

CRIMSON RACING NEWSLETTER

October 2015

Greetings from Crimson Racing!

We've fallen into fall, which means goodbye to the Alabama summer heat, and hello to the season of football, sweaters, and all things Pumpkin Spice. For us here at Crimson Racing, it means we're that much closer to the competition, and even though there is still a ways to go, the team has made some incredible progress over the last month.

Frame and Design Review

For our frame, the team's main focus has been on creating the main roll hoops. As per competition guidelines, we may not utilize multiple tubes in this process; instead, the team must bend the tubes. In previous years, we have attempted to do so manually, however, this leaves a lot of room for human error. It often results in tubes being 2-3 degrees off the intended angle, forcing us to adjust all the other tubes accordingly. To prevent this issue from occurring this year, STAM, a CNC bending company, bent the tubes for us. Thanks to their help, we have correctly angled roll hoops, and are now able to begin the manufacturing of the frame. We have just completed the cockpit tubing and will soon start our work on the engine tubes.

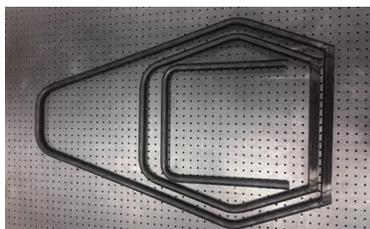
We presented on the frame, as well as the powertrain, this past month during the first design review of the semester. Since last year, the team has modified our design and data collection techniques, allowing us to improve our designs and ability to present them. We received a lot of helpful feedback and criticism that we are excited to implement into our vehicle. Thank you to all those who came out to support us and give advice, and thank you to Taziki's, who kindly supplied the team with appetizers and drinks for the event.

Camshafts, Heat Treatment, and Suspension

Over the last month, the team has made progress in many areas of our vehicle. Recently, we have been working on new techniques that will allow us to increase the power output of our car. We identified a few key ways to do this, one of which involved modifying the camshafts in the engine. Last month, the team sent the cams out to a specialized company in California to have the stock camshaft ground. Once this process is completed, the modified camshafts will allow for a shorter duration of lift, preventing the loss of air going into the engine.

Another improvement we chose to focus on making this month involved the welds on our frame. A member of the team worked alongside a professor on campus to heat treat the welds at different temperatures and time durations, in order to determine the optimal treatment for improving strength. After collecting the data from these tests, we concluded that the best combination of temperature and time would be treating the welds at 550 degrees Celsius for one minute. This will soften the welds; the stronger, less brittle welds will increase torsional rigidity.

The suspension team has been able to finish their designs in the past month. We have sent out the parts to be machined and will begin fabricating the a-arms as soon as we receive the spherical bearing holders.



Looking Forward

As always, we here at Crimson Racing thank you all for your continued support. As we move further along in the process, feedback becomes more and more important as we strive to build the best possible car for the competition. Please feel free to contact us at any point at the email below with any questions, comments, or concerns throughout the year; we'd love to hear from you!

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