



SAE Milwaukee Newsletter

May 2013

www.milwaukeeesae.com

UPCOMING EVENTS

- Sonex Aircraft
 - May 22
- Road America June Sprints
 - June 15
- SAE Golf Outing
 - July 13

Sonex Aircraft

Oshkosh, WI

May 22, 2013



For more details, Go to
www.facebook.com/MilwaukeeSAE
and Like us!



sonex
The Sport Aircraft Reality Check



SAE International is proud to announce May's meeting at **Sonex Aircraft, LLC**. **Sonex Aircraft, LLC** is an American aircraft kit manufacturer located in Oshkosh, Wisconsin that produces kits for four all-metal homebuilt monoplanes. The company is led by John Monnett who has designed the Monnett Sonerai sport aircraft series, Monnett Monerai sailplane, Monnett Moni Motorglider, and Monnett Monex racer. Monnett designs are displayed in the Steven F.

Udvar-Hazy Center of the National Air and Space Museum near Washington D.C.



John is a multi-thousand hour private pilot with both glider and float plane ratings and an A&P Mechanic. John has over 40 years of homebuilt aircraft and restoration experience along with extensive engine development and testing experience. John was inducted into the EAA Homebuilder's Hall of Fame in 2001.

John Monnett

President, Sonex Aircraft LLC

Sonex Aircraft, LLC's mission is to provide the recreational aviation community innovative, cost-effective and efficient aircraft kits, power plants, and accessories, in addition to industry-leading customer service. Sonex Aircraft is devoted to offering Truly Affordable Sport Aircraft, with initial building cost competitive with the cost of a new car, boat or recreational vehicle, and economy rivaling that of the most fuel efficient new cars. Sonex provides leadership to the grass-roots homebuilt community to protect the experimental-amateur built rules and cultivates new pilots and airplane builders through educational efforts.

Sonex's Airplane Line-up

Sonex airplane line-up includes the Sonex, Waix, Xenos, and Onex. Each of these planes has its own characteristics. The Sonex is incorporates various lightweight contemporary engines of 80 to 120 hp with a weight of less than 200 lbs. Exceptional performance is achieved through its clean aerodynamic shape and simple, lightweight construction. The Waix is a Y-Tail Sonex that is a premier high-performance, recreational aircraft.

The Xenos is a motor powered glider that can be flown as a powered glider, a self-launched glider that soars with the engine off, or it can motor-soar over great distance with incredible fuel economy. Additionally, the Xenos wing tips can be removed and interchanges with optional aerobatic wing tips.



The Onex (pronounced “One-X”) was featured on the cover of EAA’s Sport Aviation magazine in August 2012. The Onex is a single-seat aircraft complete with folding-wing design can fit into a standard 7’ garage door, and the wing panels can easily be removed for trailering at highway speeds. The Onex follows the Sonex Aircraft design and engineering tradition in offering a simple, robust, aerobatic aircraft capable of squeezing incredible performance out of lower powered engines.

Sonex Aircraft Powerplant

Sonex also offers the AeroVee 2.1 Engine Kit. This kit is a complete VW Conversion Engine Package kit. This package is a 2180cc, 80hp Aero-Engine that can be run on 100LL or Auto Fuel. The complete package weighs 161 lbs. Sonex Aircraft also offers several optional components that can be added to the AeroVee Engine kit. Allowing the builder to customize their engine to fit their desires.



The Hornet's Nest R&D Team



In addition to its current lineup, Sonex Aircraft, LLC also is committed to the research and development for the growth of its product lines. The company's design team has a long history in innovation, research and product development. This commitment is featured on Sonex Aircraft LLC's Hornets' Nest website. The R&D team members include EAA Homebuilders Hall of Fame inductee and Dr. August Raspert Memorial Award winners, recognized for contributions to light aircraft design. The Sonex Aircraft, LLC design team has been heralded as "inspirational pioneers" by a group of General Electric and Airbus engineers visiting the EAA AirVenture Oshkosh 2008. The design team's mission drives Sonex Aircraft, LLC to lead the way forward to future flight with projects such as the e-Flight Initiative for electric flight and enhanced

efficiency in flying. Some of the R&D projects the Sonex Aircraft, LLC design team is working on include the e-Flight Initiative, e-Flight ESA, Subsonex, and AeroVee Turbo.

