

Model Solar Car Challenge, 2007.

Rule changes for 2007.

Once again, there are changes to the regulations for 2007 and all competitors must be fully aware of them. The major re-write a couple of years ago and the further tidying up over the last couple of years has resulted in virtually no disputes at the Nationals and even less opportunity for cheating. This year further tidying up and tightening up of the rules should see an even more open competition. The new cargo carrying requirements should further make stick cars uncompetitive.

1. Last year the idea of running an interstate round robin on the Saturday to determine seedings and then going into a full knockout between all the cars on Sunday was continued with great success and acceptance and this will be continued again this year. The equally popular Plate competition will also be continued.
2. The unpopular and perhaps pointless crash barrier is gone.
3. The new National track is very smooth and fast (at the moment). It is a true figure 8 without the long curved 'back straight'. The hill is very gradual without the sudden drop from the start or the steep climb over the bridge. This also means front and rear clearance is not such a problem. How long before the track starts to warp and the joints begin to open? Who knows.
4. It has been found that some new Solarex 10 watt panels actually produce over 12 watts. These will be allowed without an extra weight penalty.
5. Despite the protestations of some competitors, there is no minimum light level specified for racing to take place. Basically, if one car runs and another car doesn't, then the car that moves is the better car and wins the race.
6. Instead of the drink cans, you must now have space for two standard one litre fresh milk cartons. As before, at least one carton must go across the car. The milk cartons must not be modified in any way. The car must be strong enough to carry two full cartons with the solar array removed.
7. You are no longer required to carry your extra ballast inside a can or carton inside the cargo space, but you can put it anywhere you like to assist car stability. This also means you must have something to put your ballast in.
8. You may note that the rules are in two sections. The Administration clauses 1 to 7 are all about the organisation and running of the event, so teachers and team leaders need to read this. The Car Specification clause 8 is just concerned with the details of the car so car builders need to read this. You must be aware of all the clauses, though.

Important changes affecting car design. The soft drink cans have been replaced with milk cartons, so streamlining is ultra important. You can put your ballast anywhere you like. The crash barrier is gone, but that doesn't mean you can build a flimsy car. The new track is fast so stability is even more critical. The opposition is getting annoyed and will come back with a vengeance. The full 2007 Rules are available as .pdf files for download from the web site.

N.B. Anyone hoping to represent Tasmania at the Nationals will need to comply fully with all of the 2007 Car Specifications. We will be strictly enforcing these rules at the Tasmanian event for serious competitors. Non-complying cars may be allowed to race but will be excluded from the finals and any trophies and prizes. We reserve the right to run the races in Tasmania in any format seen to be appropriate on the day, taking into account numbers of entries, weather, etc., and we will not require posters or be conducting interviews at the Tasmanian event.

SYNOPSIS OF CAR SPECIFICATIONS, 2007.

The following is for quick reference only. Make sure you read the full regulations for the complete details.

Maximum overall dimensions:

650mm long
320mm wide
180mm high

Driver's Cabin:

Must be a fully enclosed and sealed compartment at the front of the car.
Must have space for a 60g egg 'driver'.
The top 25mm of the egg must be visible from straight ahead and to 90 degrees to each side.
There must be a transparent windscreen with 10mm clearance over the full visibility arc.
There must be 3mm clearance over the top of the egg.
You are allowed two 4mm wide frames in the windscreen.

Wheels:

As few or as many as you like as long as they are at least 1mm wide or 0.6mm radius.

Guides:

You must have a set of guides at the front that go outside the guide rail.

Cargo Space:

An enclosed space behind the driver's cabin and underneath the solar panel.
Large enough to fit two standard 1 litre fresh milk cartons.
At least one carton must be transverse to the direction of travel.
The floor must be able to support two full cartons placed on it in any orientation.
The car must be capable of rolling with the cartons in place but the solar array off.

Side Panels:

One on each side, at least 75mm high by 120mm long.
Flat, within 20mm vertically and 15mm horizontally.

School and Car Name:

In letters at least 10mm high, visible when racing but not on the Side Panels.

Solar Array:

Must be fully and quickly removable from the car.
Only commercially available silicon cells allowed.
Maximum power allowed 12 watts.
For scrutineering a pair of labelled wires are required.
The On/Off switch and mechanical tap changing are allowed on the array.
No electronics or other components are allowed on the array.
The measured panel power will be standardised to 25Deg C.

Wiring:

All wiring and electronics must be reasonably visible.
Wiring entering sealed areas will require a full wiring diagram and an explanation.

On/Off Switch:

There must be an On/Off switch on the left hand side or top of the car visible to the starter.
The On and Off position must be clearly marked.

Energy Storage:

No batteries allowed.

Capacitors up to 0.2 Farad (discharged before the race) are allowed.

Inductors up to 1mH are allowed.

Ballast:

The total weight of the solar array and support structure plus ballast is given by:

$$\text{Total weight} = 175(P-6) + 600\text{gm}$$

Where P is the Standardised panel power in watts

Ballast weight required can be calculated simply:

$$\text{Ballast Weight} = \text{Total Weight} - \text{Solar array and Support Structure Weight}$$

Any ballast required can be carried anywhere in the car.

You should bring suitable ballast with you to scrutineering as ballast will not be provided.

You need something suitable to contain any ballast material.

Stopping Procedure:

The crash barrier is no longer to be used.

You may use any method of stopping your car that does not interfere with the other car.