



# **RULE BOOK**

**2023 - 2024**

# 1 FOREWORD

The International Jet Sports Boating Association (IJSBA) was formed to promote the safe use of personal watercraft, to provide regulated competition events, to formulate rules, to govern racing between these watercraft, to further the interest of its membership, and to act as an international governing and sanctioning body for the sport.

The objectives of the IJSBA are to encourage the promotion of safety in competition and in all events and activities, to foster strong and fair competition, and to provide an impartial events and competition program.

These rules for competition and special events are intended as a guide for the conduct of the sport pursuant to a uniform set of regulations. Changes made this year are based on previous season observations and experiences along with recommendations from competition members.

These rules govern the sanction, organization and conduct of IJSBA events as well as the eligibility of competitors and vehicles. Competitors can expect strict but fair enforcement of these rules.

Rules directed or related to safety are promulgated to ensure that everyone involved has a primary concern for safety. But each participant in IJSBA competition is responsible for assessing the safety aspects of the facilities and conditions, and personally assumes the risk of competition.

Please note that in addition to IJSBA rules and recommendations, all riders must obey local, state and federal boating regulations.

Advice from technical personnel, competitors and other experts has been of great assistance in the formulation of these rules. Additional help has been provided by the industry and others involved with the sport.

Have a safe and enjoyable year of IJSBA competition!

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## **2 IJSBA**

### **2.1 MISSION STATEMENT**

The International Jet Sports Boating Association's mission is:

- to further the interest of IJSBA membership by providing a wide range of quality personal watercraft activities, services and benefits;
- to act as an international governing and sanctioning body for personal watercraft racing and to foster fair competition by formulating and promoting uniform rules and safety standards;
- to promote, organize and supervise personal watercraft events in a professional manner;
- to supervise and grant affiliation to international organizations with similar purposes and to cooperate with such organizations;
- to promote the positive image of personal watercraft by communicating with and educating IJSBA members and other users on the fun, safe and responsible usage of personal watercraft;
- to collect and disseminate information relating to the sport;
- to undertake activities aimed at advancing the sport; and
- to be an effective, unified voice for the sport.

### **2.2 INTERNATIONAL HEADQUARTERS**

Please visit our website: [www.ijsba.com](http://www.ijsba.com)

### **2.3 INTERNATIONAL AFFILIATES**

The IJSBA, acting as the governing body for the personal watercraft sport worldwide, offers exclusive International Affiliate Memberships to qualified associations in specific countries or markets. The purpose of affiliation is to encourage the growth of personal watercraft activities; provide uniform regulations for competition events; promote the safe and responsible usage of personal watercraft; and further the interests of the IJSBA and its affiliates.

International IJSBA-affiliate associations may organize and promote National Championships in a manner most appropriate to local interest. International IJSBA-affiliate associations may create rules and racing classes that are not included in this rule book. All supplemental rules and racing classes must be approved by the IJSBA. It is the responsibility of the competitor to obtain this information. Contact the specific affiliate for supplemental rules and classes. A directory of international affiliates can be found online at [www.ijsba.com](http://www.ijsba.com).

Countries without IJSBA affiliates may request a list of requirements from IJSBA headquarters.

### **2.4 MEMBERSHIP**

Eligibility for participation in an IJSBA- and IJSBA affiliate-sanctioned event requires the appropriate membership. The IJSBA and its international affiliates reserve the right to refuse membership to any group or individual.

## **2.5 HOW TO JOIN**

Memberships may be purchased at sanctioned race events and activities, or from one of the IJSBA international affiliate offices.

If there is no IJSBA affiliate organization in your country, you may obtain membership information and application from any other affiliate organization. To receive a membership application form by mail, contact IJSBA international headquarters or one of the international affiliates.

## **2.6 MEMBERSHIP CARD**

IJSBA or IJSBA affiliate membership cards must be available for officials' inspection when requested (e.g., at on-site event registration).

It is highly recommended that a competitor's medical history be carried with his/her membership card.

## **3 COMPETITION PROGRAM**

### **3.1 IJSBA CONTROL**

The IJSBA has established rules which govern the sanction, organization and conduct of sanctioned events; the standard for eligibility and conduct of competition and officials; the regulations for eligibility and preparation of watercraft; and the rules for annual series of events.

For rules specific to IJSBA international affiliate countries, please contact the specific affiliate.

### **3.2 SPIRIT OF THE RULES**

The official rules of the IJSBA included in this book are intended to provide fair and uniform regulations governing competition. These rules create competitive opportunities for riders in all classes.

It is not possible to write individual rules governing every possible circumstance. Therefore, the spirit of the rule shall grant the authority and responsibility for interpretation of the written rules to the Race Director whose duty it is to supervise and judge fair competition. It shall be the responsibility of the Race Director to interpret the unwritten rule in the interest of fair competition, and the Race Director's interpretation of the rule shall be binding on the individual and competition under the Race Director's jurisdiction.

From time to time, the IJSBA may, at its discretion, publish rule interpretations of written or unwritten rules which shall be binding upon all members of the association. Great care has been taken to publish rules addressing all possible issues of legal adjustment, changes, alteration, modifications and/or replacement for racing.

Additional adjustments, changes, alterations, modifications and/or replacements not covered by written rules should not be assumed to be legal under the spirit of the rule. Committee

Any member who is unable to locate a rule or has questions about a rule pertaining to a specific area of competition is advised to contact the IJSBA or local IJSBA international affiliate office for consultation and/or interpretation.

### **3.3 RULES COMPLIANCE**

The rules and regulations set forth herein are designed to provide for the orderly conduct of racing events and to establish minimum acceptable requirements for such events. These rules shall govern the condition of all IJSBA- and IJSBA affiliate-sanctioned events and activities. By participating in these events, all IJSBA or IJSBA affiliate members are deemed to have complied with the rules.

### **3.4 SAFETY**

The rules for competition are intended only as a guide for the conduct of the sport pursuant to uniform rules. Rules directed or related to safety are promulgated to make all persons concerned with safety, but the IJSBA neither warrants safety if the rules are followed nor compliance with and enforcement of rules. Moreover, each participant in competition has the responsibility to assess the safety aspects of facilities and conditions and must assume the risk of competition.

Participants are solely responsible for the condition of their vehicles and their competence to operate them.

### **3.5 APPLICATION OF THE RULES**

These general rules will apply to all classes and competitors in all countries unless otherwise noted. All members and racing personnel—including owners, mechanics, pit crew, sponsors and promoters—are deemed to be fully aware of all rules and will be expected to adhere to and abide by them.



## **4 EVENT SANCTIONS**

### **4.1 RACE SANCTIONS**

The International Jet Sports Boating Association (IJSBA) name, service mark and emblem may be associated only with activities and events which have been sanctioned or approved by the IJSBA or one of its international affiliates.

### **4.2 SPECIAL EVENT SANCTIONS**

“Special events” are events which do not conform to those described in this rule book (see Sections 26.8 and 31), but which otherwise meet established IJSBA standards. Prior approval from the IJSBA or an IJSBA international affiliate is required.

### **4.3 APPLICATION FOR SANCTION**

- 4.3.1 An official race sanction can only be issued by the IJSBA or IJSBA affiliate office after proper applications are filed.
- 4.3.2 Application forms for sanction may be obtained from the local IJSBA affiliate office.
- 4.3.3 Sanctions are non-transferable and non-assignable without permission of the IJSBA or IJSBA affiliate and must be used on the specified date or pre-approved rescheduled date.
- 4.3.4 All sanctions must meet the proper legal requirements for compliance with any national, state, local, or province laws. This includes all necessary permits
- 4.3.5 A sanction may be refused or withdrawn for any reason which the IJSBA and/or IJSBA affiliate deems to be in the best interests of the sport or for the safety of the racers, including the violation of any of the rules and regulations listed herein.
- 4.3.6 Written approval from the IJSBA must be obtained for any race to be co-sanctioned.

### **4.4 SANCTION PROCEDURES**

- 4.4.1 If you are planning an event or are requesting an IJSBA event date, you must advise the IJSBA or IJSBA affiliate office in writing at least 45 days in advance of the event.

### **4.5 GENERAL SANCTION REGULATIONS**

- 4.5.1 All promoters applying for IJSBA sanction must comply with all IJSBA rules and regulations. The IJSBA may grant certain waivers to these general regulations, in the case of Continental and National Championships, Trophies or Cups.

- 4.5.2 The IJSBA shall be the sole international sporting authority entitled to make and enforce regulations for the encouragement and control of personal watercraft competitions and records, to organize and/or sanction IJSBA events and will be the final international court of appeal for the settlement of disputes.
- 4.5.3 In the event of doubt or ambiguity as to the meaning of rules and regulations for IJSBA-sanctioned events, the decisions of the IJSBA will prevail and be binding.
- 4.5.4 Each promoter, national club, association or affiliate belonging to the IJSBA will be presumed to understand and be bound by these rules and regulations.
- 4.5.5 One single affiliate per country will be recognized by the IJSBA as the sole international sporting power for the enforcement of the rules and control of personal watercraft sport. Every person, or group of persons, organizing a competition or taking part in a competition will:

- 1) Be acquainted with the rules and regulations of the IJSBA, official competition rulebook and the national regulations.
- 2) Submit themselves without reserve to the above and to decisions of the sporting authority and to the consequences resulting there from.

In case of non-compliance with these requirements and/or rules, any person or group which organizes a competition or takes part therein, may have the license/sanction which has been issued to them withdrawn and/or fined, and any manufacturer/rider/person may be excluded from the events on a temporary or permanent basis.

- 4.5.6 Any proposed event/competition (e.g., demonstrations, wakeboard events, skateboard event, Go-Ped event, etc.) not organized in conformity with the regulations or rules of the IJSBA will not obtain sanction. If such a competition is included in an event, without approval from the IJSBA, for which a sanction has been granted, the sanction will be null and void. The provisions of section 4.5.5 are applicable to any license-holder taking part in such competition.
- 4.5.7 The sanction of an event will be granted by the IJSBA based on the information supplied by the promoter and the quality of events previously promoted. The IJSBA must ensure that the promoter has the skill and experience to conduct events in a safe and professional manner. To be considered for sanctioning, a promoter must:
- 1) Meet IJSBA equipment requirements such as buoys, starting gate, etc.
  - 2) Adhere to the IJSBA Competition Rulebook.
  - 3) Meet IJSBA race operation practices as defined in the IJSBA Event Guide.
  - 4) Meet all the requirements for promoting an IJSBA sanctioned event.
  - 5) Be in good standing with the IJSBA.

- 4.5.8 Championship and invitational events will be assigned by the IJSBA. Championship classes will be decided by the IJSBA.
- 4.5.9 A promoter may not hold or advertise any event as a Championship or with any other title which may be deemed by the IJSBA to either World, National, International, or Invitational in character without written permission of the IJSBA. Titled "Charity Race" events must be approved by the IJSBA.
- 4.5.10 The "IJSBA-Sanctioned" logo must appear in all printed matter, including advertising of the event or series. Radio and television advertising must include the words "IJSBA-Sanctioned" or "Sanctioned by the IJSBA".
- 4.5.11 All event schedules must reach the IJSBA office before a specific date, which the IJSBA will state to the international affiliates and promoters each year, in order to be entered on the official IJSBA event calendar. The IJSBA may have additional requirements that must be met by a specified date. This does not imply that sanction is granted, but will give the promoter in good standing priority in case of a conflict in dates. Published event dates do not necessarily reflect the status of event sanction.

Sanction from the IJSBA provides the promoter in good standing exclusivity of location within a radius of 480Kilometers (300 miles). The IJSBA may, for reasons of geographical and/or travel time nature, sanction an event within a shorter radius.

Should a conflict arise between two events, the event with the longer history would have priority. However, the IJSBA reserves the right to reserve dates for national and world championship events.

The IJSBA may also refuse to grant sanction, and may withdraw or cancel a sanction that has already been granted for any reason which the IJSBA deems to be in the best interest of the sport, or the participating riders, including the violation of any of the IJSBA regulations or rules.

## 5 HOMOLOGATION

### 5.1 HOMOLOGATION

- 5.1.1 For a manufacturer to be eligible to submit a watercraft for IJSBA homologation, the manufacturer must be a current IJSBA Manufacturer Member in good standing. Manufacturers should contact the IJSBA international headquarters for membership requirements.
- 5.1.2 For a watercraft to be eligible for current-year IJSBA- and IJSBA affiliate-sanctioned competition events:
- 1) The manufacturer must produce a minimum of 500 (200 for Ski Division) identically manufactured units of a model and make those available for sale through the manufacturer's normal means of distribution.
  - 2) For a watercraft to be eligible for competition in Regional and National events in the United States, the manufacturer must produce a minimum of 500 (200 for Ski Division) identically manufactured units of a model and make those available for sale through the manufacturer's normal means of distribution in the United States of America.
  - 3) To be eligible for the World Championships competition, new models must be homologated a minimum of 90 days prior to the first day of competition.
  - 4) Only upon formal approval from the IJSBA can a model be considered eligible for IJSBA-sanctioned competition.
  - 5) Each listing under "Eligible Watercraft" will be considered a separate model for purposes of this Rule Book.
  - 6) Only those models which have met the criteria for homologation at the date of publication are listed as "Eligible Watercraft." Watercraft that meet homologation after the Rule Book is published will be announced via official bulletins faxed or mailed to IJSBA affiliate offices; announced at an IJSBA- or IJSBA affiliate-sanctioned event; or any combination of the above. It is the responsibility of the competitor to
- 5.1.3 The manufacturer must provide the IJSBA with a current service manual, parts catalogue, owners manual and additional technical information for each model considered for homologation.
- 5.1.4 The manufacturer must provide the IJSBA, upon request, a production model watercraft and separate components for examination and testing for each model being considered for homologation. Items will be returned after completion of examination and testing.
- 5.1.5 Mid-year production changes to a homologated model must be approved by the IJSBA. Samples of new components, copies of related service bulletins and customer notification letters must be submitted before approval will be granted. Changes and updates on all affected units must be made available at no cost to the customer, parts and labour included.
- 5.1.6 IJSBA affiliates will generally accept IJSBA homologation of models. In cases where a specific model is not officially available through the manufacturer's normal means of distribution in a country or continent, exceptions may be granted.

The following is a supplementary rule to the IJSBA Rule Book as passed by the NZJSBA on the 30th July 2002 (and updated in February 2010) and shall remain effective until further notice.

- 5.1.7 For New Zealand homologation of craft not included in the current IJSBA Rule Book being used in New Zealand a minimum of 5 craft must have been brought into the country (by the appointed New Zealand Distributor) and be available for purchase in Australasia no less than 30 days prior to the commencement of the New Zealand Jet Sport Nationals. Craft must be available at the distributor's premises for inspection by an appointed NZJSBA official. Craft must be available to dealers from the distributor.
- 5.1.8 The IJSBA reserves the right to refuse, withhold or withdraw the homologation of any component or watercraft for reasons deemed to be in the best interest of the sport.

## **6 PERSONAL WATERCRAFT**

### **6.1 PERSONAL WATERCRAFT**

- 6.1.1 “Personal Watercraft”(PWC) shall mean a vessel which uses an inboard engine powering a water-jet pump as its primary source of motive power. It is designed to be operated by a person sitting, standing or kneeling on the vessel rather than inside it. They are steered from the front directing a rear jet or fully enclosed prop drive system. They are defined as Class A inboard boats by the United States Coast Guard.
- 6.1.2 The four IJSBA racing divisions for PWC are Ski, Sport and Runabout
- 6.1.3 For two-stroke watercraft to be homologated for competition in the 800cc class, the watercraft must not exceed 785cc in stock configuration when furnished by the manufacturer.
- 6.1.4 Unless defined as a four-stroke-only class, all class listings refer to two-stroke engine displacements.

### **6.2 SKI DIVISION**

- 6.2.1 The Ski Division includes PWC which are designed for one person to stand on and are controlled from a pivoting handlepole.
- 6.2.2 Watercraft competing in the Ski Division must conform to the following criteria:
  - 1) Dry weight must be greater than 102kg (225 lb.) for 550cc classes;
  - 2) Dry weight must be greater than 114kg (260 lb.) for 650cc and 800cc classes;
  - 3) Hull length cannot exceed 304.8cm (120 in.);
  - 4) Hull width must be between 50.8cm (20 in.) and 76.2cm (30 in.).

### **6.3 SPORT DIVISION**

- 6.3.1 The Sport Division includes PWC which are designed for one or more people and have a seat.
- 6.3.2 Watercraft competing in the Sport Division must conform to the following criteria:
  - 1) Dry weight must be greater than 113kg (250 lb.) for 650cc classes;
  - 2) Dry weight must be greater than 136kg (300 lb.) for 800cc classes;
  - 3) Hull length cannot exceed 304.8cm (120 in.);
  - 4) Hull width must be between 66.0cm (26 in.) and 96.5cm (38 in.).

### **6.4 RUNABOUT DIVISION**

- 6.4.1 The Runabout Division includes PWC which are designed for one or more people and have a seat.

6.4.2 Watercraft competing in the Runabout Division must conform to the following criteria:

- 1) Dry weight must be greater than 155kg (340 lb.) for 660cc classes;
- 2) Dry weight must be greater than 182kg (400 lb.) for 800cc classes;
- 3) Dry weight must be greater than 216kg (475 lb.) for 1200cc classes;
- 4) Hull length cannot exceed 342.9cm (135 in.);
- 5) Hull width must be between 96.5cm (38 in.) and 127.0cm (50 in.).

For Endurance and Offshore-type events only:

- 1) Hull length cannot exceed 394.0cm (156 in.);
- 2) Hull width must be greater than 96.5cm (38 in.).

**Note:** The following minimum weight criteria applies to 800 & 1200cc watercraft homologated prior to September 1, 1998:

- 1) Dry weight must be greater than 168kg (370 lb.) for 800 cc classes;
- 2) Dry weight must be greater than 191kg (420 lb.) for 1200cc classes.

## 6.5 FOUR-STROKE RUNABOUT

6.5.1 The Four-Stroke Runabout includes PWC, which are designed for one or more people and have a seat. Four-stroke Runabout modification levels

6.5.2 For the purposes of this rule book, normally aspirated four-stroke watercraft only utilize atmospheric pressure for induction. Turbocharged and supercharged four-stroke engines utilize boosted induction systems that increase pressure in the intake tract for combustion.

6.5.3 In addition to four-stroke-specific class, four-stroke watercraft may compete in two-stroke classes, provided the following:

- 1) Normally aspirated and turbocharged/supercharged Stock-class four stroke watercraft may compete in Stock, Limited, Open and Modified two stroke classes.
- 2) Normally aspirated Open-class four-stroke watercraft may compete in Limited, Open and Modified two-stroke classes.
- 3) Four-strokes up to 1100cc may compete in 800cc two-stroke classes;
- 4) Four-strokes up to 1600cc may compete in 1200cc two-stroke classes.
- 5) Watercraft competing in Four-Stroke Runabout must conform to the following criteria:
  - i. Dry weight must be greater than 250kg (550 lb.) for 1100cc classes;
  - ii. Dry weight must be greater than 272kg (600 lb.) for 1600cc classes;
  - iii. Hull length cannot exceed 342.9cm (135 in.);
  - iv. Hull width must be between 96.5cm (38 in.) and 127.0cm (50 in.).
  - v. For Endurance/Offshore-type events only:
  - vi. Hull length cannot exceed 394.0cm (156 in.);
  - vii. Hull width must be greater than 96.5cm (38 in.).

## 7 RUNABOUT REC LITES CLASS

### 7.1 RUNABOUT REC LITES CLASS COMPETITION

Intended to promote interest in stock personal watercraft competition and to enable individuals to become active competitors with low investment and maintenance costs. The goal of Stock Class racing is to have nearly identical characteristics to the watercraft that come off of the showroom floor with a focus on provisions for safety and handling in a competition environment. Watercraft competing in these classes must conform to the specifications which follow which will be strictly interpreted. Note: classes may be offered that have greater restrictions than these Stock Class Provisions. Such class offerings must be named to differentiate the applicable rules (i.e. Showroom Stock, etc.)

**Runabout Rec Lites** is a Stock Class designed for runabouts that are intended for the entry level recreation market. To be eligible for the Rec Lites division, the qualifying runabout must be powered by a naturally aspirated four stroke engine and have a base Manufacturers Suggested Retail Price, in the United States, of less than \$10,000 USD. As of January 1, 2021, there are two models eligible for participation in the Runabout Lites Class: The Sea-Doo Spark (all years and models) and the Yamaha EX (all years and models excluding the EXR). This category is for naturally aspirated watercraft powered by a four stroke engine. Runabouts, competing in Rec Lites Classes, must weigh within a difference of no more than 10 lbs (4.54 kg) lighter than the OEM weight as determined by IJSBA..

- 7.1.1 All watercraft must remain strictly stock, except where rules allow or require substitutions or modifications. Changes or modifications not listed here are not permitted. The IJSBA may allow additional modifications to Stock Classified PWC which provide for replacement/reinforcements to parts and components (i.e. intercooler end caps, brackets, fittings, etc.) that have known failure risks in race conditions. Such changes will only be allowed if the replacements/modifications result in no volume or performance gains. Such allowances are only legal if published by the IJSBA. Some original equipment components may not comply with IJSBA rules. Hull Identification Numbers must be displayed as furnished by the manufacturer.

**NOTE:** When rules permit or require equipment to be installed, replaced, altered or fabricated, it is the sole responsibility of the rider to select components, materials and/or fabricate the same so that the watercraft operates safely in competition.

- 7.1.2 Original equipment parts may be updated to newer original equipment parts of the same model. The part must be a bolt-on requiring no modifications to that part or any other parts except where rules allow substitutions or modifications. Unless reoffered to as the same identical part in the OEM parts/repair manual, parts may not be backdated. (Refer to Model Homologation listing online)
- 7.1.3 Sound level shall not exceed 86 dB(a) at 22.86m (75 ft.). See Section 34.5.
- 7.1.4 Engine fuel must consist of gasoline meeting the criteria defined in Section 34.4.



## 7.2 HULL

- 7.2.1 All watercraft must have a flexible tow loop attached to the bow. The tow loop should be made of a flexible material (e.g., nylon strap, rope, etc.) so as not to create a hazard. Tow hooks which protrude beyond the plane of the hull must be removed.
  
- 7.2.2 Hull and deck repairs may be made. However, these repairs must not alter the original configuration by more than 2.00mm (0.08 in.). The interior portion of a hull may not be reinforced. The texture of the exterior surface of the hull need not be consistent with OEM characteristics so long as the shape(s) remain exactly the same as OEM. Drop-in type storage buckets may be modified, aftermarket or removed provided a hazard is not created.
  
- 7.2.3 All watercraft may be equipped with a maximum of two sponsons. Original equipment sponsons may be modified, aftermarket, repositioned or removed. Overall length of each sponson shall not exceed 91.45cm (36.00 in.). Sponsons shall not protrude from the side of the hull by more than 100.00mm (3.94 in.) when measured in a level horizontal plane. The vertical channel created by the underside of the sponson shall not exceed 63.50mm (2.50 in.). No part of the sponson shall extend downward below the point at which the side of the hull intersects the bottom surface of the hull by more than 38.00mm (1.50 in.). Aftermarket or modified sponsons must exceed 6mm (0.24 in.) in thickness. All leading edges must be radiused so as not to create a hazard. Sponsons may not be attached to the planing surfaces of the hull. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagrams in Appendix.) The decision of the Technical Director and/or Race Director regarding modifications will be final. Any question regarding the legality of modifications should be directed to the IJSBA or IJSBA affiliate prior to use in competition.
  
- 7.2.4 Intake grate may be modified or aftermarket. Intake grate is required and must be the full-length type with at least one bar running parallel to the drive shaft. Grates may not extend more than 12.00mm (0.47 in.) below the flat plane of the pump intake area. All leading edges must be radiused so as not to create a hazard.
  
- 7.2.5 Pump cover plate may be modified or aftermarket. An extension may be added to the rear of the pump cover plate but shall not exceed the width of the original equipment plate. Modified and aftermarket plates must not extend more than 177.80mm (7.00 in.) beyond the end of the original equipment plate. The sides of the extension must be connected to the radiused portion of the pump plate so as not to create a hazard. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagram in Appendix.)
  
- 7.2.6 Replacement trim plates may be used. Only replica parts that offer handling characteristics the same as stock are allowed. Material shall not be restricted to original equipment provided a hazard is not created (i.e., aluminum in place of plastic). See Glossary of Terms for definition of Replacement and Replica.
  
- 7.2.7 Replacement bumpers may be used provided a hazard is not created.

- 7.2.8 A soft, flexible water-spray deflector may be attached to the hull sides or to the bond flange provided a hazard is not created. No part of the deflector may extend beyond the perimeter of the original equipment bumper or side mouldings as measured by a plumb line.
- 7.2.9 Handlebar, throttle, throttle cable, and grips may be modified or aftermarket. Handlebar cover may be modified or removed. Aftermarket switches and switch housings may be used. Steering shaft, steering shaft holder and handlebar holder may be aftermarket. The handlebar must be padded at the mounting bracket or, if it has a crossbar, the crossbar must be padded. Quick-turn steering modifications to alter steering ratio are allowed. Aftermarket steering cables will be allowed.
- 7.2.10 Original equipment seat base must be used. Seat cover may be changed. The OEM seat height cannot be changed by more than +/- 12.7mm (0.5 in). Seat must remain OEM, seat cover can add no more than .5 inch in thickness in any direction.
- 7.2.11 Padding and/or mat kits may be added and custom painting is allowed. The surface finish of any metal component outside the hull area above the bond flange may be polished, shot peened or painted.
- 7.2.12 Original bilge pump may be modified or disconnected. Aftermarket bilge draining systems that do not create a hazard are allowed.
- 7.2.13 Engine compartment ventilation tubes must remain as originally equipped.
- 7.2.14 Original equipment braking devices may be disabled for safety purposes. Reverse buckets may be removed or disabled (modified to disable reverse function is acceptable so long as a hazard is not created) but trim motors must remain in place.

### **7.3 ENGINE - FOUR-STROKE**

- 7.3.1 Engines may be bored. Replacement piston assemblies may be used provided the original compression ratio, dome profile, skirt length and shape and type of material are not changed. Chamfering of cylinder ports must not exceed 1.00mm (0.04 in.) at a 30 degree maximum angle. (See diagram in Appendix.). Cylinder head combustion chambers may be cleaned by bead blasting with valves seated in place. Intake and exhaust ports may not be bead blasted or cleaned with abrasive material such as steel wool or Scotch-Brite®. Repairs to the cylinder head affecting one cylinder bank are allowed.
- 7.3.2 Repairs may be made to cracked or damaged cylinders by installing a cylinder sleeve. The head gasket surface of the cylinder block may be machined only to allow for the installation of the new sleeves (see appendix for description). A thicker head gasket must be utilized to return the block deck height to within .155mm (.006in) of original height. The repair must offer no additional performance gains.
- 7.3.3 Crankshaft must remain stock. Replacement bearings or bearing shells are allowed, providing they maintain their original type and dimensions.
- 7.3.4 Camshaft(s) must remain stock. Replacement bearings or bearing shells are allowed, providing they maintain their original type and dimensions. Camshaft timing may be changed.

7.3.5 Engine and Oil Cooler water cooling systems must remain as OEM. Water strainers (filters) may be modified or aftermarket. Intercooler assembly/housing must remain OEM. Existing fittings may be aftermarket or modified so long as the OEM thread diameter is maintained. Fittings may not be added to the cylinder head, cylinder, or crankcase. Electronically controlled valves or water injections systems are not allowed unless originally equipped. Manually controlled devices (by any means of actuation) that alter the flow of cooling water during operation are not allowed. Cooling system flush kits are allowed.

7.3.6 Replacement of general maintenance parts (e.g., gaskets, seals, spark plugs, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, clamps and fasteners) shall not be restricted to original equipment providing the following:

- 1) Replacement gaskets may be used but must be of the same type (e.g., sheet, o-ring, etc.) as their OEM counterparts. With the exception of head gaskets and base gaskets, all replacement gaskets must maintain a thickness of plus or minus 20% of the OEM gasket thickness as furnished by the manufacturer. Base gasket cannot be thicker than 0.8mm (0.032in). Head gaskets must be no thinner than .05mm (0.002in) than the OEM thickness as supplied by the manufacturer. Head gaskets must be no thicker than 1.55mm (0.06in) than the OEM thickness as supplied by the manufacturer.
- 2) Stripped threads must be repaired to the original size.
- 3) Fasteners (e.g., bolts, nuts and washers) may not be substituted with titanium pieces unless originally equipped. Fasteners may integrate locking mechanisms.
- 4) Replacement hoses and fuel lines may not provide any other function than original equipment hoses. Changes in temperature tolerances are allowed.

The following is a supplementary rule to the IJSBA Rule Book as passed by the NZJSBA on the 13th January 2020 and shall remain effective until further notice.

7.3.7 All watercraft competing in the Runabout Rec Lites under 1049cc class shall be allowed to fit a resonator (Stock Exhaust Baffle) bypass (rear outlet bypass or free flow to original hull) so long as no additional modifications are made to the OEM water box.

Clarification to this ruling should be directed to NZJSBA office or the current NZJSBA Technical Director

## 7.4 AIR / FUEL DELIVERY – FOUR-STROKE

7.4.1 Electronic fuel-injection systems: Flame arresters that meet USCG, UL-1111 or SAE J-1928 Marine backfire flame arrester test standards must be installed. If not equipped with an airflow sensor, the ducting between the flame arrestor and throttle body may be modified or aftermarket. If originally equipped with an airflow sensor, the ducting may be modified or aftermarket between the flame arrestor and airflow sensor. Modifications to the airflow downstream of the airflow sensor are not allowed. All portions of the intake manifold must remain as originally equipped. Units where a ribbon system is employed as the OEM flame arresting device may have the ribbon removed so long as airflow is not increased and sufficient flame suppression is achieved by the air filter. An aftermarket part may be used to retain OEM airflow specifications.

7.4.2 Carbureted induction systems: Flame arrestors that meet USCG, UL-1111 or SAE J-1928 Marine backfire flame arrester test standards must be installed. Carburetor jets (replaceable type), needle valves and needle valve springs may be changed. Choke may be removed provided additional air intake for the engine is not created. Aftermarket primer system may be installed. No other carburetor modifications will be allowed.

7.4.3 Fuel injectors and fuel pump must remain stock as furnished by the manufacturer.

The following is a supplementary rule to the IJSBA Rule Book as passed by the NZJSBA on the 1<sup>st</sup> November 2021 and shall remain effective until further notice.

7.4.4 To further clarify 7.4.1, the air intake system can be modified or aftermarket providing the following criteria is met:

- 1) No modifications to the intake manifold and/or ribbon are permitted.
- 2) No modifications to factory vent holes in the hull or deck are permitted.
- 3) No modifications after (downstream) of any originally equipped airflow sensor is permitted.
- 4) Flame arresters that meet USGC, UL-1111 or SAE J-1928 Marine backfire flame arrester test standards must be used.
- 5) No modifications to the throttle body and/or throttle body mounting are permitted.

## **7.5 IGNITION AND ELECTRONICS - FOUR-STROKE**

- 7.5.1 Replacement batteries are allowed but must fit into the original equipment battery box and be securely fastened.
- 7.5.2 The original electronic control unit may be reprogrammed so long as it does not offer any additional inputs or outputs than the original unit, and it must connect with the original connections. No additional sensors may be added (e.g., exhaust gas temperature, detonation sensors, etc.). Engine temperature sensors may be disabled.
- 7.5.3 Aftermarket spark plugs with a different heat rating may be used.

## **7.6 DRIVELINE**

- 7.6.1 Impeller may be modified or aftermarket, providing that the original diameter is maintained. Replacement wear rings that are within OEM internal diameter specifications may be used. Silicone adhesive sealant may be used in addition to original equipment seal to seal pump inlet. Visibility spout must be removed or plugged.
- 7.6.2 No internal modifications of any kind, including grinding, surfacing, polishing, machining, shot peening, etc., will be allowed on any driveline components (e.g., pump stator, reduction nozzle, etc.).

## 8 RUNABOUT STOCK CLASS

### 8.1 RUNABOUT STOCK CLASS COMPETITION

Intended to promote interest in stock personal watercraft competition and to enable individuals to become active competitors with low investment and maintenance costs. The goal of Stock Class racing is to have nearly identical characteristics to the watercraft that come off the showroom floor with a focus on provisions for safety and handling in a competition environment. Watercraft competing in these classes must conform to the specifications which follow which will be strictly interpreted.

**Note:** classes may be offered that have greater restrictions than these Stock Class Provisions. Such class offerings must be named to differentiate the applicable rules (i.e. Showroom Stock, etc.)

**WEIGHT ADDENDUM:** Four Stroke Runabouts, competing in Stock Classes, must weigh within a difference of no more than 35 lbs (15.88 kg) lighter than the OEM weight as determined by IJSBA.

- 8.1.1 All watercraft must remain strictly stock, except where rules allow or require substitutions or modifications. Changes or modifications not listed here are not permitted. The IJSBA may allow additional modifications to Stock Classified PWC which provide for replacement/reinforcements to parts and components (i.e. intercooler end caps, brackets, fittings, etc.) that have known failure risks in race conditions. Such changes will only be allowed if the replacements/modifications result in no volume or performance gains. Such allowances are only legal if published by the IJSBA. Some original equipment components may not comply with IJSBA rules. Hull Identification Numbers must be displayed as furnished by the manufacturer.

**NOTE:** When rules permit or require equipment to be installed, replaced, altered or fabricated, it is the sole responsibility of the rider to select components, materials and/or fabricate the same so that the watercraft operates safely in competition.

- 8.1.2 Original equipment parts may be updated to newer original equipment parts of the same model. The part must be a bolt-on requiring no modifications to that part or any other parts except where rules allow substitutions or modifications. Unless reoffered to as the same identical part in the OEM parts/repair manual, parts may not be backdated. (Refer to Model Homologation listing online.)
- 8.1.3 Sound level shall not exceed 86 dB(a) at 22.86m (75 ft.). Section 34.5.
- 8.1.4 Engine fuel must consist of gasoline meeting the criteria defined in Section 34.4.

### 8.2 HULL

- 8.2.1 All watercraft must have a flexible tow loop attached to the bow. The tow loop should be made of a flexible material (e.g., nylon strap, rope, etc.) so as not to create a hazard. Tow hooks which protrude beyond the plane of the hull must be removed.

- 8.2.2 Hull and deck repairs may be made. However, these repairs must not alter the original configuration by more than 2.00mm (0.08 in.). Drop-in type storage buckets may not be modified, aftermarket or removed provided a hazard is not created.
  
- 8.2.3 All watercraft may be equipped with a maximum of two sponsons. Original equipment sponsons may be modified, aftermarket, repositioned or removed. Overall length of each sponson shall not exceed 91.45cm (36.00 in.). Sponsons shall not protrude from the side of the hull by more than 100.00mm (3.94 in.) when measured in a level horizontal plane. The vertical channel created by the underside of the sponson shall not exceed 63.50mm (2.50 in.). No part of the sponson shall extend downward below the point at which the side of the hull intersects the bottom surface of the hull by more than 38.00mm (1.50 in.). Aftermarket or modified sponsons must exceed 6mm (0.24 in.) in thickness. All leading edges must be radiused so as not to create a hazard. Sponsons may not be attached to the planing surfaces of the hull. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagrams in Appendix.) The decision of the Technical Director and/or Race Director regarding modifications will be final. Any question regarding the legality of modifications should be directed to the IJSBA or IJSBA affiliate prior to use in competition.
  
- 8.2.4 Intake grate may be modified or aftermarket. Intake grate is required and must be the full-length type with at least one bar running parallel to the drive shaft. Grates may not extend more than 12.00mm (0.47 in.) below the flat plane of the pump intake area. All leading edges must be radiused so as not to create a hazard.
  
- 8.2.5 Pump cover plate may be modified or aftermarket. An extension may be added to the rear of the pump cover plate but shall not exceed the width of the original equipment plate. Modified and aftermarket plates must not extend more than 177.80mm (7.00 in.) beyond the end of the original equipment plate. The sides of the extension must be connected to the radiused portion of the pump plate so as not to create a hazard. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagram in Appendix.)
  
- 8.2.6 Replacement trim plates may be used. Only replica parts that offer handling characteristics that same as stock are allowed. Material shall not be restricted to original equipment provided a hazard is not created (i.e. aluminium in place of plastic. See Glossary of Terms for definition of Replacement and Replica.
  
- 8.2.7 Replacement bumpers may be used provided a hazard is not created.
  
- 8.2.8 A soft, flexible water-spray deflector may be attached to the hull sides or to the bond flange provided a hazard is not created. No part of the deflector may extend beyond the perimeter of the original equipment bumper or side mouldings as measured by a plumb line.

- 8.2.9 Handlebar, throttle, throttle cable, and grips may be modified or aftermarket. Handlebar cover may be modified or removed. Aftermarket switches and switch housings may be used. Steering shaft, steering shaft holder and handlebar holder may be aftermarket. The handlebar must be padded at the mounting bracket or, if it has a crossbar, the crossbar must be padded. Quick-turn steering modifications to alter steering ratio are allowed. Aftermarket steering cables will be allowed.
- 8.2.10 Original equipment seat base must be used. Seat cover may be changed. The OEM seat height cannot be changed by more than +/- 12.7mm (0.5 in). Seat must remain OEM, seat cover can add no more than .5 inch in thickness in any direction.
- 8.2.11 Padding and/or mat kits may be added and custom painting is allowed. The surface finish of any metal component outside the hull area above the bond flange may be polished, shot peened or painted.
- 8.2.12 Original bilge pump may be modified or disconnected. Aftermarket bilge draining systems that do not create a hazard are allowed.
- 8.2.13 Engine compartment ventilation tubes must remain as originally equipped.
- 8.2.14 Original equipment braking devices may be disabled for safety purposes. Reverse buckets may be removed or disabled (modified to disable reverse function is acceptable so long as a hazard is not created) but trim motors must remain in place.

### **8.3 ENGINE - FOUR-STROKE**

- 8.3.1 Engines may be bored. Replacement piston assemblies may be used provided the original compression ratio, dome profile, skirt length and shape and type of material are not changed. Chamfering of cylinder ports must not exceed 1.00mm (0.04 in.) at a 30 degree maximum angle. (See diagram in Appendix.). Cylinder head combustion chambers may be cleaned by bead blasting with valves seated in place. Intake and exhaust ports may not be bead blasted or cleaned with abrasive material such as steel wool or Scotch-Brite®. Repairs to the cylinder head affecting one cylinder bank are allowed.
- 8.3.2 Repairs may be made to cracked or damaged cylinders by installing a cylinder sleeve. The head gasket surface of the cylinder block may be machined only to allow for the installation of the new sleeves (see appendix for description). A thicker head gasket must be utilized to return the block deck height to within .155mm (.006in) of original height. The repair must offer no additional performance gains.
- 8.3.3 Crankshaft must remain stock. Replacement bearings or bearing shells are allowed, providing they maintain their original type and dimensions.
- 8.3.4 Camshaft(s) must remain stock. Replacement bearings or bearing shells are allowed, providing they maintain their original type and dimensions. Camshaft timing may be changed.
- 8.3.5 Aftermarket valve springs and valve spring retainers may be used.



- 8.3.6 The intercooler must remain OEM. Engine water cooling systems may be modified or aftermarket. Additional water cooling lines and aftermarket water bypass fittings may be added. OEM water bypass fittings may be modified or relocated. All bypass fittings must be directed downward and/or rearward so as not to create a hazard for other riders. Engine water cooling systems may be modified or aftermarket. Additional supply from the propulsion pump is allowed. OEM water bypass fittings may be modified or relocated. All bypass fittings must be directed downward and/or rearward so as not to create a hazard for other riders. Additional cooling supply lines and fittings may be added to the pump. Pump water inlet covers and water strainers (filters) may be modified or aftermarket. Additional cooling supply lines may be added to water inlet covers that are removable from the engine block. Existing fittings may be aftermarket or modified so long as the OEM thread diameter is maintained. Fittings may not be added to the engine block. Any existing fitting which does not have a water supply line (i.e. anode) maybe replaced with a water supply line so long as the thread diameter is not changed. Any valves used within the entire cooling system must be of the fixed type or automatic (e.g., thermostats, pressure regulators, etc.). Electronically controlled valves or water injections systems are not allowed unless originally equipped. Manually controlled devices (by any means of actuation) that alter the flow of cooling water during operation are not allowed. Cooling system flush kits are allowed.
- 8.3.7 Replacement of general maintenance parts (e.g., gaskets, seals, spark plugs, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, clamps and fasteners) shall not be restricted to original equipment providing the following:
- 1) Replacement gaskets may be used but must be of the same type (e.g., sheet, o-ring, etc.) as their OEM counterparts. With the exception of head gaskets and base gaskets, all replacement gaskets must maintain a thickness of plus or minus 20% of the OEM gasket thickness as furnished by the manufacturer. Base gasket cannot be thicker than 0.8mm (0.032in). Head gaskets must be no thinner than .05mm (0.002in) than the OEM thickness as supplied by the manufacturer. Head gaskets must be no thicker than 1.55mm (0.06in) than the OEM thickness as supplied by the manufacturer.
  - 2) Stripped threads must be repaired to the original size.
  - 3) Fasteners (e.g., bolts, nuts and washers) may not be substituted with titanium pieces unless originally equipped. Fasteners may integrate locking mechanisms.
  - 4) Replacement hoses and fuel lines may not provide any other function than original equipment hoses. Changes in temperature tolerances are allowed.
- 8.3.8 Exhaust manifolds that have previously been drilled or tapped may be used so long as the holes are filled or capped. Exhaust flanges may be removed.
- 8.3.9 IJSBA Approved aftermarket valve springs and valve spring retainers may be used.

## 8.4 ENGINE – TWO STROKE

- 8.4.1 Engines may be bored. Replacement piston assemblies may be used provided the original port timing, compression ratio, dome profile, skirt length and shape and type of material are not changed. Non-conforming pistons (i.e. skirt shape that is not an exact replica of the OEM piston) may be approved by the IJSBA but such approval must be obtained in writing. Replacement piston assemblies must weigh within  $\pm 25.00\%$  of original equipment. Engine displacement must not exceed class designation (e.g., 550cc in 550 Stock, 850cc in 850 Stock, etc.) unless otherwise noted. Chamfering of cylinder ports must not exceed 1.00mm (0.04 in.) at a 30 degree maximum angle. (See diagram in Appendix.).
- 8.4.2 Repairs to cracked or punctured crankcases may be made provided only one damaged area affecting one cylinder bank has been repaired. No other modifications or repairs are allowed.
- 8.4.3 External modifications to the engine finish (e.g., plating, polishing and/or painting) are allowed for cosmetic purposes only.
- 8.4.4 No internal modifications of any kind, including grinding, surfacing, polishing, machining, shot peening, etc., will be allowed on any engine components.
- 8.4.5 Exhaust system must remain stock as supplied by the manufacturer. An insert may be added to reduce the inside diameter of the stinger portion of the exhaust system.
- 8.4.6 Engine water cooling systems may be modified or aftermarket. Additional water cooling lines and aftermarket water bypass fittings may be added. OEM water bypass fittings may be modified or relocated. All bypass fittings must be directed downward and/or rearward so as not to create a hazard for other riders. Additional cooling supply lines and fittings may be added to the pump. Pump water inlet covers and water strainers (filters) may be modified or aftermarket. Additional cooling supply lines may be added to water inlet covers that are removable from the engine block. Existing fittings may be aftermarket or modified so long as the OEM thread diameter is maintained. Fittings may not be added to the cylinder head, cylinder, or crankcase. Any valves used within the entire cooling system must be of the fixed type or automatic (e.g., thermostats, pressure regulators, etc.). Electronically controlled valves or water injections systems are not allowed unless originally equipped. Manually controlled devices (by any means of actuation) that alter the flow of cooling water during operation are not allowed. Cooling system flush kits are allowed.
- 8.4.7 Replacement starter motor and bendix may be used.
- 8.4.8 Replacement engine mounts may be used.
- 8.4.9 Oil-injection system may be disconnected or removed.

8.4.10 Replacement of general maintenance parts (e.g., gaskets, seals, spark plugs, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, clamps and fasteners) shall not be restricted to original equipment providing the following:

- 1) Replacement gaskets may be used but must be of the same type (e.g., sheet, o-ring, etc.) as their OEM counterparts. With the exception of head gaskets and base gaskets, all replacement gaskets must maintain a thickness of plus or minus 20% of the OEM gasket thickness as furnished by the manufacturer.
- 2) Base gasket cannot be thicker than 0.8mm (0.032in).
- 3) Head gaskets must be no thinner than .005mm (0.002in) than the OEM thickness as supplied by the manufacturer. Head gaskets must be no thicker than 1.55mm (0.06in) than the OEM thickness as supplied by the manufacturer.

## **8.5 AIR / FUEL DELIVERY – FOUR-STROKE**

8.5.1 Electronic fuel-injection systems: Flame arresters that meet USCG, UL-1111 or SAE J-1928 Marine backfire flame arrester test standards must be installed. If not equipped with an airflow sensor, the ducting between the flame arrestor and throttle body may be modified or aftermarket. If originally equipped with an airflow sensor, the ducting may be modified or aftermarket between the flame arrestor and airflow sensor. Modifications to the airflow downstream of the airflow sensor are not allowed. All portions of the intake manifold must remain as originally equipped. Units where a ribbon system is employed as the OEM flame arresting device may have the ribbon removed so long as airflow passage is not increased and sufficient flame suppression is achieved by the air filter. An aftermarket part may be used to retain OEM airflow specifications. The allowance for this provision is not negated if any sales literature or product description defines the part or kit as performance enhancing. No modifications to the turbocharger and supercharger system, if applicable, are allowed.

8.5.2 Carbureted induction systems: Flame arrestors that meet USCG, UL-1111 or SAE J-1928 Marine backfire flame arrester test standards must be installed. Carburetor jets (replaceable type), needle valves and needle valve springs may be changed. Choke may be removed provided additional air intake for the engine is not created. Aftermarket primer system may be installed. No other carburetor modifications will be allowed.

8.5.3 Fuel injectors and fuel pump must remain stock as furnished by the manufacturer. Fuel test sensor mounts may remain on watercraft during competition so long as the sensor is removed.

## **8.6 AIR / FUEL DELIVERY – TWO-STROKE**

- 8.6.1 Aftermarket flame arresters that meet USCG, UL-1111 or SAE J-1928 Marine standards may be used. Carburetor jets (replaceable type), needle valves and needle valve springs may be changed. Choke may be removed provided additional air intake for the engine is not created. Aftermarket primer system may be installed. No other carburetor modifications will be allowed.
- 8.6.2 The entire fuel system is a closed system. The watercraft must not vent or spill fuel at any attitude with or without the engine running. Original equipment fuel tank, fuel pickup, fuel filler, fuel filter, fuel tap assembly and relief valve must be used and cannot be modified. Fuel petcock may be bypassed. Additional fuel filters may be used. Fuel tank filler cap may be modified or aftermarket provided a hazard is not created.

## **8.7 IGNITION AND ELECTRONICS - FOUR-STROKE**

- 8.7.1 Replacement batteries are allowed but must fit into the original equipment battery box and be securely fastened.
- 8.7.2 The original electronic control unit may be reprogrammed so long as it does not offer any additional inputs or outputs than the original unit, and it must connect with the original connections. No additional sensors may be added (e.g., exhaust gas temperature, detonation sensors, etc.). Engine temperature sensors may be disabled.
- 8.7.3 Aftermarket spark plugs with a different heat rating may be used.

## **8.8 IGNITION AND ELECTRONICS - TWO-STROKE**

- 8.8.1 Replacement batteries are allowed but must fit into the original equipment battery box and be securely fastened.
- 8.8.2 The original electronic control unit may be modified or aftermarket so long as it does not offer any additional inputs or outputs than the original unit, and it must connect with the original connections. No additional sensors may be added (e.g., exhaust gas temperature, detonation sensors, etc.). Engine temperature sensors may be disabled.
- 8.8.3 Ignition timing may be altered by slotting ignition trigger mounting plate. An adapter plate may be used for the sole purpose of relocating the ignition trigger.
- 8.8.4 Aftermarket spark plugs with a different heat rating may be used.

## **8.9 TURBOCHARGER/SUPERCHARGER**

- 8.9.1 Modifications to any part of the turbocharger or supercharger system (i.e., housing, turbines, rotors, sensors, ducting, etc.) are not allowed unless specified.
- 8.9.2 Supercharger shafts, and other components, may be welded or reinforced for safety purposes. Supercharger clutches, belts, and internal replacement parts will not be restricted to OEM so long as the replacement parts are approved by IJSBA. OEM gear ratios must be maintained.

## **8.10     DRIVELINE**

- 8.10.1     Impeller may be modified or aftermarket, providing that the original diameter is maintained. Replacement wear rings that are within OEM internal diameter specifications may be used. Silicone adhesive sealant may be used in addition to original equipment seal to seal pump inlet. Visibility spout must be removed or plugged.
- 8.10.2     No internal modifications of any kind, including grinding, surfacing, polishing, machining, shot peening, etc., will be allowed on any driveline components (e.g., pump stator, reduction nozzle, etc.). Aftermarket driveline couples and dampeners may be used.

## 9 RUNABOUT LIMITED CLASS

### 9.1 RUNABOUT LIMITED CLASS COMPETITION

Intended to promote interest in personal watercraft competition with a limited number of modifications, and to enable individuals to become active competitors with a relatively modest investment. Watercraft competing in this class must conform to the specifications which follow.

All watercraft must remain strictly stock (all stock class provisions are allowed in Limited class unless otherwise noted), except where rules allow or require substitutions or modifications. Changes or modifications not listed here are not permitted. The IJSBA may allow additional modifications to Limited classified PWC which provide for replacement/reinforcements to parts and components (i.e. intercooler end caps, brackets, fittings, etc.) that have known failure risks in race conditions. Such changes will only be allowed if the replacements/modifications result in no volume or performance gains. Such allowances are only legal if published by the IJSBA. Some original equipment components may not comply with IJSBA rules. Hull Identification Numbers must be displayed as furnished by the manufacturer.

**NOTE:** When rules permit or require equipment to be installed, replaced, altered or fabricated, it is the sole responsibility of the rider to select components, materials and/or fabricate the same so that the watercraft operates safely in competition.

- 9.1.1 Original equipment parts may be updated or backdated with original equipment parts of the same model. The part must be a bolt-on requiring no modifications to that part or any other parts except where rules allow substitutions or modifications. (Refer to Model Homologation listing online)
- 9.1.2 Sound level shall not exceed 86 dB(a) at 22.86m (75 ft.). Section 34.5.
- 9.1.3 Engine fuel must consist of gasoline meeting the criteria defined in Section 34.4.

### 9.2 HULL

- 9.2.1 All watercraft must have a flexible tow loop attached to the bow. The tow loop should be made of a flexible material (e.g., nylon strap, rope, etc.) so as not to create a hazard. Tow hooks which protrude beyond the plane of the hull must be removed.
- 9.2.2 Hull and deck repairs may be made. However, these repairs must not alter the original configuration by more than 2.00mm (0.08 in.). Drop-in type storage buckets may be modified, aftermarket or removed provided a hazard is not created. Drop-in type buckets are defined as being able to be removed without the use of any tool. Other than for the use of fasteners and the placement of allowable relocated parts (i.e., ECU), the bulkhead may not be modified.

- 9.2.3 All watercraft may be equipped with a maximum of two sponsons. Original equipment sponsons may be modified, aftermarket, repositioned or removed. Overall length of each sponson shall not exceed 91.45cm (36.00 in.). Sponsons shall not protrude from the side of the hull by more than 100.00mm (3.94 in.) when measured in a level horizontal plane. The vertical channel created by the underside of the sponson shall not exceed 63.50mm (2.50 in.). No part of the sponson shall extend downward below the point at which the side of the hull intersects the bottom surface of the hull by more than 38.00mm (1.50 in.). Aftermarket or modified sponsons must exceed 6mm (0.24 in.) in thickness. All leading edges must be radiused so as not to create a hazard. Sponsons may not be attached to the planing surfaces of the hull. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagrams in Appendix.)
- 9.2.4 Intake grate may be modified or aftermarket. Intake grate is required and must be the full-length type with at least one bar running parallel to the drive shaft. Grates may not extend more than 12.00mm (0.47 in.) below the flat plane of the pump intake area. All leading edges must be radiused so as not to create a hazard.
- 9.2.5 Pump cover plate may be modified or aftermarket. An extension may be added to the rear of the pump cover plate but shall not exceed the width of the original equipment plate. Modified and aftermarket plates must not extend more than 177.80mm (7.00 in.) beyond the end of the original equipment plate. The sides of the extension must be connected to the radiused portion of the pump plate so as not to create a hazard. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagram in Appendix.)
- 9.2.6 Aftermarket fixed-position trim tabs may be used. Original equipment trim plates that are detachable from the hull may be removed or replaced when installing aftermarket trim tabs. Trim tabs cannot exceed the width of the planing surface or extend rearward more than 100.00mm (3.94 in.) beyond the end of the original planing surface. Manual or automatic trim tabs attached to the hull or ride plate are not allowed. All hull extensions mounted on the hull's transom will be considered as a trim tab. All edges must be radiused so as not to create a hazard. Fins, skegs, rudders and other appendages that may create a hazard are not allowed.
- 9.2.7 Replacement bumpers may be used provided a hazard is not created.
- 9.2.8 A soft, flexible water-spray deflector may be attached to the hull sides or to the bond flange provided a hazard is not created. No part of the deflector may extend beyond the perimeter of the original equipment bumper or side mouldings as measured by a plumb line.
- 9.2.9 Handlebar, throttle, throttle cable, and grips may be modified or aftermarket. Handlebar cover may be modified or removed. Aftermarket switches and switch housings may be used. Steering shaft, steering shaft holder and handlebar holder may be aftermarket. The handlebar must be padded at the mounting bracket or, if it has a crossbar, the crossbar must be padded. Aftermarket steering cables will be allowed.
- 9.2.10 Seat assembly may be aftermarket. Seat height may be changed.

