



# ***RACE WORLD OFFSHORE***

## **2018 Technical Rules**

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## **SECTION 100: GENERAL APPLICATION OF ALL REGISTERED RACE BOATS**

### **101: US CLASS 1: (Numbers Only)**

#### **102: Introduction**

Race World Offshore, LLC Technical Rules  
 Last Updated: May 21, 2018

## **1. General**

- a. All rules and requirements listed in the Technical and General Competition rulebooks will govern the class. The RWO 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.

## **2. Performance Parameters | Intent of the Rules**

- a. These parameters are merely a guideline for RWO officials in the creation and/or amendment of technical rules to maintain competitive balance and contain costs. Accordingly, RWO 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.

## **3. Rule Interpretation**

- a. If there is a disagreement or dispute regarding the meaning or application of the US Class 1 technical rules, the interpretation and application of the RWO Operational Procedures process shall prevail.

## **103: 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 prior to the change or use. RWO is empowered to make any technical rule changes it deems necessary to maintain competitive balance and/or safety for the boats competing in the US Class 1 class.

### **104: 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 are strictly prohibited. This rule applies to competitors only and shall not be construed in any manner whatsoever to limit or restrict RWO from entering into exclusivity agreements such as official sponsorships involving single source vendors, suppliers, manufacturers or producers.

### **105: Rule Enforcement**

1. The purpose of these rules is to ensure competitive balance between US Class 1 racing teams. RWO 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. RWO 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.

### **106: Rule Changes to Maintain Competitive Balance**

1. RWO recognizes that there are considerable differences in boat length, design, width, angle, shape and other aspects of boat design. RWO 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.

## 107: US Class 1 Specifications

<b>Class</b>	<b>US Class 1</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>US Class 1</b>
<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 arrangement.
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.

#### **108: 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.

#### **109: Canopies**

1. US Class 1 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 has the authority to deny entry to any race boat subject to these rules that has a non-compliant cockpit safety system.

## **110: Engine and Fuel Criteria**

### **1. 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: SUPERCAT: (Numbers Only)

### 202: Introduction

#### 1. General

- a. All rules and requirements listed in the Technical and General Competition rulebooks will govern the class. The RWO 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.

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

- a. These parameters are merely a guideline for RWO officials in the creation and/or amendment of technical rules to maintain competitive balance and contain costs. Accordingly, RWO 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.

#### 3. Rule Interpretation

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

### 203: 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 prior to the change or use. RWO is empowered to make any technical rule changes it deems necessary to maintain competitive balance and/or safety for the boats competing in the SuperCat class

### **204: 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 are strictly prohibited. This rule applies to competitors only and shall not be construed in any manner whatsoever to limit or restrict RWO from entering into exclusivity agreements such as official sponsorships involving single source vendors, suppliers, manufacturers or producers.

### **205: Enforcement of Rules**

1. The purpose of these rules is to ensure competitive balance between SUPERCAT racing teams. RWO 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. RWO 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.

### **206: Rule Changes to Maintain Competitive Balance**

1. RWO recognizes that there are considerable differences in boat length, sponson design, tunnel width, angle, shape and other aspects of boat design. Accordingly, RWO 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.

## 207: SuperCat Specifications

Class	SuperCat
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

## 208: 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).

## 209: Canopies

1. SuperCat 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 has the authority to deny entry to any race boat subject to these rules that has non-compliant cockpit safety systems.

## **210: Engine Specifications**

1. The SuperCat 510 Cubic Inch Displacement (CID) engine will be the only engine approved for the SuperCat Class.
2. RWO will allow any engine builder to supply engines that meet the SuperCat 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 race site with master cylinder.

## **211: 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.

## **212: Engine Block**

1. Cast iron, must be approved by RWO.
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.
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).

## **213: 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.

#### **214: 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.

#### **215: Valve Work**

1. Spec cylinder head serial numbers must remain on the head and may not be defaced or altered.

#### **216: 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.

#### **217: 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.

#### **218: Induction System**

1. Approved Fuel is 91 to 93 Octane. No fuel 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

## **219: 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.

## **220: Transmissions**

1. All boats competing in the SuperCat 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.

## **221: 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.

## 222: Ignition

1. Distributor must remain in 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 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 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 Inspector. The wiring harness of the system must be accessible and provide the ability for an RWO Inspector to examine it.
  - b. Any boat competing in the SuperCat Class that exceeds the above listed **maximum RPM limit**, as determined by the RWO 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.

