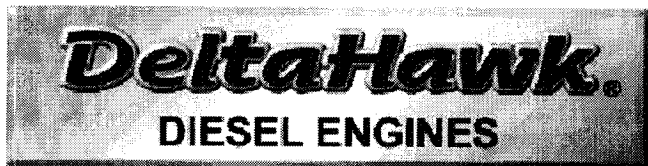




JANUARY MEETING

Thursday, 15-Jan-2004

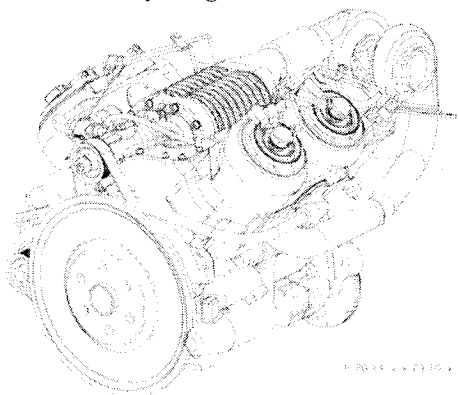


PROGRAM:

DeltaHawk Engines, LLC.

- ◆ DeltaHawk V-4 Aviation Turbo Diesel
- ◆ See the prototype 160-200hp V-4 diesel aircraft engine just developed
- ◆ Hear about the commercial & military appeal

CONFIGURATION - upright 90 degree V-4, turbocharged, direct drive, two-stroke diesel with oil pump and external air-oil separator/sump; top profile is 3.5 inches higher at the cylinder tops than an IO-360 Lycoming, referenced from the crankshaft, engine width is under 24 inches.



**Location: EAA Chapter 838 Building
3333 N Green Bay Road
Racine, WI 53404
phone: 262-634-9660**



Come early or stay late, to visit the Aviation Museum inside the EAA 838 Chapter building where the program will be held. Look for the first building just north of the Racine Airport Terminal Building. The Museum will be open to the public during the SAE event. Docents will be available to speak with visitors.



--- EVENT AGENDA ---

Registration/Social:	5:00pm
Dinner:	5:30pm
Presentation:	6:15pm
Museum hrs:	4-5:30, 8:30-9pm

--- DINNER ---

MENU:

Either sliced beef, ham, or turkey will be available with a vegetable, beverage and dessert. No selection will be required.

COST:

SAE Members / spouses:	\$15.00
Retirees:	\$13.00
Guests / Non-members:	\$20.00
Students w/ID	\$7.00

Registration:

Dinner reservations must be received the week before the event. Charge card payment can only be collected on line, via <http://milwaukee.sae.org> .

Register using email at: milw-sae@wi.rr.com , or phone: 414-465-6722, then pay at the door.

“No-shows” with reservations will be billed.

50-Year members entitled to 1 free dinner annually.

Registration deadline: 2:00pm - Friday, Jan 9th.

Company: DeltaHawk, Inc. / DeltaHawk Engines LLC

DeltaHawk, Inc. is a small, privately-held Wisconsin company formed in 1996 to develop a new lightweight, high power-to-weight ratio jet fuel burning diesel-cycle engine. The first engine models, 160-200 hp V-4's, have been refined through six prototypes. A patent has been granted covering four areas of the engine. Other applications are underway. The company's innovation has been recognized by a Small Business Innovative Research grant from NASA. DeltaHawk is nearing the end of its initial R&D phase and is transitioning to production. A key company goal is to be the first U.S. supplier of lightweight aviation diesel engines and a worldwide leader in the new industry of highly mobile diesel engines. Toward these goals, DeltaHawk, Inc. recently formed DeltaHawk Engines LLC, the operating company that will manufacture product and develop the commercial and military aviation markets for DeltaHawk engines. You can learn more at the company's website: www.deltahawkengines.com. The SAE presentation will include a technical discussion of the engine, and presentation of ground and flight test data on its performance.