What is e-Flight?

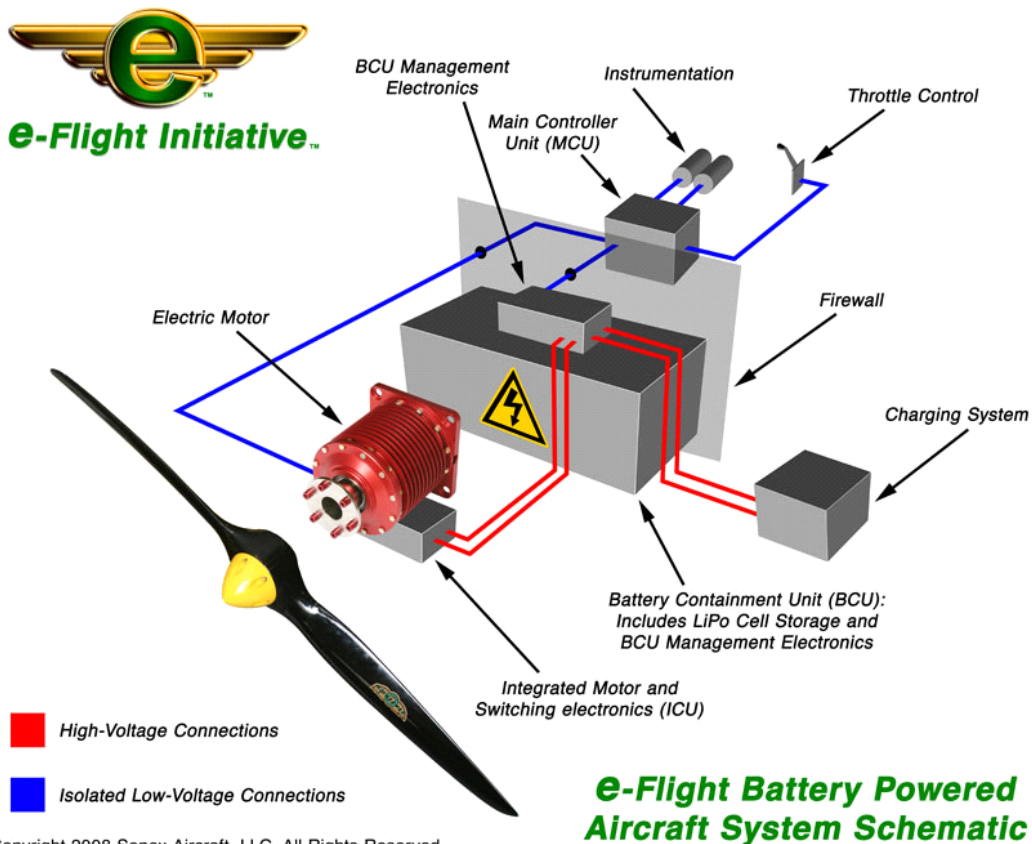
In 2006 Sonex Aircraft, LLC's research and development team began work on what is now called the "E-Flight Initiative." E-Flight is a push to explore viable alternative energies for powering sport aircraft and improve the efficiency and performance of current products and technologies to keep aviation affordable for the average pilot, and to keep recreational aviation available to future generations of pilots.

Although E-Flight has been shrouded in strict secrecy to ensure intellectual property protection of its more cutting-edge components, public unveiling of E-Flight at EAA AirVenture Oshkosh 2007 has been a vital key to the Initiative since its inception. E-Flight is not only intended as a "push" for the Sonex R&D team, but also to help push the rest of the recreational aviation industry toward similar goals in the interest of preserving the future of general aviation. The E-Flight Initiative has three major areas of focus, taking a diverse approach to the problems of rising energy costs and an ailing environment to provide near, intermediate and long-term green powerplant solutions:

• Electric Power

The Sonex Aircraft R&D team is faced with the challenge of developing of a proof-of-concept electric motor power plant, controller, battery pack and charging system with the goal of determining the feasibility of a marketable line of Sonex and AeroConversion products. This project represents the most significant portion of E-Flight, in terms of investment, risks, challenges, and possible gains.

