



Don Cavanaugh

Well here we are - the beginning of May -- right in the middle of pot-hole season in the metro area. The flying season finally arrived after a mainly cold and wet April - the guys are turning up at the field with their new winter projects - ready to bust through the double doors into the 2007 flying season - they're rarin' to go.

So what's happening in the club? Well if you missed the April 15 meeting - you missed a real bellringer -- we had a most interesting speaker in the person of Mr Ross Ferguson who has designed, built and flown

his own 2/3 size Spitfire - if you can believe that! There's a write-up below summarizing his presentation, but it's hard to capture the extent of his accomplishments which brought together his many skills as an aircraft designer, machinist, woodworker, and pilot.

Club Meeting - 15 April 2007 – Meeting Fallout

The meeting was at the usual location - Durham College, - 1610 Champlain Ave in Whitby and got started at about 7:05 p.m. with President Don Mitchell welcoming the 25 members in attendance. Don auctioned off the "Trash & Treasures" - which included a box of hobby tools, epoxy brushes, numerous magazine bundles and a bag of clamps.

Treasurer's Report:

Treasurer Jeanne Mitchell outlined the club's financial position which will not be repeated in detail here - but the club is in good shape financially -- we had 46 members at the beginning of the meeting so we must have around 50 by the beginning of May.

Jeanne further said that she had ordered 50 pairs of golden wings which cost \$4.07 each for purchase by the members at some mark-up. She informed the membership that we have 41 individuals wanting to participate in the racing this year - so it looks like an active season.

Port Perry Seniors Residence Demonstration

Don Mitchell informed the floor that he and Jeanne had gone up to Port Perry and examined the site where it had been proposed we stage a flying demonstration for the seniors there. Don described the area as being very small and bordered along one side with car so that the area was just too dangerous . Gerry Scheenaard asked if a helicopter could be flown there -- Don said he felt any flying was too dangerous, but that if anyone wanted to give a talk or presentation to call him and it would be arranged. Don Mitchell said he had approached the Scugog Float Flyers to give a presentation but they had declined to do so.

Flight Training Schedule

In response to last month's suggestion that we should dedicate specific periods of the week for student training, Neil Benjamin (our Chief of Flight Training) said that he had given the matter considerable thought and since there were not enough trainees to be problematic at the field, plus it is often difficult, due to shift-work and the like, for students/instructors to be at the field at predetermined times - he had decided to leave the training schedule open - to be arranged by the student with his instructor, as it was last year.

Oshawa Aviation Exposition - June 22, 23, 24

Gerry Scheenaard asked if there were enough volunteers from our club to man the MAAC booth at the show. President Don Mitchell said that we had several willing souls but more were always welcome. Gerry volunteered to be available on any of the three days.

Report From Activities Chairman - Howard Smith

1. Club Fun Fly: - Howard Smith advised the floor that he has scheduled the club fun-fly event at the field to take place on Sunday, June 3rd - starting at 10:00 a.m. where there would be some simple flying routines worked out such that all could enter. There will be a few prizes handed out for various events and a Barbeque is planned for later in the day. I see Howard has posted the June 3rd event on his newly "gussied-up" website (see item 3 below)..

2. Scale Rally: - Howard said that he was tentatively planning a Scale Rally for early fall if there was sufficient indication from the membership that they would attend. He requested that anyone interested to let him know so he could determine the level of interest. Again Howard will be sending a notice to members regarding the Rally in a few weeks. Don Mitchell requested that he be kept informed so he could arrange for MAAC sponsorship to ensure insurance coverage and to get some financial help from MAAC.

3. New Club Website: - be sure to check out the new website which Howard has artfully revised and greatly expanded to include such things as frequencies in use,

current weather, links to other clubs, an events calendar, present & previous newsletters going back several months and other links. -- things like this don't just happen! - they take a lot of work - unselfish work from a guy who's already busy making a living and raising a family -- so hats off to Howard Smith for an outstanding job of upgrading the website - it looks great.!! I see Howard is asking the membership if we need a discussion forum on the website – I personally like the idea because it allows you to post your intention to go to the field - but it'll be up to us all to collectively decide - so be sure to go to the website and vote in this poll which ends May 12.

