



# ***RACE WORLD OFFSHORE***

## **Technical Rules**

Rule Book for 2021

Updated 9\_1\_2021

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## Introduction: General Application Of All Registered Race Boats

### General

- a. All rules and requirements listed in the Technical and General Competition rulebooks will govern the class. The RWO/APBA rules which follow are safety and competition based. The formula endeavors to keep competition close and exciting, principally by monitoring technology changes and limiting the differences between racing equipment from team to team.

#### 1. Performance Parameters | Intent of the Rules

- b. These parameters are merely a guideline for RWO/APBA officials in the creation and/or amendment of technical rules to maintain competitive balance and contain costs. Accordingly, RWO/APBA reserves the right to take whatever actions are necessary, at any time, to ensure that boats competing in the class perform within these parameters in competition. No pretense is made of having designed a foolproof set of rules and regulations.

#### 2. Rule Interpretation

- c. If there is a disagreement or dispute regarding the meaning or application of the Extreme technical rules, the interpretation and application of the RWO/APBA Operational Procedures process shall prevail.

### Changes to Existing or Introduction of New Equipment

#### 1. Warning to Racers

- a. If this rulebook does not specifically say that you can do or use something, then you must consider that the action, change or component is illegal. No equipment or race boat in violation of these rules will be considered as having been approved by reason of having passed through pre-race inspection or post-race inspection at a prior event, "unobserved".

#### 2. Written Approval Required

- a. Any questions about the legality of any change, or of any action, part, or component, must be submitted in writing and answered in writing by RWO/APBA prior to the change or use. RWO/APBA is empowered to make any technical rule changes it deems necessary to maintain competitive balance

and/or safety for the boats competing in all classes.

## 101: Extreme (Unlimited, Turbine & Piston) Numbers Only

### 102: Equipment Exclusivity Agreements

1. All boats as well as every part used in connection therewith, including but not limited to engines, outdrives, transmissions, crash boxes, and propellers (and all parts and components related thereto) must be both manufactured and intended for sale to the public at commercially reasonable prices. Exclusivity agreements of any type that have not been approved by RWO/APBA are strictly prohibited. This rule applies to competitors only and shall not be construed in any manner whatsoever to limit or restrict RWO/APBA from entering into exclusivity agreements such as official sponsorships involving single source vendors, suppliers, manufacturers or producers.

### 103: Rule Enforcement

1. The purpose of these rules is to ensure competitive balance between Extreme racing teams. RWO/APBA thus reserves the right to take whatever actions it deems necessary to enforce these rules, including but not limited to impounding any boat and/or parts and components thereof for inspection purposes, and/or prohibiting the use of any part or component which it deems gives a team an unfair competitive advantage, in its sole and absolute discretion. All illegal parts or components become the property of the RWO/APBA. RWO/APBA Race Officials are authorized to decide if an equipment change is an attempt to beat the rules. They can and will disqualify an entry in violation of the spirit and intent of these rules or take such other action as they deem necessary to maintain competitive balance in the class.

### 104: Rule Changes to Maintain Competitive Balance

1. RWO/APBA recognizes that there are considerable differences in boat length, design, width, angle, shape and other aspects of boat design. RWO/APBA therefore reserves the right to make adjustments at any time to boats, engines, drives, propellers, etc. individually or categorically, to maintain competitive balance based upon experience in race conditions.

### 105: Extreme Specifications

<b>Class</b>	<b>EXTREME</b>
<b>Hull Type</b>	<b>Multi-Hull (Catamaran)</b>
<b>Length Minimum</b>	40 Ft
<b>Length Maximum</b>	55 Ft
<b>Engine</b>	No engine CID limitation or restriction

<b>Class</b>	<b>Extreme</b>
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<b>Hull Type</b>	<b>Mono-Hull (Vee-Hull)</b>
<b>Length Minimum</b>	42 Ft
<b>Length Maximum</b>	55 Ft
<b>Engine</b>	No engine CID limitation or restriction

1. Any propulsion utilizing the thrust of water is allowed if it meets all the safety requirements.
2. Measurements
  - a. All measurements are taken while the boat is ashore.
  - b. All race boats shall have a minimum overall length of (40') feet and a maximum length of fifty-five (55') feet measured on the centerline of the hull between perpendiculars at the extreme bow and stern.
  - c. The keel line shall be level amidships.
  - d. The stern shall be defined as the transom, joining the extremities of the hull on which the outboard motor or driveline is attached.
  - e. Any extending parts, rub rails, fenders, stabilizing and trim tabs, rudders or attached molded platforms are not to be included.
  - f. Overall hull lengths shall be rounded off within a six (6) inch tolerance.
3. Any underwater hull design shall be eligible if safe and manageable in open sea conditions.
  - a. Three (3) point "Hydro-Design" is **not** an offshore design considered to be safe and manageable in an open sea condition.
4. Hulls utilizing adjustable planes, such as hydrofoils, are not legal for competition.
5. All designs are subject to final approval by the technical committee.
6. Tunnel Tabs are allowed.
7. Wings are not allowed.
8. Navigational electronics, excluding auto-helm, are permitted.
9. A single point lifting harness is mandatory to race terms utilizing the on-site promoter's crane. Non-conformers must make their own launching arrangements.
10. Rails (6" maximum height) or hand holds must be installed fore and aft and should

enable the crew to proceed from the cockpit to the entire deck length, for the purpose of working on the craft in adverse sea connections.

11. All craft must be capable of maneuvering ahead and astern, while also being able to demonstrate neutral position on at least one (1) of the main propulsion engine drive lines, operated by controls at the helmsmen position.
12. Boats with more than one (1) shaft shall be capable of maintaining a straight course in a set direction on any one (1) propeller.

### **106: Engine and Fuel Compartments**

1. Through deck fuel fills are mandatory as specified by United States Coast Guard regulations.
2. Engine compartments must have rigid covers.
3. Engine and fuel compartments must be adequately ventilated and must meet United States Coast Guard regulations.
4. Fuel must be carried in tanks which are suitably secured and vented.
5. Boats may not transfer fuel during the race, except by means of properly installed fuel lines.
6. Manual transfer of fuel from one tank to another, while the engines are shut down, will be permitted in boat installations where multiple tanks are utilized.

### **107: Canopies**

1. EXTREME registered race boats are required to have canopies.
2. All canopied boats are recommended to comply with the latest canopy design and technology. Contact the boat manufacturer for their canopy standards.
3. Any damage to canopies must have a notarized certified letter from a manufacturer of canopies authorizing the continued use in a race.
4. RWO/APBA has the authority to deny entry to any race boat subject to these rules that has a non-compliant cockpit safety system.

### **108: Engine and Fuel Criteria**

#### **Engine and Block**

- a. Technical committee approval of block and heads shall be the basis for

competition.

- b. Any number of engines may be installed.
- c. Two (2) and four (4) cycle engines must be produced with a basic cylinder block and cylinder head (original or manufactured as spare parts) of an automotive, marine or industrial engine.
  - i. Automotive engine unit production, per annum, must be verifiable at 500 units and must be sold and obtainable, to the public, through normal distribution channels.
  - ii. Marine engine unit production, per annum, must be verifiable at 50 units and must be sold and obtainable, to the public, through normal distribution channels.
- d. The cylinder block and cylinder heads may be modified.

## 2. Exhaust System

- a. The engine exhausts must be water-cooled or insulated from the engine outlet to the point of exit. This point must be located in such a position whereby the crew cannot be affected by exhaust fumes. The exhaust must be adequately cooled in such a manner to safely operate the boat without hazard to the crew or structure of the boat.

## 3. Fuel

- a. Fuels are limited to petroleum based fuels. Non-petroleum based fuels or additives such as nitrous oxide or oxygen, designed to increase horsepower, are prohibited.
- b. Diesel engines shall be allowed (8) pounds of non-petroleum based fuel on board, per engine, which can only be used in the start-up procedure.

## 201: USA Class One (Class 1 1100)

- 1. Championship Points will be scored the same as APBA points are earned.
- 2. In the case of a tie in the overall Championship, the number of first places shall be considered, then the number of second places, etc. In the case of the Championship still being a tie, the boat with the fastest average speed in any of the Championship races will be deemed the Champion.

## **202: Pre-Race Inspections**

1. All race boats entered in a sanctioned race are subject to a pre-race inspection by a UIM approved Chief Technical Commissioner
2. No race boat may be considered a bona fide entrant in a UIM race until such time as the Chief Technical Commissioner has passed and signed the official pre-race technical inspection form.
3. It is the responsibility of the Team Owner and the Manager to submit his team's equipment to the Chief Technical Commissioner for his inspection. If in the judgement of the Chief Technical Commissioner, a boat and/or safety equipment is unseaworthy, unsafe, or unmanageable, the non-compliance must be brought to the attention of the UIM Commissioner. If the UIM Commissioner determines that the condition cannot be rectified prior to the start of the race, then he shall have the right to prohibit the boat from competing.
4. The Chief Technical Commissioner shall examine each entry for compliance with all safety requirements and shall also visually inspect hull, propulsion, and engine for compliance with the class technical rules. The spirit as well as the letter of these rules shall be enforced equitably to all entrants.
5. Any new boat entry in these classes will be verified at its first event by the UIM Technical Commissioner. If successful, the boat will be allowed to participate in the Championship.
6. Any modifications to a boat shall be reported to the UIM Technical Commissioner and may require re- verification to ensure conformity. It is recommended that prior approval is sought before any modification is made.
7. Failure to inform the UIM Technical Commissioner of a modification will result in a penalty to be decided by the OOD and the UIM Commissioner. Alternatively, the UIM Technical Commissioner may require that the boat be returned to its original specification to certify conformity.

## **203: Uniforms**

1. All team members must be in uniform while attending drivers, briefings, parades, test / practice sessions, and anytime operating the race boat.

## **204: Engines**

1. The only engine that can be used in the Catamaran race boats is the QC4V Class 1 race engine which has been approved and sealed by Mercury. The only engine that can be used in the Vee Bottom race boats is the QC4V Class 1 race engine which has been approved and sealed by Mercury. The objective of one design engine is so all boats have the same power and reliability. Any change done by the team to increase the horsepower will be seen as cheating and prohibited. The policing of the QC4V engines will be performed by Mercury Racing to assure engine parity and eliminate cheating.

## **205: Gearboxes**

1. Only the Mercury standard transmission that is included with the Mercury race engine is allowed. Nowhere in the drive train are there to be any:
  - a. multi speeds
  - b. form of traction control
  - c. slip plates

## **206: Drive Systems: Catamarans**

1. The only approved drive systems are as follows:
  - a. Mercury MK 6
  - b. Mercury MK 8
  - c. BPM drop box and torque tube
  - d. SCS drop box and torque tube (quick change ratio)
  - e. Victory drop box and torque tube (quick change ratio)
  - f. Arenson drop box and torque tube
  - g. Buzzi Trimax drive
  - h. For Vee Bottom hulls only – any drive
2. The following are strictly prohibited:
  - a. No Traction control.
  - b. No steerable drives and rudder. (If you have a rudder you cannot steer with the drives as well. It must be one or the other).
  - c. No trim-able rudders.
  - d. No means of changing gear ratio without mechanical input (i.e. no cable or electric device to change).
  - e. Banned metals in the drivetrain and rudder assemble are as follows:
  - f. Hastello

- g. Haynes
- h. Inconel
- i. Molybdenum
- j. Monel
- k. Titanium
- l. Tungsten
- m. Waspaloy

3. Race teams that have the quick-change gear ratio will be limited to 4 sets of approved propellers. Race teams that do not have the quick-change gear ratio can have an unlimited number of approved propellers.

