Membership Handbook

ROAR

RULES 1997

RULES ADDITIONS AND CORRECTIONS

Page 3 - Add; Rule 29a: Off-road cars with exposed gears must be equipped with gear covers.

Page 4 - Rule 1-48, Add: Two alternate frequencies are required at Level 3 and 4 events.

Page 8 - Rule 2-46, Add; Any out of region drivers can enter these events provided they are not competing for a Regional Championship, and will be excluded from the A main(s).

Page 10 - Rule 2-85, Add; at level 3 and 4 events.

Page 10 - Add; Rule 2-85a: Loss of a wheel disk: A ten second penalty in a qualifier or main.

Page 13 - Rule 3-27, Add to end of first sentence; are allowed on on-road cars.

Page 13 - Add; Rule 3-27a: Off-road wings may be mounted using wire or fastened directly to the chassis. There is no minimum clearence for off-road wings.

Page 14 - Rule 4-8, Change first sentence to read: Stick on wheel disks are not allowed.

Page 14 - Add; Rule 5-3a: The race lengths specified for each class are mandatory for Level 3 and 4 races. At lower level races, race length is optional, but must be announced in advance.

Page 17 - Rule 6-7, Add: Turbo style plugs are allowed in .21 engines.

Page 17 - Rule 6-17, Change two speed to read multiple speed.

Page 18 - Add; Rule 6-22a: Smoking prohibited within 50 feet of areas where fuel is present.

Page 18 - Rule 6-27, Add a note: Crankshaft bore may not exceed 7mm in diameter at any point in the bore from rear face of the counterweight to rear of intake port. Bore shall end at rear face of the counterweight in an unbroken chamfer nott o exceed .5mm in width.

Page 19 - Rule 6-28: Delete: Paragraph 2.

Page 24 - Maximum wheel diameter should be 2.42".

Page 26 - Maximum wheel diameter should be 2.42".

Page 34 - Miminum wheel diameter should be 1.85".
Minimum wheel width should be .94".
Maximum wheel width should be 1.19".
Minimum tire width should be .94".
Maximum tire width should be 1.26".
Bodies must resemble cars currently running in an International Touring Car Series.
Wings must be fastened to the rear deck only.

Page 36 - Minimum wheel base should be 9.00".

Page 37 - Minimum wheel base should be 11.00".
Transmission should read 1, 2, or 3 speed only.

Page 40 - Maximum wing chord should be 1.60".
Maximum wing and side dam length should be 1.60".
Maximum wing and side dam height should be .80".
Maximum wing height from the ground is 4.50" (added).

Page 43 - Minimum height for stock cars on carpet ovals should be 4.25".

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GENERAL

OFF-ROAD

ON-ROAD

OVAL

The purpose of these rules is to establish a consistent basis for racing radio controlled cars at ROAR sanctioned events; to provide for orderly conduct of these events; to establish minimum requirements for these events; and to ensure that the rules are applied fairly and equitably at all sanctioned events.

These rules will govern the conditions at all ROAR sanctioned events. By participation in, or by making application to participate in these events, or by making application to have products approved for these events, ROAR members, participants, manufacturers, and race promoters are deemed to have agreed to comply with these rules.

ROAR may act at any time during the preparation for a sanctioned event, during the event, or after the event, to change anything that ROAR believes will be in the best interest of the sport and corporation. This includes denying or removing an event from the sanctioned category.

Specifications and standards contained in this rule book are intended for use as a guide with respect to safety, and for no other purpose, either expressed or implied. Their use by any association, organization, manufacturer, or individual is entirely voluntary, and ROAR will accept no responsibility for consequences resulting from their application.

No implied or expressed warranty of safety shall result from publication of, or compliance with these rules. They are intended as a guideline for the conduct of the sport, and are in no way a guarantee against injury of any sort to participants, spectators, or others.

ROAR—its members, officers, directors, and staff—assumes no responsibility, legal or otherwise, for failure or malfunction of any product or equipment used at a ROAR sanctioned event or built according to these rules.

A ROAR sanctioned event is a sporting event. For any decision, ROAR will always consider the sporting interest before anyone's financial interest, including the organizer's interest.

ROAR is not liable for the actions or decisions made by individuals, promoters, or organizations using ROAR rules.

ROAR rules are the sole property of ROAR. Use of these or previous rules by any other organization or individual without the consent of ROAR is forbidden.

These rules supersede all previous editions of ROAR rules.

ROAR is the only body entitled to make official the results of a ROAR sanctioned event.

GENERAL RULES

1-1: Any separation of rules into categories is strictly for the convenience of ROAR.

1-2: Any rule listing an Official indicates the lowest authority level given by ROAR to take action on the rule. This does not limit or restrict a higher ROAR Official from imposing a similar, overriding, or more immediate action.

1-3: In addition to the rules and technical specifications mentioned herein, ROAR issues and maintains specific procedures for adherence by promoters, track owners, manufacturers, and affiliated clubs at ROAR sanctioned events, and procedures governing products submitted to ROAR for approval.

1-4: It is the responsibility of members, track owners, and race sponsors to meet all rules and specifications contained herein, and any published by ROAR in Rev-Up, a newsletter, or issued in letter form.

1-5: Special rulings or changes in technical specifications will not take effect until such rulings or changes are issued by ROAR in Rev-Up, a newsletter, or a letter. These rulings will be considered as official amendments to this list of rules and specifications.

1-6: Special rulings may be made by ROAR, to amend, suspend, or modify existing rules to account for conditions due to the location of the event, the condition of the course, weather conditions, or other circumstance requiring such a ruling.

1-7: ROAR assumes no responsibility for delays, postponements or cancellations of all or part of an event because of inclement weather, equipment failure, or other valid reasons.

1-8: Failure by a driver to comply with these rules may result in penalty or disqualification by the Race Director or ROAR Official.

1-9: No driver, pit crew member, or sponsor will have any claim for damages, expenses, lawsuits, or otherwise against a promoter, track operator, or ROAR, its officials, agents, or employees, arising from damage to any car, personal injury, or monetary loss of any kind whatsoever. Drivers, pit crew members, and sponsors waive any claim they may have against a promoter, track operator, or ROAR, when they participate in any racing activity conducted under these rules.

1-10: Only the Executive Committee can issue sanctions for a ROAR National Championship. The term "ROAR National" cannot be used in conjunction with any event that has not been so sanctioned by the Executive Committee.

1-11: ROAR sanctioned races are defined as follows: Level 1–local track races; Level 2–State Championships and other regional races; Level 3–Regional Championships and other major races; and Level 4–National Championships. Member tracks are eligible to run any of these races. It is recommended that a track run a Level 2 event before a Level 3, and a Level 3 event before a Level 4.

OFFICIALS

1-12: Officials generally required to conduct an event are: (1) Race Director; (2) Scorer; (3) Frequency Director; (4) Registrar; (5) Technical Director; (6) Track Steward; and (7) Pit Steward. In many cases one individual may perform multiple duties.

1-13: The Race Director will have the authority to penalize or disqualify any driver for the violation of these rules, including any of the special rulings and supplemental rules described in 1-5 and 1-6.

1-14: The designated ROAR Official will have overall responsibility for the conduct of an event run under these rules.

1-15: Race personnel will be directly responsible to the designated ROAR Official. Any finding, penalty, or disqualification assessed by the highest ranking ROAR Official at the event is final.

1-16: For procedural rulings and policies at an event, the chain of command and authority, from lowest to highest, is: (1) Race Official; (2) Race Director; (3) ROAR Official; (4) ROAR Competition Administrator; (5) ROAR Executive Committee.

1-17: For technical rulings and policies at an event, the chain of command and authority, from lowest to highest, is: (1) Race Official; (2) Race Director; (3) ROAR Official; (4) ROAR Technical Administrator; (5) ROAR Executive Committee.

SAFETY

1-18: The safety of spectators is of prime importance and must be considered when laying out tracks and spectator areas. A positive means of stopping a car must be provided between the track area and any area accessible to spectators, drivers, officials, or pit crews. The main consideration for selecting this barrier will be the protection of the individual and not protection of the cars. Barriers will be supported in such a manner that sharp contact will not cause them to fall over or become ineffective, thus allowing cars to pass through an opening. All barriers must be in good condition, not deteriorated by weather or other causes. No device may be used on a high speed portion of the track or at the end of a high speed straight-away which may cause a car to be launched upward if struck. Plow discs will only be used at low speed turns and not at the end of high speed straight-aways. Permanent features of the race site, such as curbs or grassy areas, may be utilized. In addition, spectator control will be established at least four feet, or more if required, outside the barriers. Minimum barrier specifications are listed in scale rules.

1-19: The safety of officials, drivers, and pit crews is of equal importance, but it is assumed that they are more aware of any potential danger. Barriers similar to those in the specific scale rules will be provided between the racing surface and the areas used for the pits and drivers' stand. Sufficient barriers will also be provided for those officials who must occupy relatively fixed positions near the racing surface.

1-20: Everyone, to include spectators, in the racing area and pits will wear closed-toe shoes while at the race site. Anyone behind the spectator control barrier is not included in this requirement, provided there is a positive means of preventing entry to the racing area.

1-21: Disabled cars will be taken off the track. No repair work will be allowed on the track or the infield while a race is taking place.

1-22: A driver may not operate a car while outside the designated driving area or drivers' stand.

1-23: The Race Director must ensure that all drivers, pit crew members, and spectators are in a safe position while the cars are on the track.

1-24: Prior to operating a car, all drivers must sign in and give officials the radio frequencies that will be used. Any change in these frequencies must be approved by race officials.

1-25: A driver practicing or working on a car in the pits with his radio on must have the appropriate frequency clip attached to the radio antenna or have approval from a race official.

1-26: Drivers must turn their radios on before turning their car on or starting their engine. Drivers must also turn their car off or stop their engine before turning their radios off. All fuel-powered cars on the track or in the pits must be controlled by a working radio, be on a test stand, or be in the hot pit area.

1-27: Race Officials may inspect the steering system, or any other component of a car, at any time if a safety hazard is suspected.

1-28: Racing activities vary, but they must always provide for the maximum safety of all individuals including spectators, drivers, pit crew members, and officials.

1-29: In addition to the barriers mentioned below and in the class specifications, the following should be used to protect any spectator areas: On high speed oval tracks, the outside wall should be at least 36" high; the bottom 12" should be at least 3/4" plywood; and the upper portion should be Lexan or wire fence, but plywood may be used. On high speed road courses, it is recommended that spectator areas be protected by a catch fence. This should be wire fence or construction netting at least 36" high, placed 5' from the outer retaining wall.

TRACK SPECIFICATIONS

1-30: Portable barriers should be linked in such a manner that they present a surface toward the track which will not damage a car if it makes contact in a grazing manner while proceeding around the track. Overlapping of barriers is always away from the direction of travel.

1-31: A positive means of stopping a car must be provided as specified in the safety rules and the scale specifications.

1-32: Supplemental barriers sufficient to stop a car will be placed in any area where swinging wide or loss of control could result in a car going beyond the outer retaining wall. Such barriers should be no closer than 18" to any portion of the racing surface.

1-33: The outer limits of the track must have barriers that will prevent cars from leaving the racing surface under normal racing conditions. These barriers must be readily distinguishable to the drivers. Lanes will be sufficiently separated by either natural or artificial barriers to prevent cars from crossing into oncoming traffic.

1-34: Corner cutting may be discouraged by placing tapered boards, highway dots, or similar deterrents approximately 6" inside the inner-boundary turn markings. Such devices will not be higher than 2" and will be tapered to allow cars to ride over them. They should be firmly secured to prevent movement onto the racing surface.

