



*Winnipeg Area Chapter of RAA Canada*

*January 2012*

***Executive***

***President: Jim Oke: – 344-5396***

***Past President: Ben Toenders – 895-8779***

***Memberships: Steven Sadler – 736-3138***

***Secretary: still looking for a volunteer***

***Treasurer: Don Hutchison – 895-1005***

***Directors***

***Harry Hill - 888-3518***

***Bert Elam – 955-2448***

***Ken Podaima – 257-1275***

***Jill Oakes - 261-1007***

***Gilbert Bourrier – 254-1912***

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**NEWSLETTER:**

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## ***CALENDAR OF EVENTS***

**January 2011**

**Please note that our January meeting will be held on February 2nd**

**February 2 2011**

**Rust Remover** – 7PM, 2012 at the ANAF Veterans Hall 3584 Portage Ave.

**February 16**

Tiger Moth wing restoration project presentation

**March 15**

Fabric covering workshop

**April 19**

Project tour planned

**May 17**

Tire Kick – Summer Plans – Lyncrest Airport

## Al Bartlett 1 May 1925 – 11 November 2011



It is with sadness that we announce the passing of RAA Winnipeg Chapter Life Time member Al Bartlett. Al was a regular at our meetings and most of the project tours the chapter went on. Al was a great help to me by phoning members who do not have e-mail and reminding them of upcoming meetings and tours. Al had 18,000 hours in his flight log and enormous knowledge of all things related to aviation. He was always willing to share this knowledge with anyone. There are lots of us of my generation who were fortunate to have Al as our flying instructor at the Winnipeg Flying Club and it is a credit to him that so many of us are pilots today.

Al will be missed.

## Aviation Inventions in Manitoba

*Jill Oakes and Harry Hill*

Manitoba is the home of aviation inventions - from the first helicopter built in a small workshop in Homewood, a tiny village in south western Manitoba, to the first reduction drive for a Subaru engine in Dave Johnson's shop on the outskirts of Winnipeg. For years, Dave Johnson met with a group of aviating friends every Thursday at a restaurant in Oakbank. Recently aviation enthusiast and inventor, Dave Johnson, passed away and Jim Goold, one of the regulars on Thursday evening kindly connected the RAA with a long term aviator and colleague who provided the following insights on Dave's contribution to the homebuilt aircraft industry.

Initially, Dave Johnson worked as a photographer for the Winnipeg Free Press. He enthusiastically accepted assignments, including riding with the Blue Angels while madly taking photographs during their aerobatic routine - some of Dave's photographs are included in the Museum of Man and Nature! While working at the Free Press, Dave invented a speed reduction system for engines. "The tip of a propeller must not break the speed of sound, so for the typical 6 ft prop that means 2500 or so rpms. The typical auto conversion turns 5-6000 rpms. Dave made a simple reduction system that used a toothed rubber belt similar to the one that drives the camshaft on most cars, but more robust for aviation application. Harry Hill, a long time President and Director of the local RAA chapter, recalled Dave manufacturing the system in his home shop and "Early in my meetings with Dave he said that he had a "secret source" that cut his cogs." The advantage is that a rubber belt redrive can be made with lower tech, and Dave even sold plans so that amateurs could make their own, and get into the air with less expense. Dave was one of the pioneers in this, converting inexpensive Subaru engines for use in light aircraft." Gary Wolf. Dave's initial invention was developed on a Honda motorcycle engine and then he applied it to the Subaru engine. By the early 1980s, Dave and his wife traveled to Oshkosh to display his reduction system and formed "Reductions Inc"

Dave Johnson's 'Reductions' were well suited for any home built aircraft using a 100 hp engine. He applied his system to a wide variety of engines, including the AE81 and AE82 Subaru, and the Suzuki Swift. His redrived engines were installed in just about every type of aircraft, including the miniature B51 Mustang, ¾ scale twin tailed twin engine P-38 Lightning single seat fighter, KRIs, Murphy Maverick - just about every airplane that uses a 100 hp engine! Over the years he has completed reduction systems for well over 300 engines! In addition, "he was heavily involved in the development of hovercraft and their propulsion right down to carving his own props" added another aviation enthusiast, Grant Pronishen; who concluded with "Dave's most recent project, the plans built Storch which has many of Dave Johnson's improvements equipped with a Geo Auto engine... Dave never got to complete it, but it is now in the hands of another local aviator from Anola and perhaps he will get to help lift it into the sky from above someday soon." Dave's creative, innovative reduction drive system will continue to evolve from where it began in one of the hubs of recreational aviation in Canada.