Sonex Aircraft's endeavor is to not just addable "off the shelf" components, as others have done before us, to prove that electric flight is possible. Their mission is to develop a truly integrated eco-friendly alternate power system that combines efficiency and safety for their line of existing aircraft and the future of sport aviation.



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The E-Flight project has been a huge undertaking for Sonex Aircraft and a handful of talented partners. E-Flight is unique in that Sonex Aircraft designed and built every component of the E-Flight system from the ground up. That means Sonex Aircraft owns design and production rights and they are not reliant on anyone else when it comes time to market and sell the system. This will significantly reduce costs for pilots interested in owning and operating their own electric aircraft.

E-Flight is also unique in that the Sonex Aircraft airframes that are currently sold and supported make perfect matches for the first crop of higher-power Electric Motors. The design and development team are not only airframe designers, they are also honing their skills in the development and improvement of Electric Power Systems. They expect the E-Flight project to produce a line of E-Flight Power Systems to be marketed and sold to both their airframe customers and other airframe manufacturers.

SubSonex Personal Jet

The subsonic is the answer to every pilot's fantasy to own and fly a jet! The SubSonex is designed to capitalize on new generation small turbine engines, possibly using alternative biofuels, to give pilots of more average means the title of Jet Jock. Just don't ask them about service ceilings, range or baggage... SubSonex is all about taking a thrilling rocket ride around the neighborhood!



The AeroVee Turbo

The intent of the AeroVee Turbo project is to continue the Sonex tradition of continuous improvement for our products by developing an economical, light-weight, simple, and reliable retrofit turbo charging system for the AeroVee engine. The obvious benefits are more take-off power available at low altitudes and increased horsepower output at altitudes that we normally operate as sport pilots (0 to 10,000 ft).

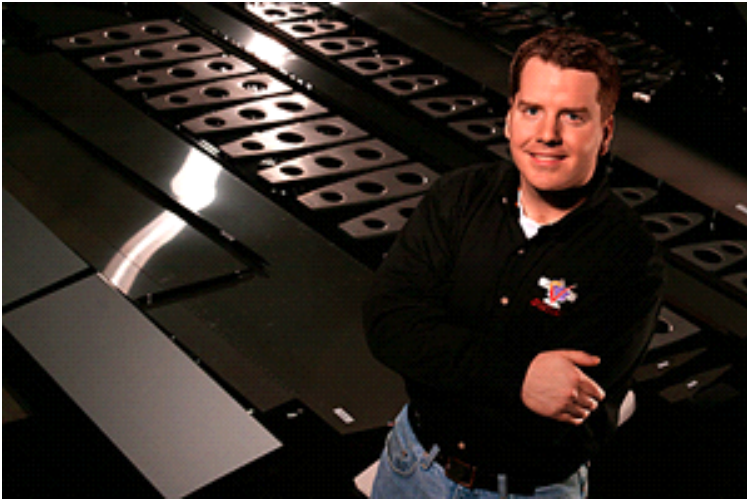
The AeroVEE system being tested consists of an exhaust driven turbocharger, an Aero Injector installed in a "pull-through" configuration on the turbocharger, and an engine-driven scavenge pump to provide oil to the turbocharger. The total Turbocharged AeroVee engine system (with Nikasil Cylinders) weighs 185 lbs in this prototype configuration.