1-35: A working pit area will be provided outside the main racing surface, where repairs may be made. It must be separated from the race track by a retaining wall or a barrier as noted in the scale specifications. A hot pit area, where fuel engines can be started and tested, should be provided outside of the working pit area, and separated by a retaining wall or a barrier.

1-36: A drivers' area will be provided that gives all drivers essentially an equal view of the track during practice and competition. Two and one-half feet of space per driver is the recommended minimum. Elevated drivers' stands are recommended provided they are constructed in such a manner as to afford safety to each driver. Flooring material will be secured and capable of holding all drivers. A railing or other safety device is recommended for any stand over 18" above the ground. If stairways are required, they will be constructed along with the drivers stand to meet all local safety codes. An area for handicapped drivers should be provided.

SURFACES

1-37: Water hazards of any type are strictly prohibited.

1-38: On-road track surfaces will be asphalt, carpet, or finished concrete with smooth expansion joints. Race direction will be clockwise for road courses and counter-clockwise for oval tracks. A change in race direction is permitted if notification is included in the race flyer.

1-39: Off-road courses may be kept damp or left dry, but should not have a loose texture. Race direction is optional, but clockwise is recommended. Dirt oval courses should be hard packed, whether damp or dry. Race direction will be counter-clockwise.

DRIVERS

1-40: Only ROAR members in good standing can participate in ROAR sanctioned races. Every driver entering a ROAR sanctioned event must present proof of current ROAR membership. Drivers should not be allowed to practice until they have entered an event.

1-41: The Race Director has the right to refuse any entry application for valid reason. ROAR approval of such refusals is recommended.

1-42: All drivers must attend the drivers' meeting. Racing rules and procedures will be covered during this meeting

1-43: A driver will not permit another driver to compete for him in a race, and no non-driver will be allowed to operate a car on the track during an event.

1-44: No person under suspension by the Executive Committee will be permitted to participate or be allowed to enter the working pits or race area.

1-45: A driver is responsible for the actions and conduct of his pit crew.

1-46: The impound and scoring areas are off limits to all drivers.

RADIO EQUIPMENT

1-47: All radio equipment must conform to FCC rules. A Radio Shack Frequency Counter (Part # 22-305) or similar device is recommended for testing for legal frequencies.

1-48: A driver must use his assigned frequency. A frequency change must be approved by the Race Director. The use of reversed crystals is prohibited.

1-49: Radios will display the clip appropriate to the frequency in use during practice. Radios must be capable of changing frequencies. Radio batteries are limited to the manufacturer's recommended voltage; this includes auxiliary radio battery packs.

1-50: Radios are limited to the use of two channels, operating two servos, or a combination of one servo and one electronic speed control. More than one function is allowed per device, but a servo is limited to one output shaft. Control is limited to forward, brake, and steering. The use of reverse in competition is not allowed.

1-51: Radios used in ROAR competition are limited to the following channels: 27 MHz–Channels 1 through 6; 75 MHz–Channels 61 through 90, to include odd numbered channels; 50 MHz–Channels 00, 02, 06, and 08; and 53 MHz–Channels 100 through 800.

1-52: Drivers using 50 MHz and 53 MHz radios must have an FCC Amateur Radio license. The use of radios operating on 29 MHz, 40 MHz, or CB channels is prohibited.

RADIO IMPOUND

1-53: Radios will be impounded prior to the start of the first qualifier, and prior to start of racing on subsequent days. It is recommended that radios be disarmed by the driver at the time of impound and when returned after a race by removing the battery pack, module, or crystal. Radios will be released at the end of the day's activities, or when a driver is leaving the race site. If release is prior to the end of the day's activities, the radio must be disarmed.

1-54: The Race Director will provide: (1) protected and secured storage for impounded radios; (2) procedures to ensure that impounded radios are turned off; (3) procedures to ensure an orderly dispersal of radios for racing use; and (4) procedures to ensure that no more than one radio on any one frequency is released from impound in any race.

1-55: If drivers are allowed to impound their own radios, they should be reminded frequently to ensure that their radios are off and disarmed when impounded.

FREQUENCY CONFLICTS

1-56: In cases of frequency conflict, the higher qualified driver will have first choice of frequency. Second highest qualifying driver will have second choice of frequency, etc. For example, driver A is on Red and is qualified for the A-Main. Driver B is also on Red and is also qualified for the A-Main. Driver A is qualified first, and as such, would get first choice of frequency. Driver A can elect to retain Red, in which case driver B would have to change; or he can choose any other legal frequency, which could cause another driver to change. The Race Director may require driver A to retain Red if an unsportsmanlike act is judged to be transpiring.

1-57: If there are seven drivers on 27 MHz in a Main event, the slowest of the seven will have to change to 75 MHz. If he cannot or will not, the Race Director can move him down to a race where there is no conflict, and move the effected drivers up one position. If any of the drivers so effected object to being moved up, the driver who cannot or will not change will be disqualified.

COMPETITION RULES

2-1: Any reference to cars in these rules includes both cars and trucks.

2-2: Any deviation from ROAR rules at a sanctioned event will be subject to written approval of ROAR in advance of the event.

2-3: These rules apply to all classes unless otherwise noted in supplemental rules. Unless the class requirement or safety rules specifically state that a modification or optional equipment is permitted, it will not be allowed. It is ROAR's intent when prescribing specifications for safety equipment for cars that will compete under these rules, to provide adequate protection to all drivers and spectators. ROAR does not intend to restrict the general or specific design of any car or the development of competitive cars, but does want to encourage all drivers to give full attention to safety requirements.

2-4: It is the intention of ROAR to promote family-oriented racing. With this in mind, unruly or unsportsmanlike conduct will not be tolerated. Individuals judged by the Race Director to be in violation will be disqualified and requested to leave the race area.

2-5: All cars must comply with dimensional requirements furnished in the scale specifications and the scale dimension diagrams.

2-6: A suitable, weatherproof first aid kit, composed of individual packaged supplies, must be available at the track, and the number for medical assistance should be posted near all phones.

2-7: At any event where fuel-powered cars are raced or demonstrated, functioning portable UL approved 2-1/2 pound minimum, ABC rated dry chemical or halon fire extinguishers, equipped with capacity gauges, must be in the pits and at trackside. Provisions for the proper disposal of waste fuel must also be in place.

2-8: Batteries must be securely mounted. An auxiliary battery pack, not to exceed 6 volts, to power the car radio receiver may be used.

2-9: No electronic driving aids or traction control devices are permitted.

2-10: No roll-over antennas allowed unless noted in the scale rules.

2-11: No multiple speed transmissions are allowed unless noted in the scale rules.

2-12: Any material used to add to car weight to make it legal must be securely attached to the car chassis. If such ballast falls off the car during a race, and the car is under weight at the post race tech, the car will be disqualified.

2-13: No hazardous front or rear bumpers, nerf bars, chassis extensions, or other objects protruding from the car are allowed.

CLASSES

2-14: For the purpose of establishing specific rules, ROAR competition is divided into various classes as follows: (1) type of drive; (2) type of power; (3) type of track; and (4) type of body.

2-15: Two methods of drive are authorized. These are two wheel drive, with power transmitted to the rear wheels only; and four wheel drive, with power transmitted to all four wheels. Cars that are driven by the front wheels only are classified as four wheel drive.

2-16: Cars may be powered by electric motors or fuel engines. Electric motors are further classified as stock or modified. Fuel engines are classified by cubic inch displacement.

2-17: Tracks are classified by the type of surface and track configuration. Authorized surfaces include carpet, dirt, and pavement. Track configurations include ovals and road courses. Track surface and configuration can be combined in many ways to provide a variety of racing venues.

2-18: A wide variety of bodies are authorized for use in ROAR competition. These are covered in detail in the Body Section.

2-19: A provisional class is one that is being raced at some ROAR tracks, but does not have the interest or participation to warrant National Championship status. Rules are provided for these classes, and they may be run at all levels, unless specifically prohibited.

2-20: Drivers in a novice type class will not be eligible to enter any other class. At Level 3 events, drivers will be limited to two classes if four or less classes are offered, if five or six classes are offered, drivers will be limited to three classes. A maximum of six classes is allowed at Level 3 and 4 events.

2-21: ROAR reserves the right to specify what classes of drive, power, and body style can be used on the various track surfaces and configurations.

TECHNICAL INSPECTION

2-22: Each car must satisfactorily pass technical inspection before being allowed to race.

2-23: Technical inspection will be held prior to every race. All rules must be strictly adhered to. No car will be allowed to race until it has been cleared to do so by the Technical Director. Any violation will be corrected before the car is raced.

2-24: The Race Director has the right to subject any car to a mechanical or visual inspection at any time. It is the driver's responsibility to tear down a car for inspection when required to do so.

2-25: The Race Director has the right to limit admittance of personnel to any area in which inspections are being made.

2-26: The Race Director has the right to impound cars at any time during an event.

2-27: The Race Director is responsible for the security of impounded cars.

2-28: During post race inspection, race distortion or damage will be disregarded.

TURN MARSHALING

2-29: Drivers must marshal for their designated race. Another qualified ROAR member may substitute with the approval of the Race Director. The original marshal is responsible for the actions of the substitute.

2-30: At Level 3 and 4 events, cars may not be repaired by the turn marshal.

2-31: A car running on the track has the right-of-way over a car that has gone off the track, turned over, or otherwise had problems. Turn marshals will treat all corrective matters equally.

2-32: When marshaling a car, it should be returned to the point where it left the racing surface.

SCORING

2-33: For Level 2, 3, and 4 events, a computer scoring program capable of sorting information, creating standings from qualifiers, setting up the heats and Mains, and running the races is required. The program must be capable of working with an approved transponder system.

2-34: Transponders must be mounted in a position that will ensure reliable reception by the computer system. The race director can direct the placement of transponders, and can require a change of position in the event of bad reception. If a transponder fails or is lost during a race due to an accident, the Scorer must make an effort to hand count an accurate lap record.

2-35: The timing loop/bridge (finish line) should be located where reliable hits will be obtained, and where it is unlikely that a car can miss being counted. If a car does miss the loop due to a racing accident which is obvious on the race print out or is verified on video tape, the driver will get credit for the lap. No driver involved in a racing accident, who misses being counted, will be required to reenter the racing surface at sharp angle or reverse direction in order to be counted.

2-36: For scoring purposes, all cars should have three identifying numbers in three positions so that the number can be seen from the right, left, and front of the car. Numbers must be black numerals on a white background. Minimum number size is 1" high with .25" stroke. The Race Director has the right to require a change in a car's identifying number or location.

2-37: Race lengths, not including the final lap, will be as specified in the class requirements. The procedure will be the same regardless of the length of the race. For example, at the X minute mark of the race, the end of the race will be announced via PA system, horn, or other audio method. The driver will be credited with the time and lap of the final lap. In cases where two drivers qualify with the same number of laps, the driver with the lower elapsed time is qualified higher.

2-38: A driver's official time will be the total laps completed by his car and the total time elapsed from the starting time, as determined by the method of qualifying, until the car crosses the finish line on the final lap. If the final lap is not completed, the driver will be credited with the number of full laps finished and the time for those laps.

2-39: When IFMAR qualifying is used, each car is running against the clock, and not against the other cars. Cars will be started individually, or rows of two or three if lap times are short. The interval between cars or rows must be such that all cars cross the starting line before the first car crosses for the second time. At the conclusion of the designated race time, drivers will be instructed to continue racing until their name or number is called. Qualifying positions will be determined based on laps and time.

