Winnipeg Area Chapter of RAA Canada ***February 2015***

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CALENDAR OF EVENTS

February 26, 2015	Tour of Jeff Bell's RV project **(Note this is 1 week later than our usual meeting)**
March 19, 2015	Still up in the air
April 16, 2015	Still up in the air
May 21	Still up in the air

Upcoming Events

1. RAA Final Assembly Workshop – Heated Hangar space – $200 for small aircraft ($150 for summer months). Contact Ben Toenders (btoenders@shaw.ca). Long-Term and Short-Term Rentals welcome. Space available now.

2. Rent an Igloo for your birthday/retirement party or committee meeting (electric outlet available J)- $70 for a night or day – some nights already booked and only available til it gets too warm J

3. March 7th WOMEN FLY – Pilots Rent/Borrow/Pull your plane out to Introduce Women to Flying. St Andrews Airport, 08:00 to 17:00. Pilot Briefing at 08:00 and throughout the day.

4. Feb 7 Search and Rescue Signalling Workshop. 1:30 – 2:30 pm. Learn how to use a variety of effective signalling systems that could save your life. Aircraft mocking a search provide useful feedback. Free, donations welcome. University of Manitoba, CASARA, RAA, + 99s. Contact jill.oakes@umanitoba.ca see http://northernenvironment.blogspot.ca/ other dates available on request.

5. Feb7-8 Igloos – Winter Survival ("Thrival"). Build a traditional Inuit-style igloo – if snow available, snuggle up on caribou skins (provided), learn ancient Inuit and Dene techniques for thriving in cold weather. Cost $150, student and family rates available. University of Manitoba, CASARA, RAA + 99s. Contact jill.oakes@umanitoba.ca see http://northernenvironment.blogspot.ca/ other dates available on request.

6. March 21 Gilbert Bourrier Model Building Workshop 9:30 – 3:00, Lyncrest Flight Centre Lyncrest Airport 57119 Murdock Rd. $20/adult-youth couple. Includes model, all materials, instruction, Theory of Flight demonstration, hot chocolate and hot dog lunch. Register at jill.oakes@umanitoba.ca

Jeff Bell Project Tour – February 26, 7:30 pm (Note this is 1 week later than our usual meeting)

How long does it take to build an airplane?

Jeff Bell began building his RV8 last fall and hosted a Project Tour so we could see the project coming out of the box and just getting started. Jeff's invited everyone interested in the aircraft building process back for a follow up tour. You will be amazed to see how much has been accomplished to date and we might see the canopy being fitted into position! If you have any questions on how to start your own project, what tools you need, and where to find materials, or anything to do with aircraft construction, drop in for the tour. Begins at 7:30 pm at 444 Campbell Street, in River Heights, (204 489-3126) between Grosvenor and Corydon. Feel free to pass this on to others you think might be interested.

Wind at Your Back—The Hidden Dangers of Tailwind

by Gerard van Es, National Aerospace Laboratory NLR, Amsterdam, Netherlands

Tailwinds are very welcome when you are flying from A to B since they help shorten your flight time. However, close to the runway they can be anything but welcome. Even a bit of tailwind can be a hazard. Tailwind conditions can have adverse effects on aircraft performance and handling qualities in the critical flight phases of takeoff, approach and landing.

Performance regulations require that takeoff and landing distance data include correction factors for not less than 150 percent of the nominal tailwind component along the flight path. This margin is used to cover uncertainties in the actual wind condition. Aircraft flying at low speeds are relatively more sensitive to tailwind with respect to airfield performance. For instance, a 10 kt tailwind increases the dry runway landing distance of a large jumbo jet by some 10 percent, whereas for a small single engine piston aircraft the landing distance increases by some 30

percent. A small piston aircraft has an approach speed that is about half of that of a jumbo jet. A 10 kt tailwind will therefore increase the ground speed of this small aircraft relatively more than for the large jumbo jet, which explains the larger impact on the landing distance. On slippery runways, aircraft are more sensitive to variations in tailwind with respect to landing distance than on a dry runway. Tailwind-related overrun accident data show that in 70 percent of the cases, the runway was wet or contaminated. Clearly, the combination of tailwind and a slippery runway is a hazardous one, which should be avoided.

History tells us that tailwind is especially dangerous during the approach and landing. When an approach is made with tailwind, the rate of descent has to increase to maintain the glide slope relative to the ground. With a constant approach speed, the engine thrust must decrease with increasing tailwind to maintain glide slope. In high tailwind conditions, the engine thrust may become as low as flight idle. Flight idle thrust during the approach is undesirable for jet aircraft because engine response to throttle input is slow in this condition, which can be a problem when conducting a go-around. It can also become difficult to reduce to final approach speed and to configure the aircraft in the landing configuration without exceeding flap placard speeds. A high tailwind on approach in itself may also result in unwanted excessive rates of descent. All these effects can result into unsterilized or rushed approaches.

