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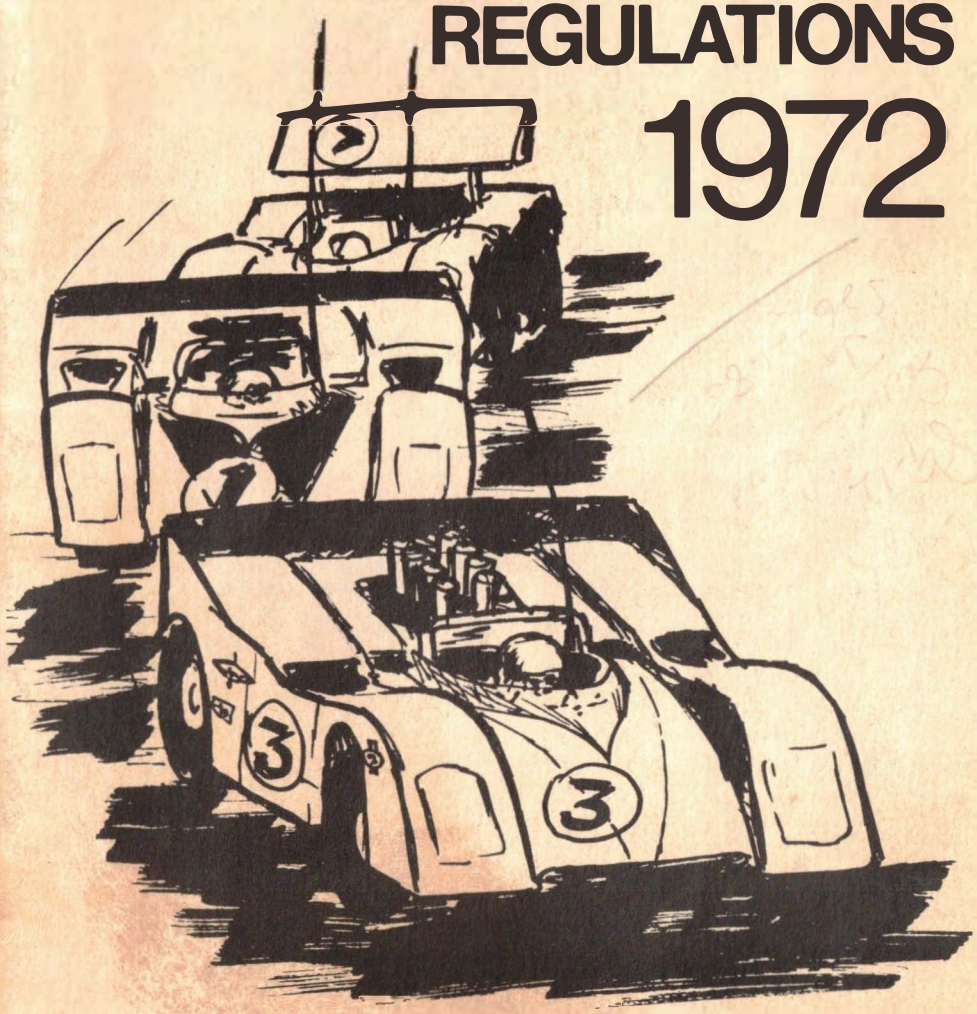
ROAR

COMPETITION REGULATIONS 1972



Radio Operated Auto Racing Association

Preface to the 1972 ROAR Competition Regulations

It is the majority opinion of the Competition Committee that, "The essence of the sport of radio controlled car racing is competition between realistic models of racing automobiles."

I'm not sure that there is a majority opinion on the definition of "realistic". Opinions seem to range from "scale, down to the last rivet" to "it's got four wheels and it moves". And I can assure you that there are strong feelings through-out that range.

The car specifications presented here are (and have to be) a series of compromises. For example, the scale buff can build anything he wants to and race it with other cars (if he wants to), but he's got to accept the bad scale features along with the good. The innovator can try out any ideas he wants, but he has to accept at least some of the limitations (reduced to 1/8 scale) that the full scale car designer faces. It is my firm opinion that we need both types of builders in our sport, and we must provide a place for (and some control of) both types of cars.

But for our sport to survive and grow we must attract and hold the real majority that falls somewhere between the two extremes. If we don't, a hobby/sport with far greater potential than aircraft modeling may be reduced to a few "scale nuts" and "thingy builders" who can't or won't talk to each other.

Our real potential for growth lies in the spectators that happen by when we're out doing our thing. Some of them relate to the sports and open wheel cars that are most common now. Many more of them are attracted by the few stock cars around. I doubt that many of them would be turned on by a hot 1/24th thingy scaled up by three.

So, if there is any bias in these "compromises" it is toward the scale side of "realistic". I take full responsibility for that, although I honestly believe that the majority of committee members and general membership have the same bias.