2-40: Qualifying positions for the Main events in each class will be determined using the drivers fastest single qualifying score, in descending order, until the field is completed, unless otherwise specified by ROAR. At Level 4 events, the best three out of four qualifying times will be used as determined by the points system described in the "Nationals Guidelines".

2-41: The winner of each class will be the driver in the A-Main who finishes with the most laps in the least elapsed time, and whose car is found to be legal on post race inspection. The triple A-Main system will be used at Level 4 events, and may be used at lower level races.

2-42: For purposes of qualifying and racing, the driver is scored, and not the car. A driver must race the car teched. Unless supplemented by event rules, a driver or a car may not be changed during qualifying or a Main event.

2-43: No car may be pushed across the finish line. It must cross under its own power. Non-operating cars will be removed from the track.

2-44: The standard format for Level 4 events is four qualifying rounds. At Level 3 events, a minimum of three qualifying rounds is required. A minimum of two qualifying rounds is required at Level 2 events, and is recommended for all other ROAR sanctioned races.

EVENT ELIGIBILITY

2-45: To be eligible to enter a Level 3 or 4 event, a driver may be required to meet qualifying and pre-entry requirements established by the Race Director or ROAR.

2-46: Drivers in Regional Championships must have resided in the Region for a minimum of three months. Exceptions to the residency requirement are permissible if authorized by the effected Region Directors. A member may petition the two Region Directors to allow him to run in an adjoining Regional Championship. Regardless of current regional residency, members are limited to one Regional scale category per year.

2-47: Drivers in National Championships must have resided in the United States or Canada for a minimum of six months. There will be no exceptions to this rule.

NATIONAL CHAMPIONSHIPS

2-48: ROAR will designate the classes and scales which will receive the National Championship designation. Other classes or scales may be offered in support of the event, but will not receive the National Championship designation.

2-49: Only ROAR approved products (motors, batteries, and bodies) will be eligible for use in National Championship events. These products must have been listed in a newsletter or Rev-Up thirty days prior to the event to be eligible for use. If deemed necessary by the Executive Committee, support classes or scales may be excluded from the thirty day requirement.

2-50: All ROAR Nationals will be governed by special guidelines. The Nationals Guidelines must be strictly adhered to. Any deviations from the guidelines must be approved by the ROAR Executive Committee. The Nationals Guidelines are available from the ROAR Administrator, and may be used by any member track wanting to conduct races using the Nationals format. See the Section on Nationals Policies for additional information.

BLACK FLAG

2-51: A black flag will be given to a driver whose driving, car operation, or performance constitutes a hazard to the other cars in the race. This includes unsportsmanlike driving, intentional hitting of other cars, intentional short coursing, intentional corner cutting, intentional blocking when being overtaken, and other such acts.

2-52: A black flag ruling may be used at any time for unsportsmanlike conduct or abusive language to other drivers or race officials.

2-53: A driver who receives three cautions from a referee will be black-flagged.

2-54: Any car that loses its body will be black-flagged.

2-55: Any car that cannot be controlled properly due radio problems, race damage, or missing parts will be black-flagged.

DISQUALIFICATION

2-56: Failure to comply with any of these rules, not limited to items covered in this section, may result in disqualification by the Race Director.

2-57: Disqualification means that the driver will not be allowed to race or continue racing. Any driver who is disqualified will be required to leave the racing facility. There will be no refund of entry fees to a disqualified driver.

2-58: Any of the following actions on the part of a driver or member of his crew will result in mandatory disqualification from the event.

2-59: Failing to complete or sign required registration forms, or having an entry application, registration, or other ROAR form containing a falsified signature.

2-60: Using other than an authorized or assigned frequency.

2-61: Not taking a race car to the inspection area when requested to do so.

2-62: Using an engine or motor that does not comply with the rules .

2-63: Operating a car near the track that could endanger others in the area.

2-64: Drinking intoxicating beverages, use of illegal substances, or showing evidence of being under the influence of an intoxicating beverage or illegal substance in the pits or the race area.

2-65: Taking part in a demonstration in the pits, on the track, or in the surrounding area before, during, or after a race.

2-66: Entering Race Central or event scoring areas without proper authorization.

2-67: Assaulting another individual. This will also result in suspension of ROAR membership for a minimum of 90 days.

2-68: The following offenses by a driver or member of his crew may result in disqualification if deemed appropriate by the Race Director. If not deemed appropriate, the minimum penalty will be no score for the race in question and a one lap penalty in the Main. A second offense of the same type will result in immediate disqualification.

2-69: Subjecting a Race Official to improper language or other demeaning actions.

2-70: Having a transmitter in the race or pit area without permission.

2-71: Allowing another individual to substitute for them in a race.

2-72: Ignoring a black flag.

2-73: Deliberate abusive nerfing, bumping, or blocking.

2-74: Not going through tech inspection prior to racing.

2-75: Infractions must be witnessed by a Race Official and brought to the attention of the driver before a penalty or sanction is assessed. Track infractions will be announced during the race. However, it is the responsibility of the driver to observe track rules even if the infraction is not announced at the exact time it took place.

2-76: A driver disqualified or penalized can protest the decision of the Race Director to the assigned ROAR Official at the event. The decision of the ranking ROAR Official will be final.

PENALTIES

2-77: Failure to comply with any of these rules, not limited to those items covered in this section, may result in a penalty being assessed by the Race Director. The penalties listed here are the maximum allowable, and may not be appropriate for some tracks or events. Penalties for infractions taking place in both qualifiers and Main events are listed.

2-78: Jump starts: A jump start is any movement of a car between the time the Starter announces the start-time and the starting signal. If one or more cars move, a false start will be declared and the cars will be regridded (electric classes only). If the same car moves a second time, it will be moved back the length of the grid from its original starting position. If a jump start is missed by the officials, or occurs during a fuel event, and it can be verified by a video tape, it will result in a ten second penalty in a qualifier, or a one lap penalty in a Main. For IFMAR starts, if a driver starts out of turn, he/she will be assessed a stop and go penalty. If the driver pulls over and allows all the other cars to pass before continuing, no penalty is applicable.

2-79: Corner cutting: A ten second penalty in a qualifier, or a one lap penalty in a Main. If the driver stops in the area of the infraction and allows the car that was immediately behind him when the corner was cut to pass, no penalty is applicable.

2-80: Refueling or repairing a car in the pit lane or on the racing surface: A ten second penalty in a qualifier, and a one lap penalty in a Main.

2-81: Short-coursing: A one lap penalty in a qualifier or a Main for each incident of short-coursing. If the car is returned to the point where the infraction took place, no penalty is applicable.

2-82: Driving in reverse of the traffic: A one lap penalty in a qualifier or a Main.

2-83: Failure to turn marshal: A one lap penalty from the best qualifier or the Main.

2-84: Hitting the throttle while his car is in the hands of a marshal, and improper reentry of a car to the racing surface: A ten second penalty in a qualifier or a Main.

2-85: Repairing a car while marshaling: A ten second penalty on previous qualifier or current Main.

PROTESTS

2-86: During qualifying, protests can only be made by another driver in the same class. In the Main events, protests can only be made by another driver in the same Main. A protest must be in writing and must be accompanied by a $20 fee per item protested, plus the replacement cost for each item protested. Protests must be delivered to the Race Director within fifteen minutes of the posting of results of the protested qualifying round or Main. Protests considered by the Race Director to be frivolous or unsportsmanlike will not be accepted.

2-87: Any engine or motor that is protested may only be torn down for internal inspection at the end of the event. The engine or motor will be marked at the time of protest in such a manner that it can be identified at the end of the event.

2-88: A driver who has a protest lodged against his car is required to make the car available for inspection. Failure to do so will result in disqualification.

2-89: The driver lodging the protest must deliver the written protest and protest fees to the Race Director prior to the initiation of the inspection of the protested car. Those allowed to attend the inspection will be as follows: (1) the protester; (2) the protested driver; (3) the protested driver's mechanic; (4) the Technical Director; (5) the Race Director; and (6) the ROAR Official who will oversee the required inspection. Designated representatives may replace any of the above. The driver or mechanic may be required to dismantle the car under the supervision of the Race Officials. If the protested car is found to comply with the sections of the rules for which it was protested, the protest fees will be given to the protested driver. If the protested car is found not to comply with the sections of the rules for which it was protested, the protest fees will be returned to the protesting driver, and the protested driver disqualified.

AWARDS

2-90: Awards for Level 2, 3, and 4 events should be plaques or trophies appropriate to the event being conducted. Awards at Level 1 events are at the discretion of the Race Director, and are not required when points are awarded leading to end of series or season awards. If awards are given at this level, ribbons, small plaques, or small trophies are recommended.

2-91: At Level 2 and 3 events, it is recommended that a minimum of 15% of the entry fees be spent on awards. At Level 4 events, the 15% minimum is a requirement.

2-92: No cash prizes or contingency money are allowed at ROAR sanctioned events. Any ROAR driver participating in such an event will have his membership revoked. Any ROAR club conducting such an event will have its club membership voided, and will be barred from holding a ROAR event for a period of one year.

2-93: Merchandise, whether donated or purchased, may not be given as race awards. The use of merchandise certificates as race awards by a club is permitted, but the cash value cannot exceed the cost of an award appropriate to the event.

BODY RULES

3-1: The following rules pertain to the bodies, bumpers, side dams, spoilers, and wings that can be used in competition.

3-2: Bodies used in ROAR competition must resemble bodies used in full scale racing for the type of event being conducted. The ROAR Executive Committee will specify which body styles may be used in competition, and which styles will qualify for National Championship status. Only ROAR approved bodies may be used in sanctioned events.

3-3: When originally entered in an event, the body must be complete, neatly finished, painted, and trimmed. No clear areas except windshields and windows are allowed. No clear areas or stripes through body colors are permitted. No objectionable or suggestive lettering or decals will be permitted.

3-4: All cars must have a readily removable body. Rubber bands are not allowed. Body and chassis must be securely joined at all times while the car is on the track. If a body becomes separated from the car, the car must be taken off the track and have the body replaced before resuming the race.

3-5: A realistic driver figure consisting of head, shoulders, and arms will be mounted in all open cockpit cars. The cockpit area must be completely covered.

3-6: Spoiler and side dam dimensions include that which is molded into the body.

3-7: All cars must have a clear windshield. A sunshade band at the top is permitted if it is translucent. Except as provided for a specific body style and class, open windshields are not allowed. Side and rear windows must be clear, or open. The side and rear window may be cut out, unless otherwise specified.

3-8: For closed-wheel bodies, no portion of the chassis, wheel, tire, or equipment may extend beyond the body except to the rear. Openings in the body other than those appropriate to full-size car openings such as grill, scoops, air vents, etc., will be kept to a minimum. Openings for necessary mechanical and electrical components, such as an antenna, will have no more than .375" clearance around such components. Specifically servos, receivers, batteries, and servo savers are not allowed to protrude through the original body shell. No sharp, protruding objects are allowed. Wheel cutouts are allowed on the side plane of the body, they may not extend into the horizontal plane of the body. Wheel cutouts may be no more than dimension given in each scale rule. Wheel wells must be cut out if the original car ran that way.

3-9: For cooling purposes, on-road fuel-powered cars may have 1/3 of the windshield cut out. Off-road fuel-powered cars may have 1/2 the windshield cut out.

3-10: Bodies cannot be trimmed higher than the lower body trim line. The rear section of body may be cut out as long as side plane of the body remains intact and includes rear bumpers and quarter panels. It is recommended that some portion of the cut line remain visible to help speed technical inspection. If the body has no cut line, then the fold line is considered the cut line.

3-11: Body components must remain on the car, except for accidental damage during a race.

