EAA Mount Rainier Chapter 326 Newsletter

Thun Field – November 2007 107

Meeting Notice

Tuesday, November 13th, 7 PM
CAP Building, Thun Field

Program:

McChord Tower: Jim Glaser

American Eagle: Ed Shadle on recent tests at Black Rock Desert.

Refreshments: Mike Salmon

From the Secretary

EAA Chapter 326 meeting Oct 9th, 2007

Jeff called the meeting to order for the evening. Tonight's meeting was a presentation by both Dave Smith on the Rotax 912 and George Gibony on the Falconair V12.

Jeff fully lost control of the meeting this month. Please give it to him when you get a chance to return the favor.

No burgers this month as the weather turned fall like finally.

Visitors: Josh Gronka: Friend of Dave's
Stephen Boisvert: Interested in RV's
John Gotschall: Working on a KR2 restoration

The Thun field advisory council is once again coming together this next month, and we will get an update at the next meeting about the goings on there.

Time to pay for the 2008 chapter dues. $15 per head and you need to get your EAA number to Norm Pauk with your money.

Rotax 912: 100HP water cooled. This engine is used in almost 90% of the current light sport airplanes. Very popular in Europe with the large number of light sport planes that are being flown. Even the RV12 is using the Rotax. They have over 15,000 912 derivatives and have made over 5 million engines overall through the years.

Has a 15 amp alternator on the experimental version, and a 30 amp version on the certified model. It has two bing carbs that are altitude compensating. It also has two ignition systems to run the plugs via a CDI system.

Diamond Katana uses the 912 and has only had one major failure in all the hours of flying them from a lack of oil in the engine.

Dave started flying his 912 in 2003 in his Zenith 701 and now has over 600 trouble free hours on it!

The engine runs Premium Auto fuel or 100LL if you need to. The only difference is that you will have lead deposits if you use too much 100LL. The engine will run 3000 to 3500 hours before overhaul. A properly run engine will almost always make TBO and beyond as the wear is so low and the water & oil temps are well managed. Oil changes are every 50 hours when using 100LL or 100 hours when using Auto gas.

The engine is fitted with a gearbox and slip clutch to reduce the RPM's to prop speeds. The TBO on the gearbox is 300 hours and there is a quick turn around service to do the maintenance.

Falconair V12: All aluminum V12 engine

George is currently working on putting a super charger onto his Falconair V12. He is doing a custom build to attach gear driven super chargers. With them running they will boost the engine to 1300 HP. It required a new compression ratio and cam shaft in the engine to support the new blowers.

The design goal was to gear drive the super chargers. Unlike John Parker's V12 with serpentine belts which have had problems breaking belts. George is custom building the gear drive setup with an extended drive shaft to transfer the power to the super chargers. As you can imagine this project got very complex quickly with all the custom parts and systems setup. Almost all of the FWF parts and systems had to be modified or made new again. Hoses, fittings, etc all had to be changed.

On the Dyno it's making over 1000HP now vs the 600HP that it was making before. It's turning 58 inches of boost. At full throttle its burning 650 lbs of fuel per hour. On the first flight there was a large oil leak with a blown seal on the super charger drive. On the second flight there was another oil leak. Turns out there are problems with the oil pump and the way it's pulling the oil into the system. John and George designed a new pump system to resolve the issue and next steps are to test fly the new pump system.

Andy Karmy

Annual Membership Dues for 2008

Dues collection for 2008 has begun. **$15 please**. Do your best to pay up this month. Makes checks payable to EAA Chapter 326. Include your EAA number and expiration date Pay at the meeting or send checks to:

EAA Chapter 326
C/O Norman Pauk
12012 SE 260 PL
Kent, WA 98030

End of Line for Carburetors

Precision Airmotive LLC has discontinued sales of all float carburetors and component parts as of November 1, 2007. This unfortunate situation is a result of our inability to obtain product liability insurance for the product line. Precision Airmotive LLC and its 43 employees currently manufacture and support the float carburetors used in nearly all carbureted general aviation aircraft flying today. Precision has been the manufacturer of these carburetors since 1990. These FAA-approved carburetors were designed as early as the 1930's and continue to fly over a million flight hours a year. After decades of service, the reliability of these carburetors speaks for itself.

Nonetheless, Precision has seen its liability insurance premiums rise dramatically, to the point that the premium now exceeds the total sales dollars for this entire product line. In the past, we have absorbed that cost with the hope that the aviation industry as a whole would be able to help address this issue faced by Precision Airmotive, as well as many other small aviation companies. Our efforts have been unsuccessful.

This year, despite the decades of reliable service and despite the design approval by the FAA, Precision Airmotive has been unable to obtain product liability insurance for the carburetor product line. While we firmly believe that the product is safe, as does the FAA, and well supported by dedicated people both at Precision and at our independent product support centers, unfortunately the litigation costs for defending the carburetor in court are unsustainable for a small business such as Precision.

