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These Rules and/or regulations set forth herein are designed to provide for the orderly conduct of racing event and to establish minimum expectable requirements for such events. These rules shall govern the conditions of all events and by participating in these events, all participants are deemed to have complied with these rules. NO EXPRESS OR IMPLIED WARRANTY FOR SAFETY SHALL RESULT FROM PUBLICATION OF OR COMPLIANCE WITH THESE RULES AND/OR REGULATIONS. They are intended as a guide for the conduct of the sport and are in no way a guarantee against injury or death to a participant, spectator, or official.

The Chief Steward shall be empowered to permit minor deviation from any of the specifications herein or impose any further restrictions that in his opinion do not alter the minimum acceptable requirements. NO NEXPRESSED OR IMPLIED WARRANTY OF SAFETY SHALL RESULT FROM SUCH ALTERATION OF SPECIFICATIONS. Any interpretation or deviation of these rules is left to the discretion of the officials. Their decision is final.

NEW RULE CHANGES FOR 2016 TO BE EFFECTIVE IMMEDIATELY

1. Stock and Open Class vehicles may only be powered by **2** Werker WKA12-55P/FR battery, **2 Duracell DURDC12-55C/FR-F 12volt 55Ah AGM**, **2** Optima 35 (Red Top), **2** Optima D35 (Yellow Top), or **2** Optima SC25A (Red Top). Batteries will be weighted, inspected, and marked before the start of each race. (Rule 2, Section, 8, Art. 1)

NEW RULE CHANGES FOR 2018 TO BE EFFECTIVE IMMEDIATELY

1. There has been a change to the tie breakers. The first tie breaker is that the fastest overall speed in any one race. The second tie breaker is the second fastest overall speed in any one race. (Rule 1, Section, 1, Article 3)

NEW RULE CHANGES FOR 2020 TO BE EFFECTIVE IMMEDIATELY

1. There has been a change for the Stock and Open Class, Eligibility for Participation. This addition has been made for clarification purposes of eligibility for participation. The Stock Class eligibility shall be limited to High Schools, Technical Centers, and Charter Schools organized as 9-12 or 10-12 who are in compliance with NECA event and vehicle regulations. The Open Class eligibility will be open for ANY and ALL cars and teams who meet or exceed Electrathon America Rules or similar, i.e. NECA. But, must use NECA approved batteries, no heating rule applies. (Rule 1, Section 1, Art. 2).

NECA HIGH SCHOOL STOCK CLASS RULES

Rule 1-Organization

Section 1: Format

Art. 1...NECA Events

1. Are multi-car competitions in which cars compete against the clock to see which can cover the greatest distance in a set amount of time. Races may vary from 30 minutes to one hour in length. The length will be announced with the race registration.
2. NECA Events may be ran in an Open Class or Stock Class format. Both classes use the same rules except for the following:
 **Money Spent on the car (Rule 2, Section 1, Art. 1)

Art. 2...Eligibility for Participation in NECA sanctioned events is open to High Schools, Technical Centers, and Charter Schools organized as 9-12 or 10-12 schools who are in compliance with NECA event and vehicle regulations **in the Stock Class event.**

****Open Class cars can be any car or team that meets or exceeds Electrathon America Rules or similar, i.e. NECA Rules, but must use NECA approved batteries, no heating battery rule applies (Rule 1, Section 1, Art. 2)**

Art. 3...A Points System will be used for scoring cars in the NECA Championship Series events. Cars entering these events will be awarded points based on:

1. Number of Cars Defeated: One point will be awarded for each registered car that is defeated.
2. Tie Breakers:
 - Tie Breaker #1: Fastest overall speed in any one race.
 - Tie Breaker #2: Second fastest overall speed in any one race.

****The Team receiving the most points in the series will be the national champion for NECA**

Art. 4...The Length of the competition year shall be from the first day in September to the last day of August of the following year. National and regional NECA points championships will be awarded based on points earned during this period.

Trophies will be given to the 1st - 3rd place finishers in each race and 1st place in both design and sportsmanship. (No points will be awarded)

Section 2: Course Requirements

Art. 1...Race Courses must be of adequate size to accommodate all cars into the race. Adequate size shall be interpreted as meaning a course in which the cars entered have sufficient room to pass and/or maneuver over the majority of the course. The Chief Steward may divide the field into as many heats as are required for safe and competitive racing.