Some of the items have nothing to do with realism, they are related to safety. It is interesting to note, However, that they often enhance realism. The brake requirement, for example, is rooted in safety, but it results in more realistic operation of the car.

No one will like everything in any set of rules, but if these can provide a framework for meaningful and enjoyable competition in 1972 and a basis for growth and development of our sport, the Competition Committee will have met its objective.

Robert J. Beckman
Chairman
ROAR Competition Committee

Typesetting courtesy of The American Aircraft Modeler.

Art by Kelly Matthews

GLOSSARY

Scale car–A representation at 1/8 scale(1½" to the foot) ±5% of any full scale car that has practiced for, attempted to qualify for, or participated in an actual race.

Semi-scale car–An easily recognizable representation of a full scale car, as above, but one or more dimensions are outside the ±5% limits.

Non-scale car–Any car that does not qualify as scale or semi-scale.

Aerodynamic devices–Surfaces attached to or integral with a car and whose sole purpose is to effect the performance of the car by controlling or acting on the flow of air over and around the car. (Note that fenders, airscoops, windshields, etc. do control air flow, but for different purposes.)

Wing–An airfoil at no more than 45 degrees from the horizontal and attached to the body or chassis by vertical supports only (leading or trailing edge may not be attached to the body or chassis).

Dam–A structure of relatively thin cross-section (no more than 1/8") used to control air flow at the sides or rear of a car.

Spoiler–A thin (no more than 1/8"), bladelike structure used to control air across the front of a car.

Chord–The dimension of a wing or spoiler that is parallel to the longitudinal axis of the car when viewed from above.

Span–The dimension of a wing or spoiler that is at right angles to the longitudinal axis of the car when viewed from above.

Overhang (front)–Distance from the axis of rotation of the front wheels to forwardmost point of the body. (Front bumper, if any, is not included.)

Wheelbase–Distance from the center of rotation of the rear wheels to the center of rotation of the front wheels (no steering displacement).

Chassis–The structural piece(s) whose function it is to hold components (engine, suspension, drive train, body, etc.) in certain fixed relationships to each other.

Entrant–A person who has entered a meet with the intention of competing in one or more events.

Meet–(or Racing Meet)–An organized sequence of races, in one or more events, whose purpose is to determine event winner(s) and/or an overall meet winner. A meet may require a period of one or more days, but there shall be no substantial gap in competative activities other than overnight and delays due to weather.

Event–A race or sequence of races on a specified type of track and with specified classes of cars allowed to compete. For example, "Oval race, Class A cars only" or "Road race, Class A and B cars".

Race–An organized running of cars around a designated track for a specified number of laps or a specified amount of time.

Heat–A relatively short race (i.e. ten laps) usually used as part of a qualifying procedure for entry into longer races.

Track–The area designated for operation of cars during a race. In addition to the actual racing surface it can include approach lanes and pit areas.

Infield–The area completely enclosed by the racing surface of the track.

Safety

A. 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. The consideration in selecting this barrier shall be the protection of spectators, *not* the protection of cars. Minimum acceptable portable barriers are 2 x 4's on edge with ends linked. Preferred barriers are at least 8" high. Permanent features of the race site such as curbs and rough grass areas may be utilized. Where space permits, the barriers should be outside the outer limits of the racing surface. In addition, spectator control (sawhorses, ropes, etc.) shall be established at least four feet outside the barriers.

B. The safety of officials, entrants, and helpers is of equal importance, but it is assumed that they are more aware of any potential dangers. Barriers similar to those described above shall be provided between the racing surface and the areas used for pits and driver stands. Barriers shall also be provided for those officials (i.e. lap counters) who must occupy relatively fixed positions near the racing surface.

C. Brakes as described in Car Specifications are considered a contributing factor to safe operation. A demonstration of operating brakes shall be a part of the starting procedure for every race.

D. Bumpers on cars do not contribute significantly to the safety of anything but the car itself. Bumper specifications are intended to reduce the potential danger to people and other cars.

Procedures

A. Classification of Meets

1. ROAR recognizes and will sanction the following classes of racing meets:
   a. Class B–Local meet restricted to members of a single club or organization.
   b. Class A–Local meet not restricted to members of a single club or organization.
   c. Class AA–Area meet intended to draw participants from more than one state or metropolitan locality.
   d. Class AAA–Regional or national meet intended to draw participants from many localities.
2. Some of the following Competition Regulations vary with the class of meet. Such variations are noted, and in the abscence of such notes, the regulation shall apply to all classes of meets. Specifically, the Car Specifications and Radio Equipment Regulations apply to all classes of meets.

B. Licensing and Classification of drivers

1. Every driver entering a sanctioned meet shall present proof of ROAR membership.
2. The classification of drivers into skill level groups is encouraged. The results of such classification and the methods used shall be reviewed as a basis for establishing ROAR driver classifications for 1973.

