

Chassis Manufacturing Almost Complete



FSAE–West : June 14-17



Chassis Jig Setup



Additional Chassis Jigs



Tube Notching

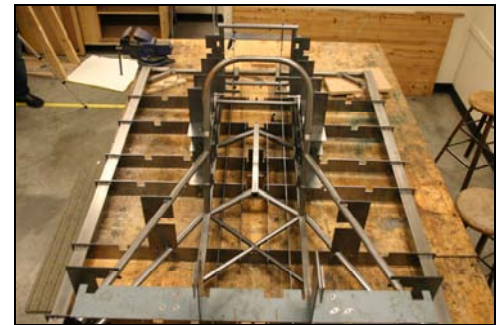


Test Fitting Tubes

The main focus of the previous months has been the manufacture of the 2006 Formula UBC Chassis. Even with the busy exam period in early December, many of the members made significant sacrifices over the holiday season to ensure that the chassis construction would remain on schedule. The majority of final designs have been completed and a great deal of fabrication has commenced.

The chassis manufacturing started with a key sponsorship from Accu-Cut Laser which allowed for precision laser cut mild steel jigs to be implemented. The result is greater accuracy, improved stiffness and significantly decreased build time. Various techniques were used to create the intersecting profiles as required by the design of the chassis including milling, grinding and manual filing. Our scheduled completion window for the chassis is mid February.

New to the 2006 competition is the requirement of a frontal impact structure capable of bringing a 661 lb car, traveling at 25 km/hr, to a halt without exceeding a maximum deceleration of 20g's. To accomplish this, Formula UBC has received support from MEA Forensic Engineers and Scientists who have afforded our team the full use of their top-quality crash-test laboratory. With access to load cells, high-speed cameras, and accelerometers Formula UBC will be able to design and test its first impact structure for maximum safety and valuable design points in the competition.

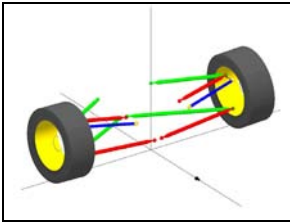


With the engine torn down, inspected and reassembled, the engine group is on course to get the engine and turbocharger system testing on the University's engine dynamometer in early February. This will be critical to get maximum power while maintaining reliability throughout dynamic testing and the competition. Furthermore, the new oil pan which has been designed to reduce the overall engine height while maintaining engine oil volume and reducing oil



Continued Chassis Work

starvation will be proven during the dynamometer testing. After completing the flow bench testing on the Kawasaki cylinder head and obtaining camshaft mapping provided by Colt Cams, we will be able to utilize the GT-Power engine simulation software to optimize the intake and exhaust manifolds. This will also provide necessary data to effectively compete in the design competition as well as provide invaluable insight into the areas which can be significantly improved in the coming years.



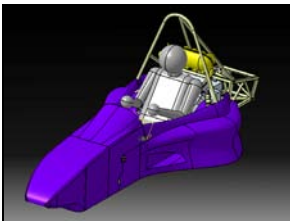
Susprog3D Analysis

Suspension design analysis has been helped by the return of a previous sponsor, Susprog3D. Susprog3D will allow us to efficiently analyze our current suspension geometry and will aid in the design of future suspension systems for Formula UBC. Globe Foundry has also returned as a sponsor by providing aluminum casting of our suspension uprights. After months of hard work, the suspension team has completed the final design of the A-Arms and commenced fabrication. In addition, the bellcranks, wheel hubs, and uprights have entered the fabrication stage.



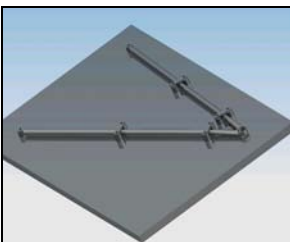
Kodiak Racing Wheels

The controls team has moved forward with the selection of a fully supportive seat shape and re-packaging the current rack and pinion steering system for the 2006 car. In addition, the shifting system has been finalized and is ready for production. The pedal box has been redesigned for this year to reduce the weight and improve pedal feel. Unfortunately, due to complications with the manual hand clutch, the advantages of the Formula 1 style paddles were easily outweighed by the increased weight and complexity of a paddle system. In its place will be a redesigned push button system with improved ergonomics for better driver control.



Carbon-Fibre Body Design

Formula UBC would like to thank those sponsors that have donated funds in the recent months; UBC Department of Mechanical Engineering, Walter H. Gage Memorial Fund, Professional Activities Fund, and the AMS Coca-Cola Event Fund. Furthermore, we would like to thank the following companies for their product and service donations; Mongoose Machine and Engineering, Accu-Cut Laser Inc, MEA Forensic Engineers and Scientists, Kodiak Racing Wheels, 3D Custom Foam, Globe Foundry, Susprog3D and SolidWorks.



A-Arm Jig Design

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