

EAA Mount Rainier Chapter 326 Newsletter

Thun Field – June 2009

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Meeting Notice

**Tuesday, June 9th, 7 PM
CAP Building, Thun Field**

Program: Maxwell Propulsion Systems. These folks took over from NSI in Arlington and are selling Subaru conversions among other products. From their website, it looks like they've made many improvements and hopefully have a deliverable product now. <http://www.maxwellpropulsion.com/>

Refreshments: Mike Salmon

- Project Judges
- Field Trip Opportunities
- Advisory Committee Membership
- Aircraft Build

Contact info for Jeff Coleman if you have any questions or would like to get involved – jcoleman@puyallup.k12.wa.us

From the Secretary

March 12th 2009 – EAA Chapter 326 monthly meeting

Kevin Behrent called the meeting to order at the Emerald Ridge High school. Tonight's meeting is all about the Emerald Ridge Aviation program.

Young Eagles is coming up on June 27th. We need everyone to come out and help make the event a great success. We expect a good turnout this year and will need all positions filled.

The first Board of Directors meeting was held. Planning for future events and a future direction of the chapter was the topic of the day. Lots of great ideas were generated and are now being reviewed. The next meeting will be Saturday June 20th in Bruce Thun's office at Thun Field.

Jeff Coleman gave an overview of the Aviation High School program. They are in their 9th year of instruction. 150 students per year go through the program. Class size ranges from 22 – 35 students.

First classes setup: Intro to Flight, Physics of Flight, & CAD/CAM aviation. The following year they added Aviation Systems and the final class is Physics of flight. Students get dual credits that count towards college course work. Students leaving this program go on to ROTC, Technical College aviation programs, etc. They have had some Air Force Academy graduates.

They took the class to Oshkosh one year as an event. In 2003 they took 14 students to Kittyhawk all expenses paid. They work with Spanaflight to get students flying time if interested. Long term, Jeff is looking to build a cross age aviation program to cover K-12 age groups. Set the seeds early to interest students in a future in Aviation.

Opportunities

- Mentorships
- Job Shadow

Sonex

Paul Yarbrough is building a Sonex; Jim Triggs is building a Xenos, the long wing motor glider version. Being an RV guy, I never thought much about the Sonex... probably because I didn't like the looks. I'm always on the hunt for a next project... nothing urgent because I'm flying the airplane of my dreams right now. I decided to take a look at their website. Wow! All the stuff I didn't know. An airplane to fly competition aerobatics for \$25,000.

They are coming out with a version of the Sonex called the Sport Acro. It's really not much different than the basic Sonex which is already designed for + 6 and - 3 G's. The only difference is they lengthened the ailerons and shortened the flaps to give it a greater roll rate. And put the pilot in the center. [The basic Sonex has side by side seating.]

Here's what they say, "Sonex Aircraft, LLC expects the Sport Acro to achieve aerobatic competition-class performance on just 80 hp, and the prototype Sport Acro has an AeroConversions AeroVee 2.0 80 hp engine under the cowl. Using an AeroVee engine and requiring a minimum of optional equipment, a pilot can build an aircraft for entry-level aerobatic competition for just \$25,000 complete.

"The standard Sonex aileron provides a roll rate of approximately 80 degrees per second. Very preliminary test flight video footage has shown that Sport Acro ailerons provide at least 105 degrees per second of roll at 125 mph." [RV's roll at 140 deg / sec]

An interesting fact is that all Sonex kits are now being shipped with the longer aileron skins and ribs so the builder has the choice of going with the longer ailerons, or not. Earlier kits can be retrofitted too.

Sonex aircraft are not LSA only because they have not certified them as such. So you have to build it yourself... 55% etc. But it meets the performance specs of an LSA so a Sport Pilot can fly it. No medical required. "All models and configurations of Sonex Aircraft are also Sport Pilot eligible, and the Sonex Sport Acro will be a Sport Pilot legal competition-class aircraft."

Engine Choices

Aero V [VW conversion kit] 80hp \$6495

Jabiru 2200, 80 hp, \$12,500

Jabiru 3300, 120 hp, \$16,500

“The AeroVee 2.1 package is a 2180 cc, 80 hp Aero-Engine that can be run on 100LL or Auto Fuel. The complete package weighs 161 lbs complete! All of the supplied components are brand-new, zero-time parts.

The AeroVee comes as a complete kit that you can assemble yourself in approximately 12 hours, with the aid of an AeroVee Assembly Manual and an instructional DVD.”