3. Drivers receiving industry assistance shall be required to indicate that fact when registering for a sanctioned meet. This is in no way intended to restrict the entry of such drivers into sanctioned competition. The purpose is to make the information available, and to allow local meet officials to establish separate classifications if they so desire. "Industry Assistance" is defined as: direct cash subsidy; or payment of any portion of expenses for attending a meet; or supplying parts and/or supplies at prices significantly below those available to other drivers, except for occasionally "sample" items; or listing costs of preparing for and/or attending meets as business expenses for tax purposes.

C. Radio Equipment Regulations
   1. All operation of radio equipment must conform to applicable FCC regulations.
   2. Transmitter frequency identification
      a. The operating frequency of every transmitter must be indicated by a flag or flags of the following colors:

26.995–Brown	72.160–Blue/White	53.100–Brown/Black
27.045–Red	72.230–Violet/White	53.200–Red/Black
27.095–Orange	72.960–Yellow/White	53.300–Orange/Black
27.145–Yellow		53.400–Yellow/Black
27.195–Green		53.500–Green/Black
27.255–Blue		

      b. Flag colors shall be bright shades chosen to minimize confusion.
      c. Transmitter capable of multiple frequency operation shall display *only* the color(s) appropriate to the frequency in use.
      d. Flags shall be attached to the outermost (farthest from transmitter case) section of collapsible antennas and within 6" of the outermost end of fixed antennas. Colored strips around the base of the antenna are not considered adequate.
      e. Flags shall be no less than 3/4" wide and 12" long (rectangular) or 1½" wide and 12" long (triangular), and shall be attached by one end only.
   3. Transmitter impound
      a. At the time of registering for a meet the entrant's transmitter shall be inpounded and placed under control of the meet officials. Transmitters will be released at the end of the day's activities or if the entrant is leaving the site of the meet. On subsquent days of a multiple day meet, the entrant shall return his transmitter to the inpound area as soon as he arrives at the meet site.
      b. The meet officials shall provide:
         1. Protected and secure storage for transmitters in impound.
         2. Procedures to ensure that no more than one transmitter on any one frequency is released from impound at any one time, and that all transmitters in impound are turned off.

D. Technical Inspection
   1. All chassis and bodies must meet applicable Car Specifications.

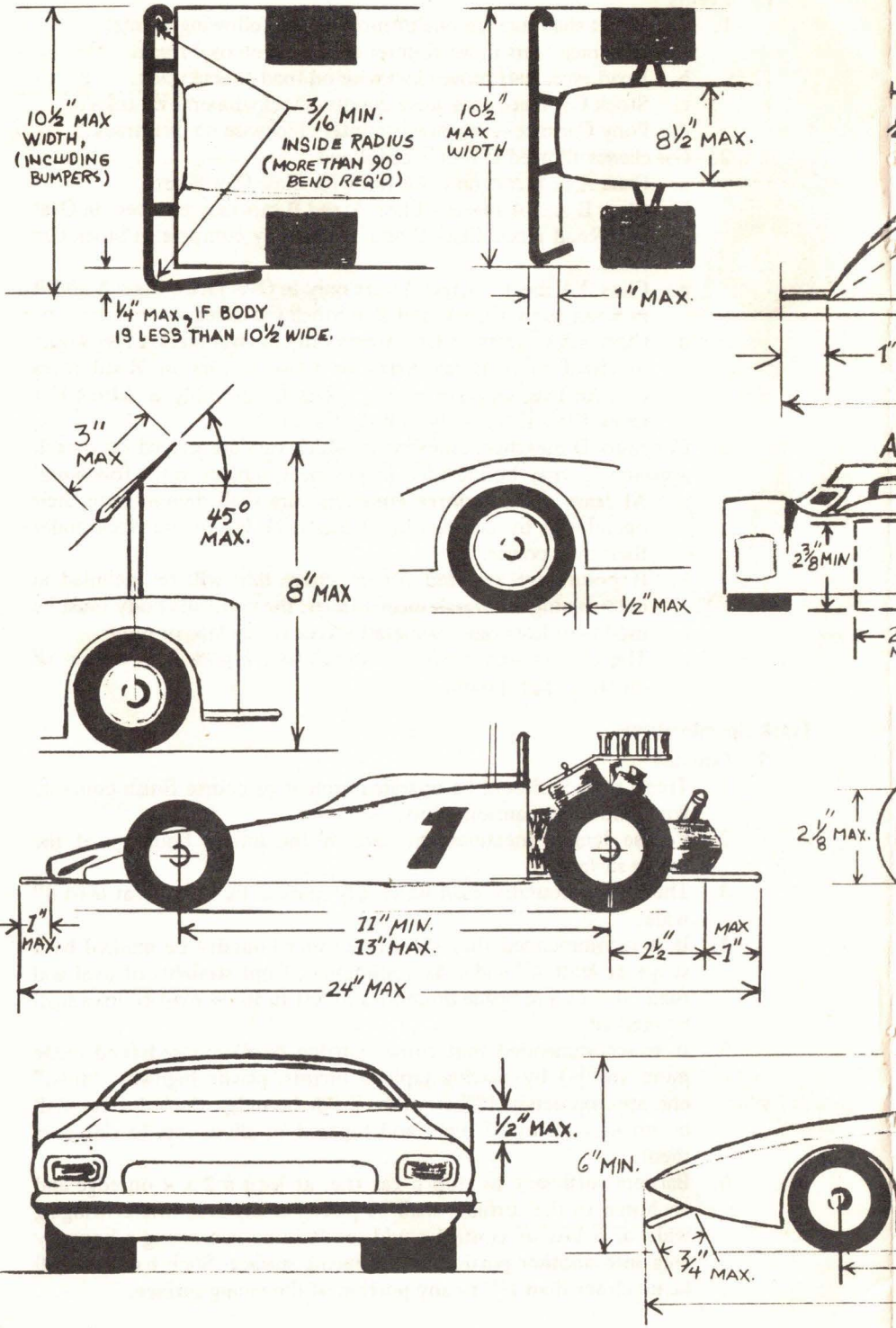
2. The Race Director may at any time request an inspection of any entrant's car. Such inspection may cover any or all of the items covered in Car Specifications.
3. At the time of registration, each car shall be inspected. In order to save time it is suggested that each car be given a cursory inspection for obvious defects and a detailed inspection of two or three items selected at random and in such a manner that the entrants have no advance knowledge of what will be inspected.
4. An operational test of brakes shall be made before allowing a car on the track for practice and again before each race.

