

SOLAR EXPRESS

OCTOBER PROGRESS - 1998

Project Manager's Memo

by Jed Christiansen, Project Manager

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As we move into the second year of this *MaizeBlaze* project, the team is being confronted with a world of hopes, a world of worries, and a world of deadlines. Sunrayce '99 is approaching ever closer, and we are coming ever closer to our finished vehicle. When June 20, 1999 finally rolls around, *MaizeBlaze* will certainly be one of the teams to watch, and for our competitors we hope to be the car they follow.

Getting there is a long and arduous process, which we can't complete without a good team of people. We currently have nearly record numbers of students getting our test chassis ready and rolling, and many more working on the other aspects of the team. Nader Shwayhat now has a large number of BBA and MBA students from the Business School, many of whom, in addition to finding new sponsors, are hoping to make the University of Michigan Solar Car Team much more visible to corporations and the public during the upcoming year. Our body molds have arrived and we hope to have our body parts within six weeks. These tasks can't even begin to describe the long hours

of work that so many team members are already putting into *MaizeBlaze*. There's a reason why we rarely have answering machine messages: there's almost always someone in our office working and answering the phones!

We have several initiatives being kicked off during the following year. Our Buy-A-Cell campaign should be launched by November 1.

Not only do we hope to raise more funds, but our main goal is to involve the local community in the fun and exciting sport that Solar Car Racing can be. The team has also been working with several team alumni in informal design reviews. As our former teammates come back to see

family, friends, the University, or to recruit for their companies, many have visited us and taken a look at what we're putting onto our car. Their help is invaluable and sincerely appreciated.

Lastly, I would invite all of you to please stop by our office if you're ever in Ann Arbor. We're more than happy to show our sponsors and friends what we've been up to. Thank you all for your support, and GO BLUE!



Alumni Clubs

by Jed Christiansen, Project Manager

Beginning this fall, the Solar Car Team has begun contacting Alumni Clubs along the race route of Sunrayce 99. We have had a fantastic response from all the different clubs and are looking forward to working with them over the next year. As a former member of *Wolverine's* Race Crew, it is very exciting to have true fans of the University and Solar Car Team out there cheering the team on.

Recent Team MaizeBlaze Events

Oct. 24 - Go Blue Brunch
Homecoming Weekend

Sept. 28 - Career Fair Mixer

Sept. 11 - Booth at Festifall

Sept. 3 - Engineering Day

Mechanical Team Update

by Rick Bodey, Mechanical Team Leader

The Mechanical Team made good progress over the summer months. Reuben Rohrschneider and I worked as interns at Altair Engineering, and were able to use several of the company's engineering products to improve and optimize much of the car's suspension. In addition, changes made to the body design allowed us to modify the rear suspension. These modifications will make the rear suspension easier to manufacture.

Chris Ancona has finalized the designs for the steering system. Special thanks to Hi-Lex and NTN Corporation for their help in the design stages and for providing the components necessary to build the steering system.

Several pieces of equipment were obtained over the summer, including both a vertical and horizontal mill. These additions to the team's workspace will greatly improve our ability to manufacture parts for the test and race vehicles.

Editors Note:

After two years of hard work and dedication, Rick Bodey has stepped down as Mechanical Team Leader in order to focus more of his time on his studies and his work. He will still be an active member of the Mechanical Team. Rick's leadership and cool head are one of the main reasons the MaizeBlaze team is doing so well.

Farewell to Rick Bodey

by Chris Ancone, New Mechanical Team Leader

Rick Bodey has resigned his position as Mechanical Team leader. Rick has accepted a job with Altair Engineering, who has been a long-time sponsor and supporter of the Solar Car Team. This means that Rick will be making the big money in the big world with his little time. CONGRATS RICK!!

Rick was a dedicated member of the last vehicle, *Wolverine*, and participated on race crew as Trailer 1 Operations. He designed the

suspension for the chassis of *MaizeBlaze* and has led the mechanical team so far during this project. We will miss Rick's leadership, but are happy that he has decided to remain active on the team to share his experience and help guide *MaizeBlaze* to the starting line at Sunrayce '99. Chris Ancona will be assuming the responsibilities of Mechanical Team Leader, and with Rick and the rest of the mechanical team, will drive the test chassis to completion.

OOOPS

Last Solar Express we announced that the brick we bought for *Wolverine Plaza* at Michigan Stadium was in place. This turned out to be false.

Team members went to the Michigan vs. Syracuse game on September 12 and were not able to find any evidence of the brick. We are currently inquiring with the administrators of the brick program to see why this happened and what is the best way to rectify the situation. Again, we apologize for misinforming you and please watch future editions of Solar Express for more information as it becomes available to us.