When applying normal landing techniques, pilots who land their aircraft with a higher than normal approach speed tend to bleed off the speed by floating the aircraft. Floating the aircraft just off the runway surface before touchdown should be avoided because this will use a significant part of the available runway. In case of a tailwind operation, the associated increase in ground speed will further increase the landing distance. As the aircraft comes closer to the ground, the tailwind will normally decrease. This has a temporary lift increasing effect due to the increase in true airspeed (inertial effect), making it more difficult to put the aircraft on the ground, which amplifies floating of the aircraft. History tells us that in more than half of tailwind related overrun accidents, floating took place.

Another problem is the combination of tailwind and wake vortices during the landing. The wake behind an aircraft will normally descend below the flight path the generating aircraft has flown. In a light tailwind, the wake may be blown back onto the glide slope, making an encounter more likely than under normal headwind conditions. Analysis of wake vortex incidents indeed shows that the incident probability during an approach is somewhat higher in light tailwind (1–2 kt) conditions. Wake vortices may decay less quickly at the point of flight path intersection, when a light quartering tailwind is present. This tailwind condition can move the vortices of the preceding aircraft forward into the touchdown zone. Therefore, pilots should be alert to a larger aircraft upwind from their approach and take-off flight paths. Wake vortex incidents that are attributed to light quartering tailwind are not uncommon, but are not always recognized as such. Incident data from a European airport indeed shows that the wake vortex incident probability is significantly higher in light quartering tailwind conditions. So the next time you make a tailwind landing, watch your back!

Airline Flight Training – Bert Elam

Training at an airline is a full time business, not just for the airline and the instructors, but for the line pilots as well. Having recently undergone "transition" training, I thought it might be interesting for the recreational pilot to have a brief glimpse into this world and is there anything that we can take away from this training to make our flying safer.

Even though airlines and aircraft manufactures' have strived to standardize cockpits, systems and procedures, there remain differences. For safety, at most airlines a pilot is only checked out on one type of aircraft at a time. A transitional course is an airline euphemism for moving from one aircraft type to another. In the "old" days the training began with classroom instruction on systems and standard operating procedures that were applicable for the aircraft that you were transitioning to. Today, all the systems training happen on computers (computer based training CBT). Each training module will deal with separate systems, i.e. hydraulics, electrics, anti-icing, fire suppression, flight controls etc.. During the module the computer allows you to operate many of the system switches and witness how each system operates and interacts with other systems via graphics. And yes, there are numerous quizzes throughout the module to test your knowledge of the operating system and limitations. There are enough systems modules (32 for the Boeing 777) to occupy 10 half days (two work weeks). The remainder of these days are spent putting this new knowledge into practice in what the airlines call a FTD (Flight Training Device).

In the past rather than waste expensive simulator time learning procedures (flows), we would sit in front of paper (photo) mock ups of the aircraft cockpit and practise all of our checks and procedures. While useful for muscle memory it did little to help with actual systems understanding. Now with the aid of today's powerful computers we have devices (FTD's) that very closely simulate the actual cockpit environment with moving switches, lights and even sound, but not the expensive motion. We will practise all of our checks, including the emergency drills, and even complete a flight from A to B before even seeing a full motion simulator. At the end of this two week period which will include a final systems exam and a final check of our procedures and emergencies in the FTD we are ready to graduate to the full motion simulator.

The full motion simulator will now validate what we have just learned in the CBT and FTD, but with the added luxury of motion. In the past much of the training was simply a review of systems functions and emergency drills, with the final test being an IFR ride with a couple of emergencies thrown in for good measure. In today's training world much of that was already taken care in the CBT and FTD. Today the training will actually concentrate more on real world scenarios. Much of the training will reflect accidents and incidents that have occurred within the industry and company over the past 12 to 24 months. With what has happened in the industry recently, we can expect to see more emphasis on jet upset, recovery from unusual attitudes and basic instrument flying. We include two days of manoeuvres validation, a check of emergency procedures and IFR

flight and two days of line oriented flight training (LOFT). The LOFT is a real time flight (in the simulator) from A to B where the check pilot will introduce simulated emergencies and evaluate how well you integrate all the knowledge you have learned up to now. You are graded not only on aircraft knowledge and flying skill, but on how well you use all the resource available to you, fellow crew members, ATC, maintenance, CFR etc.. At this point if all has gone well you are released to the line to fly actual passengers. Not as scary as it might actually sound to the passenger, as your first 50 hours of flying is done under the supervision of an instructor called a Initial Operating Experience Training Captain (IOETC). When the IOETC is satisfied with your performance you are recommended for your final ride with a check pilot. A delightful way to spend 45 to 60 days of your life, add a few more if this is your initial course with the airline or your first upgrade as a Captain. And in six months from now you will be back in the simulator to demonstrate your knowledge all over.