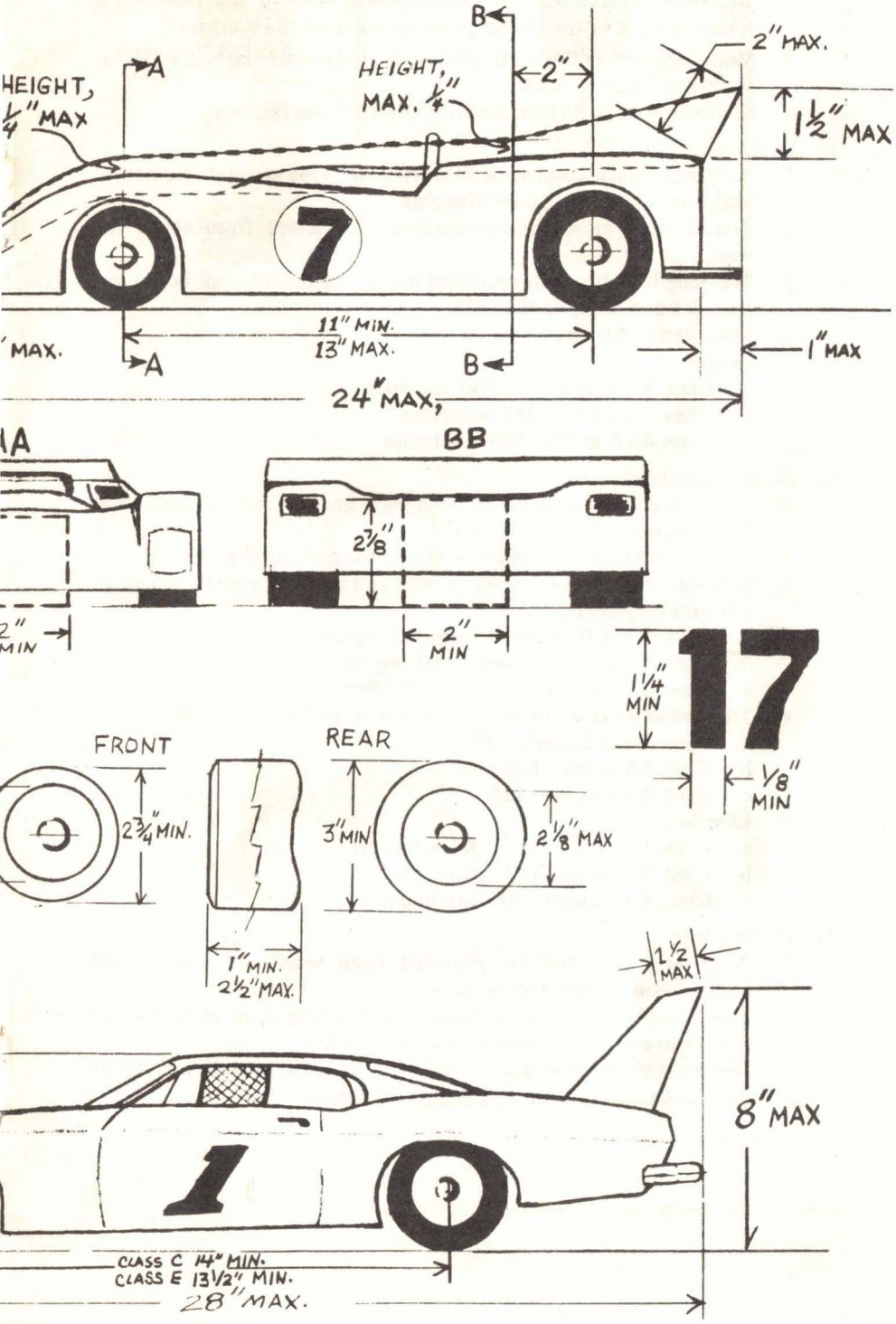
E. Officials Required
1. Following is a list of the officials and their functions required to conduct a meet. In some cases, one person may cover two or more functions.
   a. Race Director–In overall charge of meet. Supervises all activities and makes final decisions in all matters.
   b. Registar–Records information on entrants, checks entrants' qualifications, collects entry fees, etc.
   c. Technical Inspector–Inspects cars at time of registration and as requested by the RD.
   d. Frequency Controller–Supervises transmitter impound. Responsible for ensuring that no more than one transmitter on any one frequency is on at any one time.
   e. Starter–Gives signal to start races, monitors conduct of races and individual cars, responsible for detecting track boundry violations and warning or disqualifying offending drivers, gives signal(s) indicating end of race.
   f. Timing/Lap Judge–Supervises Timer/Lap Counters, responsible for accurate timing and/or lap counting, keeps Starter informed of progress of race, ensures proper reporting of results.
   g. Timer/Lap Counter (one per car in each race)–Times and/or counts laps of assigned car, reports results to Timing/Lap Judge.
2. Entrants acting as officials
   a. Class B meet - any offical function may be performed by an entrant. It is recommended that the Race Director not be an entrant.
   b. Class A meets - the Race Director may not be an entrant.
   c. Class AA meets - The RD, the Starter, and the Timing/Lap Judge may not be entrants.
   d. Class AAA meets - no official may be an entrant.
3. Additional officials
   a. Class AAA meets shall have one or more Pit Stewards to supervise and monitor activity in the pit area, and at least three Track Marshals to police the track and retrieve cars from the track and infield.
   b. It is recommended that these additional officials be used in every event.

