

MICHIGAN STATE FORMULA RACING

MARCH 2025

# THE SPARTAN RACER



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## **SR-25 UPDATES**

### ***TOOLING MOLD LAYUP***

The team made immense progress in manufacturing SR-25 within the month of March. Early in the month, the team conducted a tooling mold layup for the chassis' rear geometry—this was one of the prominent final steps in prepping for the chassis layup itself.

Chassis members worked diligently and efficiently to lay down the multiple layers of pre-preg carbon fiber atop the tooling mold plugs. Once the carbon fiber layers were finalized, the molds were prepared and bagged up to be sent off to cure in an autoclave.



### ***SEAT LAYUP***

Simultaneously with the chassis layups, chassis members have also recently been working on manufacturing SR-25 ergonomic components such as the steering wheel and seat.

The seat layup has since been completed, and chassis members look forward to laying up the next few additional layers for the seat layup within the next week.



### ***CHASSIS LAYUP***

Having accumulated all the necessary tooling molds, the chassis members worked promptly to prepare for the chassis layup. As many years before, this is a tremendously critical period for the team; given the complexity of the process, it is typically an all-hands-on-deck effort, meaning that participation is a whole team ordeal.

This was an excellent opportunity for members unfamiliar with working with composites to learn and gain hands-on experience. Thanks to all the help, the first few layers of the laminate schedule went seamlessly and efficiently as planned. We also extend our thanks to Phoenix Composite Solutions for assisting our team with the curing process and providing access to their autoclave.





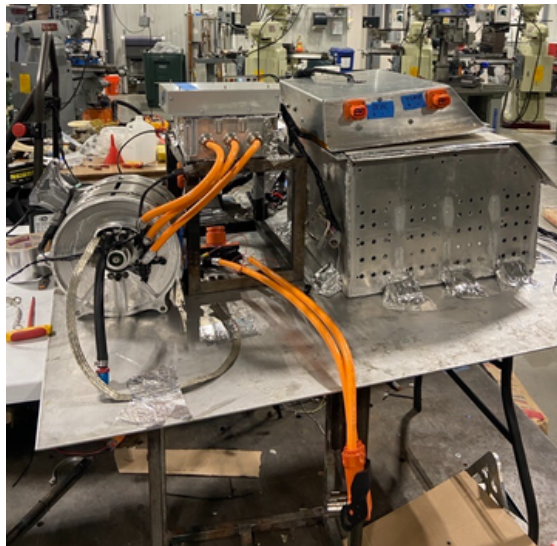


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## SR-25 UPDATES CONT.



### ELECTRONICS

Our electronics system has made significant progress since February. The SR-25 harness is currently in production, with both the front and rear harnesses fully twisted.

Additionally, one of our sponsors, Yazaki, recently visited the Demmer facility to address our accumulator and harness questions. The accumulator is currently being tested in an environment resembling the chassis. Based on Yazaki's advice, a piece of sheet metal was added to the table to improve grounding.

We extend our heartfelt thanks to Yazaki for their insight and support!

## TEAM UPDATES

### GIVE GREEN DAY

Give Green Day is a 24-hour crowdfunding event hosted by the university annually.

For the team, it offers a fantastic opportunity to maximize engagement with our community—students, alumni, and sponsors—within a dynamic 24-hour period. The team surpassed our \$3,000 goal this year with 23 generous donors. We're truly grateful for all the support and are excited to use these funds to accelerate the development of SR-25.

Once again, we extend our sincere gratitude.

Michigan State University Formula Racing Team

The Michigan State Formula Racing Team is a group of twenty-seven dedicated engineering students who design, build and race a formula-style open-wheel race car each year in the world's largest collegiate design series - Formula SAE.

This year, the team is constructing a brand-new vehicle from the ground up as part of the team's three-year design cycle. This involves completely redesigning the car's chassis, suspension, aerodynamics and electronics.

Help Support the Next Generation of Engineers

For over thirty years, the MSU Formula SAE Racing Team has provided its members the opportunity to apply classroom principles to problem-solving scenarios in a fast-paced work environment. As a result, experienced members of the team are poised to make an immediate impact in the workforce through their in-depth understanding of technical theory, manufacturing processes, and project management. By contributing to the team, you are directly supporting the success of current engineering students in their pursuit of going above and beyond outside of the classroom.

113% FUNDED

\$3,375 RAISED OF \$3,000 GOAL

23 DONORS

HONOR ROLL

- Valentina Barrett \$500.00
- Bob Isgrigg \$100.00
- Robert Mercer \$100.00



## EVENTS

### STEM DAY EVENT

On March 10th, the team attended an event organized in Michigan State University's STEM building.

This event allowed our team to meet and network with some of our significant donors, providing us with a wonderful opportunity to showcase how their help has directly contributed to our progress and success.



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# M E M B E R S



## FEATURED MEMBERS



**Name:** Nathan Marchywka  
**Role:** Low Voltage Lead  
**Hometown:** Taylor, MI  
**Major:** Electrical Engineering  
**Class Standing:** 2nd year  
**Years on the Team:** 2

### *What attracted you to the team?*

I was drawn to the team because it allowed me to apply what I was learning inside the classroom to a real-world and competitive environment. Seeing how the concepts could translate into hands-on engineering was intriguing and exciting. I was also interested in the speaker at the first information meeting, David Caples, an alum of the team who now designs the aerodynamic components of the Corvette. Seeing how he used and applied what he had learned on this team to his career inspired me to join the team.