Report From Pylon Racing Chairman - Kevin Ward

Kevin Ward said that the racers had all been completed and thanked Don Mitchell for providing all the templates and jigs to enable the construction to proceed smoothly. He added that he was hoping for improved weather soon because the first Pylon Racing "Shake-Down" race was scheduled for Sunday, 6 May. Don Mitchell said that the club was planning to buy a couple sets of "Walkie-Talkies" for the Pylon Judges to advise the flyers they had "cut" the pylon. In fact these little gizmos have been purchased and we were checking them out at the field the other day and find they're very easy to use.

It was decided that putting the radio frequency number on the aircraft was optional.

There was discussion of how, with so many participants, would we schedule the racers so they would be flying against a variety of different competitors so as to provide more or less equal opportunity for everybody. Computer programs were considered but these would not provide flexibility if someone failed to start his engine, crashed or could not race for whatever reason. It was eventually decided that we would conduct the heats the same way as last year with Jeanne Mitchell (our race manager) selecting the names boards of the heat participants manually as logic dictates.

Some of the guys - like Wayne Challis and Kevin Ward for example, have already got their racers in the air – Wayne reports that they are faster than the old racers and hold their speed better going around the pylons. Lots of fun ahead!

Report from Field Chairman - Don Mitchell

Don advised that the new locks, and the new combinations were in use at the field and reminded the membership to be sure to be careful to leave them locked to the chain while the gate is open and to be sure to lock the gate "Lock-to Lock" when locking the gate.

Don further added that he was planning to roll the field in mid-May for which he would need 4 or 5 guys out to give him a hand driving the roller -- What subsequently transpired was that Frank Kuhar ran across a gentleman with a rolling machine, struck a great deal with him and on 24th April he delivered the machine to the field and we (Frank Kuhar, Don Mitchell, Don Haslam, Don Cavanaugh & Kevin

Ward) took turns driving the roller. While not driving the roller we sprinkled and raked in some grass seed in the few remaining bare spots. Conditions were perfect for rolling because it had rained heavily the previous afternoon and the ground was just damp and soft enough to be effectively flattened by the roller. The field is in terrific shape for the forthcoming season.

This concluded the business part of the meeting.

-----Coffee Break-----

(Coffee & Munchies were provided by Gerry Scheenaard)

Show & Tell

Two guys who brought in their new models for "Show & Tell":

1. Gee Bee Racer: Ken Parton brought in his new Gee Bee "Flying Jug" Thompson Racer which he has covered with fabric but not yet painted. It was an Adrian Paige kit, which Ken described as being a fine kit. He has powered the model with an YS-110 four-stroke engine which should be plenty of power for the model which looks to be about "60-size". Ken did a beautiful job of building the ship.

2. Beech Staggerwing Dave Parton brought in and showed us his newest model - a Top-Flite Beech Staggerwing ARF - finished off beautifully in resplendent red Monocote. Dave and Ken estimated that the model weighs about 18 pounds and they are planning to wait to see how the model flies before investing in retracts for the ship. Dave fitted his O.S. 160 "Gemini" twin-cylinder four stroke engine with an on-board ignition system to keep both plugs lit. The aircraft came with the cabin windows already installed which eliminates that tedious task.. Dave did note that the Staggerwing was delivered with a poorly attached fin which required a bit of ingenuity to fix and he also noted that the red finish was not color-matched exactly in some painted areas. The model looked terrific and seeing it fly this season is something to really look forward to.