## 223: 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.

## 224: Propeller Specifications

1. Propellers must be approved by RWO.
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 manufactures of cast propellers may apply to RWO 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.
6. All propellers will be measured and limited to a minimum thickness. The standard blade thickness will be the normal RWO Lab Finish. (See Chart).

**Propeller Inspection Specifications for SuperCat 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 ⅝"
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 ⅜"	.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"

## **225: Air Scoops**

1. 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 point to the engine and/or flame arrestor.
3. Sealing or pressurizing the engine compartment is not allowed.
4. RWO 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.

## **226: 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.

## **227: Engine Hatches**

4. Engine hatches with or without scoops are allowed.

## **228: Illegal Parts**

1. Use of illegal or unauthorized parts on a SuperCat 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. 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.

## **301: SUPERVEE: (SV-Numbers) Mono-Hull Only**

### **302: Introduction**

#### **1. General**

- a. All rules and requirements listed in the Technical and General Competition rulebooks will govern the class. The RWO 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.

#### **2. Performance Parameters | Intent of the Rules**

- a. These parameters are merely a guideline for RWO officials in the creation and/or amendment of technical rules to maintain competitive balance and contain costs. Accordingly, RWO 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.

#### **3. Rule Interpretation**

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

### **303: 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 prior to the change or use. RWO is empowered to make any technical rule changes it deems necessary to maintain competitive balance and/or safety for the boats competing in the SuperVee class.

### 304: 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 are strictly prohibited. This rule applies to competitors only and shall not be construed in any manner whatsoever to limit or restrict RWO from entering into exclusivity agreements such as official sponsorships involving single source vendors, suppliers, manufacturers or producers.

### 305: Rule Enforcement

1. The purpose of these rules is to ensure competitive balance between SuperVee racing teams. RWO 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. RWO 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.

### 306: Rule Changes to Maintain Competitive Balance

1. RWO recognizes that there are considerable differences in boat length, design, width, angle, shape and other aspects of boat design. RWO 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.

### 307: SuperVee Boat Specifications

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

### **308: 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).

### **309: Canopies**

1. SuperVee 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 has the authority to deny entry to any race boat subject to these rules that has a non-compliant cockpit safety system.

### **310: Engine Specifications**

1. The SuperVee class tech engine will not be the only engine approved for the SuperVee 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 in measured at the valve and a single carbureted or injected motor will also be approved on a case by case basis after an RWO 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.

### **311: 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.

### **312: Block**

1. Cast iron General Motors, World Products, (Merlin), and Dart blocks in their stock OEM configuration must be approved by RWO.
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).

### **313: 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.

### **314: 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.

### **315: Intake Manifold**

1. Carburetor Spacers or adapters are allowed, 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.

### **316: 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 Allowed (*must be approved by RWO*)

### **317: 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 setup whereby exhaust fumes cannot affect the crew.

### **318: Transmissions**

1. All boats competing in the SuperVee 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 System

1. Distributor must remain in factory delivered location.
2. All SuperVee Class Engines are required to use the MSD Digital or Analog ignition system, limited to 6600 RPMS. A G2X Data Logger 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 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 Inspector. The wiring harness of the system must be accessible and provide the ability for an RWO Inspector to examine it. Any boat competing in the SuperVee Class that exceeds the above listed **maximum RPM limit**, as determined by the RWO 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.

### 321: Engine Supplier

1. RWO also will allow multiple engine builders to supply engines that meet the SuperVee class engine specification.
2. SuperVee 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.



### **322: 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.
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.

### **323: Propeller Specifications**

1. Mercury, Hering and Rolla are approved.
2. Propellers must be approved by RWO.
3. Propellers must be cast stainless steel, no forged units of any type or titanium propellers are allowed.
4. Other manufactures of cast propellers may apply to RWO 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 Lab Finish. (*See Chart*).

## Propeller Inspection Specifications for SuperVee 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 ⅝"
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 ¾"	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 ⅜"	.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"

### **324: 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 arrestor. Fresh air ducting must be no closer than 2” at its nearest points to the engine and/or flame arrestor.
2. Sealing or pressurizing the engine compartment is not allowed.

### **325: Ballast Tanks**

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

### **326: Illegal Parts**

2. Use of illegal or unauthorized parts on a SuperVee 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. 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.

## **401: PROSTOCK CAT: (S-Numbers)**

### **402: Introduction**

#### **1. General**

- a. All rules and requirements listed in the Technical and General Competition rulebooks will govern the class. The RWO 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.

#### **2. Performance Parameters | Intent of the Rules**

- a. These parameters are merely a guideline for RWO officials in the creation and/or amendment of technical rules to maintain competitive balance and contain costs. Accordingly, RWO 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.

