March Technical Meeting/Old Timers Night

Thursday, March 9, 2017

Vision Applications in the Automotive Structural Assembly

Presented by Terry Tupper

Hosted by: Paslin

23655 Hoover Rd., Warren, MI 48089

Click here for Map/Directions or see map on page 2

Terry Tupper Bio:
- Michigan Technological University
  - Associate of Science, Electrical Engineering Technology
  - Bachelors of Science, Electrical Engineering Technology
- John Deere
  - Construction and Forestry Division (2000-2007)
- Fanuc America
  - Senior Engineer, Materials Joining Segment (2007 – Present)
- Publications
  - Welding with Vision/Fabricator
  - In a Fix/Welding Productivity
  - Examining Auxiliary Axis/Welding Productivity
  - Safe Keeping/Welding Productivity
  - First Time Buyers/Welding Productivity
- Patent for vision based Tool Center Point
- Patent for Dynamic Laser Touch Sensing with multiple robot dynamic user frame.

AGENDA

5:30 - 6:00pm  Welcome Reception & Networking

6:00 - 6:15pm  Opening Remarks: Don Maatz (AWS – Detroit); Greg Stacey, Sales Account Manager (Paslin)

6:15 - 6:45pm  Meal

6:45 - 7:00pm  AWS Old Timers’ Awards; Eric Lichtfusz (AWS – Detroit)

7:00 - 7:45pm  Fanuc Technical Presentation: Vision Applications in the Automotive Structural Assembly by Terry Tupper

7:45pm  Adjourn

RSVP to: Amanda Davis
amanda.davis@fcagroup.com
March 2017
This Issue of the Bulletin can be viewed on the web at awsdetroit.org

Chairman: TYLER ALEXANDER
First Vice Chair: WESLEY DONETH
Second Vice Chair: MARK GUGEL
Secretary: DAVID BENETEAU
Treasurer: ANDRE YOUNG
Bulletin Editor: ROBIN MICHON
Webmaster: RODNEY BEREZNICKI

For Advertising Opportunities
Contact Don Crist
810-217-9897
dcrist@romanmfg.com

We had a great turnout at our Tech Meeting in February hosted by R&E and RoMan Manufacturing with more than 100 people in attendance - let’s try to maintain that momentum in the busy months to come. Near the beginning of March we have our monthly Technical Night hosted by Paslin at their facility on Hoover Road. In addition to the technical content, this is our Annual ‘Old Timers’ Night where we take the time to recognize those who have been long time dedicated members of the Detroit Section. The Section would not exist without the support of its membership, so I encourage your participation and attendance on Thursday, March 9, 2017.

Towards the end of March we have our Annual Ladies Night Gala. This year offers an exciting new venue at the Royal Park Hotel in Rochester, Michigan. The Ladies Night Gala is, and always has been, one of our premier social events. If attendance has not been priority for you in the past, the year of a new venue always makes for a great experience.

There are some very important deadlines at the end of the month that require attention, especially for students. April 1, 2017 is both the Scholarship deadline and the deadline for registration for our Annual High School Weld Competition. One of our biggest motivators as a Section is our ability to give back to the community and invest in our youth. The Scholarship program and the High School Weld Competition are two of the notable means by which we accomplish this. Last year we distributed $60,000 in scholarships to deserving candidates through this program. A great deal of effort has been invested in creating a simple online submission process for this year’s applicants, so please encourage your students to apply now and take advantage of this potentially rewarding opportunity.

Tyler Alexander
Chairman’s Message

Affiliated With
ESD
THE ENGINEERING SOCIETY

Paslin Timken Rd. Designated Parking
Register NOW! 44th Annual High School Welding Contest

Calling all high school welding instructors and students! The 44th Annual High School Welding Contest is May 12, 2017 at Washtenaw Community College. The deadline for registration is April 1, 2017.

This is the perfect event for you and your students to participate in. We are limited to 70 contestants, so the first 10 schools to sign up will be allowed 7 students each.

This is a great experience for the students, and allows them to show off their skills! There are some great prizes along with some nice scholarships!

