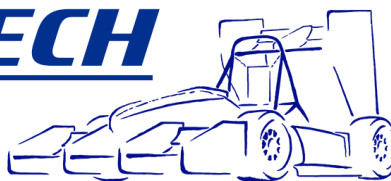


OREGON TECH ***RACING***



Volume 2

Issue 1

March 2015

"If everything seems under control, you're not going fast enough"

-Mario Andretti

Dates to Remember:

- At 1 P.M. on Tuesday, March 3rd will be the SAE student project showcase in Cornett Hall. Open to the public!
- Upcoming School-wide Karting Day! Stay tuned for details...
- Lincoln Nebraska FSAE Comp June 17th - 20th

OTR4 is Running!

It's a new year, a new team, and new ambition. Mid November of last year the team was rewarded with the first firing of this year's competition car. This is a great accomplishment, but we still have many more steps to craft our best car ever. We were fortunate to start this year with a good platform from the progress made last year. As a team, we are trying to learn from our failures and become better from them. This means taking the design from 2014 and making every part lighter, stronger, and more refined.



The car may look bare now but be warned, a full carbon and fiberglass body is in the process of being constructed right now! This will not only include body panels but a fully functioning undertray package to create downforce in high-speed corners while limiting the amount of weight and drag that might be found in a full aero package.

These are great steps towards our ultimate goal of Lincoln, Nebraska and demonstrating our engineering abilities at the Formula SAE event. To achieve the results we desire there will be many hours left of fabrication, design, and business planning in order to finalize our car. Only then can we present a strong case against the 80 other schools at competition.

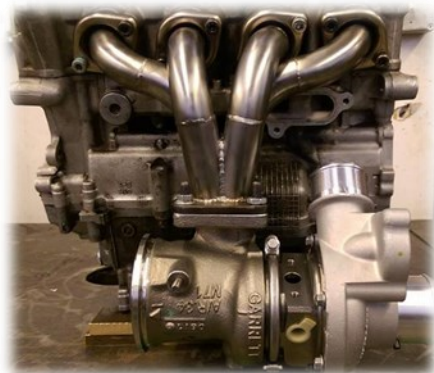
Next Month:

OTR4 Testing

Carbon Layups

Senior Project "In Progress" OTR5 Frame

An Experiment in "Making Boost"



It is a generally accepted idea that a higher mass flow rate throughput of power cycle, the more work which can be produced. In simpler terms this means: more air+fuel = more power. So how does one go about increasing this air fuel input to a motor which comes from the factory already highly tuned? Forced induction is one way, i.e. "boosting" a motor.

This year one of the projects "in-testing" is a custom turbo package. This project adds a great deal of complexity to our already technical car. This being said, there is a great deal of power to be made in this fashion. We are fortunate to have time to devote to this project and will be excited to test it and either validate or overturn the idea. As the saying goes "nothing ventured, nothing gained." Stay tuned for more on this project!

Senior Projects “In Progress”: Lap Timer

What is the ultimate measure of a race car? Is it a quarter mile time, how long it takes to get around a given lap, or what about how many laps can be completed in an hour? Any of these metrics is a wonderful way to determine how much ground any car covers in an elapsed time. So what do all of these measures share in common? Time, a base unit from which instantaneous and average speed is derived. In order to best measure our improvements, the team president (Cody Bulkley) decided to take on a lap timer as a senior design project.



How does this benefit the team and the car? Prior to this lap timer, validation and testing of the car relied on human reactions. We have found that the most accurate team members are off by three tenths each lap. Relying on humans to time laps is inefficient, and when validating a design the most accurate data is necessary. The lap timer also helps train our drivers for competition. In 2013, the first four positions in autocross finished within a second of each other!

So, what is unique about our lap timer? This is not your ordinary hand held timer! Once a lap is completed, the time is shown on the large Dot-Matrix Display (shown in the picture), then the lap time is sent wirelessly to a laptop where the times can be viewed in real-time. Once a session is completed, the team has the ability to store the data and review it later. Our custom system is even powerful enough to transmit laps wirelessly up to six miles away!

How accurate is this lap timer? Our system can accurately time laps down to the microsecond! For you math fans, that's 10^{-6} seconds; however, we realistically only need to display to the millisecond (also known as a thousandth of a second).

It is not uncommon for Oregon Tech Racing to innovate with electronics, as the team has designed an active aerodynamics package, custom data acquisition system, and is developing an electronic shifting system for next year's car. As always, stay tuned for more on our electronic developments.

FIND US ONLINE

Web Page:

oitracing.com

Facebook:

facebook.com/oitracing

E-mail:

oitracing@gmail.com

YouTube:

youtube.com/oitracing



One of the many obstacles that every formula team faces is finances.

These cars cost a lot of money to produce. All of the raw materials such as steel, aluminum and composites used to craft our car are expensive and difficult to acquire without support.

Testing the car requires the use of tires which are consumed at a rapid rate and are also extremely expensive.

We are always looking for new sponsors in any form, such as machining time, purchased parts, materials, apparel etc.

If you would like information about our sponsorship program please contact us.

We would not be anywhere without sponsors and donations!

To our existing and future sponsors:

Thank You!

[CLICK IMAGES TO VISIT OUR SUPPORTERS](#)

