself further with the fuel except to measure the contents of each tank. If this had been a formal weighing, I would have had to empty the tanks of all useable fuel or fill them completely. Filling them completely would probably be the easiest approach. The oil tank was filled to 5 quarts, a level we try to maintain, so I would leave the oil there in a formal weighing.

The first weighing provided the total weight of the airplane. However, the weights required to calculate the centre of gravity must be weights obtained while the airplane is level. The leveling datum for the Cessna 150 is the top of the tail cone between the rear window and the fin. I tipped the tail down again and removed the scale from under the nosewheel, leaving the mains high on the scales and the nosewheel on the floor. Fortunately this brought the airplane to a level position and I took the main gear weight readings again. Subtracting these weights from the total weight obtained earlier provided the aircraft-level weight of the nosewheel position without using a scale.

I rolled the Cessna off the main gear scales and the job was done, except for

cleanup and repacking the scales. I now had a good understanding of the scale calibration and operation and had discovered the other tools and equipment needed. Now I could contribute to weighing Peter Whittaker's Zenith.

About a week later, Rob Prior presented the calculations necessary for aircraft weight and balance at the RAA Chapter 85 June general meeting. He had set up the calculations on a spreadsheet and went through the steps with us for both taildragger and nosewheel aircraft. He also discussed the equipment list which must be included as part of the weight and balance report. There was some debate about what should be on the equipment list. Should the headsets be considered a standard part of the aircraft? Some thought yes, some no. The CARs say "any item not forming part of the type design shall be entered on the equipment list with its associated weight and moment." For a homebuilt aircraft where the headphone jacks are built in, it could be argued that the jacks and headsets are part of the type design. On that basis they would be in the aircraft when it is weighed and wouldn't be listed in the equipment list. But perhaps not so for, say, a Cessna 150 which didn't originally have headsets and jacks. If they were later added, the equipment list should have

been amended to list them with their weights and moments.

On June 9, a bunch of RAA members converged on Pitt Meadows Regional Airport at the Pacific Rim Aviation hangar.

Weight and Balance Report			
Prepared 2012-06-05			
<b>First: Weigh in 3-point Attitude:</b>			
Component	Weight		
Nose Wheel	0		
Left Wheel	511		
Right Wheel	524		
Tail Wheel	100		
<b>Total Weight</b>	<b>1135</b>		
<b>Second: Weigh in Flying Attitude:</b>			
Component	Weight	Arm	Moment
Nose Wheel	0	0	0
Right Wheel	526	60	31560
Left Wheel	539	60	32340
Tail Wheel	70	235.75	16502.5
<b>Totals</b>	<b>1135</b>	<b>70.84</b>	<b>80402.5</b>
<b>Adjustments:</b>			
	Weight	Arm	Moment
Fuel R	67.2	70	4704
Fuel L	68.8	70	4816
Net:	999	70.95	70882.5
<b>Center of Gravity Limits:</b>			
Forward	68.7 in		
Rear	76.8 in		
<b>Example Calculations:</b>			
Example - Gross			
Aircraft	999	70.95	70882.5
Fuel	228	70	15960
Pilot	185	87.4	16169
Passenger	170	87.4	14858
Baggage	15	117	1755
	1597	74.91	119624.5
Example - Forward CG - Light Pilot, Full Fuel			
Aircraft	999	70.95	70882.5
Fuel	228	70	15960
Pilot	100	87.4	8740
Passenger	0	87.4	0
Baggage	0	117	0
	1327	72.03	95582.5
Example - Aft CG - Heavy Crew, Heavy Baggage, Low Fuel			
Aircraft	999	70.95	70882.5
Fuel	0	70	0
Pilot	185	87.4	16169
Passenger	170	87.4	14858
Baggage	51	117	5967
	1405	76.78	107876.5
Example - Aerobatic Gross			
Aircraft	999	70.95	70882.5
Fuel	190	70	13300
Pilot	185	87.4	16169
Passenger	0	87.4	0
Baggage	0	117	0
	1374	73.04	100351.5

## News and Stuff

### Forum Up and Running

RAA's Forum is live online! If you want to join in the fun, go to the RAA website and click on the "forum" button and join up. You can advertise, ask questions, find out new places to fly - join us!

