 North American Model Boat Association Official Rule Book – Update	Update #	2013-2
	Date	5/28/13

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.

Section

Summary of changes

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Remove pages: iii - vi (*dated various*)
 Insert pages: iii - vi (*dated 5/28/13*)

Reflect updates to section listed below as needed

10 - Engines

Remove pages: 1 - 1 (*dated 3/17/11*)
 Insert pages: 1 - 1 (*dated 5/28/13*)

Modification of rule passed via proposal sent out in April 2013:
 - Proposal 3: Modification of rule A

20 - Sport Hydroplane

Remove pages: 1 - 4 (*dated various*)
 Insert pages: 1 - 4 (*dated 5/28/13*)

Additions and modification of rule passed via proposal sent out in April 2013:
 - Proposal 4: Modification of Table 1 in rule B and addition of rule C.1

27 - Gas

Remove pages: 5 - 6 (*dated 7/9/12*)
 Insert pages: 5 - 6 (*dated 5/28/13*)

Modification of rule passed via proposal sent out in April 2013:
 - Proposal 2: Modification of rule D.1.c.ii

28 - Electric

Remove pages: 1 - 17 (*dated 5/15/11*)
 Insert pages: 1 - 16 (*dated 5/28/13*)

Modification of rule passed via proposal sent out in April 2013:
 - Proposal 5: Modification of rule D.1.d.i
 - Proposal 6: Modification of rule E.7.d.i
 - Proposal 7: Additional of rule E.8 and modification of rule E.2.b.i
 - Proposal 8: Modification of rules E.2.e.ii and E.2.e.iii
 - Proposal 9: Modification of rule B.1 and removal of rules B.4 and B.5

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A. ENGINE CLASSIFICATION

1. Internal combustion glow engines:


<u>Class</u>	<u>Displacement</u>
1/2 A	0 - 2.115 cc (0 - 0.129 cu.in.)
A	2.116 - 3.509 cc (0.130 - 0.214 cu. in.)
B	3.51 - 7.509 cc (0.215 - 0.458 cu. in.)
C	7.51 - 11.009 cc (0.459 - 0.671 cu. in.)
X	11.01 – 35.000 cc (0.672 – 2.136 cu. in.)

2. Internal combustion spark engines - see Section 27

3. Electric Motors – see Section 28

B. NOISE ABATEMENT

1. All boats must meet a maximum of 95dB measured by a dB meter placed 50 feet back from the shoreline.
2. For correct readings there should be no obstructions between the meter and the shoreline, the meter should not be set up under an awning or overhang, and the meter should not be handheld.
3. It will be up to the discretion of the Contest Director to disqualify a boat from a heat in which a boat was measured over 95 dB, or allow the driver to make the appropriate changes so as to meet the noise limit, and continue in the next heat. If the boat exceeds the 95 dB limit in the subsequent heat the driver will be disqualified, and be awarded zero points for both heats in question.

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A. GENERAL RULES

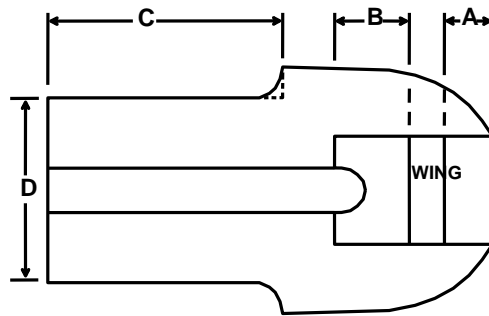
1. Sport Hydroplane racing rules are intended as a supplement to the general racing rules of NAMBA. In the case of a conflict, the Sport Hydroplane racing rules will prevail.
2. Boats will be checked for appearance prior to racing or at any time during the event.
3. Any boat not passing the technical inspection will be disqualified and forfeit the entry fee for that race.
4. A driver of scale like appearance must be used and must be of shoulder height except where a boat has an enclosed cockpit design. In this case, a visible driver will not be needed as long as a simulation of a windshield is part of the paint scheme.