- 9.2.11 Padding and/or mat kits may be added and custom painting is allowed. The surface finish of any metal component outside the hull area above the bond flange may be polished, shot peened or painted.
- 9.2.12 Original bilge pump may be modified or disconnected. Aftermarket bilge draining systems that do not create a hazard are allowed.
- 9.2.13 Engine compartment foam may be removed, modified or aftermarket. Only floatation foam within the engine compartment may be removed. Only foam that can be removed without modification to any other part or parts, except where rules allow the parts to be modified, is allowed. Parts may not be relocated based on the removal of the foam. The hull's inner liner or deck may not be cut or modified to remove foam. Removal of foam between layers of the hull and/or deck is not allowed.
- 9.2.14 Engine compartment ventilation tubes may be modified, aftermarket, relocated on the original equipment ducting, or removed. Inlet and outlet openings may not be enlarged (i.e., when the tube is removed, the opening may not be larger than stock). Vents may be shielded or plugged. No other modifications to the hood will be allowed (covers and cowlings are included in this restriction). Sea-Doo models using the X4 Hull may utilize aftermarket hoods.
- 9.2.15 Handles, drop-in type storage buckets, bolt-on type mirrors and gauges may be modified, aftermarket or removed provided a hazard is not created.
- 9.2.16 Ballast weight may be added within the normally exposed areas of the hull to alter the handling of the watercraft provided a hazard is not created. Only weight consisting of constant mass (i.e., water or other fluid is not allowed) that does not require the modification or relocation of any parts will be allowed unless such modification or relocation is specified by other rules.
- 9.2.17 Original equipment braking devices may be disabled for safety purposes. Reverse buckets may be removed or disabled.

### **9.3 ENGINE - FOUR-STROKE**

- 9.3.1 Engines may be bored. Replacement piston assemblies may be used provided the original compression ratio, dome profile, skirt length and shape and type of material are not changed. Nonconforming pistons (ie skirt shape that is not an exact replica of the OEM piston) may be approved by the IJSBA but such approval must be obtained in writing. Replacement piston assemblies must weigh within  $\pm 25.00\%$  of original equipment. Engine displacement must not exceed class designation unless otherwise noted. Chamfering of cylinder ports must not exceed 1.00mm (0.04 in.) at a 30 degree maximum angle. (See diagram in Appendix.).



- 9.3.2 Crankshaft may be rebuilt/replaced provided by the following: Counterweights and material type must maintain the shape and dimensions as provided by the manufacturer. Stroke and rod lengths may not be changed. Counterweights may be deburred to remove only casting flaws, no other machining or knife edging of counterweights are allowed. Rod journals must maintain their OEM diameters/dimensions, Main journals must maintain their OEM diameters/dimensions. Cross drilling of crankshaft to improve oil flow or redirection is allowed. Replacement bearing shells are allowed provided the following: ( max. allowable undersized bearing is .060 or 1.5mm). Total weight of the crankshaft assembly must be within +/- 5.00% of original equipment. Damaged rod or main journals may be welded and machined to their OEM dimensions or within the allowable bearing sizes.
  
- 9.3.3 Repairs may be made to cracked or damaged cylinders by installing a cylinder sleeve. The head gasket surface of the cylinder block may be machined only to allow for the installation of the new sleeves (see appendix for description). A thicker head gasket must be utilized to return the block deck height to within .155mm (.006in) of original height. The repair must offer no additional performance gains.
  
- 9.3.4 External modifications to the engine finish (e.g., plating, polishing and/or painting) are allowed for cosmetic purposes only.
  
- 9.3.5 No internal modifications of any kind, including grinding, surfacing, polishing, machining, shot peening, etc., will be allowed on any engine components.
  
- 9.3.6 Engine, Intercooler, and Oil Cooler water cooling systems may be modified or aftermarket. Additional water cooling lines and after market water bypass fittings may be added. OEM water bypass fittings may be modified or relocated. All bypass fittings must be directed downward and/or rearward so as not to create a hazard for other riders. Additional cooling supply lines and fittings may be added to the pump. Pump water inlet covers and water strainers (filters) may be modified or aftermarket. Intercooler assembly/housing must remain OEM in stock class, additional cooling supply lines and bypass fittings may be added to the OEM Intercooler Housing. Additional cooling supply lines may be added to water inlet covers that are removable from the engine block. Volume changes to OEM water supply fittings are not allowed. Existing fittings may be aftermarket or modified so long as the OEM thread diameter is maintained. Fittings may not be added to the cylinder head, cylinder, or crankcase. Intercooler pressure relief valves (mechanical) are allowed for the purposes of regulating water pressure. Any valves used within the entire cooling system must be of the fixed type or automatic (e.g., thermostats, pressure regulators, etc.). Electronically controlled valves or water injections systems are not allowed unless originally equipped. Manually controlled devices (by any means of actuation) that alter the flow of cooling water during operation are not allowed. Cooling system flush kits are allowed.
  
- 9.3.7 Replacement starter motor and bendix may be used.
  
- 9.3.8 Replacement engine mounts may be used

- 9.3.9 Replacement of general maintenance parts (e.g., gaskets, seals, spark plugs, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, clamps and fasteners) shall not be restricted to original equipment providing the following:
- 1) Replacement gaskets may be used but must be of the same type (e.g., sheet, o-ring, etc.) as their OEM counterparts.
  - 2) Fasteners (e.g., bolts, nuts and washers) may not be substituted with titanium pieces unless originally equipped. Fasteners may integrate locking mechanisms.
- 9.3.10 Camshafts may be modified or aftermarket.
- 9.3.11 Valves may be modified or aftermarket. Valve seats may be modified. Springs may be modified or aftermarket. Pushrods may be modified or aftermarket. Replacement valves, pushrods, and seats may not be titanium unless originally equipped.
- 9.3.12 Blow off valves may be added to extend engine life. A vacuum line and fitting may be added to the intake manifold to accommodate a blow off valve.
- 9.3.13 Aftermarket valve spring retainers may be used.

#### **9.4 ENGINE – TWO-STROKE**

- 9.4.1 Engines may be bored. Replacement piston assemblies may be used provided the original port timing, compression ratio, dome profile, skirt length and shape and type of material are not changed. Replacement piston assemblies must weigh within  $\pm 25.00\%$  of original equipment. Engine displacement must not exceed class designation (e.g., 550cc in 550 Limited, 800cc in 800 Limited, etc.). Chamfering of cylinder ports must not exceed 1.00mm (0.04 in.) at a 30 degree maximum angle. (See diagram in Appendix.) Cylinders may be machined to accept girdle system cylinder heads.
- 9.4.2 Crankshaft may be rebuilt using replacement counterweights, crank pins, bearings and connecting rods. Counterweights, crank pins and connecting rods made of non-ferrous metals are not allowed. Stroke and rod length may not be changed. Counterweights on non-rebuildable style crankshafts may be machined to accept a press-through crank pin. Replacement bearings must maintain their original type and dimensions. Replacement counterweights must resemble the original part (i.e., holes and/or pockets not existing on the original part may not be on the replacement part). Total weight of the crankshaft assembly must be within  $\pm 5.00\%$  of original equipment. Crankpins may be welded and/or keyed to the counterweights.
- 9.4.3 Repairs to cracked or punctured crankcases may be made provided only one damaged area affecting one cylinder bank has been repaired. Crankcase drain and cable may be removed and plugged. No other modifications or repairs are allowed.
- 9.4.4 External modifications to the engine finish (e.g., plating, polishing and/or painting) are allowed for cosmetic purposes only.
- 9.4.5 No internal modifications of any kind, including grinding, surfacing, polishing, machining, shot peening, etc., will be allowed on any engine components.

- 9.4.6 Cylinder head and gasket may be modified or aftermarket.
- 9.4.7 Exhaust manifold, head pipe, expansion chamber, gaskets and hose between expansion chamber and OEM waterbox may be modified/alterd or aftermarket. Exhaust location of the exhaust gases may not be relocated. Original size opening must be maintained for exhaust exit. Original equipment waterbox must be used and may not be modified. No tuned portion of the exhaust shall protrude outside the hull. Through-hull exhaust outlet flap may be removed. Two Stroke and Four Stroke Runabout Limited classes: Removal of the plastic resonator is allowed.
- 9.4.8 Cooling system may be modified or aftermarket. Aftermarket cooling lines and water bypass systems may be used. Additional cooling supply lines and fittings may be added to the pump. Bypass fittings may be modified, aftermarket and/or relocated but must be directed downward and/or rearward so as not to create a hazard for other riders. Any valves used within the entire cooling system must be of the fixed type or automatic (e.g., thermostats, pressure regulators, solenoids, etc.). Manually controlled devices (by any means of actuation) that alter the flow of cooling water during operation are not allowed. Cooling system flush kits are allowed.
- 9.4.9 Replacement starter motor and bendix may be used.
- 9.4.10 Replacement engine mounts may be used.
- 9.4.11 Oil-injection system may be disconnected or removed.
- 9.4.12 Replacement of general maintenance parts (e.g., gaskets, seals, spark plugs, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, clamps and fasteners) shall not be restricted to original equipment providing the following:
  - 1) Replacement gaskets may be used but must be of the same type (e.g., sheet, o-ring, etc.) as their OEM counterparts. Base gasket cannot be thicker than 1.52mm (0.060in).
  - 2) Stripped threads must be repaired to the original size.
  - 3) Fasteners (e.g., bolts, nuts and washers) may not be substituted with titanium pieces unless originally equipped. Fasteners may integrate locking mechanisms.
- 9.4.13 Cylinders may be interchanged between homologated watercraft of the same manufacturer subject to restrictions announced by the IJSBA. Any modifications to the cylinder or crankcase must be approved, in writing, by the IJSBA.

## **9.5 AIR / FUEL DELIVERY – FOUR-STROKE**

- 9.5.1 Turbocharger or Supercharger impeller housing must remain stock as furnished by the manufacturer. All internal supercharger or turbocharger parts may be modified or aftermarket. Pulleys and tensioners may be modified or aftermarket. Where an OEM turbocharger or supercharger housing may be spaced to accommodate a larger impeller, the spacer shall be allowed providing no other modifications are necessary to accommodate the spacer. An oil line fitting may be added to the supercharger shaft. Intercoolers may be modified or aftermarket/

- 9.5.2 The entire fuel system is a closed system. The watercraft must not vent or spill fuel at any attitude with or without the engine running. Original equipment fuel tank, fuel filler and relief valve must be used and cannot be modified. The fuel pickup, fuel filter and fuel petcock assembly may be removed and/or aftermarket parts may be used. Additional fuel filters may be used and fuel cell foam may be added to the original equipment fuel tank. Fuel tank filler cap may be modified or aftermarket provided a hazard is not created.
- 9.5.3 Throttle bodies must remain stock as supplied by the manufacturer. No changing of throttle plate angles and/or modifications to the throttle body housing. No phenolic or aluminum spacers are allowed behind the throttle body.
- 9.5.4 Electronic fuel-injection systems: Flame arresters that meet USCG, UL-1111 or SAE J-1928 Marine backfire flame arrester test standards must be installed. If not equipped with an airflow sensor, the ducting between the flame arrester and throttle body may be modified or aftermarket. If originally equipped with an airflow sensor, the ducting may be modified or aftermarket between the flame arrester and airflow sensor. Modifications to the airflow downstream of the airflow sensor are not allowed. No modifications to the turbocharger and supercharger system, if applicable, are allowed.
- 9.5.5 Carbureted induction systems: Flame arrestors that meet USCG, UL-1111 or SAE J-1928 Marine backfire flame arrester test standards must be installed. Carburetor jets (replaceable type), needle valves and needle valve springs may be changed. Choke may be removed provided additional air intake for the engine is not created. Aftermarket primer system may be installed. No other carburetor modifications will be allowed.
- 9.5.6 Fuel pumps may be modified or aftermarket provided a hazard is not created. Fuel pressure regulators may be modified or aftermarket for safety purposes. Fuel return lines must be installed in the fuel pump assembly without modification to the tank. The Race Director or Technical Director shall have final discretion as to whether a fuel return line has been installed sufficiently for safe use in competition.
- 9.5.7 Fuel injectors may be modified or aftermarket.
- 9.5.8 Aftermarket Valve Spring Retainers may be used so long as OEM valve springs are used.

## **9.6 AIR/FUEL DELIVERY — TWO-STROKE**

- 9.6.1 Carburetor(s) may be modified or aftermarket provided they do not vent or spill fuel at any attitude with or without the engine running. The number of venturis cannot exceed the number of cylinders. No slide-type carburetors. Aftermarket primer may be used. Intake manifold assembly may be modified or aftermarket. Aftermarket crankcase-pressure-operated fuel pumps may be used. Additional carburetor pulse line fittings may be installed on the crankcase.

- 9.6.2 Modified or aftermarket vapor/air separators must not exceed 2 in. x 6 in., and must have a return line to the fuel tank open at all times. Additional fuel reservoirs may not be used. Aftermarket or modified electric fuel pumps, not exceeding 4 psi, may be used. When the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/offtype fuel pumps are allowed.
- 9.6.3 Aftermarket fuel-injection systems and components are allowed provided the following regulations are adhered to: High pressure fuel hose meeting SAE J30R9 must be used; A.N. threadedtype fittings or equivalent and non-removable, crimped- type clamps must be used on the high-pressure portion of the system (i.e., hose clamps, tie wraps, etc. are not allowed); only metal-type fuel filters may be used on the high-pressure portion of the system; all other in-line filters must be installed on the lowpressure portion of the system. When the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off-type fuel pumps are allowed.
- 9.6.4 The entire fuel system is a closed system. The watercraft must not vent or spill fuel at any attitude with or without the engine running. Original equipment fuel tank, fuel filler and relief valve must be used and cannot be modified. The fuel pickup, fuel filter and fuel petcock assembly may be removed and/or after-market parts may be used. Additional fuel filters may be used and fuel cell foam may be added to the original equipment fuel tank. Fuel tank filler cap may be modified or aftermarket provided a hazard is not created.
- 9.6.5 Flame arrester(s) which satisfy United States Coast Guard, SAE-J1928 Marine or UL-1111 Marine backfire flame arrester test standards must be installed. Aftermarket flame arresters satisfying one of these test standards will be allowed. Intake silencer may be removed.
- 9.6.6 Reed valve assemblies may be modified or aftermarket. Rotary valve may be modified or aftermarket.

## **9.7 IGNITION AND ELECTRONICS - FOUR-STROKE**

- 9.7.1 Replacement batteries are allowed but must fit into the original equipment battery box and be securely fastened.
- 9.7.2 The original electronic control unit may be modified or aftermarket so long as it does not offer any additional inputs or outputs than the original unit, and it must connect with the original connections. No additional sensors may be added (e.g., exhaust gas temperature, detonation sensors, etc.). Engine temperature sensors may be disabled.
- 9.7.3 Ignition timing may be altered by slotting ignition trigger mounting plate. An adapter plate may be used for the sole purpose of relocating the ignition trigger.
- 9.7.4 Aftermarket spark plugs with a different heat rating may be used.
- 9.7.5 AFR gauges may be affixed to the exhaust system providing the AFR gauge is not attached to, or can communicate with, the ECU or any automatic tuning device on the watercraft.

## **9.8 IGNITION AND ELECTRONICS — TWO-STROKE**

- 9.8.1 RPM limiter function may be bypassed or eliminated. CDI unit may be modified or aftermarket. Ignition timing may be changed. Modifications to the original equipment ignition pickup mount will be allowed. Original equipment charging system must be used. No other ignition system modifications will be allowed.
- 9.8.2 Flywheel cover may be modified to accept a crankshaft-end bearing support.
- 9.8.3 Replacement batteries are allowed but must fit into the original equipment battery box and be securely fastened.
- 9.8.4 Engine temperature sensor may be disconnected and/or removed.
- 9.8.5 Relocation of electrical components (e.g., battery, box or housing) is allowed in order to fit an aftermarket exhaust system (only the strict minimum needed). Modification will be subject to Race/Tech Directors' approval.

## **9.9 DRIVELINE**

- 9.9.1 Impeller housing, stator vane assembly, pump mounting plate and/or pump shoe may be modified or aftermarket. No titanium driveshaft, impeller housing or stator vane assemblies. Impeller may be modified or aftermarket. Pump nozzle and directional nozzle may be modified or aftermarket. Overall length of the complete pump and nozzle assembly may be no more than 50.00mm (1.97 in.) longer than original equipment. Aftermarket nozzle-trim systems may be used. Additional cooling fittings may be installed. Visibility spout must be removed or plugged. Silicone adhesive sealant may be used in addition to original equipment seal to seal pump inlet. Couplers, bearing housing and driveshaft may be modified or aftermarket provided they maintain a 1:1 drive ratio between the engine and the pump.

## 10 RUNABOUT SUPERSTOCK CLASS

### 10.1 RUNABOUT SUPERSTOCK CLASS COMPETITION

Intended to promote interest in personal watercraft competition with opportunities for very high modifications and performance while maintaining many of the OEM features of the watercraft. Watercraft competing in this class must conform to the specifications which follow. Competitors must possess and Expert or Pro license to compete in this category. Only Four Stroke Engines are permitted in this category of racing.

All watercraft must remain strictly stock (all Stock Class and Limited Class provisions are allowed in Superstock unless otherwise noted), except where rules allow or require substitutions or modifications. Changes or modifications not listed here are not permitted. The IJSBA may allow additional modifications to Stock Classified PWC which provide for replacement/reinforcements to parts and components (i.e. intercooler end caps, brackets, fittings, etc.) that have known failure risks in race conditions. Such changes will only be allowed if the replacements/modifications result in no volume or performance gains. Such allowances are only legal if published by the IJSBA. Some original equipment components may not comply with IJSBA rules. Hull Identification Numbers must be displayed as furnished by the manufacturer.

**NOTE:** When rules permit or require equipment to be installed, replaced, altered or fabricated, it is the sole responsibility of the rider to select components, materials and/or fabricate the same so that the watercraft operates safely in competition.

- 10.1.1 Original equipment parts may be updated or backdated with original equipment parts of the same model. The part must be a bolt-on requiring no modifications to that part or any other parts except where rules allow substitutions or modifications. (Refer to Model Homologation listing online)
- 10.1.2 Sound level shall not exceed 86 dB(a) at 22.86m (75 ft.). Section 34.5.
- 10.1.3 Engine fuel must consist of gasoline meeting the criteria defined in Section 34.4.

### 10.2 HULL

- 10.2.1 All watercraft must have a flexible tow loop attached to the bow. The tow loop should be made of a flexible material (e.g., nylon strap, rope, etc.) so as not to create a hazard. Tow hooks which protrude beyond the plane of the hull must be removed.
- 10.2.2 Hull and deck repairs may be made. However, these repairs must not alter the original configuration by more than 2.00mm (0.08 in.). Handles, drop-in type storage buckets, bolt-on type mirrors and gauges may be modified, aftermarket or removed provided a hazard is not created. Drop-in type buckets are defined as being able to be removed without the use of any tool. Other than for the use of fasteners and the placement of allowable relocated parts (i.e., Exhaust, ECU), the bulkhead may not be modified.

- 10.2.3 All watercraft may be equipped with a maximum of two sponsons. Original equipment sponsons may be modified, aftermarket, repositioned or removed. Overall length of each sponson shall not exceed 91.45cm (36.00 in.). Sponsons shall not protrude from the side of the hull by more than 100.00mm (3.94 in.) when measured in a level horizontal plane. The vertical channel created by the underside of the sponson shall not exceed 63.50mm (2.50 in.). No part of the sponson shall extend downward below the point at which the side of the hull intersects the bottom surface of the hull by more than 63.50mm (2.50 in.). Aftermarket or modified sponsons must exceed 6mm (0.24 in.) in thickness. All leading edges must be radiused so as not to create a hazard. Sponsons may not be attached to the planing surfaces of the hull. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagrams in Appendix.)
  
- 10.2.4 Intake grate may be modified or aftermarket. Intake grate is required and must be the full-length type with at least one bar running parallel to the drive shaft. Grates may not extend more than 12.00mm (0.47 in.) below the flat plane of the pump intake area. All leading edges must be radiused so as not to create a hazard.
  
- 10.2.5 Pump cover plate may be modified or aftermarket. An extension may be added to the rear of the pump cover plate but shall not exceed the width of the original equipment plate. Modified and aftermarket plates must not extend more than 177.80mm (7.00 in.) beyond the end of the original equipment plate. The sides of the extension must be connected to the radiused portion of the pump plate so as not to create a hazard. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagram in Appendix.)
  
- 10.2.6 Aftermarket fixed-position trim tabs may be used. Original equipment trim plates that are detachable from the hull may be removed or replaced when installing aftermarket trim tabs. Trim tabs cannot exceed the width of the planing surface or extend rearward more than 100.00mm (3.94 in.) beyond the end of the original planing surface. Manual or automatic trim tabs attached to the hull or ride plate are not allowed. All hull extensions mounted on the hull's transom will be considered as a trim tab. All edges must be radiused so as not to create a hazard. Fins, skegs, rudders and other appendages that may create a hazard are not allowed.
  
- 10.2.7 Replacement bumpers may be used provided a hazard is not created.
  
- 10.2.8 A soft, flexible water-spray deflector may be attached to the hull sides or to the bond flange provided a hazard is not created. No part of the deflector may extend beyond the perimeter of the original equipment bumper or side mouldings as measured by a plumb line.
  
- 10.2.9 Handlebar, throttle, throttle cable, and grips may be modified or aftermarket. Handlebar cover may be modified or removed. Aftermarket switches and switch housings may be used. Steering shaft, steering shaft holder and handlebar holder may be aftermarket. The handlebar must be padded at the mounting bracket or, if it has a crossbar, the crossbar must be padded. Aftermarket steering cables will be allowed.
  
- 10.2.10 Seat assembly may be aftermarket. Seat height may be changed. All restrictions on the Aftermarket Seat section of the Appendix must be followed.



- 10.2.11 Padding and/or mat kits may be added and custom painting is allowed. The surface finish of any metal component outside the hull area above the bond flange may be polished, shot peened or painted.
- 10.2.12 Original bilge pump may be modified or disconnected. Aftermarket bilge draining systems that do not create a hazard are allowed.
- 10.2.13 Engine compartment foam may be removed, modified or aftermarket. Only floatation foam within the engine compartment may be removed. Only foam that can be removed without modification to any other part or parts, except where rules allow the parts to be modified, is allowed. Parts may not be relocated based on the removal of the foam. The hull's inner liner or deck may not be cut or modified to remove foam. Removal of foam between layers of the hull and/or deck is not allowed.
- 10.2.14 Engine compartment ventilation tubes may be modified, aftermarket, relocated on the original equipment ducting, or removed. Inlet and outlet openings may not be enlarged (i.e., when the tube is removed, the opening may not be larger than stock). Vents may be shielded or plugged. No other modifications to the hood will be allowed (covers and cowlings are included in this restriction).
- 10.2.15 Handles, drop-in type storage buckets, bolt-on type mirrors and gauges may be modified, aftermarket or removed provided a hazard is not created.
- 10.2.16 Ballast weight may be added within the normally exposed areas of the hull to alter the handling of the watercraft provided a hazard is not created. Only weight consisting of constant mass (i.e., water or other fluid is not allowed) that does not require the modification or relocation of any parts will be allowed unless such modification or relocation is specified by other rules.
- 10.2.17 Original equipment braking devices may be disabled for safety purposes. Reverse buckets may be removed or disabled.

### **10.3 ENGINE - FOUR-STROKE**

- 10.3.1 OEM engine blocks from the same manufacturer must be used. Internal modifications to the oil and/or water exposed surfaces will be allowed. The head gasket surface of the cylinder block may be machined.
- 10.3.2 Crankshaft may be modified or aftermarket. Total weight of the crankshaft must be within  $\pm 5.00\%$  of original equipment. Replacement bearings or bearing shells are allowed, providing they maintain their original type and dimensions.
- 10.3.3 The original cylinder head casting must be used. Intake and exhaust runners may be modified. Material may be added to the runners. Intake and exhaust ports may be modified. Port diameters and shapes may be changed. Combustion chambers may be modified. Material may be added to the combustion chamber. The original number of intake and exhaust valves must be the same as original.
- 10.3.4 External modifications to the engine finish (e.g., plating, polishing and/or painting) are allowed for cosmetic purposes only.

- 10.3.5 Engine, Intercooler, and Oil Cooler water cooling systems may be modified or aftermarket. Additional water cooling lines and after market water bypass fittings may be added. OEM water bypass fittings may be modified or relocated. All bypass fittings must be directed downward and/or rearward so as not to create a hazard for other riders. Additional cooling supply lines and fittings may be added to the pump. Pump water inlet covers and water strainers (filters) may be modified or aftermarket. Intercooler assembly/housing must remain OEM in stock class, additional cooling supply lines and bypass fittings may be added to the OEM Intercooler Housing. Additional cooling supply lines may be added to water inlet covers that are removable from the engine block. Volume changes to OEM water supply fittings are not allowed. Existing fittings may be aftermarket or modified so long as the OEM thread diameter is maintained. Fittings may not be added to the cylinder head, cylinder, or crankcase. Intercooler pressure relief valves (mechanical) are allowed for the purposes of regulating water pressure. Any valves used within the entire cooling system must be of the fixed type or automatic (e.g., thermostats, pressure regulators, etc.). Electronically controlled valves or water injections systems are not allowed unless originally equipped. Manually controlled devices (by any means of actuation) that alter the flow of cooling water during operation are not allowed. Cooling system flush kits are allowed.
- 10.3.6 Replacement starter motor and bendix may be used.
- 10.3.7 Replacement engine mounts may be used
- 10.3.8 Replacement of general maintenance parts (e.g., gaskets, seals, spark plugs, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, clamps and fasteners) shall not be restricted to original equipment providing the following:
- 1) Replacement gaskets may be used but must be of the same type (e.g., sheet, o-ring, etc.) as their OEM counterparts.
  - 2) Fasteners (e.g., bolts, nuts and washers) may not be substituted with titanium pieces unless originally equipped. Fasteners may integrate locking mechanisms.
- 10.3.9 Camshafts may be modified or aftermarket.
- 10.3.10 Valves may be modified or aftermarket. Valve seats may be modified. Springs may be modified or aftermarket. Pushrods may be modified or aftermarket. Replacement valves, pushrods, and seats may not be titanium unless originally equipped.
- 10.3.11 Blow off valves may be added to extend engine life. A vacuum line and fitting may be added to the intake manifold to accommodate a blow off valve.
- 10.3.12 Aftermarket valve spring retainers may be used.
- 10.3.13 The exhaust system may be aftermarket providing a hazard is not created.

## 10.4 ENGINE – TWO-STROKE

- 10.4.1 Engines may be bored. Replacement piston assemblies may be used provided the original port timing, compression ratio, dome profile, skirt length and shape and type of material are not changed. Replacement piston assemblies must weigh within  $\pm 25.00\%$  of original equipment. Engine displacement must not exceed class designation (e.g., 550cc in 550 Limited, 800cc in 800 Limited, etc.). Chamfering of cylinder ports must not exceed 1.00mm (0.04 in.) at a 30 degree maximum angle. (See diagram in Appendix.) Cylinders may be machined to accept girdle system cylinder heads.
- 10.4.2 Crankshaft may be rebuilt using replacement counterweights, crank pins, bearings and connecting rods. Counterweights, crank pins and connecting rods made of non-ferrous metals are not allowed. Stroke and rod length may not be changed. Counterweights on non-rebuildable style crankshafts may be machined to accept a press-through crank pin. Replacement bearings must maintain their original type and dimensions. Replacement counterweights must resemble the original part (i.e., holes and/or pockets not existing on the original part may not be on the replacement part). Total weight of the crankshaft assembly must be within  $\pm 5.00\%$  of original equipment. Crankpins may be welded and/or keyed to the counterweights.
- 10.4.3 Repairs to cracked or punctured crankcases may be made provided only one damaged area affecting one cylinder bank has been repaired. Crankcase drain and cable may be removed and plugged. No other modifications or repairs are allowed.
- 10.4.4 External modifications to the engine finish (e.g., plating, polishing and/or painting) are allowed for cosmetic purposes only.
- 10.4.5 No internal modifications of any kind, including grinding, surfacing, polishing, machining, shot peening, etc., will be allowed on any engine components.
- 10.4.6 Cylinder head and gasket may be modified or aftermarket.
- 10.4.7 Exhaust manifold, head pipe, expansion chamber, gaskets and hose between expansion chamber and OEM waterbox may be modified/alterd or aftermarket. Exhaust location of the exhaust gases may not be relocated. Original size opening must be maintained for exhaust exit. Waterbox may be aftermarket or removed. No tuned portion of the exhaust shall protrude outside the hull. Through-hull exhaust outlet flap may be removed. Two Stroke and Four Stroke Runabout Limited classes: Removal of the plastic resonator is allowed.
- 10.4.8 Cooling system may be modified or aftermarket. Aftermarket cooling lines and water bypass systems may be used. Additional cooling supply lines and fittings may be added to the pump. Bypass fittings may be modified, aftermarket and/or relocated but must be directed downward and/or rearward so as not to create a hazard for other riders. Any existing fitting which does not have a water supply line (i.e. anode) maybe replaced with a water supply line so long as the thread diameter is not changed. Any valves used within the entire cooling system must be of the fixed type or automatic (e.g., thermostats, pressure regulators, solenoids, etc.). Manually controlled devices (by any means of actuation) that alter the flow of cooling water during operation are not allowed. Cooling system flush kits are allowed.

- 10.4.9 Replacement starter motor and bendix may be used.
- 10.4.10 Replacement engine mounts may be used.
- 10.4.11 Oil-injection system may be disconnected or removed.
- 10.4.12 Replacement of general maintenance parts (e.g., gaskets, seals, spark plugs, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, clamps and fasteners) shall not be restricted to original equipment providing the following:
  - 1) Replacement gaskets may be used but must be of the same type (e.g., sheet, o-ring, etc.) as their OEM counterparts. Base gasket cannot be thicker than 1.52mm (0.060in).
  - 2) Stripped threads must be repaired to the original size.
  - 3) Fasteners (e.g., bolts, nuts and washers) may not be substituted with titanium pieces unless originally equipped. Fasteners may integrate locking mechanisms.
- 10.4.13 Cylinders may be interchanged between homologated watercraft of the same manufacturer subject to restrictions announced by the IJSBA. Any modifications to the cylinder or crankcase must be approved, in writing, by the IJSBA.

## **10.5 AIR / FUEL DELIVERY – FOUR-STROKE**

- 10.5.1 The entire fuel system is a closed system. The watercraft must not vent or spill fuel at any attitude with or without the engine running. Original equipment fuel tank, fuel filler and relief valve must be used and cannot be modified. The fuel pickup, fuel filter and fuel petcock assembly may be removed and/or aftermarket parts may be used. Additional fuel filters may be used and fuel cell foam may be added to the original equipment fuel tank. Fuel tank filler cap may be modified or aftermarket provided a hazard is not created.
- 10.5.2 Throttle bodies must remain stock as supplied by the manufacturer. No changing of throttle plate angles and/or modifications to the throttle body housing. No phenolic or aluminum spacers are allowed behind the throttle body.
- 10.5.3 Electronic fuel-injection systems: Flame arresters that meet USCG, UL-1111 or SAE J-1928 Marine backfire flame arrester test standards must be installed. If not equipped with an airflow sensor, the ducting between the flame arrester and throttle body may be modified or aftermarket. If originally equipped with an airflow sensor, the ducting may be modified or aftermarket between the flame arrester and airflow sensor. Modifications to the airflow downstream of the airflow sensor are not allowed. No modifications to the turbocharger and supercharger system, if applicable, are allowed.
- 10.5.4 Carbureted induction systems: Flame arrestors that meet USCG, UL-1111 or SAE J-1928 Marine backfire flame arrester test standards must be installed. Carburetor jets (replaceable type), needle valves and needle valve springs may be changed. Choke may be removed provided additional air intake for the engine is not created. Aftermarket primer system may be installed. No other carburetor modifications will be allowed.

- 10.5.5 Fuel pumps may be modified or aftermarket provided a hazard is not created. Fuel pressure regulators may be modified or aftermarket for safety purposes. Fuel return lines must be installed in the fuel pump assembly without modification to the tank. The Race Director or Technical Director shall have final discretion as to whether a fuel return line has been installed sufficiently for safe use in competition.
- 10.5.6 Fuel injectors may be modified or aftermarket.
- 10.5.7 Aftermarket Valve Spring Retainers may be used so long as OEM valve springs are used.

## **10.6 TURBOCHARGER / SUPERCHARGER**

- 10.6.1 Turbocharger housing must be of the full circulating, water-jacket type at all times when the engine is running. Aftermarket turbochargers and superchargers may be used provided a hazard is not created. Original turbocharger or supercharger may be modified. Aftermarket turbochargers and superchargers may be added to originally normally aspirated, four stroke, watercraft. All hoses and pipes may be modified or aftermarket. Where the Race Director, or Technical Inspector, cannot determine if a turbocharger is sufficiently water-jacketed then a heat wrap and/or additional cooling mechanisms may be added to ensure safety.
- 10.6.2 Intercooler may be modified or aftermarket.
- 10.6.3 Boost pressure-relief valve may be modified or aftermarket.
- 10.6.4 Boost sensor may be modified or aftermarket.

## **10.7 AIR/FUEL DELIVERY — TWO-STROKE**

- 10.7.1 Carburetor(s) may be modified or aftermarket provided they do not vent or spill fuel at any attitude with or without the engine running. The number of venturis cannot exceed the number of cylinders. No slide-type carburetors. Aftermarket primer may be used. Intake manifold assembly may be modified or aftermarket. Aftermarket crankcase-pressure-operated fuel pumps may be used. Additional carburetor pulse line fittings may be installed on the crankcase.
- 10.7.2 Modified or aftermarket vapor/air separators must not exceed 2 in. x 6 in., and must have a return line to the fuel tank open at all times. Additional fuel reservoirs may not be used. Aftermarket or modified electric fuel pumps, not exceeding 4 psi, may be used. When the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off-type fuel pumps are allowed.
- 10.7.3 Aftermarket fuel-injection systems and components are allowed provided the following regulations are adhered to: High pressure fuel hose meeting SAE J30R9 must be used; A.N. threaded-type fittings or equivalent and non-removable, crimped-type clamps must be used on the high-pressure portion of the system (i.e., hose clamps, tie wraps, etc. are not allowed); only metal-type fuel filters may be used on the high-pressure portion of the system; all other in-line filters must be installed on the lowpressure portion of the system. When the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off-type fuel pumps are allowed.

- 10.7.4 The entire fuel system is a closed system. The watercraft must not vent or spill fuel at any attitude with or without the engine running. Original equipment fuel tank, fuel filler and relief valve must be used and cannot be modified. The fuel pickup, fuel filter and fuel petcock assembly may be removed and/or after-market parts may be used. Additional fuel filters may be used and fuel cell foam may be added to the original equipment fuel tank. Fuel tank filler cap may be modified or aftermarket provided a hazard is not created.
- 10.7.5 Flame arrester(s) which satisfy United States Coast Guard, SAE-J1928 Marine or UL-1111 Marine backfire flame arrester test standards must be installed. Aftermarket flame arresters satisfying one of these test standards will be allowed. Intake silencer may be removed.
- 10.7.6 Reed valve assemblies may be modified or aftermarket. Rotary valve may be modified or aftermarket.

## **10.8 IGNITION AND ELECTRONICS - FOUR-STROKE**

- 10.8.1 Replacement batteries are allowed but must fit into the original equipment battery box and be securely fastened.
- 10.8.2 The original electronic control unit may be modified or aftermarket so long as it does not offer any additional inputs or outputs than the original unit, and it must connect with the original connections. No additional sensors may be added (e.g., exhaust gas temperature, detonation sensors, etc.). Engine temperature sensors may be disabled.
- 10.8.3 Ignition timing may be altered by slotting ignition trigger mounting plate. An adapter plate may be used for the sole purpose of relocating the ignition trigger.
- 10.8.4 Aftermarket spark plugs with a different heat rating may be used.
- 10.8.5 AFR gauges may be affixed to the exhaust system providing the AFR gauge is not attached to, or can communicate with, the ECU or any automatic tuning device on the watercraft.

## **10.9 IGNITION AND ELECTRONICS — TWO-STROKE**

- 10.9.1 RPM limiter function may be bypassed or eliminated. CDI unit may be modified or aftermarket. Ignition timing may be changed. Modifications to the original equipment ignition pickup mount will be allowed. Original equipment charging system must be used. No other ignition system modifications will be allowed.
- 10.9.2 Flywheel cover may be modified to accept a crankshaft-end bearing support.
- 10.9.3 Replacement batteries are allowed but must fit into the original equipment battery box and be securely fastened.
- 10.9.4 Engine temperature sensor may be disconnected and/or removed.
- 10.9.5 Relocation of electrical components (e.g., battery, box or housing) is allowed in order to fit an aftermarket exhaust system (only the strict minimum needed). Modification will be subject to Race/Tech Directors' approval.

## **10.10 DRIVELINE**

- 10.10.1 Impeller housing, stator vane assembly, pump mounting plate and/or pump shoe may be modified or aftermarket. No titanium driveshaft, impeller housing or stator vane assemblies. Impeller may be modified or aftermarket. Pump nozzle and directional nozzle may be modified or aftermarket. Overall length of the complete pump and nozzle assembly may be no more than 50.00mm (1.97 in.) longer than original equipment. Aftermarket nozzle-trim systems may be used. Additional cooling fittings may be installed. Visibility spout must be removed or plugged. Silicone adhesive sealant may be used in addition to original equipment seal to seal pump inlet. Couplers, bearing housing and driveshaft may be modified or aftermarket provided they maintain a 1:1 drive ratio between the engine and the pump.

## 11 RUNABOUT OPEN CLASS

### 11.1 RUNABOUT OPEN CLASS COMPETITION

Intended to promote interest in personal watercraft competition with a high degree of modification while maintaining the same branding of the components and appearance of the OEM Watercraft. Watercraft competing in this class must conform to the specifications which follow. Note: Where Open Classes allow Turbocharged or Supercharged Runabout PWC: All competitors must possess an Expert or Pro license prior to participating.

All watercraft must remain strictly stock, except where rules allow or require substitutions or modifications. Creating an Open Class watercraft begins with a stock OEM watercraft even where the hull, top deck, and engine may come from other sources; these are changes made to an original OEM starter unit. Changes or modifications not listed here are not permitted. Some original equipment components may not comply with IJSBA rules. Hull Identification Numbers must be displayed as furnished by the manufacturer.

**NOTE:** When rules permit or require equipment to be installed, replaced, altered or fabricated, it is the sole responsibility of the rider to select components, materials and/or fabricate the same so that the watercraft operates safely in competition.

- 11.1.1 Original equipment parts may be updated to newer original equipment parts of the same model. The part must be a bolt-on requiring no modifications to that part or any other parts except where rules allow substitutions or modifications.
- 11.1.2 Sound level shall not exceed 100 dB (a) at 22.86m (75 ft.). Section 34.5. A sound level of 86 dB may be enforced so long as the promoter notifies participants at least 14 days prior to the event.
- 11.1.3 Engine fuel must consist of gasoline meeting the criteria defined in Section 34.4.

### 11.2 WEIGHT

- 11.2.1 At all times, Four Stroke Runabouts, equipped with a supercharger or turbocharger, must weigh a minimum of 550 LBS.

### 11.3 HULL

- 11.3.1 All watercraft must have a flexible tow loop attached to the bow. The tow loop should be made of a flexible material (e.g., nylon strap, rope, etc.) so as not to create a hazard. Tow hooks, which protrude beyond the plane of the hull, must be removed.



- 11.3.2 Aftermarket hulls may be used, on watercraft homologated in numbers of 500 or higher. Hulls must be approved and homologated by IJSBA. The upper deck will not be restricted to OEM to the extent that the upper deck is an exact replica of the Original equipment deck with no change in dimensions or scale. Slight changes to angles and radiuses may be approved in the top deck homologation. Alterations of dimensions may be allowed where a legal aftermarket part has been integrated into the deck (i.e., rail caps and foot holds). Bulk heads may be aftermarket Deck repairs may be made, provided they do not alter the standard configuration by more than 2.00mm (0.08 in.). The deck's bond flange may not be modified. Deck may be internally reinforced. Fasteners may be installed through the hull and deck for the purpose of securing components to interior surfaces, provided a hazard is not created. If upper and lower components of the original equipment bond flange are separated and rejoined, they must be rejoined by the same method as original equipment (i.e., bonded together with a high-strength adhesive). (See bond flange diagram in Appendix).

The upper deck is required to appear to be an original OEM deck from a homologated watercraft. Disputes as the compliance in appearance will be subjected to a silhouette test to compare the aftermarket upper deck to the OEM upper deck. This test refers to the upper deck, itself, and does not apply to parts that are aftermarket (i.e. hoods) or parts subject to relocation (i.e. fuel filler), or removal.

Footwells may be lowered so long as a hazard is not created. The appearance alongside the watercraft must maintain the OEM look.

- 11.3.3 All watercraft may be equipped with a maximum of two sponsons. Original equipment sponsons may be modified, aftermarket, repositioned or removed. Overall length of each sponson shall not exceed 91.45cm (36.00 in.). Sponsons shall not protrude from the side of the hull by more than 100.00mm (3.94 in.) when measured in a level horizontal plane. The vertical channel created by the underside of the sponson shall not exceed 63.50mm (2.50 in.). No part of the sponson shall extend downward below the point at which the side of the hull intersects the bottom surface of the hull by more than 38.00mm (1.50 in.). Aftermarket or modified sponsons must exceed 6mm (0.24 in.) in thickness. All leading edges must be radiused so as not to create a hazard. Sponsons may not be attached to the planing surfaces of the hull. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagrams in Appendix.)
- 11.3.4 Intake grate may be modified or aftermarket. Intake grate is required and must be the full-length type with at least one bar running parallel to the drive shaft. Grates may not extend more than 12.00mm (0.47 in.) below the flat plane of the pump intake area. All leading edges must be radiused so as not to create a hazard.

- 11.3.5 Pump cover plate may be modified or aftermarket. An extension may be added to the rear of the pump cover plate but shall not exceed the width of the original equipment plate. Modified and aftermarket plates must not extend more than 177.80mm (7.00 in.) beyond the end of the original equipment plate. The sides of the extension must be connected to the radiused portion of the pump plate so as not to create a hazard. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagram in Appendix.)
- 11.3.6 Aftermarket trim tabs, either fixed, automatic and/or rider controlled, may be used. Original equipment trim plates that are detachable from the hull may be removed or replaced when installing aftermarket trim tabs. Trim tabs cannot exceed the width of the planing surface or extend rearward more than 100mm (3.94 in.) beyond the end of the original planing surface. All hull extensions mounted on the hull's transom will be considered as a trim tab. All edges must be radiused so as not to create a hazard. Fins, skegs, rudders and other appendages that may create a hazard are not allowed.
- 11.3.7 Replacement bumpers may be used provided a hazard is not created.
- 11.3.8 A soft, flexible water-spray deflector may be attached to the hull sides or to the bond flange provided a hazard is not created. No part of the deflector may extend beyond the perimeter of the original equipment bumper or side mouldings as measured by a plumb line.
- 11.3.9 Handlebar, throttle, throttle cable, and grips may be modified or aftermarket. Handlebar cover may be modified or removed. Aftermarket switches and switch housings may be used. Steering shaft, steering shaft holder and handlebar holder may be aftermarket. The handlebar must be padded at the mounting bracket or, if it has a crossbar, the crossbar must be padded. Aftermarket steering cables are allowed.
- 11.3.10 Seat assembly may be modified or aftermarket. Seat height may be changed.
- 11.3.11 Padding and/or mat kits may be added and custom painting is allowed. The surface finish of any metal component outside the hull area above the bond flange may be polished, shot peened or painted.
- 11.3.12 Original bilge pump may be modified or disconnected. Aftermarket bilge draining systems that do not create a hazard are allowed.
- 11.3.13 Engine compartment foam may be removed, modified or aftermarket. Adequate foam, or flotation media, must be maintained in the watercraft. The race director, or technical director shall have the ultimate determination whether flotation media is adequate.
- 11.3.14 Storage covers, hatches, instrument cowlings and engine covers may be modified or aftermarket provided a hazard is not created and the OEM appearance is maintained. Additional engine compartment ventilation is allowed. Original equipment vents may be shielded or plugged. Handles, drop-in type storage buckets and bolt-on type mirrors may be modified, aftermarket or removed provided a hazard is not created.

- 11.3.15 Ballast weight may be added within the normally exposed areas of the hull to alter the handling of the watercraft provided a hazard is not created. Only weight consisting of constant mass (i.e., water or other fluid is not allowed) that does not require the modification or relocation of any parts will be allowed unless such modification or relocation is specified by other rules.
- 11.3.16 Hood assemblies may be modified, or aftermarket, provided a hazard is not created.

#### **11.4 ENGINE - FOUR-STROKE**

- 11.4.1 Original engine block from an IJSBA watercraft of the same brand as the original donor watercraft must be used. Internal modifications to the oil and/or water-exposed surfaces will be allowed. The head gasket surface of the cylinder block may be machined.
- 11.4.2 The original cylinder head casting matching the engine block in 11.4.1 must be used. Intake and exhaust runners may be modified. Material may be added to the runners. Intake and exhaust ports may be modified. Port diameters and shapes may be changed. Combustion chambers may be modified. Material may be added to the combustion chamber. The original number of intake and exhaust valves must be the same as original. Repairs to the cylinder head affecting one cylinder bank are allowed. The head gasket surface may be machined.
- 11.4.3 Aftermarket valvetrain components are allowed, providing the original method of activation is maintained (e.g., if originally activated by a camshaft, they may not be converted to solenoid activation). Valves may be shimmed with OEM or aftermarket shims. Valve springs may be modified or aftermarket. Camshaft(s) may be aftermarket. The number of camshafts must be the same as original. Original bearing type and dimensions must be used. Cam timing may be changed. Cam gears, tensioners, chain or belt may be modified or aftermarket.
- 11.4.4 Engines may be bored. Aftermarket piston assemblies are allowed. Engine displacement must not exceed class designation (e.g., 1100cc in Runabout 1100 Superstock, 1600cc in Runabout Superstock Turbo, etc.).
- 11.4.5 Crankshaft may be modified or aftermarket. Total weight of the crankshaft must be within  $\pm 5.00\%$  of original equipment. Replacement bearings or bearing shells are allowed, providing they maintain their original type and dimensions. PWC homologated above 1600cc must maintain original stroke.
- 11.4.6 Engine balancing assemblies may be modified, aftermarket, or removed.
- 11.4.7 Aftermarket connecting rods made of ferrous materials are allowed. Rod length may be changed.
- 11.4.8 Exhaust system (i.e., manifold, connecting pipes, hoses, muffler(s), etc.) may be modified or aftermarket. Through-hull exhaust may be modified or aftermarket, providing a hazard is not created. No tuned portion of the exhaust system may protrude outside of the hull. Exit location of the exhaust gases may be relocated to the transom below the bond flange.

- 11.4.9 Cooling system may be modified or aftermarket. Additional cooling lines may be added. Aftermarket water bypass systems may be used. Cooling system bypass fittings may be modified or aftermarket and/or relocated but must be directed downward and/or rearward so as not to create a hazard for other riders. Any valves used within the entire cooling system must be of the fixed type or automatic (e.g., thermostats, pressure regulators, solenoids, etc.). Manually controlled devices (by means of actuation) that alter the flow of cooling water during operation are not allowed. Original cooling system thermostat may be removed, modified or aftermarket. Cooling system flush kits are allowed.
- 11.4.10 Baffles in oil reservoir may be modified. The addition of baffles in oil reservoir is allowed. Oil pump may be modified or aftermarket.
- 11.4.11 Valve cover may be replaced for cosmetic purposes and/or weight reduction only.
- 11.4.12 Replacement starter motor and bendix may be used.
- 11.4.13 Replacement engine mounts may be used.
- 11.4.14 External modifications to the engine finish (e.g., plating, polishing and/or painting) are allowed for cosmetic purposes only.
- 11.4.15 Replacement of general maintenance parts (e.g., gaskets, seals, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, fuel filters, oil filters, clamps and fasteners) shall not be restricted to original equipment. Stripped threads may be repaired. Fasteners may integrate locking mechanisms.

## **11.5 ENGINE – TWO STROKE**

- 11.5.1 Engines may be bored. Aftermarket piston assemblies are allowed. Engine displacement must not exceed class designation (e.g., 800cc in 800 Superstock, 1600 Open, etc.). The number, type, and placement of rings on piston may be changed.
- 11.5.2 Original equipment crankcase must be used. Internal modifications to the fuel, oil and/or waterexposed surfaces are allowed. Filler material may be added to hollow pockets in the base gasket areas. Base gasket and intake surfaces may be machined. Additional carburetor pulse line fittings may be installed. Bearing and seal surfaces may not be modified. Crankcase drain system may be removed and plugged. Repairs to cracked or punctured crankcases may be made provided only one damaged area affecting one cylinder bank has been repaired. No other external modifications or external repairs are allowed.
- 11.5.3 Ignition/stator mounting area modifications are limited to spot facing, drilling and tapping threads for the purpose of mounting an aftermarket or modified ignition system. Additional carburetor pulse line fittings may be installed.
- 11.5.4 Additional mounting holes, not to exceed 10.00mm (0.40 in.) diameter, are allowed provided they do not penetrate the internal surface of the cases. Base gasket and intake surfaces may be machined.
- 11.5.5 External modifications to the crankcase finish (e.g., plating, polishing and/or painting) are allowed for cosmetic purposes only. No other external modifications or external repairs will be allowed.

- 11.5.6 Crankshaft assembly may be modified or aftermarket. Stroke and rod length may be changed.
- 11.5.7 Engine balancing assemblies may be modified, aftermarket, or removed.
- 11.5.8 Cylinders may be interchanged between homologated watercraft of the same manufacturer subject to restrictions announced by the IJSBA. Any modifications to the cylinder or crankcase must be approved, in writing, by the IJSBA. Base gasket, head gasket and exhaust manifold gasket surfaces may be machined. Port heights, widths and shapes may be changed. Ports may be added or deleted from cylinder. Cylinders may be machined to accept aftermarket cylinder liners. Epoxy-type filler material may be added to hollow pockets in the base gasket areas and in the port area. Repairs to cracked or damaged cylinders may be made provided only one damaged area affecting one cylinder bank has been repaired. Cylinders may be machined to accept girdle-system cylinder heads. Water-cooling fittings may be added to cylinder. Exhaust power valve components and means of actuation may be modified or aftermarket.
- 11.5.9 External modifications to the engine finish (e.g., plating, polishing and/or painting) are allowed for cosmetic purposes only.
- 11.5.10 Cylinder head may be modified or aftermarket.
- 11.5.11 Engine gaskets may be modified or aftermarket.
- 11.5.12 Exhaust system (i.e., manifold, head pipe, expansion chamber, waterbox, muffler(s), etc.) may be modified or aftermarket. Through-hull exhaust may be modified or aftermarket, providing a hazard is not created. Exit location of the exhaust gases may be relocated to the transom below the bond flange. No tuned portion of the exhaust system shall protrude outside the hull.
- 11.5.13 Cooling system may be modified or aftermarket. Aftermarket cooling lines and water bypass systems may be used. Bypass fittings may be modified, aftermarket and/or relocated but must be directed downward and/or rearward so as not to create a hazard for other riders. Any valves used within the entire cooling system must be of the fixed type or automatic (e.g., thermostats, pressure regulators, solenoids, etc.). Manually controlled devices (by any means of actuation) that alter the flow of cooling water during operation are not allowed. Cooling system flush kits are allowed.
- 11.5.14 Replacement starter motor and bendix may be used.
- 11.5.15 Replacement engine mounts may be used.
- 11.5.16 Oil-injection system may be disconnected or removed.
- 11.5.17 Replacement of general maintenance parts (e.g., spark plugs, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, clamps and fasteners) shall not be restricted to original equipment. Stripped threads can be repaired.

## **11.6 AIR / FUEL DELIVERY – FOUR-STROKE**

- 11.6.1 The original fuel injectors may be modified to increase fuel-flow rate. Aftermarket fuel injectors that increase fuel flow are allowed provided they must not increase airflow into the combustion chamber. Fuel rail and fuel regulator may be modified or aftermarket. Additional fuel injectors may be added. Aftermarket fuel pumps are allowed provided that when the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off fuel pumps are allowed. High pressure fuel hose meeting SAE J30R9 must be used; only metal-type fuel filters may be used on the high-pressure portion of the system; all other in-line filters must be installed on the low-pressure portion of the system.
- 11.6.2 Flame arresters that meet USCG, UL-1111 or SAE J-1928 Marine standards must be used. Airflow sensor may be modified, aftermarket or removed. Ducting between the flame arrestor and throttle body may be modified or aftermarket.
- 11.6.3 Throttle body may be modified or aftermarket. The number of butterflies may be increased but may not exceed the number of cylinders. Intake manifold assembly may be modified or aftermarket.
- 11.6.4 Carburetor(s) may be modified or aftermarket provided they do not vent or spill fuel at any attitude with or without the engine running. Carburetors may be used in addition to or in place of the fuel-injection system. The number of venturis cannot exceed the number of cylinders. No slide-type carburetors. Aftermarket primer may be used. Intake manifold assembly may be modified or aftermarket. Aftermarket air-pulse-pressure operated fuel pumps may be used.
- 11.6.5 The entire fuel system is a closed system. The watercraft must not vent or spill fuel at any attitude with or without the engine running. The fuel tank shall not be restricted to the original equipment, as supplied by the manufacturer, so long as the replacement is an unmodified tank from another homologated PWC and the tank fits securely in the watercraft without causing a hazard. Original equipment fuel filler and relief valve must be used and cannot be modified. The fuel pickup, fuel filter and fuel petcock may be removed and/or aftermarket parts may be used. Additional fuel filters may be used and fuel cell foam may be added to the original equipment fuel tank. Fuel tank filler cap may be modified or aftermarket provided a hazard is not created

## **11.7 AIR / FUEL DELIVERY – TWO-STROKE**

- 11.7.1 Carburetor(s) may be modified or aftermarket provided they do not vent or spill fuel at any attitude with or without the engine running. The number of venturis cannot exceed the number of cylinders. No slide-type carburetors. Aftermarket primer may be used. Intake manifold assembly may be modified or aftermarket. Aftermarket crankcase pressure operated fuel pumps may be used.

