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Newsletter, March 2006

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This month's contributors:

John Dudkoff
Ed Hannaford

Notice of Meeting:

Thursday, March 30 at 7:30 PM

Topic:

Our Monthly Meeting will be a presentation by Nathalie Cryderman from Nav Canada on the Aviation Weather Web Site (AWWS) and what is coming, e.g. cell phone access to the weather office. See:

<http://www.flightplanning.navcanada.ca>

Location:

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A word from our Chapter President...**John Dudkoff**Space Day 2006 at Cedars Airport

Nancy Battet from the Lester B. Pearson School Board has requested our support in promoting Space Day 2006 with Laurentide Aviation at Cedars Airport. For the last few years Eddy Dumalo provided great support along with several other volunteers to make this event a success. The feedback that I have received from Nancy regarding the use of aircraft with pilots providing an explanation of basic flight principles has been a tremendous highlight of Space Day. The dates for the event this year are May 25th and 26th, from 10:00 am to 12:30 p.m. Typically there are 12 aircraft on display with 2 pilots per aircraft, resulting in a requirement for 24 volunteers. For volunteers who wish to participate this year, you can send me an email at jad@progression.net or reach me by telephone at 514-428-1233 or 514-855-5001 ext. 59145.

Last Month's Meeting

The presentation given by Francois Vrana on the SMA SR305 diesel engine installation at the Nutech Hanger was very informative. Using 1/3 less fuel (Jet A) and having a potential for 6000 TBO was impressive. Although relatively expensive for the typically light plane pilot who flies only 40 hours a year, this engine is attractive for the commercial operator who flies 300 hours or more. Using a MT hydraulically controlled, constant speed prop, the C182 hums along at 2200 rpm, produces 230 hp with a cylinder displacement of 305 cu in. Approximately 40-50 lbs. heavier than its gas-powered counterpart, the C-182 has better range due to its reduced specific fuel consumption. Small airport Jet fuel availability will potentially be on the rise due to the explosion in Very-Light-Jets (VLJ), so you won't have to go to the larger airports to tank up.

Tour of the Canadian Aviation Heritage Center

I spoke with Godfrey Pasmore about a visit to the CAHC at the Macdonald Campus. Currently the date for the visit is on Saturday, May 27th, 2006 at 10:00 am. He has informed me that they are in the process of securing a HUSKY bush plane for refurbishment. Anyone with sheet metal experience is welcome to participate!

John Dudkoff, Chapter 266 President

Final GlobalFlyer Observations**Ed Hannaford**

(Editor's Note: The following account was written by Kris Maynard of Indianapolis, Indiana and submitted by Ed Hannaford of our Chapter. Kris also flies Young Eagles for EAA Chapter 2 out of Fort Wayne <http://www.eaa2.org/>. Further details concerning the GlobalFlyer and Steve Fossett can be found at <http://www.virginatlanticglobalflyer.com/> and <http://www.stevfossett.com/>)



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Greetings all!

I promised to get back to you with a report on my experience as one of two Official Observers responsible for certifying the World Record attempt by Steve Fossett. Sorry for the length of the email, but I was unable to figure out how to send email from England.

The GlobalFlyer was supposed to take off from Kennedy Space Center on Tuesday, Feb., 07. We headed to the Space Center in order to arrive at 4:00 AM. The temperature was marginal at 51 degrees F. The crew wanted no higher than 52 degrees as this is the temperature at which the engine produces 100% power. The take-off was to occur on RWY 33. There was a slight wind from the south and I asked if repositioning the aircraft for more favorable winds was an option. I learned that it was definitely NOT an option because, when fully loaded, the gear is very fragile and that they simply do not move the aircraft once it has been fueled - it had been staged about 25' from the threshold for 2 days, and that was where it was to remain until launch. This gear is engineered to be just barely adequate for handling 22,000 pounds at take off weight. The entire aircraft is so fragile that it was originally certified for only one take-off in its lifetime at gross weight. The tires have had all but 1/8 inch of tread removed. This allows them to fit into smaller wheel wells, which, in turn, allows for more room in the main fuel tanks (for fuel) We took this opportunity to place seals on the Geo-tracking devices that would provide us recorded evidence that the flight took place within the rules.

Our first assignment on this morning was to record the official weight of the aircraft, the fuel, Steve Fossett and any gear loaded aboard. We took our weight data and the aircraft was ready for the next step in launch preparation. This is when a fork lift pulls around to the nose of the aircraft and, with the help of a special attachment, the front wheel is raised. Up until this point the aircraft's nose wheel has been setting on 2 rigid foam blocks and the front wheel scale. This had the effect of keeping the airplane in a wings level and parallel to the ground configuration to facilitate fueling. Once the tanks are full, the nose wheel blocks can be removed and the aircraft sits in a nose-low position. If you look closely at GlobalFlyer you will see that there is a tiny bubble canopy on top of the fuselage. This is actually Steve's viewpoint for take off. As the speed of the airplane accelerates during the takeoff run and as rotation starts to occur, Steve changes his line of sight from the canopy to looking out the two portholes on the side of the fuselage. There are no windows on the aircraft for forward viewing (think Spirit of St. Louis).

