	North American Model Boat Association	Update #	**2008-2**
	Official Rule Book – Update	Date	**6/30/08**

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.

Table Of Contents			
Remove pages:	v - vi	*(dated 2/19/08)*	Reflect updates to sections listed below
Insert pages:	v - vi	*(dated 6/30/08)*	
27 - Gas			
Remove pages:	1 - 2	*(dated 2/19/08)*	Reflect additional page to section
Insert pages:	1 - 2	*(dated 6/30/08)*	
Remove pages:	5	*(dated 2/19/08)*	Addition of rule passed via proposals sent out in March 2008: - Proposal 6: Rule D - Classic Thunderboat
Insert pages:	5 - 6	*(dated 6/30/08)*	
28 - Electric			
Remove pages:	1 - 18	*(dated 2/27/07)*	Modifications of rules passed via proposals sent out in March 2008: - Proposal 1: Rule D.1.a N-2 and new D.2 inserted prior to existing - Proposal 2: Rule B.1.e - Proposal 3: Rule D.3.g.iii.d, D.3.g.iv.a, and D.3.g.iv.b - Proposal 4: Rule D.4.b.iii.e and D.4.b.v.a - Proposal 5: Rule D.1.a N-1
Insert pages:	1 - 18	*(dated 6/30/08)*	

21. SCALE UNLIMITED HYDROPLANE
- A. General Rules....1
- B. Race Format....1
- C. Hull Specifications....2
- D. Engine Specifications....3
- E. Master Hull Roster....3
- F. Scale Concours Judging....4

22. ENDURO
- A. Endurance....1
- B. Rules....1

23. DEEP VEE
- A. General Rules....1
- B. Race Format....1
- C. Hull Specifications....1
- D. Engine Specifications....2

24. OFFSHORE
- A. General Rules....1
- B. Hull Specifications....1
- C. Engine Specifications....1
- D. Race Format....2
- E. Race Courses....2
- F. Concours Judging....3

25. TEAM MARATHON
- A. General Rules....1
- B. Race Format....1
- C. Hull Specifications....1
- D. Engine Specifications....1
- E. Lap Counting....2
- F. Equipment Repair and Parts Replacement....2

26. KIDS COMPETITION
- A. Entry Specifications....1
- B. Qualifying Boats....1
- C. Entry Fees....1
- D. Race Specifications....1
- E. Driver Assistance....1
- F. Scoring....2
- G. Awards....2

27. GAS
- A. General Rules....1
- B. Class Specifications....1
  - 1. G Class Rules....1
  - 2. Open Class Rules....2
- C. Hull Specifications....3
  - 1. General....3
  - 2. Monoplane....3
  - 3. Outrigger Hydroplane....4
  - 4. Sport Hydroplane....4
  - 5. Catamaran....4
  - 6. Crackerbox....4
  - 7. Classic Crackerbox....5
- D. Speciality Classes....5
  - 1. Classic Thunderboat....5

28. ELECTRIC
- A. General Rules....1
- B. Official Courses....2
  - 1. Oval....2
  - 2. M Offshore....3
  - 3. Offset Offshore....3
  - 4. Straight-line....4
  - 5. Nationals Course Format....4
- C. Race Format....4
- D. Class Specifications....5
  - 1. Power Specifications....5
  - 2. Hull Length Measurement....6
  - 3. Sport Hydro Classes....6
    - a. General Rules....6
    - b. Appearance and Intent....7
    - c. Hull Specifications....7
    - d. Drive Train....8
    - e. Motor Specifications....8
    - f. Q & S Sport Special Rules....8
    - g. Limited Sport Hydro....9
  - 4. Offshore Classes....10
    - a. Offshore....10
    - b. Limited Spec Offshore (LSO)....13
  - 5. Specialty Classes....15
    - a. 1/10th Scale Crackerbox....15
    - b. P OPC Tunnel....16
    - c. ECO....16
    - d. Fast Electric 1/8 Scale Unlimited Hydroplane....18

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.

