Whitby Aero Modellers

Whitby Flyer

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Don Cavanaugh

So here we are in Canada celebrating the 42nd anniversary of the Canadian flag - which was first flown over the Parliament Buildings in Ottawa on 15 February 1965 and which has been celebrated annually as "Flag Day" ever since. The flag in its present configuration was developed on the initiative of then Prime Minister Lester B. Pearson who had instituted a committee to pick a design for the flag. George F.G. Stanley submitted the winning design which was approved by the House of Commons on December 15 1964, and by the Senate two days later.

Arguably more important - this year we celebrate sixty years of Canadian citizenship - take yourselves back to England in 1931 when Statute of Westminster accorded legal recognition to Canada's status as a self-governing dominion - but it left Canadians legally defined as "British Subjects". Then came the Second World War when Canadian troops made such a spectacular contribution to winning the war - far in excess of what one would expect from a country with such a small population - losing 43000 men in the process. It became evident to Cabinet Minister Paul Martin Sr., that Canada deserved full national status so he introduced a bill in the house of Commons on 22 October 1945 (right after the war) aimed at conferring full nation standing to Canadians. So it was that "The Canadian Citizenship Act" was enacted into law on 27 June 1946 and came into effect on January 1, 1947 -- sixty years ago. The flag followed almost two decades later as noted above -- fly it proudly!!

So what's happening in the club?

Club Meeting Sunday 18 February 2007 -- Meeting Fallout

As usual the meeting took place at Durham College, - 1610 Champlain Ave - Whitby - getting started at about 7:05 p.m. with president Don Mitchell welcoming the 23 members in attendance and then auctioning the "Trash & Treasures" - which included magazine bundles, several spinners, hardware packages and a soldering iron.

Secretary's Report:

The secretary Don Cavanaugh summarized the content of the minutes of the last club meeting held on 19 November 2006. There were no calls for amendment and so a motion to accept the minutes as read was put forward by Mike Mussington. The motion was seconded by Chris Bridel and the minutes were entered into the club records.

Treasurer's Report:

Treasurer Jeanne Mitchell outlined the club financial situation -which I won't go into in detail here because of the more or less confidential nature of the numbers, - but be assured that the club is in reasonable financial shape, having 29 paid-up members which is about average for this time of the year. We've also collected some money from 36 guys who've bought new pylon racers but have spent all of that plus a bit more on supplies to build them. There have also been some expenses for the Frozen Finger Fun Fly on New Years day as well as over a hundred bucks for new locks and an extra MAAC sign for the back entrance to the field.

Oshawa Aviation Show - June 22, 23, 24

President Don Mitchell announced this years Oshawa Aviation Show will be held on June 22, 23 & 24 this year at the Oshawa Airport and volunteers were needed to man the MAAC booth. - the volunteers would be on duty for about three or four hours and would join members of other local clubs in manning the booth. Don suggested that volunteers were not needed immediately but that members should keep it in mind and volunteer as soon as they could by letting him know. Don Mitchell plans to be there and Howard Smith, Doug Wood, Frank Roche, Chris Bridel, Mark Morissette, Dave Parton and Don Cavanaugh volunteered. Give volunteering some thought guys! You'll find it very interesting to talk to all the characters that show up at the booth - and besides - you get free admission to the Air Show.

Heydenshore Sale - Sunday, March 11, 2007

President Don Mitchell sad that Ron Carr had located additional tables to be used at the Heydenshore show this year and had generously offered to transport them to and from the site but that he needed some assistance in handling the tables. Don Haslam and Frank Roche volunteered to help with this.

Don Mitchell further stated that there were a lot of other duties that volunteers were needed for various tasks and requested that all volunteers check with Jeanne Mitchell who had a list of jobs/duties that needed to be done. John Tribou indicated that he would be willing to act as "Master Chef" again this year. So here's your chance to help out guys! - Heydenshore happens on Sunday, March 11 - volunteers should show up around 8:00 a.m and it's pretty much over with by 2:00 p.m.- so it's only half a day - you'll find it's a lot of fun and it really helps contribute to the success of the Heydenshore sale which is very important because it contributes a significant amount to the club treasury.