### **207: Drive Systems: Mono-Hull**

1. Any drive propulsion system allowed
2. Any gear ratio allowed

### **208: Tunnel Tabs**

1. Tunnel tabs shall be allowed with a weight penalty of 500 pounds.

### **209: Propellers: Catamaran**

1. As everyone has various kinds of propellers depending of where they have raced over the past few years, we would like to propose a 2 year plan so as everyone can use up their old stock of propellers and when purchasing new ones know they can use them in the future and they will be competitive based on these points. Please find as follows:
  - a. Minimum weight 20 pounds
  - b. Maximum diameter 18 inches
  - c. Minimum diameter 16 inches
  - d. Maximum rake 18 degrees
  - e. Minimum rake 10 degrees
2. The thickness of the blades will be finalized in a study between Herring, Mercury and the ORC to determine a template with specific holes in it where the propellers can be measured. If another propeller manufacturer wishes to enter into the class they must be approved by the ORC and be available to purchase to all teams at a competitive price. Boats with fixed gear ratios have an unlimited propeller choice. Boats with a quick-change gear ratio shall be limited to 4 sets of propellers.

### **210: Propellers: Mono-Hull**

1. Forged or Cast propellers allowed

### **211: Boat Weight: Catamaran**

1. Minimum boat weight after race conclusion shall be 12,000 pounds for teams with no tunnel tab.
2. Minimum boat weight after race conclusion shall be 12,500 pounds for teams with a tunnel tab.
3. No water ballast tanks shall be included (tanks must be empty). There shall be no plumbing to the ballast tank. Ballast tanks must be empty at weigh-in and weigh-out
4. Bilges must be dry.
5. Weight without drivers and equipment.
6. A solid ballast must only be moveable manually and not controlled from the cockpit.

### **212: Boat Weight: Mono-Hull**

1. Minimum boat weight after race conclusion shall be 10,000 pounds for teams
2. Ballast tanks are permitted but must be empty at weigh-in and weigh-out

### **213: Boat Length**

1. Catamaran race boats must be minimum 37' and maximum 47' as measured by Inspectors for current race boats. Any newly constructed race boat must be a minimum of 40' and maximum of 47' as measured by the Inspector. The bottom of the transom (running surface) to the nose of pickle fork is the measured distance.
2. Vee Bottom race boats must be minimum 40' and maximum 50' as measured by the Inspector for current race boats.

### **214: Inspection**

1. If a race team has doubt of another race team's integrity to these Rules, they may request

a second inspection be performed by an Inspector.

### **215: Measurement Certificate**

1. A Boat is not allowed to take part in a local, National, or International race without a Digital Measurement Certificate as per UIM requirement. The certificate must be entered in the Class 1 Digital Log Book.
2. Any International or National race in which boats registered with a Data Log Book must be updated according to the events in the race. If the event is not covered by a UIM Technical Commissioner, the NA must upload the required information to the appropriate boats Data Log Book. If the NA is not capable of uploading the information, scanned copies of all the information and an entry list must be sent to the UIM Offices for uploading/updating the Data Log Books.
3. The Measurement Certificate has no expiry date, but must be updated following any of the below occurrences:
  - a. Change of Ownership
  - b. Change of boat dimensions and/or structure, or major repair after an accident or any other reason.
  - c. If an NA wishes to remeasure the boat, the NA must either upload the information to the boats Data Log Book or scan and send the signed measurement results to the UIM Offices for uploading/updating the Data Log Book.

### **216: Rules Flexible to Maintain Competitiveness**

1. These initial Rules are designed to create and maintain a competitive class.

### **217: UIM Compliance**

1. All Fees that may result in the race being compliant for UIM, will be responsibility of the Class One (1) USA Class. Contact Registration two weeks prior to the race for a quote of said fees.
  - a. Professional Fees
  - b. All fees/costs that may result from Mercury Racing Inspections, Compliance, etc. will be the responsibility of the Class One (1) USA Class.



## **218: Engine Hardware**

1. The required engine for a Catamaran is the Mercury Racing's Competition 1100 QC4V
2. The required engine for a Vee Bottom is the Mercury Racing's Competition 1350 QC4V
3. All engine hardware must be stock, as delivered by Mercury Racing
4. All hardware must be as per the official homologation document
5. Modification and/or relocation of factory engine sensors is prohibited
6. All engines will be mechanically sealed (tamper-proofed) by Mercury Racing Factory only
7. The following components will be sealed with safety wire and tamper-proofed locks. Modification or removal of tamper-proof locks is prohibited.
  - a. Front cover
  - b. Crank encoder
  - c. Oil pan
  - d. Intake manifold
8. Relocation of the factory fuel pump and replacement of associated inlet and high-pressure outlet lines is permitted.
  - a. Unmodified, factory fuel pump must be used for fuel supply
  - b. If relocated, customer is responsible for extending power supply leads for the pump
  - c. If relocated, customer is responsible for sourcing/fabricating associated fuel lines

## **219: Fuel**

1. 93 octane or less

## **220: Propulsion Control Modules (PCMs)**

1. Port and Starboard PCMs for use at a competition event are to be randomly distributed to competitors on the morning of each racing day. The serial numbers of each PCM and which boat they have been designated for shall be recorded.

2. Customer PCMs are to be used in all practice sessions.
3. Upon collection of competition PCMs, calibrations will be downloaded and checked by Mercury personnel for tampering.

### **221: Controller Area Network (CAN) Data Logging**

1. Mercury Racing will provide a CAN interface and several easy to install monitoring sensors to each race team on days of competition events.
  - a. Teams shall provide at least one available port on a Smart Craft junction box for use of the logger, and it must be readily accessible.
  - b. Teams shall provide a horizontal, flat area for mounting the data logger with provided hook and loop tape. Dimensions of mounting area TBD.
  - c. Teams shall provide a specified data logger to interface with Mercury's provided CAN interface module.
  - d. Data logger specifics *TBD*
  - e. The data logger will log PCM sensor data and additional redundant inlet air temperature (IAT) and manifold absolute pressure (MAP). These sensors will be serialized and tracked.
  - f. Redundant sensor locations TBD (IAT likely on back of #8 runner, MAP likely via a quick connect Legris line on crossover manifold)
2. Mercury to provide personnel for analysis of collected data, or will provide template files to sanctioning body officials to aid in analysis of the collected data.
3. Any devices attached to the Mercury Smart Craft bus shall be for measurement purposes only, such as data loggers and boat displays. Any attached devices are subject to inspection by sanctioning body officials. Purposeful modification of Smart Craft signals is prohibited.

### **222: Post-Race Inspection**

1. Up to top 4 finishers from each race are subject to a post-race inspection. Any or all of the following areas may be checked.
2. Engine electrical harness shall be visually inspected for modifications or repairs
  - a. No harness modifications allowed
  - b. Any repairs from incidental damage must be tracked in the official log book(s) and approved by sanctioning body officials.

- c. Repairs must be inspected and approved prior to a competition event.
- d. Modification and/or relocation of factory engine sensors is prohibited

### 3. Camshaft Inspection

- a. Precise location of top dead center (TDC) of an engine cylinder will be found with a degree wheel and piston stop.
- b. Camshafts will be randomly checked for lift centerline locations relative to TDC.
- c. Centerline locations for all cylinder's intake and exhaust cams to be maintained in a separate scrutineering document.
- d. Camshaft lobe base circle diameters will be randomly checked for the correct diameter. Lobes will be checked for correct form.
- e. Mercury Racing will create and provide go/no-go tools for this inspection

### 4. Ignition Timing Advance Check

- a. Precise location of top dead center (TDC) of an engine cylinder will be found with a degree wheel and piston stop.
- b. Check and mark or verify existing mark on crank encoder for TDC cylinder #1 (Mercury to provide improved timing pointer for accurately checking timing with a timing light)
- c. Mercury personnel will run a test to verify timing advance relative to TDC #1. This test will require operating the engine on a hose, in neutral, at a speed above idle.
- d. Measured spark location to be within +/- 1° of Mercury factory recorded location
- e. Spark advanced to be checked with specified timing light (TBD)

### 5. Visually inspect all hardware seals for tampering and serialization

### 6. Remove cross over manifold and inspect dummy throttle orifice size

### 7. Check that key up fuel pressure is under 420 kP

## 301: Super Cat: (Numbers Only)

### 302: Equipment Exclusivity Agreements

- 1. All boats as well as every part used in connection therewith, including but not limited to engines, outdrives, transmissions, crash boxes, and propellers (and all parts and components related thereto) must be both manufactured and intended for sale to the public at commercially reasonable prices. Exclusivity agreements of any type that have not been approved by RWO/APBA are strictly prohibited. This rule applies to competitors only

and shall not be construed in any manner whatsoever to limit or restrict RWO/APBA from entering into exclusivity agreements such as official sponsorships involving single source vendors, suppliers, manufacturers or producers.

### 303: Enforcement of Rules

1. The purpose of these rules is to ensure competitive balance between SUPER CAT racing teams. RWO/APBA thus reserves the right to take whatever actions it deems necessary to enforce these rules, including but not limited to impounding any boat and/or parts and components thereof for inspection purposes, and/or prohibiting the use of any part or component which it deems gives a team an unfair competitive advantage, in its sole and absolute discretion. All illegal parts or components become the property of RWO/APBA. RWO/APBA Race Officials are authorized to decide if an equipment change is an attempt to violate the rules. They can and will disqualify an entry in violation of the spirit and intent of these rules or take such other action as they deem necessary to maintain competitive balance in the class.

### 304: Rule Changes to Maintain Competitive Balance

1. RWO/APBA recognizes that there are considerable differences in boat length, sponson design, tunnel width, angle, shape and other aspects of boat design. Accordingly, RWO/APBA reserves the right to make adjustments at any time to boats, engines, drives, propellers, etc. individually or categorically, to maintain competitive balance based upon experience in race conditions.

### 305: Super Cat Specifications

Class	Super Cat
Hull Type	Catamaran
Length Minimum	36 Ft
Length Maximum	46 Ft
Beam (Maximum)	12 Ft.
Tunnel Width	66" Maximum measured at keel
Height	Class must measure at least 48" from the keel to the deck forward of the canopy (not including the canopy).
Weight Minimum (Lbs.)	9,500

### 306: Minimum Weight Measurement

1. Minimum weight measurement is determined at the end of the race. All boats required or directed to weigh-in by the Race Officials must report to the Crane of the Day, the same crane must be used for both entering and exiting the water. It will be the responsibility of the Owner, Driver, or designated Crew Member to present the boat for post-race weighing

with the boat in the lifting harness in a level position, with the hull drain plugs removed and the boat empty of water, with all ballast tanks empty. If the Race Official finds otherwise the boat will be immediately assessed a two (2) minute penalty. No private cranes or scales will be utilized for official weighing compliance purposes. The weight will be an all-up weight including engines, residual fuel, drives, propellers, fixed ballast, helmets and jackets. (i.e. that which is used from start through completion of race). No multiple weighing, one only (one in and one out).