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. OPEN 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 two 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 26 to 35.99 cubic centimeters.

ii) Engines in this class must employ spark-induced combustion. Glow plug or compression-induced combustion is illegal.

iii) Induction systems may include piston port induction, reed valve induction, rotor-valve induction and drum valve induction.

g. Two drivers of ¼ scale size and appearance, wearing helmets and life preservers must be used. A steering wheel, instrument panel, and other detailing is encouraged.

h. No parts (rudder, prop, plates, etc.) may be more than four inches behind the transom.

i. The exhaust system must be enclosed by the hull. No part of the exhaust system may extend beyond the transom with the exception of a small pipe muffler or transom exhaust flange.

j. No servo adjusted trim tabs are permitted.

7. Classic Crackerbox

a. All general Crackerbox rules apply with the following exceptions:

b. The hull must be made completely of wood. It is permissible to cover the hull with fiberglass and resin. The minimum running weight will be 15 pounds.

c. Classic Crackerboxes may run in the general Crackerbox class but not on the same day.

D. SPECIALITY CLASSES

1. CLASSIC THUNDERBOAT

a. Hull Specifications

i) The boat may be of wood or fiberglass construction.

ii) The hull length will be between 48" – 56".

iii) The hull width will be a minimum of 24".

iv) The transom will be a minimum of 10" in width.

v) The hull design will only be one of the following types: round nose, step deck, or chisel nose.

vi) Nothing on the boat may be further than 5 1/4" behind the transom.

b. Motor Specifications

i) Engines will be a Zenoah G260 PUM. The Engine may run a stock 257 carburetor. No internal modifications are allowed. All replacement parts must be from the original manufacturer and the

same type engine (Zenoah 260 to Zenoah 260). No part swapping from other manufacturers or engine types is permitted.

ii) Any pipe combo may be used. The pipe and muffler must be inside the boat and exit through the transom.

c. Appearance

i) The boat must have a sponsored paint scheme with sponsored IDs and U numbers on the boat.

ii) The boat must have a driver in a front or rear cockpit. The driver must be a scale of 1/8 to 1/6 in relationship to the size of the boat.

iii) The boat must run with an engine cowling or dummy engine to cover as much of the boat's engine as possible.

d. Race Format

i) At the discretion of the Contest Director, races will be run either under the NAMBA Heat Racing Format or the "Love Plan" which is run as follows:

(a) The event must consist of four preliminary rounds of heats and one final round of concluding heats. The concluding round of heats must consist of one final heat and a consolation heat.

(b) The maximum number of boats in the final heat is six. The top five boats with the highest points after the four preliminary rounds will be eligible for the final heat. If a frequency conflict exists between two or more boats eligible for the final heat, preference goes to the boat that has accumulated the most points in the preliminary rounds, or to the boat with the fastest time should a tie in points occur. The other boat will have the option to change to any other available frequency.

(c) After the final heat field has been set, boats accumulating points in the four preliminary rounds after the fifth position will be used to fill the consolation heat. The winner of this heat will be used to fill the six boat final heat.

(d) The outcome of the consolation heat will not affect the overall standings or points for the day.

(e) Final race standings will be determined by order of finish in the final.

A. GENERAL RULES

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

2. A positive method of speed control must be used. On/Off micro or variable speed controls are allowed.

3. The following battery chemistries will be considered official for electric racing in NAMBA:

    a) Ni-chemistry: maximum of Sub-C sized cells with nominal 1.2 volt per cell.

    b) Li-polymer chemistry: nominal 3.7 volts per cell.

    c) Li-ion chemistry: nominal 3.3 volts per cell.

    Racers wishing to run alternative chemistries to those listed will be required to provide data to the contest official to verify the chemistry's volts per cell and any special safety requirements. Allowing alternative chemistries will be at the discretion of the Contest Directory based on the data provided.

    For the purposes of determining maximum allowances, a "pack" will be considered any number of cells in series whose min/max nominal voltage falls within the allowed nominal voltage range for the designated class.

    Note: It is recognized that the high energy potential of modern cells can poses a potential for danger, both to racers and to their pit equipment. It is therefore required that each racer keep in their charging area the appropriate safety equipment at events where alternate battery chemistries are being used. This may include fire extinguishers, safe charging enclosures, sand buckets, etc. Additionally, the hosting clubs may provide additional equipment, charging procedures, and/ or charging areas as they see fit.

