



MTAA SUPER SOL INVICTUS NEWSLETTER

September 2, 2019

41 days until the race

Build Completion Reminder



Governor General's Design Challenge



Sydney Composites Sponsor



ANU Open Day



Our upcoming Build Completion Event is in just over week! The Tech Team has been working tirelessly to finish the car and are extremely proud to show everyone what has been built. This exclusive unveiling will be held on the ground floor of Marie Ray building in Kambri and will display the final car design.

A few of our team members ran a stall at the Governor General's Design Challenge on August 16th alongside ANU Rocketry, UNSW, Questacon and others. We had a great time supporting primary school students showcase their imitation moon landers and test them through several 'challenge' scenarios.

Sydney Composites is an experienced composites manufacturer, specialising in materials such as fibreglass and carbon fibre. They are the manufacturer of the now completed carbon fibre chassis for the MTAA Super Charge 2 and a proud Silver level sponsor. Thank you to Sydney Composites for supporting us.

ANU open day was last Saturday and we were perfectly positioned in the cultural centre courtyard. We got lots of interested parents and potential students coming to us asking all sorts of questions. We also had the mould of our new car there and heaps of whiteboard markers to let everyone scribble their hearts out all over the car mould. Thanks for everyone who came!

Steering System

The steering system of a vehicle is the driver's first interaction with the road. It is the most important control the driver has over the vehicle's direction and motion. In the unfortunate event that a car is put in jeopardy, the first and last action a driver has is to point it to the paddock and away from trouble!

Effort is needed to turn the steering wheel because of friction between the front and tyres and the road. To minimise the effort, the wheel is connected to components that position the front tyres through a gear system. These gears give the driver a mechanical advantage by magnifying the force that he or she applies, but they also increase the distance that the driver must rotate the wheel to turn the tyres.

The steering system for the MTAA Super Charge 2 has been designed around reliability. We use a simple push-pull rack-and-pinion gear setup, which works by turning rotational motion into linear.

When you turn the steering wheel, a column rotates the attached shaft, and a worm gear known as the pinion. This gear sits on the rack, a length of metal with a series of teeth cut into it. As the pinion rotates, the rack moves left or right according to the driver's steering input. We are using a light-weight aluminium block Stiletto rack, a top-fuel dragster spec.

The steering ratio, x:y, refers to the ratio between the turn of the steering wheel (x) and the turn of the wheels (y). In race cars this ratio is very low because the vehicle must respond to steering input much faster than in normal cars.

This season we are running a low and aggressive 12:1 ratio to bite hard in the qualifying lap in Darwin. Watch out!





This week has been incredibly busy for the team. Over the weekend we had both the ANU Open Day event, and the winning school from the Solar Car Colouring-In Competition got to visit our workshop and get a sneak peek at the MTAA Super Charge 2! The team is hard at work with daily scrum meetings every morning to set new tasks to tackle each day as we prepare for our muchanticipated Build Completion event on the 12th of September. Stay tuned to our social media for even more exciting content! ~ Project lead - Avik Mason ~