Sonex Timeline

- Sonex Aircraft founded in 1998 with the Sonex design.
- Development of the AeroConversions AeroCarb (now called AeroInjector: <http://www.aeroconversions.com/products/aerocarb/index.html>) and AeroVee Engine Kit (<http://www.aeroconversions.com/products/aerovee/index.html>) followed soon thereafter (AeroVee first sold in 2002).
- Waix and Xenos designs introduced in 2003.
- Onex first flight in 2011.
- SubSonex first flight in 2011.
- Over 1500 sets of plans/kits sold to-date, between all aircraft models, with customers around the globe.
- Over 700 AeroVee engines sold to-date, worldwide.
- Currently 428 reported Sonex Aircraft complete and flying worldwide (between all models).
- Approximately 40-50 aircraft completions reported by customers per year in recent years.

About the Speaker



Jeremy Monnett
Chief Executive Officer

Jeremy Monnet is the Chief Executive Officer at Sonex Aircraft, LLC. Jeremy is a private pilot with glider and float ratings and a mechanical engineer that joined Sonex in October, 1998. Previous to joining Sonex, Jeremy worked for two years as a payload systems engineer at The Boeing Company in Seattle and as a Summer Intern at General Motors in Detroit. He has been working alongside John Monnett on various restoration and experimental projects for most of his career. Jeremy currently serves as Sonex Aircraft CEO and leads Sonex Aircraft's engineering efforts.

Upcoming Meetings and Events.....

- Sonex Aircraft in Oshkosh
 - May 22
 - <http://www.sonexaircraft.com/>
 - We will be viewing and discussing the electric aircraft at Sonex
- June Sprints at Road America
 - June 15
 - <http://www.roadamerica.com/>
 - Opportunity to network and enjoy some SCCA racing
- SAE Golf Outing
 - July 13
 - Mee Kwon Golf Course Mequon, WI
 - For more information contact Tony at tgrant@amcastle.com

--- **EVENT AGENDA** ---

Registration: 5:00 pm to 5:30 pm

Facility Tour: 5:45 pm to 7:00 pm

Dinner and Presentation: 7:30 – 8:30 pm

Meal: Pineapple Glazed Ham or Fried Chicken; Creamy Mashed Potatoes or Wild Rice Blend; Sweet Golden Corn and Creamy Coleslaw

--- **REGISTRATION FEES** ---

SAE Members/Spouses	\$18.00
Retirees	\$14.00
Guests/Non-members	\$22.00
Students	\$5.00

REGISTRATION

Registration:

Only pre-payments made with a charge card can be completed online via <http://www.milwaukee.sae.com>

Registration Deadline: **May 15** at 12:00 pm (noon)

Maximum Attendance for this event is 150

Registration can be completed online via <http://milwaukee.sae.org> Or by phone at 414-587-8855 (Josh Rayeske)

If interested in car-pooling from a Park n'Ride, please contact Dale Wiza at dale@engineeringplacements.com, or cell 414-807-9663.

Meeting Location: Sonex Aircraft LLC



ROAD *Road Racing at its Best*TM AMERICA

Elkhart Lake, Wisconsin



SAE at the “June Sprints[®]”

The First Leg of the SCCA Triple Crown

Thursday, June 13 - Sunday, June 16

7:00 am – 6:00 pm

Special SAE Ticket Prices

\$5.00 for SAE Members

\$10.00 for Non-Members, Guests

Make your plans now!

Join your SAE Milwaukee, Chicago, Rockford-Beloit, Michiana, Indiana and Western Michigan Sections at this great race event. Help celebrate the Chicago Region's 64th anniversary. Come enjoy this outstanding racing experience. We are so privileged to have this fine 4.5 mile race course conveniently available to us. The June Sprints® races involve a multitude of car styles and classes; open wheel, stock car, historic and modified custom. Over 30 classes of cars will compete, separated into groups for the purpose of, qualifying and road racing. Qualifying occurs each morning with racing in the afternoon.

We invite all of the schools to display their SAE student projects near the hospitality tent area on Saturday.

Through a special arrangement with our friends at Road America, we can offer these normally \$35.00/day tickets for just \$5.00 for our SAE members. Invite a non-member guest along for just \$10.00 per day. You can order as many tickets as you wish.