4. Hull Measurement Guidelines

    a) When a hull minimum or maximum length measurement is specified for any class, that hull will be measured by placing two vertical straight edges at the furthest points fore and aft of the bow and transom of the hull. The distance between those two vertical straight edges will be measured. Hardware will not be included in the measurement.

    b) The hull will be placed between those two vertical edges and situated in the same horizontal position in which the hull would ride on the water. Any flanges, "shoebox" overhangs or other parts of the hull that are part of the original manufacturing process will be included in the measurement.

c) A hull may be lengthened to comply, but material additions must become an integral part of the hull structure. If for instance, material is added to the transom, the entire transom must be lengthened and the addition must be blended in to the rest of the hull.

B. OFFICIAL COURSES

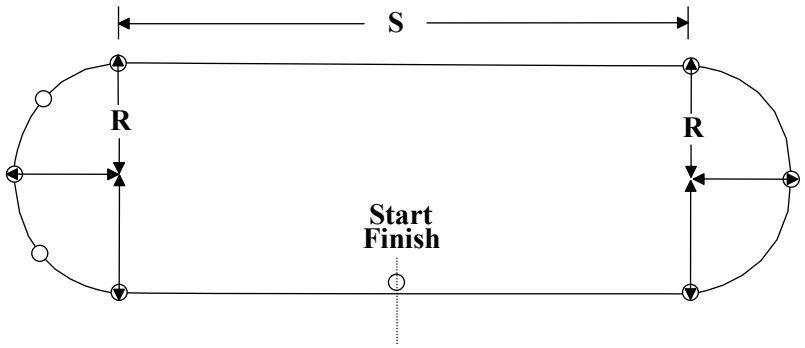
1. Oval

a) A minimum of three to a maximum of five buoys will be used to define the turns on both ends of each course.

b) Turn radius (R) will be measured to the outside of the buoys (Figure 1).

c) Straightaways (S) will be measured from the exit buoy at one end of the course to the entrance buoy at the other end of the course (Figure 1).

Figure 1 - Standard Oval Course



d) Standard oval course lengths are 1/10 Mile, 1/8 Mile, and 1/6 Mile, with specific straightaway and turn radius for each as shown in Table 1 below.

Table 1 – Course Measurements

Course	Straightaway (S)	Radius (R)	One lap distance	Sample Race Distances
1/10 Mile	170'	30'	528.5'	5 laps = 1/2 Mile 10 laps = 1 Mile
1/8 Mile	220'	35'	660'	4 laps = 1/2 Mile 5 laps = 5/8 Mile 8 laps = 1 Mile
1/6 Mile	330'	35'	880'	3 laps = 1/2 Mile 4 laps = 2/3 Mile 5 laps = 5/6 Mile 6 laps = 1 Mile

e) Separate NAMBA Fast Electric Heat Racing records on each course will be maintained for the following distances:

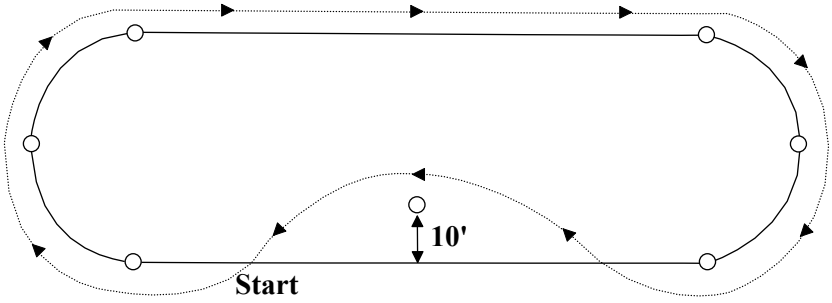
i) For N1 and Crackerbox, the race distance will be ½ mile which 5 laps on the 1/10 mile oval, 4 laps on the 1/8 mile oval, and 3 laps on the 1/6 mile oval.

ii) For all other Hydro and Mono classess as well as LSH and LSO (if run on an oval), the race distance will be 1 mile which is 10 laps on the 1/10 mile oval, 8 laps on the 1/8 mile oval, and 6 laps on the 1/6 mile oval.