3-12: Proof of the legality of a questionable body Is the responsibility of the driver.

3-13: The following body types are authorized for use in competition on the type track specified.

OFF-ROAD BODIES

3-14: These include buggy and pickup truck bodies that resemble actual bodies used in full scale off-road and stadium racing. Sedan, larger truck, and van bodies are prohibited.

ON-ROAD BODIES

3-15: These include: GT, GTP, WSC, and Touring Car bodies as raced in Europe and the United States. Formula 1 and Indy Car bodies are permitted, but are a provisional class.

OVAL BODIES

3-16: These include: American-style Modified Stock Cars (includes Outlaw Wedge), Racing Trucks, Sprint Cars, and Stock Cars.

BUMPERS

3-17: Bumpers are not required in all classes, but when used, they must be shock absorbing and non-metallic, with no sharp edges. Graphite bumpers are not permitted.

3-18: Front bumpers will be of at least 1/8" material. Bumpers will not extend forward of the body except on off-road buggies. The bumper may not extend to the side beyond the tires.

3-19: Rear bumpers may be of tubular material at least 3/32" in diameter. They may not extend to the side beyond the tires, and may not extend beyond the rearmost part of the body except on off-road buggies.

SPOILERS

3-20: A spoiler is an aerodynamic device to increase down force and traction when a car is traveling at speed. Except for Formula 1 ,Indy Cars, and Sprint Cars with front and rear wings, it is always located at the upper rear portion of the body.

3-21: Many R/C racing bodies have molded-in-spoilers. In some classes, additional material may be added to increase the height of the spoiler. Where this is permitted, the dimension specified includes the molded in spoiler. Spoilers may not extend beyond the width of the body. When cutting out the rear of a body, the rear of the spoiler may be removed as long as the face of the spoiler is not changed.

3-22: Add-on spoiler material must be securely fasten to the body.

3-23: Spoiler dimensions are described in class drawings.

SIDE DAMS

3-24: The use of side dams is permitted in some classes, as indicated in scale specifications.

3-25: Side dams are normally used as a part of a wing set. The only exception to this rule is the modified stock, which may use one side dam attached to the body. If used, the top must be securely fastened to the opposite side of the body at the front and rear of the dam.

WINGS

3-26: Wings are used to increase downforce and traction in some classes. The dimensions of wings vary depending on the class of racing, and are described in class drawings.

3-27: Only one- and two-element wings are allowed. Wings must be mounted using wire and a secure mounting system, and must be no closer than 1/4" from the body. No part of the wing may be attached to or supported by the body, except for Touring Cars.

3-28: In some classes, wings and spoilers may be used in combination. When so used, separate specifications are provided.

3-29: Wings must be clear for all classes except for off-road cars and trucks and sprint cars.

WHEEL AND TIRE RULES

4-1: All cars used in ROAR competition must have four wheels that support it while in motion. No three-wheeled cars or cars with dual wheels in any position are permitted.

4-2: Any wheel manufactured for R/C car competition may be used as long as it meets the class specifications. Wheels will be secured to the axles by means of lock nuts or quick-release axle ends. Nuts or axles will not protrude more than 1/16" beyond the outer edge of the wheel.

4-3: Any tire manufactured for R/C competition may be used as long as it meets the specifications for the class. Tires must be securely fastened to the wheels.

4-4: Tires will be black except for sidewall lettering. No metal, rigid plastic, or synthetic spikes or sections may be added to the tires. No more than 1/16" of wheel rim may be exposed on the outside of the wheels. Foam tires may have an identifying foam stripe.

4-5: At carpet races, tire cleaners and traction compounds that can coat the track are not allowed. Indoor tracks should take excessive odor, and the health hazards of these products into consideration when allowing traction compounds. Use of these products is at the discretion of the Race Director. If they are going to be banned, it should be noted on entry forms, in race flyers, or in track rules.

4-6: The elements of wheel measurement are as follows: Mounting bead, this dimension is measured at the point where the tire bead meets the wheel; wheel diameter overall, this includes the molded in ridges that keep the tire in place; and wheel width, this is measured at the widest portion of the wheel. Internal locking rings may be used for retaining the tire only. Rings cannot be used to increase wheel size or to stiffen the sidewall.

4-7: Tire width cannot exceed wheel width unless specifically allowed in class specifications.

4-8: Wheel disks are only allowed in off-road venues. Unless other means are authorized by the Race Director, the disks must be secured to the wheel by the axle nut or screws.

ELECTRIC RULES

5-1: The minimum accepted outer barrier for on-road courses, off-road courses, and dirt ovals is 1/2" x 4" plywood on edge with the ends linked together. Barriers such as fire hose or PVC pipe may be used (4" minimum diameter). For carpet and paved oval tracks, the minimum accepted barrier is 1/2" x 12" plywood on edge with the ends linked together (See Rule 1-29 for additional safety information).

5-2: Restarts are permitted if the Race Director believes an unfair advantage has been gained by one or more drivers. See rule 2-78 regarding jump starts.

5-3: Roll-over antennas are allowed on on-road courses. If used, they must terminate with a button or ball having a diameter of at least 5/16". They are not allowed on any oval course.

STARTING

5-4: The purpose of any starting procedure is to give each car a fair start from its assigned grid position. Two methods of starting are authorized for electric racing. These are the full-field start and the IFMAR, or staggered start. All Mains will use a full-field start. Heats may use either method.

5-5: The starting grid should be on the longest straight-away and far enough from the first corner to allow cars to be under full control before reaching it. The grid should be in a staggered pattern with 2 or 3 cars per row, and 2 to 3 feet between cars from front to rear. Stated another way, the grid should be a minimum of 14' and a maximum of 27' deep.

5-6: For full-field starts, all cars should start on the computer tone or other signal given by the Race Director or Starter.

5-7: For IFMAR starts, cars are started at 1 to 3 second intervals by the starter calling car numbers. On tracks with short lap times, cars should be started by rows at 1 second intervals. On tracks with longer lap times, cars may be started from a single line on the track. This line should be far enough from the timing loop to allow cars to reach normal speed.

BATTERIES

5-8: Only sub-C size ni-cad rechargeable batteries rated at 1.2 volts or less will be used for electric car racing. The basic dimensions are, 23mm diameter, 43mm length. Production tolerances will be considered.

5-9: To be approved by ROAR, batteries must be available through hobby distributors and hobby dealers nationwide.

5-10: Batteries must be readily identifiable as to their origin. The original shrink wrap must be in place. Any indication that the shrink wrap has been changed will make the battery illegal. If the cells have an identifying mark on the negative end, that mark must be visible after the battery has been soldered up. If protested, it is up to the driver to prove the legality of his batteries.

5-11: Batteries may not be charged or changed during a standard length race. Batteries may be changed during an Enduro race.

5-12: Batteries must be submitted to ROAR for approval, and must have been listed in a ROAR publication to be legal. The Executive Committee has final approval over battery legality.

5-13: Effective January 1, 1997, 7-cell batteries will not be legal in ROAR competition.

5-14: Drivers are responsible for the proper disposal of batteries that are no longer useable. No batteries will be discarded in ordinary trash containers, or abandoned at race sites. Where required, tracks should provided an approved disposal container.

ELECTRIC MOTORS

5-15: Only industry standard .05 motors may be used. Overall maximum diameter is 36.02mm measured at whatever point yields the maximum dimension. Maximum length is 53mm measured from the mounting face of the motor to the furthest most point of the endbell, not including solder tabs or lead wires. Shaft diameter must be .125". Motor mounting holes must be on 1.00" centers. Only ceramic magnets are permitted, cobalt and rare earth magnets are specifically prohibited. Maximum stack length is 22.6mm. Maximum stack diameter 23.2mm. Only three pole armatures are permitted.

5-16: To be approved for use in ROAR competition, a minimum of 5,000 stock motors, or 2,000 modified motors must have been produced and available for sale in the USA and Canada, and they must have the original manufacturer's logo or name molded into the endbell. All motors must meet ROAR specifications, as verified by an independent laboratory, before they will be approved by the ROAR Executive Committee. Newly approved motor must be published in Rev-Up or a newsletter prior to being legal for use in competition.

5-17: If an approved motor is changed in a substantial way, such as: can color, orientation of the brushes, endbell color or configuration, or date stamp; it must be resubmitted for approval. This includes any internal changes to the armature or commutator.

5-18: All ROAR approved motors are subject to spot checking at any time by Technical Administrator to verify that they are in compliance with ROAR specifications.

5-19: All electric motors are subject to inspection, and may be torn down at the discretion of the Race Director. At Level 3 events, the motors used in the first, second, and third place cars in the A-Main will be inspected. At Level 4 events, all A-Main motors will be inspected. If a motor is torn down and it is legal, it will be replaced. If it is illegal, the driver will be disqualified.

STOCK MOTORS

5-20: Motors submitted for approval for use in the stock classes must have "ROAR XX" permanently stamped into the mounting face of the motor can (XX is the year of initial manufacture). Use of the "ROAR XX" stamp on any motor that will not be submitted for approval is strictly prohibited. Any deliberate violation of this rule will be cause to remove all motors of that manufacturer from the approved list.

5-21: All ROAR stock motors must be bushing type with a fixed endbell, and non adjustable construction. Timing advance is limited to a maximum of 24 degrees measured mechanically. The space between the magnets must be centered on one set of mounting holes which will be marked on one side of the can to indicate zero degrees. The brush hoods will be aligned at 90 degrees from this mark, plus the allowed timing. The commutator slots must be aligned with the center of the individual poles. A two degree tolerance will be allowed on the commutator but not on the overall timing.

5-22: All stock motors will be wound using a "Mabuchi" cross wrap technique, and a process that locks commutator and the armature stacks, so that the timing cannot be changed without disassembling the motor. The legal stock wind is a minimum of 64" of 22 AWG (American Wire Gauge) wire, having a maximum wire diameter (including insulation) of .67mm, resulting in no less than 27 continuous turns of wire on each pole. A production tolerance of one turn on one pole only is allowed. There is no tolerance, however, on the minimum length of wire, nor is there a plus tolerance allowed on the wire diameter.

5-23: No modifications are allowed that require disassembly or internal work on a stock motor. This includes re-balancing, re-forming the can, re-epoxying, adding ball bearings, modification of the brush hood system, removing the endbell, and adding or removal of material or parts.

5-24: Motor brushes and brush springs may be modified or replaced on external brush system motors. Commutators may be lathe trued. This may only be done by removal of the brush hoods. The original brush hoods must be replaced in the original factory position. Any further disassembly or modification of a stock motor is prohibited.

5-25: A stock motor that shows any signs of tampering will be disqualified. At events were stock motors are provided, the driver is responsible for any signs of tampering.

5-26: Approved stock motors must be commercially available through hobby distributors and hobby dealers nationwide for a maximum retail price of $40. This price can be adjusted up or down by the Executive Committee if there is a substantial change in the yen/dollar rate.

MODIFIED MOTORS

5-27: All motor must conform to technical specifications in rules 5-15 to 5-17, and must be approved by an independent laboratory and the ROAR Executive Committee.

5-28: The base motor may be modified by re-winding, epoxying, and balancing; and adding cooling holes, ball bearings, and custom brush systems. The original armature, commutator, magnets, motor can, and endbell must be used, but may be modified. No mixing of parts from different base motors is allowed.

5-29: Approved modified motors must be commercially available through hobby distributors and hobby dealers nationwide for a maximum retail price of $95. This price can be adjusted up or down by the Executive Committee if there is a substantial change in the yen/dollar rate.