**9<sup>th</sup> Annual December Pot-luck dinner.** Another successful Pot Luck dinner was held on Saturday December 3, 2010. Approximately 30+ aviation enthusiasts were present and enjoyed loads of good food and friendship.

## **RAA Membership Dues Reduction**

The executive of the Winnipeg Chapter of the RAA has examined our finances and believe that we are financially in fairly good shape. The executive has decided to reduce the annual dues from \$50.00 to \$25. For those members who have already paid \$50 for their 2012 dues, you can either request a refund of \$25 or apply

## **Rust Remover February 2, 2012**

**Sponsored by COPA Flight 35, CASARA Manitoba, Manitoba RAA and the Manitoba Aviation Council.** The Annual Rust Remover will be held at the ANAF Veteran's Hall at 3584 Portage Avenue (same as last year) on **Thursday February 2nd at 7:00PM**. Presentations will be by Canadian Owners and Pilots Association, US Customs and Border Protection, Canada Customs and Revenue Agency and Transport Canada. Admission is \$5. Refreshments will be served. The topics covered are always interesting, informative and benefit to the general aviation pilot. **This seminar qualifies for the annual pilot recurrency requirement.**

COPA Flight 35 will also be holding its annual oil draw and 2 other valuable prizes for an additional \$5. This is our only fund raiser and this gives COPA Flight 35 the opportunity to support aviation events such as COPA for Kids, 99er's Poker Derby as well as the COPA's Freedom to Fly Fund and others.

Please note that we are moving our regular February meeting one week later due to its close proximity to the Rust Remover on February 2.

## **Vintage Aviation at Fargo Air Museum and Tri-State Aviation By Harry Hill, Jill Oakes and Bob Stewart**



*RAA members reading about the Wasp Major 28 cylinder radial engine*

The Winnipeg Area Chapter of the Recreational Aircraft Association viewed an amazing collection of War Birds at a recent 2-day tour to North Dakota. The tour included the Fargo Air Museum and Tri-State Aviation, both renown for their significant collection of vintage aircraft and parts.

Stearman pilot Helen O'Connor, Assistant Director of the Fargo Air Museum, introduced the Fargo Air Museum's beautifully restored F4-U Corsair, TBM Avenger, L 39 Czechoslovakian military trainer, P51 Mustang, Fairchild PT-19A, a homebuilt T-tail Poly Wagon used to teach the principles of fight to museum visitors as well as a DC3 and another

Czechoslovakian jet trainer parked outside were some of the highlights. The amazing 28 cylinder radial Pratt and Whitney Wasp Major engine sitting quietly beside a Merlin GT currently under construction by the local EAA chapter and an award-winning replica of the Wright Flyer connects the early beginnings of aviation with the present. Other aircraft exhibits include a Huey Helicopter, and 1917 Standard. The museum also has a library with 1000s of books, magazines, original drawings and a gift shop. The museum is raffling off a fully restored 1964 Cessna 182. The draw will be made next June, so contact the Fargo Air Museum if you are interested in buying a US\$50.00 ticket; only 2500 tickets are available for sale.



*Jon Klein demonstrating some of the parts reproduced by TSA (power hammer), CNC machining, sheet metal repairs and welding. With a capable staff of nine, the company has continued after Beck's death in 2007.*

Tri-State Aviation Inc., (TSA) in Wahpeton ND, fabricates parts for, and restores WWII aircraft, specifically the P-51 Mustang. As an FBO, they also service general aviation and agricultural aircraft, as well as manufacturing spray booms (Superbooms) for Ag aircraft. Jon Klein, Shop Manager and Cindy Schreiber-Beck shared the history and current capabilities of the business. TSA was founded by Gerry Beck and has been in operation since 1974 at which time it was an aerial spraying operation and FBO. Since that time it evolved into a shop with unique capabilities including hydroforming, prototyping, stretch forming, metal shaping



*The Avenger restored at TSA in the Fargo Air Museum*

The purchase of a TBM Avenger without bomb bay doors was the genesis of fabricating WWII aircraft parts. Bomb bay doors were not readily available thus Beck decided to tool up and build a set of doors. Building the doors proved to be a successful endeavour. Shortly thereafter the transition to Mustang parts occurred with the rebuilding of a doghouse.

