



The Bend High Desert Flyer of Chapter 1345

WEBSITE: <http://www.eaa1345.org/>

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PREZ SEZ:

Howdy Folks,

Well, spring is gaining ground and there have been some nice flying days over the last few weeks. I hope you all have been able to take advantage of a few by getting out for some flying.

I was not the only one amazed by last months program at Electronics International. They hosted a nice evening with gee whiz electronics and good food. The EFIS Ross is developing certainly cleans up the panel. Bruce came out the winner of the raffle prize.



I hope the membership remembers their generosity and support of us and can return the favor.

As a mechanic, they have always had great products and customer support for my customers. And their installations are as advertised.

Thank you Electronics International for supporting us.

As gas prices continue to arc to the stratosphere there has been an idea floated for doing an auto fuel co-op. No one is going to step up and force remedy, so why not us. There are plenty of user groups out there it could be feasible, with support.

Those who have been reluctant to get on board because you use 100LL, the cloud on the horizon is the end of 100LL. It is coming. High performance engines are going to have to be modified to run a lower octane fuel anyway, why not have alternatives. It is worth a discussion.

Fly Safe,
David Nixon

An alternative ... a diesel LSA

IndUS Aviation has introduced the first diesel-powered light-sport aircraft (LSA), the Thorpedo DP, at the Sun 'n Fun Fly-In. The proof-of-concept aircraft flew in from Dallas, Texas, where IndUS is based, to Florida earlier in the week, but the engine, the WAM 120, has been flying on a Thorp T211 in England for the past four years with some 400 hours logged.



The 120-hp engine is a three-cylinder, two-stroke, liquid-cooled, turbocharged engine installed in an inverted configuration. With its cooling pack, it weighs 220 pounds empty; installed wet, including propeller, it weighs 269 pounds. Fuel consumption (Jet A) is 3.5 to 4 gph. It is the first ASTM-compliant diesel engine to enter the marketplace.

“Avgas isn’t available around the world like it is here in the United States, so to make general aviation accessible around the world we need an aircraft that uses a fuel that’s more readily available,” said IndUS Aviation President Ram Pattisapu. “First we’ll prove its viability here in the United States as part of the ‘green’ revolution and then we’ll take it to the rest of the world.”

IndUS expects to earn special light-sport aircraft approval prior to EAA AirVenture Oshkosh, which takes place July 28-August 3.

For more information, visit: <http://www.indusav.com/>.

Next Meeting, May 14th

The program is Walt Klemperer of the High Desert Soaring club talking about soaring and the soaring club. He will also describe how his father Wolfgang, designed and built his own glider and beat Orville Wright's duration record in 1921.

See you at 7:00pm at the EAA hangar, on the frontage road, south end of Bend Muni

April 9th, 2008 Meeting Minutes

Officers Present:

David Nixon President
Chuck Smith Vice President
Milo Street Secretary
Jack Watson Treasurer

Members Present: 21 (including officers)

Announcements:

Chuck Smith filled us all in on www.SeeAndAvoid.org, a website supported by the military dedicated to eliminating midair collisions and close calls. All GA pilots are encouraged to us SeeAndAvoid.org as part of their routine flight planning to know where the military operational flying areas are, and how to avoid that airspace.

Old Business:

Minutes of last meeting accepted as written in newsletter.

New Business

The meeting was adjourned with no new business to allow maximum time for the program.

Treasures report:

The treasurer's report wasn't read, however the reported year to date gross income through April 9 is \$966.00 with expenses of \$455.50 for a net income of \$530.50. Cash balance in the bank is \$2356.08.

Program:

Many thanks are due Dave Campbell, Ross Morrison, Tyler, and the folks at Electronics International for hosting the April meeting. Food and drinks were provided prior to the meeting. They also donated one of their panel mount flight clocks as a door prize, won by Bruce Hoisington.



A number of instruments were on display but chapter member Ross Morrison, who is designing their new EFIS system, made the main presentation.



Printouts of sample displays were shown and Ross detailed the design goals and philosophy behind the upcoming product. The key being that an EFIS needs to be simple and straightforward to operate. A lively discussion followed about what members felt was desirable in a product such as this and Ross responding as to how they would be addressed in the new design.

Ross gave a demonstration of the prototype in his workspace and the chapter was invited to look around the facility before calling it an evening. In this day and age it's great to see an electronics company thriving while still being able to manufacture locally!

Milo Street

Need a Manometer?

By
Dennis Douglas

ma-nom-e-ter: a pressure measuring instrument, usually limited to measuring positive pressures near atmospheric.

I had a flying “event” the other day that caused me to wonder if the calibration of my airspeed indicator has slipped a digit or two or twenty. I was scheduled for an FAA-required pitot-static check in a few weeks but the “event” made me want to know the answer before I flew again. The “event” isn’t significant now, and besides that it is a little embarrassing so I won’t go into that. But how I checked out my AS indicator might be of interest to some of our members.