Therefore, as of November 1, 2007, Precision Airmotive LLC has been left with no choice but to cease production and support of its float carburetor product line.

We are working with the engine manufacturers and others in the industry in an attempt to minimize the impact on general aviation and to provide future support for this product line. There is a substantial quantity of parts and carburetors stocked at our distributors which should be sufficient to support the industry for a short time.

Peter Nielson
Precision Airmotive LLC
Marysville, WA

Ethanol and Rotax Engines
What's its effect?

From EAA Sport Pilot Magazine
June 2006
Philip Lockwood

Q: What problems, if any, are associated with the use of E10 fuel in Rotax aircraft engines?

A: Fresh autogas without alcohol is the preferred fuel for all Rotax aircraft engines. However, in many parts of the United States and Canada, gasoline is blended with 10-percent ethanol to produce a product referred to as E10 fuel. Ethanol is an alcohol commonly made from corn or sugar cane. The added ethanol in E10 fuel offers advantages and disadvantages.

The Advantages:
• Ethanol acts as an oxygenate, which means it adds oxygen to the gasoline. Ethanol is 35 percent oxygen by weight and replaces methyl tertiary butyl ether (MTBE) to help the fuel burn more completely and cleanly, thus reducing smog-forming and ozone-eating emissions.
• Adding 10 percent ethanol increases a fuel's octane rating by two or three points.
• Widespread use of E10 fuels will significantly reduce our dependence on foreign oil.
• Because alcohol absorbs water, gasoline with added alcohol should help keep fuel systems free of water, so water should not be present when sumping the tanks and/or gascolator on an aircraft filled with E10 or any form of gasohol.

Officially, Rotax has approved the use of fuel with up to 5 percent alcohol content. Other than a slight increase in the exhaust gas temperatures (EGT), the engines seem to work fine operating on blends with up to 10 percent ethanol. Most autogas produced today has at least some alcohol mixed in to help reduce unwanted auto emissions.

The Disadvantages:
When using E10 or any fuel with alcohol in any aircraft application, potential problems exist. The greater the percentage of ethanol, the greater the chance you will experience problems, which can include the following:

• Damage to rubber gaskets and composite fuel tanks. E10 fuel is not as friendly as avgas or pure gasoline to these components. The aircraft fuel system must be compatible with E10 fuels to avoid this damage.
• Corrosion problems with metal tanks, electric fuel pumps, and other fuel system components. Ethanol, or any type of alcohol, readily absorbs water. It may even absorb significant amounts of water from the atmosphere in humid conditions. If too much water is absorbed, phase separation can occur, which results in the water and ethanol combining and falling to the bottom of the fuel tank. This combined water and ethanol can be quite corrosive to metal tanks and fuel system components, especially if the water and alcohol are allowed to remain in the bottom of the fuel tank for some length of time.

If properly equipped with fuel tank sump drains, the water/ethanol combination can be drained off leaving only the gasoline, but it will have a slightly reduced octane level—down by 2 to 3 points using the antiknock index (AKI) rating method. (The Rotax 912ULS, the turbocharged 914, and the two-stroke 618 engine all require 91 octane fuel using the AKI rating method. The 912UL (81-hp) and the two-stroke 447, 503, and 582 engines will run on 87 octane.)

Because of ethanol's propensity to absorb water:
• Use the freshest E10 fuel possible.
• Check your tanks for water before adding fresh fuel.

• Do not store E10 fuel in cans for more than a couple of weeks, unless you live in a dry climate.
• Buy your fuel when you plan to use it.
• Have fuel tank sump drains or add an aircraft-style gascolator that will act as a filter and a water collector.

If you find water when draining your gascolator, phase separation has probably occurred, and there is likely to be a significant amount of water/alcohol mix somewhere in your fuel system. Your engine will not run on this separated mix, so it shouldn't be allowed to make its way to the engine. You must make a more complete investigation of your fuel system to look for water before attempting a takeoff. This holds true for gasoline with any percentage of alcohol mixed in.

If your fuel tanks are not equipped with sump drains, and you've found water in your gascolator, you should consider draining a significant amount of fuel (several gallons) from each tank through the gascolator; then check the drained fuel for water contamination. Continue draining fuel until all the water has been removed. The gascolator should be the lowest point in the fuel system, and the aircraft must be level to keep any water in the fuel tanks at the fuel tank pickups. If the tanks don't have sump drains, then the point in the tank from which the fuel lines draw should be the lowest point; that is where the water will accumulate, assuming the airplane is level.

Fuel containing ethanol also suffers from an increased susceptibility to vapor lock, which occurs when fuel vaporizes in the fuel lines because of higher temperatures and/or reduced ambient pressure at higher altitudes. Some aircraft fuel systems designed to use autogas have special vapor bleed-back systems that help purge and return any vaporized fuel back to the fuel tank before it reaches the carburetors. If you live or fly in an area where conditions may be conducive to causing vapor lock and you use fuel containing ethanol, it's a good idea to include such a bleedback system in your fuel lines. Vapor lock is more common in cowled, tractor-engine installations where the fuel lines are subjected to higher temperatures experienced within the engine compartment.

