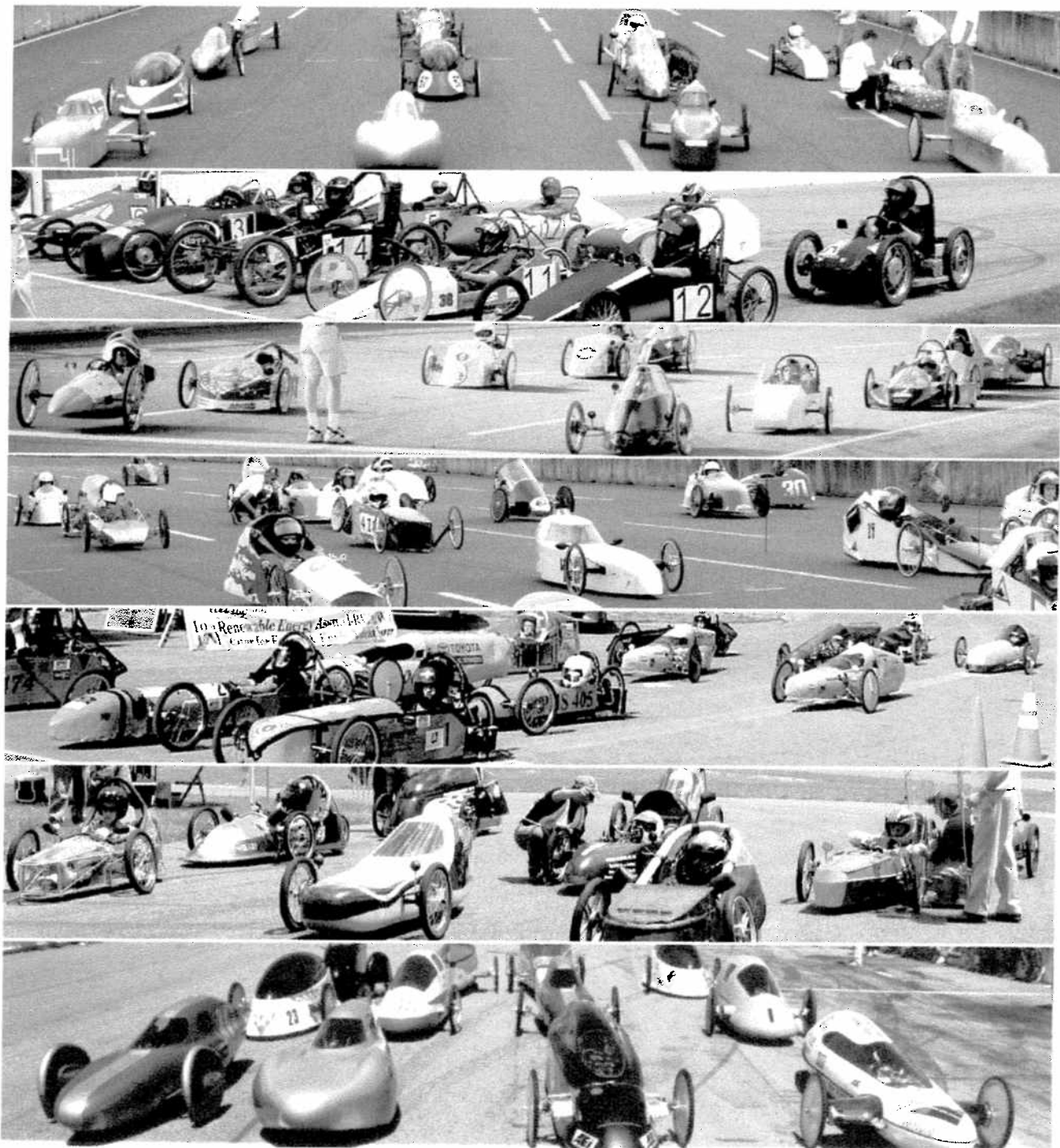


# ELECTRATHON AMERICA



## EVENT

2005/2006

# DESIGN RULES

# EVENT DESIGN RULES

## SANCTIONED EVENTS

Any Electrathon event may be sanctioned by Electrathon America provided that the current event and design rules are upheld and the sanctioning form is filed. Sanctioned events receive national publicity on the website and newsletter, and qualify for low cost event liability insurance if needed. Sanctioned events assure competitors that official Electrathon America Event rules will be followed for fair competition and safety.