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

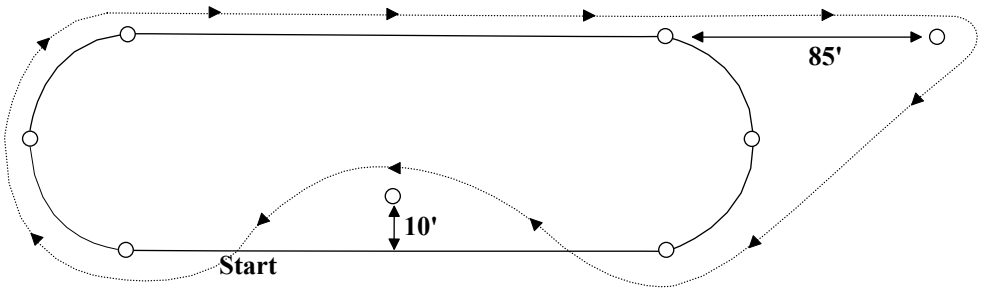


3. Offset Offshore

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



4. Straight-line

    a) Racing will utilize the standard NAMBA 1/16 mile straight-line course.

5. Nationals Course Format

    a) The host club for the annual Fast Electric Nationals may choose any oval course for the Nationals. That choice of course must be specified on all entry information which is disseminated prior to the event.

    b) Race distances for the Nationals will be the same as the respective record distances indicated in rule B.1.c in this section. N1 and Crackerbox race lengths will be at the host club's discretion.

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. 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 will be given for this infraction.

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.

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:

M-2 A single .05 motor with brushes, any endbell, ferrite magnets. Power Limits: 1-4 Ni-chemistry cells are permitted.

N-1 Any ROAR-approved stock .05 motor as defined by current ROAR parameters. Power Limits: Up to 7.5 Volts nominal, any chemistry. Maximum of 2 packs in parallel. Maximum capacity of 10,000 mAh.

N-2 Any single motor, any endbell, bearings, and magnets. Power Limits: Up to 7.5 Volts nominal, any chemistry. Maximum of 2 packs in parallel. Maximum capacity of 10,000 mAh.

O Any amount and/or size of motors, any endbell, bearings, and magnets. Power Limits: 7.6 to 10 Volts nominal, any chemistry. Maximum of 2 packs in parallel. Maximum capacity of 10,000 mAh.

P Any amount and/or size of motors, any endbell, bearings, and magnets. Power Limits: 10.1 to 15 Volts nominal, any chemistry. Maximum of 2 packs in parallel. Maximum capacity of 10,000 mAh.

Q Any amount and/or size of motors, any endbell, bearings, and magnets. Power Limits: 15.1 to 22.5 Volts nominal, any chemistry. Maximum of 2 packs in parallel. Maximum capacity of 10,000 mAh.

S Any amount and/or size of motors, any endbell, bearings, and magnets. Power Limits: 22.6 to 30 Volts nominal, any chemistry. No limit on paralleling of packs. Maximum capacity of 12,000 mAh.

T Any amount and/or size of motors, any endbell, bearings, and magnets. Power Limits: 30.1 to 40 Volts nominal, any chemistry. No limit on paralleling of packs. Maximum capacity of 12,000 mAh.

b) All of the above classes may be further divided into various hull types. For specifications on these hull types see Section 11. Other specialty classes may be added from time to time.

2. HULL LENGTH MEASUREMENTS

a) Hulls in each class will not exceed the length given in the following table:

Class	Maximum Length
M-2	N/A
N-1	N/A
N-2	27”
O	27”
P	34”
Q	40”
S	60”
T	60”

b) See Rule A.4 in this section for measurement guidelines.

3. SPORT HYDRO CLASSES

a) GENERAL RULES

i) This SPORT HYDROPLANE section as it pertains to the fast electric rules takes precedence over any other reference to sport or scale hydroplane specifications in any other areas of the NAMBA rulebook.

ii) Boats will be checked for rule compliance prior to racing.

iii) Any boat not passing the technical inspection or violating the spirit of the rule will be disqualified.

b) APPEARANCE AND INTENT

i) The intent of this class is to simulate or resemble the appearance of Unlimited and/or Limited three-point, full-bodied hydroplanes as raced full scale.

ii) Boats which do not resemble real full-scale designs (i.e. outriggers, modified outriggers, canards, tunnels or catamarans) will not be allowed to race as Sport Hydroplanes.