Pylon Racing

Kevin Ward, the Pylon Racing Chairman, stated that the building sessions for constructing the new racers were proceeding well. Kevin noted that there are a lot of new guys racing this year which may result in frequency conflicts. After some discussion Howard Smith - our communications officer, said that he would be sending an email out to the members in a day or two asking members who were planning to race advise him of their frequencies so he could compile the a list of racers and their frequencies so the club can assess the degree to which frequency conflicts exist. So - if that includes you, please be sure to advise Howard of your frequencies (channel number) by visiting the website and registering your racing frequency. Don't delay - do it today and thankyavurrymuch!.

At the time of this writing the club has orders for 44 racers - only 19 left - there are still a wide assortment of colors available as we're finishing up the building process however it's no longer possible to order the exact color you might want for the top and bottom of the ship.

Don Mitchell said that Doug Anderson , (president of the Long Sault club) had asked that a demonstration of pylon racing be staged at the Long Sault club field to try to generate interest among their members. The demonstration race will be held on Saturday June 30th , with a rain date the following day, Sunday, July 1st. So here's a chance for all you racing types to get in some practice at a different venue. Also there has been a lot of interest expressed by other clubs in the region so we're likely looking at a very active racing schedule this summer - it's going to be a lot of fun this season!.

Spring Fun Fly

Howard Smith said that he was formulating plans for a club "fun-fly" - a relatively low key event - perhaps with not many prizes - but an attempt to get everyone together. The event is currently scheduled for early June 2007.

COFFEE BREAK

Presentation on Electric Flying by Ron Brott 0f Pinnacle Hobbies

Ron started by saying that the newest trend in electric flight was the emergence of D.C. brushless motors - either inrunner (fixed outer case) or outrunner (outer case rotates). An example of each was circulated for inspection - a small inrunner and a large (E-flite 110) outrunner - the latter capable of powering a 15 pound scale ship 9

swings 14" or 15' prop). Electric flight is growing in popularity every year and Ron estimates that about 30% of all flying is now electric.

The advantages of electric flight are - no mess; lower noise (a huge advantage for most fields); no adjustments at the field and arguably easier to handle - reduced complexity of the field box.. The downside is that the batteries are very expensive so that one pays his “fuel costs” up front in the form of batteries. Ron added that Lithium Polymer batteries were emerging as the most popular and with advancing technology and increased volume, unit costs are declining. In general, electric installations weigh about the same as similar sized nitro powered planes. Batteries last an average of about 200 charge/discharge cycles. Batteries should be protected by plywood barriers/boxes if crash damage is to be avoided. Batteries need to be “balanced” every ten to fifteen flights using a balancer which costs about $20. There was some discussion of alternate batteries, like Lithium Manganese and Ni-Cads but Lithium Polymer are by far the most popular.

The heart of the electric powerplant is the Electric Speed Controller (ESC) - Ron circulated a “Phoenix 60" ESC and explained that the unit replaces the throttle servo by controlling current to the motor and at the same time supplies power to the receiver/servos and shuts down the motor when the voltage drops to a preset level (about 68% max) to protect the batteries from excessive discharge. The unit should not overheat if the current levels are maintained at reasonable levels. In order to accomplish this, the motor needs to be fitted with the proper sized propeller. Since current draw is so important - a virtually essential piece of equipment is a “Wattmeter” which is used to measure current levels with various propellers. This unit can be ground based - or airborne. In the latter case the unit will remember the high and low current draw measured during flight. ESC’s subject to getting wet should be protected from water by dipping them in resin, or encasing them in balloons or Tupperware boxes to keep them from getting wet.

Two examples of propellers were circulated - an orange colored plastic prop typically used on smaller models and a grey propeller for larger models. Both have under cambered airfoils but the grey one was much sturdier - more like a nitro prop. Motor speeds are typically around 7000 rpm.

For people getting into the hobby, Ron conceded that nitro powered trainers are likely the best choice because most instructors are more familiar with them, however there are new electric trainers out now around “25 - size” such as the Hobbico Superstar ET and an even later “Electrostar” (with cheaper batteries) which a beginner should consider.

There is a lot of literature available in hobby shops or on the web which are excellent referenced for anyone getting started in electrics. Also a good hobby shop and the manufacturers of the various pieces of equipment have good R&D staff that is anxious to help with any problems. Ron said that the staff at Pinnacle Hobbies had been flying electrics for 10 to 12 years and would be happy to assist anyone who asks. (Also I might add that the club has several guys who know all about electrics - ask around)

There were a lot of interest and questions from the members present.