- 11.7.2 Modified or aftermarket vapor/air separators must not exceed 2 in. x 6 in., and must have a return line to the fuel tank open at all times. Additional fuel reservoirs may not be used. Aftermarket or modified electric fuel pumps, not exceeding 4 psi, may be used. When the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off type fuel pumps are allowed.
- 11.7.3 Aftermarket fuel-injection systems and components are allowed provided the following regulations are adhered to: High pressure fuel hose meeting SAE J30R9 must be used; A.N. threaded type fittings or equivalent and non-removable, crimped- type clamps must be used on the high-pressure portion of the system (i.e., hose clamps, tie wraps, etc. are not allowed); only metal-type fuel filters may be used on the high-pressure portion of the system; all other in-line filters must be installed on the low pressure portion of the system. When the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off-type fuel pumps are allowed.
- 11.7.4 The entire fuel system is a closed system. The watercraft must not vent or spill fuel at any attitude with or without the engine running. The fuel tank shall not be restricted to the original equipment, as supplied by the manufacturer, so long as the replacement is an unmodified tank from another homologated PWC and the tank fits securely in the watercraft without causing a hazard. Original equipment fuel filler and relief valve must be used and cannot be modified. The fuel pickup, fuel filter and fuel petcock may be removed and/or aftermarket parts may be used. Additional fuel filters may be used and fuel cell foam may be added to the original equipment fuel tank. Fuel tank filler cap may be modified or aftermarket provided a hazard is not created. Aftermarket fuel tanks not coming from another homologated PWC may be allowed by the race director so long as it is demonstrated that the aftermarket fuel tanks meet or exceed the strengths and safety standards of an OEM fuel tank.
- 11.7.5 Flame arrester(s) which satisfy United States Coast Guard, SAE-J1928 Marine or UL-1111 Marine backfire flame arrester test standards must be installed. Aftermarket flame arresters satisfying one of these test standards are allowed. Intake silencer may be removed.
- 11.7.6 Reed valve assemblies may be modified or aftermarket. Rotary valve may be modified or aftermarket.

## **11.8 IGNITION AND ELECTRONICS**

- 11.8.1 Ignition system, electrical box, flywheel and flywheel cover may be modified or aftermarket. Battery charging circuit may be disabled and/or removed.
- 11.8.2 An additional battery and battery box may be used. Batteries must fit into a proper battery box and be securely fastened. Batteries may be relocated.
- 11.8.3 Engine temperature sensor assembly may be disconnected and/or removed..

## **11.9 TURBOCHARGER/SUPERCHARGER**

- 11.9.1 Turbocharger housing must be of the full circulating, water-jacket type at all times when the engine is running. Aftermarket turbochargers and superchargers may be used provided a hazard is not created. Original turbocharger or supercharger may be modified. Aftermarket turbochargers and superchargers may be added to originally normally aspirated, four stroke, watercraft. All hoses and pipes may be modified or aftermarket. Where the Race Director, or Technical Inspector, cannot determine if a turbocharger is sufficiently water-jacketed then a heat wrap and/or additional cooling mechanisms may be added to ensure safety.
- 11.9.2 Intercooler may be modified or aftermarket.
- 11.9.3 Boost pressure-relief valve may be modified or aftermarket
- 11.9.4 Boost sensor may be modified or aftermarket.

## **11.10 DRIVELINE**

- 11.10.1 Impeller, impeller housing, stator vane assembly, pump mounting plate and/or pump shoe may be modified or aftermarket. Pump nozzle and directional nozzle may be modified or aftermarket. Overall length of the complete pump and nozzle assembly may be no more than 50.00mm (1.97 in.) longer than original equipment. Aftermarket nozzle trim systems may be used. Additional cooling fittings may be installed. Visibility spout must be removed or plugged. Silicone adhesive sealant may be used in addition to original equipment seal to seal pump inlet.
- 11.10.2 Couplers, bearing housing and driveshaft may be modified or aftermarket provided they maintain a 1:1 drive ratio between the engine and the pump.



## 12 RUNABOUT 1100 STOCK CLASS

### 12.1 RUNABOUT 1100 STOCK CLASS COMPETITION

Intended to promote interest in stock personal watercraft competition and to enable individuals to become active competitors with low investment and maintenance costs. The goal of Stock Class racing is to have nearly identical characteristics to the watercraft that come off of the showroom floor with a focus on provisions for safety and handling in a competition environment. Watercraft competing in these classes must conform to the specifications which follow which will be strictly interpreted. Note: classes may be offered that have greater restrictions than these Stock Class Provisions. Such class offerings must be named to differentiate the applicable rules (i.e. Showroom Stock, etc.)

Runabout 1100 is a Stock Class designed for runabouts that are intended for the entry level recreation market. The category is for naturally aspirated watercraft powered by a four stroke engine homologated at no greater than 1100cc. Runabouts, competing in Runabout 1100 Stock, must weigh within a difference of no more than 10 lbs (4.54 kg) lighter than the OEM weight as determined by IJSBA.

- 12.1.1 All watercraft must remain strictly stock, except where rules allow or require substitutions or modifications. Changes or modifications not listed here are not permitted. The IJSBA may allow additional modifications to Stock Classified PWC which provide for replacement/reinforcements to parts and components (i.e. intercooler end caps, brackets, fittings, etc.) that have known failure risks in race conditions. Such changes will only be allowed if the replacements/modifications result in no volume or performance gains. Such allowances are only legal if published by the IJSBA. Some original equipment components may not comply with IJSBA rules. Hull Identification Numbers must be displayed as furnished by the manufacturer.

**NOTE:** When rules permit or require equipment to be installed, replaced, altered or fabricated, it is the sole responsibility of the rider to select components, materials and/or fabricate the same so that the watercraft operates safely in competition.

- 12.1.2 Original equipment parts may be updated to newer original equipment parts of the same model. The part must be a bolt-on requiring no modifications to that part or any other parts except where rules allow substitutions or modifications. Unless reoffered to as the same identical part in the OEM parts/repair manual, parts may not be backdated. (Refer to Model Homologation listing online)
- 12.1.3 Sound level shall not exceed 86 dB(a) at 22.86m (75 ft.). Section 34.5.
- 12.1.4 Engine fuel must consist of gasoline meeting the criteria defined in Section 34.4.

### 12.2 HULL

- 12.2.1 All watercraft must have a flexible tow loop attached to the bow. The tow loop should be made of a flexible material (e.g., nylon strap, rope, etc.) so as not to create a hazard. Tow hooks which protrude beyond the plane of the hull must be removed.

- 12.2.2 Hull and deck repairs may be made. However, these repairs must not alter the original configuration by more than 2.00mm (0.08 in.). The interior portion of a hull may not be reinforced. The texture of the exterior surface of the hull need not be consistent with OEM characteristics so long as the shape(s) remain exactly the same as OEM. Drop-in type storage buckets may be modified, aftermarket or removed provided a hazard is not created.
  
- 12.2.3 All watercraft may be equipped with a maximum of two sponsons. Original equipment sponsons may be modified, aftermarket, repositioned or removed. Overall length of each sponson shall not exceed 91.45cm (36.00 in.). Sponsons shall not protrude from the side of the hull by more than 100.00mm (3.94 in.) when measured in a level horizontal plane. The vertical channel created by the underside of the sponson shall not exceed 63.50mm (2.50 in.). No part of the sponson shall extend downward below the point at which the side of the hull intersects the bottom surface of the hull by more than 38.00mm (1.50 in.). Aftermarket or modified sponsons must exceed 6mm (0.24 in.) in thickness. All leading edges must be radiused so as not to create a hazard. Sponsons may not be attached to the planing surfaces of the hull. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagrams in Appendix.) The decision of the Technical Director and/or Race Director regarding modifications will be final. Any question regarding the legality of modifications should be directed to the IJSBA or IJSBA affiliate prior to use in competition.
  
- 12.2.4 Intake grate may be modified or aftermarket. Intake grate is required and must be the full-length type with at least one bar running parallel to the drive shaft. Grates may not extend more than 12.00mm (0.47 in.) below the flat plane of the pump intake area. All leading edges must be radiused so as not to create a hazard.
  
- 12.2.5 Pump cover plate may be modified or aftermarket. An extension may be added to the rear of the pump cover plate but shall not exceed the width of the original equipment plate. Modified and aftermarket plates must not extend more than 177.80mm (7.00 in.) beyond the end of the original equipment plate. The sides of the extension must be connected to the radiused portion of the pump plate so as not to create a hazard. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagram in Appendix.)
  
- 12.2.6 Replacement trim plates may be used. Only replica parts that offer handling characteristics the same as stock are allowed. Material shall not be restricted to original equipment provided a hazard is not created (i.e., aluminum in place of plastic). See Glossary of Terms for definition of Replacement and Replica.
  
- 12.2.7 Replacement bumpers may be used provided a hazard is not created.
  
- 12.2.8 A soft, flexible water-spray deflector may be attached to the hull sides or to the bond flange provided a hazard is not created. No part of the deflector may extend beyond the perimeter of the original equipment bumper or side mouldings as measured by a plumb line.

- 12.2.9 Handlebar, throttle, throttle cable, and grips may be modified or aftermarket. Handlebar cover may be modified or removed. Aftermarket switches and switch housings may be used. Steering shaft, steering shaft holder and handlebar holder may be aftermarket. The handlebar must be padded at the mounting bracket or, if it has a crossbar, the crossbar must be padded. Quick-turn steering modifications to alter steering ratio are allowed. Aftermarket steering cables will be allowed.
- 12.2.10 Original equipment seat base must be used. Seat cover may be changed. The OEM seat height cannot be changed by more than +/- 12.7mm (0.5 in). Seat must remain OEM, seat cover can add no more than .5 inch in thickness in any direction.
- 12.2.11 Padding and/or mat kits may be added and custom painting is allowed. The surface finish of any metal component outside the hull area above the bond flange may be polished, shot peened or painted.
- 12.2.12 Original bilge pump may be modified or disconnected. Aftermarket bilge draining systems that do not create a hazard are allowed.
- 12.2.13 Engine compartment ventilation tubes must remain as originally equipped.
- 12.2.14 Original equipment braking devices may be disabled for safety purposes. Reverse buckets may be removed or disabled (modified to disable reverse function is acceptable so long as a hazard is not created) but trim motors must remain in place.

### **12.3 ENGINE**

- 12.3.1 Engines may be bored. Replacement piston assemblies may be used provided the original compression ratio, dome profile, skirt length and shape and type of material are not changed. Chamfering of cylinder ports must not exceed 1.00mm (0.04 in.) at a 30 degree maximum angle. (See diagram in Appendix.). Cylinder head combustion chambers may be cleaned by bead blasting with valves seated in place. Intake and exhaust ports may not be bead blasted or cleaned with abrasive material such as steel wool or Scotch-Brite®. Repairs to the cylinder head affecting one cylinder bank are allowed.
- 12.3.2 Repairs may be made to cracked or damaged cylinders by installing a cylinder sleeve. The head gasket surface of the cylinder block may be machined only to allow for the installation of the new sleeves (see appendix for description). A thicker head gasket must be utilized to return the block deck height to within .155mm (.006in) of original height. The repair must offer no additional performance gains.
- 12.3.3 Crankshaft must remain stock. Replacement bearings or bearing shells are allowed, providing they maintain their original type and dimensions.
- 12.3.4 Camshaft(s) must remain stock. Replacement bearings or bearing shells are allowed, providing they maintain their original type and dimensions. Camshaft timing may be changed.

- 12.3.5 Engine and Oil Cooler water cooling systems must remain as OEM. Water strainers (filters) may be modified or aftermarket. Intercooler assembly/housing must remain OEM. Existing fittings may be aftermarket or modified so long as the OEM thread diameter is maintained. Fittings may not be added to the cylinder head, cylinder, or crankcase. Electronically controlled valves or water injections systems are not allowed unless originally equipped. Manually controlled devices (by any means of actuation) that alter the flow of cooling water during operation are not allowed. Cooling system flush kits are allowed.
- 12.3.6 Replacement of general maintenance parts (e.g., gaskets, seals, spark plugs, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, clamps and fasteners) shall not be restricted to original equipment providing the following:
- 1) Replacement gaskets may be used but must be of the same type (e.g., sheet, o-ring, etc.) as their OEM counterparts. With the exception of head gaskets and base gaskets, all replacement gaskets must maintain a thickness of plus or minus 20% of the OEM gasket thickness as furnished by the manufacturer. Base gasket cannot be thicker than 0.8mm (0.032in). Head gaskets must be no thinner than .05mm (0.002in) than the OEM thickness as supplied by the manufacturer. Head gaskets must be no thicker than 1.55mm (0.06in) than the OEM thickness as supplied by the manufacturer.
  - 2) Stripped threads must be repaired to the original size.
  - 3) Fasteners (e.g., bolts, nuts and washers) may not be substituted with titanium pieces unless originally equipped. Fasteners may integrate locking mechanisms.
  - 4) Replacement hoses and fuel lines may not provide any other function than original equipment hoses. Changes in temperature tolerances are allowed.

## **12.4 AIR / FUEL DELIVERY**

- 12.4.1 Electronic fuel-injection systems: Flame arresters that meet USCG, UL-1111 or SAE J-1928 Marine backfire flame arrester test standards must be installed. If not equipped with an airflow sensor, the ducting between the flame arrestor and throttle body may be modified or aftermarket. If originally equipped with an airflow sensor, the ducting may be modified or aftermarket between the flame arrestor and airflow sensor. Modifications to the airflow downstream of the airflow sensor are not allowed. All portions of the intake manifold must remain as originally equipped. Units where a ribbon system is employed as the OEM flame arresting device may have the ribbon removed so long as airflow is not increased and sufficient flame suppression is achieved by the air filter. An aftermarket part may be used to retain OEM airflow specifications
- 12.4.2 Carbureted induction systems: Flame arrestors that meet USCG, UL-1111 or SAE J-1928 Marine backfire flame arrester test standards must be installed. Carburetor jets (replaceable type), needle valves and needle valve springs may be changed. Choke may be removed provided additional air intake for the engine is not created. Aftermarket primer system may be installed. No other carburetor modifications will be allowed.
- 12.4.3 Fuel injectors and fuel pump must remain stock as furnished by the manufacturer.

## **12.5 IGNITION AND ELECTRONICS**

- 12.5.1 Replacement batteries are allowed but must fit into the original equipment battery box and be securely fastened.
- 12.5.2 The original electronic control unit may be reprogrammed so long as it does not offer any additional inputs or outputs than the original unit, and it must connect with the original connections. No additional sensors may be added (e.g., exhaust gas temperature, detonation sensors, etc.). Engine temperature sensors may be disabled.
- 12.5.3 Aftermarket spark plugs with a different heat rating may be used.

## **12.6 DRIVELINE**

- 12.6.1 Impeller may be modified or aftermarket, providing that the original diameter is maintained. Replacement wear rings that are within OEM internal diameter specifications may be used. Silicone adhesive sealant may be used in addition to original equipment seal to seal pump inlet. Visibility spout must be removed or plugged.
- 12.6.2 No internal modifications of any kind, including grinding, surfacing, polishing, machining, shot peening, etc., will be allowed on any driveline components (e.g., pump stator, reduction nozzle, etc.).

## 13 RUNABOUT MODIFIED CLASS

### 13.1 RUNABOUT MODIFIED CLASS COMPETITION

Intended to promote interest in personal watercraft competition with a high degree of modification. Watercraft competing in this class must conform to the specifications which follow. Note: Where Open Classes allow Turbocharged or Supercharged Runabout PWC: All competitors must possess an Expert or Pro license prior to participating.

- 13.1.1 All watercraft must remain strictly stock, except where rules allow or require substitutions or modifications. Creating an Open Class watercraft begins with a stock OEM watercraft even where the hull, top deck, and engine may come from other sources; these are changes made to an original OEM starter unit. Changes or modifications not listed here are not permitted. Some original equipment components may not comply with IJSBA rules. Hull Identification Numbers must be displayed as furnished by the manufacturer.

**NOTE:** When rules permit or require equipment to be installed, replaced, altered or fabricated, it is the sole responsibility of the rider to select components, materials and/or fabricate the same so that the watercraft operates safely in competition.

- 13.1.2 Original equipment parts may be updated or backdated with original equipment parts of the same model. The part must be a bolt-on requiring no modifications to that part or any other parts except where rules allow substitutions or modifications.
- 13.1.3 Sound level shall not exceed 100 dB(a) at 22.86m (75 ft.). Section 34.5. A sound level of 86 dB may be enforced so long as the promoter notifies participants at least 14 days prior to the event.
- 13.1.4 Engine fuel must consist of gasoline meeting the criteria defined in Section 34.4.

### 13.2 WEIGHT

- 13.2.1 At all times, Four Stroke Runabouts, equipped with a supercharger or turbocharger, must weigh a minimum of 550 LBS.

### 13.3 HULL

- 13.3.1 All watercraft must have a flexible tow loop attached to the bow. The tow loop should be made of a flexible material (e.g., nylon strap, rope, etc.) so as not to create a hazard. Tow hooks which protrude beyond the plane of the hull must be removed.

- 13.3.2 Aftermarket hulls may be used, on watercraft homologated in numbers of 500 or higher. Hulls must be approved and homologated by IJSBA. The upper deck will not be restricted to OEM to the extent that the upper deck is an exact replica of the Original equipment deck with no change in dimensions or scale. Slight changes to angles and radiuses may be approved in the top deck homologation. Alterations of dimensions may be allowed where a legal aftermarket part has been integrated into the deck. Bulk heads may be aftermarket Deck repairs may be made, provided they do not alter the standard configuration by more than 2.00mm (0.08 in.). The deck's bond flange may not be modified. Deck may be internally reinforced. Fasteners may be installed through the hull and deck for the purpose of securing components to interior surfaces, provided a hazard is not created. If upper and lower components of the original equipment bond flange are separated and re-joined, they must be re-joined by the same method as original equipment (i.e., bonded together with a high-strength adhesive). (See bond flange diagram in Appendix).

The upper deck is required to appear to be an original OEM deck from a homologated watercraft. Disputes as the compliance in appearance will be subjected to a silhouette test to compare the aftermarket upper deck to the OEM upper deck. This test refers to the upper deck, itself, and does not apply to parts that are aftermarket (i.e. hoods) or parts subject to relocation (i.e. fuel filler), or removal.

Footwells may be lowered so long as a hazard is not created. The appearance alongside the watercraft must maintain the OEM look..

- 13.3.3 All watercraft may be equipped with a maximum of two sponsons. Original equipment sponsons may be modified, aftermarket, repositioned or removed. Overall length of each sponson shall not exceed 91.45cm (36.00 in.). Sponsons shall not protrude from the side of the hull by more than 100.00mm (3.94 in.) when measured in a level horizontal plane. The vertical channel created by the underside of the sponson shall not exceed 63.50mm (2.50 in.). No part of the sponson shall extend downward below the point at which the side of the hull intersects the bottom surface of the hull by more than 38.00mm (1.50 in.). Aftermarket or modified sponsons must exceed 6mm (0.24 in.) in thickness. All leading edges must be radiused so as not to create a hazard. Sponsons may not be attached to the planing surfaces of the hull. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagrams in Appendix.)
- 13.3.4 Intake grate may be modified or aftermarket. Intake grate is required and must be the full-length type with at least one bar running parallel to the drive shaft. Grates may not extend more than 12.00mm (0.47 in.) below the flat plane of the pump intake area. All leading edges must be radiused so as not to create a hazard.
- 13.3.5 Pump cover plate may be modified or aftermarket. An extension may be added to the rear of the pump cover plate but shall not exceed the width of the original equipment plate. Modified and aftermarket plates must not extend more than 177.80mm (7.00 in.) beyond the end of the original equipment plate. The sides of the extension must be connected to the radiused portion of the pump plate so as not to create a hazard. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagram in Appendix.)

- 13.3.6 Aftermarket trim tabs, either fixed, automatic and/or rider controlled, may be used. Original equipment trim plates that are detachable from the hull may be removed or replaced when installing aftermarket trim tabs. Trim tabs cannot exceed the width of the planing surface or extend rearward more than 100mm (3.94 in.) beyond the end of the original planing surface. All hull extensions mounted on the hull's transom will be considered as a trim tab. All edges must be radiused so as not to create a hazard. Fins, skegs, rudders and other appendages that may create a hazard are not allowed.
- 13.3.7 Replacement bumpers may be used provided a hazard is not created.
- 13.3.8 A soft, flexible water-spray deflector may be attached to the hull sides or to the bond flange provided a hazard is not created. No part of the deflector may extend beyond the perimeter of the original equipment bumper or side mouldings as measured by a plumb line.
- 13.3.9 Handlebar, throttle, throttle cable, and grips may be modified or aftermarket. Handlebar cover may be modified or removed. Aftermarket switches and switch housings may be used. Steering shaft, steering shaft holder and handlebar holder may be aftermarket. The handlebar must be padded at the mounting bracket or, if it has a crossbar, the crossbar must be padded. Aftermarket steering cables will be allowed.
- 13.3.10 Seat assembly may be modified or aftermarket. Seat height may be changed. Seats must adhere to the provisions in the Appendix for Aftermarket Seats.
- 13.3.11 Padding and/or mat kits may be added and custom painting is allowed. The surface finish of any metal component outside the hull area above the bond flange may be polished, shot peened or painted.
- 13.3.12 Original bilge pump may be modified or disconnected. Aftermarket bilge draining systems that do not create a hazard are allowed.
- 13.3.13 Engine compartment foam may be removed, modified or aftermarket. Adequate foam, or flotation media, must be maintained in the watercraft. The race director, or technical director shall have the ultimate determination whether flotation media is adequate..
- 13.3.14 Storage covers, hatches, instrument cowlings and engine covers may be modified or aftermarket provided a hazard is not created and the OEM appearance is maintained. Additional engine compartment ventilation is allowed. Original equipment vents may be shielded or plugged. Handles, drop-in type storage buckets and bolt-on type mirrors may be modified, aftermarket or removed provided a hazard is not created.
- 13.3.15 Ballast weight may be added within the normally exposed areas of the hull to alter the handling of the watercraft provided a hazard is not created. Only weight consisting of constant mass (i.e., water or other fluid is not allowed) that does not require the modification or relocation of any parts will be allowed unless such modification or relocation is specified by other rules.
- 13.3.16 Hood assemblies may be modified, or aftermarket, provided a hazard is not created.



## 13.4 ENGINE - FOUR-STROKE

- 13.4.1 Original engine block for an IJSBA homologated watercraft must be used. Internal modifications to the oil and/or water-exposed surfaces will be allowed. The head gasket surface of the cylinder block may be machined.
- 13.4.2 The original cylinder head casting matching the engine block in 13.4.1 must be used. Intake and exhaust runners may be modified. Material may be added to the runners. Intake and exhaust ports may be modified. Port diameters and shapes may be changed. Combustion chambers may be modified. Material may be added to the combustion chamber. The original number of intake and exhaust valves must be the same as original. Repairs to the cylinder head affecting one cylinder bank are allowed. The head gasket surface may be machined.
- 13.4.3 Aftermarket valvetrain components are allowed, providing the original method of activation is maintained (e.g., if originally activated by a camshaft, they may not be converted to solenoid activation). Valves may be shimmed with OEM or aftermarket shims. Valve springs may be modified or aftermarket. Camshaft(s) may be aftermarket. The number of camshafts must be the same as original. Original bearing type and dimensions must be used. Cam timing may be changed. Cam gears, tensioners, chain or belt may be modified or aftermarket.
- 13.4.4 Engines may be bored. Aftermarket piston assemblies are allowed. Engine displacement must not exceed class designation (e.g., 1100cc in Runabout 1100 Superstock, 1600cc in Runabout Superstock Turbo, etc.).
- 13.4.5 Crankshaft may be modified or aftermarket. Total weight of the crankshaft must be within  $\pm 5.00\%$  of original equipment. Replacement bearings or bearing shells are allowed, providing they maintain their original type and dimensions. PWC homologated above 1600cc must maintain original stroke.
- 13.4.6 Engine balancing assemblies may be modified, aftermarket, or removed.
- 13.4.7 Aftermarket connecting rods made of ferrous materials are allowed. Rod length may be changed.
- 13.4.8 Exhaust system (i.e., manifold, connecting pipes, hoses, muffler(s), etc.) may be modified or aftermarket. Through-hull exhaust may be modified or aftermarket, providing a hazard is not created. No tuned portion of the exhaust system may protrude outside of the hull. Exit location of the exhaust gases may be relocated to the transom below the bond flange.
- 13.4.9 Cooling system may be modified or aftermarket. Additional cooling lines may be added. Aftermarket water bypass systems may be used. Cooling system bypass fittings may be modified or aftermarket and/or relocated but must be directed downward and/or rearward so as not to create a hazard for other riders. Any valves used within the entire cooling system must be of the fixed type or automatic (e.g., thermostats, pressure regulators, solenoids, etc.). Manually controlled devices (by means of actuation) that alter the flow of cooling water during operation are not allowed. Original cooling system thermostat may be removed, modified or aftermarket. Cooling system flush kits are allowed.
- 13.4.10 Baffles in oil reservoir may be modified. The addition of baffles in oil reservoir is allowed. Oil pump may be modified or aftermarket.

- 13.4.11 Valve cover may be replaced for cosmetic purposes and/or weight reduction only.
- 13.4.12 Replacement starter motor and bendix may be used.
- 13.4.13 Replacement engine mounts may be used.
- 13.4.14 External modifications to the engine finish (e.g., plating, polishing and/or painting) are allowed for cosmetic purposes only.
- 13.4.15 Replacement of general maintenance parts (e.g., gaskets, seals, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, fuel filters, oil filters, clamps and fasteners) shall not be restricted to original equipment. Stripped threads may be repaired. Fasteners may integrate locking mechanisms.

### **13.5 ENGINE – TWO-STROKE**

- 13.5.1 Engines may be bored. Aftermarket piston assemblies are allowed. Engine displacement must not exceed class designation (e.g., 800cc in 800 Superstock, 1600 Open, etc.). The number, type, and placement of rings on piston may be changed.
- 13.5.2 Original equipment crankcase must be used. Internal modifications to the fuel, oil and/or waterexposed surfaces are allowed. Filler material may be added to hollow pockets in the base gasket areas. Base gasket and intake surfaces may be machined. Additional carburetor pulse line fittings may be installed. Bearing and seal surfaces may not be modified. Crankcase drain system may be removed and plugged. Repairs to cracked or punctured crankcases may be made provided only one damaged area affecting one cylinder bank has been repaired. No other external modifications or external repairs are allowed.

Ignition/stator mounting area modifications are limited to spot facing, drilling and tapping threads for the purpose of mounting an aftermarket or modified ignition system. Additional carburetor pulse line fittings may be installed.

Additional mounting holes, not to exceed 10.00mm (0.40 in.) diameter, are allowed provided they do not penetrate the internal surface of the cases. Base gasket and intake surfaces may be machined.

External modifications to the crankcase finish (e.g., plating, polishing and/or painting) are allowed for cosmetic purposes only. No other external modifications or external repairs will be allowed
- 13.5.3 Crankshaft assembly may be modified or aftermarket. Stroke and rod length may be changed.
- 13.5.4 Engine balancing assemblies may be modified, aftermarket, or removed.

- 13.5.5     Cylinders may be interchanged between homologated watercraft of the same manufacturer subject to restrictions announced by the IJSBA. Any modifications to the cylinder or crankcase must be approved, in writing, by the IJSBA. Base gasket, head gasket and exhaust manifold gasket surfaces may be machined. Port heights, widths and shapes may be changed. Ports may be added or deleted from cylinder. Cylinders may be machined to accept aftermarket cylinder liners. Epoxy-type filler material may be added to hollow pockets in the base gasket areas and in the port area. Repairs to cracked or damaged cylinders may be made provided only one damaged area affecting one cylinder bank has been repaired. Cylinders may be machined to accept girdle-system cylinder heads. Water-cooling fittings may be added to cylinder. Exhaust power valve components and means of actuation may be modified or aftermarket.
  
- 13.5.6     External modifications to the engine finish (e.g., plating, polishing and/or painting) are allowed for cosmetic purposes only.
  
- 13.5.7     Cylinder head may be modified or aftermarket.
  
- 13.5.8     Engine gaskets may be modified or aftermarket.
  
- 13.5.9     Exhaust system (i.e., manifold, head pipe, expansion chamber, waterbox, muffler(s), etc.) may be modified or aftermarket. Through-hull exhaust may be modified or aftermarket, providing a hazard is not created. Exit location of the exhaust gases may be relocated to the transom below the bond flange. No tuned portion of the exhaust system shall protrude outside the hull.
  
- 13.5.10    Cooling system may be modified or aftermarket. Aftermarket cooling lines and water bypass systems may be used. Additional cooling supply lines and fittings may be added to the pump. Bypass fittings may be modified, aftermarket and/or relocated but must be directed downward and/or rearward so as not to create a hazard for other riders. Any valves used within the entire cooling system must be of the fixed type or automatic (e.g., thermostats, pressure regulators, solenoids, etc.). Manually controlled devices (by any means of actuation) that alter the flow of cooling water during operation are not allowed. Cooling system flush kits are allowed.
  
- 13.5.11    Replacement starter motor and bendix may be used.
  
- 13.5.12    Replacement engine mounts may be used.
  
- 13.5.13    Oil-injection system may be disconnected or removed.
  
- 13.5.14    Replacement of general maintenance parts (e.g., spark plugs, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, clamps and fasteners) shall not be restricted to original equipment. Stripped threads can be repaired.

## **13.6 AIR / FUEL DELIVERY – FOUR-STROKE**

- 13.6.1 The original fuel injectors may be modified to increase fuel-flow rate. Aftermarket fuel injectors that increase fuel flow are allowed provided they must not increase airflow into the combustion chamber. Fuel rail and fuel regulator may be modified or aftermarket. Additional fuel injectors may be added. Aftermarket fuel pumps are allowed provided that when the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off fuel pumps are allowed. High-pressure fuel hose meeting SAE J30R9 must be used; only metal-type fuel filters may be used on the high-pressure portion of the system; all other in-line filters must be installed on the low-pressure portion of the system.
- 13.6.2 Flame arresters that meet USCG, UL-1111 or SAE J-1928 Marine standards must be used. Airflow sensor may be modified, aftermarket or removed. Ducting between the flame arrestor and throttle body may be modified or aftermarket.
- 13.6.3 Throttle body may be modified or aftermarket. The number of butterflies may be increased but may not exceed the number of cylinders. Intake manifold assembly may be modified or aftermarket.
- 13.6.4 Carburetor(s) may be modified or aftermarket provided they do not vent or spill fuel at any attitude with or without the engine running. Carburetors may be used in addition to or in place of the fuel-injection system. The number of venturis cannot exceed the number of cylinders. No slide-type carburetors. Aftermarket primer may be used. Intake manifold assembly may be modified or aftermarket. Aftermarket air-pulse-pressure operated fuel pumps may be used.
- 13.6.5 The entire fuel system is a closed system. The watercraft must not vent or spill fuel at any attitude with or without the engine running. The fuel tank shall not be restricted to the original equipment, as supplied by the manufacturer, so long as the replacement is an unmodified tank from another homologated PWC and the tank fits securely in the watercraft without causing a hazard. Original equipment fuel filler and relief valve must be used and cannot be modified. The fuel pickup, fuel filter and fuel petcock may be removed and/or aftermarket parts may be used. Additional fuel filters may be used and fuel cell foam may be added to the original equipment fuel tank. Fuel tank filler cap may be modified or aftermarket provided a hazard is not created.

## **13.7 AIR/FUEL DELIVERY — TWO-STROKE**

- 13.7.1 Carburetor(s) may be modified or aftermarket provided they do not vent or spill fuel at any attitude with or without the engine running. The number of venturis cannot exceed the number of cylinders. No slide-type carburetors. Aftermarket primer may be used. Intake manifold assembly may be modified or aftermarket. Aftermarket crankcase-pressure-operated fuel pumps may be used.

- 13.7.2 Modified or aftermarket vapor/air separators must not exceed 2 in. x 6 in., and must have a return line to the fuel tank open at all times. Additional fuel reservoirs may not be used. Aftermarket or modified electric fuel pumps, not exceeding 4 psi, may be used. When the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/offtype fuel pumps are allowed.
- 13.7.3 Aftermarket fuel-injection systems and components are allowed provided the following regulations are adhered to: High pressure fuel hose meeting SAE J30R9 must be used; A.N. threadedtype fittings or equivalent and non-removable, crimped- type clamps must be used on the high-pressure portion of the system (i.e., hose clamps, tie wraps, etc. are not allowed); only metal-type fuel filters may be used on the high-pressure portion of the system; all other in-line filters must be installed on the lowpressure portion of the system. When the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off-type fuel pumps are allowed.
- 13.7.4 The entire fuel system is a closed system. The watercraft must not vent or spill fuel at any attitude with or without the engine running. The fuel tank shall not be restricted to the original equipment, as supplied by the manufacturer, so long as the replacement is an unmodified tank from another homologated PWC and the tank fits securely in the watercraft without causing a hazard. Original equipment fuel filler and relief valve must be used and cannot be modified. The fuel pickup, fuel filter and fuel petcock may be removed and/or aftermarket parts may be used. Additional fuel filters may be used and fuel cell foam may be added to the original equipment fuel tank. Fuel tank filler cap may be modified or aftermarket provided a hazard is not created. Aftermarket fuel tanks not coming from another homologated PWC may be allowed by the race director so long as it is demonstrated that the aftermarket fuel tanks meet or exceed the strengths and safety standards of an OEM fuel tank.
- 13.7.5 Flame arrester(s) which satisfy United States Coast Guard, SAE-J1928 Marine or UL-1111 Marine backfire flame arrester test standards must be installed. Aftermarket flame arresters satisfying one of these test standards will be allowed. Intake silencer may be removed.
- 13.7.6 Reed valve assemblies may be modified or aftermarket. Rotary valve may be modified or aftermarket.

## **13.8 IGNITION AND ELECTRONICS**

- 13.8.1 Ignition system, electrical box, flywheel and flywheel cover may be modified or aftermarket. Battery charging circuit may be disabled and/or removed.
- 13.8.2 An additional battery and battery box may be used. Batteries must fit into a proper battery box and be securely fastened. Batteries may be relocated.
- 13.8.3 Engine temperature sensor assembly may be disconnected and/or removed.

### **13.9 TURBOCHARGER / SUPERCHARGER**

- 13.9.1 Turbocharger housing must be of the full circulating, water-jacket type at all times when the engine is running. Aftermarket turbochargers and superchargers may be used provided a hazard is not created. Original turbocharger or supercharger may be modified. Aftermarket turbochargers and superchargers may be added to originally normally aspirated, four stroke, watercraft. All hoses and pipes may be modified or aftermarket. Where the Race Director, or Technical Inspector, cannot determine if a turbocharger is sufficiently water-jacketed then a heat wrap and/or additional cooling mechanisms may be added to ensure safety.
- 13.9.2 Intercooler may be modified or aftermarket.
- 13.9.3 Boost pressure-relief valve may be modified or aftermarket.
- 13.9.4 Boost sensor may be modified or aftermarket.

### **13.10 DRIVELINE**

- 13.10.1 Impeller housing, stator vane assembly, pump mounting plate and/or pump shoe may be modified or aftermarket. No titanium driveshaft, impeller housing or stator vane assemblies. Impeller may be modified or aftermarket. Pump nozzle and directional nozzle may be modified or aftermarket. Overall length of the complete pump and nozzle assembly may be no more than 50.00mm (1.97 in.) longer than original equipment. Aftermarket nozzle-trim systems may be used. Additional cooling fittings may be installed. Visibility spout must be removed or plugged. Silicone adhesive sealant may be used in addition to original equipment seal to seal pump inlet.
- 13.10.2 Couplers, bearing housing and driveshaft may be modified or aftermarket provided they maintain a 1:1 drive ratio between the engine and the pump.

## 14 SKI STOCK CLASS

### 14.1 SKI STOCK CLASS COMPETITION

Intended to promote interest in Ski type personal watercraft competition, at a baseline level, and to enable individuals to become active competitors with relatively modest investment and maintenance costs. Watercraft competing in these classes must conform to the specifications which follow. Note: classes may be offered that have greater restrictions than these Stock Class Provisions.

**THE SKI STOCK CLASS COMPETITION IS EXCLUSIVELY FOR 1500CC BASED KAWASAKI SX-R. JUNIOR COMPETITORS MUST UTILIZE AN IJSBA APPROVED RESTRICTOR PLATE TO COMPETE IN THIS CLASS**

- 14.1.1 All watercraft must remain strictly stock, except where rules allow or require substitutions or modifications. Changes or modifications not listed here are not permitted. The IJSBA may allow additional modifications to Stock Classified PWC which provide for replacement/reinforcements to parts and components (i.e. brackets, fittings, etc.) that have known failure risks in race conditions. Such changes will only be allowed if the changes allow for no volume or performance gains. Such allowances are only legal if published by the IJSBA. Some original equipment components may not comply with IJSBA rules. Hull Identification Numbers must be displayed as furnished by the manufacturer.

**NOTE:** When rules permit or require equipment to be installed, replaced, altered or fabricated, it is the sole responsibility of the rider to select components, materials and/or fabricate the same so that the watercraft operates safely in competition

- 14.1.2 Original equipment parts may be updated or backdated to newer original equipment parts of the same model. The part must be a bolt-on requiring no modifications to that part or any other parts except where rules allow substitutions or modifications.
- 14.1.3 Sound level shall not exceed 86 dB(a) at 22.86m (75 ft.). Section 34.5.
- 14.1.4 Engine fuel must consist of gasoline meeting the criteria defined in Section 34.4.

### 14.2 HULL

- 14.2.1 All watercraft must have a flexible tow loop attached to the bow. The tow loop should be made of a flexible material (e.g., nylon strap, rope, etc.) so as not to create a hazard. Tow hooks which protrude beyond the plane of the hull must be removed.
- 14.2.2 Hull and deck repairs may be made. However, these repairs must not alter the original configuration by more than 2.00mm (0.08 in.). Other than for the use of fasteners and the placement of allowable relocated parts (i.e., ECU), the bulkhead may not be modified.

- 14.2.3 All watercraft may be equipped with a maximum of four sponsons. Original equipment sponsons may be modified, aftermarket, repositioned or removed. Sponsons shall not protrude from the side of the hull by more than 100.00mm (3.94 in.) when measured in a level horizontal plane. The vertical channel created by the underside of the sponson shall not exceed 63.5mm (2.50in). No part of the sponson shall extend downward below the point at which the side of the hull intersects the bottom surface of the hull by more than 38.00mm (1.50 in.). Aftermarket or modified sponsons must exceed 6mm (0.24 in.) in thickness. All leading edges must be radiused so as not to create a hazard. Sponsons may not be attached to the planing surfaces of the hull. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagrams in Appendix.) Sponsons may be attached to the inside of the bond flange, but no part of the sponson may extend more than 38.00mm (1.500 in.) below the lower part of the bond flange (bumper removed). Sponsons attached to the inside of the bond flange shall not protrude outside the bond flange (bumper removed) when measured in a level horizontal plane. The total sponson length shall be limited to 2,286 mm (90 in) in a single or two sponson configuration. The decision of the Technical Director and/or Race Director regarding modifications will be final. Any question regarding the legality of modifications should be directed to the IJSBA or IJSBA affiliate prior to use in competition.
- 14.2.4 Intake grate may be modified or aftermarket. Intake grate is required and must be the full-length type with at least one bar running parallel to the drive shaft. Grates may not extend more than 12.00mm (0.47 in.) below the flat plane of the pump intake area. All leading edges must be radiused so as not to create a hazard.
- 14.2.5 Pump cover plate may be modified or aftermarket. An extension may be added to the rear of the pump cover plate but shall not exceed the width of the original equipment plate. Modified and aftermarket plates must not extend more than 177.80mm (7.00 in.) beyond the end of the original equipment plate. The sides of the extension must be connected to the radiused portion of the pump plate so as not to create a hazard. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagram in Appendix.)
- 14.2.6 Replacement trim plates may be used. Only replica parts that offer handling characteristics the same as stock are allowed. Material shall not be restricted to original equipment provided a hazard is not created (i.e., aluminum in place of plastic). See Glossary of Terms for definition of Replacement and Replica.
- 14.2.7 Replacement bumpers may be used provided a hazard is not created.
- 14.2.8 A soft, flexible water-spray deflector may be attached to the hull sides or to the bond flange provided a hazard is not created. No part of the deflector may extend beyond the perimeter of the original equipment bumper or side mouldings as measured by a plumb line.



- 14.2.9 Handlebar, throttle, throttle cable, and grips may be modified or aftermarket. Handlebar cover may be modified or removed. Aftermarket switches and switch housings may be used. Steering shaft, steering shaft holder and handlebar holder may be aftermarket. The handlebar must be padded at the mounting bracket or, if it has a crossbar, the crossbar must be padded. Aftermarket steering cables will be allowed.

Handlepole (and mounting bracket) may be modified or aftermarket provided it functions as originally designed. Handlepole attaching point may be reinforced.

- 14.2.10 Padding and/or mat kits may be added and custom painting is allowed. The surface finish of any metal component outside the hull area above the bond flange may be polished, shot peened or painted.
- 14.2.11 Original bilge pump may be modified or disconnected. Aftermarket bilge draining systems that do not create a hazard are allowed.
- 14.2.12 Engine compartment ventilation tubes may be modified, aftermarket, or removed. Inlet and outlet openings may not be enlarged (i.e., when the tube is removed, the opening may not be larger than stock). Vents may be shielded or plugged. No other modifications to the hood will be allowed.
- 14.2.13 Ballast weight may be added within the normally exposed areas of the hull to alter the handling of the watercraft provided a hazard is not created. Only weight consisting of constant mass (i.e., water or other fluid is not allowed) that does not require the modification or relocation of any parts will be allowed unless such modification or relocation is specified by other rules.

### **14.3 ENGINE – FOUR-STROKE**

- 14.3.1 Engines may be bored. Replacement piston assemblies may be used provided the original compression ratio, dome profile, skirt length and shape and type of material are not changed. Nonconforming pistons (ie skirt shape that is not an exact replica of the OEM piston) may be approved by the IJSBA but such approval must be obtained in writing. Replacement piston assemblies must weigh within  $\pm 25.00\%$  of original equipment. Engine displacement must not exceed class designation unless otherwise noted. Chamfering of cylinder ports must not exceed 1.00mm (0.04 in.) at a 30 degree maximum angle. (See diagram in Appendix.). Cylinder head combustion chambers may be cleaned by bead blasting with valves seated in place. Intake and exhaust ports may not be bead blasted or cleaned with abrasive material such as steel wool or Scotch-Brite®. Repairs to the cylinder head affecting one cylinder bank are allowed.
- 14.3.2 Crankshaft must remain stock. Replacement bearings or bearing shells are allowed, providing they maintain their original type and dimensions.
- 14.3.3 Camshaft(s) must remain stock. Replacement bearings or bearing shells are allowed, providing they maintain their original type and dimensions. Camshaft timing may be changed.
- 14.3.4 Intake and exhaust valves may be shimmed with OEM or aftermarket shims. Valves and valve seats are not restricted to OEM providing that any replacement valves or seats maintain the OEM weights and dimensions.

- 14.3.5 Engine water cooling systems may be modified or aftermarket. Additional water-cooling lines and aftermarket water bypass fittings may be added. Additional supply from the propulsion pump is allowed. OEM water bypass fittings may be modified or relocated. All bypass fittings must be directed downward and/or rearward so as not to create a hazard for other riders. Additional cooling supply lines and fittings may be added to the pump. Pump water inlet covers and water strainers (filters) may be modified or aftermarket. Additional cooling supply lines may be added to water inlet covers that are removable from the engine block. Existing fittings may be aftermarket or modified so long as the OEM thread diameter is maintained. Fittings may not be added to the engine block. Any existing fitting which does not have a water supply line (i.e. anode) may be replaced with a water supply line so long as the thread diameter is not changed. Any valves used within the entire cooling system must be of the fixed type or automatic (e.g., thermostats, pressure regulators, etc.). Electronically controlled valves or water injections systems are not allowed unless originally equipped. Manually controlled devices (by any means of actuation) that alter the flow of cooling water during operation are not allowed. Cooling system flush kits are allowed
- 14.3.6 Valve cover may be modified or replaced for cosmetic purposes and/or weight reduction only.
- 14.3.7 Replacement of general maintenance parts (e.g., gaskets, seals, spark plugs, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, clamps and fasteners) shall not be restricted to original equipment providing the following:
- 1) Replacement gaskets may be used but must be of the same type (e.g., sheet, o-ring, etc.) as their OEM counterparts. With the exception of head gaskets and base gaskets, all replacement gaskets must maintain a thickness of plus or minus 20% of the OEM gasket thickness as furnished by the manufacturer. Base gasket cannot be thicker than 0.8mm (0.032in). Head gaskets must be no thinner than .005mm (0.002in) than the OEM thickness as supplied by the manufacturer. Head gaskets must be no thicker than 1.55mm (0.06in) than the OEM thickness as supplied by the manufacturer.
  - 2) Stripped threads must be repaired to the original size.
  - 3) Fasteners (e.g., bolts, nuts and washers) may not be substituted with titanium pieces unless originally equipped. Fasteners may integrate locking mechanisms.
- 14.3.8 Aftermarket valve springs and valve spring retainers may be used.

#### **14.4 AIR/FUEL DELIVERY — FOUR-STROKE**

- 14.4.1 Electronic fuel-injection systems: Flame arresters that meet USCG, UL-1111 or SAE J-1928 Marine backfire flame arrester test standards must be installed. If not equipped with an airflow sensor, the ducting between the flame arrestor and throttle body may be modified or aftermarket. If originally equipped with an airflow sensor, the ducting may be modified or aftermarket between the flame arrestor and airflow sensor. Modifications to the airflow downstream of the airflow sensor are not allowed. Oil catch cans may be added to the fuel system.

14.4.2 Carbureted induction systems: Flame arrestors that meet USCG, UL-1111 or SAE J-1928 Marine backfire flame arrester test standards must be installed. Carburetor jets (replaceable type), needle valves and needle valve springs may be changed. Choke may be removed provided additional air intake for the engine is not created. Aftermarket primer system may be installed. No other carburetor modifications will be allowed.

14.4.3 Fuel injectors and fuel pump must remain stock.

#### **14.5 IGNITION AND ELECTRONICS — FOUR-STROKE**

14.5.1 Replacement batteries are allowed but must fit into the original equipment battery box and be securely fastened.

14.5.2 The original electronic control unit may be reprogramed so long as it does not offer any additional inputs or outputs than the original unit, and it must connect with the original connections. No additional sensors may be added (e.g., exhaust gas temperature, detonation sensors, etc.). Engine temperature sensors may be disabled.

14.5.3 Aftermarket spark plugs with a different heat rating may be used.

#### **14.6 DRIVELINE**

14.6.1 Impeller may be modified or aftermarket, providing that the original diameter is maintained. Replacement wear rings that are within OEM internal diameter specifications may be used. Silicone adhesive sealant may be used in addition to original equipment seal to seal pump inlet. Visibility spout must be removed or plugged.

14.6.2 No internal modifications of any kind, including grinding, surfacing, polishing, machining, shot peening, etc., will be allowed on any driveline components (e.g., pump stator, reduction nozzle, etc.).

## 15 SKI LITES CLASS

### 15.1 SKI LITES CLASS COMPETITION

Intended to promote interest in Ski type personal watercraft competition, at a baseline level, and to enable individuals to become active competitors with relatively modest investment and maintenance costs. Watercraft competing in these classes must conform to the specifications which follow.

**NOTE:** classes may be offered that have greater restrictions than these Stock Class Provisions.

Ski Lites is based off OEM Ski PWC with a maximum of 85 Horsepower as furnished by the manufacturer. Only SKI equipped with Two Stroke Engines are allowed in the Ski Lites Class.

- 15.1.1 All watercraft must remain strictly stock, except where rules allow or require substitutions or modifications. Changes or modifications not listed here are not permitted. The IJSBA may allow additional modifications to Stock Classified PWC which provide for replacement/reinforcements to parts and components (i.e. intercooler end caps, brackets, fittings, etc.) that have known failure risks in race conditions. Such changes will only be allowed if the replacements/modifications result in no volume or performance gains. Such allowances are only legal if published by the IJSBA. Some original equipment components may not comply with IJSBA rules. Hull Identification Numbers must be displayed as furnished by the manufacturer.

**NOTE:** When rules permit or require equipment to be installed, replaced, altered or fabricated, it is the sole responsibility of the rider to select components, materials and/or fabricate the same so that the watercraft operates safely in competition.

- 15.1.2 Original equipment parts may be updated or backdated to newer original equipment parts of the same model. The part must be a bolt-on requiring no modifications to that part or any other parts except where rules allow substitutions or modifications.
- 15.1.3 Sound level shall not exceed 86 dB(a) at 22.86m (75 ft.). Section 34.5.
- 15.1.4 Engine fuel must consist of gasoline meeting the criteria defined in Section 34.4.

### 15.2 HULL

- 15.2.1 All watercraft must have a flexible tow loop attached to the bow. The tow loop should be made of a flexible material (e.g., nylon strap, rope, etc.) so as not to create a hazard. Tow hooks which protrude beyond the plane of the hull must be removed.
- 15.2.2 Hull and deck repairs may be made. However, these repairs must not alter the original configuration by more than 2.00mm (0.08 in.). Other than for the use of fasteners and the placement of allowable relocated parts (i.e., ECU), the bulkhead may not be modified.

- 15.2.3 All watercraft may be equipped with a maximum of two sponsons. Original equipment sponsons may be modified, aftermarket, repositioned or removed. Overall length of each sponson shall not exceed 91.45cm (36.00 in.). Sponsons shall not protrude from the side of the hull by more than 100.00mm (3.94 in.) when measured in a level horizontal plane. The vertical channel created by the underside of the sponson shall not exceed 63.5mm (2.50in). No part of the sponson shall extend downward below the point at which the side of the hull intersects the bottom surface of the hull by more than 38.00mm (1.50 in.). Aftermarket or modified sponsons must exceed 6mm (0.24 in.) in thickness. All leading edges must be radiused so as not to create a hazard. Sponsons may not be attached to the planing surfaces of the hull. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagrams in Appendix.) Sponsons may be attached to the inside of the bond flange, but no part of the sponson may extend more than 38.00mm (1.500 in.) below the lower part of the bond flange (bumper removed). Sponsons attached to the inside of the bond flange shall not protrude outside the bond flange (bumper removed) when measured in a level horizontal plane. Ski PWC Homologated under. Models homologated in quantities of 500 shall be allowed an additional set of sponsons for a total of four sponsons. The total sponson length shall be limited to 1,524 mm (60 in) in a single or two sponson configuration. The decision of the Technical Director and/or Race Director regarding modifications will be final. Any question regarding the legality of modifications should be directed to the IJSBA or IJSBA affiliate prior to use in competition.
- 15.2.4 Intake grate may be modified or aftermarket. Intake grate is required and must be the full-length type with at least one bar running parallel to the drive shaft. Grates may not extend more than 12.00mm (0.47 in.) below the flat plane of the pump intake area. All leading edges must be radiused so as not to create a hazard.
- 15.2.5 Pump cover plate may be modified or aftermarket. An extension may be added to the rear of the pump cover plate but shall not exceed the width of the original equipment plate. Modified and aftermarket plates must not extend more than 100.00mm (3.94 in.) beyond the end of the original equipment plate. The sides of the extension must be connected to the radiused portion of the pump plate so as not to create a hazard. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagram in Appendix.)
- 15.2.6 Mounting brackets for hull extensions or trim tabs, that may be allowed in other categories, may be left in tact during Ski Lites competition but the extensions or trim tabs may not be used in Ski Lites.
- 15.2.7 Replacement trim plates may be used. Only replica parts that offer handling characteristics the same as stock are allowed. Material shall not be restricted to original equipment provided a hazard is not created (i.e., aluminum in place of plastic). See Glossary of Terms for definition of Replacement and Replica.
- 15.2.8 Replacement bumpers may be used provided a hazard is not created.

- 15.2.9 A soft, flexible water-spray deflector may be attached to the hull sides or to the bond flange provided a hazard is not created. No part of the deflector may extend beyond the perimeter of the original equipment bumper or side mouldings as measured by a plumb line.
- 15.2.10 Handlebar, throttle, throttle cable, and grips may be modified or aftermarket. Handlebar cover may be modified or removed. Aftermarket switches and switch housings may be used. Steering shaft, steering shaft holder and handlebar holder may be aftermarket. The handlebar must be padded at the mounting bracket or, if it has a crossbar, the crossbar must be padded. Aftermarket steering cables will be allowed.
- Handlepole (and mounting bracket) may be modified or aftermarket provided it functions as originally designed. Handlepole attaching point may be reinforced.
- 15.2.11 Padding and/or mat kits may be added and custom painting is allowed. The surface finish of any metal component outside the hull area above the bond flange may be polished, shot peened or painted.
- 15.2.12 Original bilge pump may be modified or disconnected. Aftermarket bilge draining systems that do not create a hazard are allowed.
- 15.2.13 Engine compartment ventilation tubes may be modified, aftermarket, or removed. Inlet and outlet openings may not be enlarged (i.e., when the tube is removed, the opening may not be larger than stock). Vents may be shielded or plugged. No other modifications to the hood will be allowed.
- 15.2.14 Ballast weight may be added within the normally exposed areas of the hull to alter the handling of the watercraft provided a hazard is not created. Only weight consisting of constant mass (i.e., water or other fluid is not allowed) that does not require the modification or relocation of any parts will be allowed unless such modification or relocation is specified by other rules.

### **15.3 ENGINE – TWO-STROKE**

- 15.3.1 Engines may be bored. Replacement piston assemblies may be used provided the original port timing, compression ratio, dome profile, skirt length and shape and type of material are not changed. Non-conforming pistons (ie skirt shape that is not an exact replica of the OEM piston) may be approved by the IJSBA but such approval must be obtained in writing. Replacement piston assemblies must weigh within  $\pm 25.00\%$  of original equipment. Chamfering of cylinder ports must not exceed 1.00mm (0.04 in.) at a 30 degree maximum angle. (See diagram in Appendix.).

The maximum displacement that may be achieved, on a Two Stroke engine, in Ski Lites is 850cc.