### **307: Canopies**

1. Super Cat registered race boats are required to have canopies.
2. All canopied boats are recommended to comply with the latest canopy design and technology. Contact the boat manufacturer for their canopy standards.
3. Any damage to canopies must have a notarized certified letter from a manufacturer of canopies authorizing the continued use in a race.
4. Non-compliance, RWO/APBA has the authority to deny entry to any race boat subject to these rules that has non-compliant cockpit safety systems.

### **308: Engine Specifications**

1. The Super Cat 510 Cubic Inch Displacement (CID) engine will be the only engine approved for the Super Cat Class.
2. RWO/APBA will allow any engine builder to supply engines that meet the Super Cat engine specification.
3. **Displacement:** Maximum 510 CID, minimum 496 CID per engine, (Max. 1020 CID total) with a maximum 4" stroke crankshaft.)
4. **Compression Ratio:** (9.5:1) is the maximum compression ratio allowed. Measured by whistler device calibrated at the race site with the master cylinder.

### **309: Valve System**

1. Two valves per cylinder operated via pushrods.
2. Maximum gross cam lift – measured at the valve is .720 inch with zero lash.
3. Variable cam timing is not allowed.

### **310: Engine Block**

1. Cast iron, must be approved by RWO/APBA.

2. Chevrolet design blocks with 9.8" or 10.2" deck heights are approved.
3. Chevrolet design blocks manufactured by General Motors, World Products (Merlin), and Dart Big M are approved.
4. The use of any other block requires the approval of RWO/APBA.
5. Sleeves or bushings may be used providing the original OEM (GM) lifter bore location is not changed.
6. Pushrods must ride in the center of the lifter (no offset lifters).

### **311: Internal Components**

1. Crankshaft, connecting rods, pushrods and wrist pins must be made of steel. Titanium or other materials not allowed.
2. Single plane crankshafts are not allowed. Crankshaft throws must be timed in accordance with OEM specifications. Crankshaft limited to a maximum 4" stroke.

### **312: Heads**

1. Approved cylinder head is the big block Chevrolet Brodix, BB2 PLUS 26-degree Head. They are the only approved aluminum cylinder heads allowed with the Stock OEM cast specifications. No modifications to the Stock OEM castings are allowed.
2. Spec cylinder head serial numbers must remain on the head and may not be defaced or altered.

### **314: Modifications / Repairs**

1. Using offset head guides or altering the stock mounting location of the head on the cylinder block is not allowed.
2. No welding modifications are allowed to the original head castings.
  - a. Heads must be returned to Brodix for repair. All repairs will be certified in writing to the RWO/APBA.

### **315: Intake Manifold**

1. Carburetor Spacers or adapters are allowed, maximum of 2.5" between the bottom of the carburetor and the top of the manifold is allowed.
2. Any stock cast intake manifold. The manifold may be port matched up to 1 ½ inches to match cylinder heads.
  - a. No fabricated or tunnel ram type manifolds may be used.

### **316: Induction System**

1. Approved Fuel is 91 to 93 Octane. No oxygenated fuel or additives.
2. Only (1) carburetor is allowed per engine.
3. Any Holley Dominator style carburetor, purchased from any source.
4. Fuel injection is not allowed

### **317: Exhaust System**

1. Exhaust manifolds may be cast or fabricated with no more than 15 ½ "(inches) of individual primary runner length measured at the centerline of any runner from the cylinder head port to the common collector. The overall length includes any gaskets, adapters, or wedges from the exhaust ports to the common exhaust collector. No modifications to the exhaust that increases runner length or gives the effect of longer individual runners are allowed. This includes, but is not limited to, merge collectors, divider plates or turbulence cones. The stock Mercury style 525 CMI header, with 1 7/8" ID is permitted.
2. Any non-divided (common collector), round, square, rectangular or oval, elbow, riser or tail pipe is allowed. The engine exhaust manifolds and pipes from engine outlet to point of exit from hull or deck must be water-cooled by water jackets. The exit from the hull or deck must be located in such a position whereby exhaust fumes cannot affect the crew.

### **318: Transmissions**

1. All boats competing in the Super Cat class must have propulsion systems capable of turning the propellers in either direction or maintaining a neutral (standstill) state while the engine is running.
2. Single speed transmissions / crash boxes capable of forward, neutral and reverse are allowed.
3. Multi speed transmissions are not allowed.

### **319: Lubrication (Engine)**

1. Wet Sump and internal oil pumps are allowed.
2. External oil pumps or dry sump systems are allowed, however; a maximum of (3) three scavenging pump sections allowed on dry sump systems.
3. Intake Valley must remain as cast with NO alterations to prevent oil flow from the valley to the crankcase. No raised sections may be attached or formed with any material around oil drain openings in the intake valley. No "damming" or collecting of oil by any means is allowed in the intake valley.

### **320: Ignition**

1. Distributor must remain in the factory delivered location.
2. Engines are required to use the MSD Digital or Analog ignition system **limited to 7000 RPM's**, A **G2X Data Logger, or equivalent must be installed** and maintained to monitor the RPM level during the race. The **RPM level** during the entire race must be verifiable on the Data Logger by the RWO/APBA Inspector upon the completion of the race, during the Post-Race Inspection.
  - a. Ignitions with an internal dial up RPM Limiter will be set at 7000 RPM's and sealed by the RWO/APBA Inspector. The wiring harness of the system must be accessible and provide the ability for an RWO/APBA Inspector to examine it.
  - b. Any boat competing in the Super Cat Class that exceeds the above listed **maximum RPM limit**, as determined by the RWO/APBA Inspector **will be** awarded last place points and **will not be** eligible for trophies, flags or prize money.
3. Crank triggered and belt drive ignitions are not allowed.
4. Ignition systems are limited to one (1) ignition coil. Individual ignition coils per cylinder are not allowed.
5. Back up ignition systems are allowed.
6. Spark must be distributed via distributor rotor and cap.

### **321: Outdrive Specifications**

1. SSM VI Drive Type is approved. Drive must retain their OEM configuration and specification. No internal or external modifications are allowed.
2. Gear Reduction: #6 Drive with 1:61 gear ratio, at the prop only. Surface Drives not allowed.

### **322: Propeller Specifications**

1. Propellers must be approved by RWO/APBA.
2. Maximum (5) blade propellers, Cast Stainless Steel, no forged units of any type. No titanium. Manufacturers, Mercury, Hering and Rolla are approved.
3. Other manufacturers of cast propellers may apply to RWO/APBA for approval.
4. Propellers may be modified from the original factory casting. Polishing, grinding, bead blasting, media blasting, welding and machining are allowed.
5. Propellers must be intended for sale to the public at commercially reasonable prices



and available to all racers.

- All propellers will be measured and limited to a minimum thickness. The standard blade thickness will be the normal RWO/APBA Lab Finish. (See Chart).

### Propeller Inspection Specifications for Super Cat Class

#### SSM VI DRIVE TYPE PROPELLER DIMENSIONS

Propeller Diameter			Strike Radius At	
15	Inch	2"	4 ¼ "	6 ½ "
15 ¼	Inch	2"	4 5/16"	6 5/8"
15 ½	Inch	2"	4 3/8"	6 ¾ "
15 ¾	Inch	2"	4 7/16 "	6 7/8 "
16	Inch	2"	4 ½ "	7"
16 ¼	Inch	2"	4 9/16 "	7 1/8"
16 ½	Inch	2"	4 5/8 "	7 ¼ "
16 ¾	Inch	2"	4 11/16 "	7 3/8 "
17	Inch	2"	4 3/4"	7 ½ "
17 ¼	Inch	2"	4 13/16"	7 5/8 "
17 ½	Inch	2"	4 7/8"	7 ¾ "
17 ¾	Inch	2"	4 15/16 "	7 7/8"
18	Inch	2"	5"	8"

#### INTERSECT RADIUS LINES AT

Radius	Distance from Leading Edge	Thickness
2"	1 3/8"	.283"
4 ¼" to 5"	1 ½"	.182"
6 ½" to 8"	1-11/16"	.115"

#### INTERSECT RADIUS LINES AT

Radius	Distance from leading Edge	Thickness
2"	1 ½ "	.475"
4 ¼" to 5"	1 ½ "	.302"
6 ½ " to 8"	1"	.130"

### 323: Air Scoops

- It is illegal to completely seal the inlet air track running from external openings to the

flame arrestor.

2. Fresh air ducting must be no closer than 2" at its nearest points to the engine and/or flame arrestor.
3. Sealing or pressurizing the engine compartment is not allowed.
4. RWO/APBA reserves the right during, or in post-race inspection, to install (place) an atmospheric pressure measuring device to certify that a positive pressure engine compartment has not been created.
5. For purposes of enforcement any reading during a race or in post-race testing exceeding +1.1 atmospheres of pressure, will constitute a violation of this rule with disqualification being the remedy.

### **324: Ballast**

1. No ballast tanks or devices to support ballast tanks are allowed.
2. Any Race Boat which presently has ballast tanks built into the integral support of the boat must remove all supporting plumbing and electrical devices and provide a permanently open inspection port through which the interior of the tank can be thoroughly inspected.
3. No transferable closed liquid systems are allowed.

### **325: Engine Hatches**

4. Engine hatches with or without scoops are allowed.

### **326: Illegal Parts**

1. Use of illegal or unauthorized parts on a Super Cat class race boat will result in the confiscation of the said parts. Failure to surrender the illegal part(s) will lead to a mandatory suspension for the boat, the boat owner and all riding crew members until the illegal part(s) are surrendered to RWO/APBA. It shall be the responsibility of the owner or his designated representative to take whatever actions are necessary to ensure the correct components are present.
2. Tunnel Tabs not allowed

## **401: VX (VX & Vee Extreme): (SV-Numbers) Mono-Hull Only2**

### **402: Equipment Exclusivity Agreements**

1. All boats as well as every part used in connection therewith, including but not limited

to engines, outdrives, transmissions, crash boxes, and propellers (and all parts and components related thereto) must be both manufactured and intended for sale to the public at commercially reasonable prices. Exclusivity agreements of any type that have not been approved by RWO/APBA are strictly prohibited. This rule applies to competitors only and shall not be construed in any manner whatsoever to limit or restrict RWO/APBA from entering into exclusivity agreements such as official sponsorships involving single source vendors, suppliers, manufacturers or producers.

**403: Rule Enforcement**

1. The purpose of these rules is to ensure competitive balance between VX racing teams. RWO/APBA thus reserves the right to take whatever actions it deems necessary to enforce these rules, including but not limited to impounding any boat and/or parts and components thereof for inspection purposes, and/or prohibiting the use of any part or component which it deems gives a team an unfair competitive advantage, in its sole and absolute discretion. All illegal parts or components become the property of the RWO/APBA. RWO/APBA Race Officials are authorized to decide if an equipment change is an attempt to beat the rules. They can and will disqualify an entry in violation of the spirit and intent of these rules or take such other action as they deem necessary to maintain competitive balance in the class.

