Winnipeg Area Chapter of RAA Canada *October 2012*

Executive
President: Jim Oke: – 344-5396
Past President: Ben Toenders – 895-8779
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Treasurer: Don Hutchison – 895-1005

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CALENDAR OF EVENTS

October 18	Tour U of M, Aeronautics and Space Administration, Faculty of Engineering
Nov. 17 - 18	Tour planned to Wahpeton Airport, Wahpeton North Dakota
Dec 1	Christmas potluck
January 2011	Rust Remover – date and location to be finalized

Election of Officers and Directors – October 18th
We're always looking for Officers and Directors to bring energy and new ideas to the Executive. If you are interested in serving on the Executive or have someone you'd like to nominate, please contact Jim Oke at 344-5396. Elections will be held at our regular meeting on October 18th, at our tour of the Engineering Faculty, University of Manitoba.

Project tour – 17 - 18 November – Wahpeton Airport, Wahpeton North Dakota
Our chapter is looking into the possibility of doing a project tour to Tri-State Aviation at the Wahpeton Airport, Wahpeton North Dakota (just a few miles from Fargo North Dakota) on the weekend of November 17 and 18th. Tri-State Aviation is involved in fabricating World War II aircraft parts which eventually led to the restoration of P-51 Mustangs and other WWII fighters. If you are interested in joining this tour, please contact Jim Oke at wmjoke@gmail.com or phone 344-5396. Also please advise Jim if you will make your own motel arrangement or would like to stay with the group at a moderately priced motel. Spouses and friends are all welcome.

Thursday October 18 Presentation at the U of M, Engineering Bldg.
The tour and presentation will be held in the Engineering Bldg. Beginning at 7pm in Room 211 – E2. For parking near the Engineering Bldg please click on this link: http://umanitoba.ca/map/parking/ The engineering building is near the centre of the university – building 28, next to the large "H" on the map link.

There will be two presentations tonight – one by Dr Kathryn Atamanchuk and the second by Malcolm Symonds. Dr. Atamanchuk will talk about her research on icing as this is directly related to aviation and aeronautical engineering issues.

Malcolm Symonds – Canadian Leader in Aeronautics and Space Engineering will present a lively discussion on his work (1970 – present) with the Black Brant Rocket payloads, structural review of the CF-101 Voodoo, CF-18 systems engineering report, F5 repair and overhaul and update, designing DASH – 8 tail cone and more! All aviation enthusiasts welcome to attend this RAA sponsored event: feel free to invite your friends to participate in this rare opportunity to hear first-hand the foundation of aircraft design and innovation today.

Brief Biography – Mr. Malcolm Symonds joined Bristol Aircraft in 1977, directly from university. Prior to that he was a pilot in the Royal Canadian Navy. He started his career as a design engineer in the Black Brant rocket area where he participated in vehicle structural, dynamic and performance analyses. During this period, he also supported the structural review and analysis of the CF – 101 Voodoo aircraft.

In 1980, he was made the Project Engineer for the Black Brant payloads and was responsible for the overall design, project management and full field support for the NRC payloads.

In 1983, Mr Symonds was promoted to Manager, Engineering Administration where he was responsible for the generation of engineering administrative and project management procedures and processes. He was also responsible for the introduction of workplace automation systems within Engineering. During this period he was also one of the two Company representatives who produced the CF – 18 Systems Engineering Support Proposal.

In 1987 he was promoted to Director, Aircraft Engineering where he was responsible for the systems design and development for Bell helicopter and CF – 5 repair, overhaul, systems update, avionics update, ground and flight test. This responsibility extended to new systems

manufacturing support as well as numerous international F- 5 support programs. Also, during this period, he was the Program Manager for Boeing/de Havilland Products.

In 1996, Mr. Symonds was given the added responsibility for Defence Missile and Propulsion Engineering. It was in these recent years that he was responsible for the engineering support to the HOKUM full size helicopter target program and the design and development of the DASH – 8 tail cone.

In 1998, he was made Director, Engineering Services responsible for all design, production planning, tool design, tool built and data control activities for the Bristol Winnipeg plant.