FUEL RULES

6-1: The minimum acceptable outer barrier for 1/10 off-road is 1/2" x 4" plywood. For 1/10 on-road and 1/8 off and on-road, the minimum is 3/4" x 8" plywood. The minimum for any scale oval track is 3/4" x 12" plywood (see Rule 1-29 for additional safety information). What ever material is used, the ends must be linked in such a way that no sharp edges or overlaps face the direction of travel.

6-2: Interior lane markers should be 2" x 4" boards, or similar material, on edge, and should be anchored to the race surface. On off-road courses, 4" smooth PVC pipe is acceptable.

6-3: Fuels will contain only methanol, nitromethane, and a lubricant. The following additives are specifically prohibited: hydrazine, hydrogen peroxide, propolene oxide, and toluene.

6-4: Fuel tanks must be securely mounted. Maximum fuel system capacities are 75cc for .12 and .15 engines, and 125cc for .21 engines. For measurement purposes, 1cc is equal to 1ml.

6-5: To check a tank capacity, first completely drain all fuel from the system including fuel and pressure lines. Pinch off the pressure line at the tank, and disconnect the fuel line from the carburetor. Using a graduated cylinder, measure the proper amount of the driver's fuel and pour it into the tank, allowing fuel line and filter to fill. The fuel should fill the tank to the top of the filler neck, or to a point where fuel is forced out when the lid is closed. If it does not, the tank is oversize and must have an insert added to bring it down to legal capacity. The graduated cylinder is read at the bottom of the meniscus (the bottom of the center of the curve when viewed from the side of the cylinder at eye level). The Race Director must insure that all waste fuel is disposed of according to EPA guidelines.

6-6: Any carburetor may be used as long as the bore does not exceed the maximum allowable for the engine size. Restricters may be used to achieve the legal diameter, but must be securely fastened in place.

6-7: Engines must be of single cylinder, two stroke, air cooled, glow plug design. Only one single throat carburetor is permitted. No supercharging or turbocharging is allowed. Only standard glow plugs with 1/4-32 thread, using a .25" gasket, will be allowed.

6-8: Cars must have brakes in working condition capable of stopping and holding them motionless with the engine running. Cars must also have an operational de-clutching device.

6-9: Any type of bearings and any connecting rod may be used.

6-10: Any engine that can be readily increased from .12 to .15 cubic inches by internal changes will not be legal for ROAR competition.

6-11: Exhaust port height is the distance from the top of the piston, at bottom dead center to the highest point of the exhaust port. Shims may be used to adjust exhaust port height.

6-12: All cars are required to use a muffler or tuned pipe through which the exhaust gas must pass. Exhaust discharge must be parallel to the ground or lower. The maximum allowable sound level is 77 decibels, measured at a ninety degree angle to the side of the car from a distance of thirty feet with the car at maximum throttle and at all speeds. A Radio Shack sound meter (Part #33-1028) or equivalent should be used to check the sound level.

6-13: Muffler outlet pipe must be a round, constant diameter tube, with the end cut at 90 degrees to its centerline. Inside diameter must not exceed the specification for the engine size.

6-14: A digital caliper or go/no-go gauges should be used to check engine specifications.

6-15: Any car that loses its muffler will be black-flagged immediately and not scored until repairs are made.

6-16: Variable exhaust timing, porting, or exhaust pipes with moveable parts are not allowed.

6-17: All gearboxes must be on a single shaft. Two-speed transmissions are permitted for on-road racing, but not for off-road racing. Automatic or variable overdrive systems are not allowed.

6-18: Hydraulic systems of any kind are not allowed.

6-19: Antennas must be the flexible type. Roll-over antennas are not permitted in any class.

6-20: In case of servo or linkage failure, cars must incorporate a positive action return spring attached directly to the carburetor throttle arm to provide positive closure.

6-21: A pit lane that has a convenient and safe exit from, and entrance back to the racing surface will be provided. This area is to be used for refueling and repair of cars. There must be a safety wall between the pit lane and the working pits. All refueling and repairs to the cars will be accomplished in the working pits, and not in the pit lane. During qualifying, one pit member per car will be allowed in the working pits. During the Mains, two are allowed.

6-22: Engines, fuel tank capacities, carburetor restricters, and other scale specifications may be checked at any time by the Technical Director.

STARTING

6-23: Vehicles will be called to the track three minutes prior to the start of a race. They will be given 2-1/2 minutes for warm up and practice. Thirty seconds before the start, they will be called to the starting line for refueling, final preparation, and lineup. Five seconds before the start, the starter will signal the car mechanics with five fingers raised as notification that the race is about to start. He will then count downward, showing four fingers, then three fingers. At the three second mark, the flag will be touched to the ground and all car mechanics will place their vehicles on the ground and release them. Within the next three seconds, and after all cars are released, the starter will lift the flag and the race will begin. As an alternate to using a starter, the race may be called over the PA system provided all drivers and car mechanics can easily hear the system.

6-24: For qualifying races, it is recommended that IFMAR starts be used, with the cars starting from the staging area at one to two second intervals. For Main events and full field start qualifiers, a LeMans start is recommended. The cars should be lined up diagonally, about three feet apart, on the longest straight by qualifying time, fastest qualifier at the front. For LeMans starts, car mechanics must be clear of the racing surface to prevent injury and all drivers must have clear visibility of their cars.

6-25: The Race Director will make every effort not to delay the start of a race. Cars will not be allowed on the track before the three minute warm up period. After the three minute period is announced, the start will be as close to three minutes as possible. Races should not be delayed for cars that are not ready, or that stall prior to the start.

ENGINE SPECIFICATIONS

6-26: All engines must be commercially available through hobby distributors and hobby dealers, and have a documented retail price. No custom built engines are allowed.

6-27: Specifications for authorized engines are as follows:

	.12	.15
Maximum displacement	.129ci	.152ci
Maximum carburetor bore	5.5mm	6.0mm
Minimum piston stroke	N/A	14.0mm
Maximum exhaust port height	4.5mm	4.5mm
Maximum crankshaft gas passage	7.0mm	7.0mm
Maximum internal ports	4	4
Maximum muffler outlet pipe bore	5.0mm	5.0mm
Minimum muffler outlet pipe length	15.0mm	15.0mm

6-28: The following restrictions apply to the .21 engine:

1: Maximum displacement of .214ci.

2: Maximum carburetor bore 9mm (on-road only).

3: An IFMAR approved muffler must be used.

6-29: There is one off-road class and two on-road provisional classes recognized by ROAR. These are the 1/8 Fuel Off-road Truck, the Sportsman Class, and the Pan Car Class.

1/8 FUEL OFF-ROAD TRUCK

6-30: See pages 29 and 31 for specifications and dimensions.

SPORTSMAN CLASS

6-31: This is the same as the 1/10 on-road class, with the exception that the carburetor must be fitted with a 4mm restricter.

PAN CAR CLASS

6-32: This is a class for non-suspension cars. Pan cars must meet the following specifications:

1: The rear axle, wheels, and differential must share a common centerline, and this centerline must be located in a fixed and rigid relationship to the engine.

2: Steering blocks must be rigidly located, both horizontally and vertically, in relation to the car chassis.

3: Replacing shock absorbers with solid links does not qualify for this class.

4: No multiple-speed transmissions can be used.

CLAIMING RULE

6-33: Following a Main event, the winner's engine may be claimed by another driver in the same Main. The claiming price will be the retail price of the engine plus ten percent. The claim must be made to the Race Director in writing within 20 minutes of the end of the Main, and must be accompanied by the full claiming price. If more than one driver files a claim, a simple lottery will be used to decide who gets the engine. Aftermarket parts such as heat sinks, motor mounts, and air cleaners are not included in the claim. If the winner will not surrender the engine, he will be disqualified with no option to protest, and the claiming fees will be returned to the claimants.

STANDARDIZATION

6-34: ROAR has established a goal of standardizing engines and their placement in all cars. Items which should be standardized include:

1: Engine mount size, mounting holes, and position.

2: Distance between mounting holes and flywheel.

3: Method of mounting the flywheel and clutch.

4: Length of the flywheel and clutch shaft.

WORLD TEAM RULES

7-1: The International Federation of Model Auto Racing (IFMAR) is the sanctioning body for all World Championships. ROAR is one of the three voting member Blocs of IFMAR. The others are the Europen Federation of Radio Controlled Automobiles (EFRA) and the Far East Model Car Association (FEMCA). The Fourth Association of Model Auto Racing (FAMAR), which includes Mexico, is an associate member without voting rights. ROAR is the only organization in Canada and the United States entitled to send drivers to the World Championships.

7-2: The IFMAR World Championships are held for both electric and fuel cars on off-road and on-road tracks. At present there are five of the events. Individual events are held every other year, and rotate between EFRA, FEMCA, and ROAR.

7-3: Entries are limited to 150 drivers. ROAR is allocated 40 entries for each event, and is eligible to receive additional entries if they are not used by the other blocs. Any entries not used by ROAR are returned to IFMAR for reallocation.

7-4: ROAR has adopted a uniform policy for selecting the members of the ROAR World Championship team. Those eligible for the team include: The A-Main drivers from the previous World Championship and the top finishers (the exact number depends on the number of pre-qualified drivers from the prior World Championship) in that class from the previous year's ROAR Nationals.

7-5: If more than one class is run at a World Championship, as is the case with 2WD and 4WD electric off-road, the team will consist of the A-Main drivers in both classes from the previous World Championship and the top finishers in those classes at the previous year's ROAR Nationals. These positions will be allocated based on the number of entries in the two classes at the ROAR Nationals.

7-6: Since there are normally some drivers who are eligible, but not able to attend the World Championship, a system for selecting alternates has been established. Any driver wanting to be an alternate can send a resume of racing experience to the appropriate IFMAR representative as announced in Rev-Up or a newsletter. Selection of alternates will be based on racing experience, and will take place after the deadline for primary entries has expired.

NATIONALS POLICIES

8-1: The Nationals are ROAR's premier events. As such, they are governed by the rules contained in this book and the instructions contained in the "Nationals Guideiines".

8-2: The importance of these events makes site selection critical to their success. The process begins with the solicitation for bids from member tracks, as advertised in Rev-Up and the newsletter. These bids are distributed to the Executive Committee and the Nationals Committee for review.

8-3: The Executive Committee will meet in late Summer to make the site selections. Selections will be based on the recommendations of the Nationals Committee, the experience of the tracks, and ROAR selection policies.

8-4: To provide the widest possible exposure and opportunity to compete, the location of the individual Nationals will be rotated (as much as possible) from East, to Central, to West each year.

8-5: In selecting Nationals sites, the Executive Committee will make every effort to avoid having the same Nationals, or any other Nationals, at the same location two years in a row and to avoid using the same location on a repetitive basis. If it appears that a Nationals has become more of a regional event, that Nationals will be considered for elimination.

CONCOURS RULES

9-1: These rules establish a consistent basis for judging cars entered in a Concours.

9-2: Concours may be divided into two divisions: Best Appearing and Concours d'Elegance. The Best Appearing category is for original designs and workmanship, not for copies of full-size cars. The Concours d'Elegance category is for scale representation of full-size race cars. The number of categories and awards is at the discretion of the Race Director.

9-3: To qualify for an award, trophy winners must race their cars in a Main or qualifier following the judging. Any item attached to the body, that was used in the determination of a score, must remain on the car. Wings, drivers, and bodies cannot be changed. Motors, tires, rims, and batteries can be changed because they are not scored for points.

