

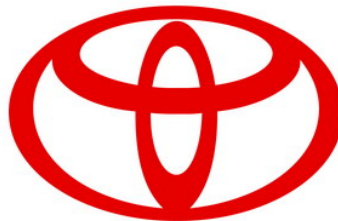
SOCIETY OF AUTOMOTIVE ENGINEERS

Milwaukee Section Newsletter



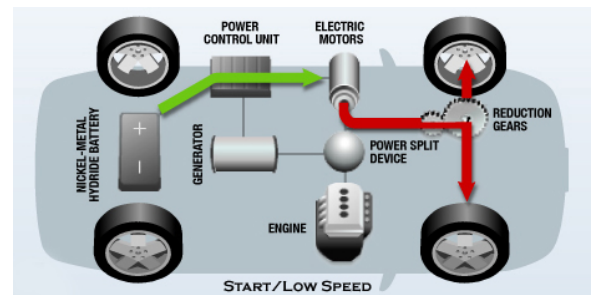
December 2011 - UPDATE

www.milwaukeeesae.com



TOYOTA

HYBRID DRIVE TRAINS JOINT MEETING WITH ASME



Pewaukee, WI - Wednesday January 18th, 2012

**WAUKESHA COUNTY TECHNICAL COLLEGE
INDUSTRIAL BUILDING**

Energy Recovery and Storage Technology for Automobiles

NOTE: Due to a scheduling conflict with General Motors, the January Section meeting date and topic have changed slightly. The changes are reflected in this newsletter update. We appreciate your flexibility with this matter.

Meeting Abstract

This month, we go under the hood of a new kind of drive train, one of which we will see much more as time passes. In joint session with our local section of the American Society of Mechanical Engineers (ASME), we learn about a hybrid gas/electric drive system as implemented by Toyota, branded the Hybrid Synergy Drive. We will receive an overview of the system as well as an understanding of the development process and technical advantages over competing designs. Toyota hybrid vehicles are often referred to as a combined hybrid because they are powered by both gasoline and electric power. Key hybrid components include: regenerative braking; two electric motors and generators; internal combustion engine; the Power Split Device to increase fuel efficiency and improve performance; a vacuum flask to store hot coolant; a "stealth" mode that lets the car operate only on electric power for a short period of time and a sealed NiMH battery pack for easy charging and prolonged battery life.



Cut away of Toyota hybrid drive

Our presenters have a strong practical knowledge about our topic. Don McGreer, with more than 30 years at Toyota, is an instructor at the Training Center at Toyota. His main responsibility is to train Technicians and Field Technical Specialists in the area. Regan Boll is a Field Technical Specialist for the eastern portion of Wisconsin and contends with special issues uncovered on our area.

Our host for this event is Waukesha County Technical College in Pewaukee a public college providing associate degrees and technical diplomas in over one hundred thirty fields focused on supplying its students with skills in demand here in Southeast Wisconsin. Our session will be held in the school's automotive training facility where hands on training occurs. Students may choose from a curriculum centered on GM autos (GM-ASEP), Toyota (T-TEN), or the general fleet.

--- EVENT AGENDA ---

| | |
|----------------------------------|----------------|
| Social / vehicle viewing: | 5:00 pm |
| Dinner: | 6:30 pm |
| Presentation: | 7:30 pm |

--- DINNER ---

| | |
|----------------------------|----------------|
| SAE Members/Spouses | \$15.00 |
| Retirees | \$15.00 |
| Guests/Non-members | \$20.00 |
| SAE Students | \$8.00 |

