The Bend High Desert Flyer of Chapter 1345

WEBSITE: http://1345.eaachapter.org/ ***KBDN AWOS 134.425*** **March 2014, VOL13, #3**

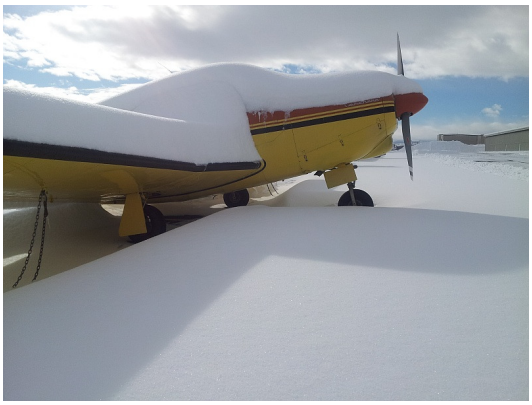
PREZ SEZ:

I really like the beer "Pray for Snow", and boy did we get some! So to the few adventurous souls that ventured out for the "Epic Tour", during an "Epic Snowfall", Thanks for coming out! To all the wimpy pilots that didn't fly in, you are smarter than most but; you should have put the skies on before that cold snowy morning!

Leon Smith, from Dry Creek airpark made the trek in. We shared some coffee I had, in the lobby before the staff had to leave and kicked us back outside.

Leon left for home and a few minutes later, our tour guide, Rich Finley showed up.

There were 4 of us (myself, two OPA pilots and friend) that had a very brief tour of the North hanger, and then we all drove to the South hanger for an expanded tour and more coffee.



I trust Henry can get Chapters 1345 & 617 a weather pass and reschedule for another tour. Some of us made it to "Old Town Pizza" on the usual Wednesday meeting night for just hangar talk, to eat pizza and drink beers.

*Our **March meeting** will be held above the "ProAir Maintenance Hanger" on **Wednesday, 3/12/14, starting @ 6 o'clock.** Look for our Chapter 1345 sign. Pizza and drinks are available.*
Darren Pleasance will be joining us as our "Special guest" speaker. Darren is one of our EAA National, Board of Directors as well as a director for the "Hiller Aviation Museum" in San Carlos, CA. He is an accomplished aerobatic pilot, flight instructor, corporate pilot, Alaska bush pilot, has worked on the space shuttle program & flies all over the world weekly, earning a living for "Google".

For some reason, he lives here in Bend Oregon and wants to discuss airplanes with us!
All are welcome so bring a family member, neighbor or friend and come on out to meet Darren.

***Thomas Phy,** President*

Treasurer's Report

Financial statement for February 28, 2014:

TOTAL INCOME	$550.00
TOTAL EXPENSE	$390.00
NET INCOME	$160.00
TOTAL CASH IN BANK	**$3,575.79**

Jack Watson, *Treasurer*

Also, please note that 2014 EAA calendars are available at $15.00 each

February Meeting Minutes

Since there was no formal Wednesday meeting and the EAA representation for the Epic visit was one lone member (our Chapter President!), there are no formal meeting minutes …

Chasing the Dream of Half-Price Gasoline

A startup called Siluria thinks it's solved a mystery that has stymied huge oil companies for decades.

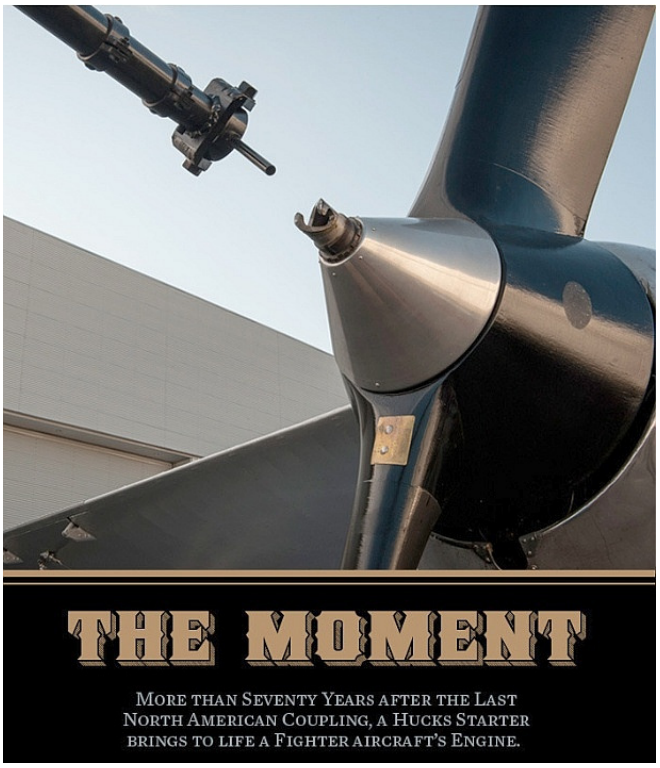
At a pilot plant in Menlo Park, California, a technician pours white pellets into a steel tube and then taps it with a wrench to make sure they settle together. He closes the tube, and oxygen and methane—the main ingredient of natural gas—flow in. Seconds later, water and ethylene, the world's largest commodity chemical, flow out. Another simple step converts the ethylene into gasoline. The white pellets are a catalyst developed by the Silicon Valley startup Siluria, which has raised $63.5 million in venture capital. If the catalysts work as well in a large, commercial scale plant as they do in tests, Siluria says, the company could produce gasoline from natural gas at about half the cost of making it from crude oil—at least at today's cheap natural-gas prices.

