



EAA 430 Flyer



Experimental Aircraft Association Chapter 430

Serving Sequim, Port Angeles and the Northern Olympic Peninsula.

A Little Hangar Flying: Decisions, Decisions!



I got to fly to a river strip up in the Alaska Wilderness. Of course everything five minutes out of Anchorage is wilderness. I had never been there before but the mission was to drop some clients off to look at some property, then return and pick them up later that day. It's more fun to look at property in the winter. (The moosequitos aren't as bad). This particular river is the Tokasitna River out of the Tokasitna Glacier at the base of Mount McKinley now renamed Mt. Denali. "The Great One".

Snow machines pack these strips down all winter so supplies can be brought in by Bush Planes on skis and not sink out of sight upon land after a deep snow. Many times no one is around to give a runway report. You just have to go and make your best decisions.

Decision making is the topic this month. It's one that has so many variables and the bottom line is,

if things turn out good and you don't bend any metal you get to go again. So if you want to keep going and flying you better make good decisions all the time.

They used to say you can't teach judgment. Well, those thoughts have changed. They had to address this in Alaska because so many pilots were making so many bad decisions and many clients were getting hurt, killed etc. It had to be checked/stopped.

The FAA got together with the Old Pilots and picked their brains on what they did to last as long as they had in an environment that is truly unforgiving. We used to say you may survive the crash but if you didn't file a flight plan no one will come get you. You will die of the environment. Cold, terrain, injuries, bears, etc. One time I was out on Lake Hood and two FAA guys came walking up through knee deep snow with their clip boards. I'm thinking "Dang, I get ramped everywhere I go." But they were there handing out pamphlets on flying safe in Alaska. Cool!!!

The FAA held seminars on survival, and many other seminars on safe flying. They had meetings with Air Taxi owners to incorporate safety as a standard attitude and recognize their Pilots different skill levels and experiences to send the right pilot for the flight. Don't send a new guy into a small lake pick up a full load or to the canyon to drop off a full load of supplies and pick up the Fat Family of Adults and kids that all weigh over 300 pounds. As the Pilot in Command you have to learn to say NO. Not being able to say No will get you killed or at least scared.

I took some lodge guest into the worst lake in the whole system. Ha! The pilot that came and got them had to ferry one at a time out in the Beaver. He was a high time guy and a really good decision maker. He could get off the lake but the climb out was the bitch. Tall trees on rising terrain. Sounds fun huh? So what the heck, ferry them out one at a time. See what the plane will do and not scare everyone. Including the pilot.

That brings up another part of this. 95% of the time the passengers have NO CLUE! They trust the pilot with their lives. It always amazes me. Here they are climbing in a single engine airplane with a guy that looks like he's 20 years old. Going to a lake in the Alaska wilderness. Talk about sensory overload! So as Pilot in Command of the trip and all that involves that, we as PIC have a tremendous responsibility to make the flight in a single engine float plane or ski plane as safe and uneventful as possible. That goes on everyday flights with just yourself and those someones you don't know. As an Air Taxi operator you simple can't make any money if safety isn't top priority.



Some clients I've never met going on a sight see flight.



Landing in the Canyon!!



Flying some fuel to the Lodge.



Mud Suck, West Virginia, down the Road from Tick Ridge, "Malory's Airport". One way in and one way out.



Keep the ball centered in the turn!!! Everyone lived, the airplane went out with the tide.

Simple explanation is, low slow turn with no visual references on the large wide flat beach. Slipping with the “ball out” fast stall roll over close to the ground. Simple alternative is to go by the landing site, wings level, look it (the landing area) over and make a normal pattern. He tried to turn around and was looking outside the airplane not realizing the cross control situation while looking intently at the landing site and trying to get back to the final approach corridor. Plus, there are no wind references. If there is a cross wind its very easy to cross control to correct for drift across approach path.

Can you imagine? A life, that everyday you wake up you get to go to a new place!



What would you do? Ha ha, I landed in the lower right hand corner at KTLH (Tallahassee, FL) BEFORE it got serious.

I went on a trip the other day with three VIP’s from another country. It was a flight to Spokane, Richland, then home.

Going over was fine. Up over the Cascades, clear weather. Then to Richland, WA. From there we were to go back to Renton, WA. But the mountains were obscured, so I went around thru the Columbia River Gorge down by The Dells.

All was fine until we made the turn going up I-5. I got to Kelso and the weather was down into the trees. I was down to about 1200 feet and looking at not being able to stay VFR. Let’s see...end of the day, getting dark, rain, low clouds, Portland is open...just went by there. Rental cars, hotels etc. So I told the guys I was turning around and going to PDX and they could get a rental and head up I-5. I was happy, they were happy. It may not be what we started out to do but I really don’t care. The plan changes constantly and I’m not into night IFR in an airplane that isn’t mine. Especially when I’m not current IFR. I stayed with the airplane and they went to Seattle. I came out the next day about 1300. VFR all the way to Sequim.