B. BOAT SPECIFICATIONS

1. 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.
2. The deck, cockpit, tail, or fin configuration may be changed to keep boats interesting.
3. Hulls must be of Unlimited and/or Limited design, with all riding surfaces (drive train and prop not included) in front 50% of hull length.
4. The boat must be attractively painted in the spirit of Limited or Unlimited inboard hydroplane racing. Each boat must have a sponsor's name or logo affixed to the hull. The sponsor may be of the builder's choice: a hobby shop, gas station, local business, fictitious sponsor, etc. The boat must have the driver's NAMBA number on it preceded by the letter "U, UL, GP, J" or any other limited or unlimited inboard hydroplane racing designator past or present used by a major full sized sanctioning body such as but not limited to the APBA. The number can be on the hull or tail. In cases where the boater uses the real Unlimited Hydroplane's "U" number, the driver's NAMBA number must appear somewhere on the visible portion of the boat in numbers at least 1/4" in height.
5. There will be no exposed tuned pipes allowed. Tuned pipes will be covered by a deck, a cowl, or an exhaust shroud. That portion of a tuned pipe which is confined to the engine compartment will be exempt.
6. Engine compartment covers and fake engines are not mandatory. Driver's cockpit, cowls, and tail fin sections are mandatory.
7. Out drive assemblies will be allowed.

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8. No twin rudders are allowed.
9. No twin propellers will be allowed, unless otherwise specified in specific class rules.
10. No boat will have an after plane greater than 60% of the total length of the hull.
Length "C" will be measured from the transom to the point where the sponson is attached to the hull (Figure 1).
11. In determining width "D", the rear sponson width will not be included in the minimum measurement (Figure 1). The minimum tub widths will be as shown in Table 1.
12. On pickle fork hulls length A plus B (Figure 1) must not exceed 25% of total hull length, unless otherwise specified in specific class rules.



(Figure 1)

(Table 1)

Class	Tub Width (D)
Sport 12	4"
Sport 21	4"
Sport 40-I, II	5 1/2"
Sport 60	7"
Sport X	7 1/2"

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C. CLASS SPECIFICATIONS

1. Sport 12 Hydroplane

- a. The class will be named Sport 12.
- b. Minimum hull length will be 24”.
- c. The engine must conform to Class 1/2 A specifications, see Section 10 - rule A.1

2. Sport 21 Hydroplane

- a. The class will be named Sport 21.
- b. Minimum hull length will be 27”.
- c. The engine must conform to Class A specifications, see Section 10 – rule A.1.

3. Sport 40 Hydroplane

- a. Minimum hull length will be 35”.
- b. Engine Specifications
 - i) Division 1
 - (a) 5.74 to 6.56 cc (.35 to .40 cubic inch), front intake, side exhaust, no full wave tuned pipes. Speed control must be by rotating barrel carburetors. Carburetor bore diameter is limited to 7.67 mm (.302”) for all engines except for non-schneurle ported engines, which may use rotating barrel carburetors of up to 7.92 mm (.312”) bore diameter. All carburetors must have needle valve and/or fuel discharge nozzle extending into the carburetor bore for a minimum of 3.04mm (.120”).
 - (b) The carburetor will be physically and dimensionally checked. Winning boats may be checked at the completion of day’s racing. If infractions are found, the boat will be disqualified and the next boat moved up.
 - (c) A visual inspection by a race official for compliance to these rules will be made any time during the event. Boats not complying with rules will not be allowed to run until corrected.

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ii) Division 2

(a) The engine must conform to NAMBA Class B Specifications, see Section 10 – rule A.1. Tuned pipes are allowed.

4. Sport 60 Hydroplane

- a. The class will be named Sport 60.
- b. Minimum hull length will be 42”.
- c. The engine must conform to Class C specifications, see Section 10 – rule A.1.
- d. Hulls must either meet rule B.3, or be models of past or present American Power Boat Association Unlimited Hydroplanes that are listed on the R/C Unlimited Hull Roster. However, they may be painted as specified in rule B.4.
- e. Any boat, which normally competes in the Unlimited Hydroplane class will be permitted in the Sport 60 class.
- f. Rule B.13 in this section does not apply to this class.

5. Sport X Hydroplane

- a. The class will be named Sport X Hydroplane.
- b. Minimum hull length will be 40”.
- c. The engine must conform to Class X specifications, see Section 10 – rule A.1.
- d. The use of twin props and drives will be permitted.

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- f. The deck and hatch must resemble that of a full sized crackerbox.
- 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

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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 human driver figure 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 and wearing a life vest and helmet.
- 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.

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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, "shoobox" overhangs or other parts of the hull that are part of the original manufacturing process will be included in the measurement.