Go to their website for the straight skinny.

<http://www.sonexaircraft.com/>

jb

Food for Thought **Crash of Colgan Flight 3407**

The flight was from Newark to Buffalo on the night of Feb 12th in a Bomardier Dash 8-Q400 (DHC-8-402 Q400). This is a

twin turboprop, high wing, T-tail with horizontal at very top of T. On approach to Buffalo, they were picking up ice and the pilot lost control near the outer marker at 2300 feet. All 49



aboard perished plus one on

ground. The co-pilot, Rebecca Shaw, was from Maple Valley.

There is a lot of data available on the internet. The NTSB released the cockpit voice recorder (CVR) transcript and put together an animation of the final moments based on data from the flight data recorder (FDR).

<http://www.nts.gov/events/2009/buffalo-ny/animationdescription.htm>

While the NTSB works its way through the data to find the cause, there is a lot of speculation and conjecture out there in cyberspace. Regardless of whether or not it is accurate or even relevant, I think it is worthwhile to ponder the issues raised.

Inadequate pay?

Captain Renslow: About \$55,000.

First Officer Shaw: \$16,254 a year

Is there a connection between pilot pay and performance? There are a lot of skeptics but Sullenberger expressed concern the economic decline has hit the airline industry so hard that "the airline piloting profession will not be able to continue to attract the best and the brightest." Sullenberger's copilot Jeffrey B. Skiles said "unless federal laws are revised to improve labor-management relations experienced crews in the cockpit will be a thing of the past."

Inadequate crew rest?

The night before the accident, Shaw flew overnight as a passenger from Seattle to report to work at Newark. Both pilots were based in Newark. The captain commuted from the Tampa, Fla., area, and arrived in Newark on February 9 at 8 p.m. On February 10 the captain began the first day of a two-day trip at 5:45 a.m. Some criticize the company for turning a blind eye to crew rest, blaming the pilots for lack thereof. "It is their responsibility to commute in and be fit for duty," they said.

Inadequate experience / aptitude?

Captain Marvin Renslow, age 47, had flown 3,379 hours, 261 of them on the Q400.

First Officer Rebecca Lynne Shaw, age 24, of Maple Valley, Washington, had flown 2,244 hours, 774 of them on the Q400.

The hearings also revealed that the captain had accumulated four FAA certificate disapprovals, three of which occurred before his hiring at Colgan in 2005 and included disapprovals for his pilot instrument, commercial pilot initial and his commercial multi-engine rating. He also failed his first evaluation at Colgan for his ATP certificate. The first officer had received one FAA disapproval for her initial flight instructor certificate before she was hired by Colgan in January last year.

Military pilots get the best training that money can buy. But possibly more important is that pilots with lesser aptitudes are weeded out early. Given enough training time, almost anybody will pass a checkride.

Inadequate training?

It's possible to get an instrument rating without ever flying in a cloud. Is it possible to get in the right seat of an airliner without actual instrument time too? Yes, according to the blogs.

How do you get icing experience? Some pilots can fly long careers with hardly ever seeing any. See commentary below.

Sterile cockpit?

The crew engaged in non-essential conversation while flying below 10,000 feet in violation of FAA rules, including, for example, a three-minute discussion on the crew's experience in icing conditions and training. This conversation occurred just a few minutes before the stick shaker activated and while the crew was executing the approach checklist. The first officer: "I've never seen icing conditions. I've never deiced. I've never seen any—I've never experienced any of that. I don't want to have to experience that... and make those kinds of calls. You know, I'dve freaked out. I'dve have like seen this much ice and thought, 'oh my gosh we were going to crash.'"

Pilot error?

Although the pilots reported ice accretion on the airplane's windshield, airplane performance modeling and simulation conducted by the NTSB show that icing had "minimal effect" on the stall speed of the airplane. Information from the airplane's FDR indicates that the stick shaker activated at 130 knots, a speed consistent with an engaged de-icing system. FDR data further indicates that when the stick shaker activated, the control column experienced a 25-pound pull force, followed by an up elevator deflection and increase in pitch, angle of attack and g forces.

It seems widely concluded that Captain Renslow muffed the stall recovery by pulling back on the yoke instead of going forward as we are all taught before solo. Their chief pilot also said that was a mistake. Maybe so but has anyone looked at the extensive NASA / FAA tailplane icing program? This was a four-year research program with flight test using a DeHavilland DHC-6 Twin Otter... a very similar configuration. The surprising

results were illustrated in a video that you can see at <http://video.google.com/videoplay?docid=2238323060735779946>

Here is a quick summary:

16 crashes are directly attributable to tailplane icing. Many more are likely but unable to pin down because evidence tends to melt.