He retired from Bristol on 11 January 2001 after 24 years of service and worked at the University of Manitoba Aeronautical Engineering until he retired a couple of months ago.

Professional Affiliations:
Treasurer, local Chapter Chair, and Manitoba Councillor Canadian Aeronautical and Space Institute
Councillor, Vice-President, President, Association of Professional Engineers of Manitoba
Commanding Officer, 402 Air reserve Squadron
Member, Advisory Board for Mechanical Engineering Technology at Red River College.

Additional Training:
Numerous management, CALS, CAD/CAM, Quality, and military courses taken between 1962 and the present.

Tail Wheel Trouble or a Blessing in Disguise by Ben Toenders
A few weeks ago I was helping out at the Women Airborne event at Lyncrest airport. The day was bright and sunny. Winds were very strong from the south with gusts 10-15 knots higher. I took my first passenger, 9 year old Mckenzie, up for my first flight of the day in my Aeronca Champ. The flight was no problem except for the occasional bump due to the mechanical turbulence. I landed on runway 17 and started to taxi west along the taxiway parallel to runway 09-27 to head back to the clubhouse and drop off my passenger.

The winds were still strong and gusting. I was having difficulty keeping the nose pointed along the taxiway. The wind kept weathercocking my nose to the left. I needed a lot of right brake and power to keep the nose pointed straight ahead. About halfway to the clubhouse an especially strong gust slewed me over almost 45 degrees. I came to a stop to prevent going off the taxiway. I then held right brake and rudder (hard to do with heel brakes) and increased power to try and straighten myself out.

As I increased power suddenly the tail began to lift. I suspect the gust had suddenly died and now I had a lot of power which lifted my tail as I had allowed my stick to come forward. I pulled back the throttle immediately but it was too late. My prop nicked the earth and I could see pieces of dry grass flying in the wind. After chopping power the tail dropped quickly and we were jolted slightly when it hit the ground. The engine had stopped and we exited the airplane. There were a few marshallers who had seen what happened and they came over to assist. I had one of them take McKenzie back to the clubhouse. I did a quick check of the prop and saw a shallow gash in the ground just below it. I knew I wasn't going flying again until I was able to look over the airplane so I asked some of the other guys if they could help me push the airplane back to my hangar.

The push back to the hangar was uneventful, but I was having trouble swinging the aircraft around to put it into the back corner tail first. The tail wheel wasn't swinging around properly. A quick look at the tail showed that the tail spring was straighter than normal. I thought perhaps

the drop had been hard enough to bend my tail spring. After buttoning up the hangar I went back to the clubhouse to see who was there and to find out what I should do next.

At the clubhouse word had already spread about my incident. I told a few of the guys what had happened and asked for advice. They said to inspect the prop and check for damage. If it looks undamaged then do a tracking test. The tail wheel could be re-arched if necessary. A few of them came back to the hangar with me and checked the prop. Luckily, except for brushing some dirt and grass off the tips of the prop it looked good. A tracking test also confirmed it was still running true. I later checked the CARs and confirmed that no further checks on the engine were required as the prop had suffered no damage. According to the CARs any prop strike where there is damage evident, such as bending or pieces missing, would require further engine inspection. I had dodged one bullet. Now on to the tail.

Back at the clubhouse I was talking to Vic Prefontaine, a very experienced ex-Air Canada maintenance fellow, and discussed the tail spring situation with him. He said we could try to use the shop press in the RAA Hangar to bend it back. A proper re-arching would be better but we could possibly improve things a little with the shop press in the meantime. We decided to try it and he came back with me to the hangar. While Vic was looking at the tail spring he discovered that it wasn't bent, it was actually broken. Two of the three leaf springs that make up the tail spring had cracked right under the rudder post. One of the springs must have already been partially cracked because, on closer inspection, rust could be seen along the edges of the center leaf where it had broken. The other piece looked like fresh metal along its break. Using a shop press to fix that wasn't going to work.

I remembered that there were a couple of spare sets of tail springs in the hangar. I dug them out and brought them over to see if they matched. One set was too short but the other set was a match. We decided to swap out the broken tail spring with the spare set. We managed to replace the broken with the whole but it was soon evident that the replacement had seen better days and also needed re-arching. The second bullet hit its mark.