Beyond Mustangs, numerous warbirds have been through the shop, including: F4-U Corsair and TBM, that are on display at the Fargo Air Museum; a Japanese Zero (Nakajima manufactured A6M2) that Blayd Corporation of Carman MB

completed the major portion of the restoration; rebuild of a Hawker Sea Fury; and numerous P-51 Mustangs for major rebuilds or component rebuilds, including the Red Tail Mustang (C Model) and fabrication of the A Model, the first A being Beck's "ultimate homebuilt" that is currently under rebuild. Using original drawings, all components that could not be purchased for the A are fabricated. That includes the engine mount that was in process.

Of interest was the metal forming shop. Randy Carlson's expert hands use a variety of machines, including a power hammer, to create compound curves in originally flat aluminum. Using dyes that he machines, specific curvatures can be achieved. Many Mustang parts are unavailable for purchase so Randy carefully crafts the parts using drawings from the Smithsonian Museum and /or pieces of original parts as models. Most recently, Randy completed exhaust pieces for a B-29 and Jon showed us lower cowlings for the A Model that is currently being made.

Another technique that the TSA crew has mastered is stretch forming aluminum using an in-house built stretching machine and concrete dyes. The Mustang air induction scoop is being reproduced by pouring a concrete mold and finishing the concrete until it is as smooth as silk. Then a sheet of aluminum is clamped in jaws on the massive, hand-made table with hydraulic rams that push the concrete dye into the aluminum to form the part.

TSA also uses CNC machines to produce precision parts. Mustang / T-6 tail wheels can be produced along with numerous aluminum parts. Again, the original drawings are utilized to program the CNC machine.

In another workshop the A Model Mustang tail surfaces were being covered with fabric using countersunk screws and counter sunk washers to hold down the heavy-gauge tape. The attention to detail is seen throughout this amazing project, including stitching the fabric to the metal framing openings in the leading edge of the tail surfaces.



*Blackner checking out the engine mount made by TSA For the Mustang*

Cindy then took us into an adjacent hangar where a room full of antique engines, aircraft and cars greeted us – to include Merlins, Allison, Continentals to name just a few of the engines...plus five Mustang fuselages awaiting customers to finalize the order, tons of aircraft parts, 2 WWII military vehicles, a B-25 Mitchell Bomber and a Howard. Just when it seemed like there couldn't be anything else vintage to see, Cindy completed the tour with a close look at an amazing antique machine that TSA used to make spools of wire fabric clips. The machine produces the Martin Fabric Clips that are used to secure fabric to metal ribs *John* without rib stitching.

TSA specializes in the tools, skills and knowledge needed to restore vintage aircraft with excellence, producing their own parts when it is impossible to buy replacement parts. The shop began as an Ag plane repair shop and now is comprised of a staff of 9 with the capabilities to rebuild warbirds. TSA works closely with similar shops across North America and is known internationally for their exceptional workmanship and ability to fabricate parts. RAA Past President Harry Hill originally planted the idea to tour Tri-State Aviation about 10 years ago; current President Jim Oke picked up the idea this fall. We look forward to returning next year when Tri-State plans to have the A-Model Mustang ready for flight.

## **Wanted**

A pair of used Cleveland 500 x 5 rims similar to the ones used on the nose wheel of a Cessna 150. These rims will be used on a static display aircraft. The axle size is 1¼ inch. If you can help, please contact Gary Boggs at [ylgacgb@shaw.ca](mailto:ylgacgb@shaw.ca) or phone 885-5521.

## **A little humour....**

### **Say again....**

Questions via the radio should not always be answered exactly.

Tower: Aircraft in holding pattern, say fuel state?

Aircraft: Fuel state

Tower: Say again?

Aircraft: Again....

After this the tower controller switches off his radio and climbs down the stairs to drink coffee the rest of the afternoon.

**2012 Membership Form**

**Winnipeg Area Chapter RAA**

Full (\$25.00)

**Required Information**

<b>Name</b>		<b>OFFICE USE ONLY</b>
<b>Mailing Address</b>		Renewal Date
<b>Phone(s)</b>		Chq.      Cash Other
<b>E-mail</b>		Initials
Are you an RAA national member? <sup>(1)</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Do you give permission for your information to be made available to other Winnipeg RAA members?	<input type="checkbox"/> Yes <input type="checkbox"/> No	

**Optional Information**

<b>Do you own an aircraft?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No Make/model: Registration:	<b>Are you a member of other aviation groups?</b>	EAA: <input type="checkbox"/> COPA: <input type="checkbox"/> Others:
<b>Are you building or restoring an aircraft?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No Make and model of project(s):	<b>What Pilots licences and ratings do you hold?</b>	

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.