F. Events
   1. Each meet shall include one or more of the following events:
      a. Oval race–cars move counter-clockwise on oval track.
      b. Road race–cars move clockwise on road course track.
      c. Stock Car race–cars move counter-clockwise on oval track.
      d. Pony Car race–cars move counter-clockwise on oval track.
   2. Car classes allowed in events as follows:
      a. Class A or B cars may not run with Class C or E cars.
      b. Class B and A meets - Class A and B cars may compete in Oval and Road races. Class C and E cars may compete in Stock Car races.
      c. Class AA meets - Class A cars only in Oval races. Class A and B in Road races. Class C and E in Stock Car races.
      d. Class AAA meets - Class A cars only in Oval races. Class A cars in Road races (Gran Prix) or Class B cars in Road races (CanAm) as separate events. Class C cars only in Stock Car races. Class E cars only in Pony Car races.
   3. Concours D'Elegance, an event in which cars are judged on overall appearance, may be included in any meet, subject to the following:
      a. At least the top three concours cars shall demonstrate their operability by completing at least one lap of the track under their own power.
      b. If points are awarded for concours that will be included in determining an overall meet winner, the concours body must be used in at least one competative race of ten laps or more.
      c. The chassis used in concours shall be the same one used in all races, as appropriate.

Track Specifications

A. General
   1. Track surface should be unsealed asphalt or course finish concrete with smooth expansion joints.
   2. Course length measurements are of the infield boundry of the racing surface.
   3. The infield boundry shall be clearly marked by a stripe at least 4" wide.
   4. It is recommended that the entire outer boundry be marked by a stripe at least 4" wide. As a minimum, front straights of oval and road courses and inside boundries of left turns on road courses shall be marked.
   5. It is recommended that corner cutting be discouaged (and made more visible) by placing tapered boards, plastic highway "dots," etc. approximately 10" from the inside boundry. Such devices shall be no more than 1" high, and tapered to allow cars to ride over them.
   6. Barriers sufficient to stop a car (i.e. at least a 2 x 4 on edge and anchored to the surface) shall be placed in any area where swinging wide or a loss of control could result in a car crossing a boundry area into another portion of the racing surface. Such barriers shall be no closer than 1½' to any portion of the racing surface.