Don Mitchell thanked Ron for his excellent presentation and also thanked him again for their support for the club pylon racing and for the Pylon Racing Trophy they had donated to the club.

The meeting ended at about 8:40 p.m.

March Meeting - 18th March 2007

At the time of this writing we haven't succeeded in cornering anyone to give us a presentation - but we're working on it - in any case Heydenshore will be history by then and you'll be able to find out how things went with that, - and of course it's always fun to see what the guys are up to. Hope to see you there - don't forget to bring your surplus stuff for the "Trash & Treasures" auction

Final Thoughts

He always wanted to be a writer - then he moved to Salt Lake City and became a carpenter- so now he's a Mormon nailer.

Canadian Aviation History -- deHavilland DHC-2 BEAVER

The following is the author's opinion.

In any series of articles about Canadian Aviation History one would expect to find the deHavilland Beaver to be the first on the list - such is its status in Canadian aviation - so this is the month!

Specifications:

Wing Span 48 ft
Length 30 ft. 3 in
Wing Area 250 sq. ft.
Empty weight 3000 lb
Max Gross Weight 5100 lb.
Engine (see text) One P & W R-985 Wasp Radial Jr. Engine -450 h.p.
Max Speed 158 mph
Range 455 miles
Service Ceiling 18000 ft.
Climb Rate 1020 ft./ min

Crew 1 pilot
Passengers 7 (see text)

During the second World War when the Canadian North was opening up to aviation as it never had before, deHavilland saw the need for a new, versatile and robust bush plane capable of flying throughout the millions of square miles of rugged Canadian wilderness to serve the isolated populations that lived there. The long and savage winters in these areas together with the lack of good airstrips led to some of the worst flying conditions in the world. War production took first priority at the time, but after the DHC-1 "Chipmunk" was well into construction, de Havilland began work on a bush plane in consultation with the Ontario Department of Lands and Forests who were looking for a new aircraft. A marketing poll was taken among northern operators to ask for their thoughts on what would be an ideal aircraft. The result was a ship which would carry about 1000 lb (like a half-ton truck) plus the pilot. Seating was provided for one passenger beside the pilot, plus three in the rear seating - and if desired three additional canvas seats were provided in the aft compartment where luggage would normally be carried, for three more persons so that up to seven passengers could be carried. All the seats except the pilot's could be easily removed to accommodate cargo in the large rectangular-shaped cabin, and the floor was reinforced with three lateral beams to support and tie down cargo. Separate cockpit doors enabled the pilot to enter/exit when the ship was fully loaded. The DHC-2 could be fitted with wheels, skis or floats.

I note in passing that the DHC-2 was somewhat smaller than the Norseman which would be it's main Canadian competitor and which had already been in service since before the war (ref July 06 Newsletter). The DHC-2 would have an all-up weight of 5100lb while the Norseman weighed 7400 lb and the Norseman could carry 10 persons compared to 8 for the Beaver.

Design work on the new "Model DHC-2" - the second all-Canadian design by deHavilland started in late1946, right after the war. The name "Beaver" was selected to continue the practice, started with the DHC-1 Chipmunk, to name their aircraft after a Canadian wild animal. Rugged design was given high priority because of the tough conditions it was designed for. The airframe was all-metal stressed skin construction throughout except for the front section of the fuselage extending back to the cockpit which was welded tubular steel structure carrying the four engine pick-up points, the high wing supports and the wide-spaced landing gear and wing strut support structure. Arguably the most advanced and innovative feature was the unique wing with it's high aspect ratio (also seen later on the Otter) which provided excellent aerodynamic efficiency. This coupled with the wide span slotted flaps and the drooping ailerons gave the ship exceptional short takeoff and landing (STOL) capabilities. The ailerons drooped whenever the flaps were lowered and you can see the drooped ailerons in the above photo. It was this unique wing and the relatively high power-to weight ratio which allowed it to get into and out of small landing areas and lead to it's wide acceptance with northern operators and made it such a successful aircraft.