9-4: A committee of three judges should be used to determine the winners. A judge may not have a car entered in the Concours. Each judge shall independently score each car. Each category shall be awarded a maximum of ten points. A perfect car would receive ten points in each category. The cars are scored based upon comparative judging from among all the cars entered. Judges should take into consideration the difficulty of hand painted and hand crafted parts versus store bought decals, stickers, tape, or other items. The highest scoring entry will be the winner, the second highest scoring entry will be awarded second place and so on until all the trophies have been awarded.

9-5: Ties should be broken by choosing the car with the highest point total in a category. The order of selection is: (1) Overall Effect; (2) Detail; (3) Paint; and (4) Body Preparation.

CATEGORIES FOR BEST APPEARING

9-6: Overall Effect: Does the package blend together well? Is it visually appealing or gaudy? Does the paint scheme fit the body style?

9-7: Detail: Are decals neatly trimmed? Are decals hand painted? Are decals on straight? Are decals appropriate to the class? Is the driver's cockpit fully detailed? Is the interior painted?

9-8: Paint: Does the paint bleed through in any areas? Are multiple colors used? Is it a simple or complicated paint scheme? Is striping straight?

9-9: Body Preparation: Is it neatly trimmed? Are the edges sanded and radiused? Are the wheel openings centered? Are the modifications made to the body inventive and well done?

CATEGORIES FOR CONCOURS D'ELEGANCE

9-10: These are the same as the Best Appearing rules with the addition of one element.

9-11: Authenticity: Are photographic documents included? How does the entry compare to the document? Does the overall package blend well together? Are there items included, such as wheels, motor, mirrors, antennas, driver, lights, etc., that add to the authenticity?

9-12: Winning cars are not allowed to compete in another ROAR Concours event regardless of event level.

9-13: Suggested Concours scoring sheets are included on the following pages.

REVISION POLICY

10-1: It is ROAR's intention to revise these rules, as needed, on an annual basis. Members, ROAR Officials, Track Operators, and Industry Affiliates are encouraged to send suggested changes to the ROAR Administrator.

CONCOURS SCORE SHEET

Race: ______________________________ Date: ________________
Judge's Name: ________________ Category/Class: ________________

Car # __________ Score (1-10)
Overall Effect __________
Detail __________
Paint __________
Body Preparation __________
Authenticity __________
Total __________

Car # __________ Score (1-10)
Overall Effect __________
Detail __________
Paint __________
Body Preparation __________
Authenticity __________
Total __________

Car # __________ Score (1-10)
Overall Effect __________
Detail __________
Paint __________
Body Preparation __________
Authenticity __________
Total __________

Car # __________ Score (1-10)
Overall Effect __________
Detail __________
Paint __________
Body Preparation __________
Authenticity __________
Total __________

Car # __________ Score (1-10)
Overall Effect __________
Detail __________
Paint __________
Body Preparation __________
Authenticity __________
Total __________

Car # __________ Score (1-10)
Overall Effect __________
Detail __________
Paint __________
Body Preparation __________
Authenticity __________
Total __________

Car # __________ Score (1-10)
Overall Effect __________
Detail __________
Paint __________
Body Preparation __________
Authenticity __________
Total __________

Car # __________ Score (1-10)
Overall Effect __________
Detail __________
Paint __________
Body Preparation __________
Authenticity __________
Total __________

Authenticity is an element in determining the Concours d'Elegance winner, and must be backed up with a photograph of an actual race car. Other categories are judged on the first four elements.

OVERALL CONCOURS SCORE SHEET

Race: ______________________________ Date: ________________

Scorekeeper: ____________________ Category/Class: ________________

Car # ________	Score (1-10)	Car # ________	Score (1-10)
Judge # 1	________	Judge # 1	________
Judge # 2	________	Judge # 2	________
Judge # 3	________	Judge # 3	________
Total	________	Total	________

Car # ________	Score (1-10)	Car # ________	Score (1-10)
Judge # 1	________	Judge # 1	________
Judge # 2	________	Judge # 2	________
Judge # 3	________	Judge # 3	________
Total	________	Total	________

Car # ________	Score (1-10)	Car # ________	Score (1-10)
Judge # 1	________	Judge # 1	________
Judge # 2	________	Judge # 2	________
Judge # 3	________	Judge # 3	________
Total	________	Total	________

Car # ________	Score (1-10)	Car # ________	Score (1-10)
Judge # 1	________	Judge # 1	________
Judge # 2	________	Judge # 2	________
Judge # 3	________	Judge # 3	________
Total	________	Total	________

Car # ________	Score (1-10)	Car # ________	Score (1-10)
Judge # 1	________	Judge # 1	________
Judge # 2	________	Judge # 2	________
Judge # 3	________	Judge # 3	________
Total	________	Total	________

Position	**Car Number**
First	________
Second	________
Third	________

1/10 ELECTRIC OFF-ROAD

Minimum track width - Continuous 8 feet

Maximum length - 18"

Maximum width - 9.875"

Wheel base - Minimum - 9"
Maximum - 11.5"

Minimum weight - 2WD - 52 ounces
4WD - 56 ounces

Wheel diameter - Minimum mounting bead - 1.625"
(See rule 4-6) Maximum mounting bead - 2.2"
Maximum overall - 2.39"

Maximum wheel width - 1.5"

Maximum tire diameter - 3.544"

Maximum tire width - 1.75"

Wheel cut out - NA

Wheel disks - Are allowed

Batteries - 6-cell only

Transmission - 1 speed only

Rear suspension - Independent allowed

Race lengths - Qualifiers - 4 minutes
Main events - 4 minutes

Bodies - Buggy or other off-road style body that resembles an actual off-road racing vehicle

Tires - Rubber only; foam tire inserts are allowed.

1/10 ELECTRIC OFF-ROAD TRUCK

Minimum track width - continuous 8 feet

Maximum length - 18"

Maximum width - 13"

Wheel base - Minimum - 9"
Maximum - 11.5"

Minimum weight - 2WD - 60 ounces
4WD - 64 ounces

Wheel diameter - Minimum mounting bead - 2.175"
(See rule 4-6) Maximum mounting bead - 2.25"
Maximum overall - 2.46"

Maximum wheel width - 2"

Minimum tire width - 2"

Maximum tire width - 2.125"

Minimum tire diameter - 3.6"

Wheel cut out - Use body cut lines

Wheel disks - Are allowed

Batteries - 6-cell only

Transmission - 1 speed only

Rear suspension - Independent allowed

Race lengths - Qualifiers - 4 minutes
Main events - 4 minutes

Bodies - Off-road Truck

Tires - Rubber only; foam tire inserts are allowed.

1/10 FUEL OFF-ROAD

Minimum track width - continuous 8 feet

Maximum length - 18"

Maximum width - 9.875"

Wheel base - Minimum - 9"
Maximum - 11.5"

Minimum weight - 2WD - 56 ounces
4WD - 60 ounces

Wheel diameter - Minimum mounting bead - 1.625"
(See rule 4-6) Maximum mounting bead - 2.2"
Maximum overall - 2.39"

Maximum wheel width - 1.5"

Maximum tire diameter - 3.544"

Maximum tire width - 1.75"

Wheel cut out - NA

Wheel disks - Are allowed

Engine - .12 only

Transmission - 1 speed only

Rear suspension - Independent allowed

Race lengths - Qualifiers - 5 minutes
Main events - 5 to 60 minutes

Bodies - Buggy or other off-road style body that resembles an actual off-road racing vehicle

Tires - Rubber only; foam tire inserts are allowed

1/10 FUEL OFF-ROAD TRUCK

Minimum track width - continuous 8 feet

Maximum length - 18"

Maximum width - 13"

Wheel base - Minimum - 9"
Maximum - 11.5"

Minimum weight - 2WD - 60 ounces
4WD - 64 ounces

Wheel diameter - Minimum mounting bead - 2.175"
(See rule 4-6) Maximum mounting bead - 2.25"
Maximum overall - 2.46"

Maximum wheel width - 2"

Minimum tire width - 2"

Maximum tire width - 2.125"

Minimum tire diameter - 3.6"

Wheel cut out - Use body cut lines

Wheel disks - Are allowed

Engine - .12 only

Transmission - 1 speed only

Rear suspension - independent allowed

Race lengths - Qualifiers - 5 minutes
Main events - 5 to 60 minutes

Bodies - Off-road Truck

Tires - Rubber only; foam tire inserts are allowed

1/8 FUEL OFF-ROAD

Minimum track width - continuous 10 feet

Maximum length - 28.7"

Maximum width - 12.2"

Maximum height - 9.8"

Wheel base - Minimum - 10.8"
Maximum - 13.2"

Minimum weight - 112 ounces

Wheel cut out - NA

Wheel disks - Are allowed

Engine - .21 only

Transmission - 1 speed only

Rear suspension - Independent allowed

Race lengths - Qualifiers - 5 minutes
Main events - 5 to 60 minutes

Bodies - Buggy or other off-road style body that resembles an actual off-road racing vehicle

Notes - Tires and wheels must conform to industry standards.

Maximum height is measured with suspension fully compressed.

1/8 FUEL OFF-ROAD TRUCK

Minimum track width - continuous 10 feet

Maximum length - 28.7"

Maximum width - 12.2"

Maximum height - 9.8"

Wheel base - Minimum - 10.8"
Maximum - 13.2"

Minimum weight - 112 ounces

Maximum wheel diameter - 2.95"

Minimum tire diameter - 4.9"

Wheel cut out - Used body cut lines

Wheel disks - Are allowed

Engine - .21 only

Transmission - 1 speed only

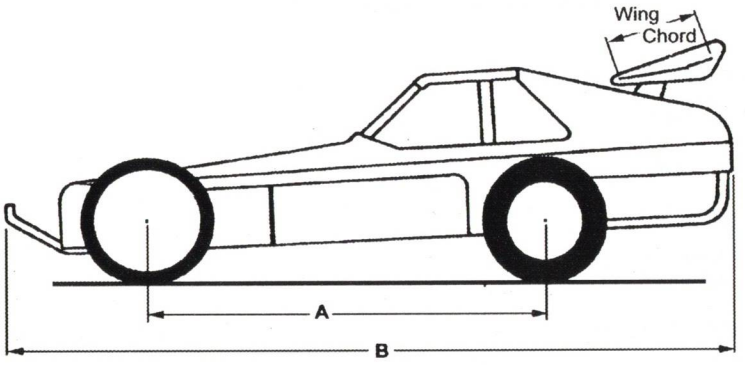
Rear suspension - Independent allowed

Race lengths - Qualifiers - 5 minutes
Main events - 5 to 60 minutes

Bodies - Off-road truck

Notes - Tires and wheels must be the same size and similar in design to the original equipment now supplied by Kyosho and Mugen.

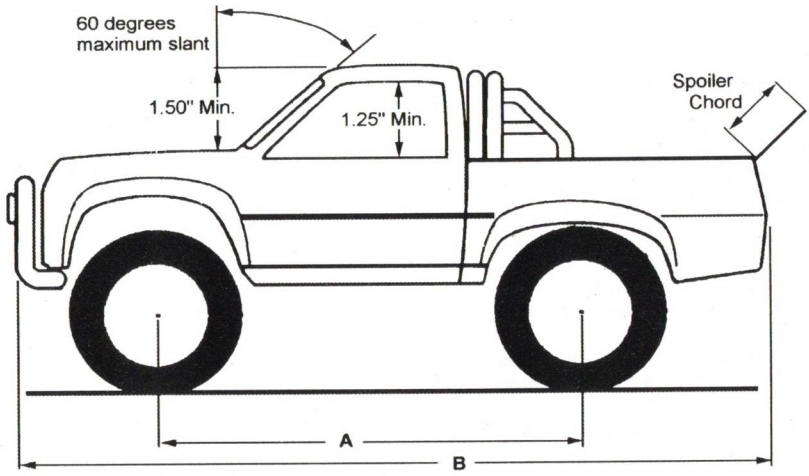
Tire cutting and grooving is allowed.