- 15.3.2 Crankshaft may be rebuilt using replacement counterweights, crank pins, bearings and connecting rods. Counterweights, crank pins and connecting rods made of non-ferrous metals are not allowed. Stroke and rod length may not be changed. Counterweights on non-rebuildable style crankshafts may be machined to accept a press-through crank pin. Replacement bearings must maintain their original type and dimensions. Replacement counterweights must resemble the original part (i.e., holes and/or pockets not existing on the original part may not be on the replacement part). Total weight of the crankshaft assembly must be within  $\pm 5.00\%$  of original equipment. Crankpins may be welded and/or keyed to the counterweights..
- 15.3.3 Repairs to cracked or punctured crankcases may be made provided only one damaged area affecting one cylinder bank has been repaired. No other modifications or repairs are allowed.
- 15.3.4 External modifications to the engine finish (e.g., plating, polishing and/or painting) are allowed for cosmetic purposes only.
- 15.3.5 No internal modifications of any kind, including grinding, surfacing, polishing, machining, shot peening, etc., will be allowed on any engine components.
- 15.3.6 Exhaust system must remain stock as supplied by the manufacturer. An insert may be added to reduce the inside diameter of the stinger portion of the exhaust system. Cooling lines may be added to the insert only. A cooling line may be added to the stinger portion of the exhaust system where an insert is not utilized.
- 15.3.7 Engine water cooling systems may be modified or aftermarket. Additional water cooling lines and after market water bypass fittings may be added. OEM water bypass fittings may be modified or relocated. All bypass fittings must be directed downward and/or rearward so as not to create a hazard for other riders. Additional cooling supply lines and fittings may be added to the pump. Pump water inlet covers and water strainers (filters) may be modified or aftermarket. Additional cooling supply lines may be added to water inlet covers that are removable from the engine block. Existing fittings may be aftermarket or modified so long as the OEM thread diameter is maintained. Fittings may not be added to the cylinder head, cylinder, or crankcase. Any valves used within the entire cooling system must be of the fixed type or automatic (e.g., thermostats, pressure regulators, etc.). Electronically controlled valves or water injections systems are not allowed unless originally equipped. Manually controlled devices (by any means of actuation) that alter the flow of cooling water during operation are not allowed. Cooling system flush kits are allowed.
- 15.3.8 Replacement starter motor and bendix may be used.
- 15.3.9 Replacement engine mounts may be used.
- 15.3.10 Oil-injection system may be disconnected or removed.

15.3.11 Replacement of general maintenance parts (e.g., gaskets, seals, spark plugs, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, clamps and fasteners) shall not be restricted to original equipment providing the following:

- 1) Replacement gaskets may be used but must be of the same type (e.g., sheet, o-ring, etc.) as their OEM counterparts. With the exception of head gaskets and base gaskets, all replacement gaskets must maintain a thickness of plus or minus 20% of the OEM gasket thickness as furnished by the manufacturer.
- 2) Base gasket cannot be thicker than 0.8mm (0.032in).
- 3) Head gaskets must be no thinner than .005mm (0.002in) than the OEM thickness as supplied by the manufacturer. Head gaskets must be no thicker than 1.55mm (0.06in) than the OEM thickness as supplied by the manufacturer.
- 4) Engines that have a displacement of less 780cc shall be allowed a minimum head gasket thickness of .75mm (0.03 in) with a tolerance of +/-10% and a base gasket thickness of .5mm (0.02 in) with a tolerance of +/- 10%.
- 5) Stripped threads must be repaired to the original size.
- 6) Fasteners (e.g., bolts, nuts and washers) may not be substituted with titanium pieces unless originally equipped. Fasteners may integrate locking mechanisms.

15.3.12 Cylinders may be interchanged between homologated watercraft of the same manufacturer subject to restrictions announced by the IJSBA. Any modifications to the cylinder or crankcase must be approved, in writing, by the IJSBA. This provision is only applicable to Two Stroke Ski PWC homologated under provision 4.1.2 (550 units).

If the OEM cylinders or the cylinders allowed under 15.3.12 do not provide for a displacement within 10% of the maximum allowable displacement (850cc) then an aftermarket cylinder sleeve may be utilized. The aftermarket sleeve must maintain the same port sizes and specifications as the original OEM cylinder sleeve.

#### **15.4 AIR/FUEL DELIVERY — TWO-STROKE**

15.4.1 Aftermarket flame arresters that meet USCG, UL-1111 or SAE J-1928 Marine standards may be used. Carburetor jets (replaceable type), needle valves and needle valve springs may be changed. Choke may be removed provided additional air intake for the engine is not created. Aftermarket primer system may be installed. No other carburetor modifications will be allowed.

15.4.2 The entire fuel system is a closed system. The watercraft must not vent or spill fuel at any attitude with or without the engine running. Original equipment fuel tank, fuel pickup, fuel filler, fuel filter, fuel tap assembly and relief valve must be used and cannot be modified. Fuel petcock may be bypassed. Additional fuel filters may be used. Fuel tank filler cap may be modified or aftermarket provided a hazard is not created.

15.4.3 Reed valve petals may be modified or aftermarket. Reed cage assemblies must remain as originally equipped by the manufacturer.



## **15.5 IGNITION AND ELECTRONICS — TWO-STROKE**

- 15.5.1 Replacement batteries are allowed but must fit into the original equipment battery box and be securely fastened.
- 15.5.2 The original electronic control unit may be modified or aftermarket so long as it does not offer any additional inputs or outputs than the original unit, and it must connect with the original connections. No additional sensors may be added (e.g., exhaust gas temperature, detonation sensors, etc.). Engine temperature sensors may be disabled.
- 15.5.3 Ignition timing may be altered by slotting ignition trigger mounting plate. An adapter plate may be used for the sole purpose of relocating the ignition trigger.
- 15.5.4 Aftermarket spark plugs with a different heat rating may be used.

## **15.6 DRIVELINE**

- 15.6.1 Impeller may be modified or aftermarket, providing that the original diameter is maintained. Replacement wear rings that are within OEM internal diameter specifications may be used. Silicone adhesive sealant may be used in addition to original equipment seal to seal pump inlet. Visibility spout must be removed or plugged.

The following is a supplementary rule to the NZJSBA/IJSBA Rule Book as passed by the NZJSBA on the 18th October 2022 and shall remain effective until further notice.

Further to rule 15.6.1, the pump shoe may be aftermarket provided that it conforms to the same dimensions as the OEM part.

- 15.6.2 No internal modifications of any kind, including grinding, surfacing, polishing, machining, shot peening, etc., will be allowed on any driveline components (e.g., pump stator, reduction nozzle, etc.). Kawasaki SX-R 800 watercraft may utilise bored venturi nozzles and bored steering nozzles. 2008+ Yamaha Superjet watercraft may modify the OEM nozzle assembly to allow for adjustment of the steering nozzle angle.

## 16 SKI FOUR STROKE LITES CLASS

### 16.1 SKI FOUR STROKE LITES CLASS COMPETITION

Intended to promote interest in Ski type personal watercraft competition, at a baseline level, and to enable individuals to become active competitors with relatively modest investment and maintenance costs. Watercraft competing in these classes must conform to the specifications which follow.

**NOTE:** classes may be offered that have greater restrictions than these Stock Class Provisions.

Ski Four Stroke Lites is based off of OEM Ski PWC with a maximum displacement of 1100cc as furnished by the manufacturer. Only SKI originally equipped with Four Stroke Engines are allowed in the Four Stroke Ski Lites Class. At the time of this posting the only homologated watercraft for Four Stroke Ski Lites is the Yamaha Superjet produced 2021 and after.

- 16.1.1 All watercraft must remain strictly stock, except where rules allow or require substitutions or modifications. Changes or modifications not listed here are not permitted. The IJSBA may allow additional modifications to Stock Classified PWC which provide for replacement/reinforcements to parts and components (i.e. intercooler end caps, brackets, fittings, etc.) that have known failure risks in race conditions. Such changes will only be allowed if the replacements/modifications result in no volume or performance gains. Such allowances are only legal if published by the IJSBA. Some original equipment components may not comply with IJSBA rules. Hull Identification Numbers must be displayed as furnished by the manufacturer.

**NOTE:** When rules permit or require equipment to be installed, replaced, altered or fabricated, it is the sole responsibility of the rider to select components, materials and/or fabricate the same so that the watercraft operates safely in competition.

- 16.1.2 Original equipment parts may be updated or backdated to newer original equipment parts of the same model. The part must be a bolt-on requiring no modifications to that part or any other parts except where rules allow substitutions or modifications.
- 16.1.3 Sound level shall not exceed 86 dB(a) at 22.86m (75 ft.). Section 34.5.
- 16.1.4 Engine fuel must consist of gasoline meeting the criteria defined in Section 34.4.

### 16.2 HULL

- 16.2.1 All watercraft must have a flexible tow loop attached to the bow. The tow loop should be made of a flexible material (e.g., nylon strap, rope, etc.) so as not to create a hazard. Tow hooks which protrude beyond the plane of the hull must be removed.
- 16.2.2 Hull and deck repairs may be made. However, these repairs must not alter the original configuration by more than 2.00mm (0.08 in.). Other than for the use of fasteners and the placement of allowable relocated parts (i.e., ECU), the bulkhead may not be modified.

- 16.2.3 All watercraft may be equipped with a maximum of four sponsons. Original equipment sponsons may be modified, aftermarket, repositioned or removed. Overall combined length of single or dual sponsons shall not exceed 1,524 mm (60.00 in.). Sponsons shall not protrude from the side of the hull by more than 100.00mm (3.94 in.) when measured in a level horizontal plane. The vertical channel created by the underside of the sponson shall not exceed 63.5mm (2.50in). No part of the sponson shall extend downward below the point at which the side of the hull intersects the bottom surface of the hull by more than 38.00mm (1.50 in.). Aftermarket or modified sponsons must exceed 6mm (0.24 in.) in thickness. All leading edges must be radiused so as not to create a hazard. Sponsons may not be attached to the planing surfaces of the hull. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagrams in Appendix.) Sponsons may be attached to the inside of the bond flange, but no part of the sponson may extend more than 38.00mm (1.500 in.) below the lower part of the bond flange (bumper removed). Sponsons attached to the inside of the bond flange shall not protrude outside the bond flange (bumper removed) when measured in a level horizontal plane.
- 16.2.4 Pump cover plate may be modified or aftermarket. An extension may be added to the rear of the pump cover plate but shall not exceed the width of the original equipment plate. Modified and aftermarket plates must not extend more than 100.00mm (3.94 in.) beyond the end of the original equipment plate. The sides of the extension must be connected to the radiused portion of the pump plate so as not to create a hazard. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagram in Appendix.)
- 16.2.5 Replacement trim plates may be used. Only replica parts that offer handling characteristics the same as stock are allowed. Material shall not be restricted to original equipment provided a hazard is not created (i.e., aluminium in place of plastic). See Glossary of Terms for definition of Replacement and Replica.
- 16.2.6 Replacement bumpers may be used provided a hazard is not created.
- 16.2.7 A soft, flexible water-spray deflector may be attached to the hull sides or to the bond flange provided a hazard is not created. No part of the deflector may extend beyond the perimeter of the original equipment bumper or side mouldings as measured by a plumb line.
- 16.2.8 Handlebar, throttle, throttle cable, and grips may be modified or aftermarket. Handlebar cover may be modified or removed. Aftermarket switches and switch housings may be used. Steering shaft, steering shaft holder and handlebar holder may be aftermarket. The handlebar must be padded at the mounting bracket or, if it has a crossbar, the crossbar must be padded. Quick-turn steering modifications to alter steering ratio are allowed. Aftermarket steering cables will be allowed.
- Handlepole (and mounting bracket) may be modified or aftermarket provided it functions as originally designed. Handlepole attaching point may be reinforced.
- 16.2.9 Padding and/or mat kits may be added and custom painting is allowed. The surface finish of any metal component outside the hull area above the bond flange may be polished, shot peened or painted.

- 16.2.10 Original bilge pump may be modified or disconnected. Aftermarket bilge draining systems that do not create a hazard are allowed.
- 16.2.11 Engine compartment ventilation tubes may be modified, aftermarket, or removed. Inlet and outlet openings may not be enlarged (i.e., when the tube is removed, the opening may not be larger than stock). Vents may be shielded or plugged. No other modifications to the hood will be allowed.
- 16.2.12 Ballast weight may be added within the normally exposed areas of the hull to alter the handling of the watercraft provided a hazard is not created. Only weight consisting of constant mass (i.e., water or other fluid is not allowed) that does not require the modification or relocation of any parts will be allowed unless such modification or relocation is specified by other rules.

### **16.3 ENGINE – FOUR-STROKE**

- 16.3.1 Engines may be bored. Replacement piston assemblies may be used provided the original port timing, compression ratio, dome profile, skirt length and shape and type of material are not changed. Chamfering of cylinder ports must not exceed 1.00mm (0.04 in.) at a 30 degree maximum angle. (See diagram in Appendix.). Cylinder head combustion chambers may be cleaned by bead blasting with valves seated in place. Intake and exhaust ports may not be bead blasted or cleaned with abrasive material such as steel wool or Scotch-Brite®. Repairs to the cylinder head affecting one cylinder bank are allowed.
- 16.3.2 Repairs may be made to cracked or damaged cylinders by installing a cylinder sleeve. The head gasket surface of the cylinder block may be machined only to allow for the installation of the new sleeves (see appendix for description). A thicker head gasket must be utilized to return the block deck height to within .155mm (.006in) of original height. The repair must offer no additional performance gains.
- 16.3.3 Crankshaft must remain stock. Replacement bearings or bearing shells are allowed, providing they maintain their original type and dimensions.
- 16.3.4 Camshaft(s) must remain stock. Replacement bearings or bearing shells are allowed, providing they maintain their original type and dimensions. Camshaft timing may be changed.
- 16.3.5 Engine and Oil Cooler water cooling systems must remain as OEM. Water strainers (filters) may be modified or aftermarket. Intercooler assembly/housing must remain OEM. Existing fittings may be aftermarket or modified so long as the OEM thread diameter is maintained. Fittings may not be added to the cylinder head, cylinder, or crankcase. Electronically controlled valves or water injections systems are not allowed unless originally equipped. Manually controlled devices (by any means of actuation) that alter the flow of cooling water during operation are not allowed. Cooling system flush kits are allowed. Any fitting (anode, etc.) may be replaced with a water supply.

- 16.3.6 Replacement of general maintenance parts (e.g., gaskets, seals, spark plugs, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, clamps and fasteners) shall not be restricted to original equipment providing the following:
- 1) Replacement gaskets may be used but must be of the same type (e.g., sheet, o-ring, etc.) as their OEM counterparts. With the exception of head gaskets and base gaskets, all replacement gaskets must maintain a thickness of plus or minus 20% of the OEM gasket thickness as furnished by the manufacturer.
  - 2) Base gasket cannot be thicker than 0.8mm (0.032in).
  - 3) Head gaskets must be no thinner than .005mm (0.002in) than the OEM thickness as supplied by the manufacturer. Head gaskets must be no thicker than 1.55mm (0.06in) than the OEM thickness as supplied by the manufacturer.
  - 4) Stripped threads must be repaired to the original size.
  - 5) Fasteners (e.g., bolts, nuts and washers) may not be substituted with titanium pieces unless originally equipped. Fasteners may integrate locking mechanisms.
  - 6) Replacement hoses and fuel lines may not provide any other function than original equipment hoses. Changes in temperature tolerances are allowed.
- 16.3.7 Exhaust manifolds that have previously been drilled or tapped may be used so long as the holes are filled or capped. Aftermarket hose/piping may be used for routing the exhaust from the water box to the exhaust outlet pipe, this allows for modifying or removing the OEM restrictive sound suppression system which is part of that assembly. No modification to the water box or exhaust manifold outlet are allowed.
- 16.3.8 IJSBA Approved aftermarket valves, valve springs, and valve spring retainers may be used.

#### **16.4 AIR/FUEL DELIVERY — FOUR-STROKE**

- 16.4.1 Electronic fuel-injection systems: Flame arresters that meet USCG, UL-1111 or SAE J-1928 Marine backfire flame arrester test standards must be installed. If not equipped with an airflow sensor, the ducting between the flame arrester and throttle body may be modified or aftermarket. If originally equipped with an airflow sensor, the ducting may be modified or aftermarket between the flame arrester and airflow sensor. Modifications to the airflow downstream of the airflow sensor are not allowed. All portions of the intake manifold, including screens or other filtering or spark suppressing devices, must remain as originally equipped.
- 16.4.2 Carbureted induction systems: Flame arrestors that meet USCG, UL-1111 or SAE J-1928 Marine backfire flame arrester test standards must be installed. Carburetor jets (replaceable type), needle valves and needle valve springs may be changed. Choke may be removed provided additional air intake for the engine is not created. Aftermarket primer system may be installed. No other carburetor modifications will be allowed.
- 16.4.3 Fuel injectors and fuel pump must remain stock as furnished by the manufacturer.

## **16.5 IGNITION AND ELECTRONICS — TWO-STROKE**

- 16.5.1 Replacement batteries are allowed but must fit into the original equipment battery box and be securely fastened.
- 16.5.2 The original electronic control unit may be reprogrammed so long as it does not offer any additional inputs or outputs than the original unit, and it must connect with the original connections. No additional sensors may be added (e.g., exhaust gas temperature, detonation sensors, etc.). Engine temperature sensors may be disabled.
- 16.5.3 Aftermarket spark plugs with a different heat rating may be used.

## **16.6 DRIVELINE**

- 16.6.1 Impeller may be modified or aftermarket, providing that the original diameter is maintained. Replacement wear rings that are within OEM internal diameter specifications may be used. Silicone adhesive sealant may be used in addition to original equipment seal to seal pump inlet. Visibility spout must be removed or plugged.
- 16.6.2 No internal modifications of any kind, including grinding, surfacing, polishing, machining, shot peening, etc., will be allowed on any driveline components (e.g., pump stator, reduction nozzle, etc.).

## 17 SKI MOD LITES CLASS

### 17.1 SKI MOD LITES CLASS COMPETITION

Intended to promote interest in personal watercraft competition with a limited performance level while having access to performance parts available from the aftermarket industry. Watercraft competing in this class must conform to the specifications which follow.

**DISPLACEMENT:** The maximum displacement for Ski equipped with Two Stroke engines is 850 CC. The maximum displacement for Ski equipped with normally aspirated Four Stroke engines is 1100 CC.

Kawasaki 1500 SX-R Ski, built to Superstock specifications may be used in Mod Lites when an IJSBA approved restrictor plate is used.

**ONLY OEM HOMOLOGATED NATURALLY ASPIRATED ENGINES ARE ALLOWED IN MOD LITES.**

- 17.1.1 All watercraft must remain strictly stock, except where rules allow or require substitutions or modifications. Changes or modifications not listed here are not permitted. The IJSBA may allow additional modifications to Stock Classified PWC which provide for replacement/reinforcements to parts and components (i.e. brackets, fittings, etc.) that have known failure risks in race conditions. Such changes will only be allowed if the changes allow for no volume or performance gains. Such allowances are only legal if published by the IJSBA. Some original equipment components may not comply with IJSBA rules. Hull Identification Numbers must be displayed as furnished by the manufacturer.

**NOTE:** When rules permit or require equipment to be installed, replaced, altered or fabricated, it is the sole responsibility of the rider to select components, materials and/or fabricate the same so that the watercraft operates safely in competition

- 17.1.2 Original equipment parts may be updated or backdated to newer original equipment parts of the same model. The part must be a bolt-on requiring no modifications to that part or any other parts except where rules allow substitutions or modifications.

**Note:** Pre-1996 Yamaha SuperJet may update to 1996 and newer engine components and waterbox. Kawasaki JS750SX and SXi may update to SXi Pro engine components and waterbox.

- 17.1.3 Sound level shall not exceed 86 dB(a) at 22.86m (75 ft.).
- 17.1.4 Engine fuel must consist of gasoline meeting the criteria defined in Section 34.4.

### 17.2 HULL

- 17.2.1 All watercraft must have a flexible tow loop attached to the bow. The tow loop should be made of a flexible material (e.g., nylon strap, rope, etc.) so as not to create a hazard. Tow hooks which protrude beyond the plane of the hull must be removed.

- 17.2.2 The top deck may be modified or aftermarket, providing the following: The top deck must resemble the generic look of existing homologated Ski watercraft. The generic look may include legal aftermarket components which are integrated into the deck (i.e., rail caps and foot holds). All hulls and top decks must be approved by the IJSBA through the Aftermarket Hull Homologation Process.

Decks may be internally reinforced. Fasteners may be installed through the hull and deck for the purpose of securing components to interior surfaces, provided a hazard is not created. If upper and lower components of the original equipment bond flange are separated and rejoined, they must be rejoined by the same method as original equipment (i.e., bonded together with a high-strength adhesive). (See bond flange diagram in Appendix.)

If the watercraft is equipped with footwells, the footwells must be blocked off, during competition, allowing no indentation into the footwell sides.

- 17.2.3 Aftermarket hoods may be used.

- 17.2.4 All watercraft may be equipped with a maximum of two sponsons. Original equipment sponsons may be modified, aftermarket, repositioned or removed. Overall length of each sponson shall not exceed 91.45cm (36.00 in.). Sponsons shall not protrude from the side of the hull by more than 100.00mm (3.94 in.) when measured in a level horizontal plane. The vertical channel created by the underside of the sponson shall not exceed 63.5mm (2.50in). No part of the sponson shall extend downward below the point at which the side of the hull intersects the bottom surface of the hull by more than 63.5mm (2.50 in.). Aftermarket or modified sponsons must exceed 6mm (0.24 in.) in thickness. All leading edges must be radiused so as not to create a hazard. Sponsons may not be attached to the planing surfaces of the hull. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagrams in Appendix.) Sponsons may be attached to the inside of the bond flange, but no part of the sponson may extend more than 38.00mm (1.500 in.) below the lower part of the bond flange (bumper removed). Sponsons attached to the inside of the bond flange shall not protrude outside the bond flange (bumper removed) when measured in a level horizontal plane.

The decision of the Technical Director and/or Race Director regarding modifications will be final. Any question regarding the legality of modifications should be directed to the IJSBA or IJSBA affiliate prior to use in competition.

- 17.2.5 Intake grate may be modified or aftermarket. Intake grate is required and must be the full-length type with at least one bar running parallel to the drive shaft. Grates may not extend more than 12.00mm (0.47 in.) below the flat plane of the pump intake area. All leading edges must be radiused so as not to create a hazard.



- 17.2.6 Pump cover plate may be modified or aftermarket. An extension may be added to the rear of the pump cover plate but shall not exceed the width of the original equipment plate. Modified and aftermarket plates must not extend more than 100.0mm (3.94 in.) beyond the end of the original equipment plate for Ski and Sport Division or 177.80mm (7.00in) for Runabout Divisions. The sides of the extension must be connected to the radiused portion of the pump plate so as not to create a hazard. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagram in Appendix.)
- 17.2.7 Aftermarket fixed-position trim tabs may be used. Original equipment trim plates that are detachable from the hull may be removed or replaced when installing aftermarket trim tabs. Trim tabs cannot exceed the width of the planing surface or extend rearward more than 100.00mm (3.94 in.) beyond the end of the original planing surface. Manual or automatic trim tabs attached to the hull or ride plate are not allowed. All hull extensions mounted on the hull's transom will be considered as a trim tab. All edges must be radiused so as not to create a hazard. Fins, skegs, rudders and other appendages that may create a hazard are not allowed.
- 17.2.8 Replacement bumpers may be used provided a hazard is not created.
- 17.2.9 A soft, flexible water-spray deflector may be attached to the hull sides or to the bond flange provided a hazard is not created. No part of the deflector may extend beyond the perimeter of the original equipment bumper or side mouldings as measured by a plumb line.
- 17.2.10 Handlebar, throttle, throttle cable, and grips may be modified or aftermarket. Handlebar cover may be modified or removed. Aftermarket switches and switch housings may be used. Steering shaft, steering shaft holder and handlebar holder may be aftermarket. The handlebar must be padded at the mounting bracket or, if it has a crossbar, the crossbar must be padded. Aftermarket steering cables will be allowed.
- Handlepole (and mounting bracket) may be modified or aftermarket provided it functions as originally designed. Handlepole attaching point may be reinforced.
- 17.2.11 Padding and/or mat kits may be added and custom painting is allowed. The surface finish of any metal component outside the hull area above the bond flange may be polished, shot peened or painted.
- 17.2.12 Original bilge pump may be modified or disconnected. Aftermarket bilge draining systems that do not create a hazard are allowed.
- 17.2.13 Handles, drop-in type storage buckets, bolt-on type mirrors and gauges may be modified, aftermarket or removed provided a hazard is not created. Drop-in type buckets are defined as being able to be removed without the use of any tool. Other than for the use of fasteners and the placement of allowable relocated parts (i.e., ECU), the bulkhead may not be modified.

- 17.2.14 Engine compartment foam may be removed, modified or aftermarket. Only floatation foam within the engine compartment may be removed. Only foam that can be removed without modification to any other part or parts, except where rules allow the parts to be modified, is allowed. Parts may not be relocated based on the removal of the foam. The hull's inner liner or deck may not be cut or modified to remove foam. Removal of foam between layers of the hull and/or deck is not allowed.
- 17.2.15 Engine compartment ventilation tubes may be modified, aftermarket, relocated on the original equipment ducting, or removed. Inlet and outlet openings may not be enlarged (i.e., when the tube is removed, the opening may not be larger than stock). Vents may be shielded or plugged. No other modifications to the hood will be allowed.
- 17.2.16 Handles, drop-in type storage buckets, bolt-on type mirrors and gauges may be modified, aftermarket or removed provided a hazard is not created. Drop-in type buckets are defined as being able to be removed without the use of any tool. Other than for the use of fasteners and the placement of allowable relocated parts (i.e., ECU), the bulkhead may not be modified.
- 17.2.17 Ballast weight may be added within the normally exposed areas of the hull to alter the handling of the watercraft provided a hazard is not created. Only weight consisting of constant mass (i.e., water or other fluid is not allowed) that does not require the modification or relocation of any parts will be allowed unless such modification or relocation is specified by other rules.

### **17.3 ENGINE – TWO-STROKE**

- 17.3.1 Engines may be bored. Replacement piston assemblies may be used provided the original port timing, compression ratio, dome profile, skirt length and shape and type of material are not changed. Replacement piston assemblies must weigh within  $\pm 25.00\%$  of original equipment. Engine displacement must not exceed class designation (e.g., 550cc in 550 Limited, 800cc in 800 Limited, etc.). Chamfering of cylinder ports must not exceed 1.00mm (0.04 in.) at a 30 degree maximum angle. (See diagram in Appendix.) Cylinders may be machined to accept girdle system cylinder heads.
- 17.3.2 Crankshaft may be rebuilt using replacement counterweights, crank pins, bearings and connecting rods. Counterweights, crank pins and connecting rods made of non-ferrous metals are not allowed. Stroke and rod length may not be changed. Counterweights on non-rebuildable style crankshafts may be machined to accept a press-through crank pin. Replacement bearings must maintain their original type and dimensions. Replacement counterweights must resemble the original part (i.e., holes and/or pockets not existing on the original part may not be on the replacement part). Total weight of the crankshaft assembly must be within  $\pm 5.00\%$  of original equipment. Crankpins may be welded and/or keyed to the counterweights.
- 17.3.3 Repairs to cracked or punctured crankcases may be made provided only one damaged area affecting one cylinder bank has been repaired. Crankcase drain and cable may be removed and plugged. No other modifications or repairs are allowed.
- 17.3.4 External modifications to the engine finish (e.g., plating, polishing and/or painting) are allowed for cosmetic purposes only.

- 17.3.5 No internal modifications of any kind, including grinding, surfacing, polishing, machining, shot peening, etc., will be allowed on any engine components.
- 17.3.6 Cylinder head and gasket may be modified or aftermarket.
- 17.3.7 Exhaust manifold, head pipe, expansion chamber, gaskets and hose between expansion chamber and waterbox may be modified/alterd or aftermarket. Exhaust location of the exhaust gases may not be relocated. Original size opening must be maintained for exhaust exit. No tuned portion of the exhaust shall protrude outside the hull. Through-hull exhaust outlet flap may be removed. Two Stroke and Four Stroke Runabout Limited classes: Removal of the plastic resonator is allowed.
- 17.3.8 Cooling system may be modified or aftermarket. Aftermarket cooling lines and water bypass systems may be used. Additional cooling supply lines and fittings may be added to the pump. Bypass fittings may be modified, aftermarket and/or relocated but must be directed downward and/or rearward so as not to create a hazard for other riders. Any valves used within the entire cooling system must be of the fixed type or automatic (e.g., thermostats, pressure regulators, solenoids, etc.). Manually controlled devices (by any means of actuation) that alter the flow of cooling water during operation are not allowed. Cooling system flush kits are allowed.
- 17.3.9 Replacement starter motor and bendix may be used.
- 17.3.10 Replacement engine mounts may be used.
- 17.3.11 Oil-injection system may be disconnected or removed.
- 17.3.12 Replacement of general maintenance parts (e.g., gaskets, seals, spark plugs, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, clamps and fasteners) shall not be restricted to original equipment providing the following:
  - 1) Replacement gaskets may be used but must be of the same type (e.g., sheet, o-ring, etc.) as their OEM counterparts. Base gasket cannot be thicker than 1.52mm (0.060in).
  - 2) Stripped threads must be repaired to the original size.
  - 3) Fasteners (e.g., bolts, nuts and washers) may not be substituted with titanium pieces unless originally equipped. Fasteners may integrate locking mechanisms.
- 17.3.13 Cylinders may be interchanged between homologated watercraft of the same manufacturer subject to restrictions announced by the IJSBA. Any modifications to the cylinder or crankcase must be approved, in writing, by the IJSBA.  
  
If the OEM cylinders, or the allowed replacement cylinders, do not provide for a displacement within 10% of the maximum allowable displacement then an aftermarket cylinder sleeve may be utilized. The aftermarket sleeve must maintain the same port sizes and specifications as the original OEM cylinder sleeve.

**17.4 AIR/FUEL DELIVERY — TWO-STROKE**

- 17.4.1 Carburetor(s) may be modified or aftermarket provided they do not vent or spill fuel at any attitude with or without the engine running. The number of venturis cannot exceed the number of cylinders. No slide-type carburetors. Aftermarket primer may be used. Intake manifold assembly may be modified or aftermarket. Aftermarket crankcase-pressure-operated fuel pumps may be used. Additional carburetor pulse line fittings may be installed on the crankcase.
- 17.4.2 Modified or aftermarket vapor/air separators must not exceed 2 in. x 6 in., and must have a return line to the fuel tank open at all times. Additional fuel reservoirs may not be used. Aftermarket or modified electric fuel pumps, not exceeding 4 psi, may be used. When the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off type fuel pumps are allowed.
- 17.4.3 Aftermarket fuel-injection systems and components are allowed provided the following regulations are adhered to: Highpressure fuel hose meeting SAE J30R9 must be used; A.N. threadedtype fittings or equivalent and non-removable, crimped- type clamps must be used on the high-pressure portion of the system (i.e., hose clamps, tie wraps, etc. are not allowed); only metal-type fuel filters may be used on the high-pressure portion of the system; all other in-line filters must be installed on the lowpressure portion of the system. When the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off-type fuel pumps are allowed.
- 17.4.4 The entire fuel system is a closed system. The watercraft must not vent or spill fuel at any attitude with or without the engine running. The fuel tank shall not be restricted to the original equipment, as supplied by the manufacturer, so long as the replacement is an unmodified tank from another homologated PWC and the tank fits securely in the watercraft without causing a hazard. Original equipment fuel filler and relief valve must be used and cannot be modified. The fuel pickup, fuel filter and fuel petcock may be removed and/or aftermarket parts may be used. Additional fuel filters may be used and fuel cell foam may be added to the original equipment fuel tank. Fuel tank filler cap may be modified or aftermarket provided a hazard is not created. Aftermarket fuel tanks not coming from another homologated PWC may be allowed by the race director so long as it is demonstrated that the aftermarket fuel tanks meet or exceed the strengths and safety standards of an OEM fuel tank.
- 17.4.5 Flame arrester(s) which satisfy United States Coast Guard, SAE-J1928 Marine or UL-1111 Marine backfire flame arrester test standards must be installed. Aftermarket flame arresters satisfying one of these test standards will be allowed. Intake silencer may be removed.
- 17.4.6 Reed valve assemblies may be modified or aftermarket. Rotary valve may be modified or aftermarket

**17.5 IGNITION AND ELECTRONICS — TWO-STROKE**

- 17.5.1 RPM limiter function may be bypassed or eliminated. CDI unit may be modified or aftermarket. Ignition timing may be changed. Modifications to the original equipment ignition pickup mount will be allowed. Original equipment charging system must be used. No other ignition system modifications will be allowed.
- 17.5.2 The original electronic control unit may be modified or aftermarket so long as it does not offer any additional inputs or outputs than the original unit, and it must connect with the original connections. No additional sensors may be added (e.g., exhaust gas temperature, detonation sensors, etc.). Engine temperature sensors may be disabled.
- 17.5.3 Flywheel cover may be modified to accept a crankshaft-end bearing support.
- 17.5.4 Replacement batteries are allowed but must fit into the original equipment battery box and be securely fastened.
- 17.5.5 Relocation of electrical components (e.g., battery, box or housing) is allowed in order to fit an aftermarket exhaust system (only the strict minimum needed). Modification will be subject to Race/Tech Directors' approval

**17.6 DRIVELINE – TWO-STROKE**

- 17.6.1 Impeller housing, stator vane assembly, pump mounting plate and/or pump shoe may be modified or aftermarket. No titanium driveshaft, impeller housing or stator vane assemblies. Impeller may be modified or aftermarket. Pump nozzle and directional nozzle may be modified or aftermarket. Overall length of the complete pump and nozzle assembly may be no more than 50.00mm (1.97 in.) longer than original equipment.
- 17.6.2 Aftermarket nozzle-trim systems may be used.
- 17.6.3 Additional cooling fittings may be installed. Visibility spout must be removed or plugged. Silicone adhesive sealant may be used in addition to original equipment seal to seal pump inlet.
- 17.6.4 Couplers, bearing housing and driveshaft may be modified or aftermarket provided they maintain a 1:1 drive ratio between the engine and the pump.

**ENGINE- FOUR STROKE**

- 17.6.5 Engines may be bored. Replacement piston assemblies may be used provided compression ratio, dome profile, skirt length and shape and type of material are not changed. Non-conforming pistons (ie skirt shape that is not an exact replica of the OEM piston) may be approved by the IJSBA but such approval must be obtained in writing. Replacement piston assemblies must weigh within  $\pm 25.00\%$  of original equipment. Engine displacement must not exceed class designation unless otherwise noted. Cylinder head combustion chambers may be cleaned by bead blasting with valves seated in place. Intake and exhaust ports may not be bead blasted or cleaned with abrasive material such as steel wool or Scotch-Brite®. Repairs to the cylinder head affecting one cylinder bank are allowed.

The maximum displacement that may be achieved on a naturally aspirated Four Stroke engine, in Ski Mod Lites, is 1100cc.

- 17.6.6 Repairs may be made to cracked or damaged cylinders by installing a cylinder sleeve. The head gasket surface of the cylinder block may be machined only to allow for the installation of the new sleeves (see appendix for description). A thicker head gasket must be utilized to return the block deck height to within .155mm (.06in) of original height. The repair must offer no additional performance gains. Cylinders that are originally coated with Nikasil, or similar coating, may be replated, with Nikasil, or an approved replacement material, when repaired.
- 17.6.7 Crankshaft must remain stock. Replacement bearings or bearing shells are allowed, providing they maintain their original type and dimensions.
- 17.6.8 Camshaft(s) must remain stock. Replacement bearings or bearing shells are allowed, providing they maintain their original type and dimensions. Camshaft timing may be changed.
- 17.6.9 Intake and exhaust valves may be shimmed with OEM or aftermarket shims. Valves and valve seats are not restricted to OEM providing that any replacement valves or seats maintain the OEM weights and dimensions.
- 17.6.10 Engine water cooling systems may be modified or aftermarket. Additional water cooling lines and after market water bypass fittings may be added. OEM water bypass fittings may be modified or relocated. All bypass fittings must be directed downward and/or rearward so as not to create a hazard for other riders. Additional cooling supply lines and fittings may be added to the pump. Pump water inlet covers and water strainers (filters) may be modified or aftermarket. Water inlet covers that are removable from the engine block may be modified or aftermarket. OEM dry fittings that tap into the water jacket may be modified or aftermarket and may accept water so long as the OEM opening is not enlarged. Volume changes to OEM water supply fittings are not allowed. Existing fittings may be aftermarket or modified so long as the OEM thread diameter is maintained.  
  
Fittings may not be added to the cylinder head, cylinder, or crankcase. Intercooler pressure relief valves (mechanical) are allowed for the purposes of regulating water pressure. Any valves used within the entire cooling system must be of the fixed type or automatic (e.g., thermostats, pressure regulators, etc.). Electronically controlled valves or water injections systems are not allowed unless originally equipped. Manually controlled devices (by any means of actuation) that alter the flow of cooling water during operation are not allowed. Cooling system flush kits are allowed.
- 17.6.11 Valve cover may be modified or replaced for cosmetic purposes and/or weight reduction only.

- 17.6.12 Replacement of general maintenance parts (e.g., gaskets, seals, spark plugs, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, clamps and fasteners) shall not be restricted to original equipment providing the following:
- 1) Replacement gaskets may be used but must be of the same type (e.g., sheet, o-ring, etc.) as their OEM counterparts. With the exception of head gaskets and base gaskets, all replacement gaskets must maintain a thickness of plus or minus 20% of the OEM gasket thickness as furnished by the manufacturer. Base gasket cannot be thicker than 0.8mm (0.032in). Head gaskets must be no thinner than .005mm (0.002in) than the OEM thickness as supplied by the manufacturer. Head gaskets must be no thicker than 1.55mm (0.06in) than the OEM thickness as supplied by the manufacturer.
  - 2) Stripped threads must be repaired to the original size.
  - 3) Fasteners (e.g., bolts, nuts and washers) may not be substituted with titanium pieces unless originally equipped. Fasteners may integrate locking mechanisms.
- 17.6.13 Exhaust manifolds that have previously been drilled or tapped may be used so long as the holes are filled or capped.
- 17.6.14 No internal modifications of any kind, including grinding, surfacing, polishing, machining, shot peening, etc., will be allowed on any engine components.
- 17.6.15 Replacement starter motor and bendix may be used.
- 17.6.16 Replacement engine mounts may be used.
- 17.6.17 IJSBA Approved aftermarket valves, valve springs, and valve spring retainers may be used.

## **17.7 AIR/FUEL DELIVERY — FOUR-STROKE**

- 17.7.1 The entire fuel system is a closed system. The watercraft must not vent or spill fuel at any attitude with or without the engine running. Original equipment fuel tank, fuel filler and relief valve must be used and cannot be modified. The fuel pickup, fuel filter and fuel petcock assembly may be removed and/or aftermarket parts may be used. Additional fuel filters may be used and fuel cell foam may be added to the original equipment fuel tank. Fuel tank filler cap may be modified or aftermarket provided a hazard is not created.
- 17.7.2 Throttle bodies must remain stock as supplied by the manufacturer. No changing of throttle plate angles and/or modifications to the throttle body housing. No phenolic or aluminum spacers are allowed behind the throttle body.

## **17.8 DRIVELINE -- FOUR STROKE**

- 17.8.1 Impeller may be modified or aftermarket, providing that the original diameter is maintained. Replacement wear rings that are within OEM internal diameter specifications may be used. Silicone adhesive sealant may be used in addition to original equipment seal to seal pump inlet. Visibility spout must be removed or plugged.
- 17.8.2 No internal modifications of any kind, including grinding, surfacing, polishing, machining, shot peening, etc., will be allowed on any driveline components (e.g., pump stator, reduction nozzle, etc.).



## 18 SKI SUPERSTOCK CLASS

### 18.1 SKI SUPERSTOCK CLASS COMPETITION

Competitors in this class are allowed modifications to gain maximum machine and engine performance while restricting the build costs by prohibiting aftermarket hulls. This category of competition is intended to encourage innovation above Stock Class Ski PWC divisions with some degree of cost control. Watercraft competing in this class must conform to the specifications which follow. The Ski Superstock Class is exclusively for 2017-2018 Kawasaki SX-R.

**NOTE:** Due to the speed capabilities of Ski Superstock, it is highly recommended that all competitors must possess an Expert or Pro license prior to participating.

**DISPLACEMENT:** The maximum displacement that may be achieved in the Ski Superstock Class is 1500 cc.

- 18.1.1 All watercraft must remain strictly stock, except where rules allow or require substitutions or modifications. Creating a Modified Class watercraft begins with a stock OEM watercraft even where the hull, top deck, and engine may come from other sources; these are changes made to an original OEM starter unit. Changes or modifications not listed here are not permitted. Some original equipment components may not comply with IJSBA rules. **NOTE:** When rules permit or require equipment to be installed, replaced, altered or fabricated, it is the sole responsibility of the rider to select components, materials and/or fabricate the same so that the watercraft operates safely in competition.
- 18.1.2 Original equipment parts may be updated or backdated to newer original equipment parts of the same model. The part must be a bolt-on requiring no modifications to that part or any other parts except where rules allow substitutions or modifications.
- 18.1.3 Sound level shall not exceed 86 dB(a) at 22.86m (75 ft.). See Section 19.5 (pg. 76).
- 18.1.4 Engine fuel must consist of gasoline meeting the criteria defined in Section 34.4.

### 18.2 HULL

- 18.2.1 All watercraft must have a flexible tow loop attached to the bow. The tow loop should be made of a flexible material (e.g., nylon strap, rope, etc.) so as not to create a hazard. Tow hooks which protrude beyond the plane of the hull must be removed.
- 18.2.2 Hull and deck repairs may be made. However, these repairs must not alter the original configuration by more than 2.00mm (0.08 in.). Other than for the use of fasteners and the placement of allowable relocated parts (i.e., ECU), the bulkhead may not be modified.

- 18.2.3 All watercraft may be equipped with a maximum of two sponsons. Original equipment sponsons may be modified, aftermarket, repositioned or removed. Overall length of each sponson shall not exceed 91.45cm (36.00 in.). Sponsons shall not protrude from the side of the hull by more than 100.00mm (3.94 in.) when measured in a level horizontal plane. The vertical channel created by the underside of the sponson shall not exceed 63.5mm (2.50in). No part of the sponson shall extend downward below the point at which the side of the hull intersects the bottom surface of the hull by more than 38.00mm (1.50 in.). Aftermarket or modified sponsons must exceed 6mm (0.24 in.) in thickness. All leading edges must be radiused so as not to create a hazard. Sponsons may not be attached to the planing surfaces of the hull. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagrams in Appendix.) Sponsons may be attached to the inside of the bond flange, but no part of the sponson may extend more than 38.00mm (1.500 in.) below the lower part of the bond flange (bumper removed). Sponsons attached to the inside of the bond flange shall not protrude outside the bond flange (bumper removed) when measured in a level horizontal plane.
- 18.2.4 Intake grate may be modified or aftermarket. Intake grate is required and must be the full-length type with at least one bar running parallel to the drive shaft. Grates may not extend more than 12.00mm (0.47 in.) below the flat plane of the pump intake area. All leading edges must be radiused so as not to create a hazard.
- 18.2.5 Pump cover plate may be modified or aftermarket. An extension may be added to the rear of the pump cover plate but shall not exceed the width of the original equipment plate. Modified and aftermarket plates must not extend more than 100.00mm (3.94 in.) beyond the end of the original equipment plate. The sides of the extension must be connected to the radiused portion of the pump plate so as not to create a hazard. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagram in Appendix.)
- 18.2.6 Replacement trim plates may be used. Only replica parts that offer handling characteristics the same as stock are allowed. Material shall not be restricted to original equipment provided a hazard is not created (i.e., aluminum in place of plastic). See Glossary of Terms for definition of Replacement and Replica.
- 18.2.7 Replacement bumpers may be used provided a hazard is not created.
- 18.2.8 A soft, flexible water-spray deflector may be attached to the hull sides or to the bond flange provided a hazard is not created. No part of the deflector may extend beyond the perimeter of the original equipment bumper or side mouldings as measured by a plumb line.

- 18.2.10 Hood, handlebar, throttle, throttle cable, and grips may be modified or aftermarket. Handlebar cover may be modified or removed. Aftermarket switches and switch housings may be used. Steering shaft, steering shaft holder and handlebar holder may be aftermarket. The handlebar must be padded at the mounting bracket or, if it has a crossbar, the crossbar must be padded. Quick-turn steering modifications to alter steering ratio are allowed. Aftermarket steering cables will be allowed.

Handlepole (and mounting bracket) may be modified or aftermarket provided it functions as originally designed. Handlepole attaching point may be reinforced.

- 18.2.11 Padding and/or mat kits may be added and custom painting is allowed. The surface finish of any metal component outside the hull area above the bond flange may be polished, shot peened or painted.
- 18.2.12 Original bilge pump may be modified or disconnected. Aftermarket bilge draining systems that do not create a hazard are allowed.
- 18.2.13 Engine compartment ventilation tubes may be modified, aftermarket, or removed. Inlet and outlet openings may not be enlarged (i.e., when the tube is removed, the opening may not be larger than stock). Vents may be shielded or plugged. No other modifications to the hood will be allowed.
- 18.2.14 Ballast weight may be added within the normally exposed areas of the hull to alter the handling of the watercraft provided a hazard is not created. Only weight consisting of constant mass (i.e., water or other fluid is not allowed) that does not require the modification or relocation of any parts will be allowed unless such modification or relocation is specified by other rules.

### **18.3 ENGINE**

- 18.3.1 Engine blocks may be interchanged between homologated watercraft of any OEM manufacturer except in the case of the 2017 Kawasaki SX-R which must use the engine block furnished by the manufacturer. Original OEM engine blocks must be used. Internal modifications to the oil and/or water exposed surfaces will be allowed. The head gasket surface of the cylinder block may be machined.
- 18.3.2 The original cylinder head casting must be used. Intake and exhaust runners may be modified. Material may be added to the runners. Intake and exhaust ports may be modified. Port diameters and shapes may be changed. Combustion chambers may be modified. Material may be added to the combustion chamber. The original number of intake and exhaust valves must be the same as original.

Repairs to the cylinder head affecting one cylinder bank are allowed. The head gasket surface may be machined.

- 18.3.3 Aftermarket valve train components are allowed, providing the original method of activation is maintained (e.g., if originally activated by a camshaft, they may not be converted to solenoid activation). Valves may be shimmed with OEM or aftermarket shims. Valve springs may be modified or aftermarket.
- Camshaft(s) may be aftermarket. The number of camshafts must be the same as original. Original bearing type and dimensions must be used. Cam timing may be changed. Cam gears, tensioners, chain or belt may be modified or aftermarket.
- 18.3.4 Engines may be bored. Aftermarket piston assemblies are allowed. Engine displacement must not exceed class designation.
- 18.3.5 Crankshaft may be modified or aftermarket. Total weight of the crankshaft must be within  $\pm 5.00\%$  of original equipment. Replacement bearings or bearing shells are allowed, providing they maintain their original type and dimensions.
- 18.3.6 Engine balancing assemblies may be modified, aftermarket, or removed.
- 18.3.7 Aftermarket connecting rods made of ferrous materials are allowed. Rod length may be changed.
- 18.3.8 Exhaust system (i.e., manifold, connecting pipes, hoses, muffler(s), etc.) may be modified or aftermarket. Through-hull exhaust may be modified or aftermarket, providing a hazard is not created. No tuned portion of the exhaust system may protrude outside of the hull. Exit location of the exhaust gases may be relocated to the transom below the bond flange.
- 18.3.9 Cooling system may be modified or aftermarket. Additional cooling lines may be added. Aftermarket water bypass systems may be used. Cooling system bypass fittings may be modified or aftermarket and/or relocated but must be directed downward and/or rearward so as not to create a hazard for other riders. Any valves used within the entire cooling system must be of the fixed type or automatic (e.g., thermostats, pressure regulators, solenoids, etc.). Manually controlled devices (by means of actuation) that alter the flow of cooling water during operation are not allowed. Original cooling system thermostat may be removed, modified or aftermarket. Cooling system flush kits are allowed.
- 18.3.10 Baffles in oil reservoir may be modified. The addition of baffles in oil reservoir is allowed. Oil pump may be modified or aftermarket.
- 18.3.11 Valve cover may be replaced for cosmetic purposes and/or weight reduction only.
- 18.3.12 Replacement starter motor and bendix may be used.
- 18.3.13 Replacement engine mounts may be used.
- 18.3.14 External modifications to the engine finish (e.g., plating, polishing and/or painting) are allowed for cosmetic purposes only.

- 18.3.15 Replacement of general maintenance parts (e.g., gaskets, seals, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, fuel filters, oil filters, clamps and fasteners) shall not be restricted to original equipment. Stripped threads may be repaired. Fasteners may integrate locking mechanisms.

#### **18.4 AIR/FUEL DELIVERY — FOUR-STROKE**

- 18.4.1 The original fuel injectors may be modified to increase fuel-flow rate. Aftermarket fuel injectors that increase fuel flow are allowed provided they must not increase airflow into the combustion chamber. Fuel rail and fuel regulator may be modified or aftermarket. Additional fuel injectors may be added. Aftermarket fuel pumps are allowed provided that when the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off fuel pumps are allowed. High-pressure fuel hose meeting SAE J30R9 must be used; only metal type fuel filters may be used on the high-pressure portion of the system; all other in-line filters must be installed on the low-pressure portion of the system.
- 18.4.2 Flame arresters that meet USCG, UL-1111 or SAE J-1928 Marine standards must be used. Airflow sensor may be modified, aftermarket or removed. Ducting between the flame arrestor and throttle body may be modified or aftermarket.
- 18.4.3 Throttle body may be modified or aftermarket. The number of butterflies may be increased but may not exceed the number of cylinders. Intake manifold assembly may be modified or aftermarket.
- 18.4.4 Carburetor(s) may be modified or aftermarket provided they do not vent or spill fuel at any attitude with or without the engine running. Carburetors may be used in addition to or in place of the fuel-injection system. The number of venturis cannot exceed the number of cylinders. No slide-type carburetors. Aftermarket primer may be used. Intake manifold assembly may be modified or aftermarket. Aftermarket air-pulse-pressure operated fuel pumps may be used.
- 18.4.5 The entire fuel system is a closed system. The watercraft must not vent or spill fuel at any attitude with or without the engine running. The fuel tank shall not be restricted to the original equipment, as supplied by the manufacturer, so long as the replacement is an unmodified tank from another homologated PWC and the tank fits securely in the watercraft without causing a hazard. Original equipment fuel filler and relief valve must be used and cannot be modified. The fuel pickup, fuel filter and fuel petcock may be removed and/or aftermarket parts may be used. Additional fuel filters may be used and fuel cell foam may be added to the original equipment fuel tank. Fuel tank filler cap may be modified or aftermarket provided a hazard is not created. Aftermarket fuel tanks not coming from another homologated PWC may be allowed by the race director so long as it is demonstrated that the aftermarket fuel tanks meet or exceed the strengths and safety standards of an OEM fuel tank.

## **18.6 DRIVELINE**

- 18.6.1 Impeller, impeller housing, stator vane assembly, pump mounting plate and/or pump shoe may be modified or aftermarket. Pump nozzle and directional nozzle may be modified or aftermarket. Overall length of the complete pump and nozzle assembly may be no more than 50.00mm (1.97 in.) longer than original equipment. Aftermarket nozzle trim systems may be used. Additional cooling fittings may be installed. Visibility spout must be removed or plugged. Silicone adhesive sealant may be used in addition to original equipment seal to seal pump inlet.
- 18.6.2 Couplers, bearing housing and driveshaft may be modified or aftermarket provided they maintain a 1:1 drive ratio between the engine and the pump.

## 19 SKI GP CLASS

### 19.1 SKI GP CLASS COMPETITION

Competitors in this class are allowed modifications to gain maximum machine and engine performance. This category of competition is intended to encourage intense aftermarket development to all aspects of Ski PWC. Watercraft competing in this class must conform to the specifications which follow. The Ski Grand Prix Class is intended as the most elite and most competitive Ski Class.

**NOTE:** Due to the speeds and precision handling capable from Modified Class Ski PWC, it is highly recommended that all competitors must possess an Expert or Pro license prior to participating.

**DISPLACEMENT:** The maximum displacement for Ski equipped with Two Stroke engines is 1300 CC. The maximum displacement for Ski equipped with naturally aspirated Four Stroke engines is 1500 CC. The maximum displacement for Ski equipped with Four Stroke engines, and are also equipped with a supercharger or turbocharger, is 1100CC.

Forced Induction Four Stroke Engines with a displacement of 900cc or less must have an IJSBA approved device to release all boost pressure above 8 psi.

Forced Induction Four Stroke Engines with a displacement above 900cc must have an IJSBA approved device to release all boost pressure above 6 psi.

A 1500cc based Kawasaki SX-R may compete in an OEM HULL/TOP DECK ONLY and must maintain exact OEM hull dimensions. Aftermarket hulls may resemble the appearance of a Kawasaki SX-R but must conform to the maximum allowed length for an aftermarket hull (97 Inches).

The following are supplementary rules to the NZJSBA/IJSBA Rule Book as passed by the NZJSBA on the 19<sup>th</sup> June 2023 and shall remain effective until further notice.

The following criteria overrides the craft eligibility and displacement criteria as defined under the Ski Grand Prix class ruleset.

<b>Eligibility</b>	The Kawasaki SX-R 1500 may compete in Ski Grand Prix provided that the craft conforms to the currently adopted IJSBA Ski Stock ruleset.
<b>Displacement</b>	For any ski craft equipped with a four stroke engine above 1100cc (incl. when utilised in an aftermarket hull) the engine (incl. intake, exhaust, and ignition) must conform to the currently adopted IJSBA Ski Stock ruleset. The maximum displacement for any craft equipped with a four-stroke engine, and are also equipped with a supercharger or turbocharger, is 900cc. These craft <b>MUST</b> have an approved device to release all boost pressure above 8psi.

- 19.1.1 All watercraft must remain strictly stock, except where rules allow or require substitutions or modifications. Creating a Modified Class watercraft begins with a stock OEM watercraft even where the hull, top deck, and engine may come from other sources; these are changes made to an original OEM starter unit. Changes or modifications not listed here are not permitted. Some original equipment components may not comply with IJSBA rules. NOTE: When rules permit or require equipment to be installed, replaced, altered or fabricated, it is the sole responsibility of the rider to select components, materials and/or fabricate the same so that the watercraft operates safely in competition.
- 19.1.2 Original equipment parts may be updated or backdated to newer original equipment parts of the same model. The part must be a bolt-on requiring no modifications to that part or any other parts except where rules allow substitutions or modifications.
- 19.1.3 Sound level shall not exceed 86 dB(a) at 22.86m (75 ft.). Section 34.5.
- 19.1.4 Engine fuel must consist of gasoline meeting the criteria defined in Section 34.4.