10½" MAX WIDTH, (INCLUDING BUMPERS)
3/16 MIN. INSIDE RADIUS (MORE THAN 90° BEND REQ'D)
¼" MAX, IF BODY IS LESS THAN 10½" WIDE.
10½" MAX WIDTH
8½" MAX.
1" MAX.
3" MAX
45° MAX.
8" MAX
½" MAX
2⅜" MIN
1
1" MAX.
11" MIN.
13" MAX.
2½"
MAX 1"
24" MAX
2⅛" MAX.
½" MAX.
6" MIN.
¾" MAX.


HEIGHT, ¼" MAX
A
HEIGHT, MAX. ¼"
B
2" MAX.
2"
1½" MAX
7
11" MIN.
13" MAX.
1" MAX
24" MAX.
BB
2⅞"
2" MIN
1¼" MIN
17
⅛" MIN
FRONT
REAR
2¾" MIN.
3" MIN
2⅛" MAX
1" MIN.
2½" MAX.
1½ MAX
8" MAX
1
CLASS C 14" MIN.
CLASS E 13½" MIN.
28" MAX.

7. Minimum track width - 8'. Measurement is from any point on a track boundry to the closest point on the opposite boundry.
8. Minimum turn radius - 1½' measured at the inside boundry (5½' at the center of an 8' track).
9. See section on Safety for additional barrier specifications.

B. Oval tracks
1. An "oval" track consists of two relatively long straights connected at the ends by arcs or short straights.
2. Traffic shall move counter-clockwise as viewed from above the track.
3. The length/width ratio measured across the infield shall be no less than 2/1 and no more than 4/1.
4. Minimum width across infield - 30'
5. Length
   a. Class A and B meets - 300' minimum
   b. Class AA meets - 400' minimum
   c. Class AAA meets - 500' minimum

C. Road course tracks
1. A "road course" consists of both right and left hand turns and at least one relatively long straight.
2. Traffic shall move clockwise as viewed from above the track.
3. Minimum number of left hand turns and minimum total amount of left turn (degrees) shall be:
   a. Class A and B meets - 1 turn - 90 degrees
   b. Class AA meets - 2 turns - 180 degrees
   c. Class AAA meets - 3 turns - 360 degrees
4. There shall be at least one straight with minimum length of:
   a. Class A and B meets - 75'
   b. Class AA meets - 100'
   c. Class AAA meets - 125'
5. Length
   a. Class A and B meets - 300' minimum
   b. Class AA meets - 450' minimum
   c. Class AAA meets - 600' minimum

D. Driver's area
1. A driver's area shall be provided from which all practice and competition driving shall be done.
2. The driver's area shall be located and arranged so as to give all drivers an essentially equal view of the track.
3. Driver stands no more than 3' high may be used, provided all drivers have an equal opportuntiy to use such stands.

CAR SPECIFICATIONS

A. General

1. All cars will be 1/8 scale (1½ in. to the foot) and must follow full-size race car design practices in all possible areas.
2. The following categories of cars will be recognized: scale category; semi-scale category; non-scale category.
3. The following classes of cars will be recognized:
   Class A—Single seat, open-wheel cars (Indy, Formula, Sprint, etc.)
   Class B—Two or more seats, full-fendered cars (Sports, GT, Can-AM, etc.)
   Class C—Late model stock cars (NASCAR Grand National or equivalent)
   Class D—Dragsters
   Class E—Pony cars (Trans-Am, Grand American)

B. Chassis and Mechanical

1. There are no restrictions on materials or type of construction used for the chassis; however, the Race Director may disqualify any chassis which, in his opinion, would be a hazard to spectators or other cars.
2. Chassis must be a four-wheel design, powered through the wheels only.
3. Wheelbase
   a. Class A and Class B: maximum 13 in., minimum 11 in.
   b. Class C: minimum 14 in.
   c. Class D: no restrictions, pending formulation of detailed dragster rules.
   d. Class E: minimum 13½ in.
4. There are no restrictions on tread. Note, however, that wheels and tires are included in maximum widths specified in section on bodies.
5. Wheels and tires
   a. Classes A, B, C and E
      1) Minimum tire diameters are: front 2¾ in.; rear 3 in.
      2) Maximum width for any tire is 2½ in.
      3) Minimum width at widest point of any tire is 1 in.
      4) Excluding details, tires must be black.
      5) Maximum wheel rim diameter easured at the sidewall, 2-1/8 in.
   b. Class D: no restrictions, pending formulation of detailed dragster rules.
6. Wheel nut and/or axle shall not protrude beyond the edge of the tire.
7. Tailpipes, fuel tank vents, and other mechanical components shall not extend ahead of the body; nor shall they extend more than 1 in. behind the rearmost edge of the body.
8. Bumpers (front or rear)
   a. No device constructed of sheet metal in a horizontal or near horizontal plane shall extend outside the body forward of the front wheels.
   b. Bumpers constructed of wire shall use wire of no more than 1/8" diameter.
   c. The outboard ends of bumpers shall turn back through an angle of more than 90 degrees with a minimum inside radius of 3/16".

d. Bumpers shall extend no more than 1 in. forward of or behind the body. Note that bumpers are included in measuring maximum body length.
e. Bumpers shall be no wider than ¼" on each side of the widest portion of the body (including wheels on open wheel cars, with maximum width of 10½ in.