Special LSA and Night / IFR Flying

Note: S-LSA is your store bought, off-the-shelf, ready to fly aircraft…you don't build any of it.

Some confusion exists in the aviation marketplace regarding the use of special light-sport aircraft (S-LSA) for flying at night and/or under instrument flight rules (IFR). The ASTM consensus standards that govern the manufacture and production of S-LSA specifically address day/visual flight rules (VFR) operations only.

First, sport pilots, or those exercising sport pilot privileges, are restricted from flying at night or in IFR conditions, so they may not operate an S-LSA, or any aircraft, at those times.

Other properly rated pilots may fly an S-LSA in those conditions if allowed per the aircraft's operating limitations and if it is equipped per FAR 91.205. Additionally, FAR 91.327(d) requires all S-LSA to be operated in accordance with the aircraft's operating instructions. An aircraft's operating instructions are different from operating limitations; operating instructions are issued by manufacturers—engine, airframe, and accessory—while operating limitations are issued by the FAA.

Many S-LSA are equipped with Rotax engines. Rotax's operating instructions prohibit the use of a Rotax engine at night or in IFR conditions unless it is the FAA type-certificated engine; that is, certificated to FAR Part 33. Rotax's non-certificated engines are indicated by the letters "UL" after the engine series number; for example, 912UL, 912ULS, and 914UL.

Additionally, S-LSA airframe and engine manufacturers may place restrictions against the use of their aircraft and/or engines for night/IFR operations. For example, other S-LSA are powered by Jabiru engines; these engines are certificated to JAR-22H and are limited to day/VFR operation.

Bottom line: some S-LSA can be equipped for night and IFR operation; be sure to tell the manufacturer/dealer if your intent is to operate the aircraft under those conditions…and make sure you have the proper ratings.

==========

Van's RV-12 will initially be marketed as an "Experimental Amateur-Built Aircraft," just like the rest of their product line. That means you build 51 percent of it and license is as experimental amateur-built…like all the others. As a builder you have a lot of freedom under this rule. Given that it meets LSA criteria, it can be flown by sport pilots. If you haven't failed a medical yet, then all you need is a drivers' license.

Down the road, Van's could market it as an E-LSA. Then the 51 percent rule goes out the window. Maybe 10 percent…whatever. But along with that comes more restrictions on what you can and can't do. Here's a definition

Experimental light-sport aircraft
Experimental light-sport aircraft (E-LSA) may be flown by sport pilots. E-LSA kits that do not conform to amateur-built certification requirements and will be certificated in the E-LSA category must be based on an aircraft that has received a special LSA (S-LSA) airworthiness certificate. E-LSA must be operated in accordance with the operating limitations issued to the aircraft at the time it receives its airworthiness certification. It must be maintained in accordance with regulations as they apply to E-LSA. Its annual condition inspection may be conducted by an LSA repairman with an inspection rating, an LSA repairman with a maintenance rating, an airframe and powerplant (A&P) mechanic, or a certified repair station.

Sonerai II for Sale

I have a Sonerai II, firewall aft for sale. Before the engine was removed (C-200-A 100Hp) it had about 400 hours on the airframe. 175-180 mph. So it was and is a proven fuselage and wings. The wings can be folded along the sides of the fuselage and can be trailered or towed. It has an Airworthiness Certificate. It has hydraulic brakes. It is located in the southwest corner of the airport (Thun) hangar B. Take a look at the plane and make an offer. Joe Hoskins 253-548-6201 cell. Joenan1934@aol.com

end

Chapter 326 Staff

President	**Jeffrey Liebman**	**253-531-6123**	
Vice President	**Robert Barra**	**253-988-2676**	
Secretary	**Andy Karmy**	**253-333-6695**	
Treasurer	**Norman Pauk**	**253-630-6396**	
Newsletter Editor	**John Brick**	**253-846-2617**	**jebrick@comcast.net**
Photographer	**Drew Karmy**	**253-333-6695**	
Webmaster	**Andy Karmy**	**253-333-6695**	

Young Eagles Coordinator	**Lance Newman**	**425-413-1764**
Technical Counselor	**Harold Smith**	**253-752-5480**
Technical Counselor	**Charlie Cotton**	**360-893-6719**
Chapter Flight Advisor	**Terry O'Brien**	**206-244-3619**
Chapter Flight Advisor	**Jim Triggs**	**360-438-1482**
Chapter Flight Advisor	**Marv Scott**	**253-691-5496**
Program Coordinator	**John Brick**	**253-846-2617**
Biographer	**Vacant**	
Property Custodian	**Vacant**	

Chapter 326 Website http://www.eaa326.org

EAA Mount Rainier Chapter 326
C/O John Brick
8304 242nd St. E.
Graham, WA 98338