### **3. Rule Interpretation**

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

## **403: 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 prior to the change or use. RWO is empowered to make any technical rule changes it deems necessary to maintain competitive balance and/or safety for the boats competing in the ProStock Cat class.

## **404: 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 are strictly prohibited. This rule applies to competitors only and shall not be construed in any manner whatsoever to limit or restrict RWO from entering into exclusivity agreements such as official sponsorships involving single source vendors, suppliers, manufacturers or producers.

#### 405: Rule Enforcement

1. The purpose of these rules is to ensure competitive balance between ProStock Cat racing teams. RWO 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. RWO 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.

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

1. RWO recognizes that there are considerable differences in boat length, design, width, angle, shape and other aspects of boat design. RWO 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.

#### 407: 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.

#### 408: ProStock Cat Boat Specifications

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

#### 409: 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.
  - a. **Example:** Doug Wright 32' (older models) 57" tunnel weight is 4,150 pounds a total reduction of 150 lbs.

**EXAMPLE: BASE BOAT**

<b>Doug Wright</b>	<b>Tunnel</b>	<b>Weight (LBS)</b>
<b>32 Ft</b>	63"	4,300
<b>32 Ft</b>	62"	4,275
<b>32 Ft</b>	61"	4,250

**MINIMUM WEIGHT**

<b>Length</b>	<b>Minimum Weight (LBS)</b>
<b>28 Ft.</b>	3,800
<b>29 Ft.</b>	3,925
<b>30 Ft.</b>	4,050
<b>31 Ft.</b>	4,175
<b>32 Ft.</b>	4,300

**410: 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).

**411: Canopies**

1. ProStock Cat 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 has the authority to deny entry to any race boat subject to these rules that has non-compliant cockpit safety systems.

#### **412: Engine Specifications**

1. ProStock Cat class is limited to the 2006 and up Mercury (3.2 liter) 300 XS, 300 HP, 193 C.I.D. engine.
2. All ProStock Cat 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 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 Inspector upon the completion of the race, during Post-Race inspection. Any boat competing in the ProStock Cat class that exceeds the above maximum RPM limit, as determined by the RWO Inspector will be awarded last place points and will not be eligible for trophies, flags or prize money

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

1. All outboard motor power heads and lower units must comply fully with all specifications, as provided by the manufacturer (i.e. stock as produced). The center section maybe modified upon approval by the RWO 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.

#### **414: Fuel**

1. Petroleum based fuels only; octane inducing additives are not permitted.

#### **415: Propeller**

1. All propellers must be approved by RWO 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 can meet the 30-day time frame.

4. Below is a list of currently approved propellers manufacturers. All other propellers must be approved by RWO Officials prior to use.
  - a. Mercury
  - b. Hydromotive
  - c. SPINELLI
  - d. Mazco
  - e. Dewald
  - f. Hering

## 501: PROSTOCK VEE: (V-Numbers) Inboard Mono-Hull Only

### 502: Introduction

#### 1. General

- a. All rules and requirements listed in the Technical and General Competition rulebooks will govern the class. ProStock Vee class is an integral part of the RWO. The RWO 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.

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

- a. These parameters are merely a guideline for RWO officials in the creation and/or amendment of technical rules to maintain competitive balance and contain costs. Accordingly, RWO 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.

#### 3. Rule Interpretation

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



## **503: 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 prior to the change or use. RWO is empowered to make any technical rule changes it deems necessary to maintain competitive balance and/or safety for the boats competing in the ProStock Vee class.

## **504: 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 are strictly prohibited. This rule applies to competitors only and shall not be construed in any manner whatsoever to limit or restrict RWO from entering into exclusivity agreements such as official sponsorships involving single source vendors, suppliers, manufacturers or producers.

## **505: Rule Enforcement**

1. The purpose of these rules is to ensure competitive balance between ProStock Vee racing teams. RWO 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. RWO 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.

## 506: Rule Changes to Maintain Competitive Balance

1. RWO recognizes that there are considerable differences in boat length, design, width, angle, shape and other aspects of boat design. RWO 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.

## 507: ProStock Vee Boat Specifications

Class	ProStock 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

## 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, 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).

## 509: Canopies

1. ProStock 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 has the authority to deny entry to any race boat subject to these rules that has a non-compliant cockpit safety system.

## 510: 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
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.

## 511: Engine Specifications

1. Approved Engine
  - a. 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 5400 RPMS.
2. RWO 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. Variable cam timing not allowed.