Events are held regionally around the country as well as championship events for road race, speedway and Velodrome. Championship event status is determined by event history, track quality and location by the Electrathon America Board

## EVENT AUTHORIZATION

An Event Authorization Form (included in the back of this handbook) is mandatory for a promoter to hold a sanctioned Electrathon America Event. There is a small fee for sanctioning, which is good for one or more consecutive days of the same event. Event registration information should be provided to Electrathon America for posting on the National website Event Calendar. This can gain additional promotion for the event. A link can be provided to an Event Website if it is available.

## EVENT INSURANCE

Insurance covering the Electrathon event is required to be sanctioned. Insurance may be purchased inexpensively through Electrathon America, or may be provided independently by the Host or Promoter. If insurance other than Electrathon America's is used then it must meet the minimum specifications listed in the Insurance section near the end of this Handbook. Events not using EA insurance must provide Electrathon America with proof of insurance to maintain sanctioned status.

## EVENT INVITATION

One of the requirements for an event to be sanctioned, is that it must be open to all vehicles in the region. High School or College events may be limited to schools only, but it is recommended to invite the Open Division as well. Students can learn a great deal from the more experienced competitors. Invitations must be sent to all registered vehicle owners in the same region as the event. A list of registered vehicles and owners may be requested from the Event Coordinator of Electrathon America.

## EVENT REPORTING

Records should be kept for specific track distance records for each class and division. Records, race results, photos and a write up of the event should be forwarded to Electrathon America for posting on the Website and publication in the Electra Newsletter.

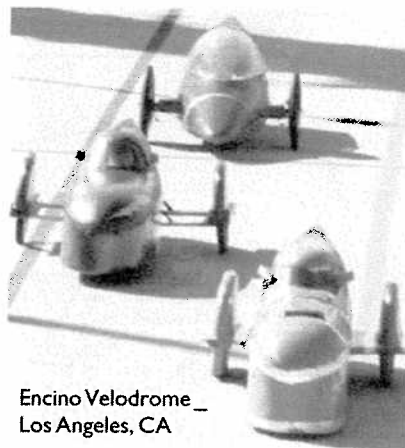
## LIABILITY

All competing drivers must sign a liability release prior to entry (see Liability Release Form). If Electrathon America's insurance is used, the carrier requires their form to be used. Request these forms far in advance of the event.

*The Event Design Rules are published by Electrathon America and are in force at all Electrathon America sanctioned events. These regulations are intended to provide a safe and equitable competition format and inspection process.*

## ELIGIBILITY

Participation is open to any individual, club or educational Institution complying with the event and vehicle regulations. Competitors must be members of Electrathon America

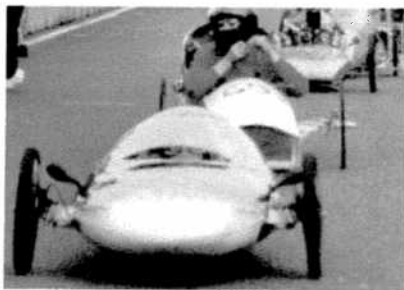


Encino Velodrome \_  
Los Angeles, CA

## DEMONSTRATIONS

Demonstrations may be held where track size or allocated time do not meet the minimum requirements for a Sanctioned event. All other rules, especially those concerning safety must be observed. Vehicle speeds in demonstrations must not exceed 35 m.p.h. Entire events and/or Classes and Divisions within an event that do not meet Sanctioning requirements are considered Demonstrations.

There are no hardware differences between the Divisions. The High School, College and Open Divisions may have either or both Standard and Solar competitions. In other words there are now 6 different categories for potential winners and track records. In some events it may be possible for High School or College vehicles to compete in both their own division and the open division.



