Irons Solar Car Teams 2025 Bridgestone World Solar Challenge Experience

By Joel Pitts

The 2025 Bridgestone World Solar Challenge was a huge success. The Iron Lions Solar Car Team represented our sponsors, school, city, state and country with pride, resilience, and perseverance. We began the race in 13th position, finishing 20th from a field of 26 and winning the Bridgestone E8 Commitment Award.

We began our endeavor to compete in 2024 with the ambitious goal of building a solar car specifically for this race. The students' schedule for building and testing the new car was tight. We learned in April of 2024 that the race reduced the battery size and increased the allowable solar array size, as well as, changing the scheduled date of the race from October 2025 to August 2025. This caused a ripple effect that made the team make some tough decisions. The timeline for building and testing a new car had just been cut by two months and the changes to battery and solar array made our current design not feasible to be competitive without changes. We knew we needed to decide whether we redesign the car that was planned to be built or enter the explorer division in the world solar challenge and participate with one of our existing solar cars.

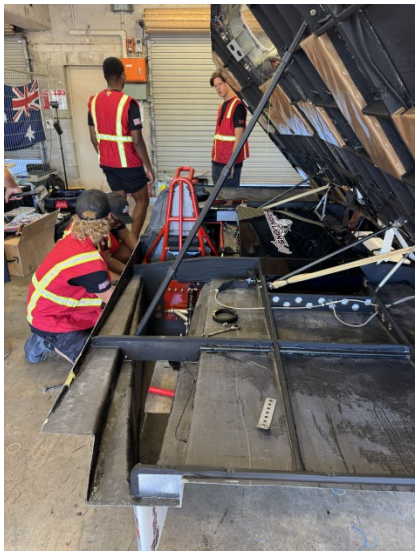
The decision was made to redesign the new car and continue with the determination to compete in the Challenger Class. We wanted to be a competitive team and go head-to-head with the top solar car teams in the world.

Over the course of 8 months, we built and tested our new car, Aurora.

At the conclusion of testing, Aurora and supplies were packed and shipped in May of 2025. An advance team was sent July 28th to secure rental vehicles, supplies and pick up the Aurora from

customs. Unexpected shipping delays caused our preparation in Australia to be condensed. We had expected to secure Aurora and supplies July 30th in Adelaide, South Australia, but had to adjust our plans and pickup August 3rd in Sydney, New South Wells. This added additional days and stress. We could not have any further delays, or we wouldn't get the car in enough time to make it to Darwin, Northern Territory. We experienced additional delays in Sydney and were able to secure Aurora on the evening of August 6th at 6pm. The advanced team needed to make it to Darwin by the 10th of August in order to pick up the team from the airport. There was also requirement that the team had to check in at Hidden Valley Raceway on the 11th in order to meet the deadline set by the Word Solar Challenge. So, with exuberance and determination, the advance team began their journey to Darwin leaving Sydney at 6:30pm on the 6th of August.

The advanced team drove for 10-12 hours each day in order to cover the daunting 43-hour 3975-kilometer journey from Sydney, NSW to Darwin, NT. The advanced team arrived in Darwin at approximately 3pm August 10th and were able to pick up the rest of the team from the airport at 5pm.



August 11th the team arrived at Hidden Valley Raceway. The team got straight to work unloading Aurora and assessing the state of the car after being shipped halfway around the world. There was only minor damage to the body. The true challenge was reassembly of the major components that were packed separately in order to protect sensitive electrical devices from possible exposure to salt water.

On August 13th Aurora was ready to take the track for the first of several laps to ensure all systems on the car were ready for scrutineering and the race ahead.

We discovered early that we had an issue with a steering component that was causing some shake in the front wheels at around 55kph. After some investigation we discovered that there was excess play in one of our steering joints. We thought this would be an easy fix and it would have been if we were in the US. However, Darwin is a remote part of Australia. We found that parts are hard to get locally and Amazon is not fast. We tried every option to source the part and could not get it fast enough. In a last-ditch effort, we were able to find the part on Facebook Marketplace. This fixed our issue and had us sail through inspection to qualify for the 2025 Bridgestone World Challenge. We were now recognized and qualified to race in the top solar car division in the world.

On August 24th at approximately 8am we started the race to Adelaide.

Halfway through our drive to the first check point we developed an issue with the car that we had never encountered before. We lost motor function and could no longer accelerate. We pulled off the Stuart Hwy and into the ditch to avoid traffic.

The news was not good we believed the motor was the issue. We only had about 3 hours left to make the checkpoint. We need to decide if we can replace the motor in the ditch in less than an hour or do we load up and drive to the check point. If we could not change the motor in the required time we would miss the check point. Missing the check point would cause us to be eliminated from the race and we would no longer be able to participate. If we made the check point in time with the car non operative, we would be deemed noncompetitive but allowed to continue to participate and drive the solar car along the race route. We made the decision that loading the car and continuing to the check point would be better than being eliminated.

After making the check point we proceeded to a campsite, setup camp, and began diagnosing the issues and making repairs. We worked into the night replacing the motor and conducting preventative maintenance.

As the day broke the next morning, we were set up charging the car to be ready to continue our journey.

We started off the day making great headway, but at about 100km into the day we developed a new problem.

The car battery would shut off without warning. We would pull over reboot the battery, continue and it would happen again. This was sporadic and there was no known rhyme or reason to why this was happening. The Stuart Hwy had no shoulders. Each time we needed to pull off the highway it was precarious. We fought this for the next five check points over the

three days until we reached Coober Pedy. We were behind and the weather was turning treacherous. We would be dealing with high winds and rain. High winds we can deal with, but rain is another story. Our car was not set up for rain. Even if we had been running with no problems, we always knew that if it rained, we would not drive our car in the rain. So, the decision to load the car and drive the final leg to into Adelaide was an easy one. The final leg into Adelaide was windier than we had expected and the rain persisted all day. Our decision not to put the car on the road was completely justified.

We arrived in Adelaide at the finish line on August 30 with great excitement. We had just completed the hardest and most renowned solar car race in the world.

Following a display at Victoria Square in Adelaide we attended the Awards ceremony. We had no inclination that we would win anything. We wanted to experience every aspect of the competition and soak everything in. During the awards ceremony we were astonished that we were nominated for the Bridgestone E8 Commitment Award. We had no idea that we would win it. We were truly humbled to receive the Bridgestone E8 Commitment Award. We had set a goal to build a world class solar car that would qualify and compete in the Challenger Class. This recognition affirmed our acceptance as a world-class solar team. The E8 Commitment Award is issued to the team that embodies a complete commitment to all aspects of the solar challenge.

The opportunity to compete on the world stage was truly amazing. We are still processing our experiences from the trip. This accomplishment would not have been possible without the unwavering support of our sponsors, school, parents, and everyone who stepped in to help us overcome challenges along the way. We want to truly thank everyone, and we hope we have made you proud.

Air & Space Forces Association, Northeast Texas Chapter 416

You can reach teacher and leader Joel Pitts at pittsj@greenvilleisd.com for more information. **Joel was the 2019 AFA Chapter 416 Teacher of the Year** and continues to inspire students in STEM and service ideals. We are pleased to support his solar car efforts and are very appreciative of his support of his students and program. The solar car and team routinely visit our golf fundraising events allowing the public and supporters to talk with students and see the car firsthand. Joel and the entire Greeneville Independent School District, a community partner of AFA416, are critical to advancing the goals and objectives of AFA and our chapter.
(Photo: team with Joel Pitts on far right). If you have questions about our chapter reach out to TX416.Northeast.Treasurer@afa.org or call **Vance Clarke, 903-274-9981**.