### Turbi

The Turbi had a mishap a few weeks back when a barely-visible steel rod poked a hole in its wing while on an outing to Rowena's Inn near Harrison Mills. Efforts are presently underway to get the

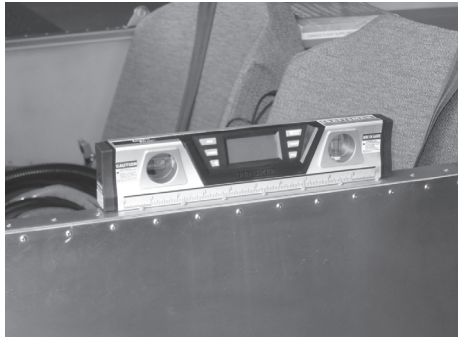
aircraft back to Delta to get repairs underway.

### Pancake Breakfast Helpers

If you would like to help out during our pancake breakfasts please give your name to Joan Cox, so that we may if needed. Contact her at jr\_rosicox@telus.net or leave a message at 604-596-7635.

### Airplane Pictures

Lynn Walker is working on a wall of planes. If you want your picture on the



Upper left: making sure the aircraft is absolutely level is key. The Zenith's cockpit sill serves the purpose. Upper right: rolling the Zenith up onto the scales was easy. Above: The weight and balance crew: L to R John Macready (Chapter President), Bruce Prior (Chapter Custodian), Rob Prior, Peter Whittaker, George Gregory (Recreational Flyer and Turn & Bank Editor), Tim Saxton, Josef Sircejz, and (kneeling) Cyril Henderson.

Peter was there waiting with his beautiful Zenith 601.

### Preparing the Scales

We laid out the equipment for the weighing: the scales and their display units, the stack of calibration weights, two ramps, a roll of painters tape, an extension cord, a power bar, a plumb bob and string, a level, a felt pen and a measuring tape. There was also a box of Tim Horton's donuts and a supply of hot coffee (not shown) to keep the crew energized.

We were going to calibrate the scales again, but Josef suggested we weigh the calibration weights first to see if the scales needed calibration. Great idea! All scales were within a pound of 200 pounds and we agreed they were calibrated.

The Zenith was light, and there were many helpers so moving the Zenith on to the scales was easy. It took only five minutes or so to position the aircraft on the scales and note the weights at each wheel. Also the Zenith sits level on its gear so no further leveling was necessary.

The weighing took surprisingly little time. With three scales and instant electronic readout, the figures are obtained immediately. All that's left to do is calculate the level weights and

then do the centre of gravity calculations with various loading conditions. Rob did quick hand calculations to get rough figures for Peter. The C of G was well within limits and the total empty weight was slightly above the designers specified figure.

Peter has a final inspection coming up. We hope it all goes well and that we'll see him in the air soon.

The weight and balance crew: L to R John Macready (Chapter President), Bruce Prior (Chapter Custodian), Rob Prior, Peter Whittaker, George Gregory (Recreational Flyer and Turn & Bank Editor), Tim Saxton, Josef Sircejz, and (kneeling) Cyril Henderson.

### Recommendations

Decide in advance what you will weigh. Fuel and oil should be removed or the quantities and their centres of gravity must be known. All equipment not part of the type design should be removed from the aircraft.

Collect and assemble all equipment at the airplane before mounting airplane on the scales.

Weigh first with all aircraft wheels on scales but aircraft not levelled.

Then weigh aircraft with only main gear on scales and nose or tailwheel lifted or dropped to

achieve level aircraft. Calculate nose or tailwheel weight.

To improve accuracy and eliminate errors, rotate the scale positions and weigh again (three weighings total).

Use a spreadsheet for the calculations (makes it easy to try many loading situations).

Use a wordprocessor for the equipment list (the equipment will change over time).

### Conclusions

The RAA scales are simple to use. They are accurate, stable, and don't need repeated recalibration.