9. Any internal combustion engine(s) with total displacement not exceeding 0.214 cu. in. (3.5 cc) may be used.
10. Mufflers are encouraged but not required for 1972. They shall be required in 1973. The following are suggested as a starting point for developing muffler specifications:
    a. The direction of travel of the exhaust gases from the exhaust port of the engine to the outlet of the exhaust system must make at least one change in direction of at least 90 degrees. (Note that a rear-facing engine exhaust into an expansion chamber with a rear-facing outlet from the chamber is two changes in direction, provided that no portions of the inlet and outlet of the chamber are directly opposite each other.)
    b. The exhaust system shall include an expansion chamber with maximum cross-sectional area of not less than 0.36 square inches and volume not less than 0.72 cubic inches.
    c. The total cross-sectional area of the exhaust system outlet(s) shall be no more than 0.2 square inches for a minimum of one inch at the outlet end.
11. All cars must be equipped with a de-clutching device.
12. Steering and throttle must be controlled by independent servos.
13. Brakes
    a. All cars must have a servo-controlled brake (it may be linked to the throttle servo). The brake shall be capable of both of the following:
    1) With the car under its own power, and from a speed of four to five mph (brisk walking speed), stop the car on command within three ft.
    2) Hold the car motionless with the engine running.
    b. Brakes must be checked before the car can be allowed on the track. It is recommended that the brake check also be made a part of the starting procedure for all heats and events.
14. Fuel system capacity shall not exceed 4 liquid ounces (7.22 cubic in.)
15. Minimum dry weight with body and all equipment mounted is five pounds.

C. Bodies

1. Scale category—all classes
    a. A scale car is a representation at 1/8 scale of any full-scale car that has practiced for, attempted to qualify for, or participated in an actual race.
    b. To be classified as scale, all critical dimensions must be scale ±5%. Critical is defined as those dimensions specifically referenced in the appropriate Class portion of these specifications.
    c. A scale car may compete in any event for which it qualifies (i.e., Class A, Class B, Class C, etc.), even if one or more critical

dimensions do not meet the class specifications detailed below. Note however that isolated scale exceptions are not allowed. For example: if an exception is claimed on maximum tire width. *all* critical dimensions (width, length, height, etc.) must be scale ±5%, not just within Class limits.

d. The burden of proof of scale dimensions is on the contestant.

2. Class A and Class B–Semi-scale and non-scale Class A and B bodies must meet the following specifications; unless otherwise noted, all vertical dimensions are from ground level with the body mounted on the chassis and ready to run.
   a. Maximum length is 24 in., including all aerodynamic devices and bumpers.
   b. Width
      1) Class A: 8½ in. maximum (including wheels, 10½ in.)
      2) Class B: 10½ in. maximum
   c. At a vertical plane through the front axles and for two inches either side of the center line of the car, the cross-sectional height must be no less than 2-3/8 in.
   d. At a vertical plane two inches forward of the rear axle(s) and for two inches either side of the center line of the car, the cross-sectional height must be no less than 2-7/8 in. Note that this requires the body of a Class A car to extend within two inches of the rear axle.
   e. Front overhang may not exceed six in.
   f. Aerodynamic devices
      1) Wings
         a) Maximum chord measurement is three inches.
         b) Maximum angular displacement from the horizontal, 45 degrees.
         c) Maximum span: Class A, 8½ in.; Class B, width of body.
         d) Maximum height, eight inches (excluding antennas, this is the maximum height of any part of car).
      2) Dams
         a) Lateral dams
            1. May be mounted at rear of body only.
            2. Shall be no more than 2 in. (longitudinal measurement) from point of attachment–or obvious departure from normal body contour–to trailing edge.
            3. Shall extend no more than 1½ in. vertically from point of attachment–or obvious departure from normal body contour–to trailing edge.
            4. Shall not extend beyond the body sides.
         b) Longitudinal dams; Class A cars
            1. Shall extend no farther forward than two in. forward of the rear axle.
            2. Shall be no higher than a line from the body height at the forward point of the dam to the trailing edge of the rear dam, or 1½ in. above the rearmost point of the body, whichever is the lesser.

c. Longitudinal dams; Class B cars

1. Shall be no higher than the front fender contour at the front edge of the body.

2. Shall be no more than ¼" above the fender contour to the highest point on the front fender.

3. Shall be no higher than ¼" above a line from the highest point of the front fender to the highest point of the rear fender, between the vertical plane through the front axles and a point two inches forward of the rear axle.