Natural gas burns much more cleanly than oil—power plants that burn oil emit 50 percent more carbon dioxide than natural gas ones. While oil costs around $100 a barrel, natural gas sells in the U.S. for the equivalent of $20 a barrel. It also is between two and six times more abundant than oil, and its price has fallen dramatically now that technologies like fracking and horizontal drilling have led to a surge of production.

It is relatively expensive to convert natural gas into liquid fuels such as gasoline. It cost Shell $19 billion to build a massive gas-to-liquids plant in Qatar, where natural gas is almost free. South African company Sasol is considering a gas-to-liquids plant in Louisiana that it says will cost between $11 billion and $14 billion. Altogether, such plants produce only about 400,000 barrels of liquid fuels and chemicals a day, which is less than half of 1 percent of the 90 million barrels of oil produced daily around the world.

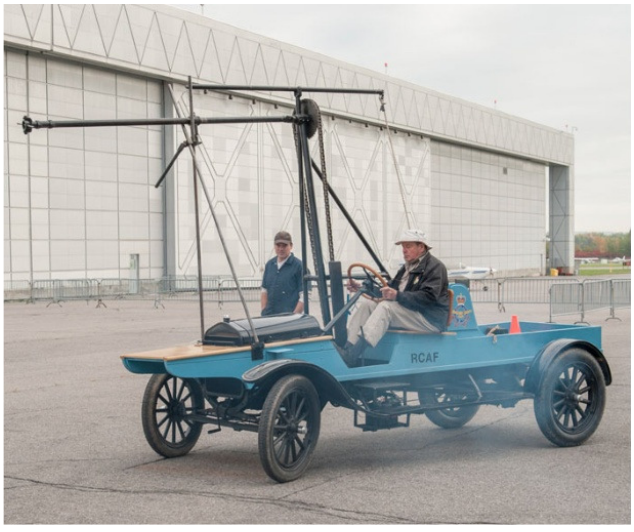
The costs are so high largely because the process is complex and energy intensive. First, high temperatures are required to break methane down into carbon monoxide and hydrogen, creating what is called syngas. For years, chemists have been searching for catalysts that would simplify the process, skipping the syngas step and instead converting methane directly into a specific, desired chemical. Such a process wouldn't require costly refining and separation steps, and it might consume less energy. But the chemistry is difficult—so much so that some of the world's top petroleum companies gave up on the idea in the 1980s. The process, known as oxidative coupling, involves reacting methane with oxygen. The problem with this approach is that it's hard to get the reaction to stop at ethylene and not keep going to make (useless) carbon dioxide and water.

Siluria thinks it can succeed where others have failed not because it understands the chemistry better, but because it has developed new tools for making and screening potential catalysts. Traditionally, chemists have developed catalysts by analyzing how they work and calculating what combination of elements might improve them. Siluria's basic philosophy is to try out a huge number of catalysts in the hope of getting lucky. The company built an automated system that can quickly synthesize hundreds of different catalysts at a time and then test how well they convert methane into ethylene. The system works by varying both what catalysts are made of—the combinations and ratios of various elements—and their microscopic structure. Siluria was founded based on the work of Angela Belcher, a professor of biological engineering at MIT who developed viruses that can assemble atoms of inorganic materials into precise shapes. Siluria uses this and other methods to form nanowires from the materials that make up its catalysts. Sometimes the shape of a nanowire changes the way the catalyst interacts with gases such as methane—and this can transform a useless combination of elements into an effective one. The result is that what used to take chemists a year Siluria can now do in a couple of days



The ancient, modified Model T Truck approaches very slowly, inching in. The strange arrangement of overhead rods and shafts, born by an A-frame mounted on the wood body, closes with the delicate aeroplane. The Hind's V-12 Kestrel engine is fronted by an enormous carved wooden propeller, and the approaching carbon-steel drive shaft could do irreparable damage.