Please don’t let mean ol’ Mr. Get-home-itis cause you to make bad decisions.

Fly Safe, Tom Hart always told me.

Mike Radford

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Vice –PRESIDENT	Jim Rosenburgh	681-0973
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Scholarship	Dave Miller	452-7136

*Phones area code 360 unless otherwise noted

On the Horizon: Calendar of Events

EAA Chapter 430 meets on the last Saturday of the month, in Hangar 10 at Sequim Valley Airport at 10:00 a.m. For directions and additional information about chapter programs, see the chapter website: <http://www.eaa430.org>

Date	Topic
Wed.-Fri. June 21-23,	Collings Foundation Wings of Freedom event at

2017	Fairchild International Airport
Saturday, June 24, 2017 Hangar 10 Sequim Valley airport	Chapter meeting and potluck luncheon. Program: Peter Morton, retired Boeing Vice President, will talk about the history of the Boeing two-pilot 757/767 cockpit.
Saturday, August 12, 2017 10:00 am – 2:00 pm	Third 2017 Young Eagle Rally, Sequim Valley Airport
August 21, 2017 Madras, OR airport	Total Solar Eclipse viewing. Details below
August 26-27, 2017 0900-1600 Sequim Valley airport	Olympic Peninsula Air Affaire. EAA 430 members are encouraged to participate in ground display of experimental aircraft. Volunteers are always needed to man the chapter information booth.
September 9-10, 2017 Hood River, OR (4S2)	Fly-out to Western Antique Aeroplane and Automobile Museum show and Fly-in

Wings of Freedom B-17 and B-24 Coming to Port Angeles, June 21-23



The Collings Foundation B-17 and B-24 will visit Port Angeles from Wednesday, June 21 to Friday June 23. This will be the biggest aviation activity at Wm. R. Fairchild airport in two years and this year will now be even larger with the addition of vintage cars, an AA Fuel dragster on site, a Coast Guard helicopter, catered BBQ and Band, all on the Wednesday they arrive. Volunteers are needed for this event; please contact Alan Barnard: abarnard@olympen.com

Scholarship Student Update

Our Scholarship recipient, Seth Mulhausen, has finished his sophomore year at Rocky Mountain College. His transcript shows an overall GPA of 3.6 for the first two years, excellent in my book.

He is about to start flying the Bonanza to complete his commercial rating and start on his CFI rating. Seth is also attending the summer session to take advantage of the good flying weather. He's thinking long term and finished the 737-200 systems class for familiarization with large aircraft. He also joined a group of students that traveled to Oklahoma City to experience high altitude chamber training at the FAA Academy.

He was invited to make a safety presentation at the semester safety meeting, topic was CFIT and analysis of a Bonanza that crashed in the Cascades. Apparently the presentation was well received because Seth was voted to be the President of the Aviation Student Advisory Committee, a group organized to provide student input and provide the best aviation education possible.

Bottom line, Seth is doing well.

Dave Miller
Scholarship Coordinator

2017 Young Eagle Update

Chapter 430 has executed two successful Young Eagle Rallies this season (May 20 and June 17). New this year is our P.R. volunteer, Lee Runion who made personal visits to media outlets, schools, and other organizations while promoting the YE program. Also we have a better handle on social media through FaceBook, which has had good effect.

We extend "super" thank-you's to all the ground and flight volunteers who made this possible. On May 20, we flew 58 kids and 10 adults then June 17 we flew 56 kids and 12 adults. Each of our rallies enjoyed reasonable weather and smooth air. Hooray !

Thanks to all.

The next Young Eagle Rally is Saturday, August 12th at Sequim Valley airport.

John Meyers
YE Coordinator (with great helpers)

Savvy Maintenance: The Rotax 912 is delightfully different

By Mike Busch
AOPA Pilot magazine, June 1, 2017

The past 20 years may have yielded more outside-the-box ideas than any other comparable period in history. The iPod redefined the music industry in 2001. Facebook, YouTube, and Twitter redefined how we interact. The iPhone not only redefined the cellphone, but also changed our lives in too many ways to count. Airbnb redefined lodging, Uber redefined ground transportation, and the iPad and ForeFlight redefined our general aviation cockpits. (Remember when we schlepped around 15

pounds of Jeppesen binders, and spent mind-numbing hours keeping them updated?) Wow!



While all this amazing innovation was happening, a Canadian company's obscure Austrian subsidiary—mostly known for its two-stroke snowmobile, motorbike, and ATV engines—was quietly redefining the small (under 150 horsepower), four-stroke piston aircraft engine. Few U.S. aviators noticed until 2004, when the FAA approved the Light Sport aircraft rule, and sexy factory-built special Light Sport aircraft (S-LSA) began entering the U.S. aircraft registry and showing up at the airshows in Oshkosh, Lakeland, and Sebring.