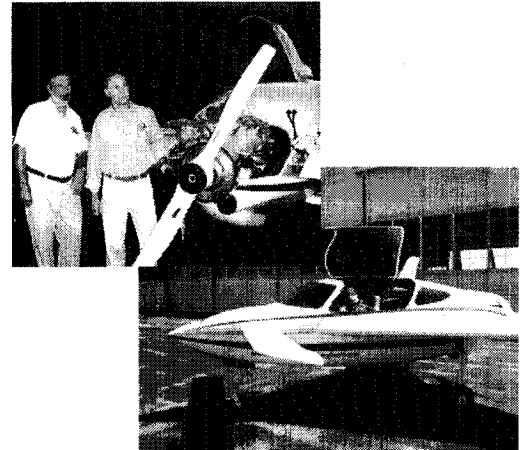
Topic: Introducing the DeltaHawk Diesel-Cycle Aircraft Engine
Speaker: Douglas A. Doers, Vice President, DeltaHawk Engines LLC

Doug Doers has been the Vice President, Secretary, a Director of DeltaHawk, Inc. and its lead engineer since its inception in 1996 to the present. He is now also serving as Vice President of Engineering for DeltaHawk Engines LLC. Mr. Doers has 35 years of military, commercial and general aviation experience as a pilot, including 27 years as a UH-1 helicopter pilot with the U.S. Army and Army Reserve, and one year piloting Bell Jet and Long Ranger helicopters for Petroleum Helicopters, Inc. Doug has been a member of the Experimental Aircraft Association (EAA) since 1971.

Prior to founding DeltaHawk, Inc., he was the president of 21st Century Aviation, Inc. established in 1991 to provide consulting and assistance in manufacturing Velocity aircraft. From 1966 to 1980, Mr. Doers worked as a metallurgical technician with Ladish Corporation in Cudahy, Wisconsin, where he learned custom aerospace forging, test planning, conduct and analysis, and gained training and in-depth experience in materials science, manufacturing, government and aerospace standards and metallurgy. Mr. Doers was awarded a BS in mechanical engineering from UW-Milwaukee in 1988. He is a member of the Society of Automotive Engineers, Inc. (SAE) and the Society of Manufacturing Engineers (SME).



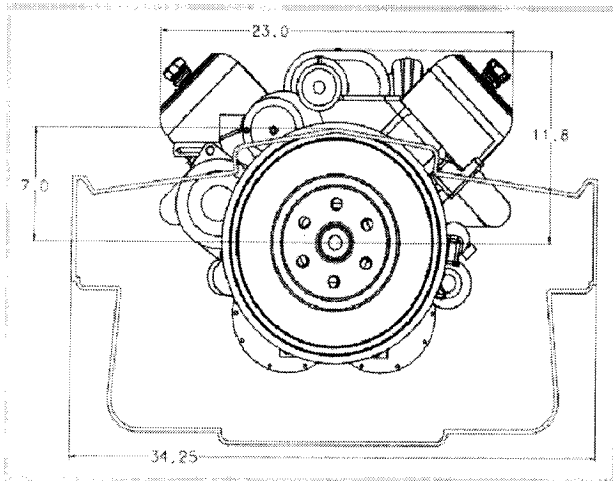
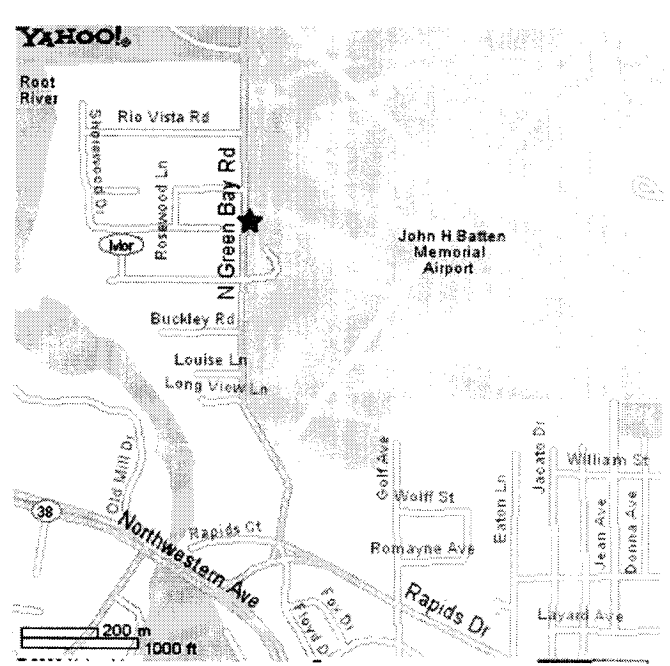
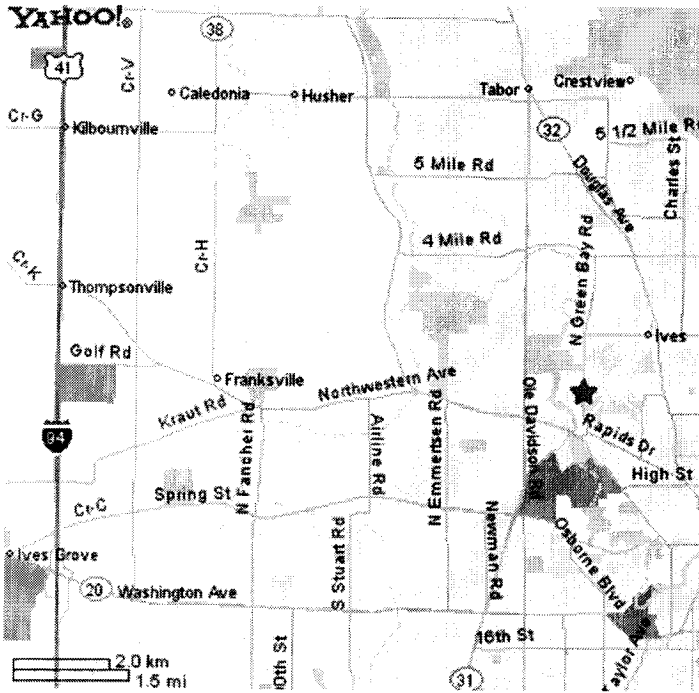
Members of EAA and the American Helicopter Society attend talk given by Doug Doers (left) and Carl Bumpurs. Doug - technical; Carl - sales. The pair covered everything from history, to why the engine does not use glow plugs. Following the Q & A session the group was treated to an up close inspection of the DeltaHawk Velocity (right) running a DH160V4 "pusher" engine and Doug demonstrated a run-up to takeoff power.