iii) Exceptions to paragraph 2b as well as the technical specifications of paragraph 3 will be allowed if a hull is a commercially available scale model or a model closely resembling a full scale hydroplane that raced for more than one season. Examples: Proboat Miss Budweiser, H&M Bud Twin Wing, BBY War Eagle, DPI and H&M T-Plus.

iv) The deck, cockpit, tail and/or fin configuration may be changed to keep the boats interesting. Fictitious teams may be created within the spirit of the past and present Limited and Unlimited Hydroplanes.

v) The boat shall have a painted driver figure in open cockpits, or a real or simulated windshield for enclosed cockpits.

vi) The boat must be painted in the spirit of Limited/Unlimited racing. Each boat must have a sponsor's name or logo affixed to the hull. This sponsor will be of the builder's choice and can be a fictitious entity. Each boat will also display race numbers of the driver's choice affixed to each side of the hull or deck.

vii) The boat must have the driver's NAMBA membership number displayed above the at-rest waterline on the hull in numbers a minimum of 1/4" tall in a manner so as to be visible to an onlooker.

viii) The boat may be purchased ready built, modified from an existing hull, or scratch built from any suitable material generally used in model boat construction.

c) HULL SPECIFICATIONS

i) There are no hull length limitations, unless specified under specific class rules.

ii) All riding surfaces (drive train and prop not included) must be in the front 50% of the total hull length.

iii) A single triangular (from side profile) stuffing box for the driveline will be allowed as long as its primary purpose is to house the driveline and dimensions don't unreasonably exceed that purpose.

iv) Ride pads and/or steps are allowed but must be an integral part of the sponson design.

v) Picklefork hulls shall not have open areas ahead of the aft edge of the sponson riding surface totaling more than 25% of the total hull length.

vi) No boat shall have an afterplane* greater than 60% of the total length of the boat. The afterplane will be measured from the back of the front sponson planing surface to the transom. Note: The afterplane is the entire main hull aft of the sponsons; i.e. the "fuselage".

vii) The width of the transom bottom shall be no less than 65% of the width between the inside edges of the front sponson planing surfaces. An exception to this will apply to scratch build scale designs of full sized boats that are full bodied 3 points hydroplanes but have an afterplane that tapers sharply at the transom. Example: Lauterbach shovelnoses.

d) DRIVE TRAIN

i) The drive train is entirely at the modeler's discretion, including location of the drive dog and strut, if used.

e) MOTOR SPECIFICATIONS

i) The model shall conform to the individual class rules for power parameters (see table below):

Class Name	Power Limits
N2 Sport	N2
O Sport	O
P Sport	P
Q Sport	Q
S Sport	S

f) Q & S SPORT SPECIAL RULES

i) Q and S Sport boats may compete together in heat racing until such time as the number of entrants warrants otherwise.

ii) Although Q and S may be run together, heat racing records will be maintained separately for Q Sport and S Sport.

iii) When running combined:

(a) They shall be considered a single class for trophies and points

(b) A competitor may enter only a single boat in the combined class

g) LIMITED SPORT HYDRO

i) General Rules

(a) This class will comply with the existing rules for Sport Hydro (see rule D.3 in this section) except as specified in the specific rules that follow.

ii) Hull Specifications

(a) Minimum hull length will be 24 inches.

iii) Motor Specifications

(a) Power in this class will be limited to a single motor commonly referred to as a "Speed 700 class" motor. Specifications for these motors are as follows:

(i) Can Length: 66 to 67 mm (2.598 to 2.638 inches).

(ii) Can Diameter: 42.2 mm (1.661 inches). This excludes option torque ring.

(iii) Fixed endbell

(iv) Fixed brushes

(v) Ball bearings and bushings are legal

(vi) No modifications may be made to the motor. Except for normal wear, it must be run as shipped from the manufacturer.

(b) Current motors known to conform to these specifications include Graupner 6306, Graupner 6316, Fine Design FD-EM 775, Robbe power 700 9.6, MPI ACC373 Promax 700, Hopf Viper 700 QC 9.6 Volt Neodym-Race 66mm, Hopf Viper 700 QC 12 Volt Neodym-Race 66mm, Hopf Viper 700 XLG 9.6 Volt 66mm

(c) Current motors known to be illegal because the can is too short include Hopf Viper 700 QC 9.6 Volt RS-Neodym 60mm and Hopf Viper 700 QC 12 Volt Neodym 60mm.