When the fork lift lowers the nose wheel to the ground the aircraft's posture becomes an incline - high in back and low in front. The reason for this on-ground profile boils down to weight saving measures. A shorter and smaller front wheel means less weight for sure, but it also means it can be retracted into a smaller wheel well and hence allow for a smaller aerodynamic profile at the front of the aircraft. A couple of things now happen. First, any air bubble in the tanks works its way to the high point at the back of the plane. A few more gallons of precious fuel can now be added. Second, gravity allows fuel to flow forward in the tanks (creating that air bubble in the back) and as it does there is some stress created on the fuel tank bulkheads. It was a seal in one of these bulkheads that ruptured on Tuesday, springing a leak. It wasn't a severe leak and, for a moment, the crew even considered continuing with the flight. But it was located in a position where it was dripping on the left main wheel which, as I mentioned earlier, becomes quite hot during the take-off roll. In the end, Steve said "Let's scrub it for today and repair the leak, regroup and come up with another launch date"

The crew was able to quickly repair the fuel leak and the launch was rescheduled for Wednesday. I got to sleep in an extra 30 minutes Weds. morning as we didn't need to start re-weighing the GlobalFlyer until 5:00 AM. Everything went very well. The temperature was about 5 - 6 degrees colder than on the previous day and the wind was 8 - 9 knots out of the northwest - basically right down the runway. Once we had full tanks and had weighed the aircraft we were required to place seals over the fuel tank access points. Only 4 of the aircraft's 17 fuel inlets needed official seals. This is due to the fact that the remaining fuel inlet access

points all require a special fuel nozzle with a very tiny tip that slips into the tank opening. When fueling is complete in that tank, the cap (which is slightly countersunk below the wing surface) is placed into position and then modeling clay is used to fill the holes. A wetted finger is then used to smooth the surface of the clay presenting clean aerodynamic flow over the wing. The crew actually forgot to bring clay along with them and someone had to run to Wal-Mart the day before launch and purchase some. For the trivia buffs out there, the clay color used was blue. It is of interest to note that the special fuel nozzle which, by the way, was a work of art, was crafted by Scaled Composite employee, Mike Melville - Space Ship One pilot and America's first civilian astronaut.

Thing happened pretty quickly after the nose was lowered. We all shook hands with Steve and he climbed in the airplane. It does require some effort to get everything else he needs in the cockpit and get him strapped in. But once that is done the engine is fired up. The engine started and ran for a few seconds and then Steve shut it down. That was not a good sign and we all figured we were going to scrub again, but after a few words with the crew-chief the engine was re-fired and the hatch was placed into position. We were required to place a seal over this hatch as well.

My colleague and I were then driven to the 10,000' point on the runway as this was the calculated lift-off point and one of our jobs was to start the clock at the instant the main wheels lifted off. We were well off to the side of the runway and Steve approached us and then went passed us more like he was driving a truck instead of getting ready to fly an airplane - it just didn't look like it wanted to assemble the appropriate amount of lift. This was a very serious moment because those main wheel tires get very hot during the take off roll and a blowout is the number one fear on take-off. But Steve was well past the point of making a no-go decision. He would now not be able to stop the airplane prior to running off the end of the runway - he had to get the nose up.

As the aircraft went by us without yet becoming airborne I watched its progress through my binoculars. I could see the left tire was kicking off a black dust of debris that I thought could possibly be rubber. I became even more concerned about the possibility of a tire blowing. At the 11,500' marker the wings finally rose into the air and we all felt relieved. Just at the same moment, however, Steve hit some birds. They were Black-bellied Plovers and do not weigh much. I picked one of the two "victims" up and would estimate that it weighed about the weight of a couple of decks of cards. Had one been ingested into the engine intake, however, we would have witnessed a disaster.

During climb out GlobalFlyer once again lost fuel through the vent system. This time, however, only 750 pounds were lost vs. the 2800 pounds last time, but it was still worrisome. Here is another bit of trivia about the fuel. JP-4 was used because of its non-gelling properties in cold temperatures. This particular fuel is no longer manufactured. It so happened that NASA had a bit on hand and that the US Air Force museum in Dayton had just de-fueled a plane that was about to go on exhibit and was willing to sell it to Fossett. The price? \$10/gal. The specific gravity of this fuel was 6.33 lbs/gal and the airplane was filled with 18,263 pounds. That equals about 2885 gallons. Steve also purchased the tanker truck used to transport the fuel. You think your fuel bill has been high lately?

The Virgin Atlantic and GlobalFlyer crews along with one representative of NASA and the NAA observers departed for London.