## **19.2 HULL**

- 19.2.1 All watercraft must have a flexible tow loop attached to the bow. The tow loop should be made of a flexible material (e.g., nylon strap, rope, etc.) so as not to create a hazard. Tow hooks which protrude beyond the plane of the hull must be removed.
- 19.2.2 The top deck may be modified or aftermarket, providing the following: Aftermarket hulls and top decks must be approved by the IJSBA through the Aftermarket Hull Homologation Process. The top deck must resemble the generic look of existing homologated Ski watercraft. The generic look may include legal aftermarket components which are integrated into the deck (i.e., rail caps and foot holds). The 2017-2018 Kawasaki SX-R may not utilize an aftermarket top deck. All watercraft in the Ski GP class, regardless of displacement, may utilize an aftermarket hood.

Aftermarket top decks may utilize, or have integrated, a feature which deflects spray and stabilizes handling. These features must be approved by IJSBA and must conform to the following guidelines:

- No part of the feature may protrude over the bond line by more than .75 inches.
- If any part of the feature protrudes over the bond line the protrusion shall be very slight with no more than slight contours protruding.
- Enlarged bumpers must be used in sections where the feature protrudes over the bond line sufficient to be flush with the protrusion.
- No part of the feature may create a channel or opening larger than one inch.
- The featured must have all edges radiused.
- Features must be unbreakable or of a soft flexible material that will not splinter or fragment.
- The decision of the race director as to whether a feature is compliant is final.



Bulk heads may be aftermarket on Ski where an aftermarket hull is allowed. Deck repairs may be made, provided they do not alter the standard configuration by more than 2.00mm (0.08 in.). Decks may be internally reinforced. Fasteners may be installed through the hull and deck for the purpose of securing components to interior surfaces, provided a hazard is not created. If upper and lower components of the original equipment bond flange are separated and rejoined, they must be rejoined by the same method as original equipment (i.e., bonded together with a high-strength adhesive). (See bond flange diagram in Appendix.)

If the watercraft is equipped with footwells, the footwells must be blocked off, during competition, allowing no indentation into the footwell sides.

The decision of the Technical Director and/or Race Director regarding modifications will be final. Any question regarding the legality of modifications should be directed to the IJSBA or IJSBA affiliate prior to use in competition.

- 19.2.3 The hull may be modified or aftermarket but cannot exceed the length or width of the upper deck component of the bond flange as measured by a plumb bob (bumpers removed). Fins, rudders, skegs and other appendages that may create a hazard will not be allowed.

The decision of the Technical Director and/or Race Director regarding modifications will be final. Any question regarding the legality of modifications should be directed to the IJSBA or IJSBA affiliate prior to use in competition.

- 19.2.4 All watercraft may be equipped with a maximum of two sponsons. Original equipment sponsons may be modified, aftermarket, repositioned or removed. Overall length of each sponson shall not exceed 91.45cm (36.00 in.). Sponsons shall not protrude from the side of the hull by more than 100.00mm (3.94 in.) when measured in a level horizontal plane. The vertical channel created by the underside of the sponson shall not exceed 63.00mm (2.50 in.). No part of the sponson shall extend downward below the point at which the side of the hull intersects the bottom surface of the hull by more than 63.5mm (2.50 in.).

Aftermarket or modified sponsons must exceed 6mm (0.24 in.) in thickness. All leading edges must be radiused so as not to create a hazard. Sponsons may not be attached to the planing surfaces of the hull. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagrams in Appendix.)

Sponsons may be attached to the inside of the bond flange, but no part of the sponson may extend more than 38.00mm (1.50 in.) below the lower part of the bond flange (bumper removed). Sponsons attached to the inside of the bond flange shall not protrude outside the bond flange (bumper removed) when measured in a level horizontal plane. The decision of the Technical Director and/or Race Director regarding modifications will be final. Any question regarding the legality of modifications should be directed to the IJSBA or IJSBA affiliate prior to use in competition.

- 19.2.5 Intake grate may be modified or aftermarket. Intake grate is required and must be the full-length type with at least one bar running parallel to the drive shaft. Grates may not extend more than 12.00mm (0.47 in.) below the flat plane of the pump intake area. All leading edges must be radiused so as not to create a hazard.
- 19.2.6 Pump cover plate may be modified or aftermarket. An extension may be added to the rear of the pump cover plate but shall not exceed the width of the original equipment plate. Modified and aftermarket plates must not extend more than 100.00mm (3.94 in.) beyond the end of the original equipment plate. The sides of the extension must be connected to the radiused portion of the pump plate so as not to create a hazard. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagram in Appendix.)
- 19.2.7 Aftermarket trim tabs, either fixed, automatic and/or rider controlled, may be used. Original equipment trim plates that are detachable from the hull may be removed or replaced when installing aftermarket trim tabs. Trim tabs cannot exceed the width of the planing surface or extend rearward more than 100mm (3.94 in.) beyond the end of the original planing surface. All hull extensions mounted on the hull's transom will be considered as a trim tab. All edges must be radiused so as not to create a hazard. Fins, skegs, rudders and other appendages that may create a hazard are not allowed.
- 19.2.8 Replacement bumpers may be used provided a hazard is not created.
- 19.2.9 A soft, flexible water-spray deflector may be attached to the hull sides or to the bond flange provided a hazard is not created. No part of the deflector may extend beyond the perimeter of the original equipment bumper or side mouldings as measured by a plumb line.
- 19.2.10 Handlebar, throttle, throttle cable, and grips may be modified or aftermarket. Handlebar cover may be modified or removed. Aftermarket switches and switch housings may be used. Steering shaft, steering shaft holder and handlebar holder may be aftermarket. The handlebar must be padded at the mounting bracket or, if it has a crossbar, the crossbar must be padded. Aftermarket steering cables will be allowed.
- 19.2.11 Ski Handlepole (and mounting bracket) may be modified or aftermarket provided it functions as originally designed. Handlepole attaching point may be reinforced.
- 19.2.12 Padding and/or mat kits may be added and custom painting is allowed. The surface finish of any metal component outside the hull area above the bond flange may be polished, shot peened or painted.
- 19.2.13 Original bilge pump may be modified or disconnected. Aftermarket bilge draining systems that do not create a hazard are allowed.
- 19.2.14 Engine compartment foam may be removed, modified or aftermarket.
- 19.2.15 Ballast weight may be added within the normally exposed areas of the hull to alter the handling of the watercraft provided a hazard is not created. Only weight consisting of constant mass (i.e., water or other fluid is not allowed) that does not require the modification or relocation of any parts will be allowed unless such modification or relocation is specified by other rules.

### 19.3 ENGINE – TWO-STROKE

19.3.1 Engines may be bored. Aftermarket piston assemblies are allowed. Engine displacement must not exceed class designation. The number, type, and placement of rings on piston may be changed.

19.3.2 OEM crankcases may be interchanged between homologated watercraft of any OEM manufacturer. Internal modifications to the fuel, oil and/or water exposed surfaces are allowed. Bearing and seal surfaces may not be modified. Filler material may be added to hollow pockets in the base gasket areas. Ignition/stator mounting area modifications are limited to spot facing, drilling and tapping threads for the purpose of mounting an aftermarket or modified ignition system.

Additional carburetor pulse line fittings may be installed. Crankcase drain system may be removed or plugged. Additional mounting holes, not to exceed 10.00mm (0.40 in.) diameter, are allowed provided they do not penetrate the internal surface of the cases.

Base gasket and intake surfaces may be machined. Repairs to cracked or punctured crankcases may be made provided only one damaged area affecting one cylinder bank has been repaired. External modifications to the crankcase finish (e.g., plating, polishing and/or painting) are allowed for cosmetic purposes only. No other external modifications or external repairs will be allowed..

19.3.3 Cylinder and cylinder head may be modified or aftermarket.

19.3.4 Crankshaft assembly may be modified or aftermarket. Stroke and rod length may be changed.

19.3.5 Engine bed and motor mounts may be modified or aftermarket. Engine may be repositioned in the hull.

19.3.6 Engine gaskets may be modified or aftermarket.

19.3.7 Exhaust system (i.e., manifold, head pipe, expansion chamber, waterbox, muffler(s), etc.) may be modified or aftermarket. Through-hull exhaust may be modified or aftermarket, providing a hazard is not created. Exit location of the exhaust gases may be relocated to the transom below the bond flange. No tuned portion of the exhaust system shall protrude outside the hull.

19.3.8 Cooling system may be modified or aftermarket. Aftermarket cooling lines and water bypass systems may be used. Bypass fittings may be modified, aftermarket and/or relocated but must be directed downward and/or rearward so as not to create a hazard for other riders. Any valves used within the entire cooling system must be of the fixed type or automatic (e.g., thermostats, pressure regulators, solenoids, etc.). Manually controlled devices (by any means of actuation) that alter the flow of cooling water during operation are not allowed. Cooling system flush kits are allowed.

19.3.9 Replacement starter motor and bendix may be used.

19.3.10 Oil-injection system may be disconnected or removed.

- 19.3.11 Replacement of general maintenance parts (e.g., spark plugs, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, clamps and fasteners) shall not be restricted to original equipment. Stripped threads can be repaired.

#### **19.4 AIR/FUEL DELIVERY — TWO-STROKE**

- 19.4.1 Carburetor(s) may be modified or aftermarket provided they do not vent or spill fuel at any attitude with or without the engine running. The number of venturis cannot exceed the number of cylinders. No slide-type carburetors. Aftermarket primer may be used. Intake manifold assembly may be modified or aftermarket. Aftermarket crankcase-pressure-operated fuel pumps may be used. Fuel fillers may be relocated internally.
- 19.4.2 Modified or aftermarket vapor/air separators must not exceed 2 in. x 6 in., and must have a return line to the fuel tank open at all times. Additional fuel reservoirs may not be used. Aftermarket or modified electric fuel pumps, not exceeding 4 psi, may be used. When the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off type fuel pumps are allowed.
- 19.4.3 Aftermarket fuel-injection systems and components are allowed provided the following regulations are adhered to: Highpressure fuel hose meeting SAE J30R9 must be used; A.N. threadedtype fittings or equivalent and non-removable, crimped- type clamps must be used on the high-pressure portion of the system (i.e., hose clamps, tie wraps, etc. are not allowed); only metal-type fuel filters may be used on the high-pressure portion of the system; all other in-line filters must be installed on the lowpressure portion of the system. When the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off-type fuel pumps are allowed.
- 19.4.4 The entire fuel system is a closed system. The watercraft must not vent or spill fuel at any attitude with or without the engine running. The fuel tank shall not be restricted to the original equipment, as supplied by the manufacturer, so long as the replacement is an unmodified tank from another homologated PWC and the tank fits securely in the watercraft without causing a hazard. Original equipment fuel filler and relief valve must be used and cannot be modified. The fuel pickup, fuel filter and fuel petcock may be removed and/or aftermarket parts may be used. Additional fuel filters may be used and fuel cell foam may be added to the original equipment fuel tank. Fuel tank filler cap may be modified or aftermarket provided a hazard is not created. Aftermarket fuel tanks not coming from another homologated PWC may be allowed by the race director so long as it is demonstrated that the aftermarket fuel tanks meet or exceed the strengths and safety standards of an OEM fuel tank.
- 19.4.5 Flame arrester(s) which satisfy United States Coast Guard, SAE-J1928 Marine or UL-1111 Marine backfire flame arrester test standards must be installed. Aftermarket flame arresters satisfying one of these test standards will be allowed. Intake silencer may be removed.
- 19.4.6 Reed valve assemblies may be modified or aftermarket. Rotary valve may be modified or aftermarket

**19.5 IGNITION AND ELECTRONICS — TWO-STROKE**

- 19.5.1 Ignition system, electrical box, flywheel and flywheel cover may be modified or aftermarket. Battery charging circuit may be disabled and/or removed.
- 19.5.2 An additional battery and battery box may be used. Batteries must fit into a proper battery box and be securely fastened. Batteries may be relocated.
- 19.5.3 Engine temperature sensor assembly may be disconnected and/or removed.

**19.6 ENGINE — FOUR-STROKE 1101 CC AND ABOVE**

- 19.6.1 Engine blocks may be interchanged between homologated watercraft of any OEM manufacturer except in the case of the 1500cc based Kawasaki SX-R which must use the engine block furnished by the manufacturer. Original OEM engine blocks must be used. Internal modifications to the oil and/or water exposed surfaces will be allowed. The head gasket surface of the cylinder block may be machined.
- 19.6.2 The original cylinder head casting must be used. Intake and exhaust runners may be modified. Material may be added to the runners. Intake and exhaust ports may be modified. Port diameters and shapes may be changed. Combustion chambers may be modified. Material may be added to the combustion chamber. The original number of intake and exhaust valves must be the same as original.
- 19.6.3 Repairs to the cylinder head affecting one cylinder bank are allowed. The head gasket surface may be machined.
- 19.6.4 Aftermarket valve train components are allowed, providing the original method of activation is maintained (e.g., if originally activated by a camshaft, they may not converted to solenoid activation). Valves may be shimmed with OEM or aftermarket shims. Valve springs may be modified or aftermarket.
- 19.6.5 Camshaft(s) may be aftermarket. The number of camshafts must be the same as original. Original bearing type and dimensions must be used. Cam timing may be changed. Cam gears, tensioners, chain or belt may be modified or aftermarket.
- 19.6.6 Engines may be bored. Aftermarket piston assemblies are allowed. Engine displacement must not exceed class designation.
- 19.6.7 Crankshaft may be modified or aftermarket. Total weight of the crankshaft must be within  $\pm 5.00\%$  of original equipment. Replacement bearings or bearing shells are allowed, providing they maintain their original type and dimensions.
- 19.6.8 Engine balancing assemblies may be modified, aftermarket, or removed.
- 19.6.9 Aftermarket connecting rods made of ferrous materials are allowed. Rod length may be changed.

- 19.6.10 Exhaust system (i.e., manifold, connecting pipes, hoses, muffler(s), etc.) may be modified or aftermarket. Through-hull exhaust may be modified or aftermarket, providing a hazard is not created. No tuned portion of the exhaust system may protrude outside of the hull. Exit location of the exhaust gases may be relocated to the transom below the bond flange.
- 19.6.11 Cooling system may be modified or aftermarket. Additional cooling lines may be added. Aftermarket water bypass systems may be used. Cooling system bypass fittings may be modified or aftermarket and/or relocated but must be directed downward and/or rearward so as not to create a hazard for other riders. Any valves used within the entire cooling system must be of the fixed type or automatic (e.g., thermostats, pressure regulators, solenoids, etc.). Manually controlled devices (by means of actuation) that alter the flow of cooling water during operation are not allowed. Original cooling system thermostat may be removed, modified or aftermarket. Cooling system flush kits are allowed.
- 19.6.12 Baffles in oil reservoir may be modified. The addition of baffles in oil reservoir is allowed. Oil pump may be modified or aftermarket.
- 19.6.13 Valve cover may be replaced for cosmetic purposes and/or weight reduction only.
- 19.6.14 Replacement starter motor and bendix may be used.
- 19.6.15 Replacement engine mounts may be used.
- 19.6.16 External modifications to the engine finish (e.g., plating, polishing and/or painting) are allowed for cosmetic purposes only.
- 19.6.17 Replacement of general maintenance parts (e.g., gaskets, seals, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, fuel filters, oil filters, clamps and fasteners) shall not be restricted to original equipment. Stripped threads may be repaired. Fasteners may integrate locking mechanisms

**19.7 ENGINE — FOUR-STROKE 1100 CC AND LESS**

19.7.1 Engine blocks may be interchanged between homologated watercraft of any OEM manufacturer so long as the displacement of the donor engine was 1100 or less as furnished by the manufacturer. Original OEM engine blocks must be used. Internal modifications to the oil and/or water exposed surfaces will be allowed. The head gasket surface of the cylinder block may be machined.

19.7.2 The original cylinder head casting must be used. Intake and exhaust runners may be modified. Material may be added to the runners. Intake and exhaust ports may be modified. Port diameters and shapes may be changed. Combustion chambers may be modified. Material may be added to the combustion chamber. The original number of intake and exhaust valves must be the same as original.

Repairs to the cylinder head affecting one cylinder bank are allowed. The head gasket surface may be machined.

19.7.3 Aftermarket valve train components are allowed, providing the original method of activation is maintained (e.g., if originally activated by a camshaft, they may not be converted to solenoid activation). Valves may be shimmed with OEM or aftermarket shims. Valve springs may be modified or aftermarket.

Camshaft(s) may be aftermarket. The number of camshafts must be the same as original. Original bearing type and dimensions must be used. Cam timing may be changed. Cam gears, tensioners, chain or belt may be modified or aftermarket.

19.7.4 Engines may be bored. Aftermarket piston assemblies are allowed. Engine displacement must not exceed class designation

19.7.5 Crankshaft may be modified or aftermarket. Total weight of the crankshaft must be within  $\pm 5.00\%$  of original equipment. Replacement bearings or bearing shells are allowed, providing they maintain their original type and dimensions.

19.7.6 Engine balancing assemblies may be modified, aftermarket, or removed.

19.7.7 Aftermarket connecting rods made of ferrous materials are allowed. Rod length may be changed.

19.7.8 Exhaust system (i.e., manifold, connecting pipes, hoses, muffler(s), etc.) may be modified or aftermarket. Through-hull exhaust may be modified or aftermarket, providing a hazard is not created. No tuned portion of the exhaust system may protrude outside of the hull. Exit location of the exhaust gases may be relocated to the transom below the bond flange.

- 19.7.9 Cooling system may be modified or aftermarket. Additional cooling lines may be added. Aftermarket water bypass systems may be used. Cooling system bypass fittings may be modified or aftermarket and/or relocated but must be directed downward and/or rearward so as not to create a hazard for other riders. Any valves used within the entire cooling system must be of the fixed type or automatic (e.g., thermostats, pressure regulators, solenoids, etc.). Manually controlled devices (by means of actuation) that alter the flow of cooling water during operation are not allowed. Original cooling system thermostat may be removed, modified or aftermarket. Cooling system flush kits are allowed.
- 19.7.10 Baffles in oil reservoir may be modified. The addition of baffles in oil reservoir is allowed. Oil pump may be modified or aftermarket.
- 19.7.11 Valve cover may be replaced for cosmetic purposes and/or weight reduction only.
- 19.7.12 Replacement starter motor and bendix may be used.
- 19.7.13 Replacement engine mounts may be used.
- 19.7.14 External modifications to the engine finish (e.g., plating, polishing and/or painting) are allowed for cosmetic purposes only.
- 19.7.15 Replacement of general maintenance parts (e.g., gaskets, seals, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, fuel filters, oil filters, clamps and fasteners) shall not be restricted to original equipment. Stripped threads may be repaired. Fasteners may integrate locking mechanisms.

## **19.8 AIR/FUEL DELIVERY — FOUR-STROKE**

- 19.8.1 The original fuel injectors may be modified to increase fuel-flow rate. Aftermarket fuel injectors that increase fuel flow are allowed provided they must not increase airflow into the combustion chamber. Fuel rail and fuel regulator may be modified or aftermarket. Additional fuel injectors may be added. Aftermarket fuel pumps are allowed provided that when the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off fuel pumps are allowed. High-pressure fuel hose meeting SAE J30R9 must be used; only metal type fuel filters may be used on the high-pressure portion of the system; all other in-line filters must be installed on the low-pressure portion of the system.
- 19.8.2 Flame arresters that meet USCG, UL-1111 or SAE J-1928 Marine standards must be used. Airflow sensor may be modified, aftermarket or removed. Ducting between the flame arrestor and throttle body may be modified or aftermarket.
- 19.8.3 Throttle body may be modified or aftermarket. The number of butterflies may be increased but may not exceed the number of cylinders. Intake manifold assembly may be modified or aftermarket.



- 19.8.4 Carburetor(s) may be modified or aftermarket provided they do not vent or spill fuel at any attitude with or without the engine running. Carburetors may be used in addition to or in place of the fuel-injection system. The number of venturis cannot exceed the number of cylinders. No slide-type carburetors. Aftermarket primer may be used. Intake manifold assembly may be modified or aftermarket. Aftermarket air-pulse-pressure operated fuel pumps may be used.
- 19.8.5 The entire fuel system is a closed system. The watercraft must not vent or spill fuel at any attitude with or without the engine running. The fuel tank shall not be restricted to the original equipment, as supplied by the manufacturer, so long as the replacement is an unmodified tank from another homologated PWC and the tank fits securely in the watercraft without causing a hazard. Original equipment fuel filler and relief valve must be used and cannot be modified. The fuel pickup, fuel filter and fuel petcock may be removed and/or aftermarket parts may be used. Additional fuel filters may be used and fuel cell foam may be added to the original equipment fuel tank. Fuel tank filler cap may be modified or aftermarket provided a hazard is not created. Aftermarket fuel tanks not coming from another homologated PWC may be allowed by the race director so long as it is demonstrated that the aftermarket fuel tanks meet or exceed the strengths and safety standards of an OEM fuel tank.

## **19.9 TURBOCHARGER/SUPERCHARGER**

In the Ski Modified Class, a turbocharger or Supercharger may only be affixed to a Ski Watercraft with a displacement of 1100cc or less.

- 19.9.1 Turbocharger housing must be of the full circulating, water-jacket type at all times when the engine is running. Aftermarket turbochargers and superchargers may be used provided a hazard is not created. Original turbocharger or supercharger may be modified. Aftermarket turbochargers and superchargers may be added to originally normally aspirated watercraft. All hoses and pipes may be modified or aftermarket. Where the Race Director, or Technical Inspector, cannot determine if a turbocharger is sufficiently water-jacketed then a heat wrap and/or additional cooling mechanisms may be added to ensure safety.
- 19.9.2 Intercooler may be modified or aftermarket.
- 19.9.3 An IJSBA approved boost pressure-relief valve must be set to release all pressure above 8.00 PSI for engines with displacements 900cc or less and 6.00 PSI for engines with displacements above 900cc.
- 19.9.4 Boost sensor may be modified or aftermarket.

**19.10 DRIVELINE**

- 19.10.1 Impeller, impeller housing, stator vane assembly, pump mounting plate and/or pump shoe may be modified or aftermarket. Pump nozzle and directional nozzle may be modified or aftermarket.

Overall length of the complete pump and nozzle assembly may be no more than 50.00mm (1.97 in.) longer than original equipment. Aftermarket nozzle trim systems may be used. Additional cooling fittings may be installed. Visibility spout must be removed or plugged. Silicone adhesive sealant may be used in addition to original equipment seal to seal pump inlet.

- 19.10.2 Couplers, bearing housing and driveshaft may be modified or aftermarket provided they maintain a 1:1 drive ratio between the engine and the pump.

## 20 SPORT SPEC CLASS

### 20.1 SPORT SPEC CLASS COMPETITION

Intended to promote interest in personal watercraft competition with a limited number of modifications, and to enable individuals to become active competitors with a relatively modest investment. Watercraft that are eligible to compete in this class are: Kawasaki X2 (Pre 05); Kawasaki X2 (05-07); Polaris Hurricane; Sea Doo HX and Yamaha Waveblaster 701. Watercraft competing in this class must conform to the specifications which follow. These rules are specifically outlined for each individual model to promote close competition..

**\*\*** For 2011, the Kawasaki Gen 1 - X2 (pre 2005) will have two options:

Option 1) Kawasaki Gen 1 - X2 (old style, pre 2005) are allowed to update to 750 or 800 Kawasaki engines and electronics; and are to follow IJSBA Open class rules. (810cc limit)

OR

Option 2) Kawasaki Gen 1 - X2 (old style, pre 2005) may upgrade to a Kawasaki 900 or 1100 motor, exhaust, electronics and carbs. Carburetors jets, needles/seats may be replace. Aftermarket flame arrestors and adaptors are allowed. REMAINING motor and electronics must remain OEM as from factory. All other modifications are to follow IJSBA Open Class rules

20.1.1 All watercraft must remain strictly stock, except where rules allow or require substitutions or modifications. Changes or modifications not listed here are not permitted. The IJSBA may allow additional modifications to Stock Classified PWC which provide for replacement/reinforcements to parts and components (i.e. brackets, fittings, etc.) that have known failure risks in race conditions. Such changes will only be allowed if the changes allow for no volume or performance gains. Such allowances are only legal if published by the IJSBA. Some original equipment components may not comply with IJSBA rules. Hull Identification Numbers must be displayed as furnished by the manufacturer.

**NOTE:** When rules permit or require equipment to be installed, replaced, altered or fabricated, it is the sole responsibility of the rider to select components, materials and/or fabricate the same so that the watercraft operates safely in competition

20.1.2 Original equipment parts may be updated or backdated to newer original equipment parts of the same model. The part must be a bolt-on requiring no modifications to that part or any other parts except where rules allow substitutions or modifications.

20.1.3 Sound level shall not exceed 86 dB(a) at 22.86m (75 ft.). Section 34.5.

20.1.4 Engine fuel must consist of gasoline meeting the criteria defined in Section 34.4.

## 20.2 HULL

20.2.1 All watercraft must have a flexible tow loop attached to the bow. The tow loop should be made of a flexible material (e.g., nylon strap, rope, etc.) so as not to create a hazard. Tow hooks which protrude beyond the plane of the hull must be removed.

20.2.2 Hull and deck repairs may be made. However, these repairs must not alter the original configuration by more than 2.00mm (0.08 in.). Hull, bulkhead and deck may be internally reinforced.

Fasteners may be installed through the hull, bulkhead and deck for the purposes of securing components to interior surfaces, provided a hazard is not created. Bulkhead may be cut for exhaust or electrical routing. Fire extinguisher, fuel petcock and choke holes may be filled or capped.

20.2.3 All watercraft may be equipped with a maximum of four sponsons. Original equipment sponsons may be modified, aftermarket, repositioned or removed. Overall length of each sponson shall not exceed 91.45cm (36.00 in.). length shall be limited to 1,524 mm (60 in) in a single or two sponson configuration (per side). The decision of the Technical Director and/or Race Director regarding modifications will be final. Any question regarding the legality of modifications should be directed to the IJSBA or IJSBA affiliate prior to use in competition. Sponsons shall not protrude from the side of the hull by more than 100.00mm (3.94 in.) when measured in a level horizontal plane. The vertical channel created by the underside of the sponson shall not exceed 63.5mm (2.50 in.). No part of the sponsons shall extend downward below the point at which the side of the hull intersects the bottom surface of the hull by more than 63.5mm (2.50 in.). Aftermarket or modified sponsons must exceed 6mm (0.24 in.) in thickness. All leading edges must be radiused so as not to create a hazard. Sponsons may not be attached to the planing surfaces of the hull. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagrams in Appendix.).

The decision of the Technical Director and/or Race Director regarding modifications will be final. Any question regarding the legality of modifications should be directed to the IJSBA or IJSBA affiliate prior to use in competition.

20.2.4 Intake grate may be modified or aftermarket. Intake grate is required and must be the full-length type with at least one bar running parallel to the drive shaft. Grates may not extend more than 12.00mm (0.47 in.) below the flat plane of the pump intake area. All leading edges must be radiused so as not to create a hazard.

20.2.5 Pump cover plate may be modified or aftermarket. An extension may be added to the rear of the pump cover plate but shall not exceed the width of the original equipment plate. Modified and aftermarket plates must not extend more than 177.80mm (7.00 in.) beyond the end of the original equipment plate. The sides of the extension must be connected to the radiused portion of the pump plate so as not to create a hazard. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagram in Appendix.). Pump shoe may be aftermarket but may not extend more than 12.00mm (0.47 in.) below the flat plane of the pump intake area of the hull.

- 20.2.6 Aftermarket fixed-position trim tabs may be used. Original equipment trim plates that are detachable from the hull may be removed or replaced when installing aftermarket trim tabs. Trim tabs cannot exceed the width of the planning surface or extend rearward more than 100.00mm (3.94 in.) beyond the end of the original planning surface. Manual or automatic trim tabs attached to the hull or ride plate are not allowed. All hull extensions mounted on the hull's transom will be considered as a trim tab. All edges must be radiused so as not to create a hazard. Fins, skegs, rudders and other appendages that may create a hazard are not allowed.
- 20.2.7 Kawasaki Generation 1 X2 (pre-2005) may add front hull fills providing these fills do not exceed 36 inches in length measured from the front most surface of the hull towards the rear of the hull. Replacement bumpers may be used provided a hazard is not created
- 20.2.8 A soft, flexible water-spray deflector may be attached to the hull sides or to the bond flange provided a hazard is not created. No part of the deflector may extend beyond the perimeter of the original equipment bumper or side mouldings as measured by a plumb line.
- 20.2.9 Battery box may be relocated.
- 20.2.10 Handlebar, throttle, throttle cable, and grips may be modified or aftermarket. Handlebar cover may be modified or removed. Aftermarket switches and switch housings may be used. Steering shaft, steering shaft holder and handlebar holder may be aftermarket. The handlebar must be padded at the mounting bracket or, if it has a crossbar, the crossbar must be padded. Aftermarket steering cables will be allowed.
- 20.2.11 Seat height may be changed and/or covered but must utilize OEM stock base. Base may have holes providing they do not add additional airflow to engine compartment. Padding and/or mat kits may be added and custom painting is allowed. The surface finish of any metal component outside the area above the hull bond flange may be polished, shot peened or painted.
- 20.2.12 Original bilge pump may be modified or disconnected. Aftermarket bilge draining systems that do not create a hazard are allowed.
- 20.2.13 Engine compartment ventilation tubes may be modified, aftermarket, relocated on the original equipment ducting, or removed. Inlet and outlet openings may not be enlarged (i.e., when the tube is removed, the opening may not be larger than stock). Vents may be shielded or plugged. No other modifications to the hood will be allowed. Polaris Hurricane hood/mirror cowling may be replace providing it does not create additional airflow to engine compartment.

## **ENGINE**

- 20.2.14 All spec eligible Engines may be bored a MAX of 1mm. Yamaha Waveblaster may upgrade to 701 62T style cylinders. Pre-1996 Yamaha Waveblaster may update to 1996 and newer engine components.

- 20.2.15 Replacement piston assemblies may be used provided the original port timing, dome profile, skirt length and shape and type of material are not changed. Replacement piston assemblies must weigh within  $\pm 5.00\%$  of original equipment. Chamfering of cylinder ports must not exceed 1.00mm (0.04 in.) at a 30 degree maximum angle. (See diagram in Appendix.) Cylinders may be machined to accept girdle system cylinder heads.
- 20.2.16 Replacement starter motor and bendix may be used. Replacement engine mounts may be used.
- 20.2.17 Crankshaft may be rebuilt using replacement counterweights, crank pins, bearings and connecting rods.
- 20.2.18 Counterweights, crank pins and connecting rods made of non-ferrous metals are not allowed. Stroke and rod length may not be changed. Counterweights on non-rebuildable style crankshafts may be machined to accept a press-through crank pin. Replacement bearings must maintain their original type and dimensions.
- 20.2.19 Replacement counterweights must resemble the original part (i.e., holes and/or pockets not existing on the original part may not be on the replacement part). Total weight of the crank- shaft assembly must be within  $\pm 5.00\%$  of original equipment. Crankpins may be welded and/or keyed to the counterweights.
- 20.2.20 Repairs to cracked or punctured crankcases may be made provided only one damaged area affecting one cylinder bank has been repaired. Crankcase drain and cable may be removed and plugged. No other modifications or repairs are allowed. External modifications to the engine finish (e.g., plating, polishing and/or painting) are allowed for cosmetic purposes only.
- 20.2.21 No internal modifications of any kind, including grinding, surfacing, polishing, machining, shot peening, etc., will be allowed on any engine components.
- 20.2.22 Kawasaki, Polaris and Yamaha Cylinder heads and gasket may be modified or aftermarket providing they do NOT exceed 190lbs of compression. Kawasaki, Polaris and Yamaha aftermarket or OEM head domes must not go below .040 head squish clearance at any point. Sea Doo HX heads may be modified but may not go below .051 head squish clearance and may not exceed 175lbs of compression. Drop down style domes are not allowed on any model.
- 20.2.23 Kawasaki, Polaris and Yamaha Exhaust manifold, head pipe, expansion chamber, gaskets and all hoses between expansion chamber and exhaust exit may be modified/altered or aftermarket. Only exhausts originally manufactured as a wet style systems will be allowed. Exhausts originally intended as dry type systems may NOT be used. No water jacked chambers are allowed. Exhaust exit may be relocated to the rear of the hull. Kawasaki, Yamaha and Polaris waterbox may be relocated and aftermarket. SeaDoo HX may update /backdate to either year OEM factory HX waterbox. SeaDoo HX may plug water fittings on OEM waterbox. No spray bars may be added to HX waterbox.
- 20.2.24 Flow control valves may be used. No tuned portion of the exhaust shall protrude outside the hull. Through-hull exhaust outlet flap may be removed.

Electronic water injection is NOT allowed on any model. Sea Doo HX must retain unmodified stock HX exhaust system and waterbox. Sea Doo HX may not use stinger sprayers or water injectors. Sea Doo HX must use stock from factory water routing, no additional water bypasses will be allowed.

- 20.2.25 Replacement of general maintenance parts (e.g., gaskets, seals, spark plugs, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, clamps and fasteners) shall not be restricted to original equipment providing the following:
- 1) Replacement gaskets may be used. Base gasket must remain OEM thickness for each individual model or as outlined in service manual.
  - 2) Fasteners (e.g., bolts, nuts and washers) may not be substituted with titanium pieces unless originally equipped. Fasteners may integrate locking mechanisms.
  - 3) Sea Doo HX may upgrade to larger bolts or studs for the exhaust system.

### **20.3 AIR/FUEL DELIVERY**

- 20.3.1 Polaris Hurricane and Yamaha Waveblaster Carburetor(s) may be modified or aftermarket provided they do not vent or spill fuel at any attitude with or without the engine running. The number of venturis cannot exceed the number of cylinders. No slide-type carburetors. Sea Doo HX must retain stock carbs from that model; but may be rejettet and de-choked. Aftermarket primer may be used.
- 20.3.2 Polaris Hurricane, Kawasaki X2 (05-07) and Yamaha Blaster Intake manifold assembly may be modified or aftermarket. SeaDoo HX must retain OEM intake manifold from factory. SeaDoo HX may not adjust timing by rotating stator plate.factory; lines must line up as from factory. Aftermarket crankcase-pressure-operated fuel pumps may be used. Additional carburetor pulse line fittings may be installed on the crankcase.
- 20.3.3 Modified or aftermarket vapor/air separators must not exceed 2 in. x 6 in., and must have a return line to the fuel tank open at all times. Additional fuel reservoirs may not be used. Aftermarket or modified electric fuel pumps, not exceeding 4 psi, may be used. When the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off-type fuel pumps are allowed.
- 20.3.4 The entire fuel system is a closed system. The watercraft must not vent or spill fuel at any attitude with or without the engine running. Original equipment fuel tank, fuel filler and relief valve will not be restricted to OEM upon approval by IJSBA. The fuel pickup, fuel filter and fuel petcock assembly may be removed and/or after-market parts may be used. Additional fuel filters may be used and fuel cell foam may be added to the fuel tank. Fuel tank filler cap may be modified or aftermarket provided a hazard is not created.

- 20.3.5 Original equipment fuel filler and relief valve must be used and cannot be modified. Aftermarket fuel tanks recognized by IJSBA may be used.
- 20.3.6 Flame arrester(s) which satisfy United States Coast Guard, SAE-J1928 Marine or UL-1111 Marine backfire flame arrester test standards must be installed. Aftermarket flame arresters satisfying one of these test standards will be allowed. Intake silencer may be removed. Reed valve assemblies may be modified or aftermarket. Reed spacers may be added. Sea Doo HX Rotary valve must remain OEM stock from factory and retain the factory rotary timing.

## **20.4 IGNITION AND ELECTRONICS**

- 20.4.1 RPM limiter function may be modified. Polaris and Yamaha model CDI units may be modified or aftermarket provided ignition timing is not manually adjustable. Kawasaki Gen 2 (2005- 2007) model CDI may be modified or aftermarket AND programmable. ALL original equipment charging systems must be used. Timing may not be advanced at the stator plate - ALL models must line up stator with factory set mark on cases. Kawasaki X2 may use ignition jumper for heat sensor. Flywheels must be OEM stock and unmodified as provided from the factory. Coils, plug wires and plug caps may be aftermarket. No other ignition system modifications will be allowed.
- 20.4.2 Replacement batteries are allowed but must fit into the original equipment battery box and securely fastened.
- 20.4.3 Engine temperature sensor may be disconnected and/or removed.

## **20.5 DRIVELINE**

- 20.5.1 Stator vane assembly must remain OEM stock from factory. SeaDoo HX may use OEM plastic pump housing provided it retains the small diameter hub and the same amount of veins. Polaris Hurricane my update to the factory superseded Polaris 6 vein pump. Pump mounting plate and/or pump shoe may be modified or aftermarket. Titanium driveshafts are not allowed. Impeller may be modified or aftermarket. Pump nozzle and directional nozzle may be modified or aftermarket. Overall length of the complete pump and nozzle assembly may be no more than 50.00mm (1.97 in.) longer than original equipment, whether using spacers or extended nozzles. Aftermarket nozzle-trim systems may be used. Kawasaki, Polaris and Yamaha models may add additional cooling fitting. Visibility spout must be removed or plugged. Silicone adhesive sealant or alike may be used in addition to original equipment seal to seal pump inlet. Couplers, bearing housing and driveshaft may be modified or aftermarket provided they maintain a 1:1 drive ratio between the engine and the pump. SeaDoo HX must retain OEM unmodified 720 flywheel. Kawasaki X2 may use aftermarket pump cones.
- 20.5.2 SeaDoo HX may use older style carrier assembly with grease fitting.



## 21 SPORT GP CLASS

### 21.1 SPORT GP CLASS COMPETITION

Intended to promote interest in preserving traditional Sport Class personal watercraft competition while allowing a high degree of modification. Watercraft competing in this class must conform to the specifications which follow. This category of racing is not designed with entry level competitors in mind.

- 21.1.1 All watercraft must remain strictly stock, except where rules allow or require substitutions or modifications. Changes or modifications not listed here are not permitted. The IJSBA may allow additional modifications to Stock Classified PWC which provide for replacement/reinforcements to parts and components (i.e. brackets, fittings, etc.) that have known failure risks in race conditions. Such changes will only be allowed if the changes allow for no volume or performance gains. Such allowances are only legal if published by the IJSBA. Some original equipment components may not comply with IJSBA rules. Hull Identification Numbers must be displayed as furnished by the manufacturer.

**NOTE:** When rules permit or require equipment to be installed, replaced, altered or fabricated, it is the sole responsibility of the rider to select components, materials and/or fabricate the same so that the watercraft operates safely in competition

- 21.1.2 Original equipment parts may be updated or backdated to newer original equipment parts of the same model. The part must be a bolt-on requiring no modifications to that part or any other parts except where rules allow substitutions or modifications.
- 21.1.3 Sound level shall not exceed 100 dB(a) at 22.86m (75 ft.). Section 34.5. A sound level of 86 dB may be enforced so long as the promoter notifies participants at least 14 days prior to the event.
- 21.1.4 Engine fuel must consist of gasoline meeting the criteria defined in Section 34.4.

### 21.2 WEIGHT

- 21.2.1 At all times, Four Stroke Sport PWC, equipped with a supercharger or turbocharger, must weigh within 40% of the weight of the original donor PWC.

### 21.3 HULL

- 21.3.1 All watercraft must have a flexible tow loop attached to the bow. The tow loop should be made of a flexible material (e.g., nylon strap, rope, etc.) so as not to create a hazard. Tow hooks which protrude beyond the plane of the hull must be removed.

- 21.3.2 Aftermarket hulls may be used, on watercraft homologated in numbers of 500 or higher. Hulls must be approved and homologated by IJSBA. The upper deck will not be restricted to OEM to the extent that the upper deck is an exact replica of the Original equipment deck with no change in dimensions or scale. Slight changes to angles and radiuses may be approved in the top deck homologation. Alterations of dimensions may be allowed where a legal aftermarket part has been integrated into the deck (i.e., rail caps and foot holds). Bulk heads may be aftermarket.

The upper deck is required to appear to be an original OEM deck from a homologated watercraft. Disputes as the compliance in appearance will be subjected to a silhouette test to compare the aftermarket upper deck to the OEM upper deck. This test refers to the upper deck, itself, and does not apply to parts that are aftermarket (i.e. hoods) or parts subject to relocation (i.e. fuel filler), or removal.

**IJSBA MAY ALLOW APPROVED ALTERNATIVE UPPER DECKS IN SPORT GP SO LONG AS PROPER PAPERWORK IS FILED WITH IJSBA AND THE PRODUCER REMAINS COMPLIANT WITH IJSBA MANUFACTURING STANDARDS AND OTHER POLICIES**

- 21.3.3 All watercraft may be equipped with a maximum of two sponsons. Original equipment sponsons may be modified, aftermarket, repositioned or removed. Overall length of each sponson shall not exceed 91.45cm (36.00 in.). Sponsons shall not protrude from the side of the hull by more than 100.00mm (3.94 in.) when measured in a level horizontal plane. The vertical channel created by the underside of the sponson shall not exceed 63.5mm (2.50 in.). No part of the sponsons shall extend downward below the point at which the side of the hull intersects the bottom surface of the hull by more than 63.5mm (2.50 in.). Aftermarket or modified sponsons must exceed 6mm (0.24 in.) in thickness. All leading edges must be radiused so as not to create a hazard. Sponsons may not be attached to the planing surfaces of the hull. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagrams in Appendix.).
- 21.3.4 Intake grate may be modified or aftermarket. Intake grate is required and must be the full-length type with at least one bar running parallel to the drive shaft. Grates may not extend more than 12.00mm (0.47 in.) below the flat plane of the pump intake area. All leading edges must be radiused so as not to create a hazard.
- 21.3.5 Pump cover plate may be modified or aftermarket. An extension may be added to the rear of the pump cover plate but shall not exceed the width of the original equipment plate. Modified and aftermarket plates must not extend more than 177.80mm (7.00 in.) beyond the end of the original equipment plate. The sides of the extension must be connected to the radiused portion of the pump plate so as not to create a hazard. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagram in Appendix.).

- 21.3.7 Aftermarket fixed-position trim tabs may be used. Original equipment trim plates that are detachable from the hull may be removed or replaced when installing aftermarket trim tabs. Trim tabs cannot exceed the width of the planning surface or extend rearward more than 100.00mm (3.94 in.) beyond the end of the original planning surface. Manual or automatic trim tabs attached to the hull or ride plate are not allowed. All hull extensions mounted on the hull's transom will be considered as a trim tab. All edges must be radiused so as not to create a hazard. Fins, skegs, rudders and other appendages that may create a hazard are not allowed.
- 21.3.8 Replacement bumpers may be used provided a hazard is not created.
- 21.3.9 A soft, flexible water-spray deflector may be attached to the hull sides or to the bond flange provided a hazard is not created. No part of the deflector may extend beyond the perimeter of the original equipment bumper or side mouldings as measured by a plumb line.
- 21.3.10 Handlebar, throttle, throttle cable, and grips may be modified or aftermarket. Handlebar cover may be modified or removed. Aftermarket switches and switch housings may be used. Steering shaft, steering shaft holder and handlebar holder may be aftermarket. The handlebar must be padded at the mounting bracket or, if it has a crossbar, the crossbar must be padded. Aftermarket steering cables will be allowed.
- 21.3.11 Seat assembly may be modified or aftermarket. Seat height may be changed.
- 21.3.12 Padding and/or mat kits may be added and custom painting is allowed. The surface finish of any metal component outside the hull area above the bond flange may be polished, shot peened or painted.
- 21.3.13 Original bilge pump may be modified or disconnected. Aftermarket bilge draining systems that do not create a hazard are allowed.
- 21.3.14 Engine compartment foam may be removed, modified or aftermarket. Adequate foam, or flotation media, must be maintained in the watercraft. The race director, or technical director shall have the ultimate determination whether flotation media is adequate.
- 21.3.15 Storage covers, hatches, instrument cowlings and engine covers may be modified or aftermarket provided a hazard is not created and the OEM appearance is maintained. Additional engine compartment ventilation is allowed. Original equipment vents may be shielded or plugged. Handles, drop-in type storage buckets and bolt-on type mirrors may be modified, aftermarket or removed provided a hazard is not created.
- 21.3.16 Ballast weight may be added within the normally exposed areas of the hull to alter the handling of the watercraft provided a hazard is not created. Only weight consisting of constant mass (i.e., water or other fluid is not allowed) that does not require the modification or relocation of any parts will be allowed unless such modification or relocation is specified by other rules.
- 21.3.17 Hood assemblies may be modified, or aftermarket, provided a hazard is not created.

## 21.4 ENGINE – FOUR STROKE

- 21.4.1 An original homologated engine block must be used. Internal modifications to the oil and/or water-exposed surfaces will be allowed. The head gasket surface of the cylinder block may be machined.
- 21.4.2 The original cylinder head casting must be used. Intake and exhaust runners may be modified. Material may be added to the runners. Intake and exhaust ports may be modified. Port diameters and shapes may be changed. Combustion chambers may be modified. Material may be added to the combustion chamber. The original number of intake and exhaust valves must be the same as original. Repairs to the cylinder head affecting one cylinder bank are allowed. The head gasket surface may be machined.
- 21.4.3 Aftermarket valvetrain components are allowed, providing the original method of activation is maintained (e.g., if originally activated by a camshaft, they may not be converted to solenoid activation). Valves may be shimmed with OEM or aftermarket shims. Valve springs may be modified or aftermarket. Camshaft(s) may be aftermarket. The number of camshafts must be the same as original. Original bearing type and dimensions must be used. Cam timing may be changed. Cam gears, tensioners, chain or belt may be modified or aftermarket.
- 21.4.4 Engines may be bored. Aftermarket piston assemblies are allowed. Engine displacement must not exceed class designation.
- 21.4.5 Crankshaft may be modified or aftermarket. Total weight of the crankshaft must be within  $\pm 5.00\%$  of original equipment. Replacement bearings or bearing shells are allowed, providing they maintain their original type and dimensions. PWC homologated above 1600cc must maintain original stroke.
- 21.4.6 Engine balancing assemblies may be modified, aftermarket, or removed.
- 21.4.7 Aftermarket connecting rods made of ferrous materials are allowed. Rod length may be changed.
- 21.4.8 Exhaust system (i.e., manifold, connecting pipes, hoses, muffler(s), etc.) may be modified or aftermarket. Through-hull exhaust may be modified or aftermarket, providing a hazard is not created. No tuned portion of the exhaust system may protrude outside of the hull. Exit location of the exhaust gases may be relocated to the transom below the bond flange.
- 21.4.9 Cooling system may be modified or aftermarket. Additional cooling lines may be added. Aftermarket water bypass systems may be used. Cooling system bypass fittings may be modified or aftermarket and/or relocated but must be directed downward and/or rearward so as not to create a hazard for other riders. Any valves used within the entire cooling system must be of the fixed type or automatic (e.g., thermostats, pressure regulators, solenoids, etc.). Manually controlled devices (by means of actuation) that alter the flow of cooling water during operation are not allowed. Original cooling system thermostat may be removed, modified or aftermarket. Cooling system flush kits are allowed.
- 21.4.10 Baffles in oil reservoir may be modified. The addition of baffles in oil reservoir is allowed. Oil pump may be modified or aftermarket.

- 21.4.11 Valve cover may be replaced for cosmetic purposes and/or weight reduction only.
- 21.4.12 Replacement starter motor and bendix may be used.
- 21.4.13 Replacement engine mounts may be used.
- 21.4.14 External modifications to the engine finish (e.g., plating, polishing and/or painting) are allowed for cosmetic purposes only.
- 21.4.15 Replacement of general maintenance parts (e.g., gaskets, seals, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, fuel filters, oil filters, clamps and fasteners) shall not be restricted to original equipment. Stripped threads may be repaired. Fasteners may integrate locking mechanisms.

## **21.5 ENGINE – TWO STROKE**

- 21.5.1 Engines may be bored. Aftermarket piston assemblies are allowed. Engine displacement must not exceed class designation (e.g., 800cc in 800 Superstock, 1600 Open, etc.). The number, type, and placement of rings on piston may be changed.
- 21.5.2 Original equipment crankcase must be used. Internal modifications to the fuel, oil and/or water exposed surfaces are allowed. Filler material may be added to hollow pockets in the base gasket areas. Base gasket and intake surfaces may be machined. Additional carburetor pulse line fittings may be installed. Bearing and seal surfaces may not be modified. Crankcase drain system may be removed and plugged. Repairs to cracked or punctured crankcases may be made provided only one damaged area affecting one cylinder bank has been repaired. No other external modifications or external repairs are allowed.
- 21.5.3 Ignition/stator mounting area modifications are limited to spot facing, drilling and tapping threads for the purpose of mounting an aftermarket or modified ignition system. Additional carburetor pulse line fittings may be installed.
- 21.5.4 Additional mounting holes, not to exceed 10.00mm (0.40 in.) diameter, are allowed provided they do not penetrate the internal surface of the cases. Base gasket and intake surfaces may be machined.
- 21.5.5 External modifications to the crankcase finish (e.g., plating, polishing and/or painting) are allowed for cosmetic purposes only. No other external modifications or external repairs will be allowed.
- 21.5.6 Crankshaft assembly may be modified or aftermarket. Stroke and rod length may be changed.
- 21.5.7 Engine balancing assemblies may be modified, aftermarket, or removed.

- 21.5.8 Cylinders may be interchanged between homologated watercraft of the same manufacturer subject to restrictions announced by the IJSBA. Any modifications to the cylinder or crankcase must be approved, in writing, by the IJSBA. Base gasket, head gasket and exhaust manifold gasket surfaces may be machined. Port heights, widths and shapes may be changed. Ports may be added or deleted from cylinder. Cylinders may be machined to accept aftermarket cylinder liners. Epoxy-type filler material may be added to hollow pockets in the base gasket areas and in the port area. Repairs to cracked or damaged cylinders may be made provided only one damaged area affecting one cylinder bank has been repaired. Cylinders may be machined to accept girdle-system cylinder heads. Water-cooling fittings may be added to cylinder. Exhaust power valve components and means of actuation may be modified or aftermarket.
- 21.5.9 External modifications to the engine finish (e.g., plating, polishing and/or painting) are allowed for cosmetic purposes only.
- 21.5.10 Cylinder head may be modified or aftermarket.
- 21.5.11 Engine gaskets may be modified or aftermarket.
- 21.5.12 Exhaust system (i.e., manifold, head pipe, expansion chamber, waterbox, muffler(s), etc.) may be modified or aftermarket. Through-hull exhaust may be modified or aftermarket, providing a hazard is not created. Exit location of the exhaust gases may be relocated to the transom below the bond flange. No tuned portion of the exhaust system shall protrude outside the hull.
- 21.5.13 Cooling system may be modified or aftermarket. Aftermarket cooling lines and water bypass systems may be used. Bypass fittings may be modified, aftermarket and/or relocated but must be directed downward and/or rearward so as not to create a hazard for other riders. Any valves used within the entire cooling system must be of the fixed type or automatic (e.g., thermostats, pressure regulators, solenoids, etc.). Manually controlled devices (by any means of actuation) that alter the flow of cooling water during operation are not allowed. Cooling system flush kits are allowed.
- 21.5.14 Replacement starter motor and bendix may be used.
- 21.5.15 Replacement engine mounts may be used.
- 21.5.16 Oil-injection system may be disconnected or removed.
- 21.5.17 Replacement of general maintenance parts (e.g., spark plugs, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, clamps and fasteners) shall not be restricted to original equipment. Stripped threads can be repaired.

**21.6 AIR/FUEL DELIVERY – FOUR STROKE**

- 21.6.1 The original fuel injectors may be modified to increase fuel-flow rate. Aftermarket fuel injectors that increase fuel flow are allowed provided they must not increase airflow into the combustion chamber. Fuel rail and fuel regulator may be modified or aftermarket. Additional fuel injectors may be added. Aftermarket fuel pumps are allowed provided that when the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off fuel pumps are allowed. Highpressure fuel hose meeting SAE J30R9 must be used; only metal-type fuel filters may be used on the high-pressure portion of the system; all other in-line filters must be installed on the low-pressure portion of the system.
- 21.6.2 Flame arresters that meet USCG, UL-1111 or SAE J-1928 Marine standards must be used. Airflow sensor may be modified, aftermarket or removed. Ducting between the flame arrestor and throttle body may be modified or aftermarket.
- 21.6.3 Throttle body may be modified or aftermarket. The number of butterflies may be increased but may not exceed the number of cylinders. Intake manifold assembly may be modified or aftermarket.
- 21.6.4 Carburetor(s) may be modified or aftermarket provided they do not vent or spill fuel at any attitude with or without the engine running. Carburetors may be used in addition to or in place of the fuel-injection system. The number of venturis cannot exceed the number of cylinders. No slide-type carburetors. Aftermarket primer may be used. Intake manifold assembly may be modified or aftermarket. Aftermarket air-pulse-pressure operated fuel pumps may be used.
- 21.6.5 The entire fuel system is a closed system. The watercraft must not vent or spill fuel at any attitude with or without the engine running. Aftermarket fuel tanks recognized by IJSBA may be used in place of the OEM fuel tank. Original equipment fuel filler and relief valve must be used and cannot be modified. The fuel pickup, fuel filter and fuel petcock may be removed and/or aftermarket parts may be used. Additional fuel filters may be used and fuel cell foam may be added to the original equipment fuel tank. Fuel tank filler cap may be modified or aftermarket provided a hazard is not created.

**21.7 AIR/FUEL DELIVERY – TWO STROKE**

- 21.7.1 Carburetor(s) may be modified or aftermarket provided they do not vent or spill fuel at any attitude with or without the engine running. The number of venturis cannot exceed the number of cylinders. No slide-type carburetors. Aftermarket primer may be used. Intake manifold assembly may be modified or aftermarket. Aftermarket crankcase pressure operated fuel pumps may be used.