**404: Rule Changes to Maintain Competitive Balance**

1. RWO/APBA recognizes that there are considerable differences in boat length, design, width, angle, shape and other aspects of boat design. RWO/APBA therefore reserves the right to make adjustments at any time to boats, engines, drives, propellers, etc. individually or categorically, to maintain competitive balance based upon experience in race conditions.

**405: VX Boat Specifications**

<b>Class</b>	<b>VX</b>
<b>Hull Type</b>	Mono-Hull
<b>Length Minimum</b>	35 Ft.
<b>Length Maximum</b>	46 Ft.
<b>Beam (Maximum)</b>	9' 3"
<b>Height</b>	At least 48" from the keel to the deck forward of the canopy ( <i>not including the canopy</i> )
<b>Weight Minimum (Lbs.)</b>	9,000

**406: Minimum Weight Measurement**

1. Minimum weight measurement is determined at the end of the race. All boats required or directed to weigh-in by the Race Officials must report to the Crane of the Day, the same crane must be used for both entering and exiting the water. It will be the responsibility of

the Owner, Driver, or designated Crew Member to present the boat for post-race weighing with the boat in the lifting harness in a level position, with the hull drain plugs removed and the boat empty of water, with all ballast tanks empty. If the Race Official finds otherwise the boat will be immediately assessed a two (2) minute penalty. No private cranes or scales will be utilized for official weighing compliance purposes. The weight will be an all-up weight including engines, residual fuel, drives, propellers, fixed ballast, helmets and jackets. (i.e. that which is used from start through completion of race). No multiple weighing, one only (one in and one out).

#### **407: Canopies**

VX registered race boats are required to have canopies.

1. All canopied boats are recommended to comply with the latest canopy design and technology. Contact the boat manufacturer for their canopy standards.
2. Any damage to the canopy must have a notarized, certified letter from a manufacturer of canopy authorizing the continued use in a race.
3. RWO/APBA has the authority to deny entry to any race boat subject to these rules that has a non-compliant cockpit safety system.

#### **408: Engine Specifications**

1. The VX class tech engine will not be the only engine approved for the VX Class.
2. Naturally aspirated engines with a maximum of 572 cu in, maximum compression ratio of 9.5:1, max gross cam lift of .740 inch measured at the valve and a single carburetor will also be approved on a case by case basis after an RWO/APBA technical inspection is conducted.
3. Displacement: Maximum 572 cu in., any bore and stroke combination.
4. Compression Ratio: The maximum compression ratio allowed is 9.5:1 measured by whistler device calibrated at race site with master cylinder.

#### **409: Valve System**

1. Two (2) valves per cylinder operated via pushrods.
2. Maximum Gross Cam Lift: Measured at the valve is .740 inch with zero lash.
3. Variable Cam Timing is not allowed.

#### **410: Block**

1. Cast iron General Motors, World Products, (Merlin), and Dart blocks in their stock OEM

configuration must be approved by RWO/APBA.

2. Chevrolet design blocks with 9.8" or 10.2" deck heights are approved.
3. Sleeves or bushings may be used providing the original OEM (GM) lifter bore location is unchanged.
4. Pushrods must ride in the center of the lifter. (no offset lifters).

#### **411: Internal Components**

1. Crankshaft, connecting rods, pushrods and wrist pins must be made of steel. Titanium or other materials are not allowed.
2. Single Plane Crankshafts are not allowed. Crankshaft throws must be timed in accordance with OEM specifications.

#### **412: Heads**

1. Approved cylinder head is the DART PRO I, CNC Ported Aluminum Cylinder (Part #19574030). Other heads may be approved on a case by case basis.
2. No modifications to the original head castings are allowed.
3. Spec cylinder head serial number must remain on the head and may not be defaced or altered.

#### **413: Intake Manifold**

1. Carburetor Spacers or adapters are allowed, a maximum of 2 ½" between the bottom of the carburetor and the top of the manifold is allowed.
2. Any stock cast intake manifold. The manifold may be port matched up to 1½ inches to match cylinder heads no other modifications allowed. No fabricated or tunnel ram type manifolds may be used.

#### **414: Induction System**

1. Naturally aspirated engines only. No forced induction engines are allowed.
2. Approved Fuel: 91 to 93 Octane, no fuel additives or oxygenated fuel is allowed.
3. Only (1) one carburetor is allowed per engine.
4. Any Holley Dominator style carburetor is allowed.

## 5. Fuel Injection Is Not Allowed

### 415: Exhaust System

1. Any exhaust system may be used with the following requirements:
  - a. Engine exhaust manifolds and pipes from engine outlet to point of exit from hull or deck must be water-cooled by water jackets.
  - b. The exit from the hull or deck must be set up whereby exhaust fumes cannot affect the crew.

### 416: Transmissions

1. All boats competing in the VX
2. class must have propulsion systems capable of turning the propellers in either direction or maintaining a neutral (standstill) state while the engine is running.
3. Single Speed transmissions / crash boxes capable of forward, neutral and reverse are allowed.
4. Multi Speed transmissions are not allowed

### 417: Lubrication (*Engine*)

1. Wet sump and internal oil pumps are allowed.
2. External oil pumps or dry sump systems are allowed, however, a maximum of (3) three scavenging pump sections allowed on dry sump systems.
3. Intake Valley must remain as cast with NO alterations to prevent oil flow from the valley to the crankcase. No raised sections may be attached or formed with any material around oil drain openings in the intake valley. No “damming” or collecting of oil by any means is allowed in the intake valley.

### 418: Ignition System

1. Distributor must remain in the factory delivered location.
2. All VX Class Engines are required to use the MSD Digital or Analog ignition system, limited to 6600 RPMS. A G2X Data Logger or equivalent must be installed and maintained to monitor the RPM Level during the race. The RPM level during the entire race must be verifiable on the Data Logger by the RWO/APBA Inspector, upon completion of the Race, during the Post-Race Inspection. The Ignitions with an internal dial up RPM Limiter will be set and sealed by the RWO/APBA Inspector. The wiring

harness of the system must be accessible and provide the ability for an RWO/APBA Inspector to examine it. Any boat competing in the VX Class that exceeds the above listed **maximum RPM limit**, as determined by the RWO/APBA Inspector **will be** awarded last place points and **will not be** eligible for trophies, flags, or prize money.

3. Crank Trigger and Belt Driven Ignitions are not allowed.
4. Ignition systems are limited to one (1) ignition coil. Individual ignition coils per cylinder are not allowed.
5. Back Up Ignition Systems are not allowed.
6. Spark must be distributed via distributor rotor and cap.

#### **419: Engine Supplier**

1. RWO/APBA also will allow multiple engine builders to supply engines that meet the VX class engine specification.
2. VX class spec engine program goals are to:
  - a. Increase competitive balance throughout the fleet.
  - b. Reduce the maintenance and operating costs for the majority of the teams during an entire season.
  - c. Increase reliability and durability.

#### **420: Outdrive Specifications**

1. All Mercury, Arneson and Arneson type Drive systems are allowed, but must retain their original OEM configuration and specifications. Any other type drive system must be approved, in writing, by RWO/APBA.
2. The Mercury #6 drive is limited to a 1.57:1 gear ratio at the prop and the Arneson drives are limited to a 1.56:1 gear ratio at the prop.
3. No internal or external modifications are allowed.

#### **421: Propeller Specifications**

1. Mercury, Hering and Rolla are approved.
2. Propellers must be approved by RWO/APBA.
3. Propellers must be cast stainless steel, no forged units of any type or titanium

propellers are allowed.

4. Other manufacturers of cast propellers may apply to RWO/APBA for approval.
5. Propellers must be intended for sale to the public at commercially reasonable prices and available to all racers.
6. All propellers will be measured and limited to a minimum thickness. The standard blade thickness will be the normal RWO/APBA Lab Finish. (*See Chart*).

### Propeller Inspection Specifications for VX Class

#### SSM VI DRIVE TYPE PROPELLER DIMENSIONS

Propeller Diameter			Strike Radius At	
15	Inch	2"	4 ¼ "	6 ½"
15 ¼	Inch	2"	4 5/16"	6 5/8"
15 ½	Inch	2"	4 3/8"	6 ¾ "
15 ¾	Inch	2"	4 7/16 "	6 7/8 "
16	Inch	2"	4 ½ "	7"
16 ¼	Inch	2"	4 9/16 "	7 1/8"
16 ½	Inch	2"	4 5/8 "	7 ¼ "
16 ¾	Inch	2"	4 11/16 "	7 3/8 "
17	Inch	2"	4 3/4"	7 ½"
17 ¼	Inch	2"	4 13/16"	7 5/8 "
17 ½	Inch	2"	4 7/8"	7 ¾ "
17 ¾	Inch	2"	4 15/16 "	7 7/8"
18	Inch	2"	5"	8"

#### INTERSECT RADIUS LINES AT

Radius	Distance from Leading Edge	Thickness
2"	1 3/8"	.283"
4 ¼" to 5"	1 ½"	.182"
6 ½" to 8"	1-11/16"	.115"

#### INTERSECT RADIUS LINES AT

Radius	Distance from leading Edge	Thickness
2"	1 ½ "	.475"
4 ¼" to 5"	1 ½ "	.302"
6 ½ " to 8"	1"	.130"



#### **422: Engine Hatches**

1. Engine hatches with or without scoops are allowed. It is illegal to completely seal the inlet air track running from external openings to the flame arrester. Fresh air ducting must be no closer than 2" at its nearest points to the engine and/or flame arrester.
2. Sealing or pressurizing the engine compartment is not allowed.

#### **423: Ballast Tanks**

1. Ballast tanks are allowed. No transferable closed liquid systems are allowed.

#### **424: Illegal Parts**

2. Use of illegal or unauthorized parts on a VX class race boat will result in the confiscation of the said parts. Failure to surrender the illegal part(s) will lead to a mandatory suspension for the boat, the boat owner and all riding crewmembers until the illegal part(s) are surrendered to RWO/APBA. It shall be the responsibility of the owner or his designated representative to take whatever actions are necessary to ensure the correct components are present.

### **501: Super Stock: (S-Numbers)**

#### **502: Equipment Exclusivity Agreements**

2. All boats as well as every part used in connection therewith, including but not limited to engines, outdrives, transmissions, crash boxes, and propellers (and all parts and components related thereto) must be both manufactured and intended for sale to the public at commercially reasonable prices. Exclusivity agreements of any type that have not been approved by RWO/APBA are strictly prohibited. This rule applies to competitors only and shall not be construed in any manner whatsoever to limit or restrict RWO/APBA from entering into exclusivity agreements such as official sponsorships involving single source vendors, suppliers, manufacturers or producers.

#### **503: Rule Enforcement**

1. The purpose of these rules is to ensure competitive balance between Super Stock racing teams. RWO/APBA thus reserves the right to take whatever actions it deems necessary to enforce these rules, including but not limited to impounding any boat and/or parts and components thereof for inspection purposes, and/or prohibiting the use of any part or component which it deems gives a team an unfair competitive advantage, in its sole and absolute discretion. All illegal parts or components become the property of the RWO/APBA. RWO/APBA Race Officials are authorized to decide if an equipment change is an attempt to beat the rules. They can and will disqualify an

entry in violation of the spirit and intent of these rules or take such other action as they deem necessary to maintain competitive balance in the class.