What can we as recreational pilots take from this, beside airlines loving acronyms and tests? When was the last time we had a thorough review of our POH, do we understand all our systems, do we understand how our engine obtain the fuel it need to sustain flight, do we know what actually happens when we turn that fuel selector? How does that new autopilot, electronic flight display unit actually interface with our flight controls? What redundancy can we count on, what if? Have you sat in the cockpit of your aircraft and ran through your emergency drills lately, could you identify all the switches and knobs with your eyes closed (muscle memory). Eyes closed which way is the off selection on your fuel? Have you reviewed the latest incidents and accidents, what have you learned from them? Have you practised a forced approach lately, tried flying your aircraft without elevator control, ailerons, could you land an aircraft like that? Try it at altitude and find out before you actually have to try it for real. What about VFR into IFR, when was the last time you had the hood on and practiced coordinated 180 degree turns (make sure you take a safety pilot)? When was the last time you had someone critic your flying, maybe time for that fun course, try flying floats, an aerobatic course, tailwheel check out, night rating or even an hour dual with a friend or instructor. Don’t let that brain atrophy.

777 Technical Characteristics:

Number of Aircraft in Air Canada’s Fleet:	12
Manufacturer:	Boeing Aircraft
Engines:	GE90-115B
Cruise Speed:	896 km/h (557 m/h)
Range:	14,594 kilometers (9,068 miles)
Cruise Altitude:	10,668 m (35,000')
Cargo Capacity:	23,024 kgs (50,760 lbs)
Fuel Capacity:	181,280 L (47,903 usg)
Length of Aircraft:	73.9m (242' 4")
Wing Span:	64.8m (212' 7")
Height:	18.7m (61' 5")

Interior Specifications:

	International Business Class	**Economy Class**
Number of Seats:	42	307

First 20 Sun Flyer electric trainers go to Okla. aerospace college

Spartan College of Aeronautics and Technology, based in Denver, Colorado, has signed an agreement with Aero Electric Aircraft Corp. to buy 20 electric-powered two-seat trainer aircraft. The college has reserved the first delivery positions for the Sun Flyer airplane, which is still in development. "This agreement signifies our commitment to innovation and to serving the next generation of

pilots," said Peter Harris, CEO of Spartan College. The electric airplanes, Harris said, "will make flight training more modern, accessible and economical than ever before." George Bye, CEO of AEAC, says the Sun Flyer will be cheaper to operate than conventional trainer aircraft.

The company brought its single-seat technology demonstrator, Elektra One, to Redbird's training conference, in Texas, last October. Bye said the final version of the two-seat, FAA-certified aircraft will cost as little as $5 an hour to operate, including battery replacement costs. AEAC is now working on initial R&D flight-test operations at Centennial Airport near Denver. Flight tests will continue while the first two-seat prototype Sun Flyer is being assembled, the company said.

2015 Membership Form

Winnipeg Area Chapter RAA

☐ Full $25

Required Information

Name		**OFFICE USE ONLY**
Mailing Address		**Renewal Date**
Phone(s)		**Chq. Cash Other**
E-mail		**Initials**
Are you an RAA national member? (1)		**☐ Yes ☐ No**
Do you give permission for your information to be made available to other Winnipeg RAA members?		**☐ Yes ☐ No**

Optional Information

Do you own an aircraft?	**☐ Yes ☐ No** **Make/model:** **Registration:**	**Are you a member of other aviation groups?**	**EAA: ☐** **COPA: ☐** **Others:**
Are you building or restoring an aircraft?	**☐ Yes ☐ No** **Make and model of project(s):**	**What Pilots licences and ratings do you hold?**	

RAA Winnipeg contributes $15 per member towards the insurance program maintained by RAA national. This program provides liability insurance to cover local chapter events.

Please make cheque payable to: RAA - Winnipeg Chapter
Mailing Address: RAA Winnipeg Chapter c/o Harold Kroeker
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Note: Your membership fee to the RAA - Winnipeg Chapter does not provide membership in National RAAC.