Art. 2...Road Course Design may incorporate turns, chicanes and/or other features unique to the course. A road course will normally include at least two right turns and two left turns. Sections of the course may include areas where no passing is allowed for the sake of safety or for course interest. Blue Flag represents move over; on road course slow cars shown a blue flag should go straight through either high or low of chicane (decide at beginning of the race).

Art. 3...The race course length must be at least 660 yards (3/8 mile) from start to finish. The track's length must be certified by the Chief Steward who will determine where the course will be measured. Oval courses will be measured at the inside edge of the racing surface, to be determined by the race sponsors and approved by the Chief Steward. Final judgment will be made by the Chief Steward.

Art. 4...The Course Markings will include visual cues for corners, boundaries and obstacles which are likely to be confusing to the competitor. The cues may be placed on the surface of the course or on the side. The placement of the cues must not affect the safety of the course.

Art. 5...The Race Surface must be paved and free of holes, protrusions, bumps, or other irregularities that may present a hazard to the competitors.

Art. 6...The Direction of Travel may be clockwise or counter-clockwise on any course at the discretion of the Chief Steward. The direction must be announced at the time of registration for the event or the direction will, by default, be counter-clockwise.

Section 3: Starting Grid

Art. 1...All NECA sanctioned events will begin from a standing start. The grid shall be two or three cars wide.

Art. 2...The Seeding of the Cars into the heats and grid positions will be at the Chief Steward's discretion. The seeding criterion will normally be announced in advance of the event. However, either random assignment or evaluative criteria may be used by the Steward to seed heats and/or races as conditions require.

Section 4: Inspection Procedures

Art. 1...All Competing Cars must conform to NECA rules and must be inspected prior to any NECA sanctioned event.

Art. 2...Car Owners, Inspectors, and Builders are expected to read, understand, and follow the current rules relating to design, construction, safety and competition. Following this requirement will make inspection a satisfactory process for inspectors and racers. Tools used by inspectors should include a tape measure, volt meter, and air pressure gauge able to obtain at least 120 PSI. The inspection team must also have a complete understanding of the rules.

Art. 3...It is the Sole Responsibility of the car owners to agent to produce their car at the inspection area of NECA sanctioned events in a timely manner. Owners/agents must follow adequate time for the inspection teams to carefully inspect the car before entering the racecourse. Cars that have not been inspected will not be allowed to race.

Art. 4...Inspection of Competing Cars will be authorized by NECA registered officials following the **NECA inspection checklist filled out by inspection teams.**

Art. 5...Any Equipment which is not envisioned by the rules but which may markedly advance the art of electric car racing by significantly boosting performance, may be eligible for exclusion on the car on the first race date following its first presentation for inspection.

Fair warning to other competitors, a list which will consist of:

1. a description of equipment,
2. the source of its components, or the method of its construction,
3. and the retail value of the equipment must be given. The information will be considered to have been given fair warning if posted on the NECA website in a manner consistent with fairness to other competitors.

Art. 6...Non-Compliant Cars (cars not in compliance with NECA rules) may be allowed to run in NECA sanctioned events only with the permission of the Chief Steward. The Chief Steward must determine that the car is unlikely to interfere with NECA legal cars during the conduct of the race. Interference includes, but isn't limited to: compromise of safety for car, driver, participants or spectators; limiting the full use of the course for competitors; and providing advantage to other cars in the field. No non-compliant car can earn NECA points or establish NECA records

Section 5: Interpretation of Rules

Art. 1...Rule Changes and/or interpretations of rules is accomplished by the Chief Steward in conformance with the goals of NECA. The Chief Steward shall be the race organizer of his/her designee.

Art. 2...In Situations in which the NECA rules are ambiguous, silent or lacking specifics, the Chief Steward will make the final determination for the conduct of the event in conformance with the goals of NECA.

Art. 3...Disqualification Can Occur only by the decision of the Chief Steward and, in addition to other points in the rules, may be issued for violations of sportsmanship, deliberate cheating, anti-social behavior or other actions which violate the spirit of NECA racing. The decision of the Chief Steward is final.