- - - Menu - - -

Hot sandwich buffet with beverage (coffee, water, or soda) followed by dessert

Directions to WCTC

Pewaukee Campus: 800 Main Street, Pewaukee, WI 53072

**Meet in Industrial Building (Enter thru doors I10 (South) or I6 (Southeast))
Proceed to Room I109 (Automotive Shop)**

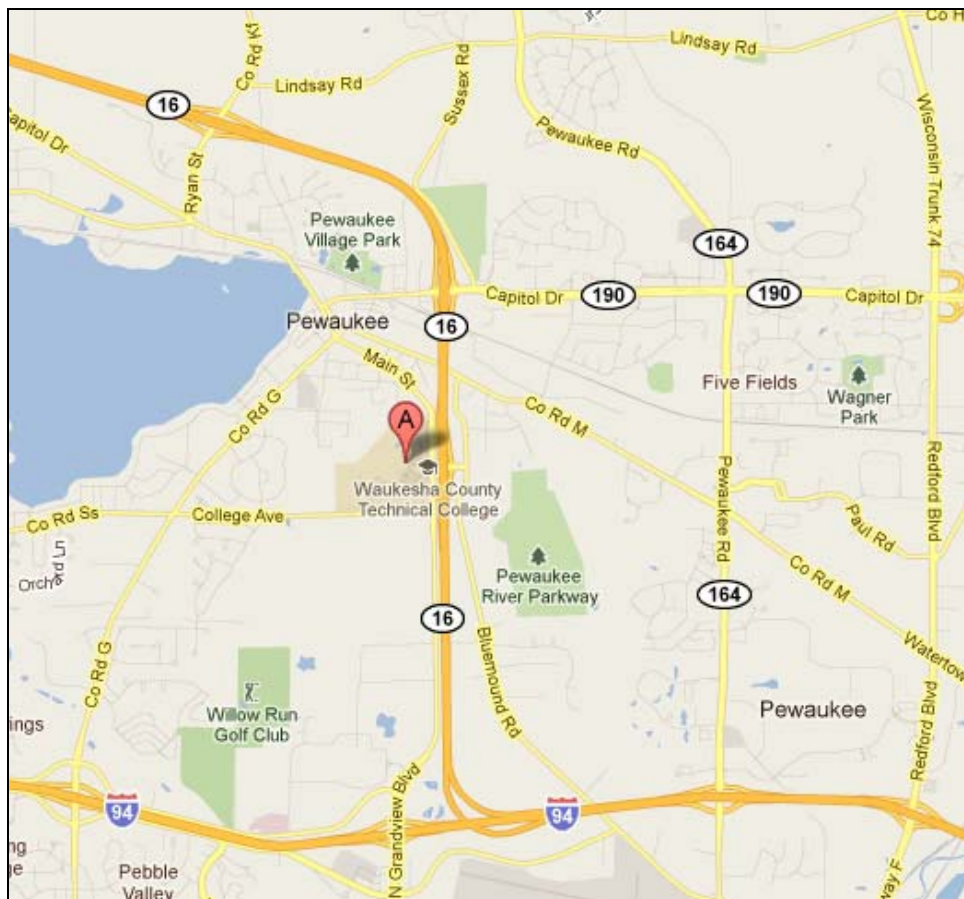
Parking: Park in Lots #10, #11, or #12

From North (Fond Du Lac)

Take US-41 S, continue on US-45 S
Exit toward WI-60, turn right onto WI-60
Turn left onto WI-164 S
Turn right onto Lindsay Rd
Take 1st left onto Sussex Rd
Continue onto Cecelia Dr
Turn right onto Capitol Dr.
Turn left to merge onto WI-16 E
Take exit 188 toward Waukesha JJ
Turn left onto Grandview Blvd.
Turn right at Bluemound Rd.

From West (Madison)

Take I-94 E to exit 293
Take exit 293 toward Waukesha T N
Turn left onto N Grandview Blvd
Turn onto Bluemound Rd.



Registration

Pre-paid registration by credit card can only be completed online via <http://www.milwaukeesae.com>.

Members and/or guests who do not have access to the website may register by phone with the SAE Registration Coordinator – Josh Rayeske (414) 587-8855.

MAX ATTENDANCE for this event is 100. Registration deadline: **January 4th, 2012.**

Student Grant Challenge Review:

Milwaukee, WI Marquette University hosted the November Section meeting on the 23rd where the student chapters (UW-Madison, UW-Milwaukee, MSOE, Marquette, Michigan Tech) presented information to the attendees to earn grant money to support their competition vehicles. The professional members rated the presentations and awards were distributed as follows:

- 1st Prize: \$1,400 UW-Milwaukee
- 2nd Prize: \$1,300 Michigan Tech
- 3rd Prize: \$1,200 MSOE
- 4th Prize: \$1,100 UW-Madison
- 5th Prize: \$1,000 Marquette University



Marquette students also offered tours of their new engineering building. They featured examples of how the building itself is used to teach engineering concepts. Such features include strain gauged I-beams to show loading and unique structural members on each floor to demonstrate design alternatives.

Clean Snowmobile Challenge: March 5-10

The SAE Clean Snowmobile Challenge will be held March 5-10, 2012 at the Keweenaw Research Center of Michigan Technological University. This is the tenth anniversary of the Challenge at Michigan Tech and the 13th event overall. The first three years of CSC were held in and around Yellowstone National Park. So far 13 teams have entered the Challenge with a few more expected. Notable entries this year are the University of Buffalo as well as North Dakota State who have indicated they will enter diesel engine snowmobiles. Fuel for this



year's challenge will be in the range of E10 to E39 or B10 to B39. Teams will have to engineer their IC sled to run on any version we give them in this range. In the Zero Emissions or electric category, the rules have been fine tuned to be consistent with other SAE electric competitions like Formula Hybrid and Formula Electric. The goal is to be safe and consistent in the electrical requirements across all SAE Collegiate Design Series Competitions.

Other changes are the inclusion of the new Hayes Trailtrac 1.0™ Controlled Braking system into the competition. Hayes will assist any team that wants to add this new feature to their sled.

You can learn more about this year's Challenge and how you can help by contacting Jay Meldrum at jmeldrum@mtu.edu 906-487-3178 www.mtukrc.org or <http://students.sae.org/competitions/snowmobile/>

Case New Holland Section Meeting: Coming in March!

CNH is a world leader in the agricultural and construction equipment businesses. Their Racine plant of Case IH, welcomes us to tour and learn more about their agricultural equipment, including their biggest – the Steiger® 600 tractor.

Case IH also expands its Advanced Farming Systems (AFS) precision farming offering by introducing a new GPS receiver and new variable-rate controller and telematics systems and AFS software.

Stay tuned for details coming in the February newsletter!



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Dear Members and Section Friends,

We encourage you to join us in January to learn about the Toyota hybrid drive. Many thanks to the American Society of Mechanical Engineers (ASME) for planning the event and inviting our membership to join. Don't miss this opportunity to learn about new propulsion technology as electric vehicles become more prominent in the automotive industry.

The Baja SAE competition will be hosted by the Milwaukee Section in May 2012, at the MGA proving grounds in Burlington, WI. This event set a new record in Collegiate Design Series competition registration by selling out all 100 positions in less than 18 minutes. Formula SAE still holds the record for selling out in less than 12 minutes however this is a new record for the Baja SAE series which usually sells out in a span of hours. Please contact Glenn Bower (grbower@facstaff.wisc.edu) if you'd like to become a volunteer for the Baja event.

Please note there will not be a February section meeting. Our next newsletter will be distributed in February to announce details for events in March including the Clean Snowmobile Challenge and a section meeting hosted by Case New Holland.

Happy holidays to everyone! We look forward to seeing you in the new year.

Best regards,

Jim Ryan
Chairman – Milwaukee Section

Meeting Sponsorship



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