Setup for weighing, including collecting all needed tools and accessories, can take an hour or more.

One person can weigh an airplane if he or she can level it and roll it onto the scales alone but it's much easier, safer, and more fun to assemble a crew.

The airplane will weigh more than expected.

### References

Aircraft Weight and Balance Handbook FAA-H-8083-1A (2007)

U.S. Department of Transportation

Federal Aviation Administration

Flight Standards Service

Get it from AOPA (see below).

Back To Basics: Weight and Balance

Jay Wischkaemper Southwest Aviator Magazine, Nov/Dec 2001

<http://www.swaviator.com>

AOPA Articles On Weight and Balance <http://tinyurl.com/829wa9o>

Center of Gravity of an Aircraft

Wikipedia [http://en.wikipedia.org/wiki/Center\\_of\\_gravity\\_of\\_an\\_aircraft](http://en.wikipedia.org/wiki/Center_of_gravity_of_an_aircraft)

Weight and Balance [http://www.aerotraining.com/.../AC%2061-23C\\_Chapter\\_4\\_Canada.pdf](http://www.aerotraining.com/.../AC%2061-23C_Chapter_4_Canada.pdf)

RAA Scale Instructions <http://raa85.b4.ca/bookings.php> (look for the Instructions link under "Tools.")

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### Minutes General Meeting July 3rd, 2012.

#### RAA Chapter 85, Delta Heritage Air Park

**Call to order:** Meeting called to order at 19:30 By: John Macready

**Old Minutes:** Minutes of June 2012 Meeting adopted as read.

Moved by: Bob Lalond Seconded by: Bruce Prior

#### Visitors/New Members:

-Tom Youssef (Is working on his Class 4 Instructor Rating with Francois Leh)

-Jim Pettifer (Attending to investigate our organization)

-Jack Pomerleau (Invited to speak for the evening's program)

Correspondence:

-N/A

#### President's Report:

John Macready:

-John apologizes for the miscommunication about the timings for the meeting. General and executive meetings are normally held at 19:30 on the first and third Tuesday night of the month.

-There will be a meeting with Trevor Bjorklund July 5th for further discussions regarding director/officer liability insurance.

-John deVisser has accepted the position of Hangar Chairman, replacing outgoing Tom Boulanger

-The RAA 85 intends to have an exhibit at the Boundary Bay Airshow coming up July 28th.

#### Committee Reports:

**Treasurer:** Tom Boulanger:

-Account Balances \$43,447.66

-YTD income: \$22,038.24

-YTD expenses: \$17,468.42

-Predicated balance of \$4,569.82

-The Turbi account is negative \$1146.63.00.

**Membership:** David Marsden:

-Currently we have 61 members

-New membership cards have arrived

-members must have current cards to be able to have full club privileges

**Buildings:** Tom Boulanger:

- There are leftover parts in the workshop from the parts swap and these will be cleaned out soon

-The engine shop has been cleaned and painted

-Bruce Prior is the go to guy for access and booking of the facilities

**Custodian:** Bruce Prior:

-Lots of free A/C "parts" available in the workshop

-The trailer refurbishment has been delayed due to poor weather, but will be sand blasted and painted as soon as possible.

**Vice President:** Raymond Colley:

-N/A

**Aircraft:** Gary McBride:

-Gerard Van Dijk corrected imbalance in the propeller and the engine operates flies smooth again

-Insurance has been renewed on the Turbi and is in place.

-Mark Ter Keurs, our check pilot, has written an excellent Pilot Operating Manual for the Turbi.

-To qualify to fly the Turbi the a member must have a current membership card, proof of pilot license, a valid medical certificate and be included in the list of pilots approved to fly the Turbi on the insurance policy. (This was clarified by Gary McBride)

-In the event of any damage to the Turbi, it is the responsibility of the Pilot in Command (PIC) to have the repairs done in a fashion which is agreeable to the executive of the chapter.

RAAC National: John Macready:

-N/A

**Newsletter:** George Gregory:

-The next newsletter is coming out in a couple days. George is waiting for two remaining articles to be submitted.