- 21.7.2 Modified or aftermarket vapor/air separators must not exceed 2 in. x 6 in., and must have a return line to the fuel tank open at all times. Additional fuel reservoirs may not be used. Aftermarket or modified electric fuel pumps, not exceeding 4 psi, may be used. When the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/offtype fuel pumps are allowed.
- 21.7.3 Aftermarket fuel-injection systems and components are allowed provided the following regulations are adhered to: Highpressure fuel hose meeting SAE J30R9 must be used; A.N. threadedtype fittings or equivalent and non-removable, crimped- type clamps must be used on the high-pressure portion of the system (i.e., hose clamps, tie wraps, etc. are not allowed); only metal-type fuel filters may be used on the high-pressure portion of the system; all other in-line filters must be installed on the lowpressure portion of the system. When the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off-type fuel pumps are allowed.
- 21.7.4 The entire fuel system is a closed system. The watercraft must not vent or spill fuel at any attitude with or without the engine running. The fuel tank shall not be restricted to the original equipment, as supplied by the manufacturer, so long as the replacement is an unmodified tank from another homologated PWC and the tank fits securely in the watercraft without causing a hazard. Original equipment fuel filler and relief valve must be used and cannot be modified. The fuel pickup, fuel filter and fuel petcock may be removed and/or aftermarket parts may be used. Additional fuel filters may be used and fuel cell foam may be added to the original equipment fuel tank. Fuel tank filler cap may be modified or aftermarket provided a hazard is not created. Aftermarket fuel tanks recognized by IJSBA may be used in place of the OEM fuel tank.
- 21.7.5 Flame arrester(s) which satisfy United States Coast Guard, SAE-J1928 Marine or UL-1111 Marine backfire flame arrester test standards must be installed. Aftermarket flame arresters satisfying one of these test standards are allowed. Intake silencer may be removed.
- 21.7.6 Reed valve assemblies may be modified or aftermarket. Rotary valve may be modified or aftermarket

## **21.8 IGNITION AND ELECTRONICS**

- 21.8.1 Ignition system, electrical box, flywheel and flywheel cover may be modified or aftermarket. Battery charging circuit may be disabled and/or removed.
- 21.8.2 An additional battery and battery box may be used. Batteries must fit into a proper battery box and be securely fastened. Batteries may be relocated.
- 21.8.3 Engine temperature sensor assembly may be disconnected and/or removed.



## **21.9 TURBOCHARGER/SUPERCHARGER**

- 21.9.1 A supercharger or turbocharger may be added to four stroke engines with displacements of 1100 cc or less. Four stroke engines above 1100cc must remain naturally aspirated. If a turbocharger or supercharger is utilized on an engine with a displacement of 900cc or less then an IJSBA approved boost regulator must be used which releases all pressure above 8 psi. If a supercharger or turbocharger is utilized on an engine with a displacement between 901cc and 1100 then an IJSBA approved boost regulator must be used which releases all boost above 6 psi.
- 21.9.2 Turbocharger housing must be of the full circulating, water-jacket type at all times when the engine is running. Aftermarket turbochargers and superchargers may be used provided a hazard is not created. Original turbocharger or supercharger may be modified. Aftermarket turbochargers and superchargers may be added to originally normally aspirated, four stroke, watercraft. All hoses and pipes may be modified or aftermarket. Where the Race Director, or Technical Inspector, cannot determine if a turbocharger is sufficiently water-jacketed then a heat wrap and/or additional cooling mechanisms may be added to ensure safety.
- 21.9.3 Intercooler may be modified or aftermarket.
- 21.9.4 Boost pressure-relief valve may be modified or aftermarket
- 21.9.5 Boost sensor may be modified or aftermarket

## **21.10 DRIVELINE**

- 21.10.1 Impeller, impeller housing, stator vane assembly, pump mounting plate and/or pump shoe may be modified or aftermarket. Pump nozzle and directional nozzle may be modified or aftermarket. Overall length of the complete pump and nozzle assembly may be no more than 50.00mm (1.97 in.) longer than original equipment. Aftermarket nozzle trim systems may be used. Additional cooling fittings may be installed. Visibility spout must be removed or plugged. Silicone adhesive sealant may be used in addition to original equipment seal to seal pump inlet.
- 21.10.2 Couplers, bearing housing and driveshaft may be modified or aftermarket provided they maintain a 1:1 drive ratio between the engine and the pump.

## 22 VINTAGE SKI CLASS

### VINTAGE SKI COMPETITION

Intended to promote interest in the original Ski competition platform which IJSBA began in the 1970s. Ski in this division are intended a limited and nostalgic performance level while having access to performance parts available from the aftermarket industry. Watercraft competing in this class must conform to the specifications which follow. This class is designed for the original Kawasaki 550 Ski type watercraft. Organizers may create similar vintage Ski classes by naming the designation (i.e. Vintage 650, Vintage 701, etc.).

**DISPLACEMENT:** The maximum displacement for Vintage Ski is 600 CC. Original Kawasaki 550 engine cases must be used.

- 22.1.1 All watercraft must remain strictly stock except where rules allow or require substitutions or modifications. Changes or modifications not listed here are not permitted. Hull Identification Numbers must be displayed as furnished by the manufacturer. NOTE: When rules permit or require equipment to be installed, replaced, altered or fabricated, it is the sole responsibility of the rider to select components, materials and/or fabricate the same so that the watercraft operates safely in competition.
- 22.1.2 Original equipment parts may be updated or backdated with original equipment parts of the same model. The part must be a bolt-on requiring no modifications to that part or any other parts except where rules allow substitutions or modifications. (Refer to Model Homologation listing online.)
- 22.1.3 Sound level shall not exceed 86 dB(a) at 22.86m.
- 22.1.4 Engine fuel must consist of gasoline meeting the criteria Section 34.4.

### 22.2 HULL

- 22.2.1 All watercraft must have a flexible tow loop attached to the bow. The tow loop should be made of a flexible material (e.g., nylon strap, rope, etc.) so as not to create a hazard. Tow hooks which protrude beyond the plane of the hull must be removed.
- 22.2.2 The hull and top deck must remain as originally furnished by the manufacturer.

Decks may be internally reinforced. Fasteners may be installed through the hull and deck for the purpose of securing components to interior surfaces, provided a hazard is not created.

If the watercraft is equipped with footwells, the footwells must be blocked off, during competition, allowing no indentation into the footwell sides.

- 22.2.3 Aftermarket hoods may be used.

- 22.2.4 All watercraft may be equipped with a maximum of two sponsons. Original equipment sponsons may be modified, aftermarket, repositioned or removed. Overall length of each sponson shall not exceed 91.45cm (36.00 in.). Sponsons shall not protrude from the side of the hull by more than 100.00mm (3.94 in.) when measured in a level horizontal plane. The vertical channel created by the underside of the sponson shall not exceed 63.5mm (2.50 in.). No part of the sponson shall extend downward below the point at which the side of the hull intersects the bottom surface of the hull by more than 63.5mm (2.50 in.). Aftermarket or modified sponsons must exceed 6mm (0.24 in.) in thickness. All leading edges must be radiused so as not to create a hazard. Sponsons may not be attached to the planing surfaces of the hull. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagrams in Appendix.) Sponsons may be attached to the inside of the bond flange, but no part of the sponson may extend more than 38.00mm (1.50 in.) below the lower part of the bond flange (bumper removed). Sponsons attached to the inside of the bond flange shall not protrude outside the bond flange (bumper removed) when measured in a level horizontal plane.

The decision of the Technical Director and/or Race Director regarding modifications will be final. Any question regarding the legality of modifications should be directed to the IJSBA or IJSBA affiliate prior to use in competition.

- 22.2.5 Intake grate may be modified or aftermarket. Intake grate is required and must be the full-length type with at least one bar running parallel to the drive shaft. Grates may not extend more than 12.00mm (0.47 in.) below the flat plane of the pump intake area of the hull. All leading edges must be radiused so as not to create a hazard.
- 22.2.6 Pump cover plate may be modified or aftermarket. An extension may be added to the rear of the plate but shall not exceed the width of the original equipment plate. Modified and aftermarket plates must not extend more than 100.0mm (3.94 in.) beyond the end of the original equipment plate. The extension must be connected to the radiused portion of the pump plate so as not to create a hazard. (See diagram in Appendix.) Fins, rudders, skegs and other appendages that may create a hazard will not be allowed.
- 22.2.7 Aftermarket fixed-position trim tabs may be used. Original equipment trim plates that are detachable from the hull may be removed or replaced when installing aftermarket trim tabs. Trim tabs cannot exceed the width of the planing surface or extend rearward more than 100.00mm (3.94 in.) beyond the end of the original planing surface. Manual or automatic trim tabs attached to the hull or ride plate are not allowed. All hull extensions mounted on the hull's transom will be considered as a trim tab. All edges must be radiused so as not to create a hazard. Fins, skegs, rudders and other appendages that may create a hazard are not allowed.
- 22.2.8 Replacement bumpers may be used provided a hazard is not created.
- 22.2.9 A soft, flexible water-spray deflector may be attached to the hull sides or to the bond flange provided a hazard is not created. No part of the deflector may extend beyond the perimeter of the original equipment bumper or side moldings as measured by a plumb line.

- 22.2.10 Handlebar, throttle, throttle cable, and grips may be modified or aftermarket. Handlebar cover may be modified or removed. Aftermarket switches and switch housings may be used. Steering shaft, steering shaft holder and handlebar holder may be aftermarket. The handlebar must be padded at the mounting bracket or, if it has a crossbar, the crossbar must be padded. Aftermarket steering cables will be allowed.

Handlepole (and mounting bracket) may be modified or aftermarket provided it functions as originally designed. Handlepole attaching point may be reinforced.

- 22.2.11 Padding and/or mat kits may be added and custom painting is allowed. The surface finish of any metal component outside the area above the hull bond flange may be polished, shot peened or painted.
- 22.2.12 Original bilge pump may be modified or disconnected. Aftermarket bilge draining systems that do not create a hazard are allowed.
- 22.2.13 Engine compartment foam may be removed, modified or aftermarket. Only floatation foam within the engine compartment may be removed. Only foam that can be removed without modification to any other part or parts, except where rules allow the parts to be modified, is allowed. Parts may not be relocated based on the removal of the foam. The hull's inner liner or deck may not be cut or modified to remove foam. Removal of foam between layers of the hull and/or deck is not allowed.
- 22.2.14 Engine compartment ventilation tubes may be modified, aftermarket, relocated on the original equipment ducting, or removed. Inlet and outlet openings may not be enlarged (i.e., when the tube is removed, the opening may not be larger than stock). Vents may be shielded or plugged. No other modifications to the hood will be allowed.
- 22.2.15 Handles, drop-in type storage buckets, bolt-on type mirrors and gauges may be modified, aftermarket or removed provided a hazard is not created. Drop-in type buckets are defined as being able to be removed without the use of any tool. Other than for the use of fasteners and the placement of allowable relocated parts (i.e., ECU), the bulkhead may not be modified.
- 22.2.16 Ballast weight may be added within the normally exposed areas of the hull to alter the handling of the watercraft provided a hazard is not created. Only weight consisting of constant mass (i.e., water or other fluid is not allowed) that does not require the modification or relocation of any parts will be allowed unless such modification or relocation is specified by other rules.

## **22.3 ENGINE**

- 22.3.1 Engines may be bored. Aftermarket piston assemblies are allowed. Engine displacement must not exceed class designation. The number, type, and placement of rings on piston may be changed. At the IJSBA World Finals, the default Vintage Ski Class is for the 550 Kawasaki Ski and the maximum displacement allowed is 600cc.

- 22.3.2 Crankcases must remain OEM manufacturer except where changes are allowed. Intake and exhaust ports may be modified. Port diameters and shapes may be changed. Internal modifications to the fuel, oil and/or water exposed surfaces are allowed. Bearing and seal surfaces may not be modified. Filler material may be added to hollow pockets in the base gasket areas. Ignition/stator mounting area modifications are limited to spot facing, drilling and tapping threads for the purpose of mounting an aftermarket or modified ignition system.

Additional carburetor pulse line fittings may be installed. Crankcase drain system may be removed or plugged. Additional mounting holes, not to exceed 10.00mm (0.40 in.) diameter, are allowed provided they do not penetrate the internal surface of the cases.

Base gasket and intake surfaces may be machined. Repairs to cracked or punctured crankcases may be made. External modifications to the crankcase finish (e.g., plating, polishing and/or painting) are allowed for cosmetic purposes only. No other external modifications or external repairs will be allowed.

- 22.3.3 Cylinder and cylinder head may be modified or aftermarket.
- 22.3.4 Crankshaft assembly may be modified or aftermarket. Stroke and rod length may be changed.
- 22.3.5 Engine bed and motor mounts may be modified or aftermarket.
- 22.3.6 Engine gaskets may be modified or aftermarket.
- 22.3.7 Exhaust system (i.e., manifold, head pipe, expansion chamber, waterbox, muffler(s), etc.) may be modified or aftermarket. Through-hull exhaust may be modified or aftermarket, providing a hazard is not created. Exit location of the exhaust gases may be relocated to the transom below the bond flange. No tuned portion of the exhaust system shall protrude outside the hull.
- 22.3.8 Cooling system may be modified or aftermarket. Aftermarket cooling lines and water bypass systems may be used. Bypass fittings may be modified, aftermarket and/or relocated but must be directed downward and/or rearward so as not to create a hazard for other riders. Any valves used within the entire cooling system must be of the fixed type or automatic (e.g., thermostats, pressure regulators, solenoids, etc.). Manually controlled devices (by any means of actuation) that alter the flow of cooling water during operation are not allowed. Cooling system flush kits are allowed.
- 22.3.9 Replacement starter motor and bendix may be used.
- 22.3.10 Oil-injection system may be disconnected or removed.
- 22.3.11 Replacement of general maintenance parts (e.g., spark plugs, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, clamps and fasteners) shall not be restricted to original equipment. Stripped threads can be repaired.

**22.4 AIR/FUEL DELIVERY — TWO STROKE**

- 22.4.1 Carburetor(s) may be modified or aftermarket provided they do not vent or spill fuel at any attitude with or without the engine running. The number of venturis cannot exceed the number of cylinders. No slide-type carburetors. Aftermarket primer may be used. Intake manifold assembly may be modified or aftermarket. Aftermarket crankcase pressure operated fuel pumps may be used. Fuel fillers may be relocated internally.
- 22.4.2 Modified or aftermarket vapor/air separators must not exceed 2 in. x 6 in., and must have a return line to the fuel tank open at all times. Additional fuel reservoirs may not be used. Aftermarket or modified electric fuel pumps, not exceeding 4 psi, may be used. When the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off-type fuel pumps are allowed.
- 22.4.3 Aftermarket fuel-injection systems are allowed provided the following regulations are adhered to: High-pressure fuel hose meeting SAE J30R9 must be used; A.N. threaded-type fittings or equivalent and non-removable, crimped-type clamps must be used on the high-pressure portion of the system (i.e., hose clamps, tie wraps, etc. are not allowed); only metal-type fuel filters may be used on the high pressure portion of the system; all other in-line filters must be installed on the low-pressure portion of the system. When the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off-type fuel pumps are allowed.
- 22.4.4 The entire fuel system is a closed system. The watercraft must not vent or spill fuel at any attitude with or without the engine running. The fuel tank shall not be restricted to the original equipment, as supplied by the manufacturer, so long as the replacement is an unmodified tank from another homologated PWC and the tank fits securely in the watercraft without causing a hazard. Original equipment fuel filler and relief valve must be used and cannot be modified. The fuel pickup, fuel filter and fuel petcock may be removed and/or aftermarket parts may be used. Additional fuel filters may be used and fuel cell foam may be added to the original equipment fuel tank. Fuel tank filler cap may be modified or aftermarket provided a hazard is not created. Aftermarket fuel tanks not coming from another homologated PWC may be allowed by the race director so long as it is demonstrated that the aftermarket fuel tanks meet or exceed the strengths and safety standards of an OEM fuel tank.
- 22.4.5 Flame arrester(s) which satisfy United States Coast Guard, SAE-J1928 Marine or UL-1111 Marine backfire flame arrester test standards must be installed. Aftermarket flame arresters satisfying one of these test standards are allowed. Intake silencer may be removed.
- 22.4.6 Reed valve assemblies may be modified or aftermarket.

**22.5 IGNITION AND ELECTRONICS – TWO STROKE**

- 22.5.1 RPM limiter function may be bypassed or eliminated. CDI unit may be modified or aftermarket. Ignition timing may be changed. Modifications to the original equipment ignition pickup mount will be allowed. Original equipment charging system must be used. No other ignition system modifications will be allowed.
- 22.5.2 The original electronic control unit may be modified or aftermarket so long as it does not offer any additional inputs or outputs than the original unit, and it must connect with the original connections. No additional sensors may be added (e.g., exhaust gas temperature, detonation sensors, etc.). Engine temperature sensors may be disabled.
- 22.5.3 Flywheel cover may be modified to accept a crankshaft-end bearing support.
- 22.5.4 Replacement batteries are allowed but must fit into the original equipment battery box and be securely fastened.
- 22.5.5 Relocation of electrical components (e.g., battery, box or housing) is allowed in order to fit an aftermarket exhaust system (only the strict minimum needed). Modification will be subject to Race/Tech Directors approval.

**22.6 DRIVELINE – TWO STROKE**

- 22.6.1 Impeller housing, stator vane assembly, pump mounting plate and/or pump shoe may be modified or aftermarket. No titanium driveshaft, impeller housing or stator vane assemblies. Impeller may be modified or aftermarket. Pump nozzle and directional nozzle may be modified or aftermarket. Overall length of the complete pump and nozzle assembly may be no more than 50.00mm (1.97 in.) longer than original equipment.
- 22.6.2 Aftermarket nozzle-trim systems may be used.
- 22.6.3 Additional cooling fittings may be installed. Visibility spout must be removed or plugged. Silicone adhesive sealant may be used in addition to original equipment seal to seal pump inlet.
- 22.6.4 Couplers, bearing housing and driveshaft may be modified or aftermarket provided they maintain a 1:1 drive ratio between the engine and the pump.

## 23 VINTAGE X2 CLASS

### 23.1 VINTAGE X2 COMPETITION

Intended to promote interest in the original X2 competition platform. Watercraft competing in this class must conform to the specifications which follow. This class is designed for the Kawasaki X2 which was sold from 1986 through 1995.

**DISPLACEMENT:** The maximum displacement for Vintage Ski is 850 CC. Engine cases from the 2006 Kawasaki X2 may be used however, competitors are reminded that the hull for this category is exclusively that of the 1986-1995 OEM X2.

- 23.1.1 All watercraft must remain strictly stock except where rules allow or require substitutions or modifications. Changes or modifications not listed here are not permitted. Hull Identification Numbers must be displayed as furnished by the manufacturer.

**NOTE:** When rules permit or require equipment to be installed, replaced, altered or fabricated, it is the sole responsibility of the rider to select components, materials and/or fabricate the same so that the watercraft operates safely in competition.

- 23.1.2 Original equipment parts may be updated or backdated with original equipment parts of the same model. The part must be a bolt-on requiring no modifications to that part or any other parts except where rules allow substitutions or modifications. (Refer to Model Homologation listing online.)

- 23.1.3 Sound level shall not exceed 86 dB(a) at 22.86m.

- 23.1.4 Engine fuel must consist of gasoline meeting the criteria defined in Section 34.4.

### 23.2 HULL

- 23.2.1 All watercraft must have a flexible tow loop attached to the bow. The tow loop should be made of a flexible material (e.g., nylon strap, rope, etc.) so as not to create a hazard. Tow hooks which protrude beyond the plane of the hull must be removed.

- 23.2.2 The hull top deck must remain as originally furnished by the manufacturer. Hulls may be modified or aftermarket. Hull length cannot exceed the length of the top deck.

Decks may be internally reinforced. Fasteners may be installed through the hull and deck for the purpose of securing components to interior surfaces, provided a hazard is not created.

If the watercraft is equipped with footwells, the footwells must be blocked off, during competition, allowing no indentation into the footwell sides.

- 23.2.3 Aftermarket hoods may be used.



- 23.2.4 All watercraft may be equipped with a maximum of two sponsons. Original equipment sponsons may be modified, aftermarket, repositioned or removed. Overall length of each sponson shall not exceed 91.45cm (36.00 in.). Sponsons shall not protrude from the side of the hull by more than 100.00mm (3.94 in.) when measured in a level horizontal plane. The vertical channel created by the underside of the sponson shall not exceed 63.5mm (2.50 in.). No part of the sponson shall extend downward below the point at which the side of the hull intersects the bottom surface of the hull by more than 63.5mm (2.50 in.). Aftermarket or modified sponsons must exceed 6mm (0.24 in.) in thickness. All leading edges must be radiused so as not to create a hazard. Sponsons may not be attached to the planing surfaces of the hull. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagrams in Appendix.) Sponsons may be attached to the inside of the bond flange, but no part of the sponson may extend more than 38.00mm (1.50 in.) below the lower part of the bond flange (bumper removed). Sponsons attached to the inside of the bond flange shall not protrude outside the bond flange (bumper removed) when measured in a level horizontal plane.

The decision of the Technical Director and/or Race Director regarding modifications will be final. Any question regarding the legality of modifications should be directed to the IJSBA or IJSBA affiliate prior to use in competition.

- 23.2.5 Intake grate may be modified or aftermarket. Intake grate is required and must be the full-length type with at least one bar running parallel to the drive shaft. Grates may not extend more than 12.00mm (0.47 in.) below the flat plane of the pump intake area of the hull. All leading edges must be radiused so as not to create a hazard.
- 23.2.6 Pump cover plate may be modified or aftermarket. An extension may be added to the rear of the plate but shall not exceed the width of the original equipment plate. Modified and aftermarket plates must not extend more than 100.0mm (3.94 in.) beyond the end of the original equipment plate. The extension must be connected to the radiused portion of the pump plate so as not to create a hazard. (See diagram in Appendix.) Fins, rudders, skegs and other appendages that may create a hazard will not be allowed.
- 23.2.7 Aftermarket fixed-position trim tabs may be used. Original equipment trim plates that are detachable from the hull may be removed or replaced when installing aftermarket trim tabs. Trim tabs cannot exceed the width of the planing surface or extend rearward more than 100.00mm (3.94 in.) beyond the end of the original planing surface. Manual or automatic trim tabs attached to the hull or ride plate are not allowed. All hull extensions mounted on the hull's transom will be considered as a trim tab. All edges must be radiused so as not to create a hazard. Fins, skegs, rudders and other appendages that may create a hazard are not allowed.
- 23.2.8 Replacement bumpers may be used provided a hazard is not created.
- 23.2.9 A soft, flexible water-spray deflector may be attached to the hull sides or to the bond flange provided a hazard is not created. No part of the deflector may extend beyond the perimeter of the original equipment bumper or side moldings as measured by a plumb line.

- 23.2.10 Handlebar, throttle, throttle cable, and grips may be modified or aftermarket. Handlebar cover may be modified or removed. Aftermarket switches and switch housings may be used. Steering shaft, steering shaft holder and handlebar holder may be aftermarket. The handlebar must be padded at the mounting bracket or, if it has a crossbar, the crossbar must be padded. Aftermarket steering cables will be allowed.
- 23.2.11 Padding and/or mat kits may be added and custom painting is allowed. Seat covers and seat assemblies may be modified or aftermarket so long as a hazard is not created. Seat heights may not be higher than 10" higher. The surface finish of any metal component outside the area above the hull bond flange may be polished, shot peened or painted.
- 23.2.12 Original bilge pump may be modified or disconnected. Aftermarket bilge draining systems that do not create a hazard are allowed.
- 23.2.13 Engine compartment foam may be removed, modified or aftermarket. Only floatation foam within the engine compartment may be removed. Only foam that can be removed without modification to any other part or parts, except where rules allow the parts to be modified, is allowed. Parts may not be relocated based on the removal of the foam. The hull's inner liner or deck may not be cut or modified to remove foam. Removal of foam between layers of the hull and/or deck is not allowed.
- 23.2.14 Engine compartment ventilation tubes may be modified, aftermarket, relocated on the original equipment ducting, or removed. Inlet and outlet openings may not be enlarged (i.e., when the tube is removed, the opening may not be larger than stock). Vents may be shielded or plugged. No other modifications to the hood will be allowed.
- 23.2.15 Handles, drop-in type storage buckets, bolt-on type mirrors and gauges may be modified, aftermarket or removed provided a hazard is not created. Drop-in type buckets are defined as being able to be removed without the use of any tool. Other than for the use of fasteners and the placement of allowable relocated parts (i.e., ECU), the bulkhead may not be modified.
- 23.2.16 Ballast weight may be added within the normally exposed areas of the hull to alter the handling of the watercraft provided a hazard is not created. Only weight consisting of constant mass (i.e., water or other fluid is not allowed) that does not require the modification or relocation of any parts will be allowed unless such modification or relocation is specified by other rules.

### **23.3 ENGINE**

- 23.3.1 Engines may be bored. Aftermarket piston assemblies are allowed. Engine displacement must not exceed class designation. The number, type, and placement of rings on piston may be changed. At the IJSBA World Finals, the maximum displacement allowed is 850cc.

- 23.3.2 Crankcases must remain OEM manufacturer except where changes are allowed. Crankcases from any homologated two cylinder two stroke Kawasaki are allowed. Intake and exhaust ports may be modified. Port diameters and shapes may be changed. Internal modifications to the fuel, oil and/or water exposed surfaces are allowed. Bearing and seal surfaces may not be modified. Filler material may be added to hollow pockets in the base gasket areas. Ignition/stator mounting area modifications are limited to spot facing, drilling and tapping threads for the purpose of mounting an aftermarket or modified ignition system.

Additional carburetor pulse line fittings may be installed. Crankcase drain system may be removed or plugged. Additional mounting holes, not to exceed 10.00mm (0.40 in.) diameter, are allowed provided they do not penetrate the internal surface of the cases.

Base gasket and intake surfaces may be machined. Repairs to cracked or punctured crankcases may be made. External modifications to the crankcase finish (e.g., plating, polishing and/or painting) are allowed for cosmetic purposes only. No other external modifications or external repairs will be allowed.

- 23.3.3 Cylinder and cylinder head may be modified or aftermarket.
- 23.3.4 Crankshaft assembly may be modified or aftermarket. Stroke and rod length may be changed.
- 23.3.5 Engine bed and motor mounts may be modified or aftermarket.
- 23.3.6 Engine gaskets may be modified or aftermarket.
- 23.3.7 Exhaust system (i.e., manifold, head pipe, expansion chamber, waterbox, muffler(s), etc.) may be modified or aftermarket. Through-hull exhaust may be modified or aftermarket, providing a hazard is not created. Exit location of the exhaust gases may be relocated to the transom below the bond flange. No tuned portion of the exhaust system shall protrude outside the hull.
- 23.3.8 Cooling system may be modified or aftermarket. Aftermarket cooling lines and water bypass systems may be used. Bypass fittings may be modified, aftermarket and/or relocated but must be directed downward and/or rearward so as not to create a hazard for other riders. Any valves used within the entire cooling system must be of the fixed type or automatic (e.g., thermostats, pressure regulators, solenoids, etc.). Manually controlled devices (by any means of actuation) that alter the flow of cooling water during operation are not allowed. Cooling system flush kits are allowed.
- 23.3.9 Replacement starter motor and bendix may be used.
- 23.3.10 Oil-injection system may be disconnected or removed.
- 23.3.11 Replacement of general maintenance parts (e.g., spark plugs, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, clamps and fasteners) shall not be restricted to original equipment. Stripped threads can be repaired.

**23.4 AIR/FUEL DELIVERY — TWO STROKE**

- 23.4.1 Carburetor(s) may be modified or aftermarket provided they do not vent or spill fuel at any attitude with or without the engine running. The number of venturis cannot exceed the number of cylinders. No slide-type carburetors. Aftermarket primer may be used. Intake manifold assembly may be modified or aftermarket. Aftermarket crankcase pressure operated fuel pumps may be used. Fuel fillers may be relocated internally.
- 23.4.2 Modified or aftermarket vapor/air separators must not exceed 2 in. x 6 in., and must have a return line to the fuel tank open at all times. Additional fuel reservoirs may not be used. Aftermarket or modified electric fuel pumps, not exceeding 4 psi, may be used. When the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off-type fuel pumps are allowed.
- 23.4.3 Aftermarket fuel-injection systems are allowed provided the following regulations are adhered to: High-pressure fuel hose meeting SAE J30R9 must be used; A.N. threaded-type fittings or equivalent and non-removable, crimped-type clamps must be used on the high-pressure portion of the system (i.e., hose clamps, tie wraps, etc. are not allowed); only metal-type fuel filters may be used on the high pressure portion of the system; all other in-line filters must be installed on the low-pressure portion of the system. When the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off-type fuel pumps are allowed.
- 23.4.4 The entire fuel system is a closed system. The watercraft must not vent or spill fuel at any attitude with or without the engine running. The fuel tank shall not be restricted to the original equipment, as supplied by the manufacturer, so long as the replacement is an unmodified tank from another homologated PWC and the tank fits securely in the watercraft without causing a hazard. Original equipment fuel filler and relief valve must be used and cannot be modified. The fuel pickup, fuel filter and fuel petcock may be removed and/or aftermarket parts may be used. Additional fuel filters may be used and fuel cell foam may be added to the original equipment fuel tank. Fuel tank filler cap may be modified or aftermarket provided a hazard is not created. Aftermarket fuel tanks not coming from another homologated PWC may be allowed by the race director so long as it is demonstrated that the aftermarket fuel tanks meet or exceed the strengths and safety standards of an OEM fuel tank.
- 23.4.5 Flame arrester(s) which satisfy United States Coast Guard, SAE-J1928 Marine or UL-1111 Marine backfire flame arrester test standards must be installed. Aftermarket flame arresters satisfying one of these test standards are allowed. Intake silencer may be removed.
- 23.4.6 Reed valve assemblies may be modified or aftermarket.

**23.5 IGNITION AND ELECTRONICS – TWO STROKE**

- 23.5.1 RPM limiter function may be bypassed or eliminated. CDI unit may be modified or aftermarket. Ignition timing may be changed. Modifications to the original equipment ignition pickup mount will be allowed. Original equipment charging system must be used. No other ignition system modifications will be allowed.
- 23.5.2 The original electronic control unit may be modified or aftermarket so long as it does not offer any additional inputs or outputs than the original unit, and it must connect with the original connections. No additional sensors may be added (e.g., exhaust gas temperature, detonation sensors, etc.). Engine temperature sensors may be disabled.
- 23.5.3 Flywheel cover may be modified to accept a crankshaft-end bearing support.
- 23.5.4 Replacement batteries are allowed but must fit into the original equipment battery box and be securely fastened.
- 23.5.5 Relocation of electrical components (e.g., battery, box or housing) is allowed in order to fit an aftermarket exhaust system (only the strict minimum needed). Modification will be subject to Race/Tech Directors approval.

**23.6 DRIVELINE – TWO STROKE**

- 23.6.1 Impeller housing, stator vane assembly, pump mounting plate and/or pump shoe may be modified or aftermarket. No titanium driveshaft, impeller housing or stator vane assemblies. Impeller may be modified or aftermarket. Pump nozzle and directional nozzle may be modified or aftermarket. Overall length of the complete pump and nozzle assembly may be no more than 50.00mm (1.97 in.) longer than original equipment.
- 23.6.2 Aftermarket nozzle-trim systems may be used.
- 23.6.3 Additional cooling fittings may be installed. Visibility spout must be removed or plugged. Silicone adhesive sealant may be used in addition to original equipment seal to seal pump inlet.
- 23.6.4 Couplers, bearing housing and driveshaft may be modified or aftermarket provided they maintain a 1:1 drive ratio between the engine and the pump.

## 24 FREESTYLE

### 24.1 FREESTYLE COMPETITION

Competitors in this class are allowed modifications to gain maximum machine and engine performance. Watercraft competing in this class must conform to the specifications which follow.

**NOTE:** Where Modified Classes allow Supercharged or Turbocharged PWC: All competitors must possess an Expert or Pro license prior to participating.

**DISPLACEMENT (Two Stroke):** Amateur and Pro Freestyle classes are allowed identical modifications with the exception that Amateur Freestyle Competitors may compete on PWC with a maximum displacement of 900cc while Pro Freestyle Competitors may compete on PWC with a maximum displacement of 1200cc.

**DISPLACEMENT (Four Stroke):** Amateur and Pro Freestyle classes are allowed identical modifications and may compete using a naturally aspirated engine up to 1500cc or a forced induction engine up to 950cc.

- 24.1.1 All watercraft must remain strictly stock, except where rules allow or require substitutions or modifications. Changes or modifications not listed here are not permitted. Some original equipment components may not comply with IJSBA rules. **NOTE:** IJSBA recognizes that most Freestyle competitors do not build a watercraft by starting with an OEM homologated unit. Where rules require the identification of the original watercraft, the crankcases shall be used to determine what is the originating watercraft.
- 24.1.2 Original equipment parts may be updated or backdated to original equipment parts of the same model. The part must be a bolt-on requiring no modifications to that part or any other parts except where rules allow substitutions or modifications. (Refer to Model Homologation)
- 24.1.3 Sound level shall not exceed 86 dB(a) at 22.86m (75 ft.). Section 34.5.
- 24.1.4 Engine fuel must consist of gasoline meeting the criteria defined in Section 34.4.

### 24.2 HULL

**NO PART OF THE HULL, TOP DECK, OR HANDLEPOLE MAY BE TETHERED OR FASTENED TO THE COMPETITOR**

- 24.2.1 All watercraft must have a flexible tow loop attached to the bow. The tow loop should be made of a flexible material (e.g., nylon strap, rope, etc.) so as not to create a hazard. Tow hooks, which protrude beyond the plane of the hull, must be removed.

- 24.2.2 Deck: The upper deck will not be restricted to OEM to the extent that the upper deck is an exact replica of the Original equipment deck with no change in dimensions or scale. Alterations of dimensions may be allowed where a legal aftermarket part has been integrated into the deck (i.e., rail caps and foot holds). Ski PWC may widen then standing tray area by increasing the standing space by four inches (an increase of up to two inches on each side of tray). Rear portions of the bond rail may be removed to allow free flow of water that travels underneath the channel created by the bond rail. Bulk heads may be aftermarket Deck repairs may be made, provided they do not alter the standard configuration by more than 2.00mm (0.08 in.). The deck's bond flange may not be modified.

Deck may be internally reinforced. Fasteners may be installed through the hull and deck for the purpose of securing components to interior surfaces, provided a hazard is not created. If upper and lower components of the original equipment bond flange are separated and rejoined, they must be rejoined by the same method as original equipment (i.e., bonded together with a high-strength adhesive). (See bond flange diagram in Appendix.)

Ski Type ONLY: Footholds may be installed into the footwells. If the same watercraft is used for racing, the footwells must be blocked off, allowing no indentation into the footwell sides.

The top deck of freestyle craft may be modified or aftermarket, providing the following: The top deck must resemble the original top deck of the homologated watercraft; the length of the top deck must be no less than 165.1 mm (6.5 inches) shorter than the original OEM top deck and the width of top deck must be within 50.8 mm (2.0 in) of the original component; the craft must function as originally intended. The hull may be no smaller than the minimum measurements of the top deck. These restrictions also apply to the minimum length of the hull. The front bumper may add no more than 31.75 mm (1.25 in) to the overall length of the Top Deck for the purposes of meeting the minimum measurements.

Ski Type, ONLY: The top deck of freestyle craft may be modified or aftermarket, providing the following: The top deck must resemble the generic look of existing homologated watercraft with the following dimensions: Minimum Length of 193 cm (76 in), Minimum Width of 68.5 cm (27 in), Minimum Height of 53.3 cm (21 in). The decision of the Technical Director and/or Race Director regarding modifications will be final. Any question regarding the legality of modifications should be directed to the IJSBA or IJSBA affiliate prior to use in competition.

- 24.2.3 Hull: Hull may be modified or aftermarket but cannot exceed the length or width of the original equipment upper deck component of the bond flange as measured by a plumb bob (bumpers removed). Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. The decision of the Technical Director and/or Race Director regarding modifications will be final. Any question regarding the legality of modifications should be directed to the IJSBA or IJSBA affiliate prior to use in competition.

- 24.2.4 All watercraft may be equipped with a maximum of two sponsons. Original equipment sponsons may be modified, aftermarket, repositioned or removed. Overall length of each sponson shall not exceed 91.45cm (36.00 in.). Sponsons shall not protrude from the side of the hull by more than 100.00mm (3.94 in.) when measured in a level horizontal plane. The vertical channel created by the underside of the sponson shall not exceed 63.00mm (2.50 in.). No part of the sponson shall extend downward below the point at which the side of the hull intersects the bottom surface of the hull by more than 63.5mm (2.50 in.). Aftermarket or modified sponsons must exceed 6mm (0.24 in.) in thickness. All leading edges must be radiused so as not to create a hazard. Sponsons may not be attached to the planing surfaces of the hull. Fins, rudders, skegs and other appendages that may create a hazard will not be allowed. (See diagrams in Appendix.)

Ski Division Only: Sponsons may be attached to the inside of the bond flange, but no part of the sponson may extend more than 38.00mm (1.50 in.) below the lower part of the bond flange (bumper removed). Sponsons attached to the inside of the bond flange shall not protrude outside the bond flange (bumper removed) when measured in a level horizontal plane. The decision of the Technical Director and/or Race Director regarding modifications will be final.

Any question regarding the legality of modifications should be directed to the IJSBA or IJSBA affiliate prior to use in competition.

- 24.2.5 Intake grate may be modified or aftermarket. Intake grate is required and must be the full length type with at least one bar running parallel to the drive shaft. Grates may not extend more than 12.00mm (0.47 in.) below the flat plane of the pump intake area. All leading edges must be radiused so as not to create a hazard.
- 24.2.6 Pump cover plate may be modified or aftermarket. An extension may be added to the rear of the pump cover plate but shall not exceed the width of the original equipment plate. Modified and aftermarket plates must not extend more than 100.00mm (3.94 in.) beyond the end of the original equipment plate for Ski and Sport Division or 177.80mm (7.00 in.) for Runabout Divisions. The sides of the extension must be connected to the radiused portion of the pump plate so as not to create a hazard. (See diagram in Appendix.) Fins, rudders, skegs and other appendages that may create a hazard will not be allowed.
- 24.2.7 Aftermarket trim tabs, either fixed, automatic and/or rider controlled, may be used. Original equipment trim plates that are detachable from the hull may be removed or replaced when installing aftermarket trim tabs. Trim tabs cannot exceed the width of the planing surface or extend rearward more than 100mm (3.94 in.) beyond the end of the original planing surface. All hull extensions mounted on the hull's transom will be considered as a trim tab. All edges must be radiused so as not to create a hazard. Fins, skegs, rudders and other appendages that may create a hazard are not allowed.
- 24.2.8 Replacement bumpers may be used provided a hazard is not created.
- 24.2.9 A soft, flexible water-spray deflector may be attached to the hull sides or to the bond flange provided a hazard is not created. No part of the deflector may extend beyond the perimeter of the original equipment bumper or side moldings as measured by a plumb line.



- 24.2.10 Handlebar, throttle, throttle cable, and grips may be modified or aftermarket. Handlebar cover may be modified or removed. Aftermarket switches and switch housings may be used. Steering shaft, steering shaft holder and handlebar holder may be aftermarket. The handlebar must be padded at the mounting bracket or, if it has a crossbar, the crossbar must be padded. Aftermarket steering cables are allowed.
- 24.2.11 Ski Division Only: Handlepole (and mounting bracket) may be modified or aftermarket provided it functions as originally designed. Handlepole attaching point may be reinforced.
- 24.2.12 Sport and Runabout Division Only: Seat assembly may be modified or aftermarket. Seat height may be changed. If a Freestyle watercraft has a seat it is automatically construed as a Sport or Runabout watercraft depending on the dimensions of unit.
- 24.2.13 Padding and/or mat kits may be added and custom painting is allowed. The surface finish of any metal component outside the hull area above the bond flange may be polished, shot peened or painted.
- 24.2.14 Original bilge pump may be modified or disconnected. Aftermarket bilge draining systems that do not create a hazard are allowed.
- 24.2.15 Engine compartment foam may be removed, modified or aftermarket.
- 24.2.16 Storage covers, hatches, instrument cowlings and engine covers may be modified or aftermarket provided a hazard is not created. Additional engine compartment ventilation is allowed. Original equipment vents may be shielded or plugged. Handles, drop-in type storage buckets and bolton type mirrors may be modified, aftermarket or removed provided a hazard is not created.
- 24.2.17 Ballast weight may be added within the normally exposed areas of the hull to alter the handling of the watercraft provided a hazard is not created. Only weight consisting of constant mass (i.e., water or other fluid is not allowed) that does not require the modification or relocation of any parts will be allowed unless such modification or relocation is specified by other rules.

### **24.3 ENGINE —TWO-STROKE**

- 24.3.1 Engines may be bored. Aftermarket piston assemblies are allowed. The maximum displacement for Ski type PWC in Pro freestyle competition is 1200cc. The maximum displacement for Ski Type PWC in the Amateur Freestyle classes is 900cc.

- 24.3.2 Crankcases may be interchanged between homologated watercraft of the same manufacturer. Crankcases must be of the same type (i.e., cylinder induction, crankcase induction or rotary valve induction) and number of cylinders as original equipment (no adding or deleting cylinders). Internal modifications to the fuel, oil and/or water exposed surfaces are allowed. Bearing and seal surfaces may not be modified.

Filler material may be added to hollow pockets in the base gasket areas. Ignition/stator mounting area modifications are limited to spot facing, drilling and tapping threads for the purpose of mounting an aftermarket or modified ignition system.

Additional carburetor pulse line fittings may be installed.

Crankcase drain system may be removed or plugged.

Additional mounting holes, not to exceed 10.00mm (0.40 in.) diameter, are allowed provided they do not penetrate the internal surface of the cases.

Base gasket and intake surfaces may be machined. Repairs to cracked or punctured crankcases may be made provided only one damaged area affecting one cylinder bank has been repaired.

External modifications to the crankcase finish (e.g., plating, polishing and/or painting) are allowed for cosmetic purposes only.

No other external modifications or external repairs will be allowed.

OEM crankcases may be substituted with eligible replicas of homologated Two Stroke crankcases. For a crankcase to be an eligible replica, it must reasonably resemble the look of the OEM crankcases and provide for some amount of OEM components (ie cylinders, starters, crankshaft, etc.) to still be utilized. IJSBA will publish a list of approved replica crankcases.

- 24.3.3 Cylinder and cylinder head may be modified or aftermarket.
- 24.3.4 Crankshaft assembly may be modified or aftermarket. Stroke and rod length may be changed.
- 24.3.5 Engine bed and motor mounts may be modified or aftermarket. Engine may be repositioned in the hull.
- 24.3.6 Engine gaskets may be modified or aftermarket.
- 24.3.7 Exhaust system (i.e., manifold, head pipe, expansion chamber, waterbox, muffler(s), etc.) may be modified or aftermarket. Through-hull exhaust may be modified or aftermarket, providing a hazard is not created. Exit location of the exhaust gases may be relocated to the transom below the bond flange. No tuned portion of the exhaust system shall protrude outside the hull.

- 24.3.8 Cooling system may be modified or aftermarket. Aftermarket cooling lines and water bypass systems may be used. Bypass fittings may be modified, aftermarket and/or relocated but must be directed downward and/or rearward so as not to create a hazard for other riders. Any valves used within the entire cooling system must be of the fixed type or automatic (e.g., thermostats, pressure regulators, solenoids, etc.). Manually controlled devices (by any means of actuation) that alter the flow of cooling water during operation are not allowed. Cooling system flush kits are allowed.
- 24.3.9 Replacement starter motor and bendix may be used.
- 24.3.10 Oil-injection system may be disconnected or removed.
- 24.3.11 Replacement of general maintenance parts (e.g., spark plugs, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, clamps and fasteners) shall not be restricted to original equipment. Stripped threads can be repaired.

#### **24.4 AIR/FUEL DELIVERY — TWO-STROKE**

- 24.4.1 Carburetor(s) may be modified or aftermarket provided they do not vent or spill fuel at any attitude with or without the engine running. The number of venturis cannot exceed the number of cylinders. No slide-type carburetors. Aftermarket primer may be used. Intake manifold assembly may be modified or aftermarket. Aftermarket crankcase pressure operated fuel pumps may be used.
- 24.4.2 Modified or aftermarket vapor/air separators must not exceed 2 in. x 6 in., and must have a return line to the fuel tank open at all times. Additional fuel reservoirs may not be used. Aftermarket or modified electric fuel pumps, not exceeding 4 psi, may be used. When the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off-type fuel pumps are allowed.
- 24.4.3 Aftermarket fuel-injection systems are allowed provided the following regulations are adhered to: High-pressure fuel hose meeting SAE J30R9 must be used; A.N. threaded-type fittings or equivalent and non-removable, crimped-type clamps must be used on the high-pressure portion of the system (i.e., hose clamps, tie wraps, etc. are not allowed); only metal-type fuel filters may be used on the high pressure portion of the system; all other in-line filters must be installed on the low-pressure portion of the system. When the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off-type fuel pumps are allowed.

- 24.4.4 The entire fuel system is a closed system. The watercraft must not vent or spill fuel at any attitude with or without the engine running. The fuel tank shall not be restricted to the original equipment, as supplied by the manufacturer, so long as the replacement is an unmodified tank from another homologated PWC and the tank fits securely in the watercraft without causing a hazard. Original equipment fuel filler and relief valve must be used and cannot be modified. The fuel pickup, fuel filter and fuel petcock may be removed and/or aftermarket parts may be used. Additional fuel filters may be used and fuel cell foam may be added to the original equipment fuel tank. Fuel tank filler cap may be modified or aftermarket provided a hazard is not created. Aftermarket fuel tanks not coming from another homologated PWC may be allowed by the race director so long as it is demonstrated that the aftermarket fuel tanks meet or exceed the strengths and safety standards of an OEM fuel tank. The fuel tank may be modified or aftermarket, providing the watercraft must not vent or spill fuel at any attitude with or without the engine running. The tank must be securely fastened to the hull. The fuel filler location may be relocated. The decision of the Technical Director and/or Race Director regarding modifications will be final. Any question regarding the legality of modifications should be directed to the IJSBA or IJSBA affiliate prior to use in competition.
- 24.4.5 Flame arrester(s) which satisfy United States Coast Guard, SAE-J1928 Marine or UL-1111 Marine backfire flame arrester test standards must be installed. Aftermarket flame arresters satisfying one of these test standards are allowed. Intake silencer may be removed.
- 24.4.6 Reed valve assemblies may be modified or aftermarket. Rotary valve may be modified or aftermarket.
- 24.4.7 Fuel fillers may be located internally.

## **24.5 IGNITION AND ELECTRONICS — TWO-STROKE/FOUR-STROKE**

- 24.5.1 Ignition system, electrical box, flywheel and flywheel cover may be modified or aftermarket. Battery charging circuit may be disabled and/or removed.
- 24.5.2 An additional battery and battery box may be used. Batteries must fit into a proper battery box and be securely fastened. Batteries may be relocated.
- 24.5.3 Engine temperature sensor assembly may be disconnected and/or removed.

## **24.6 DRIVELINE**

- 24.6.1 Impeller, impeller housing, stator vane assembly, pump mounting plate and/or pump shoe may be modified or aftermarket. Pump nozzle and directional nozzle may be modified or aftermarket. Overall length of the complete pump and nozzle assembly may be no more than 50.00mm (1.97 in.) longer than original equipment. Aftermarket nozzle trim systems may be used. Additional cooling fittings may be installed. Visibility spout must be removed or plugged. Silicone adhesive sealant may be used in addition to original equipment seal to seal pump inlet.
- 24.6.2 Couplers, bearing housing and driveshaft may be modified or aftermarket provided they maintain a 1:1 drive ratio between the engine and the pump.

**24.7 ENGINE — FOUR-STROKE**

- 24.7.1 Original engine block must be used. Internal modifications to the oil and/or water-exposed surfaces will be allowed. The head gasket surface of the cylinder block may be machined.
- 24.7.2 The original cylinder head casting must be used. Intake and exhaust runners may be modified. Material may be added to the runners. Intake and exhaust ports may be modified. Port diameters and shapes may be changed. Combustion chambers may be modified. Material may be added to the combustion chamber. The original number of intake and exhaust valves must be the same as original. Repairs to the cylinder head affecting one cylinder bank are allowed. The head gasket surface may be machined.
- 24.7.3 Aftermarket valve train components are allowed, providing the original method of activation is maintained (e.g., if originally activated by a camshaft, they may not be converted to solenoid activation). Valves may be shimmed with OEM or aftermarket shims. Valve springs may be modified or aftermarket. Camshaft(s) may be aftermarket. The number of camshafts must be the same as original. Original bearing type and dimensions must be used. Cam timing may be changed. Cam gears, tensioners, chain or belt may be modified or aftermarket.
- 24.7.4 Engines may be bored. Aftermarket piston assemblies are allowed. Engine displacement must not exceed class designation (e.g., 1100cc in Runabout 1100 Superstock, 1600cc in Runabout Superstock Turbo, etc.).
- 24.7.5 Crankshaft may be modified or aftermarket. Total weight of the crankshaft must be within +/-5.00% of original equipment. Replacement bearings or bearing shells are allowed, providing they maintain their original type and dimensions. PWC homologated above 1600cc must maintain original stroke.
- 24.7.6 Engine balancing assemblies may be modified, aftermarket, or removed.
- 24.7.7 Aftermarket connecting rods made of ferrous materials are allowed. Rod length may be changed.
- 24.7.8 Exhaust system (i.e., manifold, connecting pipes, hoses, muffler(s), etc.) may be modified or aftermarket. Through-hull exhaust may be modified or aftermarket, providing a hazard is not created. No tuned portion of the exhaust system may protrude outside of the hull. Exit location of the exhaust gases may be relocated to the transom below the bond flange.
- 24.7.9 Cooling system may be modified or aftermarket. Additional cooling lines may be added. Aftermarket water bypass systems may be used. Cooling system bypass fittings may be modified or aftermarket and/or relocated but must be directed downward and/or rearward so as not to create a hazard for other riders. Any valves used within the entire cooling system must be of the fixed type or automatic (e.g., thermostats, pressure regulators, solenoids, etc.). Manually controlled devices (by means of actuation) that alter the flow of cooling water during operation are not allowed. Original cooling system thermostat may be removed, modified or aftermarket. Cooling system flush kits are allowed.
- 24.7.10 Baffles in oil reservoir may be modified. The addition of baffles in oil reservoir is allowed. Oil pump may be modified or aftermarket.

- 24.7.11 Valve cover may be replaced for cosmetic purposes and/or weight reduction only.
- 24.7.12 Replacement starter motor and bendix may be used.
- 24.7.13 Replacement engine mounts may be used.
- 24.7.14 External modifications to the engine finish (e.g., plating, polishing and/or painting) are allowed for cosmetic purposes only.
- 24.7.15 Replacement of general maintenance parts (e.g., gaskets, seals, spark plug wires, spark plug caps, wiring, water hoses, fuel lines, fuel filters, oil filters, clamps and fasteners) shall not be restricted to original equipment. Stripped threads may be repaired. Fasteners may integrate locking mechanisms.

## **24.8 AIR/FUEL DELIVERY — FOUR-STROKE**

- 24.8.1 The original fuel injectors may be modified to increase fuel-flow rate. Aftermarket fuel injectors that increase fuel flow are allowed provided they must not increase airflow into the combustion chamber. Fuel rail and fuel regulator may be modified or aftermarket. Additional fuel injectors may be added. Aftermarket fuel pumps are allowed provided that when the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off fuel pumps are allowed. High-pressure fuel hose meeting SAE J30R9 must be used; only metaltype fuel filters may be used on the high-pressure portion of the system; all other in-line filters must be installed on the low-pressure portion of the system
- 24.8.2 Flame arresters that meet USCG, UL-1111 or SAE J-1928 Marine standards must be used. Airflow sensor may be modified, aftermarket or removed. Ducting between the flame arrestor and throttle body may be modified or aftermarket.
- 24.8.3 Throttle body may be modified or aftermarket. The number of butterflies may be increased but may not exceed the number of cylinders. Intake manifold assembly may be modified or aftermarket.
- 24.8.4 Carburetor(s) may be modified or aftermarket provided they do not vent or spill fuel at any attitude with or without the engine running. Carburetors may be used in addition to or in place of the fuel-injection system. The number of venturis cannot exceed the number of cylinders. No slide-type carburetors. Aftermarket primer may be used. Intake manifold assembly may be modified or aftermarket. Aftermarket air-pulse-pressure operated fuel pumps may be used.

**24.9 TURBOCHARGER/SUPERCHARGER**

- 24.9.1 Turbocharger housing must be of the full circulating, water-jacket type at all times when the engine is running. Aftermarket turbochargers and superchargers may be used provided a hazard is not created. Original turbocharger or supercharger may be modified. Aftermarket turbochargers and superchargers may be added to originally normally aspirated watercraft. All hoses and pipes may be modified or aftermarket. Where the Race Director, or Technical Inspector, cannot determine if a turbocharger is sufficiently water-jacketed then a heat wrap and/or additional cooling mechanisms may be added to ensure safety.
- 24.9.2 Intercooler may be modified or aftermarket.
- 24.9.3 Boost pressure-relief valve may be modified or aftermarket
- 24.9.4 Boost sensor may be modified or aftermarket.

**24.10 GENERAL FREESTYLE REGULATIONS**

- 24.10.1 The rider will be judged by three to seven persons scoring on a scale of "1 to 10," with "10" being best. There is a two-minute time limit. Other times may be used, but must be approved by the IJSBA and will be announced to competitors during the riders meeting.
- 24.10.2 Maneuvers, tricks or stunts that may create a hazard to the rider, spectators, pit crew or officials must be approved in advance by the Race Director.
- 24.10.3 Only one person per watercraft during competition. Only one homologated watercraft may be used during competition. Freestyle competitors may compete on Stock, Limited, Superstock or Modified watercraft.
- 24.10.4 Riders competing in freestyle should draw for their starting order prior to the event.
- 24.10.5 Each freestyle rider must signify the start of his or her routine with a wave of the hand over his/her head.
- 24.10.6 A freestyle routine of greater difficulty with minimal mistakes will be scored higher than a routine of lesser difficulty with fewer or no mistakes.
- 24.10.7 Each freestyle rider should finish as close to the time limit as possible.
- 24.10.8 No score or points will be awarded to freestyle routines that are less than one minute in length.
- 24.10.9 The judges will award a score of at least "6" if the full two-minute freestyle routine has been completed.
- 24.10.10 In the case of a tie for first place, each competitor in the tie will perform a one-minute routine. Ties for all other positions will be broken by re-adding the high and low scores that may have been thrown out to calculate their original total score. If no high and low scores were thrown out to calculate the original total score, the highest single score will be used to break the tie. If still tied, the next highest individual score will be used and so on. If still tied, the riders will then perform a one minute routine.

