

## Newsletter - February Edition

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Metal Treatment Services

Welcome to a new year of Monash University Formula SAE. As the 2002 competition is confined to history, the 2003 team have made significant progress in the design of the car we expect will confirm Chief Judge Carroll Smith's belief that we are a team to watch. Suspension geometry has been determined and the chassis has been modeled in Unigraphics. Finite Element Analysis of the chassis has also commenced and is expected to be completed in the coming weeks, paving the way for an early commencement of car construction. Further details of the 2003 design are highlighted later in this issue.

Further good news arrived with the confirmation that major sponsor PLM have continued their commitment to the team. Providing both financial and technical support (supply of digital design and collaboration software) their contribution is extremely important to the car's development. We thank them for their continuing support.

The new website is also up and running. There you can keep up to date with the latest news and information, including photos and videos of the car in action. Go to [www-personal.monash.edu.au/~fsae](http://www-personal.monash.edu.au/~fsae)

To all our supporters we look forward to a rewarding and successful year together. If you have not been visited by our team yet, expect a knock on the door as we extend our gratitude to you for your tremendous assistance.

Also don't forget to look out for us in the upcoming editions of Zoom magazine and the SAE's quarterly journal Auto Engineer, where our car is being featured.



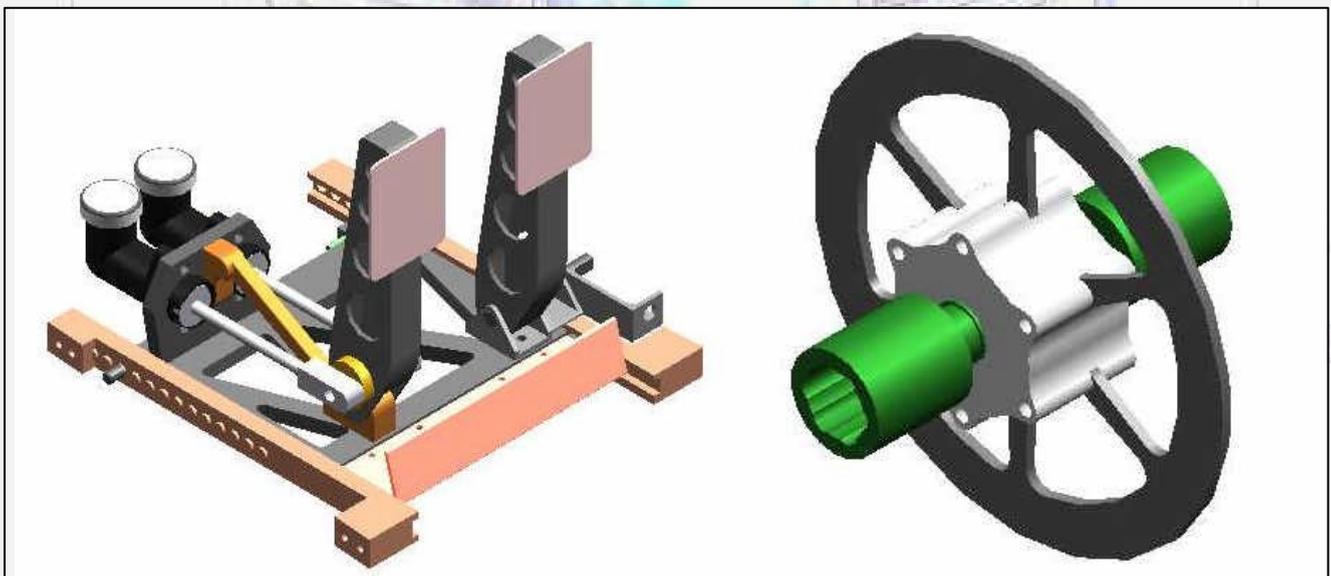
## Formula SAE 2003

Building on the solid baseline built in 2002, the new car will address three key areas of improvement:

- **Weight Reduction** – being significantly heavier than the 2002 competition winning car has meant a lot of effort will go into reducing weight in every component of the car. Increased use of FEA, along with utilisation of data acquisition (to determine actual loads under race conditions) will allow components to be downsized to the minimum required to maintain structural integrity.
- **Track Width Reduction** - to improve manoeuvrability around the tight course, specifically the slaloms, the overall car width will be reduced. This, combined with the weight reduction, will dramatically improve the drivers ability to change direction in the tight confines of the Formula SAE autocross course.
- **Aerodynamic Performance** – having proved the worth of downforce inducing devices at the 2002 event, further improvements are planned. Close analysis of flow regimes in CFD software and in the wind tunnel are expected to lead to improvements in the order of 25-50% in aerodynamic downforce over the 2002 car.