All eyes focus as the distance shrinks to inches. A grey-haired man stands ahead and to one side. He holds up both hands, palms facing each other, measuring the distance between the end of the overhead shaft and the propeller's hub, telegraphing the distance-to-go to the driver. His hands almost touch. The truck stops.



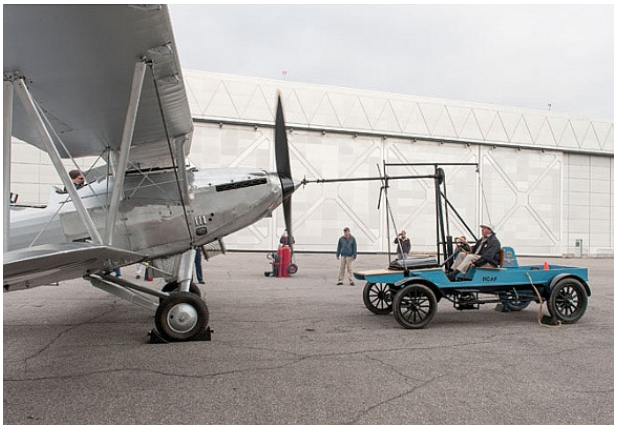
Two other men stand by the truck's back wheels. They are holding large chocks, which are attached to the vehicle by spliced manila rope.

At a signal they stoop and ram the chocks firmly in front of the rear wheels. Both machines are now chocked and can't move.

The shaft-end is 8 inches from the propeller, but can no longer strike it by accident. The spectators breathe a long sigh of relief.

Now there is a delay – the Model T driver is focused on something down on the floor, head bent, hand on a strange blue-painted lever. Several others crowd in to see. The driver joggles the lever as his foot caresses a pedal, and then the lever moves into place with a "click". He looks up, smiles, holds up a thumb. The others back away.

With a strong leap, a blue-suited figure mounts the deck of the front of the Model T Truck, and grasps the overhead shaft. A hub extends from it, with two simple pin-handles. He grabs these and pushes firmly toward the propeller. As if by magic, an inner shaft emerges from the main shaft, and slides forward towards the prop. With a practiced twist, the pin-handles lock into a spiral groove in the propeller-hub. The man jumps down, grinning, holding a thumb up. The two machines, friends from long ago, are now linked for the first time in more than 70 years.

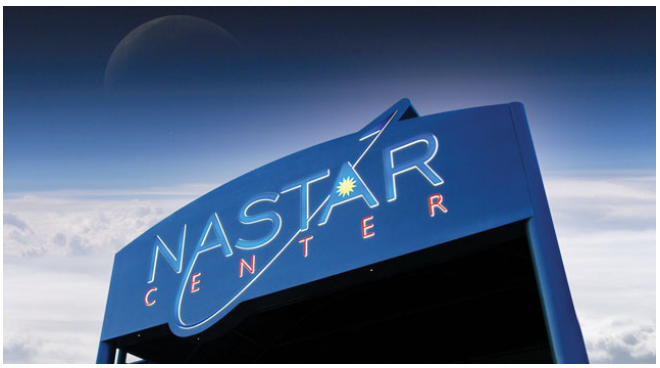


A man in a flight suit stands by the Hind's wingtip, where driver and pilot can both see him. He calls to the pilot, not shouting, but projecting very clearly, "Fuel on? Mixture rich? Throttle set? Mags on? Contact?" and hears the pilot's reply: "Contact!" The flight-suited arm is raised, thumb-up, and then whirled in a circular motion. This is the moment of truth. It happens now.

The Model T shakes as the RPM mounts, then the bicycle-chain-on-steroids starts to move. The shaft turns. As it does so all eyes are drawn to movement at the aeroplane. The propeller is turning! It makes one revolution, then the engine gives a bark! It might work! The compression of the V-12 is fierce, plus it is a geared engine, with nearly a 2:1 ratio. The truck is trying to turn the little gear with the big one – like starting away in a car in high gear.