Check out the AWS website or our FB page for more information and to register!

February Technical Meeting Re-Cap

Co-hosted by RoMan Manufacturing and R&E Automation, the AWS-Detroit section hosted its February Patrons night at R&E Automation in Macomb, Michigan. After Mr. Bob Carrier gave a brief overview of R&E Automation,

Mr. Don DeCorte, Vice President of RoMan Manufacturing, spoke on current trends in the automotive and industrial portion of Resistance Welding. Don also presented new technologies at RoMan Manufacturing, which included the Fast Rise Time fastener weld equipment and the Reversing DC transformer. After the presentation, Mr. DeCorte also gave a demonstration of the two aforementioned technologies. There were about 100 attendees in the meeting. A shop tour of R&E automation, including the laser lab, prototype shop, and the hemming lab, was given after the Mr. DeCorte’s presentation.

To view more pictures of the event, please visit our Facebook page and check out the album section.
The Detroit Section’s Ladies Night is an annual affair dating back to May of 1941. Since that auspicious beginning, Ladies Night has been held every year. Over the years the event has evolved from an end of year get together to introduce the Past Chairman and the newly elected officers of the section (now occurs on Spouses Night) to its present day role as a social event to promote networking on a couples basis and as a fundraiser.

So where does the money raised go? Proceeds from the Ladies Night event as well as other Section fundraising activities support our scholarship program, professional development activities, and new for 2017 we are working to create a Section Grant program.

This year, approximately $70,000 will be awarded in financial support of individuals, schools, and welding vocational programs.

The 2017 AWS Detroit Section’s Ladies Night venue is the Royal Park Hotel located in Rochester, Michigan. For those not familiar with this facility, located approximately 30 miles north of Detroit, it’s one of only 15 hotels in Michigan to earn the AAA Four-Diamond Rating. In addition the boutique hotel has also been recognized the last two years by Worldhotels for the Best “Experience Creator.”

Please see the Events Page on the Detroit Section website for additional details: awsdetroit.org/events.html

Scroll to the end of our e-bulletin for Ladies Night Posters!
THE CONNECTING MASTERPIECE

Eisele LIQUIDLINE – The most comprehensive line of push-in fittings and threaded connections for cooling water circuits.

Combined with flame-retardant and robust ProWeld tubes LIQUIDLINE is your ideal solution for welding applications.

- release sleeve for anti-weld spatter build-up
- de-zincification resistant brass
- 10 % improved through flow
- wide sweep elbows with increased through flow 50 + %
- swivelling elbows for weld guns
- robust-Long Service Life
- flame retardant ProWeld tubing

WWW.EISELE-CONNECTORS.COM
**Products/Technology:**

**New Compact Capacitor Discharge Welder Provides Easy and Intuitive Control Set-Up**

Bedford, OH. Dengensha America's new Capacitor Discharge Welder (CDW) minimizes heat transfer and distortion problems in a compact and cost-efficient resistance welding control design having a small footprint. The CDW spot welder is easy and intuitive to set-up, readily available off-the-shelf, and offers manufacturers numerous features and benefits to help maximize part quality. Along with offering users a broad range of part production opportunity and potential, the NDZ Series CDW is ideal for welding small projection parts on high-strength steel as well as aluminum.

The Capacitor Discharge Welder easily handles weld current as high as 50kA, yet requires only a small 6kVA power supply. High current in short bursts minimizes heat transfer and work-piece distortion, even when the power supply is unstable. Along with offering manufacturers a broad range of part production opportunity and potential, the CDW is ideal for welding small projection parts on high-strength steel as well as aluminum.

The NDZ Series CDW is designed with unique selectable current control modes that enable users to fine-tune weld quality. Selectable modes include “Energy,” “Peak Current,” and “Constant Current/Time.” (For example, users might improve weld quality by setting the first weld to the “Energy” mode for weld strength and then the second weld to “Constant Current” for post-weld heat treatment.)