The airspeed indicators in our airplanes measure the impact or ram pressure felt by the Pitot tube as the airplane moves through the air, with reference to the static pressure expressed at the static ports. If there are no significant leaks in either the pitot or static lines leading to the airspeed indicator, and if the airplane is moving less than about M 0.75 (about 400 mph...my GlaStar doesn’t travel quite that fast), then there is a simple relationship between the pressure difference:

($P_{diff} = P_{pitot} - P_{static}$) and the speed of the airplane, S, given by:

$$S_{fps} = 68.8(P_{diff})^{1/2}, \text{ in ft/sec.}$$

OK ... fine, but now what? We know the relationship between pressure and speed but how do we apply that to the actual problem of calibrating the airspeed indicator? Simple: build a manometer. Here’s what I did and how I did it:

Get two 36” pieces of 3/8” acrylic or polycarbonate tubing and connect those at the bottom to form a “U”-tube. Mount the U-tube to something that will allow the legs of the “U” to remain vertical. Get some flexible Tygon tubing that just fits over the U-tube—enough to run from the top of one side of the U-tube to your pitot tube, along with a tee that you can insert into the tubing. (Note that pitot tubes usually have a tiny vent; be sure you’ve covered that.) Connect the side out of the tee to something that allows you to create small pressures in the line of tubing. I talked to my doctor and he gave me an old **spygmometer**—the gizmo they use to take your blood pressure. I used the bulb from that along with the pressure relief valve. Fill the U-tube about half-full with water that has a bit of liquid detergent in it to reduce the surface tension of the water. You can also color the water to make it a bit easier to see the levels.

OK, now gently increase the pressure in the line using the bulb or whatever method you are using. Be careful, though, and don’t overdo the pressure. Just a little dab will do ya’. One psi is about 27 inches of water (corresponding to more than 200 knots) and since you can produce about 3 psi by blowing into the tube, you can damage your airspeed indicator if you use too much pressure.

As you add pressure to the tubing, you’ll see the water on one side of the U-tube go down while the other side goes up. It is the *difference* in height that we’ll want to measure.

After you get about a 10-inch differential in the two water levels (corresponding to about 125kts), pinch off the pressure source. If the water level remains at the same differential height, your manometer is leak tight and your pitot system is leak tight. (The FAA allows a maximum leak corresponding to an altitude leak of 100 feet per minute, or about 0.1 “/min. on the manometer.) If the water level changes faster than 0.1”/min, then you’ve got a leak in your manometer or a leak in your pitot system, or both. Find the leaks by isolating parts of the system and fix them.



Airspeed is best calibrated using a speed graph that is inserted beneath the legs of the U-tube, with the zero of the airspeed reading aligning directly with the zero pressure differential water level. I have prepared a few of these graphs and if any of you would like one, let me know.

Now, calibrate the airspeed by pumping the pitot line pressure up to a value that corresponds to the maximum airspeed you want to see. Read the water level at the minimum of the meniscus—that is, at the bottom of the little “U” shape the water makes in the tube. Pinch off the tube at the desired airspeed and record the airspeed value observed on your airspeed indicator. Release a bit of pressure to the next lower point and read the airspeed indicator. Repeat the release-and-pinch process until you all the way down in pressure. These values are your calibrated airspeeds. I’ve attached a few photos that show the manometer I constructed and how I used it for my GlaStar. It’s pretty easy to do and very informative.

Safe flying! *Dennis Douglas*



Dennis' Pitot after Manometer Calibration

For Sale: J-3 replica

My name is Mark Weiss. I am the webmaster for EAA 782 org.

I may have an opportunity for someone. A few years ago, while I was gainfully employed, my sons and I bought a J-3 Replica project to complete. It was only a few months after that, I found myself looking for work, and now we are moving from the Vancouver area in the next few months. So I want to sell the project.

Wag-Aero Sportsman.

Have the plans complete.

Fuselage is done, including landing gear, wheels, suspension, seats.

Empennage is done.

All of the leading edge parts are done.

All four wing spars are included.

Windscreen is included.

Ailerons are done however the guy I purchased it from, could have done a cleaner job on installing the metal on the trailing edge. I believe that needs to be reworked.

I have done basically no work on it, except to store it at Vancouver, WA in my shop ready to move.

I have \$8000 into it. Willing to sell for \$6000.

You can see pictures of it at:

<http://homepage.mac.com/dadweiss/PhotoAlbum21.html>

Mark Weiss

<http://trustthechildren.blogspot.com>

More on ethanol ...

On Sunday, April 7th, I appeared as a guest on the Bill Valentine "The Rich Life" syndicated radio show. Bill blocked me in for a 30-minute segment (12:00 - 12:30 pm) that, after accounting for promos, commercials, and introductions, amounted to about 12-13 minutes of actual air time. I explained the HB-2210 mandate and, since it was a "money" show, I tried to explain some of the economic disadvantages of ethanol in our gas tanks (e.g., reduced fuel mileage, the increasing cost of food, etc.)

Dean Billing was with me during the show to provide me with "tips" and things to mention, in case I forgot to bring up key points.

It was interesting. Bill took one caller who was an auto-racer and had experience with methanol fuel. He supported me. The key message I tried to get across was that ethanol is a bad thing and that his listeners needed to get mad and write letters to their legislators.

Following the radio segment, Dean and I talked about where to go from here. Trying to get the "mandate" portion of HB-2210 removed from HB-2210 appears to be the most inclusive and possibly an achievable path. Exempting premium comes in as a second path but does nothing to address the overall (global) problems of ethanol.

Regards,

Dennis Douglas

Now for something really different ...



Not a hoax; a real, powered dinghy-on-the-wing.

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