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- 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

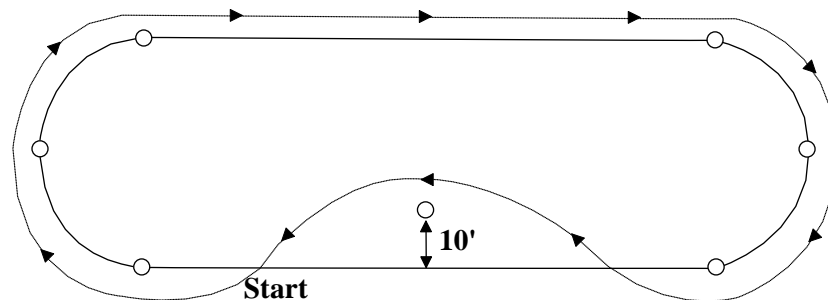
1. Oval

- a) Fast Electric will follow the Official Course outlined in Section 13.
- b) NAMBA Fast Electric Heat Racing records will be maintained for the N-1 Power Parameter and 1/10th Scale Crackerbox for 3 laps on an Official Course.
- c) If a host club of a sanctioned NAMBA event has a pond that cannot fit an official course, they are allowed to use a course dimension of their choice. This information shall be listed on the race flyer and heat racing shall remain 1 mile in length, unless otherwise specified in the rulebook. No records are allowed.

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

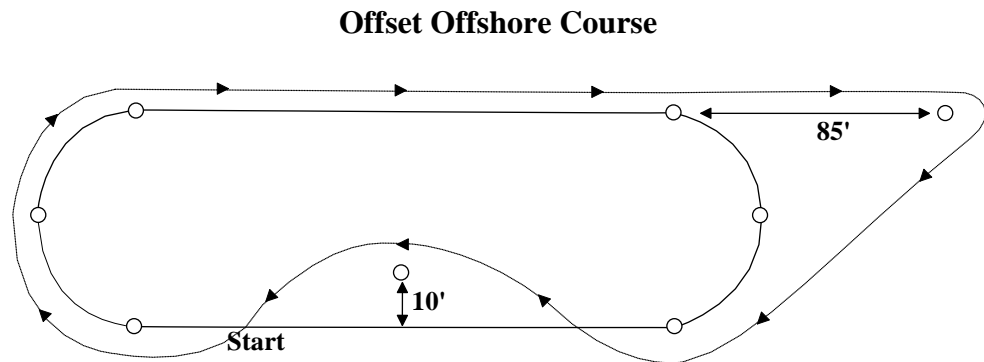


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3. Offset Offshore

- 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.



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.

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- 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:

Class	Motor Type	Power Limits (Volts nominal)	Capacity (mAh)
M-2*	Any single motor.	0 - 4.0 V	10,000 max
N-1	Any current ROAR approved stock .05 motor.	0 - 7.5 V	
N-2	Any single motor.		
P-Limited	Any single motor from the approved motor list, see rule D.1.d below.	10.1 - 15.0 V	
P	Any amount and/or size of motors	15.1 - 22.5 V	12,000 max
Q		22.6 - 30.0 V	
S*		15.1 - 40.0 V	
T			

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

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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 D.5 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) The motors shall be used as shipped from the manufacturer, with the exception of creating a drive shaft flat spot, adding water cooling, and allowing the motor to be connected to the ESC by any means.
 - ii) Currently approved motors

Brand	Model	Description
AquaCraft	AQUG7000	L36/56 7.2-18V – 6 pole brushless
	AQUG7001	36-56-2030 – 6 pole brushless
	AQUG7002	36-56-1800 – 6 pole brushless
Himax	HB3630	1500 brushless – 6 pole brushless
ProBoat	PRB3310	A3630-1500 – 6 pole brushless
	PRB4017	A3630-1800 – 6 pole brushless
	DYNM3835	A3630-1500kv – 6 pole brushless, water cooled, marine motor
	DYNM3830	A3630-1800kv – 6 pole brushless, water cooled, marine motor

- iii) In addition, the CD has the discretion to allow the following:
 - (a) An aftermarket motor that is a re-labeled and exact copy of any approved motor.
 - (b) Any generational change of an approved motor, or a motor that is used in a Ready To Run (RTR) offering from a manufacturer that produces over 100 units of said offering, as long as there is no more than a 5% increase in any of the following manufacturers specifications as compared to any single approved motor: Kv, maximum constant amperage rating, mass, and MSRP.
 - (c) The race flyer shall list additional allowed motors for the event

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2. HULL LENGTH MEASUREMENTS

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

Class	Maximum
M-2	27"
N-1	N/A
N-2	27"
P-Limited	34"
P	34"
Q	40"
S	60"
T	60"

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

E. SPECIALITY CLASSES

1. 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.

