




North American Model Boat Association
Official Rule Book – Update

Update #	2019-1
Date	6/30/19

Enclosed you will find the latest Rule Book updates. To keep your Rule Book current and up to date, please make the page replacements listed below. If you feel that you have missed any updates please call the Executive Secretary to get an additional copy and/or for clarification of current revisions. Proposals

<u>Section</u>		<u>Summary of changes</u>
Table Of Contents		
Remove pages:	1 - 4 (<i>dated various</i>)	Updates needed for below changes
Insert pages:	1 - 4 (<i>dated 6/30/19</i>)	
6 - Nationals		
Remove pages:	1 - 4 (<i>dated 3/7/13</i>)	Changes from proposals sent out in April 2019 Propwash: - Proposal 6: Increase entries for class to be considered as national championship (Rule A.9) - Proposal 9: Pre-race and spot inspections for stock and G-Limited classes (Rule D.3)
Insert pages:	1 - 5 (<i>dated 6/30/19</i>)	
11 - Hulls		
Remove pages:	1 - 2 (<i>dated 3/15/06</i>)	Updated reference in rule A.4 to new rule number in Section 16.
Insert pages:	1 - 2 (<i>dated 6/30/19</i>)	
16 - Race Organization		
Remove pages:	1 - 5 (<i>dated various</i>)	Changes from proposals sent out in April 2019 Propwash: - Proposal 9: Pre-race and spot inspections for stock and G-Limited classes (Rule G) Board of Directors passed proposal: - Addition to disallow cash equivalent awards (Rule I.1 and I.1.a)
Insert pages:	1 - 6 (<i>dated 6/30/19</i>)	
17 - Driving Rules and Regulations		
Remove pages:	3 - 5 (<i>dated 3/15/06</i>)	Changes from proposals sent out in April 2019 Propwash: - Proposal 8: Disqualification for taking out another boat (Rule B.8) - Proposal 7: Clarify what disqualification is and points received (Rule D.2.b.ii)
Insert pages:	3 - 5 (<i>dated 6/30/19</i>)	

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Section

Summary of changes

18 - Heat Racing

Remove pages: 1 - 2 (*dated 11/8/15*)
 Insert pages: 1 - 2 (*dated 6/30/19*)

Changes from proposals sent out in April
 2019 Propwash:
 - Proposal 5: Moving of boats (Rule B.5)

19 - Outboard

Remove pages: 3 - 4 (*dated 3/15/06*)
 Insert pages: 3 - 4 (*dated 6/30/19*)

Changes from proposals sent out in April
 2019 Propwash:
 - Proposal 3: Clarify what disqualification is
 (Rule C.2.h)

27 - Gas


Remove pages: 1 - 2 (*dated 5/13/18*)
 Insert pages: 1 - 2 (*dated 6/30/19*)

Changes from proposals sent out in April
 2019 Propwash:
 - Proposal 4: Modify GX-2 engine size
 (Rule B.2.a.i.b)

28 - Electric

Remove pages: 3 - 6 (*dated 6/14/15*)
 Insert pages: 3 - 6 (*dated 6/30/19*)

Changes from proposals sent out in April
 2019 Propwash:
 - Proposal 2: Clarify what disqualification is
 (Rule C.2.a.vi)
 - Proposal 1: P-Limited modification of
 motors (Rule D.1.a and D.1.d)

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A. GENERAL

1. All hulls will be classed in one of two basic hull classifications: Monoplane or Hydroplane. Once a hull has been classed, no non-permanent modifications can be made to change its basic classification. Within each basic classification, specialty sub-classes may exist with specific design characteristics, limitations, and additional rules (found elsewhere within the NAMBA Official Rule Book). Examples of specialty classes are as follows:

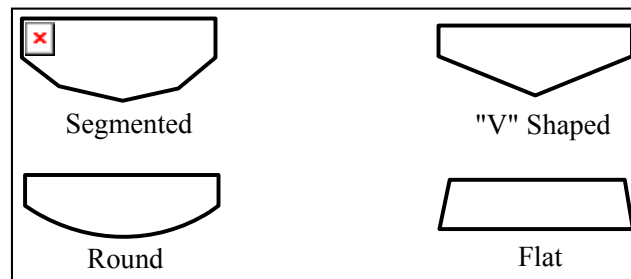
Monoplane
 Deep Vee
 Crackerbox

Hydroplane
 Scale Unlimited
 Sport
 Tunnel

2. Specialty classes may compete within their basic classification as well as their specialty class.
3. The maximum hull length will be 60 inches. Any reference in this section regarding hull length does not include hardware (i.e. strut, rudder/bracket, trim plates, turn fin, tuned pipe, stub shaft and propeller).
4. Protests of hulls will be handled in accordance with Section 16 - rule H.