SAE has blocks of tickets for Thursday through Sunday, June 13 to June 16. Choose any or all of the days at the special per day ticket pricing. **Pick up your tickets at Gate 3 on the day of the event.** Gates Open – starting at 7AM.

Your Program Managers for this event are Doug Kautzer, Briggs and Stratton, Milwaukee Section 414.259.5733 (414.788.7443 cell), and Mark Fisher, Northern Power Products, Chicago Section - 847.224.9871 cell.

How to order Tickets – Order your tickets on-line through the SAE web site at www.milwaukee-sae.com. Deadline is Thursday, June 6th. Tickets will be available at Gate 3 “Will-Call” on the day of the event. If you have any questions call Doug Kautzer.

Bring your Family - Children 12 and under are free with a paying adult.

SAE Hospitality Tent Saturday – Stop by for a cool bottle of water or soda at our hospitality tent. Watch for the familiar blue and white “SAE” banners. We will be located at turn 3 of the race course. Our hospitality tent will be within sight of the Corvette Coral, a popular site at the corner of turn 3. Doug Kautzer will staff the tent from 10 AM to 2 PM.

Camping – For those interested, camping registration is at Gate 4 at the south end of the track off County Road “J”.

Spectator Karting – Treat family members, age 13 or older to spectator karting at the Briggs & Stratton Motorplex. This occurs from 10AM to 6PM at a price of \$20.00 per participant.

Website: www.roadamerica.com for more details about the event.

Directions to Road America, Elkhart, Lake, WI

From Green Bay

Take I-43 south to Hwy. 23 west. Take Hwy. 23 west to Hwy. 67. Take Hwy. 67 north to the track. At County J turn left to enter Gates 3. Scenic: Hwy. 57 south to Hwy. 67 at Kiel. Hwy. 67 south to Road America. At County J, turn right to enter Gate 3.

From Madison

Take Hwy. 151 to Fond du Lac. At Fond du Lac take Hwy. 23 east to Hwy. 67 north. Take Hwy. 67 about 2 miles. Turn left on County J to enter Gate 3.

From Milwaukee

Take I-43 north to Hwy. 23. Take Hwy. 23 west to Hwy. 67 north. Continue north to County J. Turn left on County J to enter Gate 3.

From Minneapolis/St. Paul

Take I-94 east to Mauston, Wisc. Then take Hwy. 82 east to Hwy. 23 east. Stay on Hwy. 23 to Hwy. 67. Take Hwy. 67 north. At County J turn left to enter Gate 3.

From Rockford, IL

Take I-90 to Beloit, Wisc. Then Take I-43 north through Milwaukee and continue north to Hwy. 23. Take Hwy. 23 west to Hwy. 67. Take Hwy. 67 north. At County J turn left to enter Gates 3.



ROAD *Road Racing*
AMERICA *at its Best™*



ROAD AMERICA FAN MAP

KEY

- # Spectator Gates
- P# General Parking
- RP# Reserved Parking
- Surface Roads
- S Security Check Point
- Track & 14 Turns
- Pedestrian Bridge/Tunnel
- Traffic Bridge / Tunnel
- C Concession Stands
- 4M 4-Mile Merchant
- First Aid
- VIP / Media Tower
- W Winner's Circle
- RA Road America Center
- Orion Tech Center
- Lester Carport
- Family Fun Zone



PARKING
 Spectators may park in designated parking areas or around the facility unless posted. Spectator parking is NOT allowed in the paddock or in reserved lots near the VIP Tower.



The distance of this portion of Hwy 67 is not shown to scale.

The distance of this portion of Hwy 67 is not shown to scale.

TO MAIN GATE
 TO HWY 67 / TO PLYMOUTH

SAE Milwaukee Section Golf Outing.....



1st Annual Fundraising Golf Event

All proceeds applied toward collegiate sponsorships

Save this date: Saturday, July 13th, 2013

www.milwaukeeesae.com



Join us at SAE Milwaukee's biggest fundraising event of the year at Mee-Kwon Golf Course in Ozaukee County.

Invite your clients and colleagues for a fantastic day of golf.

Not a Golfer? Attend a great afternoon of networking with a buffet lunch and raffle.