Art. 4...Disputes and Grievances are handled through an appeal. An appeal is limited to a contention clear advantage was gained that affected a final place through illegal means or misapplication of the rules. A driver may file a protest with the Chief Steward within five minutes of the end of an event. The Chief Steward shall render the decision after reviewing the appeal. Only if an appeals panel has been appointed can the decision of the Chief Steward be appealed. When used, the decision of the appeals panel is final.

Art. 5...A High Level of Sportsmanship is expected of all competitors. Unsportsmanlike conduct is behavior which is unethical and dishonorable. It includes, but is not limited to: taunting an opponent, use of trash talk, arguing, disrespectful addressing an official, use of profanity, willful failure to follow the directions of an official, or other action which could bring discredit to the individual or to his/her school. Unsportsmanlike conduct by a driver, team member or adult supervisor will result in disqualification. All persons associated in any way with a NECA event are expected to conduct themselves in a proper manner.

Rule 2: Specifications

Section 1: General Specifications

Art. 1...The Retail Value of NECA Stock Class vehicles may not exceed \$3,500.00 for the competition year. This value excludes batteries, driver clothing, seat belt, and helmet. The intent of this rule is to cap the costs of competition in the High School Stock class. All schools competing in this class must work within the spirit of this rule. Therefore:

1. Each team must make available to all other competitors and judges a retail price list of all parts of each vehicle. The total retail cost of all parts may not exceed U.S. \$3,500.00
2. Each team must make available to all other competitors and judges a list of suppliers or vendors of each vehicle part used along with telephone and/or address of the retailer.
3. Sale priced, discounted, quantity discounted, donated or "deal" parts, used, re-manufactured, rebuilt, or recycled parts, "junk" parts, or old parts from previous vehicles shall be fairly appraised as to their retail price at the time of acquisition and listed as an estimate on the retail price list. Postage or freight charges, taxes, shipping and handling charges, and/or price increases following purchase shall not be included in the retail price.
4. As a matter of encouraging participants to build, fashion and/or fabricate their own parts, each available part constructed entirely by the team shall be listed at the retail cost of materials only. Professionals or technicians who assist the team in a teaching or supervisory role during the construction shall be considered as "members of the team." The determination by sponsors as to when this rule applies must be based upon the spirit of this rule. The intent is to avoid undue advantage for any team while encouraging the wildest participation from students.
5. The cost of safety belts, the seat, and the brakes shall not be included in the computation of the retail value of the vehicle.

6. OPEN CLASS NECA VEHICLES MAY USE UNLIMITED DOLLARS

Art. 2...(Wheel Count) NECA sanctioned vehicles must have at least three wheels and not more than four, one or more of which may drive the vehicle, and all of which must be load bearing and designed to remain in contact with the racing surface at all times, even under hard cornering conditions. There is no limitation to the number of driven wheels or axles.

Art. 3...The Turning Circle of the vehicle must be less than 15.5 meters curb to curb.

Art. 4...The Axle(s) and spindles must be a minimum of one-half inch (12mm) in diameter if unsupported at both ends.

---**Section 2: The Body**

Art. 1...All Vehicles Must Have a Body Shell. The shell must prevent any part of the driver's body from contact with any other vehicle or stationary object.

Art. 2...Sharp Edges, Corners, or Protrusions that could cause injury must be avoided in the design and finished construction of the body. Fins, spoilers, air-dams, and other aerodynamic devices must be deburred and filed or coated with tape or other material which will dull the edge.

Art. 3...Officially Assigned Vehicle Numbers at least 15 centimeters in height must be on both sides of the car. The number must be in a contrasting color to that of the vehicle so that it may be easily read from a distance for scoring purposes.

Section 3: Dimensions

Art. 1...All NECA sanctioned vehicles must meet the following dimensions:

1. Minimum track width (front or rear) is 90cm (rule change to comply with Electrathon America)
2. Maximum vehicle width is 1.5 meters
3. Maximum vehicle length is 4 meters
4. Minimum ground clearance is 1.5 inches or 3.81cm

Art. 2...The Vehicle Must Weigh a minimum of 100 pounds without a driver, driver clothing, driver ballast, radio, and batteries.