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V.S.C.'s Memo

by Reuben Rohrschneider, Vehicle Systems Coordinator

Solar car racing has always been a challenge. Part of this challenge is increasing your knowledge, and part is the time that you have to develop and build a vehicle between the races. Both of these pursuits can be extremely time consuming, especially since all of the team members are also full time students.

On the knowledge front this team has been doing an admirable job. Each year we get an influx of new members. Being thrown into a project that is in progress can be likened to starting a new job. The surroundings and approach to problem solving is often much different than what is presented in class. The team leaders have been doing an excellent job inspiring new members to learn the ways of the team, and to acquire new technical skills. A good example of this is the Aero/Body team. As I am writing this, Jason Kramb (Aero/Body team leader) is teaching new members the

basics of CAD modeling. Also, the mechanical team (led by Chris Ancona) gave a presentation to the entire team on the test chassis where they assembled the entire vehicle in CAD on a projector.

On the time front, the battle is fought with scheduling. The first year of the project fell behind schedule. This was due in large part to my inexperience in scheduling. From this I have learned that I tend to project shorter timeframes than realistic, and I have learned exactly how long it takes to perform some tasks. With this new knowledge, I was able to update our timeline at the beginning of this semester with better judgement than previously. Since the update, the team has done an excellent job of staying on schedule. Currently the Aero, Electronics, and Strategy teams are on schedule for the race vehicle. The Mechanical team has an additional challenge in the test chassis. This is slated to be finished and driving in mid November.

Aero/Body Team Update

by Jason Kramb, Aero/Body Team Leader

The Aerodynamics/Body Team has not been very busy during the past month, but is ready to start gearing up for the real work to begin. The molds for the body will finally arrive during the week of October 12th. This is a big turning point for the construction of the car, since a very large part of the car's final shape will be sitting in front of us, instead of on a computer screen. Work will be started to improve the surface finish of the molds to our standards as soon as they arrive. The composite lay-ups for the body of the car will begin as

soon as our material arrives, scheduled for early November.

In other areas, the Aero/Body Team has split into groups to finish design work on some small projects remaining and to finish work on the ventilation system and canopy construction. Plans are also being made for testing of the last wind tunnel model for the changes to be made to the car for the World Solar Challenge in Australia. We will also take time to test a few minor adjustments to fins and stabilizers that we did not have time to test previously.

Electrical Team Update

by Dave Jordan, Electrical Team Leader

As the first wave of midterms hit University of Michigan students, the electrical team is busy this month designing the instrument panel for *MaizeBlaze's* cockpit. In addition, we are almost done preparing the electrical systems for the *MaizeBlaze* test chassis and bringing systems online to begin rigorous testing of our motors and batteries. Over the past few weeks

we have been training electrical team and array team members in the newly-completed Power!Lab clean room. We also visited Prof. James Woodyard's solar research laboratory at Wayne State University and are currently investigating cooperative opportunities with Wayne State's chapter of IEEE (Institute of Electrical and Electronics Engineers).

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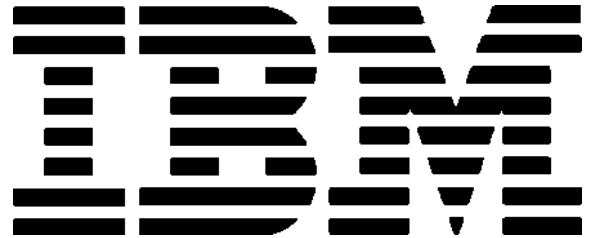
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SPONSOR SPOTLIGHT: NTN Corporation

by Chris Ancona, Steering Systems Engineer

This week one of our sponsor spotlights is on the NTN Corporation. NTN is providing all of the bearings for *MaizeBlaze*. This small, seemingly simple part is largely responsible for the rolling resistance of the car. Rolling resistance contributes to losses in power, which need to be minimized in order to improve performance in Sunrayce and to be competitive in the World Solar Challenge. NTN has provided custom bearings for the wheels on the test chassis and race chassis as well as the bearings for the motor, which will power the car. NTN has also provided linear bearings made of high performance engineering plastics for the steering. These bearings help to remove weight from the steering, which will be one of the lightest steering systems in University of Michigan history. In addition, NTN made a generous monetary donation, which helps this team purchase

items like carbon fiber and helps support the maintenance of our machine shop and the building of our clean room.

On the previous car, *Wolverine*, NTN gave support in the form of bearings, but unfortunately was not a sponsor from the start and missed out on the excitement of creating a car from concept to final part. The University of Michigan Solar Car Team is happy to be working again with NTN and is pleased that they will have the opportunity to see *MaizeBlaze* progress from the initial concept to its unveiling in April.

NTN