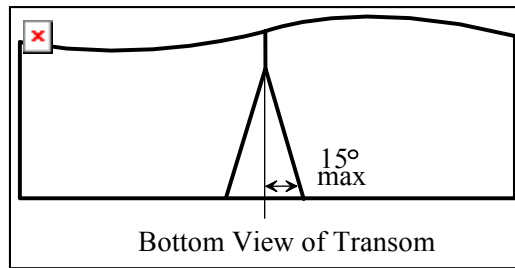
B. MONOPLANE HULL

1. A hull that has a single riding surface at planing speeds (i.e. predominately rides on the keel line or surface). The riding surface cross section may be flat, "V" shaped, segmented, or round as long as it incorporates the following design characteristics and doesn't exceed any of the dimensional limitations.

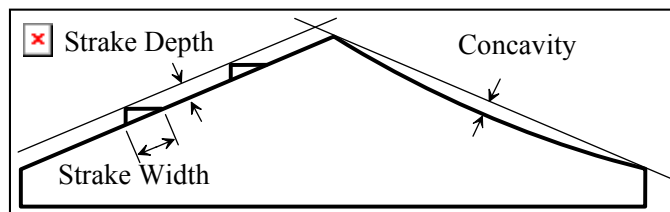


2. A hull which has no lateral side-to-side breaks, discontinuities, or steps in the wetted surface running at more than a 15° angle with the keel (in bottom view).

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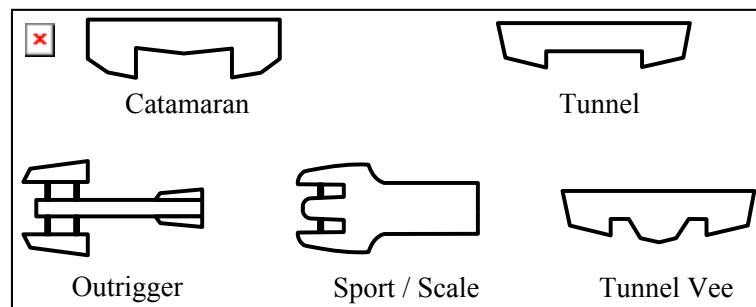



3. No point on a hull cross section will be below the keel line or surface. (Prop shaft logs, turn fins and ride plate fins, i.e. hardware, excepted)
4. Concavity – When checked with a straight edge at right angles to the keel at any point between the transom and the mid-point of the hull length, no depression, step or concavity will exceed the dimensional limits for strakes.
5. Strakes - Regardless of the type or purpose, must conform to the following rules:
 - a. Strakes will be no more than 3/4" wide and 5/16" deep. For hulls over 46" long and a beam width over 15", strakes will be no more than 3/4" wide and 1/2" deep.
 - b. Strakes that extend into the area between the transom and the mid-point of the hull length must be parallel with the keel.



C. HYDROPLANE HULL

1. If a hull does not meet the requirements to be classified as a monoplane then it is automatically classified as a hydroplane. Examples of hydroplanes:



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A. RACE OFFICIALS AND DUTIES

1. General

- a. All race officials will have competed in the event/contest they are to manage before being qualified for these positions wherever possible.

2. Contest Director

- a. The Contest Director must be a NAMBA member in good standing.
- b. The Event/Contest Director is the primary official of an event or contest. Their duties and responsibilities include, but are not limited to the following:
 - i) ensuring that all contestants understand the event by conducting a driver's meeting 15 minutes prior to the start of the event/contest;
 - ii) fair and expeditious progress of the event;
 - iii) smooth and efficient pit operations;
 - iv) accurate entry and result tabulations and accounting;
 - v) resolving arbitration arising over the interpretation of rules, starts, retrieval of boats, and assessments of penalties and/or disqualifications;
 - vi) disqualification of a contestant for unsportsmanlike conduct when necessary.

3. Assistant Event/Contest Director

- a. The Assistant Event/Contest Director is the alternate to the Event/Contest Director. Their duties and responsibilities include, but are not limited to the following:
 - i) constant monitoring of the orderly and timely progression of the contestants and/or races in the hot pit area;
 - ii) ruling on the start and finish of each run/race;
 - iii) starting Pit Time and starting clock on signal from the Pit Manager.

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4. Pit Manager

a. The Pit Manager is responsible for the overall management of the hot pits. His duties and responsibilities include, but are not limited to:

- i) maintaining a checklist of contestants in the designated pits and informing the contest officials of missing entries;
- ii) insuring that only drivers and their helpers/pit crews are in the Hot Pit;
- iii) calling for the Pit Time;
- iv) constant monitoring of the boat traffic in the Pit Lane and ruling on infractions.