Time:	
12:30	Registration
1:00	Lunch
2:00	Shotgun Start ~Scramble
6:00	Networking
6:30	Refreshments & Raffle

Cost:
\$60 Individual Golfer*

*Golf costs includes, 18 holes, cart, lunch

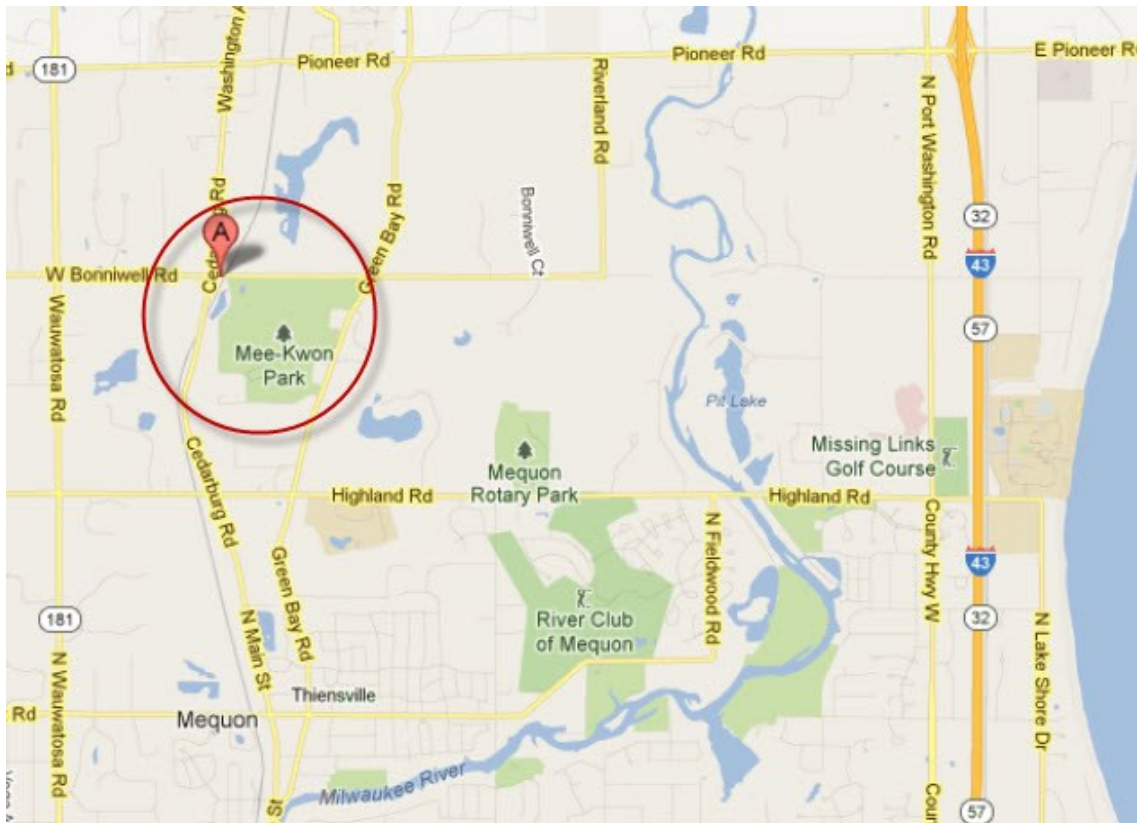


Tell us what you think about this location, event and future ideas for the SAE golf event. E-mail: tony.grant@earthlink.net



Mee-Kwon Park Golf Course
 6333 West Bonniwell Road
 Mequon, WI 53097

(262) 242-1310



Sponsorship and Donation

Sponsorship Opportunities

Please select the sponsorship level you wish to participate in. Some sponsorships are limited in number and are available on a first come-first served basis.

BRONZE Sponsor.....\$150

Includes one regular hole sign, logo on leader board and program listing.

SILVER Sponsor.....\$200

Includes one regular hole sign, logo on leader board and program listing for special event hole.