#### DRIVER CHANGES

As a suggestion only and not a rule requirement, a race steward has the option to require the following: Sometime between 20 and 40 minutes into the race each individual vehicle must stop at a designated and supervised location and the first driver exits and a second driver enters and drives the rest of the race. If there is not another driver available, the vehicle must still stop, and the driver exit and re-enter. The ballast should be calibrated for the lighter driver.

This variation encourages more participation and reduces driver fatigue.



### SANCTIONED CLASSES AND DIVISIONS

There are two Classes of vehicles, Standard and Solar. Both classes are included in the High School, College and Open Divisions. This allows for multiple winners. An event is not required to have all combinations of Classes and Divisions to be Sanctioned. In fact most events tend to focus on particular groups, such as High School only or Standard Class, Open Division only, etc. There must be a minimum of three vehicles in each Class and Division for that category to be Sanctioned.

#### HIGH SCHOOL DIVISION

High school owned vehicles or vehicles built by High School age students with instructor supervision of student driver(s) and crew.

#### COLLEGE DIVISION

College owned vehicles or vehicles built by College students with instructor supervision of student driver(s) and crew.

#### OPEN DIVISION

Vehicle owner(s) and driver(s) may be any individual, group or school.

#### ADDITIONAL DIVISIONS

Event organizers may create additional divisions as needed by their particular area or participant mix. This may only be done for the purpose of equality of competition and not for the gain of specific teams or vehicles. There must be at least 3 vehicles competing for the division to be sanctioned. Additional divisions with an explanation of the requirements of the division must be noted on the Event Sanctioning form when it is submitted to Electrathon America. Some divisions that have been used in the past are: Kit Car Division (vehicles built from purchased kits), and Novice Division (vehicles participating in their first event with a new vehicle).



#### STANDARD CLASS *Battery power only (no solar cells).*

The Standard Class is viewed as a lower cost alternative in keeping with the spirit of Electrathon competition and actually represents what is typical for the majority of vehicles built.

#### SOLAR CLASS *Solar Assist allowed*

The Solar Class puts vehicles using photovoltaic cells in a separate class. Only a small percentage of vehicles have been built with this option, but the few that have pose a significant increase in performance and cost. Rather than limit the technology or force everyone to spend the extra money to be competitive, it was determined the best solution was to split the vehicles into two classes.

## **LENGTH**

### **MINIMUM COURSE LENGTH FOR A SANCTIONED EVENT:**

Flat Course:

1/4 Mile (1320 feet, 402.34 m)

Banked Course:

1/4 Km (820.21 feet, 250 m)

Courses should be long enough to permit vehicles to attain their top speed at some point on the course. A 500-700 foot straight is desirable.

Course length must be measured with a measuring wheel. On an oval track the distance is measured as the minimum distance a vehicle's inside tire could travel. On a track with reverse turns, the distances are measured with tangents from inside turn to inside turn.

The distance covered by a vehicle in one hour may be determined by an alternative method if that method can be shown to be more accurate than the current method, and has prior approval from the board of directors. An alternative method may be used to determine an official record of distance/time, but may only be used to determine the finishing order of a race if every competitor uses the same method.

## **WIDTH**

### **RECOMMENDED MINIMUM COURSE WIDTH: 25 feet**

Course width must be free of obstructions such as cones, barriers and channels. Surface must be same across entire width. There may be no obstacles in the entire course width which would limit the free movement of any vehicle from side to side.

## **RADIUS**

### **MINIMUM CORNER CENTERLINE RADIUS : 25 feet**

## **COURSE REQUIREMENTS**

Events are typically held on parking lots, paved race tracks or velodromes where access onto the track can be safely controlled.

EA strongly encourages events to be held on actual race courses when possible. This is to alleviate hazards inherent in street courses. Where road or parking lot courses cannot be avoided, extra care should be taken to identify possible hazards and have them barricaded or flagged to prevent collisions. Such hazards shall be identified and strategies for avoidance discussed at the drivers meeting.

Courses must be closed to all other vehicular traffic. Adequate precautions must be taken to prevent access onto the track. This may include, but not be limited to, signs, barricades, banner tape, and traffic cones.

