

Nevsletter June 2025



Redback Racing

Redback Racing - June Newsletter

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Redback renews sponsor partnerships and sources parts to support the RB25 build.

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Introduction

After an exciting start to the year, Redback has officially entered the manufacturing phase for RB25, our 2025 competition car. This stage is a complex journey, marked by numerous steps and significant milestones. Recent achievements include our design freeze, the acquisition of hub motors, the commencement of chassis welding, and the start of composites manufacturing.

In other updates, February and March saw a successful recruitment drive for new members, as well as a few engaging outreach events. Meanwhile, RB24 continues to undergo rigorous weekly testing at Sydney Motorsport Park, providing invaluable data for RB25's development and advancing RB24's autonomous capabilities.

- By Harmony Lea Boonaerts





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Manufacturing Updates

Midway through Term 2, Redback hosted our External Design Review, welcoming back alumni to share their expertise and feedback on our latest designs. This collaborative event took place at the end of Week 4 and set the stage for our next steps.

In the coming weeks, we'll be manufacturing our composites at Quickstep in Bankstown. We're incredibly grateful for Quickstep's ongoing sponsorship, which grants us access to their stateof-the-art facilities and expert support.



- By Harmony Lea Boonaerts

We're incredibly grateful for Quickstep's ongoing sponsorship, which grants us access to their state-of-the-art facilities and expert support. With their help, we're crafting the RB25's bodywork and aerodynamic package, utilizing carbon fiber materials. Simultaneously, our team has begun welding the RB25 chassis, one of the foundational steps in the manufacturing process. We'll share more details about this exciting progress later in the newsletter.

For the first time in Redback's history, we're integrating hub motors into our design. All four motors have now arrived at UNSW, a monumental step forward for our team's engineering capabilities.



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Testing Updates

This year, Redback has demonstrated an unwavering commitment to testing RB24, last year's car. Our near-weekly sessions at Sydney Motorsport Park have generated a wealth of data to inform the development of RB25. We're also extensively testing RB24's autonomous systems, laying the groundwork for even more advanced features in RB25.

Outreach Highlights

February saw Redback making an impact at O-Week with a stall that attracted many prospective members. Our subsequent info night was equally successful, providing valuable insights for those interested in joining the team. Last week, we proudly exhibited at Wenona's biennial STEM Car Show. This event was a fantastic opportunity to showcase both the university and our team to students from kindergarten through Year 12.

The day was filled with networking and inspiration, and our six team representatives enjoyed sharing their passion for the team, university and engineering with a diverse audience. This was the first time in Redback's history that we have done outreach at an all girls school. The experience has definitely inspired us to do more outreach events at all girls schools in the future.

- By Harmony Lea Boonaerts





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Recruitment

Our recruitment campaign throughout February and March brought in a talented new cohort for 2025. The process included applications, interviews, and technical assessments, culminating in a warm welcome during our New Members Day in April. Later in this newsletter, you'll hear directly from one of our newest team members about their experience so far.



Sponsorship Updates

Redback's External Relations team has been hard at work renewing partnerships with our valued sponsors for 2025. We've also been busy sourcing parts for RB25, thanks to the generous support of both longstanding and new sponsors. Stay tuned for more updates as we continue our journey toward building and racing

- By Harmony Lea Boonaerts

RB25!



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Welding

This year, Redback Racing is once again running a steel space frame chassis, meaning that the welders this year will have a painful, but fulfilling few months of manufacturing ahead of them. The welding process doesn't just start in the welding bay, but starts during the design phase, where the welders will be discussing the feasibility of certain welded components with each department.

One of the biggest discussions surrounds the chassis, where each design iteration is monitored by welders to ensure the design is manufacturable. Once the final design for the chassis has been decided, the tubes are sent to a laser cutting facility where each tube end is cut to a certain notch profile so that all the tubes fit together like a large Lego set. The welders also work with the chassis engineers to design a jig to help with the assembly of the tubes and ensure they are within manufacturing tolerances. Only once the tubes are assembled, all dimensions are checked, and all the critical tubes are clamped down to a solid surface, can we start welding. The whole welding process, including the chassis mounts, can take between 9 to 11 weeks.