BUGGY

	A Max	A Min	B Max	Width Max
1/10	11.50"	9.00"	18.00"	9.875"
1/8	13.20"	10.80"	28.70"	12.20"

	Wing Chord Max	Wing & Side Dam Length Max	Wing & Side Dam Height Max	Wing Width Max
1/10	3.00"	3.75"	2.00"	7.00"
1/8	3.03"	3.625"	2.375"	8.54"



OFF-ROAD TRUCK

	A Max	A Min	B Max	B Min	Width Max
1/10	11.50"	9.00"	18.00"	15.25"	13.00"
1/8	13.20"	10.80"	28.70"	24.30"	12.20"

	Spoiler Chord Max	Spoiler Width Max	Spoiler Edge Turn-Up Max	Spoiler Height Max
1/10	2.00"	Body	0.25"	NA
1/8	2.00"	Width	0.25"	1.50"

	Body Width Min	Cab Width Min	Body Height Min	Window Slant Max	Frontal Area Min
1/10	5.75"	3.875"	4.25"	60 deg	23.03 sq in

Notes: Body dimensions for 1/8 have not been established.
Formula for calculating frontal area is as follows:
Cab width + body width / 2 x cab height + body width x body height.
Example: 3.875 + 5.75 / 2 x 1.5 + 5.75 x 2.75 = 23.03125 sq in.

1/12 ELECTRIC ON-ROAD

Minimum track width - 4 cell; continuous 6 feet
6 cell; continuous 8 feet

Maximum length - 14"

Maximum width - 6.75"

Minimum height - 2.75"

Wheel base - Minimum - 7.25"
Maximum - 8.75"

Minimum weight - 4-cell - 28 ounces
6-cell - 32 ounces

Wheel diameter - Minimum - 1.3"
Maximum - 1.5"

Wheel width - Minimum - .5"
Maximum - 1.5"

Tire diameter - Maximum - 2.1 "

Tire width - Minimum - .5"
Maximum - 1.5"

Wheel cut out - .375" maximum over tire diameter

Wheel disks - Not allowed

Batteries - Carpet - 4-cell
Paved - 6-cell

Transmission - 1 speed only

Rear suspension - Straight axle only; Independent not allowed

Race lengths - Qualifiers - 8 minutes
Main events - 8 minutes

Bodies - GT, GTP, and WSC

Tires - Foam only; no rubber or silicone capped tires allowed

Notes - Minimum pre-race ground clearance excluding spur gear - .125"

1/10 ELECTRIC ON-ROAD

Minimum track width - continuous 10 feet

Maximum length - 20"

Maximum width - 9.875"

Minimum height - 3"

Wheel base - Minimum - 9"
Maximum - 11"

Minimum weight - 42 ounces

Wheel diameter - Minimum - 1.625"
Maximum - 2"

Wheel width - Minimum - .75"
Maximum - 2"

Tire diameter - Maximum - 2.6"

Tire width - Minimum - .75"
Maximum - 2"

Wheel cut out - .5" maximum over tire diameter

Wheel disks - Not allowed

Batteries - 6-cells only

Transmission - 1 speed only

Rear suspension - Straight axle only; independent not allowed

Race lengths - Qualifiers - 4 minutes
Main events - 4 minutes

Bodies - GT, GTP, and WSC

Tires - Foam only; no rubber or silicone capped tires allowed

Notes - Minimum pre-race ground clearance excluding spur gear - .1875"

1/10 ELECTRIC TOURING CAR

Minimum track width - continuous 8 feet

Maximum length - 18.1"

Maximum width - With body - 7.7"
Without body - 7.48"

Height - Minimum - 4.9"
Maximum - 6.9"

Wheel base - Minimum - 9.8"
Maximum - 10.6"

Minimum weight - 53 ounces

Wheel diameter - Minimum - 1.9"
Maximum - 2.0"

Wheel width - Minimum - .87"
Maximum - 1.05"

Tire diameter - Minimum - 2.17"
Maximum - 2.64"

Tire width - Minimum - .90"
Maximum - 1.15"

Wheel cut out - .375" maximum over tire diameter

Wheel disks - Not allowed

Batteries - 6-cell only

Transmission - 1 speed only

Rear suspension - Independent allowed

Race lengths - Qualifiers - 4 minutes
Main events - 4 minutes

Bodies - Touring car

Tires - Molded rubber only; foam tire inserts are allowed

Notes - One wing is allowed; fitted in the same place as the wing on the original car.
Rear edge of the wing may not overhang the rear of the body by more than .4".
Wing must not be positioned higher than the top of the body.
Rear of body to include rear bumper and windows may not be cut out.
Four wheel drive is allowed.
Minimum ground clearance for carpet racing is .1875".

1/10 ELECTRIC F1 & INDY

Minimum track width - continuous 8 feet

Maximum length - 22"

Maximum width - 9.875"

Height - Maximum - 5.5"

Wheel base - Minimum - 9"
Maximum - 11"

Minimum weight - 36 ounces

Wheel diameter - Minimum - 1.25"
Maximum - 1.42"

Wheel width - Minimum - .75"
Maximum - 1.75"

Tire diameter - Minimum - 1.5"
Maximum - 2.5"

Tire width - Minimum - .75"
Maximum - 1.75"

Wheel cut out - NA

Wheel disks - Not allowed

Batteries - 6-cell only

Transmission - 1 speed only

Rear suspension - Straight axle only

Race lengths - Qualifiers - 5 minutes
Main events - 5 minutes

Bodies - Formula One and Indy Cars

Tires - Foam only; no rubber or silicone capped tires allowed

Notes - No after market chassis allowed. Graphite axles are permitted.
Stick or side-by-side batteries only. Saddle packs are not allowed.

1/10 FUEL ON-ROAD

Minimum track width - continuous 10 feet

Maximum length - 19.3"

Maximum width - 9.875"

Height - Minimum - 4.5"

Wheel base - Minimum - 10.25"
Maximum - 11"

Minimum weight - Suspension - 64 ounces
Pan - 52 ounces

Wheel diameter - Minimum - 1.625"
Maximum - 2.125"

Maximum wheel width - Front - 1.18"
Rear - 2"

Maximum tire diameter - Front - 3"
Rear - 3.2"

Maximum tire width - Front - 1.18"
Rear - 2"

Wheel cut out - .5" maximum over tire diameter

Wheel disks - not allowed

Engine - .15

Transmission - 1 or 2 speed only

Rear suspension - Independent allowed, except Pan Car

Race lengths - Qualifiers - 5 minutes
Main events - 5 to 60 minutes

Bodies - GT, GTP, and WSC

Tires - Foam only; no rubber or silicone capped tires allowed

1/8 FUEL ON-ROAD

Minimum track width - continuous 12 feet

Maximum length - 25"

Maximum width - 10.5"

Maximum height - 7.6" to top of wing

Wheel base - Minimum - 11.25"
Maximum - 13"

Minimum weight - 2WD - 85 ounces
4WD - 88 ounces
Pan - 80 ounces

Wheel diameter - Minimum - 1.75"
Maximum - 2.125"

Maximum wheel width - Front - 1.5"
Rear - 2.5"

Tire diameter - No restrictions

Maximum tire width - Front - 1.5"
Rear - 2.5"

Wheel cut out - .5" maximum over tire diameter

Wheel disks - Not allowed

Engine - .21 only

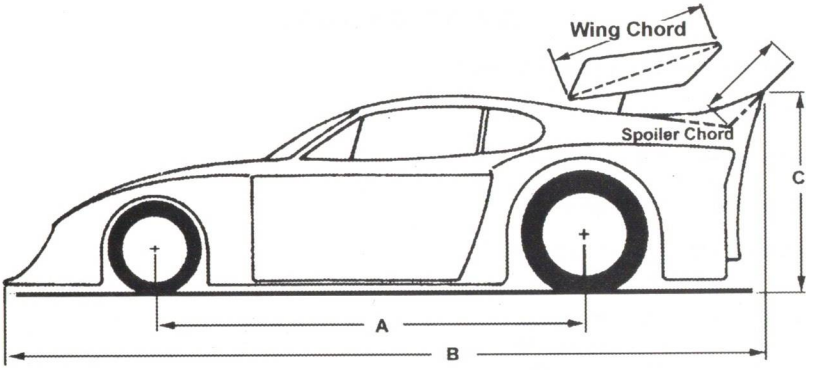
Transmission - 1 or 2 speed only (no 3 speed allowed)

Rear suspension - Independent allowed—except Pan Car

Race lengths - Qualifiers - 5 minutes
Main events - 5 to 60 minutes

Bodies - GT, GTP, and WSC

Tires - Foam only; no rubber or silicone capped tires allowed



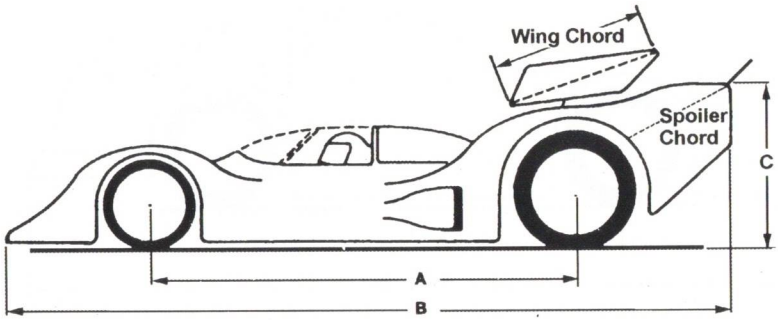
GT

	A Max	A Min	B Max	C Min	Width Max
1/12	8.75 "	7.25"	14.00"	2.75"	6.75"
1/10	11.00"	9.00"	20.00"	3.00"	9.875"
1/8	13.00"	11.00"	25.00"	N/A	10.50"

	Wing Chord Max	Wing & Side Dam Length Max	Wing & Side Dam Height Max	Wing Width Max
1/12	2.00"	2.50"	1.75"	6.75"
1/10	3.00"	3.75"	2.00"	9.00"
1/8	3.10"	3.00"	1.50"	10.50"

	Spoiler Chord Max	Spoiler Dam Width Max	Spoiler Angle Max
1/12	1.50"	6.75"	N/A
1/10	2.00"	9.875"	N/A
1/8	2.00"	10.50"	45°

Notes: Maximum height for 1/8 is 7.60" to the top of the wing.
Wings will not be allowed on electric GT cars after January 1, 1998.