Feature Speaker Ross Ferguson Talking about his 2/3 Scale "Spitfire" Homebuilt

Ross Ferguson introduced himself as a man who shared the member's love of building models, but that in order to overcome the problem of trying to control an airplane while it is flying towards you - he had elected to build a 2/3 scale "Spitfire" which he could get into and always be facing forward. Ross explained that during World War II the Spitfire had served so well in the Battle of Britain that it had emerged as the finest fighter plane of that era. Ross circulated a bunch of photos showing his beautiful machine - which was a "99.9 %" exact scale copy of the Spitfire XIV - which was one of the later models of the Spitfire and which had been

powered by a Rolls-Royce "Griffon" engine. This gave the aircraft a longer nose than earlier Marks of Spitfire and enabled Ross to complete his design such that he did not need to add nose ballast as is common with Spitfire homebuilts. To help with nose ballast - Ross elected to use a relatively heavy automobile engine - a "266" V-8: Oldsmobile engine which was mounted backwards in the aircraft with a "belt-reduction gear box" bolted onto the engine (where the transmission would go in the car). This gear box reduces the propeller speed by a ratio of 2.45 to 1 so that Ross was able to use a rather large four-bladed propeller. (The real Mk XIV had 5 blades). The engine was liquid cooled by scale radiators under the wings and had an oil cooler mounted in the scale position behind an airscoop below and behind the prop. Scale replicas of the original Griffon exhaust stacks were fitted - but the engine was fitted with exhaust manifolds leading the exhaust aft into a muffler which exhausted at the lower aft of the cowl.

Let's take a moment here to really understand the magnitude of what Ross Ferguson did here -- his Spitfire was not a kit - nor was it even a plan -- Ross started off with a scale model airplane plan - which he enlarged and used the profiles to develop his own design of the Spitfire and draw his own blueprints!!! Ross is a machinist by trade and a teacher by profession - so he did everything himself -- think about it - he designed the airframe, the engine installation, the belt reduction gear box, the control systems, the landing gear and retract mechanism, the flap system, all the bellcranks, pulleys and fittings, -- the whole nine yards!! He then built the machine with the correct angles of incidence in the flying surfaces, the correct degree of washout (2.6 degrees - copied from the original Mk XIV Spitfire). Ross had doubts that the tail volume coefficient was adequate for the Reynolds Numbers he'd be operating at with the 2/3 scale airplane so after some rather involved calculations, decided the horizontal tail needed to be increased 30% in area but the vertical tail was adequate at scale outline.

The Spitfire was built from aircraft grade Mahogany and Birch plywood purchased in a 25 sheet lot of 8' x 4' sheets from California in thicknesses ranging from 1/16" to 1/4" , depending on the application/ location. He found it necessary to maintain an average humidity in his shop of around 50% to avoid deformation of the plywood. Epoxy glue was used throughout. The finished airframe was coated with sanding surfacer which was sanded off and then covered with 3.0 oz cloth adhered to the plywood skin with epoxy squeegeed onto the surface to remove as much epoxy as possible to save weight. When this was dry he applied a coat of primer followed by automotive basecoat (sprayed on). He then took the airplane to an automotive body shop for a professionally applied application of clear coat. The plane is finished in the authentic colors of the original aircraft except that it had a shiny surface rather than the original matt finish.

As an aside Ron expressed the opinion that the Oshawa Airport should have been named for Lloyd Vernon Chadburn / DFC who had flown Spitfires in the war. Chadburn had identified his aircraft with his own initials, so in honor of this decorated Canadian hero, Ross painted Chadburn's identification "LVC" on his Spitfire. The project took Ross 12 years to complete, at a cost of between \$20,000 and \$30,000 and countless man-hours.

Ross explained that he had been an MDRA inspector which qualified him to inspect other homebuilt aircraft. Although he could not inspect his own aircraft, he had a good idea what inspectors were looking for - which was essentially to ensure that "aircraft quality workmanship and materials" were used throughout. Inspections were required initially before closing up the structure when the interior structure was still visible; and at subsequent intervals leading to the final inspection when it was necessary to state where the initial flights would take place before being granted a flight permit. A test pilot known to Ross volunteered to conduct the test flights which went off very smoothly - so smoothly in fact that the pilot was easily doing barrel rolls and he later said the ship handled like a Pitts biplane - high praise indeed!! The Spitfire had plenty of power and could climb at nearly 2100 ft per minute.

