



The last few weeks of the semester were very busy for the team. After finishing finals it was straight in to the shop to keep working on the car. There were many nights of little or no sleep as we poured all our efforts into finishing the remaining parts and assembling the car. On the morning of May 22nd we set out on the 15 hour drive to Canada. We caught a few hours of sleep at the hotel and then went to the competition venue to get registered and set up our pit on the 23rd.

IOWA STATE UNIVERSITY **FORMULA SAE**

Iowa State University
2025 Black Engineering
Ames, IA 50011



Day 1: Technical Inspection

The first day of competition is Technical Inspection where the car is checked over to make sure it meets all the rules and is safe to compete. Anything that doesn't pass has to be fixed before you can move on to the dynamic events later in the competition. We didn't make it through Technical Inspection on the first day as we didn't get a few things fixed before the tech inspection closed for the day. The site closed at 8 pm and so we had to retire to the hotel for the night.





Day 2: Design Judging, Marketing, and Cost Event

We woke up bright and early and went in to finish up the last few things on our list. We were interrupted by our assigned Design Judging time. We can be seen in the first picture talking to the judges. We present a brief overview of our design and then break off in to small groups to answer questions and go in to greater detail with each of the judges. We placed 18th in Design and received 82 points out of 150.

Around midday we went in to the Marketing Event. In the Marketing Event we present to a group of judges that play the role of investors and try to convince them to invest in our company that would produce the car. We highlight the benefits of investing in our company and the expected returns that they would see from their investment. Our presentation gave us a 16th place finish in the Marketing Event and earned us 51.2 points out of 75.

The cost report is submitted approximately 2 months ahead of the competition to give the volunteers ample time to review it. At the Cost Event the judges go over any parts that were missed as well as question you about how to reduce the cost of components that were higher than the average from other teams. Our report and competition event answers brought us to a 7th place finish with a final adjusted cost of \$13,536.49. This gave us 67.2 points for the event out of 100. The cost represents the estimated cost to produce 1000 cars per year.



Day 3: Acceleration, Skidpad, and Autocross

In the second picture on the last page we are preparing a driver to egress from the car. In order to be eligible to drive in the competition events you must be able to exit the car with full racing gear on. This is the last step of the static Technical Inspection. Once this was completed we moved on to the noise test and after a little difficulty starting the engine in the 45 F Canadian air. We passed the noise test on the first attempt at a sound level of 109 dB which is just below the maximum of 110 dB. We then moved on to the brake test. On the second attempt at the brake test all 4 wheels locked but the clutch was not disengaged and so the engine died which did not constitute a pass. When we attempted to restart the battery had been run down from the earlier starting difficulty and the car would not start.

We missed the Acceleration and Skidpad events as a result of the delays from the brake test. The battery was placed on the charger and we checked over the car for any issues as we waited for the battery to be fully charged. We put the freshly charged battery in and got in line for Autocross, which is a time trial through a cone course. We were able to put two drivers through and put down a best time of 47.96 sec which would have resulted in a 5th place finish had we not hit two cones. After penalties we finished with an adjusted time of 51.96 sec. This netted us 102.9 points out of 150 and a 14th place finish in the event. We managed to beat out teams that had already competed at FSAE Michigan and had several weeks of testing time.



Day 4: Endurance and Fuel Efficiency

The Autocross times determine the run order for Endurance with the slowest cars running in the morning and the fastest at the end of the afternoon session. With our 14th place finish we were placed in the afternoon session. The Endurance event was 36 laps with two drivers each driving 18 laps. We started out great and were putting down competitive lap times, but after a few laps we noticed the car was pinging the rev limiter. The lap times however remained consistent up until the last 4 when we started to hear the engine struggling at higher RPM's. We made it through to the driver change and were putting the next driver into the car when we discussed what had happened with the first driver.

He explained that the shift cable had snapped after only a few laps and so he was stuck in first gear for the rest of his laps. With that knowledge and a check of the intake which was moving and allowing excess air in at times, we decided to not try and finish the event with our second driver. We would have been in first gear the entire race and with the excess air entering the engine we risked destroying our engine. This was too great of cost to pay to only have the chance of finishing the event.

We hope to have corrected all the problems we encountered and find any additional problems before FSAE Lincoln on June 19th. Based on our performance at Formula North with no driving time on the car we expect to be much improved in Lincoln. Our goal at the beginning of the year was to return to the top 20 overall, we believe this will be an attainable goal. If you would like to see more pictures and video please check our Facebook page, the website has yet to be updated. We will also try to post updates as we make our way through the events at Lincoln. We thank all of our sponsors and donors for the great support this year and hope to represent you well!

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