5. Course Judges/Referees

a. Course Judges/Referees will be responsible for the constant monitoring of their assigned course area/boat and note infractions of the rules and procedures. They will have competed in the event/contest they are to judge/referee before being qualified for this position wherever possible. Their duties and responsibilities include, but are not be limited to:

- i) noting the infraction, the lap number and boat(s) involved;
- ii) judging the severity of the infraction and assessing a just penalty, if necessary, under these rules;
- iii) informing the proper contest official of the infractions immediately;
- iv) constant monitoring of his assigned part of the course for unnatural obstacles or hazards (i.e., cans, paper, sticks, plastic bags, etc.) and for alerting the proper official.

B. SCHEDULING OF RACES/HEATS

1. Drawing for races will generally be done by random selection of compatible frequencies and with no regard to specific entries, contestants, and/or boats. Some types of racing, however, require special techniques which may be followed at the discretion of the contest officials.
2. During the course of a race, when the number of boats in any scheduled heat has been reduced to one or two boats, the Contest Director may move the remaining boats to another heat barring frequency conflict.

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3. The contestant is responsible for notifying the contest officials for their event in case of "back-to-back" races involving his entries and will receive a maximum of five minutes for "get ready" purposes.
4. There must be a minimum of three prepaid entries on compatible frequencies to make a class and/or race.

C. ENTRY LIMITATIONS AND QUALIFICATIONS

1. Contestants will be limited to one entry per hull/engine class at each sanctioned event, as to not increase their chances of winning an award or trophy in the class.
2. There shall be no switching of hulls in a class during a sanctioned event regardless of the circumstance (i.e. hull damage, current water conditions, etc.) after the start of round 1. For outriggers, the sponsons are not considered part of the hull and thus can be changed.
3. Two or more entrants may not race the same hull in the same class.
4. There will be no proxy entries in R/C competition unless the contestant is physically handicapped or aged. No proxy driver may enter a boat in the competition in which he is proxying. Proxy drivers must be members of NAMBA.

D. FREQUENCY CHANGES

1. Contestants will be held responsible for the correct frequency of their entry and the contest official will not be responsible for rescheduling, rearranging, or juggling of scheduled heats due to incorrect frequency on entry forms, unless such rescheduling is done at the discretion of the contest officials.
2. Frequency changes due to equipment failure will receive sympathetic treatment provided:
 - a. the proper contest official is notified immediately upon discovery of the necessity of a change and the frequency to which it will be changed;
 - b. that the entry has not been called to a stand-by status.

E. PRACTICE RUNNING

1. There will be no "open water" periods during the contest as all practice running will be controlled by a contest official. Procedures for controlled practice and test operations will be left to the discretion of the sponsoring club, but the following procedures are recommended:
 - a. Water or course time will be limited by the contest officials.

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- b. Only boats of compatible speed and maneuverability will be allowed on the water at one time.
- c. All practice running will be in a clockwise direction around the course set on the water at that time, boats may utilize the water available provided each "pass" is on the proper side of the course.
- d. Boats that obviously do not need practice may, at the discretion of the contest official, not be allowed to run, (i.e., boats that have finished their event).
- e. During open water, all drivers must have a pit person to call hazards and ensure proper safety during operation of a model boat.

F. DRIVERS' MEETINGS

- 1. Drivers' meetings will be held prior to each event or at any time the contest officials may deem necessary. It is the contestant's responsibility to attend these meetings.
- 2. A primary purpose of the drivers' meeting is for interpretation and clarification of rules and procedures, and any questions regarding said rules should be asked at this time.
- 3. Once an event is underway, the contest officials should not be distracted from their duties by questions that could or should have been asked at the drivers' meeting.

G. INSPECTIONS

- 1. The Contest Director has the authority to implement pre-race and/or spot inspections as they see fit on hulls and engines.
 - a. Engine inspections can only include visual inspections and/or inspections performed by removing the spark/glow plug and using an instrument to check stroke.
 - b. Hull Inspections may use various measuring tools as required.
- 2. If a racer is to be found to be in violation of rules, they can be disqualified for the remainder of race in the class where the violation occurred. All points earned in that class will be null and void. If a disqualification occurs, no other racer will move up in heat race position to receive additional points. For example: If a racer took 1st place in a heat and was disqualified, the 2nd place racer would not move up to 1st place.