For more information about the Capacitor Discharge Welder (CDW), contact Steve Andrassy at Dengensha America Corp/ 7647 First Place Drive, Bedford, Ohio 44146 / Phone: 1-440-439-8081 / Fax: 1-440-439-8217 / Email: sandrassy@dengensha.com / Visit us: www.dengensha.com

**Employment Opportunities:**

**Explore the Possibilities...** Genesis Systems Group is looking for dynamic, innovative, solutions driven individuals to join our high-performance team. Based out of Davenport, IA, Genesis is a growing company that values employee contributions in creating advanced, cutting-edge solutions for our customers.

Genesis is currently accepting applications for the following positions:

- Application Engineer
- Controls Engineer
- Project Manager
- Business Development Manager
- Process Engineer
- Technician

Genesis offers an outstanding benefits package and competitive salary including bonus opportunity. Solid opportunities for growth in a great work environment.

If you thrive on delivering your best, please find additional information available on our website, www.genesis-systems.com/about-us/careers

**Golightly Lab Assistant** The AWS Detroit section has been working with Golightly for the past 4 years and it has been a very rewarding experience.

Golightly is looking for a lab assistant to help with the duties of the instructor in the welding lab. The school has a very high standard of learning and is considered one of the top learning institutions in the city. They are looking for a fulltime or possibly a part time candidate. This is a salary position and pay will be discussed with the superintendent at the time of hire. Any individual that is interested can contact Jeffery Hill at 586-598-5367 or contact Neal Morrison at 313-822-8820.

Please see requirements below for the position at Golightly. Also, all the requirements may not have to be met if the right candidate applies for the position, such as a current second year welding student from Washtenaw or similar vocational / trade school.

- Must have a minimum of two (2) years or (4000) hours of full-time related work experience
- The experience must be within six (6) years of application.
- Competency-based curriculum development experience desired.
- The successful candidate must be student-focused and foster a positive student-learning environment.
- Candidate will assess student learning. (CANDIDATE MUST PROVIDE EVIDENCE OF INDUSTRY WORK EXPERIENCE AT TIME OF APPLICATION.).

**Did you know?**

The first Ladies Night held by the AWS Detroit Section was on May 2, 1941. It was held in the Colonial Room at the Detroit Leland Hotel which still stands today.

This event was initiated by the first woman member of the Detroit section, Mrs. Hazel Hakalow. She was the head of General Welding Company in Detroit. So, ladies, you have a woman to thank for initiating Ladies night.
Q: “Which type of transformer is better for the resistance spot welding of sheet metal, especially the new high-strength materials that are becoming more common, AC or MFDC? I ask as I have an old AC machine that runs great and has handled everything I have thrown at it so far?”

A: “One would think that the question of which type of resistive spot welding power supply is better (the definition of better to be determined) than the other would have been answered a while ago. And from the aspect of folks voting with their wallets, particularly within the automotive community, the issue has been resolved – Medium-Frequency Direct Current, or MFDC, is the clear winner. One need look no further than the percentage of sales for each type of unit going back to 1995 (data courtesy of RoMan Manufacturing) for confirmation of this.

But as is often the case, there is potentially more to the reason for this shift than meets the eye. And, as in most transitions, things tended to progress in fits and starts. But, to help better understand why this migration towards MFDC occurred, and perhaps to help define the term better in this context, a bit of history is in order.

The early decisions to utilize either an MFDC or AC power supply for resistance spot welding (RSW) was, from my perspective, as much a processing or facilities question as it was a welding question. To help illustrate this, the following discussion of which power supply may be better (there is that word again) for a particular application will be broken down into several parts. These will include processing, facilities, welding and maybe a quick look into the future. Finally, this topic has historically generated more than a little debate within the resistance welding community, so it is possible that not everyone will agree with these comments and answers.