Ross had accumulated about 1300 flight hours before flying the Spitfire and has completed about one hour flight time in it to date.

He responded to a question that liability insurance was easy to obtain at a reasonable cost.

In response to another question Ross said that homebuilt machines previously could not be imported from the U.S. because they did not require a pre-closing inspection during construction, but that this inspection was now required in the U.S..

After his presentation Ross showed a dvd video of his Spitfire during start-up, taxi, take-off and landing with full landing flaps with it's designer and builder at the controls. It was an inspiring thing to watch the video to see how a gifted man had accomplished so much.

The meeting ended about 9:20 p.m.

Locking the Gate at The Field

A couple of times members have found the gate open with nobody at the field!! It's difficult to imagine how this could happen – but it did. It's possible CLOCA left it open because the gate was swinging half open with our lock still on the chain. Fortunately our lock was still there and there was no vandalism at the field but it's worth mentioning the event so members will be sure to lock the gate carefully - lock-to-lock with CLOCA's lock and the tumblers twirled - as indicated above - and – thankavurrmuch

Final Thoughts

Happiness is a good meal, a good cigar, and a good woman- or a bad woman --- depending on how much happiness you can handle! ----- George Burns

CANADIAN AVIATION HISTORY -- THE GIMLI GLIDER

The following account is the author's opinion



On 23 April 1983, Air Canada Flight #403 - a Boeing 767, was sitting on the tarmac in Montreal being refueled for the trip to Edmonton, via Ottawa. Veteran pilot Bob Pearson and his copilot- Maurice Quintal were seated in the cockpit, when it was discovered that the on-board computer known as the Fuel Quantity Information System (FQIS), which manages the entire fuel loading process, was inoperative. (It would later be discovered that the problem was due to a poorly soldered electrical connection). The FQIS also controls all of the fuel pumps and the cockpit fuel gauges while in flight.

So the ground crew needed to compute the volume of fuel on board by the old fashioned process of "dripping the tanks"- (a procedure much like checking the oil in your car with the dipstick except that a probe extending up into the tank is unscrewed from the bottom wing surface and lowered until it starts dripping fuel). Now this should not have been a big problem except that the Boeing 767 was the first airplane delivered to Air Canada with the fuel system set up in metric units – so when the fuel started dripping, the mechanics read the volume of fuel off the probe in liters. The pilots needed to know the weight of the fuel in kilograms so they could enter it into the computer manually. So the problem was how to convert liters of fuel to kilograms – nobody knew how!! There was mass confusion up the chain of command -- finally somebody found the notation on the refuellers slip saying the fuel weighed 1.77 POUNDS per litre (which is correct).

Excited by this new knowledge - they multiplied the number of litres by 1.77 and found the number of POUNDS of fuel on board – they forgot to convert it to kilograms and gleefully (and erroneously) told the pilots that was the number of KILOGRAMS in the tank. The skeptical pilots insisted on doing the calculation themselves -- which they did three times, and each time made the same error the refuellers had made - although it seems likely that the refuellers may have

erroneously told the pilots the factor was 1.77 KILOGRAMS per litre. -- Pearson manually keyed the information into the onboard computer and took off for Ottawa. (In fact jet fuel weighs about 0.8 kilograms per liter)

When airborne, Bob Pearson felt uneasy - the whole thing bothered him, so when they landed in Ottawa he asked the ground crew there to redrip the tanks and tell him how much fuel he had. They did this and told him he had 11430 liters on board.. Pearson and Quintal multiplied this by 1.77 and came up with 20400 kilos of fuel - (in fact they had 20400 pounds of fuel which is only 9144 kilos). They keyed 20400 kilos into their flight management computer - and at that moment their fate was sealed.