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H. PROTESTS

1. In all sporting events, situations develop that require judgment calls or decisions on the part of contest officials and all such decisions made herein will be final and may not be protested.
2. Continued verbal protests, harangues and/or other abuse, either direct or indirect of any contest officials will be considered unsportsmanlike conduct and will be just cause to bar that contestant or crew person from any further participation in that contest.
3. All protests for engines and hulls must be accompanied by a \$25 protest fee. If the protest is found to be invalid, \$10 will go to NAMBA and \$15 will go to the owner of the protested boat. If the protest is found to be valid, the fee is to be returned to the protester.
4. A protested hull or engine will be measured by a committee made up of the Contest Director, the District Director or his authorized representative present at the event, and one other NAMBA member other than the protester or owner of the protested engine or hull. Measurements will be made in the presence of the owner and results thereof will be made known in writing and signed by each member of the three person committee and be forwarded with their decision to the Executive Secretary, the Board of Directors, and the President of NAMBA.
5. A protested hull or engine will be allowed to run in the event(s) entered. However, any points, records, places, etc. won will be held pending the resolution of the protest.
6. Protests on the legality of a boat's engine will be done after the 4th round of the class. A boater that has an engine under protest will be allowed to complete the racing for the day.
7. Protests on the legality of a boat itself, will be done prior to the start of the 2nd round. When the 2nd round of racing begins, the opportunity to examine every boat in that class will have occurred, thus allowing the CD the opportunity to determine if it meets the minimum requirements to continue.
8. A protest of any kind must be made at the contest so all factors can be available.

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I. AWARDS

1. The members of NAMBA will be allowed to accept merchandise, merchandise gift certificates, and trophies as competitive awards. Any NAMBA member can receive earned racing awards. However, the awarding of district points will be left to the discretion of the district in which the race is held. Cash and cash equivalent awards are not permitted.
 - a. Examples of cash equivalent awards would be but are not limited to: pre-paid debit cards, money orders, cashier's checks, and other items that are directly redeemed in cash.

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4. In racing, the natural lane of choice is the lane nearest the course outline. This lane will have the right-of-way over other lanes of travel and will take precedence over Section 17 - rule B.2.c.
5. The above right-of-ways also apply in the turns.
6. Good driving techniques and sportsmanship decree that a relatively straight course be driven. Fishtailing, "s" turns, or other such tactics to prevent or hinder an overtaking boat are prohibited.
7. Violations of right-of-way will draw a driver's infraction.
8. A driving infraction that results in another boat to not finish that heat, will result in the offending driver being disqualified from that heat and receive zero points.

C. BOAT OPERATION GUIDELINES

1. Normally drivers enter into a race with all systems operable and with firm control of their boats. Frequently, however, a driver after launching or during a heat will discover that he is having difficulties in steering due to a fault with radio, servo, linkage, or other gear. This could cause other boats to be destroyed, run ashore, and otherwise damaged. Such practices will not be tolerated in any NAMBA sanctioned event.
2. It will be the driver's responsibility upon experiencing any sign of inability to control his boat while on course to immediately notify the Pit Manager and at the first opportunity bring the boat to shore while any vestige of control exists. His first action will be to attempt to steer the boat away from the active part of the course, or if possible, to another part of the water. The Pit Manager will then warn other drivers and officials when possible.
3. Should a boat show erratic, random, or other behavior indicating possible control problems, a contest official will warn the driver. Should the behavior continue, the boat will be ordered off the course and given points for a "Did Not Finish."
4. Should a driver, after showing marked signs of control inability, and after being warned and given opportunity to leave the course, not comply with the order to cease operation, he will be banned from participation in any further heats and be given zero points for the heat in question.
5. A driver experiencing control problems will not be allowed to enter another heat unless he can demonstrate that the problem has been corrected.
6. Should a driver re-enter a heat after establishing controllability and should he continue to show erratic operation, his aimless maneuvers will be termed inability to drive properly and he will be ordered from the course.

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D. PENALTIES

1. General Penalties

- a. A driver who accumulates three "driver infractions" or "buoy infractions" will be automatically ordered off the course and awarded a "Did Not Finish."


2. Driving Infractions

- a. A driver's fault or infraction will be called by the designated contest official should any driver operate a boat in violation of the general racing rules of NAMBA or in an unsafe manner as outlined above.
- b. Driver infractions will be penalized as follows:
 - i) Normally, an infraction will draw a penalty of one extra lap over those required to complete the heat.
 - ii) Should the infraction be of a serious enough nature as to endanger others (boats, contestants, spectators) or a flagrant violation of these rules (in the opinion of a contest official) the offender may be ordered off the course and disqualified from that event. This disqualification would result in all the points for the offending driver being taken away for the event and them not being able to continue racing in the event.
 - iii) All infractions must be called within one lap of their occurrence to have a penalty assessed against the driver.
 - iv) If a driver hits a called dead boat, that driver will be disqualified for that heat and will receive zero points.
 - v) If a driver finishes a race and then hits a dead boat. that driver will be disqualified from that heat and will lose the points which he has earned for that heat. The remaining drivers, if any, will not advance a position when they finish the heat. The points that the offending driver lost due to the disqualification will not be awarded to the next driver who finishes.