Nearly all those S-LSAs turned out to have same engine: the Rotax 912. Today, as the LSA rule celebrates its thirteenth birthday, nearly every pilot has heard of Rotax. Yet the outside-the-box nature of its innovative engines remains widely underappreciated outside the Light Sport and Experimental communities.

The Rotax 912 story began in 1989, when the first 80-horsepower engines were shipped to customers in Europe for use on ultralights and motorgliders. Rotax already dominated those markets with two-stroke engines derived from the company's snowmobile product line. But almost nobody outside the ultralight community took notice.

For one thing, Rotax had developed a reputation for building cheap, light, cantankerous, not-very-

reliable engines with ridiculously short 300-hour TBOs. For another, the new 912 four-stroke engine had a TBO of only 600 hours—perhaps an improvement by ultralight standards, but hardly acceptable in the world of “real airplanes.”

Rotax pressed forward. By 1994, Rotax obtained FAA certification of the 80-horsepower 912, and in 1996, it introduced a turbocharged version (the 914) rated at 115 horsepower. In 1999, a normally aspirated 100-horsepower version for ultralights (912 ULS) was introduced, and an FAA-certified version (912 S) quickly followed. By then, the TBO had been increased to 1,200 hours for the 912 and 1,000 hours for the 914. The engines were selling well abroad, but never gained much traction in the United States.

Everything changed in 2004 and 2005 when the FAA adopted the LSA rule. Factory-built S-LSAs suddenly became all the rage, and the overwhelming majority of them were powered by the Rotax 912 ULS. LSA designers considered it the obvious choice: It was substantially lighter, more compact, and more efficient than traditional 100-horsepower engines (such as the Lycoming O-235 and Continental O-200); was designed to run on unleaded mogas; and by then had a credible 1,500-hour TBO. What wasn't to like?

Finally, in 2009, Rotax upped the TBO of the 912 series to 2,000 hours, and the following year did the same for the turbocharged 914. In 2012, the company started shipping a fuel-injected full authority digital engine control version (912 iS). By 2014, Rotax had delivered 50,000 of these engines. A 135-horsepower version (915 iS), announced in 2015, should start shipping by the end of 2017. It wouldn't surprise me if a turbocharged version of the 915 iS is in the company's skunkworks.

Delightfully Different

If you grew up in a world of Continentals and Lycomings like I did, these four-stroke Rotaxes

take some getting used to. They're different—in a good way. If Rotax made a 300-horsepower version I could hang on my Cessna T310 in place of its Jurassic Continental TSIO-520s that were designed more than a half-century ago, I'd do so in a heartbeat.

First, the engine is astonishingly small and light. The 912 ULS has a dry weight of just 132 pounds, compared to 199 pounds for a Continental O-200-D or 200 pounds for a Lycoming IO-233-LSA. (All three of these engines are rated at 100 horsepower.) Rotax accomplishes this mainly by turning the engine twice as fast: Redline is 5,800 rpm for takeoff and typically 5,000 rpm in cruise. The cylinders can have a lot less displacement because they process twice as many combustion events.

Of course, you can't turn a prop that fast without the prop tips going supersonic (and generating a lot more noise than thrust), so the engine has a reduction gearbox with a 2.43-to-1 ratio. At redline, the prop turns at less than 2,400 rpm; in cruise, the prop turns just over 2,000 rpm. The notion of a geared engine might sound scary, but the Rotax gearboxes have been trouble-free and require no special maintenance other than a 1,000-hour recommended inspection.

Obtaining 100 horsepower from such tiny cylinders at such high rpm creates a cooling challenge. Rotax deals with this elegantly by combining conventional air cooling of the finned cylinder barrels with liquid cooling of the cylinder heads. The engine incorporates a small integral coolant pump and a small external radiator. Coolant volume is only about a half-gallon, so it doesn't add much weight. Liquid cooling of the heads results in far lower CHTs—typically less than 200 degrees Fahrenheit in cruise, with a redline of 275 degrees F.

The ignition system is electronic, powered by dual alternators that are built into the engine. A powerful permanent magnet on the flywheel induces AC current into a pair of stator coils

inside the crankcase. The AC is fed to an electronic rectifier/regulator unit that puts out 13.8 volts DC. These dual alternators power the dual solid-state ignition system. They also drive the electronic tachometer (which displays crankshaft speed, not propeller speed).

Oil and gas

The oil system is a bit different, too. Instead of using a wet sump system, with a large oil pan on the bottom of the crankcase like all Lycomings and most Continentals, the Rotax uses a dry sump system employing an external cylindrical oil tank. Instead of relying on a scavenge pump to return oil to the tank—or on gravity like the O-200 does, requiring the oil tank to be below the crankcase—Rotax uses internal crankcase pressure (caused by blow-by of combustion gases) to propel the oil from the bottom of the crankcase to the oil tank.