Power should be provided at a rate of two-120 Volt, 20 Amp circuits per 10 cars. Power should be continuously available from 3 hours before the competition starts to 3 hours after the finish.

A pit area should be provided adjacent to the track with adequate area for displaying and charging the vehicles and accommodating support vehicles. If a display area is not adjacent to the Pit/Track, then there should be power in both the pit and display area.

Courses should be free of obstructions such as chuck holes, speed bumps or protrusions that would create a hazard to the competitors. The entire course surface should be the same material and texture. Dips or bumps which may damage the vehicles must be corrected or sanction will not be possible.

Barricades must be provided to define the course and may include traffic cones, saw horses and police tape and/or hay bales, etc. Courses should be clearly marked to identify all corners, boundaries, start/finish and any obstacle that could pose a safety problem.

There must be a positive physical barrier between spectators and the course. The barriers surrounding the course must be sufficient to stop Electrathon vehicles. Street curbs are not an effective barrier. Hay bales, tire walls, or suitable barriers must be provided to separate the course from spectators. Spectators must not be allowed near the course. Specified spectator areas should be designated with signs, barriers, or at minimum marking tape. There must be enough personnel/security provided for crowd control.

Road Course layouts should be designed to offer a variety of turns and straights unique to the location. Courses from 1/4 to 2 mile lengths are used.

Courses should alternate from clockwise to counterclockwise from event to event, to reduce tire wear, vehicle stress and offer variety. However some race tracks are specifically designed for vehicles to travel only in one direction. Do not run in a reverse direction if it compromises safety in any way.

Courses should be of adequate width and length to safely accommodate all competitors and allow safe opportunities to pass and maneuver. If a course cannot handle the number of vehicles present then separate heats should be run with a safe number of vehicles in each heat.

## TIMING AND SCORING

An Electrathon race is one hour in duration, with a maximum of two minutes allowed after that time for each vehicle to complete its final lap. At exactly 60 minutes by the official clock the checkered flag is dropped. Any vehicle that crosses the finish line before that time may continue until they cross the finish line again. If they complete this final lap within the additional two minutes that lap will be counted, if they do not, it will not be counted. Finishing position may be determined by observing the order vehicles cross the finish line on the final lap or recording the time it took to do so.

## ENTRY FEES

Event host organizations may charge entry fees to events. Use of such entry fees are at the discretion of the host organization. It is recommended that prizes, trophies or awards be offered. It is assumed that registration/entry fees will be used to cover event costs, although excess monies should be paid out as prize money in addition to any sponsor provided prize money. A promoter may award trophies, plaques etc. as well. In the case of product prizes, they are to be awarded starting with the first place finisher. However prizes may also be awarded for sportsmanship.

## PRIZE MONEY

### AWARDS

Electrathon America is concerned about the emphasis in this sport shifting from educational to professional. We encourage raising and paying out sponsor and prize money but feel the distribution should be among all the participating vehicles and based upon performance. We do not feel a "winner take all" philosophy is in the best interest of this sport. All prize money or cash awards shall be distributed among all participants on a per lap basis. Non-cash awards, trophies, certificates etc may be distributed as deemed appropriate by the event promoter or sponsor. Payouts should be distributed to the vehicle owners as soon as possible after an event.