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3. Buoy Infractions

- a. A one lap penalty will be assessed when a boat cuts inside a course marker or when the boat jumps over or makes an obvious hit on a buoy. No penalty will be assessed for a boat that touches a buoy on the outside causing no damage or displacement.
- b. A one lap penalty occurs when one or more buoys are cut on a turn or when a straight-away marker is cut. Offending boats must yield right-of-way to others on the course when re-entering.
- c. Lap penalties will be assessed during Pit Time, Mill Time, and Race Time. If a buoy is cut after the boat has finished its part of the race, then the boat will receive a 100 point reduction in earned points in the heat. If the driver has completed the heat in 5th, 6th, 7th or 8th place, he will be awarded 50 points for that heat.
- d. Buoy infractions will be called by a duly named official and any decision made will be final.

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A. GENERAL

1. An R/C model powerboat heat will consist of the simultaneous scheduling of two or more boats for a race. The number of heats constituting a race is determined by the number of entries and time available, however, a minimum of three rounds is required with ties to be broken by the fastest time.

B. HEAT RACING PROCEDURES

1. Each heat race will consist of three distinct phases:
 - a. Pit Time
 - b. Clock Time or Mill Time
 - c. Course Time or Race Time
2. The heat starts with the first phase: a two-minute period or Pit Time for starting engines, launching and releasing boats. A starting clock, placed in full view of all drivers (or and adequate audio system) and requiring no less than 30 seconds to complete one sweep, will be started. If all boats are on the water you can go onto the 30-second clock with drivers approval. Contestants will mill on the course in a designated milling pattern until the end of Clock Time. Drivers should pace their boats during Clock Time so as to arrive at the starting line at full throttle simultaneously with the expiration of the Clock Time which constitutes the start of Course Time.
3. There must be a minimum of three prepaid entries on compatible frequencies to make a class and/or race. There will be no more than eight boats in one heat.
4. Heat racing records can only be set at and during NAMBA sanctioned heat races.
5. At any time during the event, the Contest Director may move contestants in a particular class with no bias to fix unbalanced heats due to scratches and/or no shows.

C. PIT TIME

1. A Pit Time of two minutes is allowed for the starting of all engines and to allow all boats to be launched.
2. If no entrants have started engines and are under way at the expiration of Pit Time, the heat will be declared “No Contest”. All drivers will be awarded zero points, a DNS.

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3. Boaters who are in the hot pits will not be permitted to pre-start their motors prior to the start of Pit Time. Once the heat is in progress, boaters that did not get started and boaters not participating in that heat will not be permitted to start their motors in the hot pit area.

D. CLOCK TIME (MILL TIME)

1. Clock Time will be initiated at the expiration of Pit Time and no boats may be launched or released after commencement of Clock Time.
2. Milling procedures during Pit Time and Clock Time:
 - a. Boats on the course awaiting the expiration of Clock Time will adopt a milling pattern in a clockwise direction and around the milling buoys in a specified milling area to be set at the discretion of the contest officials.
 - b. Boats must use the milling pattern and may not cross the Start/Finish line prior to the expiration of Clock Time unless the milling course includes the Start/Finish line. Traversing the course or infield is prohibited (unless as otherwise directed) and will be ruled a driver's infraction and a one lap penalty will be assessed.
 - c. During the last five seconds of Clock Time, boats passing the buoy marking the end of the mill must steer a straight course and observe driver safety in selecting lanes. Zigzagging, "S" turns, or fishtailing to delay crossing the start line will draw a driver infraction with either a one lap penalty being assessed or possible disqualification.

E. COURSE TIME (RACE TIME)

1. Course Time will commence with the expiration of Clock Time and will not exceed five minutes. Any boat not completing the required number of laps in this time will receive a DNF and be ordered off the course.
 - a. The exception to this is where there is active racing between two or more boats, and adverse course and/or weather conditions exist that would prevent normal racing speeds for most boats in that class. In such cases at the sole discretion of the CD, "Course Time" may be extended to eight minutes

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xiii) Glow plugs and propellers by any manufacturer may be used.

xiv) Any fuel brand or mixture is permissible.

xv) The use of radio controlled remote needle valves is permissible in addition to the stock needle valve.

h. Any other changes and/or modifications, including the use of external after market parts or accessories to include, but not be limited to, on board glow plug igniters (glow drivers), not specifically permitted herein, are considered illegal and will result in disqualification from that class for that event with all points taken away in that class.

i. Effective in January 1993, the AMPS engine was no longer allowed to compete in any of the stock classes. However, these engines are still considered legal for the modified outboard classes.