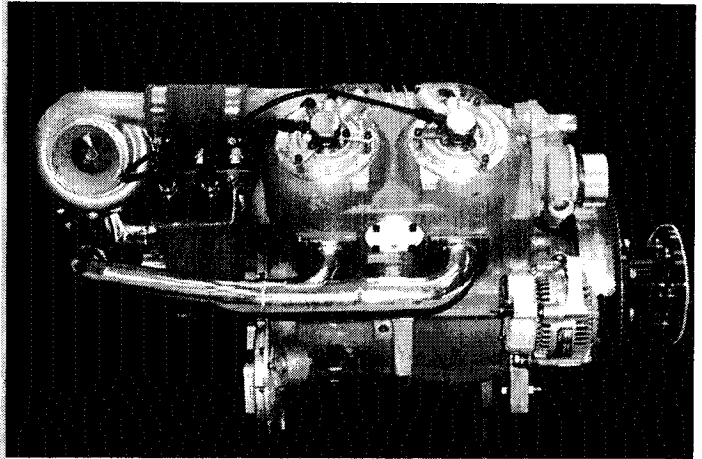
The DH160V4 prototype, mounted on a ground test trailer and turning a 66 X 80 inch propeller – pictures show winter and summer tests. In a series of test runs including numerous re-starts and operation at speeds up to 2300 RPM, the engine exceeded expectations.



MAP : DeltaHawk Engine meeting, EAA 838 Chapter bldg, 3333 N Green Bay Road, Racine, WI 53404



DeltaHawk Engine vs. Lycoming IO-360*



February 18 Meeting tour: Johnson Controls "42Volt Systems", Good Hope Rd - Milw

March 18 Meeting discussion: SAM / NAFTA and the U.S. Today, (TBD)

April 21 Meeting tour: FORD & Daimler-Chrysler Training Center, MATC North - Mequon

May Meeting (tentative family event) *AWIM - A World in Motion@Discovery World* - Milw

June event S.A.E. Midwest Mini-Baja competition

*Upcoming
Events*

Milwaukee Section 2002-2003 Governing Board

- Chairman's Note -

Thank you Modine,

CHAIRMAN:

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Alt SECTION DELEGATE: (open)

Modine provided an impressive technical meeting, and was an exceptional host. We toured many of the labs and the state-of-the-art environmental wind tunnel. We enjoyed a fabulous food spread. Jay Meldrum, Director of the Clean Snowmobile Challenge, was our first speaker, coming all the way from Michigan Technical University. Jay presented impressive videos of MTU, and the Challenge. We presented him with a \$1000 check towards the upcoming competition. Modine speakers followed with overviews from Tony DeVouno, VP of Eng., and Lyman Tschanz, GM. Dr. Steve Memory spoke about automotive CO₂ systems, and Mark Voss provided a comprehensible description of fuel cell technology. Together with Modine, we gave away souvenirs. The section presented Modine with a "thank you" plaque for their lobby.

