



2003 World Solar Challenge

Darwin > Adelaide 19 - 28 October 2003

Report 1

Friday 10 October 2003

Preparations for Competing in the 2003 World Solar Challenge

The 2003 World Solar Challenge will be the seventh occasion that this international event has been held. It was first run in 1987, under the guidance of Hans Tholstrup and has become the 'world championship of solar car activities'.

The Aurora team has competed in all of the WSC events held. The 'suitcase man' Detleff Schmidt from Munich Germany is the only other entrant that will have entered every WSC.

Famous car makers have competed at the World Solar Challenge in the past. GM from America won in 1987, Honda from Japan won in 1993 and 1996. Toyota, Nissan and Kia have also fielded entries.

Biel of Switzerland won in 1990 and were a formidable competitor in 1987, 1993 and 1996. Their clever electronic systems and motors have gone on to equip highly competitive entries such as Solar Motions from America and the 2001 WSC winner Alpha Centauri from Holland.

Aurora has been Australia's most successful team finishing second in 1987, sixth in 1990, fifth in 1993, crashed in 1996, winner in 1990 and second in 2001. Aurora presently holds eight solar car world records including the record for the longest solar car journey at 13054 kilometres.

'Beaming' is the name of Aurora's program for 2003-04. The 2003 WSC is the third event in this 'Beaming' program having already completed the Sunrace in February and the Suzuka 'Dream Cup' in July.

THE TEAM FOR THE 2003 WORLD SOLAR CHALLENGE

Aurora is fielding its smallest team ever for a WSC, eleven people. They are David Fewchuk, Peter Pudney, Tony Vriens, Stella Ngondi, Mark Gilligan, Darren Trafford, Dennis Thoroughgood, Caroline Murphy, Paul Jolly, Tom Baker and Eli Thurrowgood. Eight of the team have never entered a World Solar Challenge event, yet this team has participated in 34 international solar car events and 13 World Solar Challenges.



Wubbo Ockels and David Fewchuk, team managers of Alpha Centauri and Aurora 101



Eli Thurrowgood, team 2003



Stella Ngondi, driver team 2003



Paul Jolly, team 2003

Drivers Tony Vriens, Stella Ngondi and Mark Gilligan will be guided by team strategist and on road manager Peter Pudney. Dennis Thoroughgood will lead the electrical side of things and be in charge of telemetry. Darren Trafford, Eli Thurrowgood, Paul Jolly and Tom Baker will keep the solar car on the road. Caroline Murphy will be the safety officer and David Fewchuk the Darwin manager.



Tom Baker, team 2003



Darren Trafford, team 2003



Battery man, Frank Fittipaldi



John Finney, signage supplier

THE MAIN COMPETITORS

The mighty team Nuna or Alpha Centauri from Delft University in Holland are back having secured a record breaking win in 2001. The reputedly have better aerodynamics, an amazing 2000 watts+ solar array and a winning experience behind them.

The new and powerful 2 seat car from Queens University in Canada has the recent American Solar Challenge experience behind them and were second in the 1999 WSC.

Mad Dog, the British campaigner has teamed with Bochum University in Germany to build a new and powerful car for the 2003 WSC. Then America is represented by MIT and Principia. In total some 27 entries from 10 countries will compete in the 2003 event.

One entry of great interest to Aurora 101 will be the new team from Hamilton Victoria, an offspring of the Hamilton members within the Aurora Vehicle Association. Named 'Southern Aurora', they have built a team around the victorious 1999 Aurora 101 solar car. Over the past 3 months the Hamilton team has taken the 1999 solar car and upgraded its battery system to lithium ion technology, its chassis to the latest Aurora design, its motor to the latest Aurora design and its full electrical package to the system used in the 2001 Aurora car. Southern Aurora has potential to finish in the top 10.



Hamilton 'Southern Aurora' team members

The 2003 World Solar Challenge has the potential to be the fastest ever but also the most closely fought.

AURORA'S ACTIVITIES SINCE JAPAN

Aurora's last major event was to compete in the Suzuka 'Dream Cup' in Japan late July. The Aurora 101 solar car returned to Melbourne on 28 August and preparations for the 2003 World Solar Challenge then started.

Batteries

The WSC rules allow a battery weight of 30 kg for lithium polymer technology compared to the 18 kg allowed at Suzuka. A new second battery box has been built also located on the RHS of the solar car. The battery modules have been re-configured into blocks of 11 cells in parallel. The battery box is fitted with a cooling system and position locators. Frank Fittipaldi has undertaken this work. He misses the WSC having just commenced a full time job with Aurora sponsor Marand Precision Engineering.

Power Tracker Cooling

We expect the two trackers working on the triple junction solar panels to be working hard. They have been fitted with auxiliary cooling fans to keep them below 85 degrees centigrade.

Chassis Repairs

The damage sustained at the Suzuka track has been repaired on a permanent basis. This has been at the panhard rod mount and the left hand wheel mount.

One carbon fibre rear wheel has been repaired from the damage in Suzuka.

Two new GH Craft carbon fibre rear wheels have been purchased and built up with new hubs and axles and brake discs.

New Michelin solar car tyres have been secured for this event.

Seating Changes

The seat cover has been improved and a head rest and neck pad added. The Aurora drivers intend not to wear helmets because of temperature and visibility considerations so these seat changes are necessary for long distance comfort.

Motor Changes

Two motors have required considerable work. One Halbach magnet type motor has been revised to become a surface mount magnet type. This has required new China sourced magnets and new magnet rings made by Marand. Refine Engineering and Stephen Bicknell have combined to assemble this motor satisfactorily.

A second motor has needed considerable mechanical repair and this has been completed.

Support Vehicle Convoy

The on-road convoy will consist of 5 vehicles mainly supplied by Ford Australia. These have been checked, fitted with two-way radios and power outlets for computers and flashing warning lights.

New signage has been fitted to all five vehicles to recognise the generous sponsors of the Aurora 'Beaming' program. Three new sponsors have joined Aurora for the World Solar Challenge. They are Toll, providing transport to Darwin and workshop facilities whilst we are there. Telstra who are supplying satellite telephones so we can be in contact through central Australia. Technique who are working closely with RMIT University in commercialising several projects.

Car and Equipment Trailers

Aurora will have two trailers in its on-road convoy. The smaller tool trailer has been re-painted, re-signed and re-registered.

The main solar car trailer has been re-signed and fully checked for road-worthy condition.

Uniforms

We have new team uniforms taking on the three basic colours of the solar car: black, red and yellow.

Test Day at Ford Proving Ground

This occurred on 21 September and provided an excellent opportunity to familiarise our three WSC drivers. High winds held our top speeds down but confirmed the excellent handling in the car.



Aurora 101 on test day



Aurora team on test day

Open Day at Aurora's Workshop

This took place on Sunday 5 October, the day Brad Trewin departed for his one year Bosch assignment in Germany. The Open Day gave many of our supporters a chance to see our volunteer operation first hand. On the following morning Toll took our convoy fleet and trailers on their 4 day journey to Darwin.

We are looking forward to the competition and friendship at the seventh World Solar Challenge which starts from the Esplanade in Darwin at 8.00 AM Sunday 19 October.



Aurora's Melbourne workshop



Julia Burns, organiser of Open Day