To start with, the MFDC of today was initially known as High-Frequency Direct Current (HFDC) because the resistance welding world viewed frequency converters as low-frequency, 50/60 Hz as mid-frequency and 1000-1200 Hz as high-frequency. The technology that you see on the floor today was originally developed for automotive resistance spot welding in the mid 80’s as a joint effort by Square D (out of Milwaukee, WI) and Goodrich (a division of Conrac Corporation in Hudsonville, MI). Square D focused on the weld control side of the equation and initially used transistors and not the IGBT’s (Insulated Gate Bipolar Transistor) of today. For further context their original HFDC system was an offshoot of motor drive controls. Goodrich concentrated on the power supply. At this point in time, General Motors was a major customer of Square D and was also heavily involved in the development process of this new technology.

But, as with most major leaps in technology, and make no mistake, within the resistance welding community the development and introduction of MFDC welding was a major leap, it is not the end-goal that really is the issue. It is, instead, everything you need to learn in order to get there. In this instance, the major motivating factor was a reduction in the weight of the transformer. This explains why single-phase DC (think full-wave rectified AC), which was on the plant floor at least 5 years before MFDC, was not the answer. The reason is that it still presented packaging issues due to the need for a rather large transformer.

Further, one needs to recall that this period in time within the automotive body construction arena witnessed the migration away from traditional manually operated handguns towards robotic mounted weld guns, particularly integrated resistance welding guns called transguns. As the robots of the day were rather limited in their capacity (figure about 60 kg for this time period), the only way to incorporate a larger weld gun design was to reduce the weight of other welding system components, specifically the transformer. Another motivation was that MFDC permitted weld guns with large secondary loop areas to achieve higher secondary currents (See Feb-16 ATWE for more details), in some cases in excess of 18.0-20.0 kA. This level of secondary current was sometimes difficult to achieve even with the utilization of hip mounted AC transformers.

But as was eluded to, there might be more to the story as to why the MFDC power supplies became more prevalent within the industry. We will discuss these aspects in later columns.”

A special thanks to AWS-Detroit Executive Board member Don Crist, Account Manager for RoMan Manufacturing for his assistance with this article. Also, the author gratefully acknowledges the assistance of Mark Siehling, VP Engineering for RoMan Manufacturing Inc.

If you have more questions about this topic, contact Don Maatz at: R&E Engineering Services A subsidiary of R&E Automated Systems, LLC 17500 23 Mile Road – Suite B Mocomb, MI 48044 (586) 228-1900 – Office (734) 793-2304 – Direct dmaatz@reautomated.com

Editor’s Notes

Wow, is it me, or did February just fly by? I hope our newsletter finds all of our readers doing well and preparing for Spring! It was an awesome turnout (100+ people) at the February Technical Meeting at R&E. I think we can all agree that it was an evening well worth our time and travel.

We have some exciting events this month. We celebrate all our “Old Timers” this month at the March Technical Meeting held at Paslin on March 9th. I know that the ladies are looking forward to our annual AWS Detroit Ladies Night gala event coming up on March 25th at the Royal Park Place in Rochester Hills. This is always a classy event that allows us to honor the ladies in our lives – whether they are in welding themselves, or by association (our wonderful significant others)! If you take any pictures at the Ladies Night Event, you’d be willing to share on our AWS Detroit Section Facebook page, please contact either myself or our web editor, Rod Bereznicki, and we will get the added to the album.

Hope to see you at the next tech meeting or at our Ladies Night event. Feel free to stop and introduce yourself! Until next month, Keep on Welding!

Robin

---

Thank you again to R & E Automated and RoMan Manufacturing for an outstanding Technical and Patron’s Award Night this past February 9th. It was an awesome experience and many thanks to all those involved that help pull this off!

On behalf of the AWS-Detroit Section and myself, I would also like to thank each and every company and individual who chose to support us as a Patron this year, and hopefully those that attended the awards night made some valuable connections.

For those companies or individuals that were not able to attend, we certainly missed you. Please expect an email from me within the next few weeks asking you to provide me with a mailing address where I can send you your appreciation award.

As always, you can get more information on any of our events, past or future, by following the link below and clicking on the events tab.

http://www.awsdetroit.org/events.html

For those companies or individuals interested in becoming a Patron of the American Welding Society Detroit Section, all it takes is a minimum $100 contribution. Patrons are made known to the membership in the monthly technical bulletin, on the AWS website, and are further acknowledged by listing them in the annual Ladies Night Program.