The most incredibly high-tech Mission Control I could ever imagine was already set up and functioning when we arrived in London. The NASA fellow was amazed, if that tells you

anything. There were a dozen crew stations - each with a keyboard and three flat screen monitors. Each station had one screen that tracked Steve's flight path overlaid on a map of the earth. This map also illustrated the areas of daylight and darkness and pegged the exact location of the sun over the earth's surface. A data box near an icon of GlobalFlyer indicated the current groundspeed and altitude of the airplane. The other two flat screen monitors at each station reflected other data needed by Mission Control crew members such as weather, fuel burn, air traffic control contacts, engine telemetry, geo-tracking readouts and a complete record of the position of every switch in the airplane. Mission Control Director, Kevin Stass, was in frequent contact with Steve via satellite phone. This, for me was one of the really fascinating aspects of my observation experience because at times I was actually able to hear Steve's comments about the flight. I happened to be in Mission Control when Steve was experiencing severe turbulence over southwest China and can tell you that he was extremely close to bailing out.

GlobalFlyer's wingtips deflect an unbelievable 11 feet upwards during flight when it is heavily loaded with fuel. One can only imagine what they were doing in this severe turbulence. It was probably a good thing that it was night time and Steve could not actually see the punishment the wings were taking because he very well may have bailed out. Once a wing snaps off, the aircraft would, of course, enter into a spin and centrifugal force would have made it nearly impossible for Steve to extricate himself from the airplane. He was wearing, during this turbulence, two parachutes and a bailout pack of supplemental oxygen with survival gear and a personal ELT. Very bulky - and it would be quite difficult in even ideal conditions for him to fit everything out through the small door opening. But, can you imagine jumping out at 48,000' into minus 60 degree temperature? The thought was terrifying to me and those present in Mission Control at that moment were suitably concerned. It was, along with the take-off at Kennedy, a critical moment in the mission.

Throughout the next couple of days I spent as much time in Mission Control as possible. I did not have any official responsibilities at this time and am grateful to the staff for allowing me to be there and witness the historic flight from that perspective. My last official duties on the flight would be to observe the time of crossing the Shannon, Ireland VOR waypoint, observe the landing, remove the flight data recorders and check the seals on the flight recorders and fuel tanks. A few hours from projected landing, Mission control was moved to the tower at Manston, England Kent International Airport. I was in the tower to observe the landing and my colleague was on the ground to be in position to remove the cockpit seal upon Steve's arrival. Shortly after Steve passed Shannon and entered over landfall of England he began his descent. It was at the moment of a power reduction during descent that the generator failed. I was present in the tower when this happened. Jon Karkow, the airplane's chief designer walked Steve through a series of emergency procedures and diagnostics, but nothing was working and Steve was getting very concerned. Steve's wife, Peggy, was present and Jon reassured Peggy that everything would be fine. He told her the engine is running, Steve had enough electrical power remaining from his battery, the aircraft was flyable and that there was an airport nearby where Steve could safely land. Steve declared "Mayday" and proceeded to land at Bournemouth, England airport. A direct phone link was created to the tower at Bournemouth and we received confirmation that Steve was safely on the ground. No cheers went up at Mission Control at that moment, but there was a uniform sigh of relief. We found out shortly thereafter that both main tires blew as the aircraft landed.

Even though Steve did not make his planned landing point he did establish the World Record for Distance Without Landing. The official rules state that the Finish Point must be established in writing and approved prior to the flight. Steve had the foresight to declare Shannon VOR as

his finish point for the record. His official record, once approved, will reflect the time and mileage from Kennedy to Shannon. That was enough to surpass the record held by Voyager and established in 1986 (plus a 1% margin requirement) and of the Breitling Orbiter (1999). Had Steve not declared Shannon as a finish, he would not have achieved the record.

I can tell you that the flight from Kennedy to Shannon will be credited for approximately 26,000 statute miles. The official record will state the exact distance. The time to Shannon was somewhere in the neighborhood of 76 hours and 55 minutes.

The significance of record observers is that we provide evidence to the world that this was a legitimate record-breaking performance, the aircraft did not stop at any time nor was it refueled in flight. It was a monumental honor for me to be a witness to this moment in aviation history and the question comes to me, "When will this record be attempted again?" If that day comes I hope I'll be there to observe.

Kindest regards,

Kris Maynard

N4KJ

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Unclassified

- (1) Firewall forward kit for installation of Subaru E-81 Stratus engine, on Avid aircraft. Kit includes cowling, engine mount, radiator, all fittings, hoses, and drawings
- (2) 14 gallon (US) wing fuel tank for Avid or Kitfox
- (3) Set of drawings for Acro Sport II biplane- see **Ron Hills**, or call him at 514-684-658



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6. Bendix Ignition switch without 'Start' \$100
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8. 4 Fuel gauges, 2 1/4 " \$10 each
9. OAT gauge, windshield mount type \$30
10. Inertial Vertical Speed Indicator \$850
11. Turn Coordinator RCA 80A-1. 14V electric, Freshly overhauled \$650
12. DG Piper 99003-8, Vacuum, Model 40008-9, P/N 14262-001-10 \$400
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16. Four CHT probes, gasket type Lewis 8T301F2 \$30 ea

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See: http://www3.sympatico.ca/fhofmann/plane_for_sale.html

