Off-Roading With the Baja Team

IT LOOKS LIKE FUN, YET STUDENTS GAIN REAL-WORLD ENGINEERING EXPERIENCE

By Shannon Curtin

THE WORD "BAJA" MIGHT CONJURE images of California beaches and surfboards for most people. But for Wilkes University student engineers, it means months of designing, building and racing an off-road, dune buggy-like vehicle.

The Society of Automotive Engineers runs three regional collegiate competitions annually. Teams design and build 10-horsepower vehicles that must survive four days of grueling testing for safety, maneuverability and endurance.

Mike Benulis '05 credits Baja with helping him get his current job as a reliability engineer for PPL Brunner Island Power Plant, York Haven, Pa. "The experience I had working on the mini Baja project (now just known as Baja) came up often in my interviews," says Benulis, whose younger brother, Paul, is now club president. "They applauded the initiative I took in getting involved in the project and agreed the skills learned while participating in mini Baja were valuable in the industry."

Preparing for competition often takes the entire school year. Students do all the work on their own time. This year, the team's total cost was about $10,000, which came from club funds and grants.

The Wilkes University Baja team, including five team members and advisor Mitchell Adams, traveled to Montreal for competition from June 10 to 14. Here's a daily diary outlining some ups and downs of the intense and exhilarating experience:

The team makes last-minute adjustments.

9 a.m. Tuesday, June 10: Wilkes seniors Paul Benulis and Matt Jones, vice president, are pulling off tires and adjusting bolts. After a minor outburst between team members, senior Stanley Shaffer explains: "Things might get ugly at points." The team had worked through the night, tensions are high.

Noon Tuesday: The team is still tinkering. Last-minute parts are being made in the machine shop. Except for the parts that cannot be built, like shocks and brakes, the team develops and constructs every part of the vehicle.

2:30 p.m.: The van and trailer pull out of the Wilkes parking lot. Within minutes, most of the team is asleep.

11:40 p.m.: We check into Hotel du Parc Orford. Having driven straight through, the team orders pizza. At 2 a.m., members head to their rooms, pizza in hand, not looking forward to the 5:30 a.m. wake-up call.

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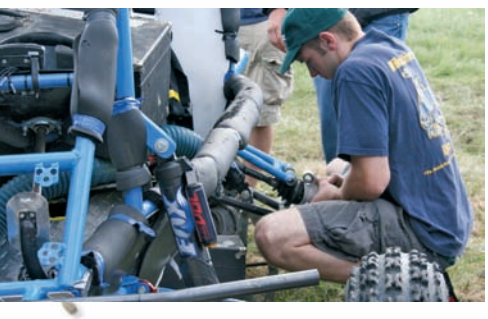
Paul Benulis navigates through mud during the Montreal competition's endurance race.
PHOTOS BY SHANNON CURTIN

7 a.m. Wednesday: The team pulls into the competition site. The large field smells like mud and cut grass. The Wilkes team settles between Michigan State and a college from Mexico.

The diversity of the schools represented is astounding. Cornell, Rochester Institute of Technology, Penn State and Purdue field teams; some teams travel from as far away as India, Venezuela, Brazil and South Africa. Teams check brakes, make last-minute adjustments and re-read rule books. Many teams bring 10-plus members.

The Wilkes team lines up for technical inspection. To the team's chagrin, judges find a few nitpicky things the team needs to change. It's a five-minute fix, but they must go through the entire judging process again.



The vehicle runs on a 10-horsepower engine.

2 p.m. Thursday: The team moves on to the design competition. They move through stations discussing originality and innovation, craftsmanship, suspension and steering, braking systems, structural design, ergonomics, feasibility for mass production, power train and serviceability.

2 p.m. Friday: The Wilkes team puts the car through course testing. One test requires the car to pull a string of large logs, gradually increasing the total weight in order to test the traction of the vehicle. If a team pulls the whole string of logs without losing traction or stalling out, they are judged on how long it took them to pull the logs to the end of the course. The Wilkes team made it to the end of the course in 50.19 seconds. They spend the rest of the day running practice courses.

11 a.m. Saturday: The four-hour endurance race is under way. It's hot and the course is muddy from overnight rain. Benulis sits behind the wheel of the Wilkes car, while Jones stands near the pit. Other team members stand by to help if the car malfunctions, which happens to almost all of the teams.

As Benulis circles the course, Jones signals to ask him if he's ready to refuel. Benulis puts one finger up, signaling that he'll go another round. "If he runs out of gas, we get a 20-minute penalty," Jones says. Ten minutes later, Benulis has run out of gas.

2 p.m. Saturday: The endurance race ends. The team packs and heads home before learning the final score. Members immediately start discussing changes and tweaks to the car for next year's competition.

The team placed 70 out of 122 teams, an admirable finish for such a small team. "We learned a lot at this race," says Shaffer. "We'll come back even stronger next year."