Please visit our website often for news and information regarding any of our events throughout the year, and feel free to contact me directly with any questions that you may have regarding the Patron’s.

Warmest regards,

Eric Lichtfusz
AWS-Detroit Section Patron’s Committee, Chair
12068 Market St.
Livonia, MI, 48150
734.466.6504
eric.lichtfusz@roush.com

---

Coming Events

<table>
<thead>
<tr>
<th>March 9, 2017</th>
<th>April 1, 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>March Technical Night/Old Timers</td>
<td>AWS Detroit Scholarship Submissions Deadline</td>
</tr>
<tr>
<td>Paslin, Warren, MI</td>
<td>Presented by AWS, Hosted by Paslin</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>March 25, 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWS Ladies Night</td>
</tr>
<tr>
<td>Royal Park Hotel</td>
</tr>
<tr>
<td>Rochester, MI</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>April 1, 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School Welding Contest</td>
</tr>
<tr>
<td>Submission Deadline</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>April 2-3, 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017 SAE High Efficiency IC Engine Symposium</td>
</tr>
<tr>
<td>Detroit, MI</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>April 4-5, 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>WCX, SAE World Congress Experience</td>
</tr>
<tr>
<td>Detroit, MI</td>
</tr>
</tbody>
</table>
The most reliable, easy-to-use Gun Changer. Ever.

A more reliable fail-safe. A patented “springless” mechanical fail-safe is guaranteed to work, even with loss of air pressure.

A more reliable locking mechanism. 7,000 pounds of locking force guarantees that signals pass flawlessly, even with heavy accelerations and payloads.

A more flexible utility solution. Widest choice of modules (power, fluid/air, signal, and more) with common mounting features for greater flexibility.

With patented advances in the locking mechanism and fail-safe, and new flexible module mounting and integrated robot mounting patterns, we’ve created the most reliable, easy-to-use Welding Gun Changers. Ever.

The OC-210 Welding Gun Changer. The new standard from ATI.

Introducing the Next Generation of Ultralight Power Supplies

RoMan Manufacturing’s Ultralight Power Supplies have thermostitch protection, a secondary pick-up coil and are fully encapsulated to ensure long life.

**TDC-7367**
- Weight: 15 Kilograms (33 lbs)
- 630 Volt 1000 Hz
- 45 KW @ 50% duty cycle
- Secondary no load DC voltage of 11.1 Volts
- Water-cooled, 75 LPM minimum
@ 30°C maximum inlet temperature

**TDC-7220**
- Weight: 15 Kilograms (33 lbs)
- 630 Volt, 1000 Hz
- 45 KW @ 50% duty cycle
- Secondary no load DC voltage of 10.6 Volts
- Water-cooled, 6 LPM minimum
@ 30°C maximum inlet temperature

RoMan MANNUFACTURING
861 47th Street SW, Grand Rapids, MI 49509
616-550-8641 | www.romanmfg.com

Your Single Source For Resistance Welding Value & Support

Dengensha America offers you the most complete line of resistance welding product equipment in the world—including single point projection and spot weld machines, weld guns, automatic nut and bolt feeders, weld controls, transformers, consumables, and spare parts. Training and Field service add to our single source support.

Simplicity, reliability and ease of use are only part of our value.

Call: 440-439-8081
Ask for Steve Andressy
Web: www.dengensha.com

DENGENSHA AMERICA
Engineering Resistance Welding Value®
Hello Greg, and welcome to our Meet Our Members column. We really appreciate you taking the time to interview with us! Can you tell us a little bit about yourself?

My name is Greg Barbeau. I’m a product and support engineer for Matuschek.

What do you like about your position at Matuschek?
I enjoy traveling, and meeting people from the owners to managers to operators.

Greg, how did you come to be an AWS Detroit member?
My employer, Matuschek is an AWS Detroit Patron, and made it possible for me to join through the company.