### PER LAP PAYOUTS

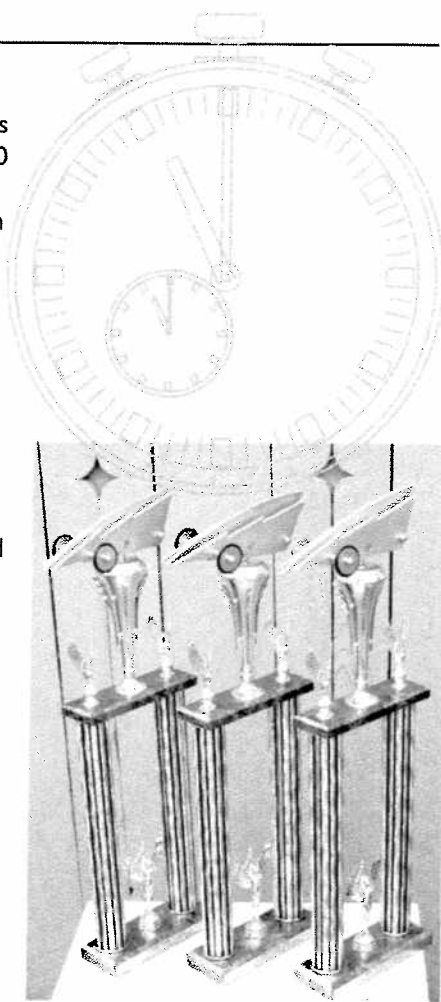
Total prize money (lap money) is the total of the registration fees (minus the share to cover expenses) plus any separate prize money that has been donated to the event. Prize money is based upon laps completed by each vehicle. The total prize money is divided by the sum of all the laps completed by all the vehicles during an event to arrive at a per lap rate. Then each vehicle's lap totals are multiplied by the per lap rate to arrive at a per vehicle pay out.

### PAYOUTS WITH MULTIPLE CLASSES/DIVISIONS

To maintain prize payout equality between the Classes and Divisions it is important that the prize money be divided proportionately. It would be unfair for all participants to pay the same entry fees and have the Open Division take home a majority of the prize money when competing in the same event as High School entries.

When multiple categories are competing the total prize money should be proportionately divided by the number of vehicles competing in each category before the per lap rate is calculated.

This way the first place Open car and the first place High School car receive almost the exact same amount of prize money.



*For example; If there is \$500.00 in prize money and the total laps achieved by ALL of the cars in the event is 1000, then the per lap rate is  $\$500.00 / 1000 \text{ laps} = \$0.50 \text{ per lap}$ . If car # 1 completed 156 laps during the event, then it's owner would be paid \$78.00,  $(156 \times \$0.50)$ .*

*For example; There are 40 vehicles competing, 10 in the Open Division and 30 in the High School Division, and the total prize money is \$1000. The Open Division's portion of the prize money would be  $1/4 (10/40)$  of the total, or \$250. The High School's portion would be  $3/4 (30/40)$ , or \$750. If the 10 Open cars completed 500 laps, then the per lap rate for them would be \$0.50 per lap. If the 30 High School cars completed 1250 laps, then their per lap rate would be \$0.60 per lap.*

## VEHICLE INSPECTION

All competing vehicles must conform to current Electrathon rules.

At the discretion of the event Steward, vehicles with minor non-compliance of performance regulations may be permitted to participate on a one time basis provided that the issue(s) of noncompliance does not compromise safety. Non-compliant vehicles are not eligible for lap money or prizes and are not included in the official results.

All vehicle owners must present their vehicles for inspection prior to the event. It is the vehicle owner's responsibility to allow enough time for inspection and any designated repairs or modifications. Competitors are expected to inform themselves of the current vehicle design rules.

Vehicle drivers must also present themselves for inspection, for clothing, weigh-in, and vehicle exit test.

Battery weight inspection is an important part of Electrathon competition. Since the batteries are what limit the performance of specific vehicles it is important that battery weights be accurately measured. The Event Coordinator shall provide an accurate scale capable of weighing up to 67lbs. This one scale shall be declared the official scale and all batteries must be weighed on this single scale.

It is recommended that the scale be calibrated using a 'weight standard'. Such a standard can be as simple as gallon jugs of water. The amount of water in one of the jugs must be altered to make the total 67lbs. To create the standard, use a state regulated calibrated scale such as those in the meat or deli departments of grocery stores. These scales are checked periodically with extremely accurate equipment by the state to ensure that they weigh accurately.

Inspections will be performed as per the INSPECTION CHECKLIST by the event Steward or an official inspector designated by the Steward.

No disqualification of a vehicle can be the sole decision of an inspector. Disqualifications must be made by a joint decision of the inspector and the Steward. Inspection decisions are the sole responsibility of the Steward.

The Steward may at his/her discretion inspect any vehicle following any competition. Post event inspections may be for checking ballast, battery weight, type, or for safety issues. These are examples of possible inspections and is not a comprehensive list.