4. Shall be no higher than ¼" above a line from the point two inches forward of the rear axle to the trailing edge of the rear dam, or 1½ in. above the rearmost point of the body, whichever is the lesser. Maximum height is 1½ in. above rearmost point of the body, or rear dam height, whichever is the lesser.

3) Spoilers

a) Class A cars; no spoilers allowed except as noted below:

1. Spoilers integral with vacuum-formed plastic bodies may be allowed subject to 2. below.

2. No reinforcing of such plastic spoilers is allowed. Specifically, spoilers on fiberglass bodies and fiberglass reinforcing of spoilers are not allowed.

b) Class B cars; no spoilers allowed.

4. All aerodynamic devices shall be considered in determining the realism of the car.

g. Bodywork on Class B cars must completely cover all four tires when viewed from directly above; this assumes no steering displacement of front wheels.

h. Open cockpit Class A and B cars must have a roll bar extending over the highest point of the body proper (excluding wings, dams, etc.).

3. Class C—Bodies shall be scale or semi-scale representations of late-model stock cars raced on the NASCAR Grand National circuit (or any other circuit with rules basically the same) within the past five years.

Semi-scale Class C bodies must meet the following specifications (unless otherwise noted, all vertical dimensions are from ground level with the body mounted on the chassis and ready to run):

a. Length—28 in. maximum including aerodynamic devices and bumpers.

b. Width—10½ in. maximum

c. Height

1) 6 in. minimum to top of roof line

2) 8 in. maximum (excluding antennas, including wings)

d. Aerodynamic devices

1) Only those devices appropriate to the full-scale car are allowed.

2) Wings

a) Maximum chord, 1½ in.

b) Maximum width, width of body

c) Vertical fins supporting wings shall have a maximum width (longitudinal measurement) of 1½ times the wing chord.

3) Dams
   a) Lateral dams only; must be mounted at rear of body without wrap-around.
   b) Maximum height abouve body contour is ½"

4) Spoilers
   a) May be attached to (or part of) the body only. No direct attachment to the chassis allowed.
   b) Maximum chord is 3/4"
   c) Spoilers shall not be visible beyond the sides of the body when viewed from directly above.
   d) Any spoiler that extends beyond the front of the body proper when viewed from directly above must be constructed of material that crushes easily.

5) All aerodynamic devices shall be considered in determining the realism of the car.

e. Bodywork must completely cover all four tires when viewed from directly above (no steering displacement).

4. Class D–Bodies and chassis must be realistic in appearance with sufficient body space to contain a driver (i.e., six foot driver at 1/8 scale equals nine inches).
   a. Length–28 in. maximum, including wheels and tires.
   b. Width–10½ in. maximum, including tires.
   c. Height–eight in. maximum, excluding antenna.
   d. No additional restrictions, pending formulation of detailed dragster rules.

5. Class E–Bodies shall be scale or semi-scale representations of late-model stock cars raced on the Trans-Am or Grand American circuits.

   Semi-scale Class E bodies must meet the same specifications as Class C bodies.

D. APPEARANCE

The essence of the sport of radio-controlled car racing is competition between *realistic* models of racing automobiles. In addition to the above specifications, the following requirements apply:

1. Windshields must be clear (transparent) material, not open or painted. All Class A, B, C and E cars must have windshields, except scale and semi-scale models of actual cars without clear windshields.

2. Side and rear windows, if any, must be clear or open.

3. A scale driver figure consisting of at least a driver's head (shoulders, arms, etc. recommended), shall be mounted in an appropriate position in the car. This figure shall be realistic in color and garb (i.e., a pink plastic figure without detail or a driver with no helmet are not realistic).

4. All cars shall have an identifying number in at least three locations so that it can be seen from the right side, the left side and from above. The

numbers shall be a minimum of 1¼ in. high with a minimum stroke of 1/8" and of highly contrasting color (preferably black on white circle).

5. Openings in the body other than those appropriate to a full-scale car (i.e., air intakes, cockpit, etc.) shall be kept to a minimum. An opening no larger than 3½ by 3½ in. may be made for access to the engine. Openings for necessary electrical and mechanical components shall provide no more than ¼" clearance around such components.
6. Wheel cutouts may not be more than ½" larger than the tire radius.
7. When initially entered in a meet, the body must be neatly finished and complete.
8. Body and chassis must be securely joined at all times when the car is on the track.

All cars, regardless of class or category, must meet the requirements of this section before they may be allowed to compete.

The rules presented here are not considered complete. Additional work is required in the area of procedures and conduct of races. The Competition Committee will continue its work, with the goal of publishing improved and expanded rules for 1973 on or before January 1, 1973.

ROAR Competition Committee

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