Do you have a favorite AWS event?
I enjoy going to the AWS Detroit Section’s Ladies Night event. I look forward to and enjoy FABTECH every fall!

What do you like to do outside of work?
I’m a father and really enjoy my 4 year old son and 1 year old daughter. I’m also a shooting enthusiast.

Do you have any funny stories that you could share about your job?
The first time I met the owner of our company, Dr. Matuschek. I was wearing one of our company shirts with his name on it. The first thing I said to him was, “I like your shirts!” He laughed, and gave me a hug.

Greg, have you had a most memorable moment on the job?
My first launch of a major hi-volume vehicle for one of the Big-3 is definitely memorable.

Is there anything that is near/dear to your heart?

Is there anyone in this business you’d consider as a mentor?
Our VP, Larry Wright. I first interviewed over the phone with him, while I was deployed in the desert. I still work for him almost 10 years later.

How did you get your start in welding?
I was very fortunate, Matuschek trained me when I had zero (0) experience.

In your opinion, what is the biggest challenge for the welding community in the future?
New materials and other competitive joining solutions will be a big challenge in the welding community.

I like to ask all of our interviewees, what would you tell someone who may be on the fence about getting into welding as a career?
I’d tell them welding is a trade, and trades aren’t dying. The amount of qualified people in trades is.

Would you encourage more schools to encourage young people to look into technical schools and jobs, and not just degreed positions?
Yes, I’m all for bringing vocational options back in full force!

Finally, if you weren’t involved in the welding industry, what would be your dream job?
I would love to work Research and Development at La-Z-Boy.

That’s a great answer! And, probably one that most people have not thought about.

Thank YOU, Greg, for sharing some of your work and personal experiences with us and for being an AWS Meet Our Members featured member.

Daniel Galiher

If you’d like to be featured in our Meet Our Members column, please contact Daniel Galiher at his email – danielgaliher@gmail.com
For many years, the AWS-Detroit Section has been committed to supporting education as an integral part of fulfilling our mission statement. The educational activities we as a section support include our annual high school welding contest, the biennial Sheet Metal Welding Conference and our scholarship program. As with all things the section accomplishes, it would not be possible were it not for the dedication of our volunteers, the support of our partners in industry, and the various educational organizations and students that all come together and contribute to build a better welding industry for all of us.

For the academic year 2016/17 the section was able to award 37 scholarships totaling $60,000 to candidates from 9 different schools. This year, one of those awardees could be you. If you are enrolled in a welding class or are in any other welding program for 2017-2018 for academic school year, you may be eligible for a variety of scholarships. These would include the AWS-Detroit section Scholarships, AWS-Detroit section Named Scholarships, AWS District-11 Scholarships and the AWS-National Foundation Scholarships, which includes a special scholarship offer from Praxair.

You can find more information about the AWS-Detroit and Praxair scholarship application process, and determine your eligibility at our website www.awsdetroit.org - Just click on the ‘Scholarships’ tab. The application deadline is April 1, 2017. A new feature for this year is an interactive on-line application – I would encourage everyone to take advantage of it. All information concerning AWS District and National awards can be found at http://www.aws.org/about/page/scholarships.

As chair of the AWS-Detroit scholarship committee I would encourage everyone to stay committed and focused on your education. The possibilities are bright within our industry, so to anyone who thinks that they may be eligible I would not delay in sending in your application - You never know what might happen.

Thanks again for your support of our efforts,

Donald F. Maatz, Jr.
Chair - AWS-Detroit scholarship committee
AWS LADIES NIGHT
3.25.17
ROYAL PARK HOTEL
600 E. UNIVERSITY
ROCHESTER, MI
6PM
AWS DETROIT SECTION PRESENTS

LADIES NIGHT PARTY

LIVE MUSIC BY MOTIF
SATURDAY MARCH 25TH
Saturday, March 25th 2017
6:00 pm to 12:00 am

AWS Detroit Section

Ladies Night Dance

Live music - Motif

This event supports the Section's Scholarship and Educational programs.

The Royal Park Hotel
600 East University Drive
Rochester, Michigan