Coupled with the above key areas, reliability will, as always, be a major factor in the design. With this in mind the Phase 1 car is due for first testing in early May. The lessons learned from this car will result in continual modifications being introduced in the lead up to the December competition date.

Meanwhile, testing of the 2002 car will continue with driver training commencing right from the beginning of the year. This will ensure our drivers are able to perform at the competition having had ample experience of the task they will face, another shortcoming highlighted by last years event.



## *Team Infrastructure Development*

Following on from the progress made last year (race trailer, safety equipment, storage equipment, tools), Monash Motorsport will continue to work on the facilities available to the team. On the cards are (budget permitting):

- a surplus lathe and mill to be installed in the team workshop (once important OH&S procedures are in place)
- acquisition of a TIG/MIG welding apparatus, also for the workshop
- purchase of data logging equipment, allowing hard data to be retrieved about the cars handling and performance characteristics while on track
- procurement of enhanced computing equipment, to further improve analysis capabilities and reduce design times

The implementation of the above equipment along with the continuing improvements to the Formula SAE room/workshop is an important component of our plans to develop our facilities up to world class standards. The overall aim is to put in place the necessary tools the team require to produce faster and more reliable cars now and into the future.



## *In a Moment of Summer Dreaming....*

Who would you want in your perfect Formula SAE team? This question was posed to Team Leader Scott Wordley, here is his response. **Disclaimer:** knowledge of famous racing personalities is required for this article.

*I reckon Colin Chapman for suspension, Mike Costin and Keith Duckworth on engine, Issigonis for driveline and packaging, Gordon Murray for innovation, Smokey Unic to find loopholes in the rules and Henry Ford and Tyler Durden to oversee the manufacture.*

*For drivers I'd put Aussie top-door-slammer Victor Bray in the acceleration (after we trimmed him down by 80kg), Stirling Moss for Skidpan, Schuey and Fangio for Autocross and Jim Clark and Tazio Nuvolari for the enduro.*

*Sponsorship manager would go to Richard Branson, its hard to look past Billy Crystal to MC the design event and Troy McClure would be gold for the presentation. Costing duties would be shared by Nick Leason and Christopher Skase both masters of bending the books.*

*Pulling together a team of this calibre would be tough, and although I considered Oprah Winfrey, Mark Taylor and Moses, I think I'd have to go with Napoleon even if it meant designing some extra adjustment into the pedal box.*

Scott, however, forgot one important aspect of any team, **CHEERLEADERS!!**

I know who I'd pick how about you?

## *Sponsor Feature - Stabilus*



Stabilus is a manufacturer of hydro-pneumatic adjustment elements (gas springs), hydraulic vibration dampers, hydraulic door-stays, and automatic opening and closing systems for doors, trunk lids, and tailgates. The company was founded in 1934 in Koblenz, Germany. Today, Stabilus is a worldwide operating company with plants in 10 countries in 4 continents. Nowadays, gas springs and dampers from Stabilus can be found almost everywhere, including automotive applications.

In its product lines of gas springs and hydraulic vibration dampers, Stabilus is the world leader with annual production and sales of more than 100,000,000 units. High among Stabilus' priorities are the improvement of existing products, as well as the development of innovative products for the future and are Stabilus is renowned for. For decades, Stabilus has earned its reputation as a reliable development supplier and partner on the world market. To this end, customer satisfaction and service are essential corporate objectives.

As part of their support of the Formula SAE team, Stabilus have provided financial assistance as well as product used on our race trailer. The rear and side doors are both gas strut actuated making both opening and closing effortless and much safer. The team extend our gratitude for Stabilus' tremendous support.



## *Australian MotorSport Show*

As a guest of PLM, the Monash team will be appearing at the Australian MotorSport show with the 2002 car. Held at the Royal Exhibition Building in Carlton on the weekend of February 21-23, the event will provide a wonderful opportunity for thousands of racing enthusiasts to get together and discuss cars! We hope to see you all there and if you get the chance, come on down to the PLM stand and say hello. With several of our other supporters displaying their services this an event not to be missed for any serious racing fan.