Section 4: Tires and Wheels

Art. 1...All NECA sanctioned racing events must be run on inflatable tires. The mounted tire must have a minimum diameter of 30cm and a maximum diameter of 70cm. Tread design is optional and may be slick or smooth. The tires selected may be of any design suitable for use under the loads and conditions of NECA racing. Cars not meeting this standard will not be allowed on the racing surface.

Art. 2...The Inflation Pressure may not exceed the recommended inflation pressure placed on the tire by the manufacturer by more than 10% cold when the tire has no DOT label. Tires with DOT markings may exceed the recommended inflation by 15%.

Art. 3...Safety Wire or cotter pins must be used on the wheel nuts of each attachment. Axle ends must be tapped on to permit the use of this equipment.

Art. 4...Wheels May be of any design suitable for the use under the loads and conditions of NECA racing. Wheels designed for use on bicycles with fewer than 48 spokes are not recommended.

---**Section 5: Brakes**

Art. 1...All NECA sanctioned vehicles must be constructed so that at least two wheels are braked.

Individual brakes may be installed on:

1. Both wheels of the common axle must be capable of being simultaneously activated by a single foot and/or hand device.
2. The center of an axle with a single disc brake

Art. 2...The Installed Brakes Must Be Capable of locking the wheels when the brakes are set full on and the vehicle is pushed. Cars not meeting this standard will not be allowed on the racing surface.

Section 6: Electrical System

Art. 1...All NECA sanctioned vehicles must be equipped with two isolation switches or one switch with two actuators which will cut all power to the vehicle and accessories. One switch or actuator will be mounted inside the vehicle which the driver can easily reach. This switch may be a circuit breaker. A second switch or actuator will be mounted on the outside easily accessible by race officials. The switches or actuators (internal and external) must be marked so that anyone could easily determine how to turn them to the OFF position.

Art. 2...The Wiring System must be well insulated and of sufficient capacity to handle the current loads anticipated. Wiring must be securely attached to the body or frame. Terminals must be mounted so that they will not short circuit or come loose from their mounting during competition.

Art. 3...All NECA sanctioned vehicles must be equipped with a fuse or circuit breaker between the battery and motor. The fuse or breaker must be mounted in such a way as to avoid the accidental ignition of battery gases.

Art. 4...The Batteries must be securely mounted. Battery boxes and restraints must be mounted to the frame of the vehicle.

Section 7: Motor

Art. 1...All NECA sanctioned vehicles must be powered only by electrical motor(s). Any type of electrical motor may be used.

Art. 2...The Driver Must Control the motor, whether by manual or semi-automatic means. The motor must shut off immediately and automatically whenever the driver releases the motor controller.

Section 8: Battery

Art. 1...All NECA Stock or Open Class batteries

1. Stock and Open Class vehicles may only be powered by **2** Werker WKA12-55P/FR battery, **2** Duracell DURDC12-55C/FR-F 12volt 55Ah AGM, **2** Optima 35 (Red Top), **2** Optima D35 (Yellow Top), or **2** Optima SC25A (Red Top). Batteries will be weighted, inspected, and marked before the start of each race. (Rule 2, Section, 8, Art. 1)

- No heating, alterations, or modifications to the battery are permitted, including modifications performed by the manufacturer or supplier.
- Any batteries approved by OPPD, Electrathon America, or Iowa Electrathon are also legal for open class only.

Art. 2...The Battery Temperature: All batteries must not exceed the temperature created by charging to manufacturer's settings, to be measured on the case exterior at the start and end of competition. The battery may not be heated by any device or means prior to competition.

Rule 3: Driver

Section 1: General Qualifications

Art. 1...All Driver's of NECA sanctioned vehicles must have their driver's license or segment one permit. Drivers under the age of eighteen must have a reliability release signed on their behalf by parent or guardian. Drivers 18 and older must also execute a release but may sign their own release.

Art. 2...The Driver must weigh a minimum of 160 pounds. The required weight includes race clothing and helmet. Drivers not meeting this minimum weight will require ballast to achieve standard.