### *How do you balance your academic responsibilities with your role in the team?*

I make the most of my time between classes and prioritize any free time I have to work on assignments and study. Breaking up my study sessions into smaller tasks allows me to stay efficient and avoid cramming at the last minute. It also allows me to make enough room for my responsibilities on the team.

### *What are some of the things you enjoy doing outside of your academic work and the organization?*

Basketball has always been a big part of my life. I grew up playing it with my two brothers, and we still enjoy it to this day. Aside from being fun and competitive, it helps me stay active and maintain a balance between my academic and team life. It also helps relieve stress and keeps my physical and mental health in check.



**Name:** Jan Korpacki  
**Role:** Chassis Lead  
**Hometown:** Warsaw, Poland  
**Major:** Mechanical Engineering  
**Class Standing:** 2nd year  
**Years on the Team:** 2

### *What attracted you to the team?*

I wanted to learn hands-on rather than just in classes. Practical experience with a subject will trump theory 99% of the time, so it seemed logical to try this whole engineering thing in practice instead of just hearing about it in lectures.

### *What would you say is the most essential quality for someone interested in joining the team to possess?*

As no previous experience is needed, the most important thing to bring is a lot of time and a willingness to learn. All the leads on the team can talk about their roles for hours. We are eager to share the knowledge with all incoming members as long as they want to learn.

### *What has been your most memorable experience with the team?*

I think it would have to be the Pittsburgh Shootout. That was my first competition as a lead. Camping with the team and seeing the car go around the track was almost as fun as fixing all the little issues throughout the competition. Another fun aspect of a smaller competition like that is the opportunity to talk with fellow leads from other FSAE teams about everything from design decisions to problems encountered along the way.





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## FEATURED ALUMNI



**Name:** Nicholas Coubard  
**Hometown:** Armada, MI  
**Degree:** BS, Mechanical Engineering  
**Years on the Team:** 2019-2023  
**Roles:** Suspension Lead: Sep 2020 - Mar 2023  
Chief Engineer: Feb 2023 - May 2023

### ***How did you contribute to MSU Formula Racing***

I spent all of my four years at Michigan State University with the Formula Racing Team. I started as a Suspension Member, moved to Suspension Lead for a year and a half, and finished my time as Simulation Lead and Chief Engineer. I designed a couple of our cars' suspensions and manufactured plenty of components out of metal or carbon fiber. I even worked in the early stages of the development of EV cars. I also drove the car throughout my time, starting in the Skidpad and Acceleration events and eventually becoming one of the Autocross and Endurance drivers.

### ***What are you currently doing?***

Currently, I work for Arrow McLaren IndyCar Team where I am the Simulation Engineer. I work mainly with lap time simulation, and spend the racing season trackside ensuring our mathematical models are properly replicating the real car, as well as propose the theoretically optimal setup in terms of gearing, suspension setup, and other vehicle parameters. I also run our Driver In the Loop (DIL) simulator program, where we conduct simulations with the additional feedback loop of a human driver to further our modeling capabilities and test different vehicle setups.

### ***What is your favorite memory from your time on the team?***

Aside from the pizza nights, memories made with the team outside the shop, and late nights working on the car, I'd have to say my favorite memory is crossing the finish line of the endurance race my senior year. Finishing a 22km race as fast as possible is quite a feat for a student-designed and student-built race car, as is proven by the number of teams that have failures throughout the competition. In 2023, our car was stuck in 2nd gear due to a component failure, and we were still turning laps quicker than most of the field, so we proved to ourselves that all the hard work was worth how highly our car performed.

### ***How did your experience as an MSU Formula Racing team member help shape your future?***

Ultimately, the reason I have a job today is because of the MSU Formula Racing Team. Being part of a collegiate design team like Formula taught me the practical uses behind certain engineering principles, as well as gave me a very good conceptual understanding of the basics of vehicle dynamics that I am finding immensely useful in my day-to-day work. It also gave me a bit of perspective on the time and total resources required to have a successful racing team, which set my expectations more appropriately for what was to come with a career in racing.



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# S P O N S O R S



## FEATURED SPONSORS



**NAME:** Special Projects  
**LOCATION:** Plymouth, MI

Based in Plymouth, Michigan, Special Projects is a premier design and fabrication firm known for its expertise in delivering innovative solutions across the automotive, aerospace, industrial, and military sectors. Founded in 1955, the company has expanded its capabilities to serve a wide range of industries, providing advanced design, prototyping, and manufacturing solutions that push the boundaries of innovation and performance.

Our team extends its deepest gratitude to Special Projects, Inc. for their unwavering support and exceptional contributions to our projects.

## **Scanivalve**

**NAME:** Scanivalve  
**LOCATION:** Liberty Lake, WA

Established in 1987, Scanivalve is a leading provider of precision pressure measurement solutions, specializing in state-of-the-art instrumentation for various industries, including aerospace, automotive, defense, and energy. Initially, the company gained recognition for its groundbreaking work in pressure measurement and flow testing. Over the years, Scanivalve has broadened its range to offer innovative solutions for testing, monitoring, and calibration systems, making significant contributions to industries and projects that demand the highest levels of precision and reliability.

Our team would like to express our heartfelt appreciation to Scanivalve for their continuous support of our projects. Through their donations, including the MPS4216 Scanner, Scanivalve enhances our capabilities by providing cutting-edge technology that enhances our data collection and analysis, enabling us to achieve new levels of precision and efficiency.





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## THANK YOU TO OUR SPONSORS!