This demands a novel preflight procedure: Before checking the dipstick to determine the oil level, it is necessary to “burp” the engine by removing the oil filler cap and then pulling the prop through by a few blades until you hear a gurgling sound—which indicates that all the oil from the bottom of the crankcase has been pushed into the oil tank, and only air is left in the crankcase. Once the engine has been burped, you can obtain an accurate dipstick reading and you're assured of a full oil tank at engine start.

Rotax engines have no mixture control knob. Most carbureted ones like the 912 ULS incorporate dual Bing carburetors with a high-altitude compensator that automatically adjusts the fuel/air mixture by sensing pressure altitude. Injected engines such as the 912 iS incorporate a FADEC that accomplishes the same thing.

Perhaps the most delightful difference is that the Rotax is designed to use unleaded avgas, which is significantly cheaper and cleaner than avgas. Using 100LL is permissible but not

recommended. In fact, if the engine is run on 100LL more than 30 percent of the time, Rotax calls for a reduced oil and filter change interval, and increased preventive maintenance. The use of leaded avgas can cause buildup of lead sludge in the oil tank and reduction gearbox, among other bad things. Also, you're not allowed to use all-synthetic oil such as Mobil 1 if you use leaded avgas, because synthetic oil can't hold lead in suspension. Bottom line: Try to use unleaded mogas instead of leaded avgas if you possibly can.

Bulletproof

Lockwood Aviation in Sebring, Florida, is the preeminent provider of Rotax parts, overhaul, and maintenance training in the United States. I had a long chat with Rotax guru Phil Lockwood about the reliability and durability of these engines. Lockwood told me that when Rotax 912s come into his shop for overhaul after 2,000 hours and he tears them apart, it's astonishing how pristine they are inside. After 28 years of incremental evolution, product improvement, and TBO extension, these engines seem to be about as bulletproof as anything in aviation.

Now if they'd only build a 300-horsepower model.....

Available from our Members

Aircraft hangars for sale at the Port Angeles Airport. Newer, well built. Now just \$31,000 each. Call for brochure or more information. Alan Barnard, Windermere 360-461-0175

Titan Mustang Kit #162. 70% complete; basically fully assembled up to the firewall. Avionics not installed. Aluminum fuel tanks installed, vice plastic factory tanks. Can be delivered locally without taking off outer wing panels. Log and photos provided. \$49,000. Gordon Tubesing 386-569-6524.



EAA Chapter 430 Membership Meeting Minutes

Date: May 27, 2017:

Call to Order @1000 Location: W28 # 10

- Pledge of Allegiance:
- Introduction of Guests. Tracy Boulton, Rebecca Andros.
New members: Chris Widden from Forks has a PA-12 clone
- Approval of Minutes as published: Approved
- Reports:
 - Treasurer: Harry Cook on web site members section
 - Membership: Bob Hicks 35 members signed in 2 guests.
 - Scholarship: Dave Miller reported that Seth M. has obtained a 3.5 GPA, now in 2nd year. He went to OKC for the high-altitude chamber experience. He also is the school aviation safety advisory committee president.
 - Young Eagle: John Meyers. 58 YE flown with 7 aircraft; Lee Runion helped greatly with publicity, going to several venues, and getting information in to the newspaper.
- Merchandise: John Meyers. Need to sell hats, shirts to raise funds for the scholarship account.

- Activities:
 - June 10th fly out to BVS Skagit Valley Airport
 - June 17th Young Eagles at KCLM 1000-1400
 - June 21st - 23 Collings Foundation war-birds at KCLM.
 - June 24th speaker will be Peter Morton from Boeing
- Project Reports: Dennis Toepke has his Taylor-Craft flying.
- Old Business:
- New Business:
 - Dennis T. brought up EAA VFR club of serious X-C flyers encountering various weather conditions.
 - John Cuny spoke of using basic med and procedures involved.
 - Donations needed for the potluck food jar.
- Next Board meeting will be on June 9th / Mariners Café 0900

Close of the business meeting @ 1040

Program introduction by Paul Kuntz. Dan Masys subject was "All for a spark: from magnetos to electronic ignition". This was a great informative presentation, and very well done.

A heartfelt thanks to the entire volunteer **Potluck Crew** for making the event so special.

Respectfully submitted Norm Coote for Ken Brown

Note: General Membership meeting minutes are now included in the monthly Newsletter. Minutes of the monthly Board meeting are also available to chapter members via login at the *Members only* page of the chapter website: <http://www.eaa430.org>

If you are a chapter member and do not yet have a login to the Members page, you can register with your email address to create a login at the website.