-George offered to be a ghost writer for any members of the chapter who wish to submit an article, if the member does not feel their writing abilities are satisfactory.

-It was suggested to have a handful of newsletter hard copies made up for members who do not use the internet, as well as some copies to be made available in the coffee shop and club house

**Programs:** Cyril Henderson:

- A Show and Shine will supersede the August general meeting

-A members and guests BBQ will be supersede the September general meeting

-Mark Ter Keurs will talk about the Pilot Operating Handbook

he put together for the Turbi in September.

-October's general meeting will also be the general chapter elections.

-It was suggested to create a nominating committee to select nominations

**DAPCOM:** Raymond Colley:

-Delta Municipality will be doing water main repairs and resurfacing 104th Street. This should take roughly 6 weeks for the project to be completed.

-Access to Delta Air Park will be via 96th and 112th.

-The RAA hangar door repairs are being done.

### Old News:

-Sean Connolly introduced the idea of creating a club airplane project

-A number of potential projects were discussed including, an RV-12 or similar airplane, Alex Routh donating his Emeraude, which ultimately could be used as a club airplane, building an RV tail component, or building a gyrocopter.

-Sean Connelly was asked to submit a proposal to the executive.

-Robin McNamara also suggested that RAA 85 contact the Canadian Museum of Flight (CMF) to see if they had any projects they might allow the chapter to work on.

### New Business:

-Carol suggested that RAA 85 purchase a laptop computer for the club's secretary to help expedite the recording of minutes

-The "Show and Shine" will be Tuesday August 7th at 6:00pm

-Alex Routh suggested the use of club funds to purchase a 6' bending brake for the club workshop

-Jack Pomerleau has graciously donated his 4' bending brake to RAA85.

### Announcements:

-RAA85 is looking for volunteers to help at the Boundary Bay Airshow, and for owners to bring their airplanes to display at the show with the Turbi.

Meeting called to close at: 20:30 moved by: Gerard Van Dijk, Seconded by: Rob Prior

## President's Report

*John J. Macready / August 2012*

A look in my logbook revealed that I flew my aircraft only 12.3 Hours since the end of May! I suppose my absence from Vancouver in July would mostly explain that. However the redeeming factor was the opportunity for a trip to Oshkosh in a Cessna 421 and some float flying in an amphibious Cessna 185 in the Parry Sound area. I would like to fly C-FPJP, my Cessna 140, across Canada next year after retirement but it won't be in such comfort as either of those aircraft!

We have accomplished some of our chapter objectives this summer so not all is lost. The chapter executive met with Trevor Bjorklund of AON Reed Stenhouse Inc, on July 5, 2012 to investigate and discuss the need for Director's and Officer's

liability insurance. This has been an issue from the beginning of January 2012. Some officers are concerned that they have some degree of liability if any untoward event occurs resulting in bodily injury or property damage subsequent to a decision made by them. Our chapter holds a comprehensive policy with the Recreational Aircraft Association of Canada which provides 5 million dollars of liability insurance covering untoward occurrences at our special events. This policy does not cover any activity associated with our club aircraft which is a concern to some members. Subsequent to our meeting the executive did decide to purchase a policy which would protect directors and officers from liability claims for decisions made by the executive. The policy provides one million in liability insurance and would be in effect after claims are first paid out from our aircraft insurance policy.

We feel this is necessary to help directors and officers feel more confident about making major decisions.

John de Visser has completed much restoration work on the work shop, the engine shop and the sandblasting shed. John has cleaned and painted these facilities and replaced some of the wiring and plumbing. The air compressor has been repaired and we are investigating the purchase of a new sandblaster as the one we have is outdated and inoperable. John has done a marvelous job with these challenges and has also refinished the outside doors of the RAA hangar. These facilities are significant assets for our chapter and will be very useful to our members. It is hoped that by improving our facilities, the chapter will be a more attractive organization for recreational pilots. Sincere thanks to John for his outstanding effort and accomplishment.