## **25 RIDER CLASSIFICATIONS**

### **25.1 RIDER CLASSIFICATIONS**

- 25.1.1 The International Jet Sports Boating Association does not test the skill of individual participants in IJSBA-sanctioned events, nor does the Association judge each competitor's competence. Participants are solely responsible for their safety.
- 25.1.2 As a general policy, the IJSBA requires that riders be 16 years old or older for all competition classes except Junior 10-12 year old Ski Stock and Junior 13-15 year old Ski Stock and Limited. Boating laws in some countries require higher age minimums or allow lower age limits. Refer to Section 23 and/or contact the local IJSBA International Affiliate for information about specific age requirements in each country. A birth certificate and/or passport shall be presented to substantiate age.
- 25.1.3 The IJSBA and most IJSBA International Affiliates require that waiver of liability be signed by a parent or legal guardian if the competitor is under 18 years old. A birth certificate and/or drivers license may be required to substantiate age. A Rider will represent his/her country of citizenship at the World Finals. In case of multiple citizenships, the country of residence will apply.
- 25.1.4 Riders may have different skill classifications for Runabout/Sport and Ski divisions (i.e., an Expert Runabout racer may also be a Novice Ski racer).

### **25.2 BEGINNER**

- 25.2.1 The Beginner class is provided as an entry-level class for new riders who wish to experience the fun of racing. It is open to all Novice competitors (see Section 25.3) who have competed in three or fewer races. In the case of a series, riders may compete in the entire series prior to moving to the Novice class. Otherwise, in a rider's fourth race, he/she must compete in the Novice class. Beginner-class competitors may race Stock or Limited watercraft.

### **25.3 NOVICE**

- 25.3.1 Novice competitors are those with minimal racing experience. First-time competitors must participate in the Novice or Beginner class. **NOVICES MAY NOT COMPETE IN OPEN/MODIFIED/GP CLASSES WHERE SUPERCHARGED OR TURBOCHARGED RUNABOUTS ARE ALLOWED.**
- 25.3.2 Novice-class riders may reclassify themselves as Expert at their own discretion. Novice-class riders may also be reclassified as Expert-class riders at the discretion of the IJSBA or IJSBA International Affiliate.



## **25.4 EXPERT**

- 25.4.1 Expert-class riders are those who demonstrate a skill level that has exceeded beyond that of a Novice-class rider.
- 25.4.2 An Expert competitor may request to be reclassified as a Pro by submitting a Change of Classification Form to the IJSBA or IJSBA International Affiliate. The IJSBA and IJSBA International Affiliates have the authority to move an Expert competitor to Pro if he/she displays skills that are superior to others in that class.
- 25.4.3 An Expert competitor may be moved back to Novice if it is determined by the IJSBA or IJSBA International Affiliate that his/her riding skill is not Expert class level.

## **25.5 AMATEUR**

- 25.5.1 The Amateur class is comprised of Novice- and Expert-level riders.
- 25.5.2 Limitations may be placed on experienced competitors being allowed to participate in Amateur classes.

## **25.6 PRO**

- 25.6.1 Pro riders are those who have substantial racing experience and have advanced competition skills.
- 25.6.2 A Pro competitor may request to be reclassified as an Expert by submitting a Change of Classification Form to the IJSBA or IJSBA International Affiliate. IJSBA may deny such a change in the best interest of a sport.
- 25.6.3 A Pro rider may be moved back to Expert if it is determined by the IJSBA or IJSBA International Affiliate that his/her riding skill is not Pro-class level.
- 25.6.4 It is entirely possible that a competitor could become ineligible for Expert class competition and not be granted a Pro classification. Competitors are advised to communicate with IJSBA prior to making any decisions to participate in a category of racing in which the competitor is not currently eligible.

## **25.7 PRO-AM**

- 25.7.1 The Pro-Am class is comprised of Expert- and Pro-level riders.

## **25.8 VETERANS**

- 25.8.1 The Veterans Ski class is open to a riders who are 35 years of age or older. The Veterans Sport and Runabout classes are open to riders 35 years of age or older.

## **25.9 MASTERS**

- 25.9.1 The Masters Ski class is open to riders who are 45 years of age or older. The Masters Sport and Runabout classes are open to riders 45 years of age or older.
- 25.9.2 Closed-course Masters-class competitors may race Lites, Stock, Limited, Mod Lites, Superstock, or Modified watercraft.

## **25.10 WOMEN**

- 25.10.1 Women's classes in Novice, Expert and Pro categories are for naturally born female riders who elect to compete in them, generally for separate points, awards and/or purse.
- 25.10.2 Closed-course Women-class competitors may race Lites, Stock, Limited, or Mod Lites watercraft.

## **25.11 CLASSIFICATION CHANGES**

- 25.11.1 Rider classification changes not described in this rule book must be submitted to the IJSBA or IJSBA International Affiliate on a Change of Classification Form for consideration.
- 25.11.2 The IJSBA and IJSBA International Affiliates reserve the right to reclassify any rider as deemed appropriate in the best interest of safety, competition and/or sportsmanship.
- 25.11.3 A Rider may not be reclassified during the World Finals, except where specifically noted by the IJSBA. IJSBA may entertain requests to reclassify upwards when the circumstances show this to be in the best interest of the event and the sport.
- 25.11.4 Any Novice classified rider that wins a title during the World Finals will automatically be classified as an Expert rider as of January 1st the following year. Reclassification may be appealed in writing within 30 days following the last day of World Finals competition.
- 25.11.5 Irrespective of classification, no competitor who has won three World Titles may compete in any Amateur Class or Expert Class. Such competitors will be limited to Pro/Am or Pro classes only. This prohibition may be appealed to IJSBA.

The following is a supplementary rule to the NZJSBA/IJSBA Rule Book as passed by the NZJSBA on the 14th February 2019 and shall remain effective until further notice

- 25.11.6 A Junior Elite competitor can apply to the NZJSBA for consideration to compete in the Amateur Ski competition if he/she demonstrates a superior riding level beyond his/her years. A junior rider can only apply if he/she is in the 13-15year age category and he/she has had a minimum of 1 years full racing experience

## 26 EVENTS

### 26.1 SAFETY

- 26.1.1 The International Jet Sports Boating Association does not inspect courses used in IJSBA-sanctioned events. Participants are solely responsible for their safety at IJSBA-sanctioned races and should assess their own ability to negotiate each individual course. Participants who doubt the competence of course officials, have concerns about the safety of the course, or their own ability to negotiate the course, or are uncertain about the condition of their watercraft, or doubt the competence of fellow competitors, should not participate and should request the return of their entry fee before competitive activity begins.
- 26.1.2 It is the sole responsibility of the promoter to ensure compliance with all rules relating or directed to safety and to otherwise act to promote the safety of the competition. The IJSBA does not attend or in any way supervise every competition and cannot undertake to determine safety aspects. It is the sole responsibility of the promoter to purchase the required liability insurance.
- 26.1.3 IJSBA-sanctioned events may use routes traversing public waterways, and the promoter is not responsible for their condition or for the actions of other individuals using the public waterway.

### 26.2 CLOSED-COURSE EVENT

- 26.2.1 A closed-course event is a contest of speed and riding ability featuring multiple competitors negotiating multiple laps of a course consisting of left and/or right-hand turns. Obstacles (e.g., log jumps and/or ramps) may be present. Competing watercraft must meet IJSBA class specifications. For specific closed-course event rules, refer to the Closed Course event section of this rule book.

### 26.3 SLALOM EVENT

- 26.3.1 A slalom event is a timed event requiring a competitor to negotiate zig-zag right and left-hand turns around stationary markers. Competing watercraft must meet IJSBA class specifications. For specific closed-course event rules, refer to the Slalom Event section of this rule book.

### 26.4 FREESTYLE EVENT

- 26.4.1 Freestyle events are intended to show a rider's skill and expertise in executing difficult, challenging and creative manoeuvres within a set period of time and scored by a panel of judges. Competing watercraft must meet IJSBA class specifications. For specific Freestyle event rules, refer to the Freestyle Event section of this rule book.

### 26.5 ENDURANCE EVENT

- 26.5.1 Endurance events are long-distance races which may or may not include required turns and be of more than one lap. Competing watercraft must meet IJSBA class specifications. For specific endurance event rules, refer the Endurance event section of this rule book.

**26.7 DRAG-RACING EVENT**

- 26.7.1 Drag-racing events can be either timed/single-elimination contests or bracket elimination-type events over a predetermined distance. Competing watercraft must meet IJSBA class specifications. For specific Drag-racing event rules, refer the Drag-Racing Event section of this rule book and the specific Hydrodrag Rules.

**26.8 SPECIAL EVENT**

- 26.8.1 "Special events" are any type of watercraft event meeting IJSBA technical requirements that are not hazardous to participants. Examples: obstacle race, relay races, Australian Pursuit, or other fun-type event that encourages participation by riders and tests skills and performance of rider and machine. These events may be determined by the promoter, but prior approval from the IJSBA is required (see Section 4.2). Watercraft must meet IJSBA class specifications. For specific special event rules, refer to the Special Event section of this Rule Book.

The following is a supplementary rule to the NZJSBA/IJSBA Rule Book as passed by the NZJSBA on the 3<sup>rd</sup> February 2004 and shall remain effective until further notice

**26.9 NEW ZEALAND JET SPORTS NATIONALS**

- 26.9.1 Riders competing at the New Zealand Jet Sport Nationals will only be eligible for a NZ ranking if they are a New Zealand citizen i.e. NZ 1 Plates and subsequent numbers can only be held by a New Zealand rider. International riders will be eligible for overall line honours, trophies, prizes and/or prize money

## 27 CLOSED-COURSE EVENTS

### 27.1 GENERAL PRE-START PROCEDURES

- 27.1.1 Due to varying shoreline and water conditions, the type of start will be explained at the riders meeting.
- 27.1.2 Watercraft must be pushed or ridden at idle to the starting line. All watercraft must enter the race course, in both practice and racing, through the starting area only. Entry from the pit area is not allowed.
- 27.1.3 The maximum number of watercraft per closed-course heat should not exceed the following:

CLASS	SKI DIVISION	SPORT DIVISION	RUNABOUT DIVISION
JUNIOR	12 (14*)	12 (14*)	8 (12*)
BEGINNER	12 (14*)	12 (14*)	10 (14*)
NOVICE	14 (16*)	12 (16*)	12 (16*)
EXPERT	16 (18*)	14 (18*)	14 (18*)
PRO	18 (20*)	16 (20*)	16 (20*)

**\* If a dual first-turn design is used. IN RUNABOUT OPEN CLASSES, THE IJSBA RECOMMENDS REDUCING THE AMOUNT OF ALLOWED WATERCRAFT BY A TOTAL OF FOUR (Two on each side of a split start).**

- 27.1.4 The method for determining starting line-up in heat or qualifying races is by drawing for position. The number drawn will be the starting position, from the pole to the outside. (The pole position is always closest to the first turn buoy.) Starting-line positions for main events are determined by finish positions in heat or qualifying races. At the Race Director's discretion, riders may be given their choice of starting-line position for main events based on their qualifying position.
- 27.1.5 No warm-up or practice starts will be allowed during staging or while getting positioned in the starting area.
- 27.1.6 The Race Director may penalize any rider whose method of start interferes with other participants.
- 27.1.7 A damaged watercraft may be prohibited from competition if, in the opinion of the Race Director, it presents a hazard to spectators, participants or the rider him/herself. The decision of the Race Director is final.

The following is a supplementary rule to the NZJSBA/IJSBA Rule Book as passed by the NZJSBA on the 30<sup>th</sup> September 2002 and shall remain effective until further notice.

- 27.1.8 The watercraft used in a semi-final or final race must be the same watercraft used to qualify for that race. If the moto scoring system is used, the same watercraft must be used in all motos. The use of a second or backup watercraft, due to damage or other conditions that make the craft non-operational, may be allowed, providing that it meets all class and safety regulations. Any such replacements can be made only with the authorization of the Race Director.

## 27.2 GENERAL STARTING PROCEDURES

- 27.2.1 If a rubber band-type starting gate is used, riders should stay clear of the neutral zone to avoid any chances of the rubber band hindering their start. All riders must position the nose of their boats behind the rubber band. A maximum staging distance of 60cm (2 ft.) from the rubber band will be allowed. No running starts. (See diagram in Appendix.) Riders must be on the starting line at the start of the race to compete (i.e., riders may not enter the race course unless they are on the starting line at the start of the race).
- 27.2.2 The starter will signal riders to start their engines and hold up the “2” card.
- 27.2.3 After acknowledging the riders, the starter will hold up the “1” card. Within seconds, the “1” card will be turned sideways signifying the race will start at any moment. The race will start when the green flag is waved, or when the starting gate is tripped.
- 27.2.4 Other methods of starting may be used with prior approval from the IJSBA.
- 27.2.5 The start of the race may be delayed only when the “2” card is displayed. Once the starter has displayed the “1” card, the start of the race cannot be delayed. Only one two-minute hold will be granted per race unless the race is officially restarted. Both boat and rider must be on the starting line in order to receive a two-minute hold.
- 27.2.6 Only one holder and one mechanic will be allowed in the starting area. Runabout and Sport classes will be allowed two holders. (The Race Director may allow more holders depending on water conditions.) Holders will not be allowed to use ropes or other implements to hold their riders’ watercraft. When the “2” card is held up, the mechanic must move to the back of starting area. All other persons except officials and/or designated media must be out of the starting area.
- 27.2.7 **Ski Division** riders will not be allowed to place feet or knees in or on the riding platform until the race has been officially started. Both feet must remain on the ground. Riders must be in a standing position on their watercraft immediately after the start and well before reaching the first turn buoy. Riders cannot sit on the rails or kneel in the tray. No rider will be allowed to use devices (e.g., milk crates) to aid his or her starting procedure unless all riders are given the same opportunity and it is announced by the Race Director. Riders not obeying these rules will be penalized.

- 27.2.8 **Sport and Runabout Division** riders may start in their riding positions and may sit while riding. No rider will be allowed to use devices (e.g., milk crates) to aid his or her starting procedure unless all riders are given the same opportunity and it is announced by the Race Director. Riders not obeying these rules will be penalized.

### 27.3 GENERAL RESTART PROCEDURES

- 27.3.1 The Race Director may have a restart at his/her discretion. Reasons for restart may include (but are not limited to) a jumped start, loose buoy, an accident on the first lap involving several riders, or a downed rider whose presence potentially creates a hazard.
- 27.3.2 All machines will be stopped under the red flag. The starter will notify riders when to move their machines, and will have them proceed slowly to the point of restart. Any rider causing the stoppage of a race and subsequent restart, or any rider unable to immediately restart, may be penalized.
- 27.3.3 If the race is restarted, riders not having previously started in that race will not be allowed to enter with the restart. Exceptions to this rule must be clearly stated at the Rider's Meeting or be printed in writing and published in reasonable advance of the event.
- 27.3.4 A rider who jumps the start and causes a restart must restart in the same position with a dead engine. The rider must remove the lanyard from the engine stop switch and hold it with his/her arm extended overhead. The rider must be standing or sitting in an upright position. After the green flag is waved or the starting gate is tripped, the lanyard may be connected and the engine started.
- 27.3.5 If a race is stopped with fewer than three laps completed and a restart is required, a total restart (i.e., previously run laps will not count) may be used. Riders will be assembled on the starting line in the order of the original start. Any rider penalized on the original start will be required to restart under the same penalty.
- 27.3.6 If a race is stopped after three or more laps have been completed and a restart is required, a flying start may be used. The riders will be positioned in a single-file line in the order in which the last complete lap was scored. The riders will be led around the course in single file at slow speed, maintaining one boat length between them. When the starter waves the green flag, the riders may resume racing. No passing will be allowed until the green flag is waved by the starter.

### 27.4 GENERAL REGULATIONS

- 27.4.1 **Corner/Course Marker Buoys:** All riders must negotiate completely around any course marker buoy in either slalom or closed-course events. The nose of the watercraft must be clearly steered around any marker buoy. Any competitor riding over a course marker buoy will be judged to have missed the buoy no matter what side of the watercraft the buoy reappears. The rider will be required to renegotiate the turn buoy going in the proper direction, and will be required to do so in a safe manner so as not to create a hazard or danger to other riders on the course.

**27.4.2 Missed Buoys:** A rider failing to negotiate a buoy or missing a marker buoy in a closed-course event will be penalized one lap for each missed buoy unless he/she completes the announced procedure for picking up a buoy. The preferred method for correcting a missed buoy is to have a strategically placed buoy on the course which serves as a “penalty buoy” (commonly called the “Black Buoy”). If a rider fails to properly negotiate, or misses, a buoy then that rider must properly negotiate the penalty buoy instead of reattempting the missed buoy. The buoy should be placed between the merge section of an option course and the finish line buoys. The penalty buoy should be placed in a position to cause the offending rider to markedly depart from the course. Riders who cut the course may not make up any missed buoy by negotiating the penalty buoy. If the race director determines that a rider is strategically missing a buoy to gain a position then that rider may be penalized even if the penalty buoy is properly negotiated. The penalty buoy should be placed in a location sufficient to cause lost time to the rider who has missed the originally intended buoy so that an advantage is not gained by having to take the penalty buoy. The location of the penalty buoy should allow for safe travel to and from the rest of the race course. The penalty buoy may not be renegotiated if missed or improperly negotiated. The race director may make some buoys/pathways ineligible for the penalty buoy if missed or improperly negotiated (i.e. log jump, merge buoy, first turn buoy, etc.). A rider circling back against traffic to renegotiate a buoy is not the preferred method for correcting a missed buoy. The IJSBA recommends that this procedure not be used to correct a missed buoy.

**Missed Log Jumps:** Where a log jump is a required portion of the course, the rider shall be penalized one lap for each time the rider fails to properly negotiate the log jump. The Race Director shall have discretion to penalize the rider a position, or other employ another appropriate score adjustment, where the Race Director determines that the offending rider improperly negotiated the log jump to avoid colliding with a downed rider or watercraft. The Race Director shall have the discretion to allow a rider to utilize a penalty buoy to negate a log jump penalty in the interest of safety. Any such policies for log jump penalties and their exceptions shall be clearly stated at the riders’ meeting.

**Merge Lanes:** A rider crossing over the line created by merge-lane buoys will be penalized one lap. Going back to renegotiate the merge lane is not allowed.

**Buoy Identification:** Red buoys signify a left-hand turn. Yellow buoys signify a right-hand turn. Black Buoys are generally used to signify the path taken by a rider who has missed a buoy. Blue and other specially coloured buoys are for special use (e.g., merge lanes, perimeter boundaries, etc.). The Race Director will explain their purpose at the riders meeting.

**Finish Line Buoy:** Finish line buoys, two (2) each, should be clearly marked with contrasting coloured checkerboard and/or the word "Finish" repeating around the central circumference of each buoy. A rider incorrectly negotiating a finish line buoy will be penalized two positions. Going back to renegotiate a finish line buoy is not allowed.

**At the Finish:** A rider and his/her watercraft shall be considered a unit to constitute a finish. The rider must be in reasonable control to be scored as finishing an event.



## 28 SLALOM EVENTS

### 28.1 GENERAL REGULATIONS

- 28.1.1 When applicable, Women-, Veterans- and Masters-class riders entering more than one slalom class per division must make their respective Women-, Veterans- or Masters-class runs first.
- 28.1.2 Each rider will be allowed two runs with a maximum of one minute between each run. The same watercraft must be used in all slalom runs per class.
- 28.1.3 Riders attempting to trip electronic timing systems with their hands or by any means other than the watercraft itself will be disqualified.
- 28.1.4 **Missed buoys:** A rider failing to properly negotiate a course buoy in slalom will be penalized 10 seconds for each buoy missed, unless he/she goes back to pick up the buoy in the proper direction.
- 28.1.5 **Tie breaker:** Finishing-position tie breaker for slalom events is a rider's second fastest run (i.e., assuming two or more riders have identical best runs), the rider with the best next-fastest run will receive the higher ranking. If still tied, the event will be scored as such and the position will be considered a tie.

## 29 FREESTYLE EVENTS

### 29.1 GENERAL REGULATIONS

- 29.1.1 The rider will be judged by three to seven persons scoring on a scale of “1 to 10,” with “10” being best. There is a two-minute time limit. Other times may be used, but must be approved by the IJSBA and will be announced to competitors during the riders meeting.
- 29.1.2 Manoeuvres, tricks or stunts that may create a hazard to the rider, spectators, pit crew or officials must be approved in advance by the Race Director.
- 29.1.3 Only one person per watercraft during competition. Only one homologated watercraft may be used during competition. Freestyle competitors may compete on Stock, Limited, Superstock or Modified watercraft.
- 29.1.4 Riders competing in freestyle should draw for their starting order prior to
- 29.1.5 Each freestyle rider must signify the start of his or her routine with a wave of the hand over his/her head.
- 29.1.6 A freestyle routine of greater difficulty with minimal mistakes will be scored higher than a routine of lesser difficulty with fewer or no mistakes.
- 29.1.7 Each freestyle rider should finish as close to the time limit as possible.
- 29.1.8 No score or points will be awarded to freestyle routines that are less than one minute in length.
- 29.1.9 The judges will award a score of at least “6” if the full two-minute freestyle routine has been completed.
- 29.1.10 In the case of a tie for first place, each competitor in the tie will perform a one minute routine. Ties for all other positions will be broken by re-adding the high and low scores that may have been thrown out to calculate their original total score. If no high and low scores were thrown out to calculate the original total score, the highest single score will be used to break the tie. If still tied, the next highest individual score will be used and so on. If still tied, the riders will then perform a one-minute routine.

## 30 ENDURANCE EVENTS

### 30.1 GENERAL PRE-START PROCEDURES

- 30.1.1 Due to varying shoreline and water conditions, the type of start will be explained at the riders meeting.
- 30.1.2 Watercraft must be pushed or ridden at idle to the starting line. All watercraft must enter the race course, in both practice and racing, through the starting area only. Entry from the pit area is not allowed.
- 30.1.3 No warm-up or practice starts will be allowed during staging or while getting positioned in the starting area.
- 30.1.4 The Race Director may penalize any rider whose method of start interferes with other participants.

The following are supplementary rules to the NZJSBA/IJSBA Rule Book as passed by the NZJSBA on the 30<sup>th</sup> September 2002 and shall remain effective until further notice:

- 30.1.5 A watercraft can only be changed once during a race meeting.
- 30.1.6 The original watercraft that has been changed cannot be used again by any rider in that class at that meeting.
- 30.1.7 A watercraft cannot be changed during a race.
- 30.1.8 The second or backup watercraft must have passed Technical Inspection.

### 30.2 GENERAL STARTING PROCEDURES

- 30.2.1 The Race Director will explain the race starting procedure at the pre-race riders meeting (e.g., staggered starts, class, category, teams, etc.).
- 30.2.2 A **LeMans** start can be used to start an entire field of riders or individual classes. Each rider will line up his/her watercraft in the designated starting area facing offshore. Each rider will be allowed one holder to steady the watercraft. (The Race Director may allow more holders depending on water conditions.) Riders will line up on shore at equal distances away from their watercraft predetermined by the Race Director. At the signal from the Starter, riders will race on foot to their watercraft, start the engine and enter the course.
- 30.2.3 A **Driscoll** start can be used to start an entire field of riders or individual classes. Each rider will line up his/her watercraft in the designated starting area facing offshore. The rider will stand with both feet on the ground in front of the watercraft facing toward shore. The rider will place both hands together holding the nose of the watercraft. At the signal from the Starter, riders will manoeuvre into the proper riding position on their watercraft, start the engine and enter the course.
- 30.2.4 A **Timed** start is used to start individual riders one at a time. Each rider is assigned a starting time. The race will start at a time pre-determined by the Race Director. The first rider will start at the posted start time with each subsequent rider typically to be started in 15- or 30-second intervals until all

riders have started. Each rider's individual finish time will be corrected depending on his/her start time.

- 30.2.5 A **Running** start can be used to start the entire field of riders or individual classes. All riders to be started will line up his/her watercraft in an area predetermined by the Race Director. Engines will be running at idle speed. When the Starter has determined all riders are in their proper positions, a signal for the start of the race will be given.
- 30.2.6 In LeMans, Driscoll and Running starts, the watercraft must be lined up with no less than 1m (3 ft.) separating the sides of the watercraft.
- 30.2.7 Only one mechanic will be allowed in the starting area for each rider. Holders will not be allowed to use ropes or other implements to hold their riders' watercraft. All other persons, excluding officials and/or designated media must be out of the starting area.

### 30.3 GENERAL RESTART PROCEDURES

- 30.3.1 The Race Director may have a restart at his/her discretion. Reasons for a restart may include (but are not limited to) a jumped start, loose buoy, an accident on the first lap involving several riders, or a downed rider whose presence potentially creates a hazard.
- 30.3.2 All machines will be stopped under the red flag. Course officials will notify riders when to move their machines, and will have them proceed slowly to the point of restart. Any rider causing the stoppage of a race and subsequent restart, or any rider unable to immediately restart, may be penalized.

### 30.4 GENERAL REGULATIONS

- 30.4.1 **Rider/Pit Crew Identification:** All riders and pit crew members who are registered to compete or will be entering into controlled areas shall wear an event identification wristband permanently marked with the competitor's last name and race number. Team-class competitors shall wear an event identification wristband permanently marked with the race number and each of the competitor's last names. The last name of the Team competitor on which the individual wristband is worn shall be additionally marked to identify the particular competitor. (i.e., wearer's last name underlined or circled)
- 30.4.2 **Rider Responsibility:** In long-distance events it is a rider's responsibility to inform the nearest race official of any injured rider(s) or disabled boat(s) on the course.
- 30.4.3 **Course Abandonment:** If a rider abandons the race course, the rider or a team member must notify the Race Director immediately. A rider or team may be penalized for non-notification or for failure to notify within a reasonable amount of time.

- 30.4.4 **Corner/Course Marker Buoys:** A course marker is a mandatory negotiating point signified by a perfectly identifiable floating device whose position will be described during the pre-race riders meeting and a publicly posted course map (practice or reconnaissance lap(s) may also be used). Buoys or lines of buoys may be used to guide, slow down or mark areas where a change of pace is expected. Any such buoy(s) shall be clearly identifiable by different size or colour from other course marker buoys. All riders must negotiate completely around any course marker buoy. The nose of the watercraft must be clearly steered around any marker buoy. Any competitor riding over a course marker buoy will be judged to have missed the buoy no matter what side of the watercraft the buoy reappears. The rider will be required to renegotiate the turn buoy going in the proper direction, and will be required to do so in a safe manner so as not to create a hazard or danger to other riders on the course.
- 30.4.5 **Missed Buoys:** A rider failing to negotiate a buoy or missing a marker buoy will be penalized for each missed buoy unless he/she goes back to pick up the buoy.
- 30.4.6 **Buoy Identification:** Red buoys signify a left-hand turn. Yellow buoys signify a right-hand turn. Blue and other specially coloured buoys are used for special use. The Race Director will explain their purpose at the riders meeting.
- 30.4.7 **Finish Line Buoy:** Finish line buoys, two (2) each, should be clearly marked with contrasting coloured checkerboard and/or the word "Finish" repeating around the central circumference of each buoy. A rider incorrectly negotiating a finish line buoy will be penalized two positions. Going back to renegotiate a finish line buoy is not allowed.
- 30.4.8 **At the Finish:** A rider and his/her watercraft shall be considered a unit to constitute a finish. The rider must be in reasonable control to be scored as finishing an event.

### 30.5 FUEL SYSTEM, FUELING AND PIT STOPS

- 30.5.1 The entire fuel system is a closed system. The watercraft must not vent or spill fuel at any attitude with or without the engine running. Original equipment fuel tank must be used and may not be modified. Fuel filler assembly may be aftermarket or modified. The fuel filler assembly must be mounted thru the deck or through a plate that completely blocks off a storage opening (i.e., no internal refuelling allowed and no spilt fuel may enter engine compartment). The fuel pickup and fuel filter(s) may be removed and/or aftermarket parts may be used. Fuel tap assembly may be modified, aftermarket or removed. Additional fuel filters may be used and fuel cell foam may be added to the original equipment fuel tank. Modified or aftermarket vapour/air separators must not exceed 2 in. x 6 in., and must have a return line to the fuel tank open at all times. Additional fuel reservoirs may not be used.

The Seadoo XP97(800) fuel tank may be updated to OEM Seadoo XPL fuel tanks from 1998-2002. All craft affected by this change must pass a Pre-Race Technical Inspection at each event

- 30.5.2 Fuelling and refuelling must be performed in areas designated by the Race Director.

- 30.5.3 The Race Director may prohibit any method of refuelling that creates a potential hazard to spectators, participants or the rider him/herself. The decision of the Race Director is final.
- 30.5.4 Riders may be penalized for spilling fuel.
- 30.5.5 All riders must operate his/her watercraft at 5 mph while entering and exiting the designated lane leading to the pit and refuelling areas. Riders may be penalized for exceeding the 5 mph speed limit.

The following is a supplementary rule to the NZJSBA/IJSBA Rule Book as passed by the NZJSBA on the 11<sup>th</sup> August 2003 and shall remain effective until further notice:

All craft competing in any Endurance Event shall comply with the closed course rule relating to fuel systems for their respective class, as below.

**30.5.6 Stock Craft**

The entire fuel system is a closed system. The watercraft must not vent or spill fuel at any attitude with or without the engine running. Original equipment fuel tank, fuel pickup, fuel filler, fuel filter, fuel tap assembly and relief valve must be used and cannot be modified. Additional fuel filter may be used.

**30.5.7 Limited Craft**

The entire fuel system is a closed system. The watercraft must not vent or spill fuel at any attitude with or without the engine running. Original equipment fuel tank, fuel filler and relief valve must be used and cannot be modified. The fuel pickup, fuel filter and fuel tap assembly may be removed and/or aftermarket parts may be used. Additional fuel filters may be used and fuel cell foam may be added to the original equipment fuel tank. Modified or aftermarket vapour/air separators must not exceed 2 in. x 6 in., and must have a return line to the fuel tank open at all times. Additional fuel reservoirs may not be used. Aftermarket or modified electric fuel pumps, not exceeding 4 psi, may be used. When the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off type fuel pumps are allowed.

**30.5.8 Open Class Craft**

The entire fuel system is a closed system. The watercraft must not vent or spill fuel at any attitude with or without the engine running. Original equipment fuel tank, fuel filler and relief valve must be used and cannot be modified. The fuel pickup, fuel filter(s) may be removed and/or aftermarket parts may be used. Fuel tap assembly may be modified, aftermarket or removed. Additional fuel filters may be used and fuel cell foam may be added to the original equipment fuel tank. Modified or aftermarket vapour/air separators must not exceed 2 in. x 6 in., and must have a return line to the fuel tank open at all times. Additional fuel reservoirs may not be used. Aftermarket or modified electric fuel pumps, not exceeding 4 psi, may be used. When the engine is shut off or stops, the fuel pump must automatically stop. No manually operated on/off type fuel pumps are allowed.

**30.5.9 Fuel Spillage**

A minimum 2-minute penalty will be enforced for spilling fuel.

**30.5.10 Inspection of Fuel Containers**

Fuel containers will be subject to inspection by and approval of the Race Director and local Fire Marshall. Any fuel containers the Race Director deems to be unsafe, will not be eligible for use at any sanctioned events. This decision cannot be protested.

**30.6 SPECIAL EQUIPMENT**

- 30.6.1 Equipment required by the Race Director and/or local authorities may include but is not limited to the following: • Compass and/or other navigational equipment • Flexible tow loop attached to front of watercraft • Tow rope • VHF radio or cellular phone • Drinking water and rations • Radar reflector • First Aid kit • Flares or other signalling device • Emergency repair kit

**30.7 PENALTIES**

- 30.7.1 The Race Director may assign stop-and-go and/or time penalties for course and other infractions. A rider signalled by the Race Director or an appointed official must bring their watercraft to a complete stop in a manner so as not to create a hazard to oncoming riders and stop the engine. When signalled, the rider may restart the engine and continue racing. Due to varying course design and starting methods, the length of stop-and-go and/or time penalties will be determined by the Race Director and explained at the riders meeting.
- 30.7.2 Any competitor entering an area prohibited to navigation may be penalized.

## **31 SPECIAL EVENTS**

### **31.1 SPECIAL EVENT BASICS**

- 31.1.1 A special event is any type of watercraft event that meets IJSBA technical requirements and is not hazardous to participants. Examples: obstacle race, relay races, Australian pursuit, or other fun-type event that encourages participation by riders and tests skills and performance of rider and machine. These events may be determined by the promoter, but prior approval from the IJSBA is required (also see Section 4.2). Watercraft must meet IJSBA class specifications.



## 32 GENERAL COMPETITION RULES

### 32.1 GENERAL COMPETITION RULES

The following General Competition Rules will apply to all IJSBA- and IJSBA affiliate-sanctioned events and classes.

All IJSBA and IJSBA affiliate members and racing personnel—including but not limited to owners, mechanics, pit crew, sponsors and promoters—are deemed to be fully aware of all rules and will be expected to abide by them. Any entry is subject to inspection upon request of the Technical Director or Race Director.

- 32.1.1 **Riders Meeting:** A meeting for all event competitors will be held at an announced time and place. Attendance is mandatory. The meeting will be conducted by the Race Director or an official appointed by the Race Director. Descriptions of the course and flags will be made. Roll call may be used to verify attendance of riders at the meeting. Riders not attending or arriving late are subject to penalty.

### 32.2 RULE BOOK ADDENDA

- 32.2.1 Rule book addenda shall be announced via official bulletins that are faxed or mailed to IJSBA promoters and affiliates; announced at an IJSBA- or IJSBA affiliate- sanctioned event; published on the IJSBA's Web site or any combination of the above. It is the responsibility of the competitor to obtain this information.
- 32.2.2 Rule book addenda become legal and enforceable upon announcement.

### 32.3 TECHNICAL RULES

- 32.3.1 It is the responsibility of the rider to select a helmet and apparel that will provide appropriate protection. The International Jet Sports Boating Association does not endorse or guarantee specific products or manufacturers. Riders must rely on their own judgment in the selection of helmets and apparel for safety and durability.
- 32.3.2 At all IJSBA- and IJSBA affiliate-sanctioned events, a Personal Flotation Device (PFD) meeting local buoyancy requirements (typically U.S. Coast Guard Type I or Type III) that is in sound condition must be worn by all competitors at all times when on the water. Inflatable-type PFDs are not allowed.
- 32.3.3 At all IJSBA- and IJSBA affiliate-sanctioned events, a properly fitting, full-coverage helmet with chin and mouth protection meeting local requirements often including internationally recognized DOT and Snell Foundation motorized vehicle standards will be worn by all competitors at all times when on the water. Helmets with bolt-on chin guards are not allowed. Full face shields shall be allowed providing the shield is pivoting with no locking mechanism. A quick release capability is acceptable in lieu of a pivoting mechanism. Exception: Helmets are not required for freestyle competitors when engaged in freestyle competition. All helmets must be in sound condition and must be approved during pre-race technical inspection. No plastic, bicycle-type, BMX, or similarly designed headgear will be allowed.

The following is a supplementary rule to the NZJSBA/IJSBA Rule Book as passed by the NZJSBA on the 1<sup>st</sup> November 2021 and shall remain effective until further notice:

- 32.3.4 Further to rule 32.3.3, All helmets must be full coverage and comply with either Snell Foundation or DOT safety standards for motorcycle use or comply with ECE regulations 22.05. All helmets must be in good condition and show no signs of damage or deterioration.

Any helmet used in competition must feature significant colouring to stand out from the water. The expected minimum coverage level is approximately 50% of the helmet in high-vis colouring. Colour must be fluorescent and a tone of either Yellow, Orange, Red, Magenta/Pink, or Green (Blue not acceptable). ABS and Polycarbonate helmets must not be painted. Composite shell helmets may only be painted with a paint approved by the helmet manufacturer. Helmet colours that are predominantly black, white and/or grey may be prohibited from use by the Race Director under rule 32.3.6. For clarification and/or approval please contact the NZSBA Office.

- 32.3.5 Back protection is mandatory for all Ski competitors with the exception of Freestyle. All Ski competitors shall be required to wear a spinal column protection device capable of distributing, diffusing, or absorbing impact. Protection devices may be rigid or soft material capable of absorbing and distributing an impact sufficient to reduce injury. Devices must not be capable of absorbing water. Where there is doubt that the device covers the required area of the spinal column, the following measurement shall be used: "No greater distance shall be allowed than two inches below a horizontal line between the top of both shoulders and no less distance shall be allowed than three inches below a horizontal line between both hips. The Race Director shall have final determination of whether the back protection used by a rider is adequate. Back protection, protective footwear and eye protection are recommended for all riders in all competition events.
- 32.3.6 The Race Director of an event shall have the authority to prohibit the use of any helmet or PFD, and/or other equipment which he or she may consider to be unsafe, to offer insufficient protection or to be otherwise considered inadequate.
- 32.3.7 No rider shall be allowed to compete in any event if it is determined by an official that he/she is under the influence of alcohol or drugs. It is forbidden for anyone to consume any alcoholic beverages during an event in the pit area or any other portion of the premises under official control.
- 32.3.8 The Race Director shall have the authority to deny participation to any rider if, in his/her opinion, the rider may be a hazard to spectators, participants or themselves. Written approval of a doctor may be required.
- 32.3.9 Any competitor exhibiting dangerous or un-sportsmanlike conduct at any time during a sanctioned event may be penalized.

The following is a supplementary rule to the NZJSBA/IJSBA Rule Book as passed by the NZJSBA on the 28th January 2003 and shall remain effective until further notice:

- 32.3.10 All watercraft, with the exception of those used during freestyle competition, must have a properly working, lanyard-type engine stop switch installed. Modifications made to the lanyard-type engine stop switch, using tape, wire or any other material whatsoever, that can be removed by the rider or pit crew during or immediately following a competition event are not allowed. Engines may idle at any time, provided that the lanyard is connected.
- 32.3.11 All watercraft must pass a pre-race technical inspection. The Race Director may remove any watercraft from competition that does not meet IJSBA technical requirements.
- 32.3.12 Equipment that is damaged, broken or lost during a race is not necessarily grounds for penalty unless an infraction is determined during that race.
- 32.3.13 All watercraft must run a permanently affixed nose bumper approved by the IJSBA. If plastic or metal hull supports are used, all edges must be smooth as not to create a hazard.
- 32.3.14 The Race Director shall have authority to stop or conclude any event(s) he/she deems necessary to ensure the safety of participants, spectators and/or officials, or because of technical problems.
- 32.3.15 The maximum number of riders per vehicle is one. No two-up or tandem racing allowed.

#### **32.4 FLAG RULES**

- 32.4.1 The following flag rules apply generally to all forms of IJSBA competition, including closed course, drag and endurance racing, slalom and freestyle competition and other special events.
- 32.4.2 Green Flag: Signifies the start of the race or the course is clear and the race is in progress.
- 32.4.3 Yellow Flag: Warns of hazard on the course. After the yellow flag is displayed, riders should continue with caution and be aware of hazards; however, they are allowed to continue racing in a responsible manner. Competitors may be penalized if they continue to race in an improper manner.
- 32.4.4 Red Flag: Signifies the event will stop immediately regardless of position of machines on the course. The red flag will be used if, in the opinion of the Race Director, the race course has become hazardous. Riders must return to the starting line using extreme caution.
- 32.4.5 Black Flag: Signifies the rider must leave the course immediately and report to the Race Director. This does not necessarily mean an additional penalty will be given; however, failure to obey the black flag may result in additional penalties.
- 32.4.6 Blue Flag w/Diagonal Yellow Stripe: Signals that one rider is being overtaken and lapped by another. Competitor(s) must make way for the overtaking rider(s) to pass safely. Riders not yielding may be penalized.

- 32.4.7 Crossed Chequered and White Flags: Signifies the halfway point of the race has been reached. For events with an odd number of scheduled laps, the halfway point will be rounded up (e.g., in a 15-lap race, the half-way point is decided when the lead rider passes the finish line after 8 laps have been completed).
- 32.4.8 White Flag: Signifies that riders have started the last lap.
- 32.4.9 Chequered Flag: Signifies the completion of the race or event. As a rider passes the chequered flag, he/she has completed the last lap of the race. Riders must return to the pit area in a cautious and responsible manner. Racers may first be required to report to post-race technical inspection.

## **32.5 GENERAL REGULATIONS**

- 32.5.1 Riding Tune-Up Area: If location/space allows, an area will be designated as a "Riding Tune-Up Area." All riders must wear approved PFD and helmet while tuning/testing watercraft in this area, and must ride in a safe manner.
- 32.5.2 Riding on the Course: Riding will not be allowed on the race course at any time without permission from the Race Director.
- 32.5.3 Reckless/Dangerous Riding: Any reckless or dangerous riding, unnecessary bumping, crowding, chopping, blocking, deliberate striking or breaking of a course marker buoy, or unsportsmanlike conduct on the course or off, may result in the rider being penalized. In the case of a team effort, the complete team may be penalized at the discretion of the Race Director.
- 32.5.4 Blocking: The deliberate blocking of a faster machine is cause for penalty at the discretion of the Race Director.
- 32.5.5 Spin Outs: It is expressly forbidden to ride in a direction opposite of that in which the event is being run. A rider whose boat has spun out is permitted to turn around to continue the event provided such action is taken only when the course is clear. The rider must give right of way to other racers on the course. Riders going in the wrong direction may be penalized.
- 32.5.6 Obstruction: If for any reason a rider is forced to stop on or near the course during an event, it is the rider's first duty to remove his or her boat from the course in a safe manner so as not to endanger or obstruct other riders.
- 32.5.7 Passing: A rider must always be prepared for another rider to pass and must therefore be aware of other riders approaching from behind. The overtaking rider must consider the safest route to pass and must do so without forcing the overtaken rider to suddenly alter course.
- 32.5.8 Lapping: A rider being lapped must move over, but can continue racing.
- 32.5.9 Hand Signals: A rider who has spun out, fallen or stalled must raise one or both hands overhead to indicate that he or she is not injured. Re-entry into the course must be done in a safe and careful manner with the right-of-way given to oncoming riders.
- 32.5.10 On-course assistance: Racers may not receive any on-course assistance from anyone other than course officials. If mechanical or other assistance is needed, the rider must safely pull completely off of the course. A rider receiving on-course assistance may be penalized one lap. Riders entering the course in an unsafe manner may be penalized. The decision by the Race Director will be final.

**32.6 PIT REGULATIONS**

- 32.6.1 Support Vehicles: No motorized rider-support vehicles (e.g., minicycle, motorcycle or ATV) will be allowed in the pit area unless authorized as an official vehicle by the Race Director. Support vehicles must not be ridden in excess of 5 mph in the pit area. Helmets may be required.
- 32.6.2 Misuse of Pit Passes: Improper usage of pit passes will be grounds for discipline.
- 32.6.3 Fuel Containers: All fuel containers must be 1) red in colour; 2) marked "Flammable" or "Gasoline" with 7.5cm (3 in.) tall letters; and 3) be placed in a safe area at least 4.6m (15 ft.) from any open flame.
- 32.6.4 Inspection of Fuel Containers: Fuel containers will be subject to inspection by and approval of the Race Director and local fire marshal. Local regulations in some countries and/or areas of countries allow only metal containers.
- 32.6.5 Fire Extinguishers: At least one dry chemical fire extinguisher must be carried by each participant/crew and readily accessible in his/her respective pit areas.
- 32.6.6 Fuel Disposal: Any entrant disposing of fuels or lubricants in the pit area or on the race course by pouring or spilling such fuels or lubricants is subject to penalty.

**32.7 REGISTRATION/ENTRY RULES**

- 32.7.1 Any class except freestyle can be eliminated when there are less than five entries at the close of registration (freestyle requires just one entry). In the event of minimum entries per class, classes may be combined to create an event. Riders will be scored separately and trophies/prize money may be paid at the option of the promoter agreement with the IJSBA or IJSBA affiliate.
- 32.7.2 No refunds of entry or other fees will be made at sanctioned events after competition has begun unless the event is officially cancelled or rescheduled by a ruling of the Race Director or at the discretion of the Race Director, after which time, fees will be returned.
- 32.7.3 Entry fees will be regulated by the IJSBA and/or IJSBA affiliate.
- 32.7.4 A rider may enter as many classes as he/she wishes. However, only specified classes may count toward overall championships.
- 32.7.5 Veterans-, Masters- and Women-class competitors may additionally compete in Novice, Expert and Pro classes of their ranking (i.e., a Novice Woman Ski rider may compete in Novice Ski but not Expert Ski).
- 32.7.6 Novice-, Expert- or Pro-ranked riders may not compete in another ranking within the same division (i.e., Novice Ski riders may compete only in Novice Ski classes).
- 32.7.7 If a rider has questions regarding class determination, it is his/her responsibility to check with the proper official for clarification.

- 32.7.8 Gate admission fees for rider and crew members will be regulated by the promoter.
- 32.7.9 The schedule of events will be regulated by the promoter.
- 32.7.10 No rider, entrant or mechanic shall enter and/or sign the waiver and release with an assumed and/or fictitious name or give inaccurate information (e.g., age, date of birth, etc.).

## **32.8 SCORING**

- 32.8.1 The portion of the course from the starting line to the scoring/flag tower shall be considered as the first lap.
- 32.8.2 The chequered flag will be shown to the lead rider, indicating the completion of the race. All penalties, other than those requiring a black flag, will be assessed after the completion of the race.

## **32.9 PRIZES AND AWARDS**

- 32.9.1 All prizes, awards and paybacks shall be presented to the official winners or their appointed representatives at the close of the event day unless another time and place for awards is specifically advertised.
- 32.9.2 Riders will not be required to attend award banquets or ceremonies to receive prizes and awards, although they are encouraged to attend as a courtesy to the promoter and/or sponsors.
- 32.9.3 The promoter payback at IJSBA- and IJSBA affiliate-sanctioned cash purse events will be as advertised for that event, or as stated in bulletins, or as announced at an official riders meeting at the event.

## **32.10 RIDER POINT SYSTEM**

- 32.10.1 The official rider point system will be in effect for all IJSBA- and IJSBA affiliate- sanctioned events.
- 32.10.2 Points are awarded for final event positions only. No points are awarded in heats, last chance qualifiers (LCQs), semi-finals or exhibition events. Points will not be awarded to riders who are disqualified or have not been scored on at least one lap in a final event. Exceptions may be granted for national and world championship events with IJSBA approval.
- 32.10.3 Freestyle points count towards a freestyle points championship only. Freestyle events require one entry to receive full points.
- 32.10.4 The points tiebreaker for individual class championships based on closed course, slalom or other points earned (e.g., Novice Ski Limited Slalom, Expert Sport Limited Closed Course, Pro Freestyle, etc.) is the greater number of first-place finishes in the class. If still tied, the rider with the greater number of second-place finishes will receive the higher ranking, and so on. If still tied, the rider with the better finish in the final event of the championship series will receive the higher ranking.

- 32.10.5 The points tiebreaker for a combined overall championship based on points earned in closed course added with points earned in slalom and/or other events (e.g., Expert Ski Open Closed Course points combined with Expert Ski Open Slalom points, etc.) is the rider with the greater number of closed course points. If still tied, the rider with the greater number of first place closed-course finishes will receive the higher ranking. If still tied, the rider with the greater number of second place closed course finishes will receive the higher ranking, and so on. If still tied, the rider with the better finish in the final closed-course event of the championship series will receive the higher ranking.
- 32.10.6 When the number of entries is less than or equal to the maximum number of watercraft allowed on the starting line the moto scoring system may be used. The Moto Scoring system uses the combined results of two separate races to mathematically determine the overall finishing order.
- 32.10.7 Moto Scoring: Overall results are determined by adding the finishing positions from each of two motos together. The rider with the lowest sum will receive the higher ranking. In case of a tie, the rider with the better finish in the second moto will receive the higher ranking. A DNR (did not race) in one of the two motos will be scored as the number of riders entered in the class plus two.



32.10.8 The IJSBA official closed **course** point system is as follows:

Pos	Points	Pos	Points	Pos	Points
1	60	8	30	15	14
2	53	9	27	16	12
3	48	10	24	17	10
4	43	11	22	18	8
5	39	12	20	19	6
6	36	13	18	20	4
7	33	14	16		

32.10.9 The IJSBA official **slalom/freestyle** point system is as follows:

Pos	Points	Pos	Points	Pos	Points
1	20	8	9	15	2
2	17	9	8	16	1
3	15	10	7	17	1
4	13	11	6	18	1
5	12	12	5	19	1
6	11	13	4	20	1
7	10	14	3		

32.10.10 The IJSBA Official Endurance/Offshore point system is as follows:

Pos	Points	Pos	Points	Pos	Points
1	400	8	340	15	312
2	380	9	336	16	308
3	368	10	332	17	304
4	360	11	328	18	300
5	352	12	324	19	296
6	348	13	320	20	292
7	344	14	316	21	290

Continue in increments of two until 40th position where points continue in increments of one.

### 32.11 BOAT NUMBERING SYSTEM

32.11.1 Racing numbers and backgrounds will be colour-coordinated according to rider classification.

Class	Number	Background
Novice	Black	Orange (PMS 021)
Expert	Black	Yellow (PMS Process Yellow)
Pro	Black	White

32.11.2 Racing number backgrounds must be clearly located on the hull in the positions indicated (see the Appendix) for each model. Be careful not to place them in a location that will obscure them from the scorers (i.e., they should not be placed in the footwell or on horizontal surfaces). Only numbers can appear on the background.

32.11.3 Race number backgrounds size minimums are as follows:

Racing No.	Background Size
One Digit	20cm (8 in.) high by 15cm (6 in.) wide
Two Digits	20cm (8 in.) high by 23cm (9 in.) wide
Three Digits	20cm (8 in.) high by 30cm (12 in.) wide

32.11.4 Racing numbers must be a minimum of 18cm (7 in.) high and spaced at least 13mm (0.50 in.) apart. Standard block-type numbers without shading or outlining must be used. It is the rider's responsibility to ensure that the numbers are easy to read.

32.11.5 If two or more riders using the same number enter the same class at the same event, all but one will be required to add a temporary letter suffix (e.g., "101A," "101H," etc.).

32.11.6 All riders competing outside their home country must display the national code for their home country in front of their racing number (e.g., "F1" for France, no. 1). Letters must be a minimum of 15.25cm (6 in.) in height and must be the same colour as the racing numbers.

32.11.7 At world championship events, Expert and Pro racers who earn an overall World Championship title may run the "1" plate for the following year in the class in which it was earned (e.g., an Expert Ski Limited Closed-Course World Champion may run a "1" in that closed-course class only). The World Championship number "1" must be displayed on the boat with a white number on a black background with minimum sizes as noted in 32.11.3 and 32.11.4. No other world championship number may be used.

## **32.12 RACE DIRECTOR AUTHORITY**

32.12.1 The Race Director shall be responsible for the conduct of the race. He or she will be responsible for the design of the racing courses and adjacent event facilities as they pertain to that event.

32.12.2 The Race Director shall have the authority to discipline riders, owners, sponsors and/or pit crew for violation of rules. Such discipline will be limited to disqualification, exclusion from an event, and/or ejection from the race site.

32.12.3 Disciplinary action by the Race Director other than a disqualification, exclusion or ejection will be under provisions established by the IJSBA. The Race Director will advise the IJSBA or local IJSBA affiliate of the infraction(s) and disciplinary actions taken. The member will then be officially advised by mail of action and/or discipline by the IJSBA.

- 32.12.4 Official results shall be approved by the assigned Race Director and a copy of those results will be submitted by the promoter to the IJSBA international headquarters or local IJSBA affiliate office within seven days following the event.
- 32.12.5 The Race Director may cancel any race or event for reasons of potential hazard to competitors and/or spectators at his/her own discretion. In such cases, the promoter shall determine awards, if any. The Race Director may shorten a race or event for any reason, but must give riders notice in advance.
- 32.12.6 The Race Director may cancel or stop any race or event in progress if a potential hazard to competitors and/or spectators exists, or the method of scoring has been faulted. In such case, the rules governing restarts will apply (refer to Section 27.3). Events that are stopped with more than half of the scheduled laps completed will be considered as finished. For events with an odd number of scheduled laps, the halfway point will be rounded up (e.g., in a 15- lap race, the half-way point is decided when the lead rider passes the finish line after 8 laps have been completed).
- 32.12.7 Unresolved racing violations will be sent to the IJSBA or IJSBA affiliate office for resolution.
- 32.12.8 The Race Director may judge the method of lap counting and the mechanical integrity of all technical and timing equipment, and may ask the Technical Director to conduct technical inspections at any time.
- 32.12.9 Race officials (including but not limited to the Race Director and/or event Promoter) may not compete in sanctioned events at which they are officiating or promoting.

The following is a supplementary rule to the NZJSBA/IJSBA Rule Book as passed by the NZJSBA on the 29<sup>th</sup> March 2013 and shall remain effective until further notice.

- 32.12.10 Race officials (including but not limited to the Race Director and/or event promoter) may compete in sanctioned events provided suitable replacements are appointed while they are away from their designated task/position.

## **33 RULES INFRACTIONS**

### **33.1 RULES INFRACTIONS**

- 33.1.1 All infractions of the rules reported by an official pertaining to a watercraft or rider, whether or not resulting in disqualification, may be noted in the involved rider's IJSBA membership file.

### **33.2 EJECTION FROM RACE SITE**

- 33.2.1 Race officials have the right to eject any person(s) from the pit, race course or event grounds.

### **33.3 DISCIPLINE/RIDER CONDUCT**

- 33.3.1 The Race Director may disqualify, exclude or eject the rider, owners, sponsors or pit crew member(s) for any of the following violations:

- Vulgarity, offensive language or unsportsmanlike actions directed towards officials, spectators or other participants.
- Failure to abide by the race rules of the IJSBA (not including equipment violations).
- Failure to comply with watercraft requirements.
- Writing check(s) not backed by sufficient funds.
- Pit crew non-compliance with regulations.
- Use of intoxicating beverages and/or drugs.
- Unwillingness to accept an official's decision.
- Verbal or physical abuse of any official.
- Participation in an event without holding a valid membership card or involvement in the use of another member's card.
- Providing inaccurate or false information to officials or on any official

- 33.3.2 In addition to exclusion or ejection from an event, the IJSBA may determine further penalties including a fine, loss of points, suspension, disqualification or any combination of the above.