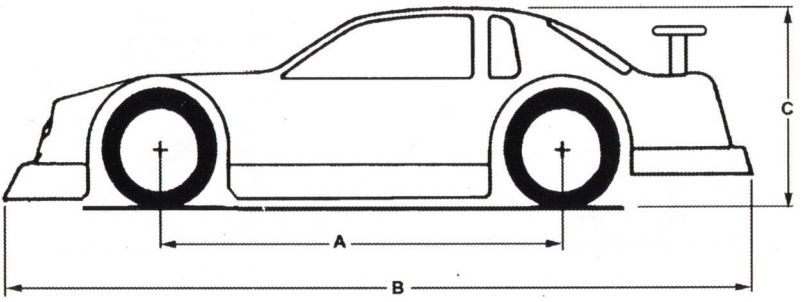
GTP/WSC

	A Max	A Min	B Max	C Min	Width Max
1/12	8.75 "	7.25"	14.00"	2.75"	6.75"
1/10	11.00"	9.00"	20.00"	3.00"	9.875"
1/8	13.00"	11.00"	25.00"	N/A	10.50"

	Wing Chord Max	Wing & Side Dam Length Max	Wing & Side Dam Height Max	Wing Width Max
1/12	2.00"	2.50"	1.75"	6.75"
1/10	3.00"	3.75"	2.00"	9.00"
1/8	3.10"	3.00"	1.50"	10.50"

	Spoiler Chord Max	Spoiler Dam Width Max	Spoiler Angle Max
1/12	1.50"	6.75"	N/A
1/10	2.00"	9.875"	N/A
1/8	2.00"	10.50"	45º

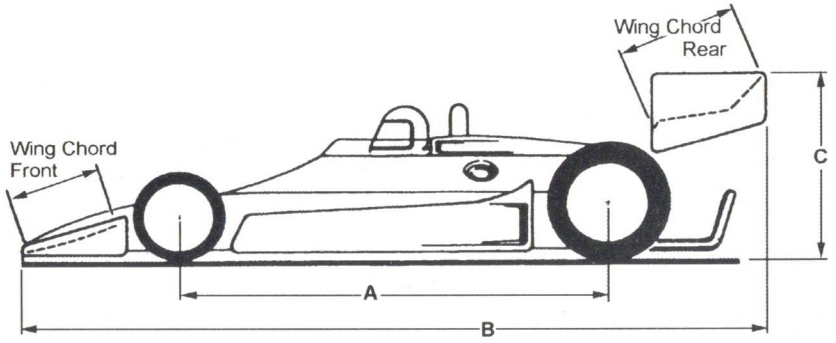
Notes: Maximum height for 1/8 is 7.6" to the top of the wing.
Wings will not be allowed on electric GTP/WSC cars after January 1, 1998.



TOURING CAR

	A Max	A Min	B Max	C Min	Width Max
1/10	10.60"	9.80"	18.10"	4.90"	7.70"

	Wing Chord Max	Wing & Side Dam Length Max	Wing & Side Dam Height Max	Wing Width Max	Wing Tab Height Max
1/10	1.26"	1.40"	.60"	7.48"	.12"



F1 & INDY

	A Max	A Min	B Max	C Max	Width Max
1/10	11.00"	9.00"	22.00"	5.50"	9.875"

	Wing Chord Max	Wing & Side Dam Length Max	Wing & Side Dam Height Max	Wing Width Max
1/10 Front	2.00"	2.50"	1.50"	9.00"
1/10 Rear	3.00"	3.75"	2.00"	9.00"

1/12 ELECTRIC OVAL

Minimum track width - continuous 10 feet

Maximum length - 16"

Maximum width - 6.75"

Minimum height - 3.5"

Wheel base - Minimum - 7.25"
Maximum - 8.75"

Minimum weight - 32 ounces

Wheel diameter - Minimum - 1.3"
Maximum - 1.5"

Wheel width - Minimum - .5"
Maximum - 1.5"

Tire diameter - Maximum - 2.1"

Tire width - Minimum - .5"
Maximum - 1.5"

Wheel cut out - .375" maximum over tire diameter

Wheel disks - Not allowed

Batteries - 6-cell

Transmission - 1 speed only

Rear suspension - Straight axle only

Race lengths - Qualifiers - 5 minutes
Main events - 5 minutes

Bodies - Stock car

Tires - Foam or rubber capped foam only; no silicone capped tires allowed

Notes - Minimum pre-race ground clearance - .125".

1/10 ELECTRIC OVAL

Minimum track width - continuous 10 feet

Maximum length - 20"

Width - Minimum - 7.25"
Maximum - 9.875"

Minimum height - Carpet - 4.375"
Paved - 4.5"
Truck - 4.75"

Wheel base - Minimum - 9"
Maximum - 11"

Minimum weight - 42 ounces

Wheel diameter - Minimum - 1.625"
Maximum - 2"

Wheel width - Minimum - .75"
Maximum - 2"

Tire diameter - Maximum - 2.6 "

Tire width - Minimum - .75"
Maximum - 2"

Wheel cut out - .5" maximum over tire diameter

Wheel disks - Not allowed

Batteries - 6 cell only

Transmission - 1 speed only

Rear suspension - Straight axle only

Race lengths - Qualifiers - 4 minutes
Main events - 4 minutes

Bodies - Stock car and On-road Truck

Tires - Foam or rubber capped foam only; no silicone capped tires allowed

Notes - Minimum pre-race ground clearance - .1875".
On truck bodies the tailgate section may be removed, side panels must be intact.
Truck box must be covered, flush with the top of the box, and must be painted.
Wings or side dams can not be used on trucks.

1/10 ELECTRIC DIRT OVAL

Minimum track width - continuous 10 feet

Maximum length - 22"

Maximum width - 9.875"

Maximum height - 11" - Sprint Car to top of wing
11" - Modified Stock with side dam

Wheel base - Minimum - 9"
Maximum - 11.5"

Minimum weight - 2WD - 50 ounces
4WD - 54 ounces
Truck - 50 ounces

Wheel diameter - Minimum - 1.5"
Maximum - 2.15"

Maximum wheel width - 2"

Maximum tire diameter - 3.544"

Maximum tire width - 2"

Wheel cut out - .5" maximum over tire diameter

Wheel disks - Not allowed

Batteries - 6 cell only

Transmission - 1 speed only

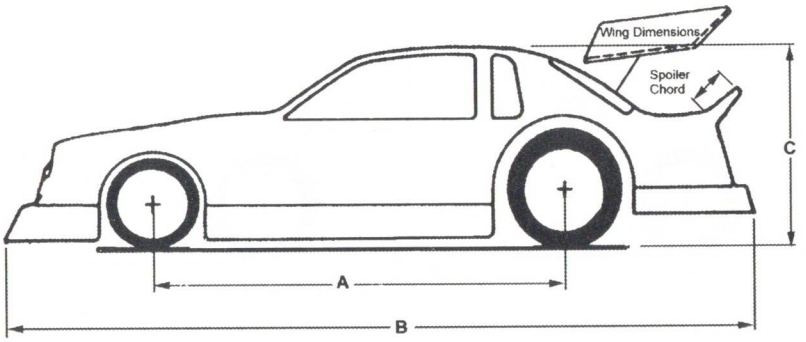
Rear suspension - Independent allowed

Race lengths - Qualifiers - 4 minutes
Main events - 4 minutes

Bodies - Modified Stock Car, Sprint Car, and On-road Truck

Tires - Foam, rubber, or rubber capped foam only; no silicone capped tires allowed

Notes - Sprint cars must have headers, nerf bars, rear tail section, and roll cage.



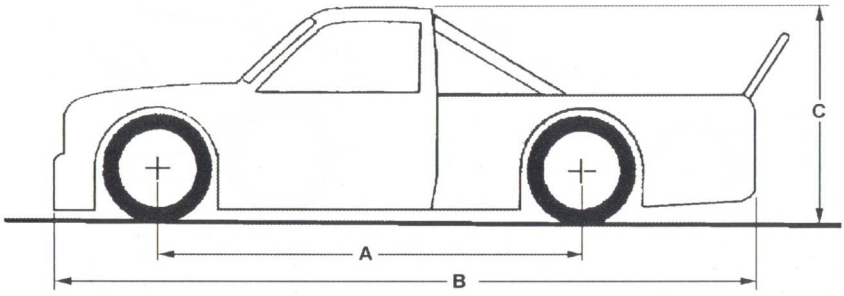
STOCK CAR

	A Max	A Min	B Max	C Min	Width Max
1/12	8.75 "	7.25"	16.00"	3.50"	6.75"
1/10	11.00"	9.00"	20.00"	4.50"	9.875"

	Wing Chord Max	Wing & Side Dam Length Max	Wing & Side Dam Height Max	Wing Width Max
1/12	2.00"	2.50"	1.75"	6.75"
1/10	3.00"	3.75"	2.00"	9.00"

	Spoiler Chord With Wing Max	Spoiler Chord W/O Wing Max	Spoiler Width Max
1/12	.50"	1.50"	6.75"
1/10	.75"	2.00"	9.875"

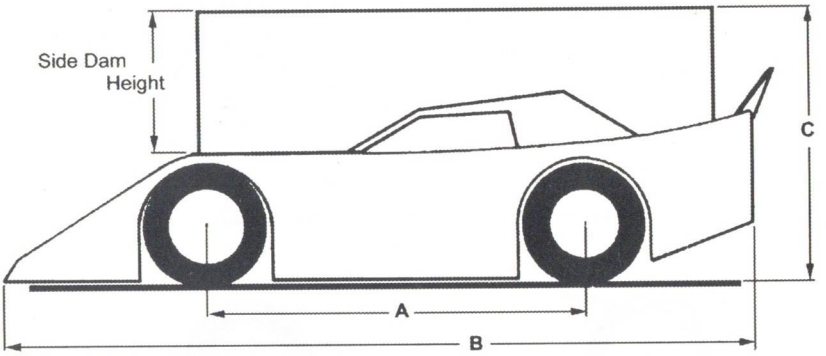
Notes: Minimum height for 1/10 on carpet is 4.25".



ON - ROAD TRUCK

	A Max	A Min	B Max	C Min	Width Max
1/10	11.00"	9.00"	22.00"	4.75"	9.875"

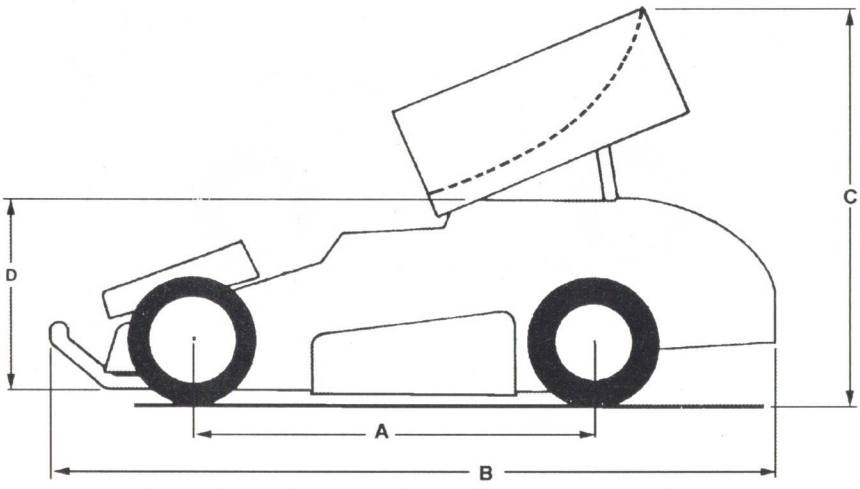
	Spoiler Chord Max	Spoiler Width Max
1/10	2.00"	9.875"



MODIFIED STOCK CAR

	A Max	A Min	B Max	C Max	Width Max
1/10	11.50"	9.00"	22.00"	11.00"	9.875"

1/10	Spoiler Chord Max	Side Dam Length Max	Side Dam Height Max	Spoiler Width Max
	1.50"	14.00"	5.50"	9.875"



SPRINT CAR

	A Max	A Min	B Max	C Max	D Min	Width Max
1/10	11.50"	10.00"	18.00"	11.00"	5.00"	9.875"

	Wing Chord Max	Wing & Side Dam Length Max	Side Dam Height Above Wing Surface Max	Wing Width Max
1/10 Front	2.00"	2.00"	1.00"	4.00"
1/10 Rear	7.00"	7.00"	4.00"	6.00"

Notes: Maximum side dam height on the right side is 3.25".
Front bumpers and front wings are optional.

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