Our Milwaukee Section now includes members of Michigan's Upper Peninsula, and students of MTU. After recent discussions with SAE and the Western MI Section, it made sense to join our closer Milwaukee Section. SAE International sent out a letter informing them of the change, effective as of January 2004. In addition, this allows us to be the hosting Section for the SAE Clean Snowmobile Challenge 2004, held March 15th - 20th by MTU's Keweenaw Research Center.

More than 150 students are expected to participate in this 5th annual meeting of collegiate snowmobile teams, as they put their designs to the test. If you are interested in becoming a CSC event sponsor or volunteer, contact Jay Meldrum at 906-487-2750, jmeldrum@mtu.edu, or on the web at www.banweb.mtu.edu/mtu/mtf/giftform.xsql.

Get ready for 135 Mini Baja cars to roll into Wisconsin for the 2004 Mini Baja Competition! Event dates are June 3-6, 2004. We have begun to organize volunteers on various sub-committees to do advance preparation and run the exciting and rewarding events. To find out how you can assist, please contact: our Mini Baja Chair, Mike Freisleben at (262) 513-4549, mikef@huscointl.com.

Our Section is again promoting SAE Foundation's "A World In Motion" (AWIM) along with Discovery World. This is a fantastic program for students, 4th grade and up, to enjoy hands-on engineering experience in their classroom using a free kit from SAE. Dr. Lumkes and I, and our V-C of Math & Sciences, Dennis Webb will be demonstrating AWIM and training at Country Dale School, in Franklin, at 10:00 a.m., Jan. 21st. We're encouraging members to help introduce this fine program to their school districts. If you could assist a teacher with an AWIM kit, or for more information, contact Dennis at 414-371-5835, dwebb@badgermeter.com.

We hope your holidays were joyful, and we look forward to seeing you at DeltaHawk.

Thanks for your continued help,
Dale Wiza, SAE Milwaukee Section Chairman

P.S. Please donate your SAE and related magazines to our section. Bring them to our next event for re-distribution to students. Due to cost reductions, printed materials are no longer provided with student memberships. Prof. Lumkes, any other board member, or myself will gladly accept them. Thanks from Dale, John, and all the students.



Engine Designer Dave Driscoll explains the DeltaHawk engine to visitors to the Velocity booth at Oshkosh. The Flight Test engine is mounted on a Standard Velocity RG. It was on display throughout the 2003 Oshkosh show.

REGARDING OUR RECENT MOVE TO ELECTRONIC NEWSLETTERS!

Thanks to our Newsletter editor Mark DeBattista, we have made a successful transition from hardcopy newsletters to email distribution. To maximize value to our members, and especially to the younger members so essential to our society's future, we will focus our resources towards mainstream electronic media. We are committed to only use member email addresses for distribution of section event information. It will not be released for any other purpose. Though we view email as a positive thing, providing our members with the ability to forward our newsletter to other people, etc., we want to do our best at making sure that we don't lose anyone in the process. We still send out about 200 hardcopy notices to those members with a preference, or who don't have a computer. Please talk this up with the other members you know, and help us make sure that everyone is still receiving section event information. A hardcopy notice is currently mailed to only those members that have requested one. Reinstatement of monthly hardcopy newsletter mailings may be placed by phone. Please leave a complete message (your name, phone number, mailing address and message) on the regular registration line, 414-465-6722, or call me at 414-427-8080. Messages will be removed once daily. For assistance with any other questions you may have, please contact Mark via email at: mark.d@email.sae.org. Sincerely, Dale Wiza

Meeting Sponsorship

We wish to thank the following organizations for their continued support of the Milwaukee Section:



Harley-Davidson Motor Co [Milwaukee]



Modine Manufacturing Co [Racine]

For more information on becoming a sponsor, please contact any section board member.

Keep current with us on these SAE web sites:

<http://milwaukee.sae.org> for the Milwaukee Section or
the national site at <http://www.sae.org>.