Back to the clubhouse to think this over and ask for more advice. I asked if anyone had ever had a tail spring re-arched and what did that involve. Apparently there were companies in town who could do it or even build me a new set if I gave them a pattern to work from. Later I learned that having a set built locally would cost as much or more as ordering a new set. We looked through catalogues to price out a new tail spring. Here I discovered something else. The tail spring on my Champ was not an Aeronca style tail spring; it was a Taylorcraft style tail spring. I checked a few of the other Aeronca's parked on the airfield and they all had the Aeronca style tail spring. Some time in the past the alternate style had been installed on my airplane. I decided to order a new Aeronca style tailspring and hope to receive it shortly.

While swapping the tail springs I noticed that the tail wheel was quite greasy and dirty. Since I was not going to fly again until the new tail spring was installed I took the tail wheel assembly off the airplane and brought it home to clean it up. Back home I did some internet research on Maule tail wheels and found an excellent article written by Drew Fidoe on his FlyBaby website, *www.bowersflybaby.com/tech/**Maule_Tailwheel**.pdf*. Check it out for an excellent overview of the Maule tail wheel complete with pictures, diagrams and instructions on how to overhaul the tail wheel.

While cleaning up and taking apart my tail wheel I discovered that the lock pin was not moving properly. It was not engaging completely. I cleaned it up and removed a layer of grime. Even after cleaning the lock pin was not moving properly in its slot and was difficult to remove. I finally was able to get the pin out by using a screwdriver to provide some leverage. I found that the end of the pin that engaged the slot in the lock ring to provide steering had been slightly deformed. I

used my Dremel tool to shave off the edges and smooth out the faces of the pin. The pin was now moving freely and engaging properly.

Was this perhaps another reason why I was unable to taxi in a straight line with a strong crosswind? If the tail wheel was not locking properly then my tail wheel was always in a free castor mode. This was not evident in light winds but possibly a factor in allowing my aircraft to slew into wind and weathercock when operating in strong winds.

I carefully put the tail wheel back together and thought I had everything in place but the steering arm was wobbling and the locking pin was riding over its cam plate at the ends of its travel. What had I done wrong? I looked again and noticed there was a gap where the fork shaft was meeting the bracket that bolts onto the tail spring. I took it apart and put it back together and had the same problem. I reread the article about reassembly and noticed he said it was a B%#*& to reseat the lock ring which rides the fork shaft. I left it for a while to let the steam subside.

I came back to it the next day with my brother-in-law who is handy mechanically. We looked it over and decided to alter the reassembly process. I had been putting the lock ring on the fork shaft and then attaching the steering arm which holds the lock pin. Instead we put the steering arm on first, made sure it was seated properly onto the fork shaft and bracket and then installed the lock ring. This wouldn't fit until the lock pin was pulled back against its spring and then everything slid into place perfectly.

So what did I learn? First that all things are not so dire as you first imagine. I was quite lucky that the prop strike was minor and no damage to the engine occurred. I have flown the aircraft since the incident and everything operates well. Second, is there a reason for everything? I would not have investigated the tail wheel and spring as thoroughly if the tail spring had not cracked. I again lucked out in having the spring fail on the ground during a slow taxi rather than on rollout from a landing at higher speeds. I now will have the proper type tail spring and a fully functioning tail wheel. I also learned that tail wheel maintenance is fairly easy if you are patient.

Safe flying,
Ben Toenders

Vernon Flying Club newsletter

If you are interested in reading the Vernon Flying Club newsletter, check out the following website:www.vernonflyingclub.com then click on the news tab.

2013 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?	

Please make cheques payable to: RAA - Winnipeg Chapter
Mailing Address: RAA c/o Steven Sadler PO Box 703 LaSalle Mb. R0G 1B0

Notes:

1) RAA Winnipeg contributes $15 per member towards the insurance program maintained by RAA national. This program provides liability insurance to cover local chapter events. The $15 does not provide membership in RAAC.