They took off for Edmonton and were flying westward at 41000 ft over Red Lake Ontario when the Crew Alert System beeped four times - and a light indicating low fuel pressure in the left wing came on! A check of the flight management computer indicated plenty of fuel - so they shut off the fuel pump in the left wing which they suspected had failed - and flew on. Then the second fuel pressure warning light came on and the crew figured this was too much of a coincidence and immediately diverted to Winnipeg and requested emergency clearance. Then the other left wing fuel pressure gauge lit up and the left engine flamed out! They tried to cross-feed the tanks, still suspecting fuel pump failure. This did not work as attempts to restart the left engine failed. The crew made preparations for a single-engine landing (they should be so lucky). Two minutes later a loud "Bong" from the EICAS rang in their ears indicating total loss of power in both engines. Without engine power there are no generators or hydraulic pumps so they tried to start the Auxiliary Power Unit (APU) -- but of course this unit draws fuel from the same source as the engines and it would not start. The glass cockpit display also went black leaving the pilots with only basic mechanical instruments including a compass, altimeter, airspeed indicator and of course, the battery powered radio. Hydraulic pressure was falling fast and the planes controls were becoming inoperative. However when the pressure dropped low enough, the Ram Air Turbine (RAT) - a propeller-driven hydraulic pump automatically dropped into the airstream and began supplying enough hydraulic pressure to operate the controls and enable a dead stick landing.

Neither Quintal nor Pearson had been trained for such an emergency and Quintal began searching through the manual for procedures to be followed - such as optimum glide speed, but there was nothing! Quintal figured out their sink rate and came to the conclusion, that they could not reach Winnipeg. Quintal remembered the airport in Gimli, on the western shore of Lake Winnipeg where he had served with the Canadian forces several years earlier. The tower agreed and vectored the 767 toward Gimli - which was twelve miles away.

It was family day at the airport in Gimli. Years before, the 6800 ft main runway 32L had been converted to auto racing with a steel guard rail installed down the middle over most of the southeast length for drag racing. On this particular day, there were cars, campers, trailers, kids and families in abundance! Go-cart races were underway and about to be joined by a giant unauthorized entry!

Quintal discovered the RAT did not supply hydraulic pressure to the gear, so Pearson ordered a "gravity drop". They heard the mains thud and lock into place but Quintal got only two of the three green lights. The nose gear would not drop forward into the slipstream. Six miles out, Pearson lined up runway 32L - but he was high and hot and about to overshoot. Being an experienced glider pilot, Pearson crossed the controls and put the huge 767 into a vicious sideslip with the left wing pointed toward the ground. This maneuver lowered the effectiveness of the RAT and made controlling the aircraft difficult but he held it until they crossed the threshold- still about 45 knots too fast. At the last moment he leveled the wings and huge machine slammed onto the runway. Up ahead, go-carts, cars and people scampered off the runway -. Pearson stood on the brakes and blew two tires. The unlocked nose gear collapsed aft and the nose hit the runway shedding a shower of sparks about 300 ft long. Pearson used differential brakes to straddle the guardrail as it approached - still the nose grazed the rail for some distance. The 767 came to a stop on it's nose, mains and the right nacelle - only about 100 ft from the spectators, barbecues and campers. A small fire erupted in the nose and the cockpit began to fill with black smoke. Pearson ordered an emergency evacuation. The passengers exited quickly through the emergency chutes deployed by the cabin crew - some were injured going out the aft exit because the tail-high attitude caused them to hit the runway pretty hard. The fire was extinguished by members of the Winnipeg Sports Car Club who converged on the plane with dozens of hand-held fire extinguishers.

The aircraft was relatively undamaged. It was repaired, refuelled and flown out of Gimli two days later. Pearson and Quintal had exhibited extraordinary skill and reourcefulness under pressure - both returned to line service with Air Canada. Neither of them will ever forget how much a liter of jet fuel weighs - in kilograms!!.

The Whitby Flyer is written by:



Donald Cavanaugh
Secretary - Whitby Aero Modellers