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- 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) Hulls shall conform to the hull length measurements in rule D.2.a in this section.
- 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".

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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 shovel-noses.

d) **DRIVE TRAIN**

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

2. OFFSHORE CLASSES

a) **General Rules**

i) 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.

b) **Hull Specifications**

i) Offshore hulls must be a Deep-Vee (16 to 28 degree "V" angle) or Offshore Catamaran type hull.

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 E.2.b.iii 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.

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

iii) 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.

iv) 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.

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c) Race Format

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

- iii) Driving will be in accordance with all NAMBA Rules of Racing.

d) Penalties

- i) Jump starts will incur a one lap penalty. One lap will be deducted from the total lap count of the offending racer.
- ii) 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 assessed a one lap deduction from that boat's total lap count.
- iii) If a boat passes another boat after the official time has expired, the pass will not count. This includes passes caused by any movement including drifting and/or coasting

e) Race Courses

- i) Clubs and events may choose between two offshore courses:
 - (a) Offset Offshore Course - see rule B.3 in this section
 - (b) M Offshore Course - see rule B.2 in this section

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ii) Record Courses

- (a) No records are allowed for Offshore Classes.

iii) Awards

- (a) Awards will be presented in each class based on the total number of laps accumulated.

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

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

- (i) 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.

- (d) 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 E.2.e.iii.c in this section – right above).

3. 1/10 SCALE CRACKERBOX

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

b) Hull Specifications

- i) Hulls must be within 1/8 inch of the appropriate hull.

- ii) The deck/hatch must resemble that of the full scale hull.

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

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

- v) 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.

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vi) Drive Train

- (a) A single motor will be coupled directly to a straight drive shaft. A flex shaft may be used in a straight tube.
- (b) The propeller may not extend beyond the back edge of the transom.
- (c) Steering will be by a rudder mounted under the hull or attached to the transom.

c) Motor Specifications

- i) Power parameters for this class will comply with class “N-1” specifications.

d) Race Format

- i) Heat racing format will be used.
- ii) The Contest Director will determine the scoring format, i.e. total points or a “winner take all” final heat format.

4. OPC TUNNEL

a) General Rules

- i) 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.

b) Hull Specifications

- i) Hull specification are the same as those for standard Outboard tunnels, as defined in Section 19 - Rules D.2 and D.3, except for a limit on length.
- ii) Hull length must conform to those listed in Rule D.2.a in this section for each Power Specification.

c) Motor Specifications

- i) An “outboard” is defined as a complete motor and propulsion unit that can be attached to and removed from the outside of the hull as one unit.
- ii) The outboard will be the single means of controlling the direction of the boat.

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d) Records

- i) OPC records can be set in the P-Limited, P and T Power Specifications.

5. ECO

- a) Purpose - to provide an “economical” electric class utilizing affordable and readily available 05 motors and economical hardware.

b) General Rules

- i) 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.
- ii) This class will comply with the existing rules for electric Offshore with exceptions as specified below.

c) Hull Specifications

- i) This class will comply with the existing rules NAVIGA ECO class.
- ii) Boats must use a submerged drive with the rudder pivot forward of the transom.
- iii) There is no minimum or maximum hull length.

d) Motor Specifications

- i) A Limited Modified class utilizing any NORCA approved motor as defined by current NORCA 19T Limited Modified rules. 1-6 cells are permitted.
- ii) Any ROAR-approved stock motor as defined by current ROAR parameters. 1-6 cells are permitted.
- iii) 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.

e) Official Courses

- i) The course size for records will be the standard electric Offshore course.
- ii) 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.

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- iii) The host club may elect to use a NAVIGA Triangle course as defined in current NAVIGA rules.
- iv) Straight-line racing will utilize the standard NAMBA 1/16 mile straight-line course. Straight-line records must be set using cells described above.
- v) Record Courses
 - (a) Must be a NAMBA 1/10 mile electric course.
 - (b) The left turn entrance buoy is to be located 45 feet from each turn exit buoy.
 - (c) The left turn exit buoy is to be located 45 feet from the left turn entrance buoy.
- f) Race Format
 - i) 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.
 - ii) A flying clock start or a Le Mans type start may be used.

6. ELECTRIC 1/8 SCALE UNLIMITED HYDROPLANE

- a) General Rules
 - i) Electric Scale Unlimited Hydroplane rules will follow the Scale Unlimited Hydroplane rules (see Section 21) with the exception of the following:
 - ii) 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.
- b) Motor Specifications
 - i) Power parameters for this class shall comply with class "T" specifications.