#### 504: Rule Changes to Maintain Competitive Balance

1. RWO/APBA recognizes that there are considerable differences in boat length, design, width, angle, shape and other aspects of boat design. RWO/APBA therefore reserves the right to make adjustments at any time to boats, engines, drives, propellers, etc. individually or categorically, to maintain competitive balance based upon experience in race conditions.

#### 505: Boat Change

1. A race team is not permitted to change a boat during the racing season, except if it is damaged, sold, stolen, or physically unable to race. Boat must meet class rule specification.

#### 506: Super Stock Boat Specifications

Class	Super Stock
Hull Type	Catamaran
Length Minimum	28 ft.
Length Maximum	32 ft.
Weight Minimum (Lbs.)	See Boat Weight Chart. Varies with Length.

#### 507: Weight / Tunnel Width

1. Tunnel Width no more than 63". Any boat having less than 63" in the tunnel may reduce its overall weight by twenty-five (25) pounds per inch of tunnel, from their base weight.

##### MINIMUM WEIGHT

Length	Minimum Weight (LBS)
28 Ft.	3,900
29 Ft.	4,025
30 Ft.	4,125
31 Ft.	4,275
32 Ft.	4,400

#### 508: Minimum Weight Measurement

1. Minimum weight measurement is determined at the end of the race. All boats required or directed to weigh-in by the Race Officials must report to the Crane of the Day, the same

crane must be used for both entering and exiting the water. It will be the responsibility of the Owner, Driver, or designated Crew Member to present the boat for post-race weighing with the boat in the lifting harness in a level position, with the hull drain plugs removed and the boat empty of water, with all ballast tanks empty. If the Race Official finds otherwise the boat will be immediately assessed a two (2) minute penalty. No private cranes or scales will be utilized for official weighing compliance purposes. The weight will be an all-up weight including engines, residual fuel, drives, propellers, fixed ballast, helmets and jackets. (i.e. that which is used from start through completion of race). No multiple weighing, one only (one in and one out).

2. Ballast Tanks are allowed. No transferable closed liquid systems are allowed.

### **509: Canopies**

1. Super Stock registered race boats are required to have canopies.
2. All canopied boats are recommended to comply with the latest canopy design and technology.
3. Contact the boat manufacturer for their canopy standards.
4. Any damage to canopies must have a notarized certified letter from a manufacturer of canopies authorizing the continued use in a race.
5. RWO/APBA has the authority to deny entry to any race boat subject to these rules that have non-compliant cockpit safety systems.

### **510: Engine Specifications**

1. Super Stock class is limited to the 2006 and up Mercury (3.2 liter) 300 XS, 300 HP, 193 C.I.D. engine.
2. All Super Stock Class Mercury 300 XS engines are required to have the stock ignition system limited to 6400 RPMS and both must have a G2X Data Logger or equivalent installed and maintained to monitor the RPM level during the race. The RPM level during the entire race must be verifiable on the Data Logger by the RWO/APBA Inspector upon the completion of the race, during Post-Race inspection. Any boat competing in the Super Stock class that exceeds the above maximum RPM limit, as determined by the RWO/APBA Inspector will be awarded last place points and will not be eligible for trophies, flags or prize money,
3. ECU boxes: May not be modified or reprogrammed. Maximum RPM allowed 6400. Mercury certified ECU boxes will be issued Prerace and collected Postrace.

### **511: Power Heads/Lower Units**

1. All outboard motor powerheads and lower units must comply fully with all

specifications, as provided by the manufacturer (i.e. stock as produced). The center section may be modified upon approval by the RWO/APBA Director of Operations (DOR) in order to pass a Post-Race inspection. The year of the power heads must be declared.

2. Balancing and blueprinting is not allowed.
3. Lightweight facsimile of production cowling may be used.
4. Any reeds are allowed, as long as stock reed cages are used.
5. All OEM gear ratios allowed.

#### **512: Fuel**

1. Petroleum based fuels only; performance, octane and/or oxygen inducing additives are not permitted.

#### **513: Propeller**

1. All propellers must be approved by RWO/APBA prior to and after the use during an official race.
2. Propellers must be cast stainless steel, no forged or titanium propellers are allowed.
3. The criteria for propeller approval are that a lab finished propeller must be inspected with the receipt of the amount paid showing manufacturer's suggested retail pricing. Each lab finished propeller may not exceed \$2,000 dollars and must be made available to any racer within a 30-day time frame. If at any time the availability goes behind the 30-day time frame, any existing propeller will be disallowed for the rest of the season or until such time as the manufacturer c
4. Below is a list of currently approved propellers manufacturers. All other propellers must be approved by RWO/APBA Officials prior to use. Propeller specs for class will be updated.
  - a. Mercury
  - b. Hydromotive
  - c. SPINELLI
  - d. Mazco
  - e. Dewald
  - f. Hering

#### **601: Modified Vee: (V-Numbers) Inboard Mono-Hull Only**

## 602: Equipment Exclusivity Agreements

1. All boats as well as every part used in connection therewith, including but not limited to engines, outdrives, transmissions, crash boxes, and propellers (and all parts and components related thereto) must be both manufactured and intended for sale to the public at commercially reasonable prices. Exclusivity agreements of any type that have not been approved by RWO/APBA are strictly prohibited. This rule applies to competitors only and shall not be construed in any manner whatsoever to limit or restrict RWO/APBA from entering into exclusivity agreements such as official sponsorships involving single source vendors, suppliers, manufacturers or producers.

## 603: Rule Enforcement

1. The purpose of these rules is to ensure competitive balance between Modified Vee racing teams. RWO/APBA thus reserves the right to take whatever actions it deems necessary to enforce these rules, including but not limited to impounding any boat and/or parts and components thereof for inspection purposes, and/or prohibiting the use of any part or component which it deems gives a team an unfair competitive advantage, in its sole and absolute discretion. All illegal parts or components become the property of the RWO/APBA. RWO/APBA Race Officials are authorized to decide if an equipment change is an attempt to beat the rules. They can and will disqualify an entry in violation of the spirit and intent of these rules or take such other action as they deem necessary to maintain competitive balance in the class.

## 604: Rule Changes to Maintain Competitive Balance

1. RWO/APBA recognizes that there are considerable differences in boat length, design, width, angle, shape and other aspects of boat design. RWO/APBA therefore reserves the right to make adjustments at any time to boats, engines, drives, propellers, etc. individually or categorically, to maintain competitive balance based upon experience in race conditions.

## 605: Modified Vee Boat Specifications

Class	Modified Vee
Hull Type	Mono-Hull
Length Minimum	26 Ft.
Length Maximum	32 Ft.
Beam (Maximum)	8' 6"
Maximum Beam	Maximum beam shall be no more than 2' wider than the beam measured at the transom chine to chine.
No. of Engines	One (1)
Weight Minimum (Lbs.)	4,750

## **606: Minimum Weight Measurement**

1. Minimum weight measurement is determined at the end of the race. All boats required or directed to weigh-in by the Race Officials must report to the Crane of the Day, the same crane must be used for both entering and exiting the water. It will be the responsibility of the Owner, Driver, or designated Crew Member to present the boat for post-race weighing with the boat in the lifting harness in a level position, with the hull drain plugs removed and the boat empty of water, with all ballast tanks empty. If the Race Official finds otherwise the boat will be immediately assessed a two (2) minute penalty. No private cranes or scales will be utilized for official weighing compliance purposes. The weight will be an all-up weight including engines, residual fuel, drives, propellers, fixed ballast, helmets and jackets, plus the total weight of the Riding Crew. (i.e. that which is used from start through completion of race). No multiple weighing, one only (one in and one out).

## **607: Canopies**

1. Modified Vee registered race boats are required to have canopies.
2. All canopied boats are recommended to comply with the latest canopy design and technology. Contact the boat manufacturer for their canopy standards.
3. Any damage to the canopy must have a notarized, certified letter from a manufacturer of canopy authorizing the continued use in a race.
4. RWO/APBA has the authority to deny entry to any race boat subject to these rules that has a non-compliant cockpit safety system.

## **608: Other**

1. Hull steps are allowed and must be vented to the atmosphere either internally or externally.
2. Bow anti-dive planes are not allowed
3. Ballast Tanks are allowed. No transferable closed liquid systems are allowed.
4. No Forced Air Induction: The air track running from an external opening to the flame arrestor may not be sealed. The air duct cannot be closer than 2" in any direction to the engine and/or flame arrestor. The engine compartment must be vented, sealing or pressurizing of the compartment or flame arrestor is prohibited.

## **609: Engine Specifications**

1. Approved Engines: Mercury Racing 525 EFI Motor, with its OEM Stock Specifications, with the following exceptions a maximum cubic inch limitation of 510 Cubic Inches and a maximum RPM limitation of 5450 RPMS.

2. The Modified Vee 510 CID Motor with the following specifications:
  - a. **Displacement:** Maximum 510 CID, with a 4" stroke crankshaft only. Crankshaft throws must be in accordance with OEM specifications.
  - b. **Compression Ratio:** Maximum compression ratio of 9.0:1.
  - c. **CAM:** Any hydraulic roller cam with a maximum intake lift of .610 inch and exhaust lift of .632 inch measured at the valve with zero lash is the only cam allowed, with an OEM stock gear timing chain, no belt driven timing chain systems are allowed. SOLID ROLLER CAMSHAFT REQUIRED FOR 2021 RACING SEASON WITH SAME LIFT SPECIFICATIONS AS ABOVE.
  - d. **Variable** cam timing not allowed.
  - e. **Block:** Chevrolet designed blocks, with their OEM specifications, NO MODIFICATIONS, manufactured by General Motors, World Products and Dart must be approved by RWO/APBA.
  - f. **Materials:** Crankshaft, Flywheel, connecting rods, pushrods, and wrist pins must be made of steel. Titanium or other materials are not allowed.
  - g. **Heads:** The approved cylinder head is the Dart Pro I Head, Part Number 19100010M (bare head) or 19100112M (complete head with valves and springs) with their stock OEM specifications, no modifications allowed. 1.7 ratio rocker arms on stud mounted rocker arm shafts only. The head serial numbers must remain on the head and may not be defaced or altered. The Stock Mercury 525 OEM Head with its OEM specifications and no modifications may be used.
  - h. **Intake Manifold:** Any stock cast intake manifold with a Holly Carburetor 4150 style (size) base may be used. No fabricated or tunnel ram type manifolds may be used. Intakes may be port matched up to 1 ½ inches to match cylinder heads.
  - i. **Induction System:** One Holley carburetor 4150 style (size) only is allowed. Naturally aspirated only, no forced induction allowed. No fuel additives or oxygenated fuel is allowed.
  - j. **Lubrication (Engine):** External oil pumps or dry sump systems are not allowed.
  - k. **Ignition System:** Engines are required to use the MSD Digital or Analog Ignition system limited to 5450 RPMs. Crank triggers and belt drive ignitions are not allowed
    - i. All Modified Vee class engines are required to have the ignition system **limited to 5450 RPMs** and have a G2X Data Logger or equivalent,

installed and maintained to monitor the RPM level during the race. The **RPM level** during the entire race must be verifiable on the Data Logger by the RWO/APBA Inspector upon the completion of the race, during the Post-Race inspection.

