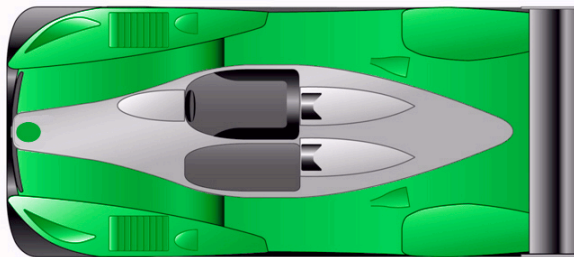


The Sunny Green Box: GreenGT's Solar Powered Tyre Heating System



Presentation for LMS

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Why:

- Up until now, the tyres of endurance race cars were heated up to 70°C in small tents by a flow of hot air coming from a gas burning space heater. The resulting smell, fumes and noise polluted the surroundings and the whole system was a safety risk in the paddocks.
- Because of these reasons, such heating will be banned in the coming years by the rules of the Le Mans Series and the 24 Hours of Le Mans
- This is to the disliking of the teams, since a car on cold tyres will drift and may therefore be a safety concern for the other cars on the track. Hence the request from the Le Mans Series to come up with a « green » tyre heating system.

How:

- Heat the tyres on wheels up to 70°C within 40 minutes before their mounting on the car by using a « green » power source. For this we combine two proven systems: the FLEXCELL ® lightweight solar panels and the MA HORNE ® racing tyre heating blankets.
- During each Le Mans Series week-end, about 50 lorries sit behind the paddock in the sunshine with their large roof not used for any purpose. By covering these with solar cells, each lorry becomes a solar power plant of its own.
- A pack of buffering batteries will be placed inside the lorry to provide continuous power. This pack is charged and held up to its charging level by a so-called solar tracker.
- The power supply system is made redundant through the possibility of powering the blankets from plugs in the garage.

The whole system

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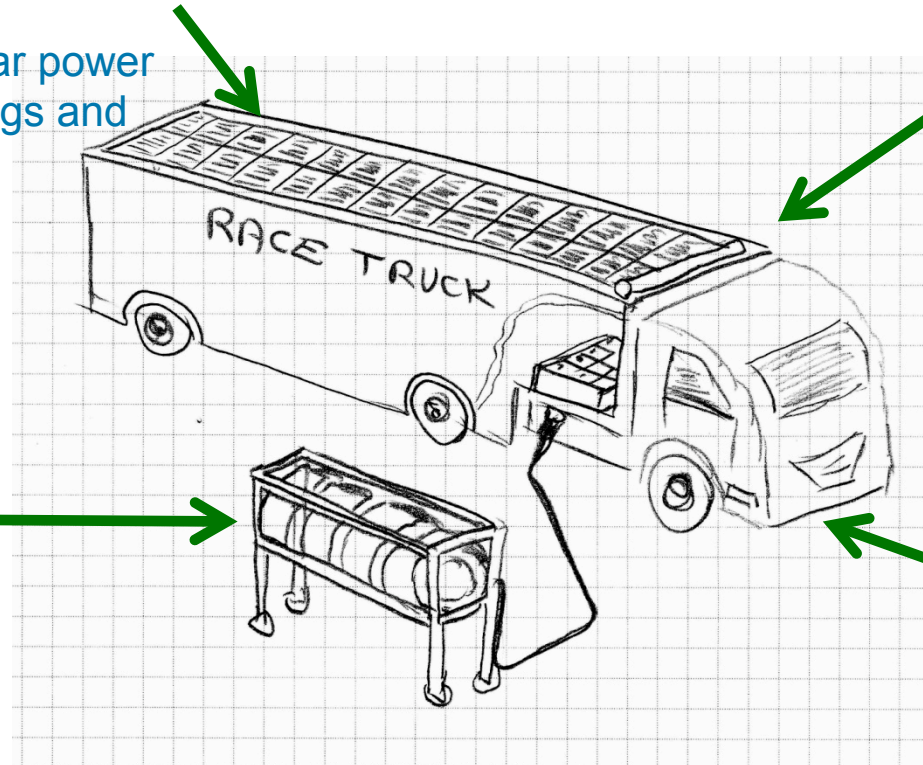
16/03/09



6 flexible lightweight solar power mats, as used on buildings and marine installation



4 or 8 heating blankets as used in Formula One



Buffering battery pack

Solar charger



CAMTECS
engineering



Reduction of fuel consumption and CO2 emissions by using the GreenGT solar system

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16/03/09

Calculation of fuel economy:

Today:

Each car has a diesel burner behind its garage to heat its tyres.

Average race fuel consumption per race car for each LMS week-end = 700 litres

Consumption of diesel oil by the burner per race car for each LMS week-end = 100 litres

Which gives us a total consumption of 800 litres of fuels par race car.

Tomorrow:

Solar panels are installed on top of each race car's lorry and power heating mats.

Average race fuel consumption per race car for each LMS week-end = 700 litres

Zero consumption of diesel oil since all burners are replaced by solar power.

Which gives us a total consumption of 700 litres of fuels par race car.

This translates into a fuel saving of 12,5% for each LMS race car !!!

Calculation of CO2 saving achieved through replacing the burners by the solar system:

Total solar electricity produced during a full LMS season = 6.700 kWh, equals 2 tons of CO2

Total extra electricity drawn from the grid during a full LMS season = 3.300 kWh, equals 1 ton of CO2

Total diesel fuel economy by replacing all burners = 30.000 litres, equals 70 tons of CO2

Hence a total CO2 saving of more than 70 tons for each LMS season !!!



Each heating cycle per set uses about 2 kW of electric power. This is equivalent to 24 kWh per car and per race weekend. For the whole field and all five races of the LMS season, that gives us over 6.700 kWh of electricity, which translates into a **saving of over two full tons of CO2!**

Taking into account that all the burners can be replaced by the GreenGT system, that give a potential of **saving many more tons of CO2 in a full LMS season!**

The lorries have now become stand-alone power plants. This give more operating freedom during the races and in testing, as the teams have then a green and user friendly power supply of their own.

Next steps:

The system is currently undergoing full size field testing with OAK Racing Team Mazda France and will then be made available for Le Mans Series.