3. Modified

a. Modified class engines must meet general outboard engine specifications and the engine classifications as defined in Section 10 - rule A.1.

D. HULL SPECIFICATIONS

1. Any hull currently recognized by the existing NAMBA Official Rule Book will be eligible for outboard racing. At the discretion of the Contest Director, all hull classes may be run together. At the Contest Director's discretion, such classes may be run under either stock or modified engine rules.

2. The outboard racing class called Model Outboard Performance Craft Tunnel (OPC), was established to race model outboard tunnel boats that resemble those participating in Outboard Performance Craft Tunnel races as sanctioned by the American Power Boat Association.

3. Tunnel hulls will be of a tunnel configuration with no restriction as to size, weight, or type of construction. A hull will be classified as a tunnel if it meets the following requirements:

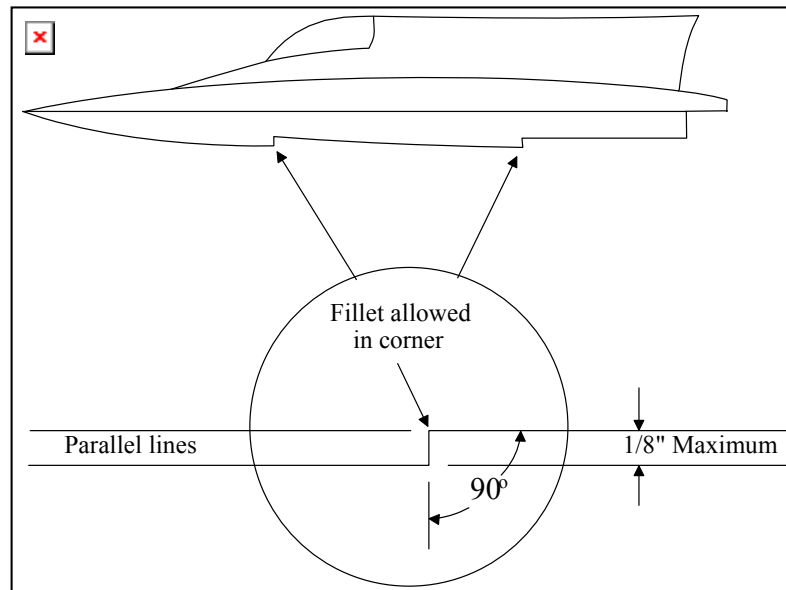
a. The general design of the tunnel hull should follow as closely as possible to the design of the full sized OPC tunnel hulls.

b. The hulls will be stand-off scale, with no restrictions as to canted sponsons, tunnel dihedral, air traps, strakes, stern stabilizing fins, etc.

c. Imaginative painting, striping, company logos, and lettering schemes may be added and are encouraged.

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- d. A close to scale driver with at least the head and shoulders must be provided unless proof of a reclining driver is offered as in OPC hulls. Boats without drivers must be painted to include a darkened windshield to resemble a closed-in cowl appearance.
- e. The tunnel may be of any design, width, or depth, but must run the full length of the hull.
- f. The tunnel must connect two outer hulls or sponsons which are unbroken and must also run the full length of the hull. Picklefork designs are acceptable. Outrigger configurations are not acceptable.
- g. Sponsons may be of any design and may include stepped surfaces on the wetted running sponson bottom of not more than 1/8" in depth. The 1/8" steps may not be less than 5" apart if used across the sponson. Only one step may be used if used lengthwise on the sponson.




- h. No hull will be allowed to have a recessed or picklefork bow which exceeds 30 percent of the overall boat length. Airslots in the center hull must be subtracted from the overall hull length.

E. SPECIALTY CLASSES

1. Quarter Scale Tunnel

a. General Rules

- i) The class will utilize all existing outboard tunnel rules unless otherwise specified.

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A. GENERAL RULES

1. Gas racing rules are intended as a supplement to the general racing rules of NAMBA. In the case of a conflict, the Gas racing rules will prevail.