Three or four turns; the propeller spins. It functions! The Kestrel is turned strongly. Nothing gives way. There is a sudden Roar! The prop vanishes into a fast-spinning disc of motion. It starts! All eyes immediately focus on the shaft. Does it move back, out of the way? Will there be disaster – wood chips all over the asphalt? As if by an unseen force, the pin handles move away. The extended shaft retracts, clear of the prop. Success!

Commercial spacecraft will need pilots



Training has already begun ….

The National AeroSpace Training and Research (NASTAR) Center, a subsidiary of Environmental Tectonics Corporation, has added spaceflight training to its aviation programs for both government and commercial operators. The company announced that FAA safety approval has been granted for its altitude chamber, able to subject participants to pressure altitudes up to 100,000 feet. The FAA previously approved the spaceflight simulator used in the NASTAR Center's astronaut training programs, and the company has already trained 250 "spaceflight participants" to date, including 115 future Virgin Galactic flight crew members (astronauts).
NASTAR Center offers centrifuge training to simulate launch and reentry forces as part of its spaceflight crew training program.

NASTAR Center is also working with Armadillo Aerospace, Blue Origin, and Virgin Galactic to train crews and passengers, or "spaceflight participants," and researchers seeking to experiment in microgravity. In addition to these suborbital efforts, Boeing, SpaceX, and Sierra Nevada Corp. each landed a share of a $1.1 billion NASA grant announced last August to develop orbital craft capable of carrying humans to the International Space Station, with flights expected in 2017.

Training for those missions will, for the first time, create spaceflight opportunities for private passengers and crews selected by corporations instead of government space agencies. For crews, the path to space may in coming years no longer require extensive military or test flight experience.

At the direction of Congress, the FAA has left the requirements for commercial space crews deliberately vague: a pilot certificate, instrument rating, and Class II medical are specifically required under 14 CFR Part 460, but many of the training requirements are more broadly defined, allowing operators some flexibility.

Simulation of normal flight and emergency conditions is among the requirements, and NASTAR Center is the first provider to offer a space-qualified simulator. The NASTAR Center was the first to win FAA approval for a spaceflight simulator.

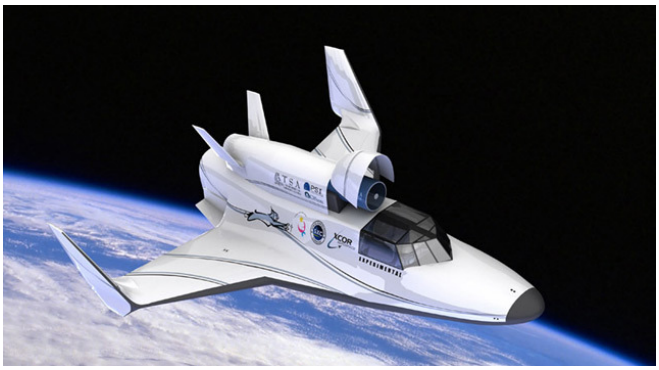
NASTAR Center training starts with a half-day entry-level course ($500), and a two-day course for "spaceflight participants" that costs $3,000. Prospective flight crew members would then go on to more advanced training, the cost and specifics tailored to a particular mission.

NASTAR Center is also working with its simulators and centrifuge to develop data on how spaceflight will affect the rest of us, those not trained for military combat or Space Shuttle missions.

There will be opportunities even for those who are not suited for, or interested in, a high-speed, high-G environment.

There will also be a need for pilot instructors. Physicians, curriculum developers, and other specialists will be in increasing demand in the coming few years as programs—and training—ramp up.

The FAA Office of Commercial Space Transportation has also approved zero-G training conducted by Zero Gravity Corporation, billed as the only option available for the general public to experience weightlessness short of space travel.



Another company, XCOR Aerospace, is currently working to build a two-seat Lynx suborbital vehicle.

In addition to the aforementioned firms, which are well on the way to suborbital flight, there are other players. A Florida company, Rocket Crafters, is working on several fronts, designing spacecraft for both commercial transportation and training. those two-seat trainers - which Rocket Crafters hopes to bring to flight schools and collegiate aviation programs starting in 2015 - are being developed in conjunction with and in partnership with an existing aeronautical program.

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