## DRIVERS AND TRACK PERSONNEL MEETING

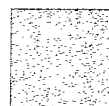
The Event Steward gathers all the Drivers and Track Personnel including the Timer, Spotters, Lap Counters and Course Marshals together and explains the event procedures including:

1. Ensures all drivers have registered and vehicles are inspected.
2. Explains roles of Timer, Spotter, Lap Counter and Course Marshals.
3. Meaning and use of the flags
4. Starting Procedure
5. Special Course Instructions
6. Answers all questions
7. Tells the drivers when to bring their vehicles to the Starting Grid.

## COMPETITION FLAGS



**GREEN**  
(start):  
Competition has begun.



**YELLOW**  
(caution):  
Look for danger (i.e. a car is stopped on the track) Passing another vehicle is prohibited



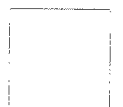
**RED**  
(stop):  
All vehicles stop at the Start/Finish line but remain in order and the clock is stopped until the race resumes. May also be displayed at 62:00 to confirm race is over.



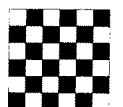
**BLUE w/YELLOW STRIPE**  
(passing):  
You are being overtaken.  
On a road course; drive predictably.  
On an oval or velodrome; move to the innermost portion of the track so you can be passed.



**BLACK:**  
Your vehicle must stop in the pits.  
A furled black flag may be used by the Steward to warn drivers of violations before forcing a full black flag and a pit. This use is limited to small violations not causing safety issues on the track. It would only apply to issues which the driver could correct while on the track, such as poor driving.

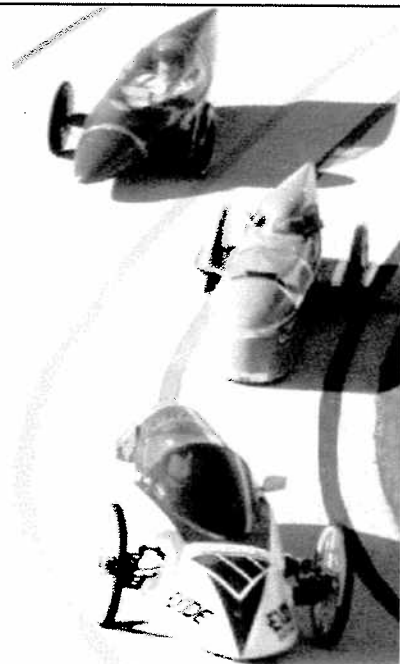


**WHITE:**  
Two minute left in the competition.  
58:00 to 59:59



**CHECKERED:**  
Competition is over.  
Pull off the track after crossing the finish line.  
(60:00 to 62:00)





#### **SPECIAL VELODROME EVENT RULES**

Vehicles should be positioned two abreast at the starting line on 8 foot centers.

All vehicles must pass on the outside (to the right if counter clock wise, to the left if clock wise).

A vehicle that passes on the inside will have one lap deducted from its score for each vehicle it passes illegally. If the pass is under yellow and the vehicle drops back to its correct position before the yellow is lifted, there is no penalty. It is the responsibility of the event Steward to signal vehicles which are not staying to the inside by using the BLUE and YELLOW STRIPED FLAG.

All vehicles must drive on the inside portion of the track. Vehicles may only move to the outside to pass. Upon completing a pass a vehicle must move back to the inside portion of the track. The level lane that exists in most velodromes is not considered part of the racing portion of the track and is used only for entering and exiting the track.

It is recommended that all vehicle owners verify that their vehicles are stable on the velodrome steep banks. Typical angles are 22 degrees to 33 degrees.

#### **STARTING GRID**

The Steward will ensure that all vehicles have sufficient braking power right before starting a competition. A brake push test must be performed on every vehicle once on the starting grid.

Starting positions are determined by one of several methods. The Event Steward decides the method. The method chosen should be announced prior to the event so that teams can be prepared.

- \* Pick at random by drawing numbers from a hat
- \* Place in order based on receipt of entry forms
- \* Place in order based on the completion of Inspection
- \* Place in order based on standing from previous Event or Series total
- \* Place in order based on practice or qualifying speed. While these speeds may have no relationship with finishing order, placing faster cars in front makes for a safer start.