B. CLASS SPECIFICATIONS

1. G Class Rules

a. General Engine Specifications

- i) Engines in this class shall be highly mass-produced as evidenced by the process used to manufacture the major components. The cylinders and crankcases shall be die-castings, with cylinder and head as a one-piece unit. Examples of such engines are Zenoah, Chung Yang, Kawasaki, Homelite, and U.S. Engines.
- ii) Secondary parts such as water jackets, nose cones, drive components, shim plates, intake manifolds, carburetors, headers, pipes, etc. do not come under the “highly mass produced” rule. Major components such as cranks, rods, pistons, cases, ignition systems, cylinders, and cylinder heads do fall under the rule and must be parts of the original motor manufacturer. Interchanging of major parts from one engine series to another is legal as long as the parts used were available on another engine from the same manufacturer
- iii) Modifications are allowed to major and minor components. However, major components may only be modified by removing material. Adding material or parts to modify an engine's major components will be illegal. The only exception to this rule is that a cylinder may be modified to accept (add-on) a water jacket.
- iv) Induction systems must be piston-ported. Modifications incorporating induction systems other than piston-ported systems are illegal. Engines must be naturally aspirated. Tuned exhaust and intake systems are the only allowed method of altering cylinder pressures.
- v) Engines in this class must employ spark-induced combustion. Glow plug or compression-induced combustion is illegal.
- vi) Recoil starters must be included on the original engine and must be retained on engines in this class.

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vii) Displacement is the swept volume of the engine, which is the cross sectional area of the cylinder multiplied by the stroke of the engine and two displacement ranges will be offered within this class:

(a) G-1 will include engines from 15 to 25.99 cubic centimeters.

(b) G-2 will include engines from 26 to 35.99 cubic centimeters.

b. Fuel Specifications

i) Gasoline having an octane rating no higher than 100 must be used in this class. Gasoline is a mixture of hydrocarbons with no nitrogen bearing compounds. Ethers or alcohols may be added commercially as oxygenating agents. It can be mixed with oil in any proportion for lubrication, but no other additives are allowed that were not in the fuel as originally manufactured.

ii) To enforce this rule, a protest may be made to the contest director any time during the contest. Protests must be accompanied by a \$10.00 protest fee that will be awarded to the sponsoring club. The offending racer will be made to use the protesting racer's fuel for the duration of the contest. If the fuel is unacceptable to the offending racer, fuel from a neutral party must then be used by both the offending racer and the protesting racer. In this situation, the neutral party would be awarded the protest fee in payment for the fuel.

2. GX Class Rules

a. General Engine Specifications

i) Engines running in this class will not be required to fall under the "industrial" rule. Displacement is the swept volume of the engine, which is the cross sectional area of the cylinder multiplied by the stroke of the engine and three displacement ranges will be offered within this class:

(a) GX-1 will include engines from 15 to 25.99 cubic centimeters.

(b) GX-2 will include engines from 15 to 35.99 cubic centimeters.

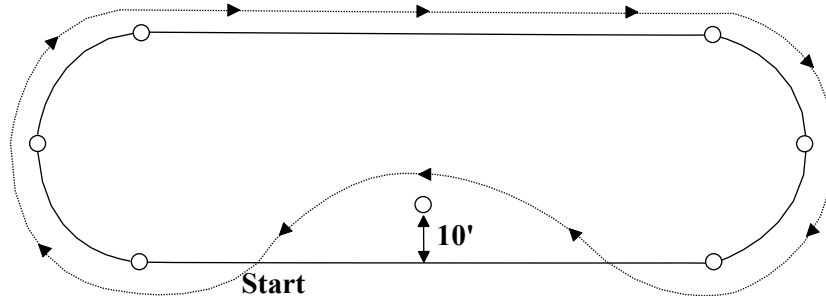
(c) GX-Twin will include two engines or an engine with two cylinders with a maximum displacement of 64.00 cubic centimeters.

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2. M Offshore

- a. Course will be a standard oval with a left turn buoy which will be placed halfway down the middle of either the front or back straightaway and 10 feet inside the course (see diagram).

“M” Offshore Course

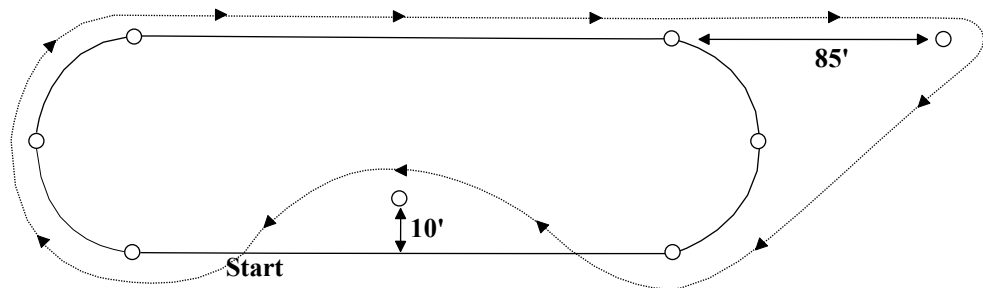


3. Offset Offshore

- a. Same as the “M” course with the addition of an “Offset Buoy”. The Offset Buoy will be positioned in line with either the front or back straightaway, and 85 ft. from any of the course's 4 outside turn buoys.