- 33.3.3 The decision to discipline a rider for any of these violations is not appealable.

### **33.4 RIDER/PIT CREW LIABILITY**

- 33.4.1 The rider and his/her pit crew members, in signing the entry/release, elect to use the course of the event at their own risk, acknowledge that there may be both known and unknown risks, and thereby release the sanctioning organization and principals together with their heirs, assigns, officers, representatives, agents, employees, and members, sponsoring organization and owners of properties on which sanctioned events are to be held from all liability from injury to person, property, and/or reputation that may be received by said entrant and from all claims of said injuries to the parties listed above growing out of, or resulting from the event contemplated under the entry form, or caused by any construction or condition of the course over which the event is held.

### **33.5 RIDER RESPONSIBILITY**

- 33.5.1 The registered rider is responsible for the condition of his/her watercraft as stated in the IJSBA Official Competition Rule Book. Any rider, whether sponsored by or riding a watercraft owned by someone other than the registered rider, will still be held responsible for complying with all IJSBA rules. If the rider and/or watercraft is found to be in violation of a class rule, the rider will receive the penalty.
- 33.5.2 The rider is responsible for and may be disciplined for his/her personal conduct as well as the conduct of people in his/her party, including but not limited to owners, sponsors, pit crew and family members.

### **33.6 PENALTIES/TECHNICAL INFRACTIONS**

- 33.6.1 Any rider found to be competing on a boat that is determined to be illegal in a particular class, following inspection by the Technical Director, will be disqualified and will not be permitted to compete in any remaining qualifiers or final events for the class and will receive no points. If moto scoring is being used, the rider will be disqualified from the class and will not be allowed to compete in the second moto. The rider may also receive a suspension of up to 30 days from IJSBA or IJSBA-affiliate events, may lose all accumulated series points to that date in that class, and/or may be fined up to \$250 U.S. or the equivalent in local currency.
- 33.6.2 Should there be a second technical infraction, the rider may receive a suspension up to 60 days and a maximum fine up to \$500 U.S. or the equivalent in local currency.
- 33.6.3 Should a third technical infraction occur, it will result in automatic suspension from competition for the remainder of the calendar year and a maximum fine up to \$1,000 U.S. or the equivalent in local currency.
- 33.6.4 All fines must be paid by cashier's check or money order to the IJSBA or IJSBA-affiliate organization before the rider will be allowed to compete in any IJSBA-sanctioned event.

### **33.7 ENFORCEMENT**

- 33.7.1 Any penalty imposed for violation of the rules and regulations of the IJSBA by any member must be honoured by all other members including but not limited to IJSBA and IJSBA-affiliate promoters.

## 34 TECHNICAL PROCEDURES

### 34.1 PRE-RACE TECHNICAL INSPECTION

- 34.1.1 Any entry is subject to inspection upon request by the Race Director or Technical Director. It is the responsibility of the rider to submit his/her equipment to the Technical Director on the proper day for technical inspection.
- 34.1.2 Pre-race technical inspections are mandatory at all races. **Pre-race inspections do not certify that the watercraft is qualified or constituted as legal for class participation. Post-race technical inspections determine machine qualification.** All rider equipment, including helmet and personal flotation device, must be available for technical inspection.
- 34.1.3 The Technical Director may prohibit any watercraft that does not meet IJSBA technical requirements.
- 34.1.4 The Technical Director shall be able to provide accurate watercraft specifications and have the supplies and equipment necessary to verify compliance with IJSBA rules and regulations.
- 34.1.5 All watercraft intended to be raced in an IJSBA- or IJSBA affiliate-sanctioned competition event must be checked for rules compliance. Some, but not necessarily all, items to be inspected are:

#### **Rider protective equipment:**

- Approved personal flotation device (PFD);
- Approved full-coverage helmet.

#### **Hull and deck:**

- Overall inspection for cracks or damage;
- Inspect the hull for protruding objects that could be hazardous;
- No illegal skegs, fins or rudders on hull bottom, intake grate or pump plate;
- Inspect condition of bumpers;
- Inspect numbers and background for compliance and legibility;
- Make sure Hull Identification Number (HIN) is displayed;
- Make sure approved sponsor decals are affixed (if requested);
- Make sure flexible bow loop is affixed;
- Tow hooks which extend beyond the plane of the hull are removed.

#### **Handlepole/handlebar:**

Check condition of handlepole and hinge mechanism;

- Check steering mechanism for proper adjustment;
- Check that the throttle lever works freely;
- Check that grips are secure;
- Check that the lanyard stop switch is functioning properly and the lanyard is in good condition.

**Engine compartment:**

- Hose clamps must be secure;
- Battery must fit into battery box and straps must be secure;
- Gas tank must be secure;
- Fuel pickup and fuel level sender must be secure;
- U.S. Coast Guard, SAE-J1928 or UL-1111 flame arrester securely installed;
- Carburetor/fuel system must not leak and all fuel hoses must be secure.

34.1.6 All watercraft may be required to meet respective local boating laws (i.e., current registration displayed on craft, fire extinguisher on board, etc.).

34.1.7 **Sponsor Decals:** IJSBA and/or IJSBA affiliate decals and event sponsor decals must be displayed on vehicles and/or rider apparel at each event as determined by the Race Director.

34.1.8 **Hull Number:** All watercraft must display the hull identification number (HIN) assigned at the time of manufacture. IJSBA may also assign an IJSBA identification number.

**34.2 POST-RACE TECHNICAL INSPECTION**

34.2.1 Suggested technical inspection procedure is to impound and inspect the first three watercraft in each class. However, the actual number of watercraft to be impounded will be decided by the Race Director or Technical Director.

34.2.2 The Technical Director reserves the right to inspect any part of any personal watercraft entered in any class. A rider refusing to cooperate with technical inspection procedures may be penalized by the Race Director.

34.2.3 Inspected boats will not be disassembled or reassembled by the inspection group.

34.2.4 Rider and/or rider's mechanic will perform teardown to the point required by the Technical Director.

34.2.5 Rider and/or rider's mechanic will be the only people allowed with the boat in the inspection area. A rider may have another mechanic take his place.

34.2.6 The IJSBA or IJSBA affiliate assumes no responsibility for impounded watercraft.

34.2.7 All parts deemed illegal are to remain in the impound area for 30 minutes after notice of disqualification.

**34.3 SEALS/INSPECTION DECALS**

34.3.1 Riders will allow seals or decals to be affixed on the engine and/or body of their watercraft. To change a seal, mutilate, try to break or re-use it during the event where it is installed without consent of the Race Director, could result in the responsible rider or team being disciplined by the IJSBA or IJSBA affiliate. Accidental breakage or removal of the seal must be reported to the Race Director immediately.



**34.4 FUEL TESTS**

34.4.1 A rider's statements as to the contents of his/her personal watercraft's fuel system will be binding. Gasoline is tested and certified at IJSBA or IJSBA affiliate events through the application of various chemical analyzes as considered appropriate by Fuel Check personnel. Gasoline may be checked before and/or after use in competition.

34.4.2 Aerosol cans of ether will be allowed for starting purposes.

34.4.3 Engine fuel must consist of unleaded gasoline only. "Gasoline," for the purpose of this Rule Book, is defined as a mixture of hydrocarbons and oxygen bearing compounds with the following clarifications:

- 1) Oxygen content must not increase the specific energy of the gasoline.
- 2) Oxygen content must not exceed 3.7% by weight.
- 3) Oxygen content must have been blended in by the refiner or the fuel manufacturer.
- 4) Specific gravity must be between: .715 - .770 at 60°F (15°C).
- 5) The only allowable oxygenates are ethers and alcohols. Epoxides (e.g., propylene oxide) will not be considered ethers. Nitrogen-bearing compounds are not allowed.

**NOTE:** Most commercially-produced unleaded fuels and oils will meet these criteria. However some may contain additional additives which do not to meet these criteria.

34.4.4 E85 Fuel is allowed. However, where this fuel may fail a test, the burden of proof that the fuel is legal E85 is on the competitor and the race director or technical director may disqualify the competitor absent this proof.

The following is a supplementary rule to the NZJSBA/IJSBA Rule Book as passed by the NZJSBA on the 25th September 2010 and shall remain effective until further notice

34.4.5 All classes shall be restricted to petrol having maximum characteristics not exceeding "Avgas" or "Unleaded Super" as defined in Appendix E

34.4.6 No additives may be added to the fuel.

34.4.7 Nitro Methane, Methanol and similar agents are prohibited in all classes.

## **34.5 SOUND TESTING PROCEDURE**

- 34.5.1 Announcement may be made by the Race Director at the riders meeting as to sound testing procedure (i.e., how, where and when notice of non-compliance will be given to riders).
- 34.5.2 Boats will be tested during practice sessions. Any boat exceeding the IJSBA sound limit of 86 dB(a) at 22.86m (75 ft.) will be listed on the pit board or the rider will be notified by verbal warning.
- 34.5.3 The Technical Director will post a list of offending boats as soon as possible after the practice session to give riders an opportunity to make the necessary adjustments before the next race. It is a rider's responsibility to ensure that his/her boat meets the IJSBA sound-level requirement at all times.
- 34.5.4 Boats given notice during practice will be re-tested during the next race. If the boat still exceeds the sound level, the rider will be assessed a one-lap penalty. Any other boats (even those that were not given notice after practice) that now exceed the sound level will also be given a one-lap penalty.
- 34.5.5 Boats that have been given a one-lap penalty will be re-tested during the next race. If the boat still exceeds the sound level, the rider may be disqualified. Any other boats that now exceed the sound level (even though no prior notice was given) will be given a one-lap penalty.
- 34.5.6 Exception to 34.5.4 and 34.5.5: A boat that is damaged during a race (such as a broken component) and suddenly emits a sound level exceeding the legal level may not be penalized. However, if the same boat is raced in any subsequent races, it must comply with the sound level requirement.

## **35 PROTESTS AND APPEALS**

### **35.1 PROTESTS**

- 35.1.1 A race official's decision based upon the exercise of his/her judgment may not be protested under any circumstances.
- 35.1.2 Riders only will have discussion with the Race Director about riding complaints or other infractions unless otherwise requested by Race Director. Riders may approach the Race Director before the day's events, between events, after an event, or at the discretion of the Race Director.

### **35.2 PROTEST PROCEDURE/EQUIPMENT VIOLATIONS**

- 35.2.1 Protests must be filed in writing no later than 30 minutes after the official results have been posted.
- 35.2.2 A separate protest must be filed for each suspected infraction specifying a violation within the following categories:
- Drive system
  - Electrical system
  - Engine
  - Exhaust system
  - Fuel/carburetion system
  - Hull
- 35.2.3 When a protest is made against a boat's eligibility, the protester must post with the Race Director a written protest accompanied with a cash bond of US\$150, to cover the costs of any disassembly, inspection and assembly required, regardless if disassembly is required. Bonds may be tailored to reflect the extent of the work involved in disassembly and reassembly for the inspection. Bond Fees above \$150 must be announced at the Riders Meeting or published, in writing, prior to the event. No Bond may exceed \$500 US.
- 35.2.4 If the watercraft is found legal and the protest is disallowed, the cash bond will be awarded to the protested rider.
- 35.2.5 If the watercraft is found in violation of the rules and the protest is allowed, the cash bond will be returned to the protester and the protested party is subject to penalty assessed by the Race Director and/or IJSBA.
- 35.2.6 If an entrant or rider does not allow inspection under these terms, he/she will be disqualified by the Race Director immediately.
- 35.2.7 The Race Director or Technical Director may, at his/her discretion, consult any person to receive information or technical advice. Protested rider may be present during such inquiry but shall have no right to cross-examine or argue with a witness.
- 35.2.8 Only a rider taking part in the competition and entered in the same class may protest another rider in that class.
- 35.2.9 All parts deemed illegal may be held by the IJSBA pending final decision.

- 35.2.10 If a protest is judged to have been filed with malicious or spiteful intent or otherwise in bad faith, the protester may be found guilty of violating protest rules and may be penalized.
- 35.2.11 Official IJSBA videotape as recognized by the Race Director may be used by officials to make or overrule a decision.

The following is a supplementary rule to the NZJSBA/IJSBA Rule Book as passed by the NZJSBA on the 30th July 2002 (and updated in February 2010) and shall remain effective until further notice

- 35.2.12 When a protest is made against a boat's eligibility, the protester must post with the Race Director a written protest accompanied with a cash bond of NZ\$150 for 2-stroke and NZ\$300 for 4-stroke, to cover the costs of any disassembly, inspection and assembly required.
- 35.2.13 If the watercraft is found in violation of the rules and the protest is allowed, the cash bond will be returned to the protester and the protested party is subject to penalty assessed by the Race Director and/or NZJSBA.
- 35.2.14 All parts deemed illegal may be held by the NZJSBA pending final decision.
- 35.2.15 Official NZJSBA videotape as recognised by the Race Director may be used by officials to make or overrule a decision.

### 35.3 APPEALS

- 35.3.1 The rider aggrieved by a decision involving an equipment violation may appeal to the IJSBA.
- 35.3.2 An appeal or intent to appeal must be filed in writing within one hour of disqualification and must be accompanied by a fee of US\$150.
- 35.3.3 Rulings of the IJSBA will be made within reasonable time from the date the appeal was filed.
- 35.3.4 The IJSBA and/or IJSBA Affiliate shall have the right to publish any judgments concerning protests and appeals and to use the names of parties involved. These persons shall have no right to act against the IJSBA and/or IJSBA affiliate, the Race Director or whomever publishes the judgment.
- 35.3.5 Anyone belonging to or under the jurisdiction of the IJSBA who shall take into the courts any controversy arising from the interpretation or application of these rules and regulations shall be liable to disqualification, suspension and/or expulsion.

The following is a supplementary rule to the IJSBA Rule Book as passed by the NZJSBA on the 30<sup>th</sup> July 2002 and shall remain effective until further notice

- 35.3.6 The rider aggrieved by a decision involving an equipment violation may appeal to the NZJSBA Executive.
- 35.3.7 An appeal or intent to appeal must be filed in writing within one hour of disqualification and must be accompanied by a fee of NZ\$300.

- 35.3.8 Rulings of the NZJSBA Executive will be made within reasonable time from the date the appeal was filed.
- 35.3.9 The NZJSBA Executive shall have the right to publish any judgments concerning protests and appeals and to use the names of parties involved. These persons shall have no right to act against the NZJSBA Executive, the Race Director or whomever publishes the judgment.
- 35.3.10 Anyone belonging to or under the jurisdiction of the NZJSBA Executive who shall take into the courts any controversy arising from the interpretation or application of these rules and regulations shall be liable to disqualification, suspension and/or expulsion.
- 35.3.11 Appeals for decisions on technical infractions will go to the NZJSBA Executive. A quorum of seven (7) NZJSBA Executives is required and the NZJSBA has the right to take advice from any quarter and bring in any outside person/s they feel necessary to make a final decision

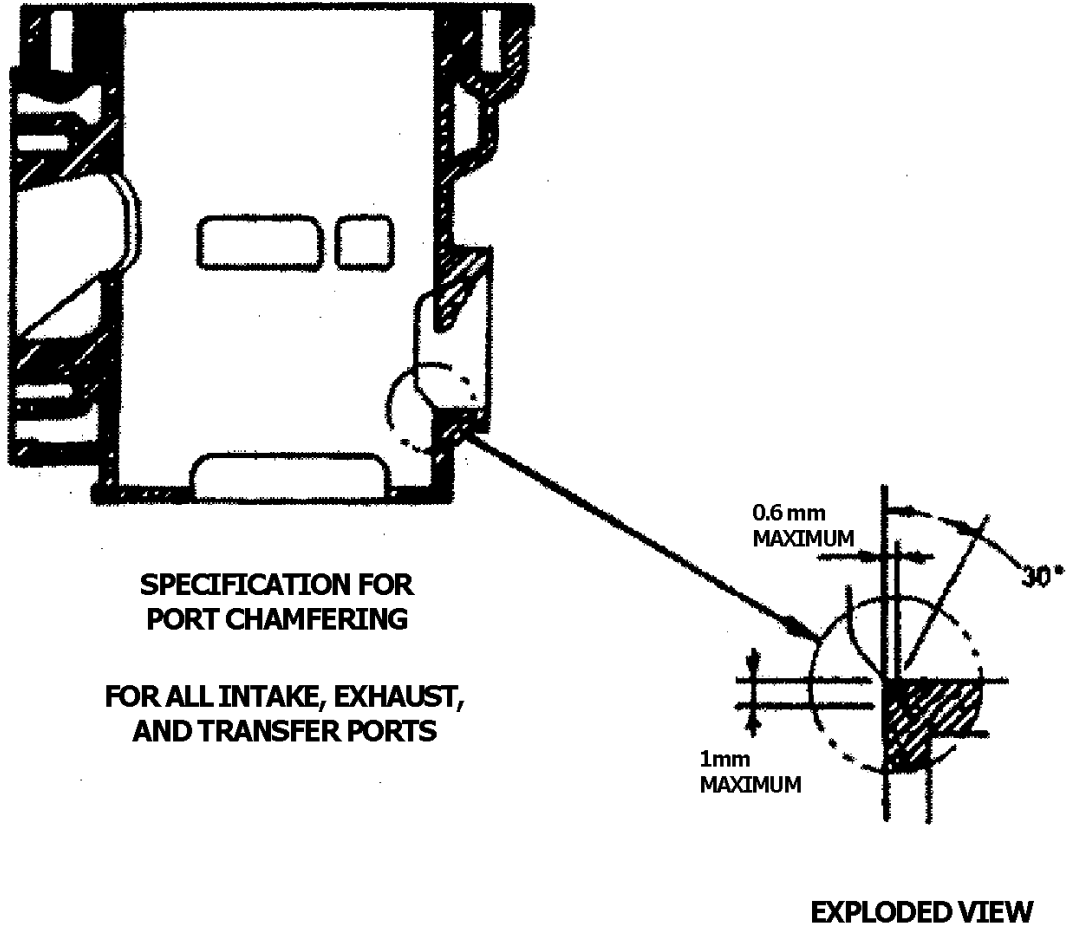
## 36 GLOSSARY OF TERMS

<b>Aftermarket</b>	A part replacing or used in addition to the original equipment part.
<b>Part</b>	Aftermarket parts are not limited to providing the same function as their original equipment counterparts.
<b>Ambulance</b>	A properly licensed and equipped emergency vehicle normally noted as a rescue vehicle, or ambulance. Said vehicle will be fully equipped to include basic life support equipment and personnel trained in the use of said equipment.
<b>Bond Flange</b>	The bond flange is the overlapping/mating section where the deck (upper) and the hull (lower) portions are joined.
<b>Buoy</b>	A floating object anchored in the water to mark the course.
<b>Competitor</b>	An IJSBA member who has fulfilled all necessary requirements to participate in an event and who is present at the event for the purpose of participating (also Entrant, Participant, Racer, Rider).
<b>Course Marshal</b>	Helps the Race Director control the race and assists stopped riders on the course. Most often is positioned on the course perimeter riding a watercraft.
<b>Deck</b>	The upper structural body of the watercraft located above (and including) the upper bond flange.
<b>DNR</b>	Did Not Race. Official classification of an entered rider who does not start an event or, in closed course competition, does not complete one lap.
<b>Entrant</b>	See Competitor.
<b>Fuel Injection</b>	Any system that does not depend solely on the engine's vacuum to induct fuel into the engine will be considered a fuel-injection system.
<b>Homologation</b>	The process of officially approving or allowing a component or watercraft to compete in IJSBA events.
<b>HIN</b>	Hull Identification Number. A unique serial number generated by the manufacturer and affixed to each watercraft.
<b>Hull</b>	The lower structural body of the watercraft located below (and including) the lower bond flange.
<b>LCQ</b>	Last Chance Qualifier. A closed course event that generally follows a heat race and is used to complete the starting field for a final or semi-final.
<b>Member</b>	A person belonging to the IJSBA holding a valid and proper member card.
<b>Moto Scoring</b>	One of two races where the finishing positions are used to award championship or series points under the Moto Scoring system (see sections 32.10.7).
<b>Official</b>	A person who supervises a race.
<b>Original Equipment</b>	Parts that were installed on each model of watercraft at the time of manufacture (a.k.a. OE or OEM.)
<b>Owner</b>	The person named on the title of the watercraft.

<b>Participant</b>	See Competitor.
<b>Participate</b>	To wilfully take part in a race (also Compete).
<b>PFD</b>	Personal Flotation Device. A device used to keep riders afloat, required in all forms of IJSBA activity.
<b>Pit Area</b>	Area used by riders and mechanics to make machine repairs, refuel and make rider changes.
<b>Pit Crew</b>	A rider support person or group that prepares and maintains the watercraft.
<b>Promoter</b>	A person or body controlling a facility where events are organized, promoted and staged.
<b>PWC</b>	Personal Watercraft: A vessel which uses an inboard motor powering a water jet pump as its primary source of motive power. Designed to be operated by a person sitting, standing or kneeling on the vessel rather than inside it.
<b>Race</b>	A contest of skill for watercraft and riders.
<b>Race Director</b>	The person responsible for the conduct of the race.
<b>Racer</b>	See Competitor.
<b>Replacement Part</b>	A non-original equipment part used to replace an original equipment part. Replacement parts are limited to providing only the dimensions, performance and function that their OEM counterparts provide.
<b>Replica</b>	A copy or duplicate.
<b>Rider</b>	See Competitor.
<b>Riding Platform</b>	The part of the watercraft where the rider stands or sits.
<b>Sanction</b>	An agreement between the IJSBA or IJSBA affiliate and a promoter that stipulates specific criteria to be met by the promoter in exchange for IJSBA support.
<b>Sponson</b>	A special surface which may be attached to the hull sides or transom for stability.  <b>Ski Division Only:</b> Sponsons may be attached to the hull sides, transom or inside the bond flange portion of the hull.
<b>Sponsor</b>	A person or group that provides support to a rider, promoter or association usually in exchange for promotion.
<b>Staging Area</b>	The place near the starting line where watercraft and riders wait for their scheduled race.
<b>Starter</b>	The person who officially gives the signal to begin the race.
<b>Starting Line</b>	A straight boundary, either real or imaginary, that denotes the beginning point of the race.
<b>Strake</b>	A well-defined angle (longitudinal step) usually added to deep-V hulls for a softer ride at high speeds.
<b>Technical Director</b>	The person who checks all competing watercraft for rules compliance and eligibility.
<b>Trim Tab</b>	An extension of the hull's planing surface. Trim tabs are attached to the transom of the hull and may be angled up or down to alter the running angle of the craft.

## 37 APPENDIX

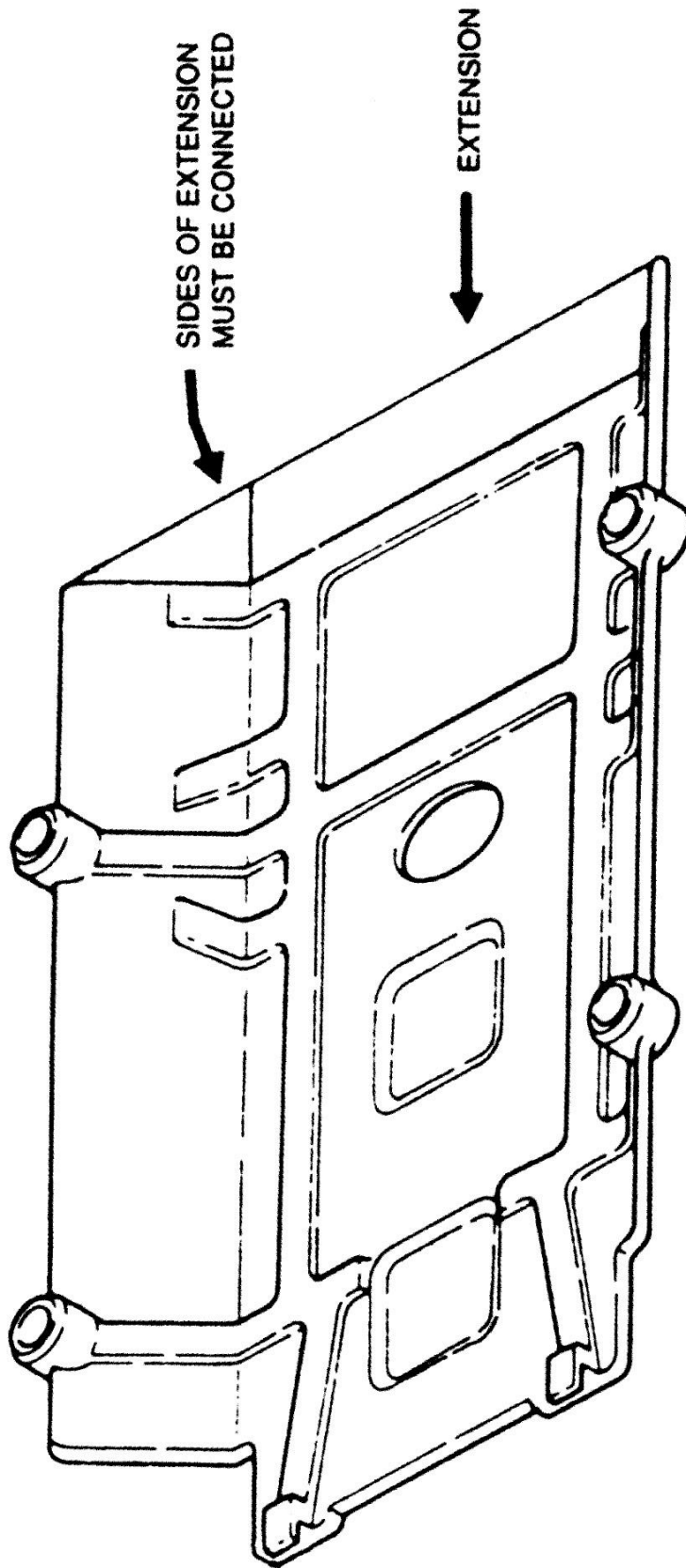
### 37.1 PORT CHAMFERING



## PORT CHAMFERING

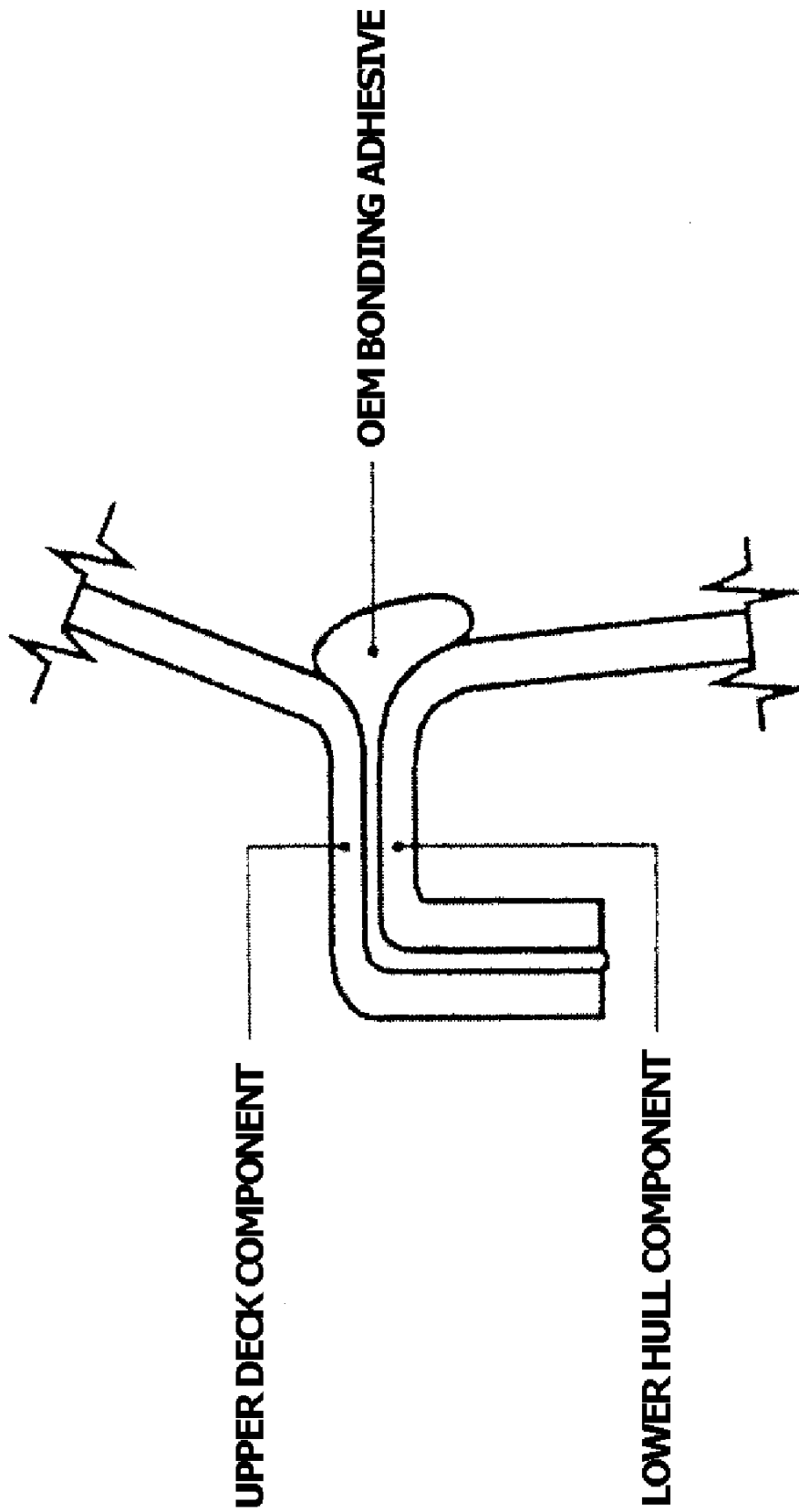


37.2 PUMP COVER PLATE EXTENSION



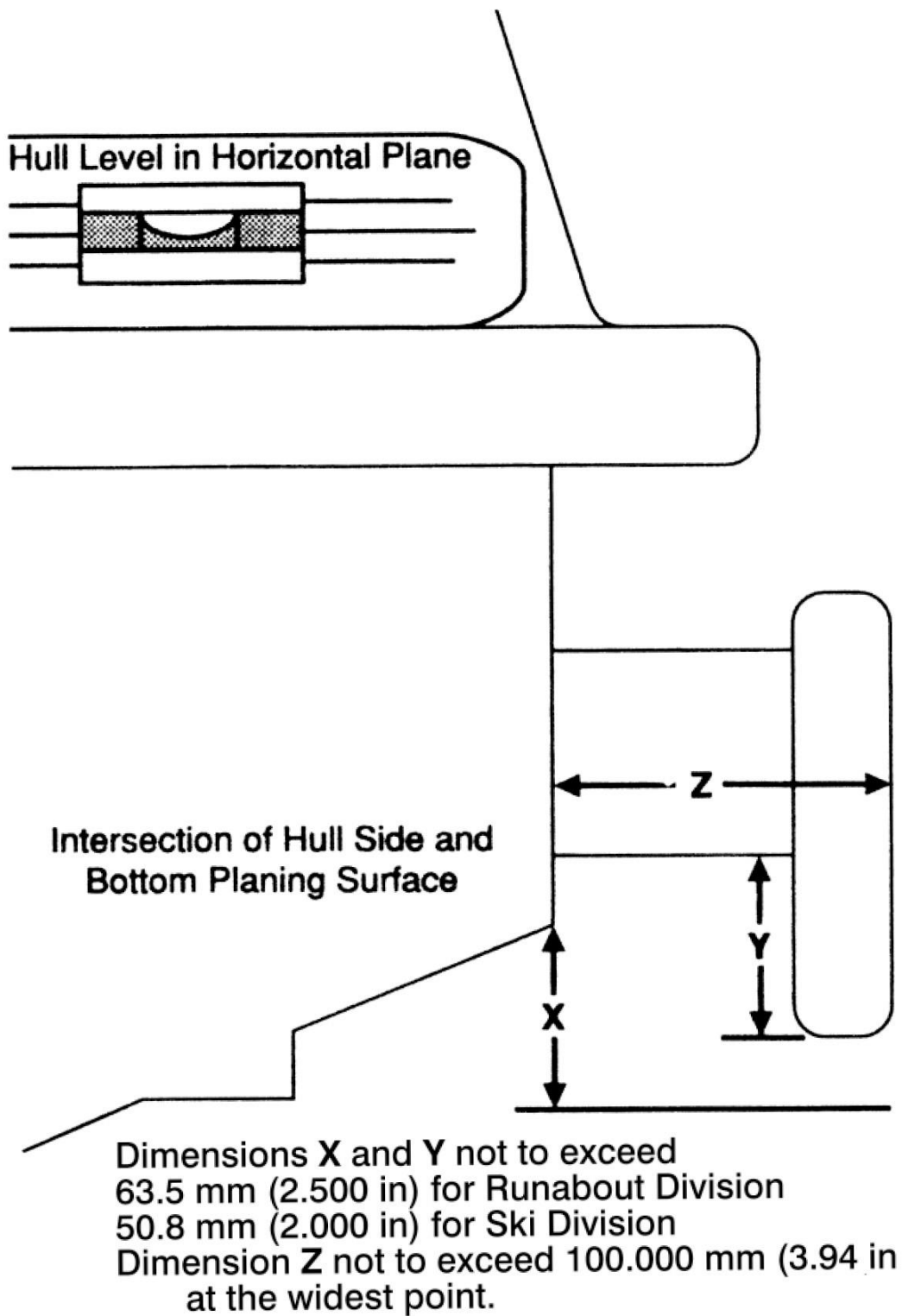
PUMP COVER PLATE EXTENSION

37.3 OEM BOND FLANGE SECTION

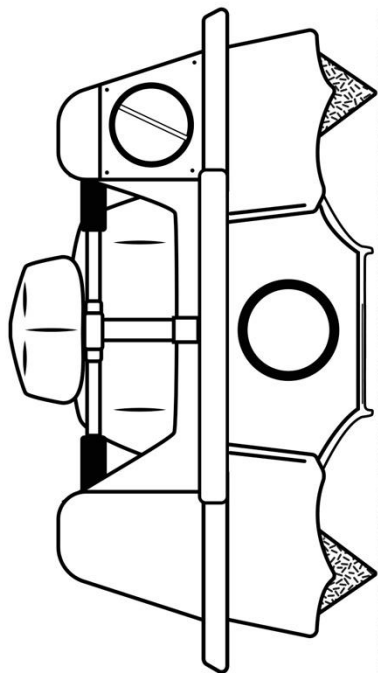
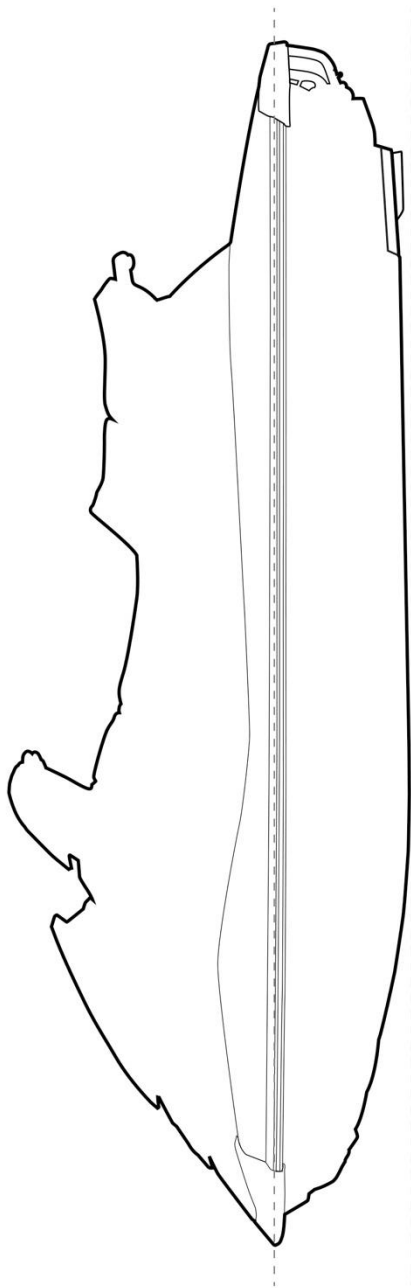


**OEM BOND FLANGE SECTION (BUMPER REMOVED)**

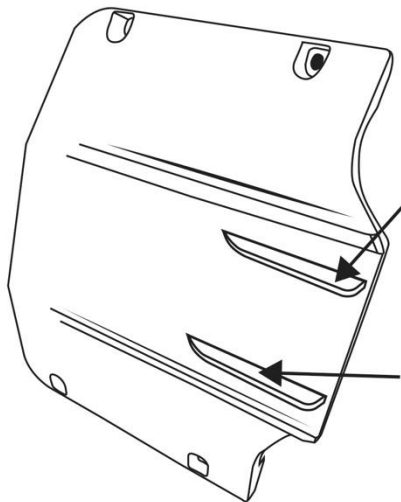
## 37.4 SPONSONS



37.5 RUDDER, FIN OR SKEG

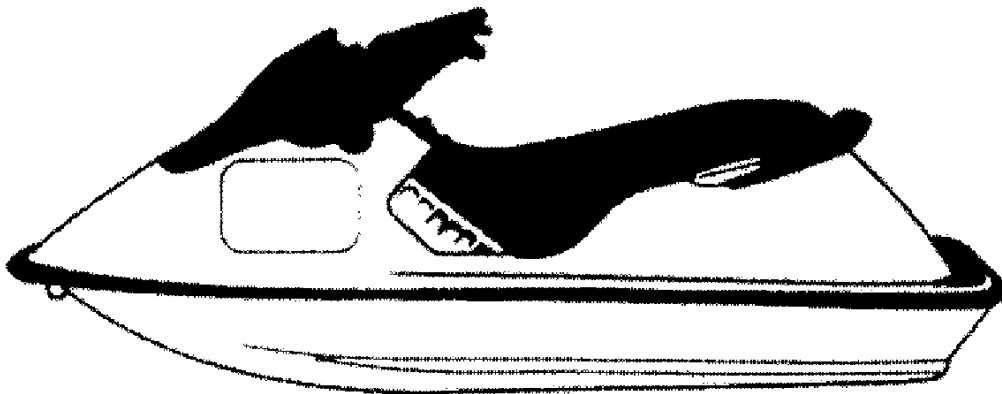
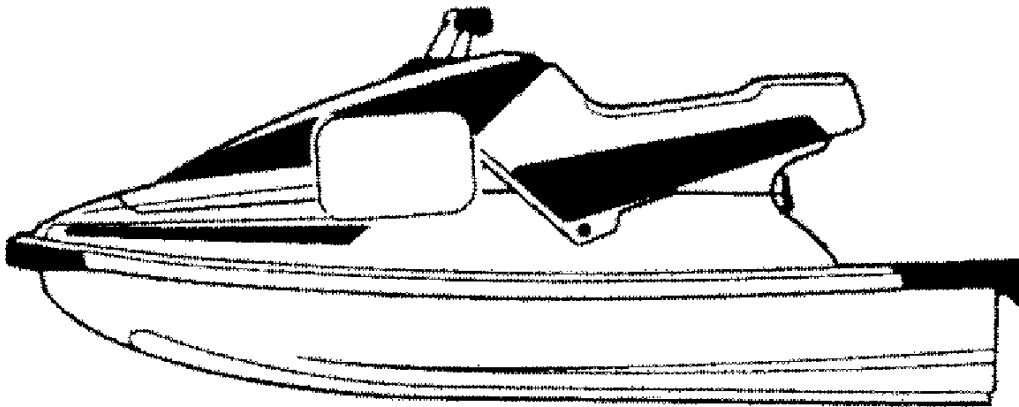
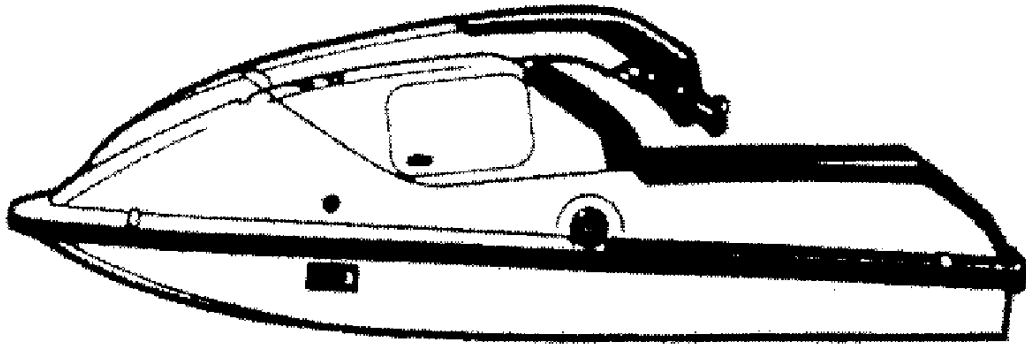


A) Maximum depth of pump cover skeg is not to exceed lowest point of OEM hull. Pump covers used on aftermarket hulls may not have skegs that run deeper than would be allowed on the OEM donor hull.

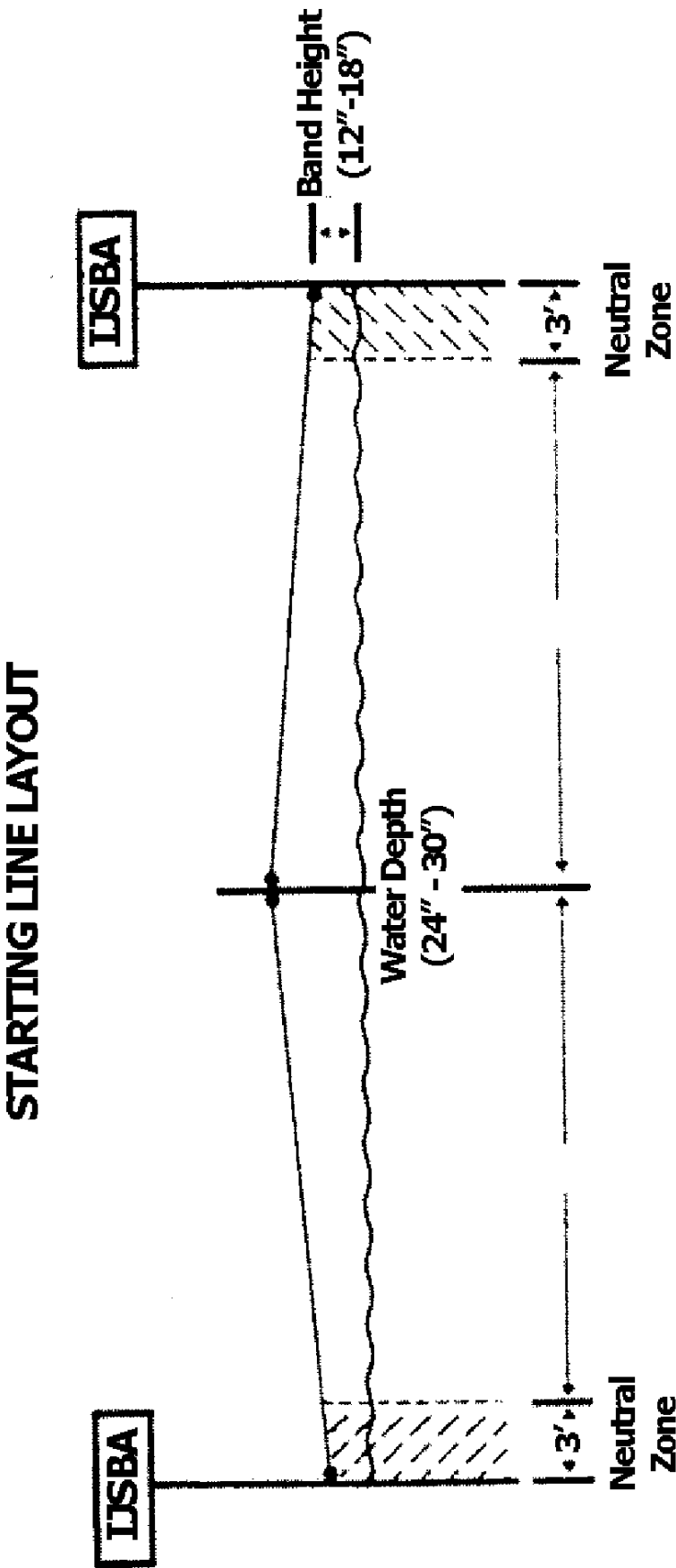


B) Skegs must begin with an angle no greater than 45 degrees and must be radiused to eliminate all sharp points and edges.

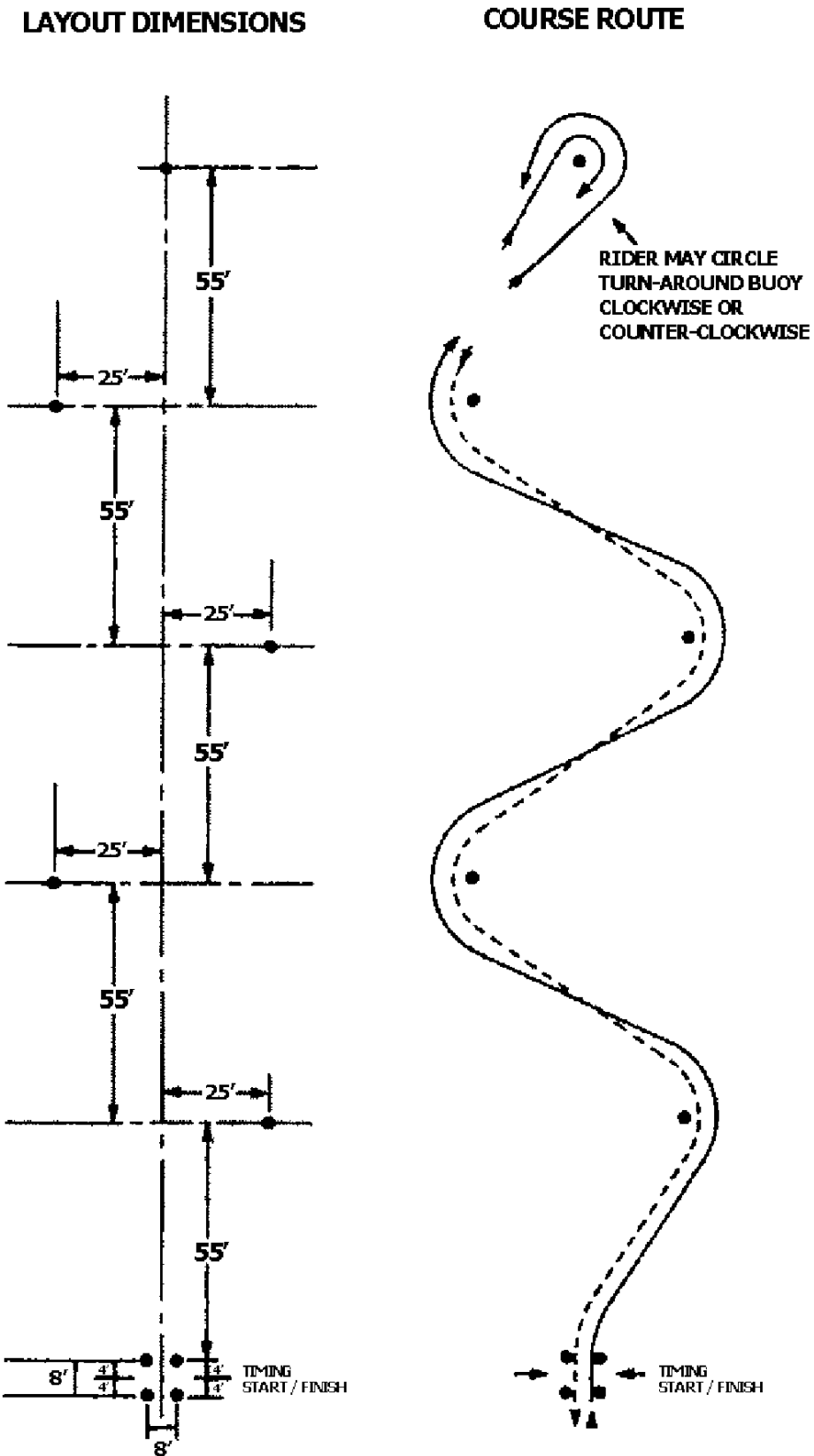
37.6 NUMBER LOCATIONS



37.7     STARTING LINE LAYOUT



37.8 SLALOM COURSE LAYOUT



SLALOM COURSE LAYOUT

**37.9 SEAT**

The front of the complete aftermarket seat may not protrude more than one inch over the top deck than the original OEM counterpart seat. Aftermarket seats are limited to how much of the forward portion of the rider may be cradled and are limited to a maximum height of the rear portion. Any concave shapes that cradle the knees or legs of the rider must be of entirely soft flexible material. The concave may cradle the knee or leg by no more than 50% prior to compressing the soft material. Absolutely no part of the leg or knee may be covered by hard material or material that is not flexible. The seat material may not interact with any surface on the rider (including wetsuit, knee guards, braces, etc.) to create a binding of the rider to the seat (i.e. Velcro, adhesive, etc.) outside of normal friction.

To determine the maximum height of the rear portion of the aftermarket seat the following steps shall be taken:

1. The rider will fully upright sit on a hard surface chair
2. The half point between the outside of the rider's shoulder and the edge of the rider's neck shall be noted as the "upper point."
3. The inspector shall measure between the upper point and the surface of the chair shall be measured. This shall be noted as the riding "height."
4. The riding height shall be multiplied by .30 (30%). This shall be rounded up to the nearest ¼ inch and shall be the maximum height of the seat section that contacts the rear portion of the rider.
5. The maximum height shall be measured from the lowest part of the seat. One half inch tolerance shall be allowed.
6. The lowest point of the seat may be only one half inch lower than the OEM counterpart of this seat.
7. A rider found to have any bladder or other such device that allows the height of the lowest seat point to be adjusted shall be disqualified.

At the time of this printing ALL OEM runabout seats are deemed legal with a seat cover that does not change any part of the original shape or thickness by more than one half inch.



## 37.10 DISPLACEMENT GUIDE

### 37.10.1 Runabout Categories

As furnished by the manufacturer to be homologated:

**785cc** if powered by a two stroke engine in 800cc classes

**1100cc** if powered by a naturally aspirated four stroke engine in 800cc classes. Kawasaki 1500 may compete in all 1100 categories (except Rec Lites) when an approved IJSBA restrictor plate is utilized.

**2000cc** if powered by a four stroke engine in classes designated above 800cc or designated as a Four Stroke Class, or as a default class

#### 37.10.1.1 Runabout Stock

**800cc** if powered by a two stroke engine for 800 classes.

**1100cc** if powered by a naturally aspirated four stroke engine for 800 classes.

**2000cc** if powered by a four stroke engine (categories may distinguished between naturally aspirated and forced induction).

#### 37.10.1.2 Runabout Rec Lites

All units must be naturally aspirated and come, from the manufacturer, at a price point of less than \$8,500USD, MSRP, and must conform to the weight limits below. Only the Sea-Doo Spark Line and the Yamaha EX (excluding the EXR) are eligible for competition in Rec Lites.

**735cc** if powered by a two stroke engine (organizers are not required to offer a two stroke option).

**1000cc** if powered by a naturally aspirated four stroke engine.

**1100cc** if powered by a naturally aspirated four stroke engine when the unit weighs a minimum of 750 lbs as furnished by the manufacturer.

#### 37.10.1.3 Runabout Limited

**800cc** if powered by a two stroke engine for 800 classes.

**1100cc** if powered by a naturally aspirated four stroke engine for 800 classes.

**2000cc** if powered by a four stroke engine (categories may distinguish between naturally aspirated and forced induction).

#### 37.10.1.4 Runabout Open (Superstock)

**800cc** if powered by a two stroke engine for 800 classes.

**1100cc** if powered by a naturally aspirated four stroke engine for 800 classes.

**2000cc** if powered by a four stroke engine (categories may distinguish between naturally aspirated and forced induction).

### 37.10.2 Ski Categories

As furnished by the manufacturer to be homologated:

**785cc** if powered by a two stroke engine

**1100cc** if powered by a naturally aspirated four stroke engine

**800cc** if powered by a four stroke engine with forced induction

#### 37.10.2.1 Ski Lites

All units must be naturally aspirated and come, from the manufacturer, producing 85 horsepower or less.

**850cc** if powered by a two stroke engine

**1100cc** if powered by a four stroke engine

#### 37.10.2.2 Ski Stock

1500cc (Kawasaki SX-R Only)

#### 37.10.2.3 Ski Limited

**850cc** if powered by a two stroke engine

**1100cc** if powered by a naturally aspirated four stroke engine

**800cc** if powered by a four stroke engine with forced induction

### 37.10.3 Ski Superstock

**1500cc** if powered by a naturally aspirated four stroke engine

#### 37.10.3.1 Ski GP

**1300cc** if powered by a two stroke engine

**900cc** if powered by a four stroke engine with forced induction at 8PSI Max Boost

**1500cc** if powered by a naturally aspirated four stroke engine

#### 37.10.3.2 Ski Modified

**1300cc** if powered by a two stroke engine

**1500cc** if powered by a naturally aspirated four stroke engine in Superstock Configuration

**900cc** if powered by a four stroke engine with forced induction at 8PSI Max Boost

**1100cc** if powered by a four stroke engine with forced induction at 6PSI Max Boost

### 37.10.4 Freestyle

**900cc** is the default displacement for Amateur Classes

**1200cc** is the default displacement for Pro Classes

37.10.5 Sport Classes

37.10.5.1 Sport Spec

**850cc** for two stroke engines, no other engines are permitted

Sport Modified/GP

**1300cc** if powered by a two stroke engine

**1500cc** if powered by a naturally aspirated four stroke engine

**900cc** if powered by a four stroke engine with forced induction

37.10.6 Vintage Classes

37.10.6.1 Vintage Ski

**650CC** by default. May be restricted by displacement (i.e Vintage Ski 550, Vintage Ski 650, etc.)

37.10.6.2 Vintage X2

**800CC**

37.10.6.3 Vintage SC

**800CC**