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7. ELECTRIC 1/10 SCALE UNLIMITED HYDROPLANE

a) General Rules

- i) The intent of this class is to replicate the look and competition of real unlimited hydroplane racing. Boats are 1/10-scale replicas (one inch equals 10 inches) of the real boats that have raced on the unlimited circuit. This class shall emphasize scale accuracy.
- ii) Electric 1/10 Scale Unlimited Hydroplane rules will follow the Scale Unlimited Hydroplane rules (see Section 21) with the exception of the following.
- iii) Electric 1/10 Scale Unlimited Hydroplane rules are intended as a supplement to the Electric General and Sport Hydro rules. In the case of a conflict with the Scale Unlimited Hydroplane rules (see Section 21) the Electric rules will prevail.

b) Hull Specifications:

- i) Belly pans or blisters, if added, must be no larger than 2.5 inches wide by 4 inches long.
- ii) Air dams, if installed, must be below the deck line and unobtrusive and not extend beyond the bow.
- iii) Anhedraled left sponsons and modern style sponsons are not allowed on boats running in the vintage class.
- iv) Boats shall use a single rudder at any mounting location on the transom. The center of the rudder post shall not be located more than 1.25 inches behind the transom.

c) Drive Train

- i) Any shaft may be used provided it maintains a straight line from hull exit through the strut.
- ii) No gearbox of any configuration is allowed.
- iii) Any single propeller may be used, and a portion of the propeller must be under the transom. The drive dog is defined as not a part of the propeller.

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d) Motor Specifications

i) Currently approved motors

Brand	Model	Description
AquaCraft	AQUG7000	L36/56 7.2-18V – 6 pole brushless
Himax	HB3630	1500 brushless – 6 pole brushless
ProBoat	PRB3310	A3630-1500 – 6 pole brushless
	DYNM3835	A3630-1500kv – 6 pole brushless, water cooled, marine motor

ii) No modifications may be made to the motor. Except for normal wear, drive flats or keys, electrical connectors and water cooling, it must be run as shipped from the manufacturer.

iii) Power Limits: 10.1 to 15 Volts nominal, any chemistry. Maximum of 2 packs in parallel. Maximum total capacity shall be 10,000 mAh.

e) Class Specifications

i) Vintage Class

(a) Defined as those boats conforming to NAMBA Master Hull Roster (MHR) numbers 2730 through 7008 inclusive, and MHR numbers: 7102, 7132, 7171, 7206, 7221, 7422, 7499 and 7505.

(b) Skid/turn fin shall be mounted to the inside of the left sponson and shall not extend beyond the back of the sponson. The size is limited to a maximum of 2 inches wide by 1 inch deep measured from the sponson riding surface.

ii) Modern Class

(a) Defined as those boats conforming to NAMBA Master Hull Roster numbers 7025, 7029, 7175, 7177, 7207, 7251, 7325, 7402, 7441, 7455, 7495, and numbers 7571 through 0717 and beyond.

(b) Follows all rules listed above except:

(c) Any shaft may be used.

(d) Sponson design shall be up to the builder as long as it does not change the outline shape of the hull.

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(e) Skid/turn fin shall be similar in appearance and location to the full size boat (mounted to the back of the sponson). The size, shape and precise location shall be determined at the discretion of the owner. No hook-shaped skid fins are allowed.

f) Race Format

- i) Shall be as set forth in Section 21 Rule B plus the following:
- ii) All boats shall travel COUNTER-CLOCKWISE around the course turning LEFT.
- iii) A one minute countdown procedure using an audio countdown clock shall be used to start each heat. The start of the race is at the initial sound of the horn/gun.
- iv) A boat must be in the water and running at the 30-second mark. Once running, a boat must remain in constant forward motion or be assessed a one lap penalty.
- v) All boats must fully circle the right and left hand turns (in that order) before being allowed to start.

8. CATAMARAN

a) General Rules

- i) Catamaran rules are intended as a supplement to the General Racing rules of NAMBA. In the case of conflict, the Electric Catamaran rules will prevail.

b) Hull Specifications

- i) Catamarans shall be a stand-off scale version of an Offshore Catamaran style of hull, with two sponsons that normally run the full length of the hull.
- ii) Sponsons are separated and connected together by a tunnel.
- iii) Sponsons may have lateral breaks.
- iv) Inboard or outboard mounting of the motor(s) is permissible
- v) Hull length must conform to those listed in Rule D.2.a in this section for each Power Specification