This diagram is provided as example and illustrates the right rear offset with the left turn buoy in the front straightaway.

Offset Offshore Course



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C. RACE FORMAT

1. Launches - Hand launching or dead-in-the-water launching will be at the driver's discretion.
2. Starts - Two types of starts will be permissible for heat racing. The choice of start format is up to the individual district or Contest Director.
 - a. Flying Clock Start
 - i) The clock system used may be a visual clock or an audio tape type clock.
 - ii) An audible sound or statement will start the Pit Time. Pit Time will be one minute, and a horn or audible sound will signal the end of this time period.
 - iii) Clock Time (Mill Time) will commence immediately upon the expiration of Pit Time, and will last for 30 seconds. At 10 seconds, no more boats will be allowed to be launched. Any boat launched after this time will be ordered off the course and will receive a "Did Not Start" for that heat.
 - iv) All boats will leave the launch area and will go to the left of the start buoy and to the right of the buoys in the left end of the course. All boats will then utilize a 3/4 mill during Pit Time and during Clock Time.
 - v) The start of the race will be at the end of Clock Time when the countdown reaches zero. All stop watches will be started at this point, and will be stopped when the driver finishes the required laps.
 - vi) All boats coming from the right turn at the start of the race will adhere to the five second rule (as defined in Section 18 - rule D.2.c). All boats jumping the start will proceed around the complete course to the start line for a legal start. No boat may be stopped on the course for the purpose of waiting in order to better time the start. A disqualification from the heat will be given for this infraction resulting in zero points.
 - b. LeMans Start
 - i) The official start of the heat will be a signal from the Contest Director.
 - ii) All stop watches will be started at the signal, and will be stopped when the driver finishes the required laps.

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- iii) All boats will race toward buoy one and two on the left end of the course, and will continue around the course to the start/finish line. This will constitute the completion of the first lap under power.

D. CLASS SPECIFICATIONS

1. POWER SPECIFICATIONS

- a. The following motor and cell configurations will be considered official for electric racing in NAMBA:

Class	Motor Type	Actual Voltage Limits	Capacity (mAh)
M-2*	Any single motor.	0 - 4.23 V	10,000 max
N-1	Any current ROAR approved stock .05 motor.	0 - 8.46 V	
N-2	Any single motor.		
P-Limited	Any single motor that meets the P-Limited requirements, see rule D.1.d below.	11.10 - 16.92 V	
P	Any amount and/or size of motors	18.5 - 25.38 V	12,000 max
Q		25.90 - 33.84 V	
S*		18.50 - 42.30 V	
T			

** Note: Classes M-2 and S will be allowed for SAW and 2-Lap Competition only.*

- i) The Actual Voltage limits are pre-run/race limits.
- ii) For all sanctioned events, the Contest Director shall designate digital voltage meter equipment for technical inspections.
- iii) For SAW/2-Lap record events, The Contest Director shall establish protocol for a voltage check technical inspection before a boat makes a record attempt.
- iv) For Heat Racing, the Contest Director has the authority to implement pre-race inspections and/or spot inspections as they see fit.
- v) NAMBA Protest Rules shall apply (Section 16, Page 4, G. 1-3), with “cells” being an included item under #3. If the cells are found to be non-compliant by the Contest Director, the racer will be withdrawn from the class. The Contest Director also has the authority to ban the member for the remainder of the event.

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- b. All of the above Power Specification may be further divided into various hull types. For specifications on these hull types see Section 11, as well as rule E in this section.
- c. There are two acceptable multi-motor configurations for the Power Specifications that allow multiple motors:
 - i) Each motor must see a nominal voltage within the Power Specification. The mAh capacity maximum within the same Power Specification is for all motors combined.
 - ii) The sum of the nominal voltages powering each motor must be within the Power Specification. The mAh capacity maximum within the same Power Specification is for each motor.
- d. P-Limited Approved Motors
 - i) Motors shall be of an inrunner design and shall not exceed the following dimensions:
 - (a) Length: 60mm (2.362 in.), this includes any bearing protrusion
 - (b) Diameter: 37 mm (1.457 in.)