The Beaver made it's first flight on August 16 1947 piloted by chief test pilot Russ Bannock (Canada's top scoring night fighter ace flying Mosquitoes in WWII). Canadian Type Certification followed in March 1948. The first four production DHC-2 Mk 1 aircraft were delivered to the Ontario Department of Lands a Forests in April 1948 with a further 40 being delivered in subsequent years. This order was followed closely by sales to several other provincial governments, mining companies and charter operators. However, a subsequent demonstration by Russ Bannock to the USAF in Alaska, and later to the U.S. Army resulted in a dramatic order for 978 aircraft (over half of the total number of Beavers ever produced) was placed by Uncle Sam, - the majority to the Army but about 200 wound up in the USAF. They saw service in the Korean and Vietnamese wars primarily for aerial evacuation of wounded soldiers but also for search and rescue, aerial photography, cargo/personnel transport and courier service. The US military still operates two DHC-2's at the US Naval Test Pilot School who use them for towing gliders and to instruct students in the evaluation of lateral/directional flying qualities.

Besides the US, many other countries used the Beaver in military service. These included Argentina, Australia, Austria, Cambodia, Chile, Colombia, Cuba, Dominican Republic, Finland, France, Ghana, Haiti, Indonesia, Iran, Kenya, Laos, Netherlands, New Zealand, Oman, Peru, Philippines, South Korea, South Viet Nam, Thailand, Turkey, Uganda, United Kingdom, Uruguay, Yugoslavia and Zambia. - This must be some kind of a record!

In civil service, the Beaver was used in many different roles - primarily as a transport into remote areas but also for glider towing, aerial top-dressing, crop spraying, flight/navigational training and parachute jumping. Sir Edmond Hillary used a New Zealand Air Force Beaver to support his expedition to the South Pole. Harrison Ford owns one for his personal use - he flies it himself and is very enthusiastic about the DHC-2.

It is estimated that over two thirds of all the Beavers ever produced are still in service around the world. Given it's strength, longevity, versatility and popularity it is no surprise that the Beaver was named one of Canada's ten most important engineering achievements of the 20th century. It has a appeared on the postage stamp and (I'm told) on a coin. (I don't recall seeing that- except for the animal on the nickel?)

Almost all Beavers produced were Mk I machines with the 450 hp nine cylinder P& W Wasp Junior engine, However there was a single Mk 2 produced with a 520 h.p. Alvis Leonides engine and increased wingspan & revised tail surfaces. The last 60 machines produced by deHavilland were Mk-3 "Turbo Beavers" which were fitted with 580 h.p. Pratt & Whitney (Canada) PT-6 or -20 turboprop engines before production ceased in February 1967. Turbo Beavers had a 28 inch extension to the cabin which moved the engine forward and also provided room for an additional two passengers in the cabin. Also the fin and rudder area were increased to provide adequate stability and control. The wing and horizontal tail were substantially unchanged in shape.

At one point in the production of Beavers there was some talk of manufacturing them under license in New Zealand but the idea never got legs. Years after production ceased at deHavilland, rumors began to surface of other Canadian Companies manufacturing Beavers but to this day it remains an out of production aircraft. The aircraft are getting old and beginning to suffer the ravages of time with the onset of corrosion, wear etc. and in need of considerable manufacturer's support. To meet this requirement, Viking Air of Victoria B.C. acquired all of the jigs and drawings from deHavilland in 1983 and became the exclusive manufacturer and distributor of spare parts for the Beaver (also the DHC-3 Otter and DHC-6 Twin Otter). Viking also owns the Supplemental Type Approval to upgrade the P& W PT6A-20 engine in the Turbo Beaver with the PT6A-27, and on February 24, 2006 Viking purchased the Type Approval for the Beaver (and other older deHavilland aircraft) from deHavilland (Bombardier). So if anybody is going to build more Beavers, it will be Viking.

Given the integrity of the Beaver, it's no wonder that there's a thriving business in reconditioning them. Several companies in Western Canada, Washington State and Minnesota specialize in rebuilding Beavers. Kenmore Air on the shores of Lake Washington in Seattle have rebuilt 135 machines. These companies usually "zero-time" Beavers by disassembling them down to the basic frame, clean or replace corroded/damaged parts, rebuild them with new critical fittings and components where necessary, including a new landing gear together with all the latest options (cabin interiors, avionics etc.) ordered by the customer and "zero-time" the engine. So the history of the Beaver is ongoing - next time you see one, take a minute to admire a Canadian Icon.

Don Cavanaugh