Statistically, regional turboprops are more likely to be in icing because of short hops at lower cruising altitudes where the ice is.

This is about airplanes that use aerodynamic balance rather than hydraulic power to make control forces manageable. [the Q400 uses hydraulics]

This is about airplanes that use de-icing boots, not anti-icing heat like jets.

You have to know the indications of an impending tailplane stall. You have to hand fly the airplane to recognize the symptoms. So disengage the autopilot. [the Q400 hydraulic controls would probably mask the indications anyway]

There are no indications in cruise flight.

Tailplane stall occurs at a higher airspeed than wing stall. It is imperative to monitor airspeed.

The warning signs are

- lightening of elevator control in forward direction
- difficulty stabilizing aircraft with trim
- onset of pilot induced oscillations (PIO)
- buffet of controls, not airframe

Three paths that lead to tail stall on an already ice contaminated tailplane.

- increasing flaps
- increasing speed
- increasing power (airplane specific)

Tailplane stall recovery procedure

- retract flaps to previous position
- pull back on the yoke
- use power judiciously (adding power tends to aggravate the stall)

Hey, that's just the opposite of wing stall recovery. Knowing which is which is critical. Disengage the autopilot and monitor airspeed.

In defense of the Colgan pilots, there is nothing in the flight manual, FAA regs or company policy that required them to disengage the autopilot. Trouble started after the flaps were lowered. The stick pusher could have been confused with forward elevator snatch, a well known result of extreme tailplane icing. It seems like the pilot could easily have diagnosed this as tailplane stall and reacted accordingly.

The aviation forums are full of thought provoking commentary. Here are two excerpts:

"Experience in icing conditions is more often a matter of chance than long experience. In a career that included 38 years military and airline worldwide flying I have not carried enough ice, in total, to "chill a highball", as Ernie Gann once put it.

"So don't blame the training process for the lack of experience -- collecting ice in flight is a matter of chance more than anything else. And the number of General Aviation training

airplanes that are certificated for flight into known icing conditions (the ONLY way to get real icing experience legally) is vanishingly small and breathtakingly expensive, and therefore unlikely to be found in an FBO fleet. Our CFI's are doing their jobs well if they inculcate into each student a true respect for the possibility of ice accumulation, a realistic appraisal of its effects, and a stern discipline to stay out of conditions remotely conducive to encountering it. Period. Once a pilot graduates to flying airplanes equipped to legally handle icing conditions, it becomes a matter of knowing the procedures for operating the deicing and anti-icing systems. But the actual experience will always be a matter of being in the air at the time and place where icing actually exists. As I said - you can fly a lot of miles and never find it!" Anthony Vallillo

"A few years ago I flew for one of the most notorious regional airlines, and it was not uncommon for a newly minted FO to look at you from the right seat and say "Cool, my first actual." These pilots mostly came from the flight school mills and it was also not uncommon for them to have less than 500 flight hours. I always thought it was funny because they couldn't walk down to a local airport and rent a Cessna 172 until they had more than 500 flight hours to be insurable, yet here they were hauling around paying passengers.

"I remember being asked by a young FO if I thought they were ready to upgrade to Captain on more than one occasion. My response was always the same. "If you feel you can operate the aircraft as a single-pilot while being distracted by an FO who has no experience, then you're ready." More than a few waited a little longer to upgrade, and are now Captains there or elsewhere on yet larger equipment.

"The low pay also creates a financial need for an FO to upgrade prematurely, with a minimum of experience so they can make a livable wage (not great, just livable) as a new Captain. The safety issue within the system is now you have a minimally qualified Captain with a completely inexperienced FO". Ben Peltzer

jb

Scary Days of Ice

I'm an old DC-3 pilot.. We flew into Detroit, Windsor and every flat spot between there and Toronto. We'd carry a baseball bat to knock the ice off the airplane after we landed, as for in flight, we had a limited amount of alcohol to deice the windshield, we'd wait for the middle marker and turn it on, in about 3 seconds it would have a hole about 6-8 inches around to look out of to see the runway.

The wings had pneumatic boots but the carburetor intakes didn't have any heat at all, you would wait for the manifold pressure to start to drop then use the mag switches to backfire the engine and blow the crap out. Now they were THE SCARY days. Robe

end

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