(d) Power Limits: 10.1 to 15 Volts nominal, any chemistry. Maximum of 2 packs in parallel. Maximum capacity of 10,000 mAh.

iv) Race Format

(a) Any of the 3 official NAMBA electric oval courses will be used. In the absence of a legal course, any oval format may be used; however records may not be set on a non-legal course.

(b) Race distance will be 1 mile on any of the official NAMBA electric oval courses. (see Table 1 under rule B.1.d in this section for equivalent laps on each course.)

(c) Experienced racers are strongly urged to consider the skill level of the opponents when running in this class, since the intent is to encourage less skilled racers to have success.

(d) The contest director is strongly urged to consider the experience level of the individual contestants when judging the race and to make calls accordingly.

4. OFFSHORE CLASSES

a) OFFSHORE

i) General Rules

(a) Electric Offshore racing rules are intended as a supplement to the general racing rules of NAMBA. In case of a conflict the Electric Offshore racing rules will prevail.

ii) Hull Specifications

(a) Offshore hulls must be a Deep-Vee (16 to 28 degree "V" angle) or Offshore Catamaran type hull. The windshield or cockpit will be located no further forward than 65% of the hull's length when measured from the transom.

If a hull is not a Deep Vee or a Catamaran, then there must be proof that the hull type it resembles actually did race as a full scale offshore boat. The boat must look like an authentic Offshore APBA / SBI / UIM hull from a distance of 10 ft. (See rule D.4.a.ii.c in this section below for guidelines.) Photographic proof will be the required as evidence that the hull complies with guidelines set forth in this paragraph.

(b) Stepped hulls and flat keel ride pads will be allowed on both Deep Vee and Catamaran type hulls.

(c) Closed cockpits must have windshields. Windshields can either be clear, tinted or colored. Open cockpits must have drivers. Boats are to be decorated with paint and or by graphic applications (decals) which must include at least two real or fictitious sponsors.

(d) All boats must have numbers printed or painted on the hulls above the waterline. They can be either fictitious race numbers or NAMBA membership numbers. They should be as clearly visible in relation to the size of the hull as they would be on a full-size race boat.

iii) Engine Specifications

(a) Power parameters for the five Offshore classes will be the same as those outlined in the class specifications for N2, P, Q, S, and T, rule D.1 in this section.

iv) Race Format

(a) The length of each heat will be in two minute increments. For NAMBA record purposes the standard length will be four minutes.

(b) A flying clock start as described in rule C.2.a in this section or Le Mans start as described in rule C.2.b in this section.

If a Le Mans start is the chosen method, all boats in the heat are to be lined up in the water, at the shore, pointed at the first buoy. The Contest Director will insure that all boats are equally spaced parallel to each other so that no boat has an advantage over another.

Each driver's pit person will keep a minimum of one hand on the boat until the CD starts the heat with a short verbal or recorded countdown. (3, 2, 1, Start!, for example.) The pit person will keep the boat stationary and is not allowed to generate ANY forward motion either before or after the official start.

(c) Driving will be in accordance with all NAMBA Rules of Racing.

v) Penalties

(a) Jump starts will incur a one lap penalty. One lap will be deducted from the total lap count of the offending racer.

(b) If a Le Mans start is used, any boat that is in forward motion and not manually restrained and kept stationary before the start will be accessed a one lap deduction from that boat's total lap count.

(c) If a boat passes another boat after the official time has expired, the pass will not count. The includes passes caused by any movement including drifting and/or coasting

vi) Race Courses

(a) Clubs and events may choose between two offshore courses:

(i) Offset Offshore Course - see rule B.3 in this section

(ii) M Offshore Course - see rule B.2 in this section

(b) Record Courses

(i) Records will be maintained for performances on both courses.

(ii) Records are awarded to the person with the lowest elapsed time after at the completion of the first 10 laps in a single four minute heat. The record setting boat must finish the full four minute heat for the record to be recognized.

(c) Awards

(i) Awards will be presented in each class based on the total number of laps accumulated in three heats.

(ii) Offshore points may be used for team points and high points awards at the discretion of the host club.

(iii) At the hosting club's discretion, Offshore Team Points may be awarded as follows:

a) Boats will be awarded points based on where the boat is positioned on the course when the official time expires. Points schedule will be as described in the Section 18 - rule J.1. The lead boat will receive 400 points, 2nd 300, 3rd 225, etc.

