

ADDENDUM

32 Electric-Solar Power Car Regulations

32.1 Concept – The Electric-Solar Power Car Division is designed to simulate a “real world” solar application. The solar car itself will be a two passenger vehicle that could easily run in a neighborhood environment. The Solar Power Charging Station simulates a permanent facility that would be used to charge the vehicle at home or at work.

32.2 Physical Regulations

32.2.1 The Electric-Solar Power Car is governed by all the regulations set out for a Classic Division Solar Car, except where exceptions are provided in this Addendum.

32.2.2 Dimensions – the Electric-Solar Power Car will have the following minimum dimensions: Length – 4 meters; Height – 1.5 meters; Width – 1.5 meters.

32.2.3 Configuration – the Electric-Solar Powered Car must accommodate two passengers.

32.1.3 (a) - The passengers must be seated side-by-side in a comfortable upright position to simulate a “real world” driving environment.

32.1.3 (b) - One passenger will be designated the “driver”; the other passenger will be designated the “technician” for communications, data collection, and strategy coordination.

32.2.4 Driver Weight – the minimum weight of the two drivers must be a total of at least 280 pounds. If the sum of the drivers’ weight is less than 280 pounds, the solar car must carry a ballast to compensate. This will be checked at any driver change during the race.

32.2.5 Power – The Electric Solar Powered Car will not carry solar cells. It will be powered by interchangeable battery boxes charged by the sun at the team’s Solar Power Charging Station.

32.2.6 Battery - teams can have two battery boxes: one battery box will be in the solar car; the other battery box will be charging at the Solar Power Charging Station.

(a) The solar car can only carry a maximum battery capacity of 2 kilowatt hours measured at a 20 hour discharge rate. The batteries must be lead acid batteries.

(b) The batteries must be enclosed in a rigid battery box that can be easily installed and removed from the solar car.

(c) Teams must develop a system for safe battery box removal and installation. This means that no discharge of electricity is allowed (“sparking”) during this process.

(d) The team’s Race Judge must be present during any battery box removal or installation.

(e) Teams wishing to reconfigure batteries in the battery box must receive prior approval from the Event Director.

32.3 Solar Power Charging Station

32.3.1 Array – the solar power charging station can have an array no larger than 5 meters by 1.8 meters. Solar Cells must be 18% efficiency or less.

32.3.2 Location – the solar power charging station, once set up at the Texas Motor Speedway, will be permanent for the duration of the race. The location of the power stations will offer convenient access to the garage and the track.

32.2.2 (a) the solar power charging stations will be set up in a designated area offering good sun throughout daylight hours.

32.2.2 (b) the base of the solar power charging station cannot be moved once located in the designated area, but the array panel can be rotated to track the movement of the sun.

32.3.3 **Stability/Durability** – the solar power charging station must be a stable facility capable of withstanding reasonable weather conditions. This includes gusts of wind up to 40 mph and rain.

32.3.4 **Access to Power Station** – teams in this division cannot access the Power Station prior to 6:30 AM or after 9:00 PM. At all other times, the power station can be used to charge the battery boxes.

32.3.5 **Charging after 5:00 PM** – teams are free to exchange battery boxes after they leave the track.

32.3 Battery Box Exchange Procedure during Race Hours

32.3.1 Solar cars running low on energy will exit the track, enter the designated solar power charging station area, remove the battery box from the solar car, and install the freshly charged battery box. The Race Judge must observe the battery box swap for safety.

32.3.2 Once installed, the solar car will return to the track and continue the drive, or move to the garage for maintenance.

32.4 Driving - The Electric Solar Power Car can drive from 9:00 AM to 12:00 PM: 2:00 PM to 5:00 PM.

32.5 **Scrutineering** – Vehicles in the Electric-Solar Power Division must pass all scrutineering stations, along with a special Scrutineering Station designed to evaluate the requirements for the Electric-Solar Power Car and the Solar Power Charging Station. Scrutineering judges will be observing if the team has a safe, efficient procedure to remove and install the battery boxes, and that this exchange does not produce a release of electricity (sparks).

32.6 **Director's Discretion** – For the first race involving the Electric-Solar Powered Cars, the Event Director has discretion to “tweak” these rules to improve the efficiency of the event.