- ii. Any boat competing in the Modified Vee class that exceeds the above listed **maximum RPM limit**, as determined by the RWO/APBA Inspector **will be** awarded last place points and **will not be** eligible for trophies, flags, or prize money.

#### **610: Engine maintenance and rebuilds**

1. The respective motors can be maintained and rebuilt, utilizing stock OEM parts and specifications, with a maximum cubic inch limitation of 510 cu in and a maximum compression ratio of 9.0:1, all other engine specifications and tolerances must be as per the Original Engine Manufacturer or have approval from RWO/APBA in writing. Note: Aftermarket 502 cubic inch GM blocks may be used.
2. Any violations of the above rules may result in the immediate disqualification of the subject competitor and a fine.

#### **611: Exhaust System**

1. **Exhaust Headers:** Must remain as originally produced by the manufacturer and may not be modified in any way without the written approval of RWO/APBA.
2. **HP 525 EFI Engines & the Modified Vee class 510 CID Motor:** Only CMI Gen X Style Header, the HP 525 EFI Style Header, the CMI Straight Back Sweeper Header, or the Innovation Marine Tractor Style Header is permitted. The above manifolds must be manufactured to the same specs as the OEM Mercury Headers.
3. **Tail Pipes and Exhaust Tips:** Any tail pipe or exhaust tip is allowed. Tail pipes may be of any length and can exit the boat through the gunnel, deck or transom. The engine exhaust headers and pipes from the engine outlet to the point of exit from the hull or deck must be water-cooled by water jackets. The exhaust outlet/tip may not exceed more than 12 inches beyond the transom of the boat. Dry tail pipes are allowed but must be water jacketed.
4. **Cooling Water:** All engine cooling water must be provided through the outdrive. Engine cooling water can not be provided by any other source. Neither the method, nor the volume of cooling water flow to the exhaust system may be altered from the production configuration. All engine cooling water must pass through the exhaust elbow/tail pipe and either into the exhaust, an onboard ballast tank fill or to a thru hull fitting. No water can be diverted for exit elsewhere.
5. RWO/APBA reserves the right to approve alternative additional exhaust installation hardware when required for specific boat builder installations.
6. Rear engine mounts are allowed

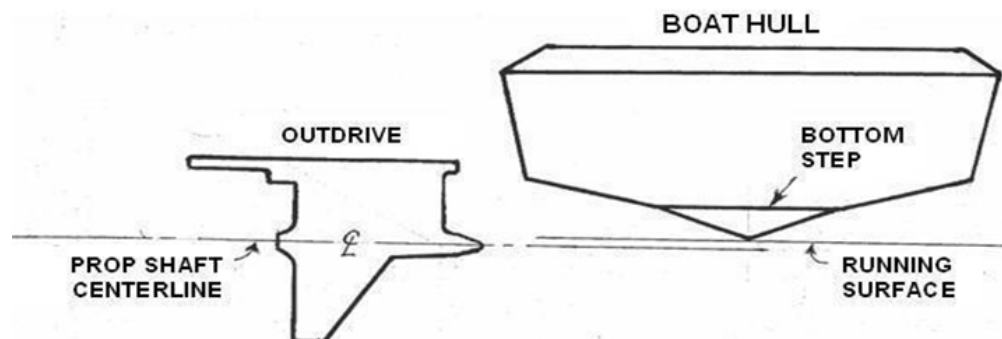
#### **612: Outdrive Specifications**

1. Mercruiser Bravo One, XZ, XR, Sportmaster, Short Sportmaster XR, BMAX, and Imco SC and



SCX Drives are approved for competition.

2. **Nose Cones:** Approved Nose cones are allowed. Check with RWO/APBA prior to using a particular nosecone to ensure it is approved for competition.
3. Crash Boxes are not allowed.
4. **Gear Ratios:** The only gear ratio allowed is 1.50:1 at the prop shaft.
5. Dry sumping of drives is not allowed.
6. **Shifting:** Drives must be capable of shifting forward, neutral and reverse with the engines running.
7. **Modifications:** Drive modifications (i.e. one-piece propeller shafts, heavy-duty bearing carriers, etc.) only to increase reliability are allowed. Parts must be available to all racers at reasonable commercial prices. Any other modifications to the outdrive (s) or any related components must first be approved by RWO/APBA in writing prior to being used in competition.
8. **Transmissions:** Transmissions are not permitted in the Modified Vee classes.
9. **Standoff boxes:** Standoff boxes are permitted. Standoff boxes must be of a design, size and length that have been approved in writing by RWO/APBA. Check with RWO/APBA prior to using a particular standoff box to ensure it is approved for competition. Standoff boxes are limited to a maximum of 12".
10. **Jackshafts:** Jackshafts are allowed.
11. **X-Dimension / Weight Modification:** To create parity between boats the maximum drive height for Modified Vee boats shall be limited to the centerline of the prop shaft being a minimum of one half inch (1/2") below the bottom of the boat, as measured with a straight edge (laser) off the aft running surface, directly in front of the drive, with the prop shaft trimmed parallel with the aft running surface. Notches, strakes and steps will be excluded. In addition to the X-Dimension the Minimum Weight Requirement may also be modified to create parity.
  - a. **Parity:** To create parity within the Modified Vee class, after two consecutive wins, RWO/APBA will implement one or any of the following. It will be at RWO/APBA's discretion to what degree and which of the following will be implemented.
  - b. **X-Dimension:** Adjust the X-Dimension on an individual basis. (see diagram)
  - c. **Weight Modification:** Control the weight of any individual boat, to maintain the competitive balance of the class. (see diagram)
  - d. In addition to the minimum weight adjustment, RWO/APBA reserves the right at their discretion to also modify the drive height of any boat at any time either in conjunction with the weight adjustment or separately, in an effort to maintain a competitive balance in the class.



### **613: Approved Propeller**

1. Propellers must be manufactured from castings.
2. Propellers may be modified from the factory casting with grinding and machining.
3. Forged billet or other types of propellers are not allowed.
4. Propellers must be available to all racers within a reasonable delivery time.
5. Approved Propellers: Cast propellers must be approved by RWO/APBA.
6. Three, four, and five blade cast propellers manufactured by Hering, Hydromotive, Throttle-Up, and Mercury are approved. The Mercury five blade CNC Cleaver propellers ARE NOT ALLOWED.
7. Six blade cast propellers manufactured by Hering, Throttle-Up, and Hydromotive are approved.
8. Other manufacturers of cast propellers may apply to RWO/APBA for approval based on the following criteria:
  - a. Reasonable prices and available to all racers.
  - b. Manufacturer maintains national availability through a national dealer network.
  - c. Units are available to, and generally recognized by, approved boat manufacturers as OEM Equipment.

### **701: Stock Vee (PROStock Vee)**

**RWO/APBA Officials may interpret these rules, based on circumstances at the time.**

The Stock Vee class is designed around the Mercury HP 525 EFI Engine, for racers that want the safety of being in an enclosed canopy while enjoying deck to deck competition against similar boats with identical power. RWO/APBA would like to see this class grow and thrive as it's an excellent step up for our current teams racing in the speed bracket classes. RWO/APBA's goal is to stabilize and grow the Stock Vee class by enforcing a set of rules that will allow multiple hull manufacturers to compete on a level playing field. In order to achieve our goals, RWO/APBA will use several methods to achieve parity in the class, which will allow older hulls to remain competitive against newer hulls that might be more efficient in a straight line. The class known as Stock Vee will divide equally whatever money has been slotted to the class. Any boat that is at the race site, registered and attempts to race, qualifies for the purse. First, second and third place boats will receive the trophies if awards are given out. PRIZE PURSE First, second and third place boats will receive prize purses and trophies according to official results.

### **702: Engine Build Requirements – Stock Vee Class/Mercury HP 525 EFI Engine**

1. Stock Vee team can have their engine rebuilt by any builder of their choice. RWO/APBA MUST be notified in advance
2. Maximum cubic inch limitation of 510 cu in

3. All internal parts must remain as OEM spec.
  - a. For example, if a team uses an aftermarket crankshaft, it must meet OEM spec as far as weight, stroke, journal size, external balance, keyway location etc.
  - b. Rods: OEM 525 or Manley #14060L series H- Beam with 6.135 length.
  - c. Pistons: 30 over part #SRP281919
  - d. Cam Shaft: 525 Mercury OEM part # or Teague part #16HR00004-AP
  - e. Lifters: Remain STOCK diameter of .84311, dog bone or tie bar are allowed NO SOLID LIFTERS
4. Crankshafts: Manley part #190170 or OEM 525 crankshaft with a 4 inch stroke
5. Block Chevy Gen V or VI block
6. Materials including Crankshaft, flywheel, connecting rods, pushrods and wrist pins must be made of steel. Titanium or other materials are NOT ALLOWED
7. No alterations to the cylinder heads will be allowed. surfacing to the deck of the head is allowed, but the maximum compression ratio of 9.0:1, must be maintained. NO PORTING ALLOWED
8. Fuel system and intake plenum must remain as produced by Mercury Marine. No fuel additives or oxygenated fuel is allowed.
9. **Exhaust Headers:** Must remain as originally produced by the manufacturer and may not be modified in any way without the written approval of RWO/APBA.
10. **HP 525 EFI Mercury Engine:** Only CMI Gen X Style Header, the HP 525 EFI Style Header, the CMI Straight Back Sweeper Header, or the Innovation Marine Tractor Style Header is permitted. The above manifolds must be manufactured to the same specs as the OEM Mercury Headers.

### 703: Computer Regulations

1. NO MODIFICATIONS TO SPEC. ECU'S. The conducting club reserves the right to swap ECU's with any boat at any time. (Team will be allowed time to test the new ECU to make sure it works properly.)

### 704: Stock Vee Data Logger Unit

1. All Stock Vee class engines are required to have the ignition system **limited to** 5450 RPMS and have a G2X Data Logger or equivalent, installed and maintained to monitor the RPM level during the race. The **RPM level** during the entire race must be verifiable on the Data Logger by the RWO/APBA Inspector upon the completion of the race, during the Post-Race inspection.

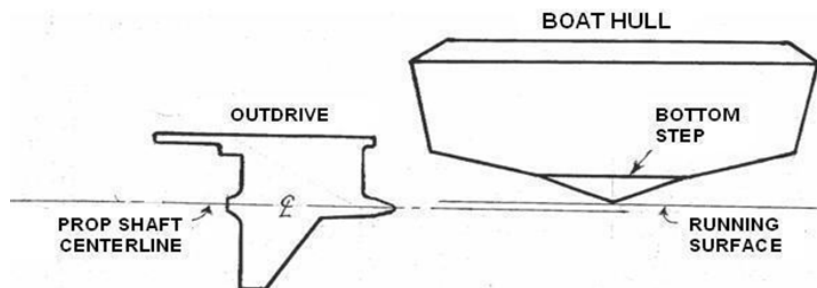
### 705: Weights and Dimensions

Hull type: Monohull Length minimum 26' 011 Length maximum - Bow to Transom - 30' 011 Length maximum Overall: 32' 011 Beam minimum: 6' 611 Beam maximum: 8' 611 Number of Engines: 1 Single Step Hulls Weight minimum, Bravo, Imco drive 4750 lbs. Twin Step Hulls Weight Minimum, Bravo, Imco drive 5000 lbs. at first race - adjusted for parity by RWO/APBA. Triple Step Hulls Weight Minimum, Bravo. Imco drive 5250 lbs. at first race-

adjusted for parity by RWO/APBA.