(iv) Also at the hosting club's discretion, an "Offshore Champion" award may be awarded to the individual racer with the most accumulated laps over all Offshore classes run. In the event there is a tie then it will be awarded based on point system for team points (rule D.4.a.vi.c.iii in this section).

b) LIMITED SPEC OFFSHORE (LSO)

i) General Rules

(a) The intent of this class is an attempt to create a fun and economical class in which participants of all skill levels have an enjoyable racing experience as well as a reasonable chance at success.

ii) Hull Specifications

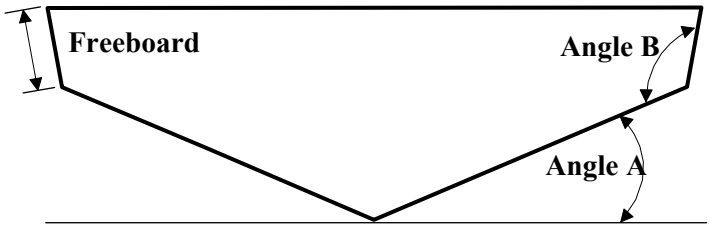
(a) LSO hulls must be a Deep-Vee or catamaran type hull.

(i) On a Deep Vee, the deadrise angle must be between 16 and 28 degrees as measured at the transom. (Angle A in hull drawing.)

(ii) The intersection of the bottom and the side at the chine must not exceed 125 degrees as measured at the transom. (Angle B)

(b) Minimum hull length is 25 inches.

(c) Freeboard, as measured at the tallest point on the side of the hull, will not be less than 1".



(d) Steps are allowed on both hull types.

(e) All efforts should be made to color and number hulls in the spirit of real offshore racing. However, this class is intended to be stand-off scale class. Fun and the inclusion of as many racers as possible are the primary objectives.

iii) Motor Specifications

(a) Power in this class will be limited to a single motor commonly referred to as a "700 series" motor. Specifications for these motors are as follows:

(i) Can Length: 66 to 67 mm (2.598 to 2.638 inches).

(ii) Can Diameter: 42.2 mm (1.661 inches). This excludes option torque ring.

(iii) Fixed endbell

(iv) Fixed brushes

(v) Ball bearings and bushings are legal

(b) No modifications may be made to the motor. Except for normal wear, it must be run as shipped from the manufacturer.

(c) Current motors known to conform to these specifications include Graupner 6306, Graupner 6316, Fine Design SS1, Fine Design FD-EM 775, Robbe power 700 9.6, MPI ACC373 Promax 700, Hopf Viper 700 QC 9.6 Volt Neodym-Race 66mm, Hopf Viper 700 QC 12 Volt Neodym-Race 66mm, Hopf Viper 700 XLG 9.6 Volt 66mm

(d) Current motors known to be illegal because the can is too short include Hopf Viper 700 QC 9.6 Volt RS-Neodym 60mm and Hopf Viper 700 QC 12 Volt Neodym 60mm.

(e) Power Limits: 10.1 to 15 Volts nominal, any chemistry. Maximum of 2 packs in parallel. Maximum capacity of 10,000 mAh.

iv) Race Courses

(a) Clubs and events may choose between five courses

(i) 1/10 Mile Oval Course – see rule B.1 in this section

(ii) 1/8 Mile Oval Course - see rule B.1 in this section

(iii) 1/6 Mile Oval Course – see rule B.1 in this section

(iv) M Offshore Course - see rule B.2 in this section

(v) Offset Offshore Course - see rule B.3 in this section

v) Race Format

(a) Race distance will be 1 mile on any of the 3 official NAMBA oval courses and 10 laps on the "M" Offshore and Offset Offshore courses.

(b) Either a flying clock or Le Mans start, as described in rule C.2 of this section, may be used.

(c) Driving will be in accordance with all NAMBA racing rules.

vi) Penalties

(a) Jump starts will incur a one lap penalty.

vii) Records

(a) Records may be maintained for performances on all three courses.

viii) Awards

(a) Should an event award a "High Points Offshore Champion" or "Offshore Team Points" award, this class should not be included in the calculation for those awards.