One of the biggest challenges the welders face is that once the chassis is jigged up, there is a lack of accessibility to some areas of the chassis. What this means is the welders need to get in some freaky positions to reach some of the tighter corners of the chassis. For example, the interior joints near the pedal box area require us to stick our head and arms through different holes in the side of the chassis. With this chassis being my second space frame chassis, I'm well aware of the suffering that goes along with hitting welding deadlines, but I'm also excited for the team to finally see their designs become reality.

- By Sean Yam



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DAQ (Data Acquisition)

The Data Acquisition (DAQ) team is dedicated to developing a comprehensive suite of tools that help our team make datadriven decisions.

We're a group of UI/UX designers, software developers, firmware engineers, and electrical engineers who work together to create effective solutions that enable the team to verify and validate their designs through reliable data collection and analysis. Our goal is to deliver robust, tailored solutions that give Redback Racing a competitive edge on the track.



We develop both hardware and software systems that capture, transmit, analyze, and visualize critical vehicle data. From our CAN Forwarder and custom PCBs that collect on-vehicle data to our Spyder software platform that enables live telemetry visualization, log management, and detailed data analysis. By providing race engineers with reliable performance metrics, we help them make informed decisions that ultimately improve vehicle design and race strategy. Our back end Cloud solution is provided by AWS, a major sponsor of Redback Racing who provides the team with the best cloud solution on the market, with easy deployment, fast maintenance and stable systems. Here are a few of the exciting projects we're working on:

- Mobile UI for Spyder: We're bringing our powerful telemetry visualization tools to mobile devices, so our team can access critical data trackside
- Video Streaming Integration: By correlating real-time video footage with performance data, we're enabling deeper analysis of racing lines and driver behaviour
- Driver Display: We're developing a driver display to provide our driver with real-time, actionable information during races and testing sessions

Thanks to our recent sponsorship from Teltonika, we now have access to high-end cellular routers, bonding software, and technical support. This partnership represents a significant milestone for our team, allowing more reliable, higher-bandwidth data streaming during test days and competitions.

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- By Pranav Budhwar
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Internal Relations

What's it like in IR?

We may work behind the scenes, but our impact shines throughout all of Redback Racing.

Redback is a BIG team with over 150 members in 12 different departments. And we know that sometimes, it can get difficult to mingle with other members we don't immediately work with, especially on hectic Saturdays, when everyone is bustling around to whip RB25 into the best shape it can be. This is where IR steps in. One of our biggest roles is cultivating the social aspect of Redback to help members bond outside of working together. The people grilling your hashbrowns and handing you sausage sizzles during our monthly after-GM barbeques? IR members! The people planning internal social events for Redback, like watch parties, pub crawls, and team dinners? IR members! The people organising Launch Night, Redback's biggest event of the year? Still IR members! Aside from the fun stuff, IR also handles a lot of HR and administrative responsibilities. We're in charge of managing the Term 1 and 3 recruitment. This includes setting up all necessary forms, announcements, and email communications while organising the onboarding day for the new members. We also manage all Arc-related tasks, including Arc grant applications to increase team funding.

What you can expect from IR in the next few months:

We have several events we're working on right now, which we can't wait to share! Expect inter-society collabs, sports days, and other social and networking events.

- By Valerie Tan



New Members!



Hi, I'm Zoe, a first-year Aerospace Engineering student and a newly inducted member of Redback Racing's Brakes Team. Joining the team with a strong passion for engineering and automotive mechanics (but limited prior experience) presented its own set of challenges. However, thanks to the team's welcoming environment and broad support network, the transition into Redback Racing has been smooth and enriching.

In just two months, I've had the opportunity to develop a wide range of engineering competencies. These include 3D Computer-Aided Design (CAD) using Autodesk Inventor, conducting Finite Element Analysis (FEA) with Ansys Workbench, and honing general problem-solving and research skills. These tools and experiences have enabled me to contribute meaningfully to the team's ongoing projects.

One of my initial tasks involved diagnosing and resolving a leak in the brake calliper of our driver development Go-Kart. After identifying the issue as a scored piston wall, I researched suitable replacement callipers, as in-house repairs were not viable for a long-term solution. I successfully sourced a compatible aftermarket alternative that met our performance requirements, ensuring the Go-Kart could return to safe and effective operation for driver training.



- By Zoe Campbell