## 706: Outdrive Specifications

1. **Approved Outdrives:** Outdrives are required to be standard production units. A production unit is defined as one that is available to the general public for recreational use, and is produced in quantities of 25, or more units per year. Any engine or outdrive manufacturer meeting the minimum quantity production criteria may apply to the Technical Committee for approval of their product for competition. Approval is subject to production quantity verification and determination that no competitive advantage will be realized. Approved Outdrives: Mercruiser Bravo One- Must comply with applicable rules Mercruiser Bravo X, XZ- Must comply with applicable rules Mercruiser Bravo XR- Must comply with applicable rules Mercruiser Bravo XR Sportmaster- Must comply with applicable rules Mercruiser Bravo XR Short Sportmaster- Must comply with applicable rules IMCO SC and SCX- Must comply with applicable rules
2. **Skegs:** may not be sanded or thinned in any way. There shall be a minus 3/16ll tolerance on skeg length.
3. **Approved Drive Ratios:** All STOCK V boats shall be restricted to 1.50:1 final drive ratio. Gear tooth count XR Upper 19/16 XR Lower 15/19 XZ Upper 32/27 XZ Lower 15/19
4. **Transom Assembly:** All Bravo Style Outdrives Mercruiser Bravo, Bravo HP, IMCO or MerCruiserITS.
5. **Transmissions:** Transmissions may not be used.
6. **Standoff boxes:** Permitted to a maximum of 12 inches. All bottom modifications allowed, and each standoff box must be type approved by APBA.
7. **X- dimension:** Maximum X-dimension is one half inch below the bottom of the boat when checked with the straight edge from the lowest point of the aft running surface directly in front of the drive and behind the last step of the hull (notches and rockers excluded). For purposes of measurement, the centerline of the propeller shaft must be parallel with the aft running surface. An approved spacer between the upper and lower drive housing can be utilized. Spacer may not exceed 3"ll. Water pickup slots can be made longer or shorter, on IMCO lower to control water pressure. Mercury Sport Master lower unit may close off two outside slots, while maintaining center slot to control water pressure to engine.



8. **Power Steering Pumps:** Stock power steering pumps can be replaced. Pumps must be

located in the original OEM location on the engine.

9. **Approved Propellers:** Any cast stainless steel propellers with six or less blades manufactured by Mercury, Hydromotive, Throttle Up or Hering are legal. MAX PROP PITCH - 31 $\frac{1}{2}$ ”, MAX PROP DIAMETER - 15  $\frac{5}{8}$ ”. Propellers must be intended for sale to the public at commercially reasonable prices. NO OVER THE HUB EXHAUST TYPE PROPELLERS ALLOWED. NO MERCURY FIVE BLADE CNC CLEAVER PROPELLERS ALLOWED.
10. **Steering:** External: Hydraulic steering is required. The original power steering pump or aftermarket pump must be used on all boats.
11. **Ballast:** All movable ballast must be fixed in place at the beginning of a race. No movable ballast weight may be transferred or relocated while the boat is underway. Ballast water tanks are allowed and may be filled and emptied during the race.
12. **Cooling Water:** All engine cooling water must be provided through the outdrive. Engine cooling water can not be provided by any other source. Neither the method, nor the volume of cooling water flow to the exhaust system may be altered from the production configuration. All engine cooling water must pass through the exhaust elbow/tail pipe and either into the exhaust, an onboard ballast tank fill or to a thru hull fitting. No water can be diverted for exit elsewhere.

#### **707: Canopies**

1. Stock Vee registered race boats are required to have canopies.
2. All canopied boats are recommended to comply with the latest canopy design and technology. Contact the boat manufacturer for their canopy standards.
3. Any damage to the canopy must have a notarized, certified letter from a manufacturer of the canopy authorizing the continued use in a race.
4. RWO/APBA has the authority to deny entry to any race boat subject to these rules that has a non compliant cockpit safety system.

#### **708: Technical Rules**

1. Aero-dynamic Devices (such as wings or moveable deck surfaces) - not allowed. Anti-Stuff Bow Planes - not allowed.
2. Non-Skid - All boats must be equipped with non-skid material on the deck from the transom up to and around the canopy.
3. Engine Compartment - Only engine compartments with ridged covers/hatches and a highly visible color underneath may be used.
4. Exclusivity - Exclusivity agreements for boats or any component used in racing are not allowed.
5. Handrails - Handrails (max. height of 6), or hand holes, extending fore and aft must be fitted to the deck of hull. Cables and lifelines are not approved.
6. Approved Inboard Production Race Engine: The approved engine is the Mercury 525 EFI Engine. All engines must pass pre and post race technical inspections. All rebuilds MUST be approved by RWO/ APBA Inspector.

7. Must Whistle Test below 9.0:1 compression ratio.
  - a. No aluminum flywheels
  - b. All sensors must remain OEM
  - c. RPM'S are limited at 5450 for Mercury Engines
8. No Forced Air Induction: The air track running from an external opening to the flame arrestor may not be completely sealed. Likewise, sealing or pressurizing of the engine compartment or engine air intake is prohibited. Fresh air ducting is not allowed to be closer than 2ll in any direction to the engine and/or flame arrestor.
9. No inline seating allowed.
10. Five point restraint harness systems and on-board air systems are required.
11. Single point lifting harness, required for all boats.
12. Braking Systems are not allowed.

### **709: Grandfathered Boat(s)**

1. 27' Activator, hull #, is approved for competition at 4550 pounds.
2. 32' Bad Boy, hull # the 32-ft. Bad Boy hull #
3. RWO/APBA has amended the length rule in the Stock Vee class to allow , to compete in the Stock Vee class indefinitely. This hull 66 and only this hull will be allowed to compete within the class. The hull in question was manufactured in 2007 when the class rules allowed a32-ft. boat to compete within the class. The length rule has since been changed to 30 ft. Reason for the decision is based upon date of manufacture, and single step hull design.
4. RWO/APBA has every intention of maintaining the integrity of the Stock Vee class and felt that this particular hull would be an asset to the class and fall within the performance basis of the other Stock Vee hulls. If this hull is ever damaged beyond repair, another cannot replace it unless shortened to the 30-ft. length limit rule. Although there are no penalties added to this boat, RWO/APBA reserves the right to adjust weight if necessary, to obtain and control parity within the class. The boat will have to meet all other class restrictions that exist within the Stock Vee rules.
5. 30' Lavey Craft, hull # , which is a twin stepped hull, is approved for competition at 4750 pounds.

### **801: Bracketed Class 1-7**

#### **802: Introduction**

The Bracketed Classes shall serve as a place where racers can begin their racing career and work on racing skills. Bracketed classes also give the racers and manufacturers with high performance boats and parts a place to compete. Naturally there is not one boat that does it all and different water conditions will cater to different boat configurations and boat size. A boat that competes in the Bracketed Classes will be assigned a class by RWO/APBA based on the top

speed and acceleration ability of that boat in perfect water conditions by a RWO/APBA Inspector. If a Bracketed Class boat is found to be in the wrong class during Pre-Race inspection, an RWO/APBA Inspector will move the boat into the correct class. RWO/APBA Inspectors will use a mathematical formula to determine a boat's top speed based on perfect water conditions. Also the RWO/APBA Inspectors have a vast knowledge of race boats and how to determine top speed and acceleration ability and this will be calculated in the class placement. If there is a disagreement of a boat's top speed or the meaning of the application of the Performance class rules the interpretation of the officials at the race site will prevail. The Bracket Class is a place to race almost any boat, test your skill, start your racing career and test your products and equipment.

1. Any boat competing in the Bracket Racing class that exceeds the above listed Max Speed by one mile per hour, They will not be eligible for trophies, flags and prize money.
  - a. Class race boats will be identified with only the class numbers as their assigned number.
  - b. The Class that you will be racing in will be on our estimated Top speed of your boat. If you do not know what class you should be in, speak to the Referee or the Chief Inspector.
  - c. Speeds will be confirmed by GPS.
  - d. Official RWO/APBA GPS units are:
    - i. Racelogic VBOX Sport
    - ii. Racelogic Video VBOX Lite
    - iii. Racelogic HD2 System
    - iv. Racelogic HD2-HDMI

Racers MUST hand in the SD Card in which the data was recorded by the VBOX. If a card is NOT submitted for reading within a timely manner, they will be disqualified and receive no points for the event.

- b. You are not permitted to run your VBOX unit in multiple races.
- c. VBOX units are the ONLY GPS units that are legal for class.
- d. VBOX units require an SD Card to have the data recorded on. Below is the required SD file size:
  - i. VBOX Sport: 4GB minimum, recommended 8GB
  - ii. Video VBOX: 16GB minimum, recommended 32GB
  - iii. Video VBOX Waterproof: 16GB minimum, recommended 32GB
- e. It is the racer's responsibility to make sure that the GPS unit is working properly at all times.
- f. It is the racer's responsibility to make sure that there is ample room on the SD card to record the data from the GPS.

### **803: How a GPS Breakout is Determined**

1. A GPS breakout is any speed that goes above the bracketed class speed for a duration of time that exceeds 3 seconds.
2. A GPS breakout speed with a duration time that measures 3 seconds or less will not be counted as a breakout.
3. For each boat when a breakout occurs, the total duration of time will be the measurement of the total breakout.
4. 4. Sample breakdown of 2 teams with breakout time durations. Boat A with a total of 13.8 seconds will be scored better than that of Boat B with a duration of 16.3 seconds.
  - a. Boat A (Breakout time duration over 3 seconds)
  - b. 6.7 seconds
  - c. 3.8 seconds
  - d. 3.3 seconds
  - e. Total time of breakout 13.8 seconds
  - f. Boat B (Breakout time duration over 3 seconds)
  - g. 10.1 seconds
  - h. 6.2 seconds
  - i. Total time of breakout 16.3 seconds
5. If there is a tie in which more than one team has the same duration of time for breakouts
  - a. The boat that held a breakout for the longest total distance in the race will place later in the scoring.
  - b. In the event a tie still remains, the boat with the single highest speed will place later in the scoring.

### **804: Bracketed Classes Inspections and Speed**

1. All Bracketed Class boats will be inspected and assigned their proper Class by the RWO/APBA Inspector. You will be assigned your class by your calculated top speed. YOU WILL NOT CHOOSE YOUR CLASS IT WILL BE ASSIGNED. Boats capable of higher speeds than the allowable speed for their CLASS have a significant advantage in acceleration out of the turns and WILL NOT BE ALLOWED.