Vehicles should be positioned at the starting line on 8 foot centers minimum. The number of vehicles in each row is determined by the width of the track at the starting line. The Pole position is in the front row on the side of the inside of the first corner. Successive rows line up abreast behind the first.

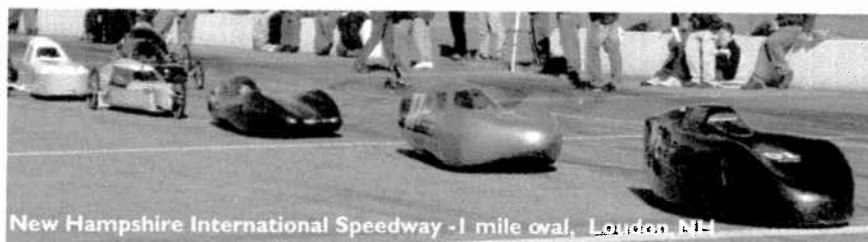
If all competitors cannot be safely or fairly accommodated on the starting grid, the Steward may elect to divide the field of competitors into two or more heats. These heats will be considered the same event and should be awarded and scored together. Dividing the field according to apparent or potential speed rather than class or division will reduce the speed differences on the track and make for safer racing.

#### **VIDEO CAMERA**

A video camera must be placed at the Start/Finish Line and record entire competition. This tape will be used in the event of lap count protest. The Camera should have a wide angle lens and be placed far enough back from the track to afford a good field of vision but close enough to be able to reliably identify all the vehicle numbers. The camera may be elevated above the track for the best viewing angle. Recording must begin before the green flag is dropped and must remain on until 2 minutes after the checkered flag is displayed. Time and date should be displayed continuously if possible.

#### **COMMUNICATION**

Some method of communication between the race steward and all course marshals is required for a race to be sanctioned. If the course is small enough to allow clear visual contact, hand or flag signals will suffice.



New Hampshire International Speedway -1 mile oval, Loudon, NH

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## **RULES OF THE ROAD**

It is completely contrary to the sport of Electrathon for vehicle to vehicle contact to take place during an event. Intentional contact with another vehicle will result in an immediate black flag and disqualification.

Failure to remain aware of the surrounding vehicles as evidenced by repeatedly cutting off, taking a line away from a faster vehicle, or other such negligent behavior, shall result in an immediate black flag and removal of the offending driver. The vehicle may continue with an alternate driver that meets all criteria as a driver for the event.

Vehicles traveling at less than 1/2 their original speed may be removed at the discretion of the race steward if they consider the vehicle to be a safety hazard.

Any vehicle that loses its driver's ballast weights onto the track will be immediately black flagged and disqualified.

## **SPORTSMANSHIP**

All persons associated in any way with an Electrathon America event are expected to conduct themselves in a cordial manner. Confrontations or arguments will not be tolerated and participants are subject to disqualification.

## **PENALTIES AND DISQUALIFICATION**

At the sole discretion of the event Steward, any vehicle or driver or team member may be disqualified from competing at an event. Disqualification may be issued for flagrant violations of sportsmanship, deliberate cheating, or anti-social behavior.

Stewards may disqualify or penalize participants for safety violations, poor sportsmanship, or violations of either the design or event rules. These examples are provided as guidelines to help determine penalties for unspecified infractions.

- \* Lap penalties for small infractions
- \* Heat or Day disqualification for competition violations such as no ballast, cheating, or competing unknowingly without brakes.
- \* Event disqualification, forfeit of lap money or entry fees, for safety violations such as knowingly competing with faulty safety equipment, or multiple or second violations after being warned previously.

## **DISPUTES OR GRIEVANCES**

Any driver believing a fellow competitor has violated the Vehicle Design or Event Rules may file a protest immediately after the event. (see protest form sample). Such protests should limit themselves to issues where a clear illegal advantage was gained that affected the outcome of the event. Protests must be filed with the Event Steward. A protest fee of \$25.00 is required, and will be returned ONLY if the protest is upheld.