5. SPECIALITY CLASSES

a) 1/10 SCALE CRACKERBOX

i) Purpose - To duplicate in 1/10 scale the American Power Boat Association Crackerbox One Design Runabout.

ii) Hull Specifications

(a) Hulls must be within 1/8 inch of the appropriate hull.

(b) The deck/hatch must resemble that of the full scale hull.

(c) The boat must be pained in the spirit of a racing scale model. Each boat will have the driver's NAMBA number preceded by the letter "P".

(d) Two drivers of scale-like appearance must be used in the driver/rider compartment. The driver must have orange colored helmets and live jackets.

(e) The dead rise of the transom will be 3/8 of an inch in total (3/16 of an inch per side), with a transom width of 6 3/8 inches.

(f) Drive Train

(i) A single motor will be coupled directly to a straight drive shaft. A flex shaft may be used in a straight tube.

(ii) The propeller may not extend beyond the back edge of the transom.

(iii) Steering will be by a rudder mounted under the hull or attached to the transom.

iii) Motor Specifications

(a) Power parameters for this class will comply with class "N-1" specifications.

iv) Race Format

(a) Heat racing format will be used.

(b) The Contest Director will determine the scoring format, i.e. total points or a "winner take all" final heat format.

b) P OPC TUNNEL

i) General Rules

(a) Electric Outboard Racing Rules are intended as a supplement to the general racing rules of NAMBA. In the case of conflict the Electric Outboard racing rules will prevail. Electric Outboard racing rules are not intended as a supplement to the NAMBA Outboard racing rules and as such must not comply with any of the rules therein.

ii) Hull Specifications

(a) Hull must be an outboard tunnel type hull.

iii) Motor Specifications

(a) All boats must have motor mounted outboard of the hull. No inboards will be allowed.

c) ECO

i) Purpose - to provide an "economical" electric class utilizing affordable and readily available 05 motors and economical hardware.

ii) General Rules

(a) These ECO Class electric racing rules are intended as a supplement to the general and Electric racing rules of NAMBA. In the case of a conflict, ECO class rules will prevail.

(b) This class will comply with the existing rules for electric Offshore with exceptions as specified below.

iii) Hull Specifications

(a) This class will comply with the existing rules NAVIGA ECO class.

(b) Boats must use a submerged drive with the rudder pivot forward of the transom.

(c) There is no minimum or maximum hull length.

iv) Motor Specifications

(a) A Limited Modified class utilizing any NORCA approved motor as defined by current NORCA 19T Limited Modified rules. 1-6 cells are permitted.

(b) Any ROAR-approved stock motor as defined by current ROAR parameters. 1-6 cells are permitted.

(c) Motors must be in accordance with current NORCA rules for 19T Limited Modified Motors, or with ROAR motor rules for stock motors. From 1 to 6 Sub-C cells only are permitted; any battery chemistry is allowed.

v) Official Courses

(a) The course size for records will be the standard electric Offshore course.

(b) In the absence of a legal Offshore course, the host club may use any oval format desired. Records may not be set on such a course.

(c) The host club may elect to use a NAVIGA Triangle course as defined in current NAVIGA rules.

(d) Straight-line racing will utilize the standard NAMBA 1/16 mile straight-line course. Straight-line records must be set using cells described above.

(e) Record Courses

(i) Must be a NAMBA 1/10 mile electric course.

(ii) The left turn entrance buoy is to be located 45 feet from each turn exit buoy.

(iii) The left turn exit buoy is to be located 45 feet from the left turn entrance buoy.

vi) Race Format

(a) The length of each heat will be in two minute increments (i.e. four, six, eight, etc). When time is called, boats will race to the Start/Finish line to determine the final positions.

(b) A flying clock start or a Le Mans type start may be used.

d) ELECTRIC SCALE UNLIMITED HYDROPLANE

i) General Rules

(a) Electric Scale Unlimited Hydroplane rules will follow the Scale Unlimited Hydroplane rules (see Section 21) with the exception of the following:

(b) Electric Scale Unlimited Hydroplane rules are intended as a supplement to the Electric general rules. In the case of a conflict with the Scale Unlimited Hydroplane rules (see Section 21), the Electric rules will prevail.

ii) Motor Specifications

(a) Power parameters for this class shall comply with class "T" specifications.