2. EXAMPLE: A boat capable of 90 to 95 MPH racing in Class 4 with an allowable top speed of 85 MPH has a significant advantage accelerating out of every turn. If this situation occurs the boat in question will be allowed to adjust equipment or advance to another Class.
3. Class 1:
  - a. Boats are limited 115 MPH as a top speed.
  - b. No open cockpit boats are allowed to race in Class 1
4. Class 2:
  - a. Boats are limited to 100 MPH as a top speed.
5. Class 3:
  - a. Boats are limited to 85 MPH as a top speed.
  - b. Boats are 28'-36', single engine I/O or twin outboard, canopies are permitted.
  - c. This class will be subject to change, as it is new and will turn into Class 400 for 2022. Class 400 will become class 300, with no changes to class structure.
6. Class 4:
  - a. Boats are limited to 85 MPH as a top speed.
  - ~~b. Limited to boats 40 ft and under~~
7. Class 5:
  - a. Boats are limited to 75 MPH as a top speed.
  - b. Limited to boats 30 ft and under with a single engine.
  - c. Grandfathered Boat(s)
  - d. 28' Lavey Craft with twin 300 hp outboards known as —Revelation hull # \_\_\_\_\_ is approved for completion.
8. Class 6:
  - a. Boats are limited to 70 MPH as a top speed.
  - b. No boats over 26 ft in length
  - c. Bravo based outdrive
  - d. Single engine only
9. Class 7:
  - a. Boats are limited to 60 MPH as a top speed.
  - b. RWO/APBA reserves the right to inspect all boats competing in the class in order to determine that it is in a condition worthy of the event
  - c. All registered hulls shall only be —Vee hull from 20-22 ft in length
  - d. Hull shall be equipped with a single outboard motor of horsepower not to exceed 300HP

- e. Boats must have hydraulic steering or dual cable setup
- f. Class 700 will not participate in any race committee purse monies
- g. Class 700 will participate in an abbreviated course of 20-24 miles

Class	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7
<b>Top Speed</b>	Up to 115 mph	Up to 105 mph	Up to 95 mph	Up to 85 mph	Up to 75 mph	Up to 70 mph	Up to 60 mph

## 901: Powerboat P1

### 902: General Rules Applicable To All Powerboat P1 Classes

1. **HULL** All Boats shall be Monohull (see definition of Hull).
2. **Fluorescent Bow** - All Boats must have their bows painted fluorescent orange for at least 20 inches. If the Hull is of a similar orange color, then there must be a white separating band of at least 6 inches wide to ensure that the fluorescent orange band is obvious. The number of riding Crew members must be written in black in at least 10 inches high numbering, on the orange area of the nose and it must be on at least the deck and on both sides of the topsides of the Hull.
3. Any Boat wishing to test or practice with a different number of Crew to that stated on the bow must inform race control prior to leaving the harbor. Failure to inform race control may result in disqualification from the next race. Should any Boat be found to have raced with a different number of Crew to that stated on the bow, the penalty shall be disqualification from that race.
4. **Strobe light** - A high intensity white strobe light shall be fitted to the tallest point of each Boat for the purpose of signaling race officials and other boats that it is off plane and not racing. For an Evolution and SVS category boats the strobe light shall be mounted on the top rear of the canopy. When dual canopies are used, the light may be on or behind either canopy. This provision is recommended on P1 SuperStock category boats but is not mandatory.
5. This strobe light may also be used as a substitute for the orange retirement flag when returning to port under reduced power.
6. **Mandatory Weighing** - All Boat weights shall be verified by mandatory weighing after each

race and after the Power Pole. No boat is permitted to refuel after racing or after the Power Pole until after they have been weighed. Failure to comply may result in disqualification from the Power Pole, the race or from the Grand Prix. The P1 TCC reserves the right to weigh Boats at any time during the event when they are being lifted into or out of the water.

7. **Compartment Inspection Access** - All compartments or chambers within the hull shall have access panels to allow inspection of all areas of the hull, including but not limited to: fuel tank compartments, ballast tank compartment(s), below floor compartments, etc.

## **903: Rules For UIM Stock Circulated 4. August 2017 – VERSION 4.0**

### **1. Introduction**

- a. These rules are intended to ensure safe and competitive racing in a race series at a reasonable cost to the participants. The series is based on identical boats and is designed to expand and broaden the general base of participation based on the key criteria of affordability and accessibility. The class is raced at national level in various markets with some events carrying UIM International Ordinary Event status. Annual World Championship level events are also staged. The class uses stock engines and organizers work closely with the marine industry to develop and demonstrate the performance of its products. Any development that is contrary to this policy may give rise to a rule change as provided for under these rules.

### **2. Concept**

- a. All participating boats are strictly one design and only boats and engines complying with these rules are eligible.
- b. Permission to race in the series is at the discretion of the series organizer and the organizers reserve the right to refuse entry into the series.
- c. The boats are constructed in carbon fiber and glass reinforced plastic.
- d. The boats must carry a minimum of two crew members: a driver / Pilot and a navigator / Throttle Person
- e. No physical modifications may be made to the hull from the original one-design drawings or specifications however technical scrutineers may approve minor running repairs if deemed necessary.
- f. No modifications may be made to the engine or engine position as set by the scrutineers.
- g. Original hull drawings are available from the series organizer on request and templates may be used at events to ensure compliance with the original design.

- h. Outside communication during races is not permitted (other than with the start / pace boat via the VHF radio.
- i. Safety takes priority over racing at all times.

#### **904: Classification And Approval of Races**

1. The race calendar is coordinated and managed by the series organizer. National events are sanctioned by the relevant national governing body and by the UIM for International races.

#### **905: Boat Provision, Ownership, and Lease**

1. The series organizer sells new and used boats, leases, hires and from time to time makes boats available for use by participating teams.

#### **906: One Design Minimum Specifications (ODMS) Manual**

1. It is a condition of entry into the series that participating teams acknowledge the boats and engines available are of a certain age and will have had previous repairs. Participating teams accept the series organizer will have done everything possible to ensure boats are as even as could reasonably be assured, but that ultimately it is each competitors' responsibility to ensure their boat and engine meet the regulations. Once inscribed for the season or a specific event, competitors will be provided with a One Design Minimum Specifications (ODMS) Manual. The ODMS Manual, ratified by UIM, will provide competitors with a copy of the original boat design drawings and specific technical requirements for the following:

- a. Engine
- b. Propeller
- c. Fuel tank
- d. Wiring loom
- e. Minimum weight
- f. Engine lifter / jack plate
- g. Transom
- h. Controls
- i. Battery position
- j. Seats
- k. Bilge pump

#### **907: Seats**

1. Race boats will be provided with bespoke WCC seats, frames & rails. In the interests of enhanced ergonomics, crew comfort and safety, teams are permitted to purchase from

WCC through the series organiser only, tailor fitted inserts to the WCC seats at their own expense.

- a. No other seating system is to be used and only WCC seating systems supplied through the series organiser are permitted.

#### **908: Fuel**

1. All fuel must be carried in the permanently installed fuel tank.
2. No secondary tanks are permitted, and fuel may not be transferred between tanks during a race.
3. Except where a fuel sponsor has provided fuel, fuel must be standard road-side or marina available fuel. The fuel must be available to the public and dispensed by standard road-side or marina methods only.
4. Boats are required to be fueled for the day unless otherwise specified and no refueling is permitted between races on the same day unless specifically mentioned in the race instructions.

#### **909: Engines**

1. The specified engine used in the series is the V8 four stroke Mercury Racing 300R
2. No modifications whatsoever are allowed to the engine
3. No engine cowling modifications are permitted other than those approved by the technical inspector.
4. Cowlings must be in place throughout the entire period of a race.
5. Engines may be sealed by the series organiser before the start of the season or specific event.
6. If any work that requires an engine seal(s) to be broken is carried out, it must be either done by the series organisers appointed agent or done in the presence of the series organiser's appointed scrutineer.
7. It will be the competitor's responsibility to produce their log book and or measurement certificate at each event during the scrutineering. Failure to do so will result in

disqualification.

8. Teams are expressly prohibited from carrying a spare engine, and replacement units can only be obtained through the series organiser. Engines for the series can only be purchased through the series organiser.
9. Privately sourced engines will not qualify for the series.
10. The series organiser may remove all EMMs / ECUs from the engines at the start of each event. These would then be chosen randomly by competitors and fitted by the series scrutineer on site.
11. Engine mountings shall be attached to the jack plate (lifter) with at least six (6) bolts.
12. Spark plugs, engine oil and lower unit oil must be as per the specification in One Design Minimum Standards (ODMS Manual), or as supplied / provided by the organisers sponsor.
13. Powerboat P1 will notify all teams of any parts permitted to be changed from those originally supplied by the engine manufacturer.

#### **910: Batteries**

1. Batteries shall be of the type specified in the ODMS Manual.
2. The ODMS Manual will specify the location of the battery and any deviation from this location will require prior approval from the scrutineer.
3. In the event of a battery sponsor agreement, all boats must use the battery specified.

#### **911: Propellers**

1. Participating teams are only permitted to use the designated propellers for competition purposes. Such propellers are provided exclusively by the series organizer.
2. All propellers available for use shall be identified by a unique serial number which will be stamped (impressed) onto the propeller.
3. Race propellers are randomly allocated at the start of each event by the championship organizer. Between events, the propellers are retained by the championship organizer and are only made available for racing.

4. Propellers may be reallocated by the series organizer during any race event.
5. A race propeller will be issued immediately prior to the race and checked by the scrutineer when the boat is launched and recovered. Any competitor found using an unauthorized propeller will be disqualified from that race. On completion of the race / Event. The propeller must be checked by the scrutineer or his appointed representative for inspection prior to removal and have its unique number checked. The competitor may then remove their propeller and hand it back to the technical scrutineer at the stated time and stated location.
6. The complete propeller fitting kit from thrust washer to fixing nut will be deemed part of the prop and will be handed out at the beginning of the season or specific event to each team. It should be returned immediately following the end of the season or event. Any missing items will incur replacement costs by the competitor.
7. Racers may own and keep a testing/training propeller which will be used and repaired at their own expense.
8. During a race event if a team damages its race allocated race propeller, a replacement propeller will be provided by the series organizer. The repair of any damaged propellers is to be borne by the team.
9. If a competitor damages a propeller during a race it must be returned to the technical scrutineer. No repairs to the propeller may be made by the competitors or any unauthorized persons.
10. Failure to comply with conformity will result in a fine and/or disqualification. Propellers will be checked at random.
11. The series organizer may appoint a suitably qualified propeller scrutineer and his or her decision on propeller class measurement and compliance will be final and is not open to appeal. It shall be the responsibility of the competitor to ensure that the propeller is sound, particularly at the blade roots and that it is securely locked by the propeller nut.
12. Each race team will be required to purchase a testing propeller available from the series organizers at a preferential rate.

## **912: Minimum Weight**

1. Stock boats shall have a minimum post-race weight (as raced) of TBC kilograms excluding crew and personal safety equipment.
2. The minimum weight is the sole responsibility of the team.
3. The minimum weight shall be calculated post-race using a calibrated load cell or equivalent weighing device.
4. All boats may be subject to post race weighing and must be made available at the request of the scrutineer and directly after racing finishes.
5. Non-conforming boats will be disqualified.