Section 2: Driver's Ballast

Art. 1...Ballast May Not Be Performance Related or performance enhancing equipment or material. (Note: Computers or communication equipment, while otherwise acceptable, is specifically prohibited from acting as driver ballast.)

Art. 2...Ballast Must:

1. Be capable of being removed from the vehicle for weigh-in.
2. Be capable of being securely fixed in place in the vehicle.
3. Be a non-liquid
4. Be contained without loss during the race.

Art. 3...Ballast May Consist Of metal shots or ingots, driver weights, or other material. Each driver is responsible to provide the correct amount of ballast, which should be adjustable to accommodate variations in driver weight or scale limitations. Loss of ballast during competition will disqualify the vehicle.

Section 3: Driver position and exit

Art. 1...All Drivers in NECA Sanctioned Vehicles must be seated and facing the front of the vehicle. Legs must be forward. Kneeling, prone, or transverse positions are prohibited.

Art. 2...The Driver Must be able to exit the vehicle unaided. All body and/or canopy fasteners and safety belt latches must be accessible to the driver to permit this action. Cars not meeting this standard will not be allowed on the racing surface.

Rule 4: Safety

Section 1: Clothing

Art. 1...It is Recommended that drivers wear driver's suits of fire resistant material that effectively covers the body from the neck to the ankles and wrists. If such clothing is unavailable, the driver must, as a minimum, be dressed in long sleeved upper body garment and full-legged lower body garment. The upper and lower parts must meet and overlap. Gloves are optional but recommended. Shoes are required.

Section 2: Belts

Art. 1...All NECA Sanctioned Vehicles Must be equipped with at least five point racing harness with anti-submarine (crotch) strap. Belts must be minimum 3 inches in width and in good condition. Drivers must use them at all times.

Art. 2...The Lap Belt Attachments Must be mounted to a structural point minimum three inches below the safety catch. This structural mounting point must be the frame of the car or reinforced to the frame.

Art. 3...The Shoulder Belt Attachments Must be mounted to a structural point behind the seat and at least three inches below the driver's shoulders. This structural point must be the frame or roll bar or be reinforced to the frame or roll bar.

Art. 4...The Safety Harness Must be mounted securely to the vehicle so that the entire car and driver can be lifted from the ground by means of the belts alone.

Section 3: Roll Bar

Art. 1...All NECA Sanctioned Vehicles Must be equipped with a roll bar capable of lifting the entire car and driver.

Art. 2...The Roll Bar Must Be Attached to the frame and mounted in such a manner as to prevent collapsing or breakage. The bar must not be less than two inches above the driver's helmet when seated in race position. The roll bar must be braced either forward or rearward to the frame of the vehicle. The upper attachment point to the roll bar must be no greater than 30 centimeters below the top of the roll bar.

Section 4: Helmet

Art. 1...In All NECA Sanctioned Events the driver must be equipped with a helmet which meets 1985 or more recent Snell specifications.

Section 5: Miscellaneous Safety Features

Art. 1...In All NECA Sanctioned Events it is highly recommended that:

1. Drivers use a safety neck brace (horse collar).
2. Drivers use a full face helmet.
3. The Driver's seat be a racing-quality molded fiberglass or aluminum construction.

Art. 2...In All NECA Sanctioned Events it is REQUIRED that:

1. All gears, chains, drive belts, and sprockets be protected with guards.
2. Drivers are protected from all moving parts.
3. Driver's mirrors are place on both sides of the vehicle in such a manner as to provide clear view to the rear from the driving position. A rear view video camera may be used in place of mirrors to provide the same clear view to the rear from the driving position. Due to the camera being a safety device, it will not count towards the value of the car and can be run off a different power source because it does not enhance the performance of the car.
4. Bars and structural supports within the reach of the driver be padded for protection.
5. The driver wears goggles, safety glasses, or full face shield.
6. The driver seat attach to a sub-structure connecting to the roll cage and/or primary frame members

Section 6: Official Flag Rules

1. Green—The Race Has Begun
2. Yellow—Caution, Do Not Pass
3. Blue—Move Over
4. Red—Danger, All Vehicles Stop
5. Black—Pull Into Pits For Consultation
6. White—One Minute Left In The Race
7. Checkered—Race Has Ended, No More Laps Will Be Counted