GOLD Sponsor.....\$300

Includes recognition signage, logo on leader board and program listing for beverage or hors d' oeuvres or snack hole sponsor.

PLATINUM Sponsor.....\$500

Includes recognition signage as a lunch sponsor, logo on leader board and program listing.

Your companies electronic logo should be sent to: tony.grant@earthlink.net

Donation Opportunities

Donate items to be raffled during dinner including corporate gifts, gas/gift cards, golf apparel, sports equipment, small electronics, grills, sporting/social event tickets, coolers, etc.

Donation Item Description	Quantity
_____	_____
_____	_____
_____	_____
_____	_____

Item(s) will be delivered Item(s) need to be picked up.

Let SAE do the shopping for you. You may donate cash via check to SAE Milwaukee, or provide your credit card information below.

Please provide two business cards for each item donated.

Your companies electronic logo should be sent to: tony.grant@earthlink.net

Contact and Payment Information

Name _____ Phone _____ Fax _____

Company _____ Email _____

Sponsor and/or Donation Amount \$ _____ Receipt Required? Yes No

Payment Options:

- By check payable to SAE Milwaukee, PO Box 170074, Milwaukee, WI 53217
- By credit card payment online at <http://milwaukee.sae.org>

Respond by July 6th to be listed in the event program! E-mail completed form by July 6th to:
Tony Grant tony.grant@earthlink.net

Event Registration July 13th, 2013

On-Line Registration MUST be received by 5:00 on June 20 at:
<http://milwaukee.sae.org>

Not Refundable after 5:00 pm on June 20th

~OR~

Mail-In Registration MUST be received by June 20th at:
 PO BOX 170074, Milwaukee, WI 53217

Please include the below form along with your business card

Name: _____

Company: _____

Name: _____

Company: _____

Name: _____

Company: _____

Name: _____

Company: _____

HOLE	1	2	3	4	5	6	7	8	9	Out	I N T I A L S												
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WHITE TEES	339	390	156	516	386	187	389	352	397	3112	362	386	296	362	132	484	157	388	333	2900	6012		
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GOLD TEES	300	351	156	452	348	175	341	319	362	2804	335	364	296	331	132	418	157	340	287	2660	5464		
RED TEES	300	351	108	452	348	128	341	319	362	2709	335	364	275	331	106	418	122	340	287	2578	5287		
Course Rating/Slope Blue - 70.8/122 • White - 68.4/117											Course Rating/Slope Gold - 65.8/111 • Red - 69.7/117												

Milwaukee Section 2012-2013

Governing Board

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jim.ryan@cat.com

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NEWSLETTER EDITOR:

Matt Anderson—Briggs & Stratton
anderson.matthew@basco.com

STUDENT REPRESENTATIVES:

Marquette—Bryan Adams
MSOE—Charles Scanlon
UWM—Jacob Berman

Dear Members and Section Friends,

Many thanks to Holz Chevrolet for hosting a fantastic April section meeting on the Chevy Volt! GM Powertrain instructor Bill Weaton captivated the audience as he described the electric drive system. The Volt meeting was part 2 of our electric vehicle series, following April's Section meeting on vehicle battery technology at Johnson Controls. Join us at the finale, part 3, on Sonex's electric aircraft.

Don't forget to buy your discounted tickets for the June Sprint races at Road America. Logon to the event registration online at milwaukeesae.org to purchase your tickets.

The 2012-2013 SAE calendar year ends on May 31st. The Section board member officer elections will be finalized at this month's governing board meeting. After serving for three years as Chairman, I will relinquish my position and continue to serve our organization as past chair. I've sincerely enjoyed the experience, and look forward to continue building relationships with our section.

And finally, enjoy your summer! I look forward to seeing you at our September kickoff event on the new C7 Corvette.

Best regards,

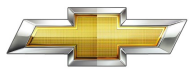
Jim Ryan
Chairman – Milwaukee Section

Section Sponsors



sonex

The Sport Aircraft Reality Check



HOLZ

Johnson
Controls



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www.milwaukeeae.com