- d. **Block:** Chevrolet designed blocks, with their OEM specifications, NO MODIFICATIONS, manufactured by General Motors, World Products and Dart must be approved by RWO.
- e. **Materials:** Crankshaft, Flywheel, connecting rods, pushrods, and wrist pins must be made of steel. Titanium or other materials are not allowed.
- f. **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.
- g. **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. Carburetor spacers or adapters are NOT ALLOWED.
- h. **Induction System:** One Holley carburetor 4150 style (size) only is allowed. Naturally aspirated only, no forced induction allowed.
- i. **Lubrication (Engine):** External oil pumps or dry sump systems are not allowed.
- j. **Ignition System:** Engines are required to use the MSD Digital or Analog Ignition system limited to 5400 RPMs. Crank triggers and belt drive ignitions are not allowed
  - i. All ProStock Vee class engines are required to have the ignition system **limited to** 5400 RPMS and have a G2X Data Logger 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 Inspector upon the completion of the race, during the Post-Race inspection.
  - ii. Any boat competing in the ProStock Vee class that exceeds the above listed **maximum RPM limit**, as determined by the RWO Inspector **will be** awarded last place points and **will not be** eligible for trophies, flags, or prize money.

## 512: 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 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.

## 513: Exhaust System

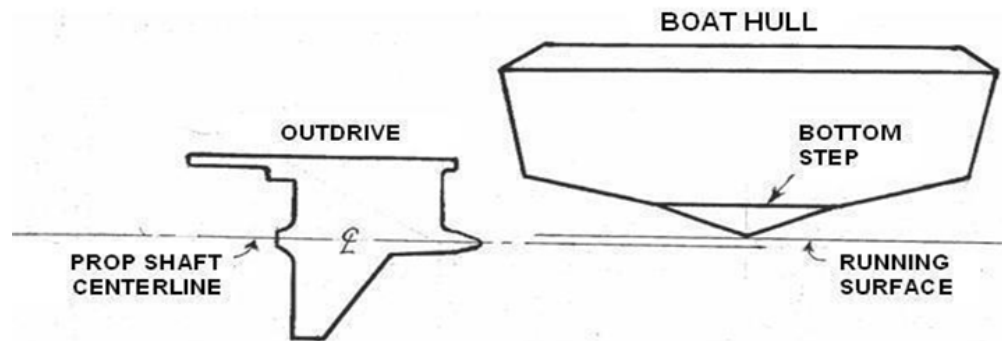
1. **Exhaust Manifolds and Headers:** Must remain as originally produced by the manufacturer and may not be modified in any way without the written approval of RWO.
2. **HP 525 EFI Engines & the ProStock Vee class 510 CID Motor:** Only CMI Gen X Style Header, the HP 525 EFI Style Header, the CMI Straight Back Sweeper Header, or the Innovation Marine Tractor Style Header is permitted.
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 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:** 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 reserves the right to approve alternative additional exhaust installation hardware when required for specific boat builder installations.
6. Rear engine mounts are allowed

## 514: Outdrive Specifications

1. Mercruiser Bravo One, XZ, XR, Sportmaster, Short Sportmaster XR, BMAX, and Imco SC and SCX Drives are approved for competition.
2. The Volvo DPX Duo Prop is approved for competition.
3. **Nose Cones:** Approved Nose cones are allowed. Check with RWO prior to using a particular nosecone to ensure it is approved for competition.
4. Crash Boxes are not allowed.
5. **Gear Ratios:** The only gear ratio allowed is 1.50.1 at the prop shaft.
6. Dry sumping of drives is not allowed.
7. **Shifting:** Drives must be capable of shifting forward, neutral and reverse with the engines running.
8. **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 in writing prior to being used in competition.

9. **Transmissions:** Transmissions are not permitted in the ProStock Vee classes.
10. **Standoff boxes:** Standoff boxes are permitted. Standoff boxes must be of a design, size and length that have been approved in writing by RWO. Check with RWO prior to using a particular standoff box to ensure it is approved for competition. Standoff boxes are limited to a maximum of 12".
11. **Jackshafts:** Jackshafts are allowed.
12. **X-Dimension / Weight Modification:** To create parity between boats the maximum drive height for ProStock 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 ProStock Vee class, after two consecutive wins, RWO will implement one or any of the following. It will be at RWO'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 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.



### 515: 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.
6. Three, four, and five blade cast propellers manufactured by Hering, Hydromotive, Throttle-Up, and Mercury are approved.
7. Six blade cast propellers manufactured by Hering, Throttle-Up, and Hydromotive are approved.

8. Other manufacturers of cast propellers may apply to RWO 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.

