

Aurora in the Global Green Challenge 2009
Report Four
21 October 2009

Today the main event for the two Aurora teams was to be SCRUTINEERING. We were allocated time slots of 1.00 PM and 1.30 PM.

Scrutineering is a crucial part of the 2009 Global Green Challenge and a time when each solar car team presents their solar car to see if they have fully met the rules for the event. We read and re-read the rule book, we attended to every detail we could identify, and also prepared the nominated drivers for licence checking and weigh in.

The scrutineering takes place at the Darwin Showgrounds in a cool pavilion with a useful mezzanine balcony designed so that spectators can observe the six stages of inspection.

The drivers all have to weigh in, like horse jockeys. Only in this case they must be at least 80 kg. If not they receive a bag of gravel as ballast to ensure that they meet a minimum weight of 80 kg. Every time they drive the car in the race they will also load in the ballast bag.

Five of the Aurora drivers made it under 80 kg, one did not and as a result is on crackers and water for several days.

The first stage is a dimensional and weight check. This station is also where the proof is presented to verify that the solar panel has no more than 6 square meters of active solar panel area. Aurora 101 is fitted with Gen 2 Sunpower silicon cells producing a maximum of 1200 watts in ideal sunlight. Southern Aurora, being a car made to older rules has 8 square meters of single junction gallium arsenide solar panel measured as a 4x2 meter rectangle. Both panels met the rules.

We were interested in the vehicle weights. Aurora 101 measured 154 kg, the lightest of the Challenge Class cars. Southern Aurora was 195 kg. The beautiful solar car from Japan, OSU [competing against Southern Aurora in the Adventure Class] was a mere 145 kg. And that with 4 wheels and a 5 meter overall length.

The next stage was the seating measurement to see if the cars have both a seat back angle of 27 degrees and that an upright seated driver complete with driving helmet is below the roll bar height. We failed. Our seat back was measured to be at 28 degrees. The driver entry and egress test was next requiring that the driver could escape from an enclosed car in less than 15 seconds. They could, so we were on to the next test of the turn signals, hazard lights, brake lights and horn. All passed although the lights are just tiny LEDS. The demonstration of reverse was passed and then it was on to the tires.

There have been tire rule changes for 2009; solar car tires are required to have a tread pattern, with a minimum tread depth of 1.5 mm. Our front tire demonstrating a bit of wear was failed, the new tires on the rear passed. A similar outcome resulted for Southern Aurora so there was work to do and a re-inspection tomorrow.

The electrical inspection resulted in the need for a plastic cover over a high voltage control panel.

Then on to the battery inspection station controlled by Australia's leading battery expert, Dr. David Rand. Again this was an area of change for 2009. The weight allowable for the most common lithium polymer technology has been reduced to 25 kg from the previous 30 kg limit. Also all high voltage battery related wiring has had to be housed in the battery box itself. In addition Both Aurora cars were sporting a new battery management system enabling every battery block to be seen in the control car

telemetry. The excellent high energy batteries from Revolectrix passed. The older Kokam batteries in Southern Aurora also passed. The battery management developed by Raj Shetgar and Satish Thiammiaih worked. All looked good and after meticulous sealing procedures was passed.

Outside the pavilion our safety officers Paul Jolly and Daniel Mills went through the safety equipment: roof top rotating yellow lights, two way radios, fire extinguishers, safety cones, gloves for handling hot batteries, yellow warning flags, first aid kit, safety vests and so on. Aurora 101's support cars passed but Southern Aurora was awaiting a rental car and a rental radio system.

We left to return to the pits with plenty to do just to complete scrutineering. All modifications were completed before night fall and the cars loaded up for a return for final inspection tomorrow.

Just seven cars were inspected today. The volunteer group of volunteer scrutineers were expecting to get through 22 cars tomorrow.

