

## 9.1 MODIFIED CLASS 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.

**FREESTYLE ADDENDUM:** 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.

**GP ADDENDUM:** When a class is designated a GP class then Modified Rules apply with the following additional provisions: 1) OEM Crankcases from any homologated make/model PWC may be used; and 2) Top deck may be modified or aftermarket so long as it resembles an OEM homologated top deck.

- 9.1.1 **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:** 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.

- 9.1.2 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 [listing on page 10-11.](#))
- 9.1.3 Sound level shall not exceed 86 dB(a) at 22.86m (75 ft.). [See Section 19.5 \(pg. 73\).](#)
- 9.1.4 Engine fuel must consist of gasoline meeting the criteria defined in [Section 19.4.3 \(pg. 73\).](#)

## 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 **Deck:** Original equipment deck must be used. 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.)

**Freestyle 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.

**Freestyle ONLY:** 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. Fuel fillers may be relocated internally.

**Freestyle, 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.

- 9.2.3 **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.

- 9.2.4 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.

- 9.2.5 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.
- 9.2.6 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 9.2.6 Appendix.) Fins, rudders, skegs and other appendages that may create a hazard will not be allowed.
- 9.2.7 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.
- 9.2.8 Replacement bumpers may be used provided a hazard is not created.
- 9.2.9 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.
- 9.2.10 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.
- 9.2.11 **Ski Division Only:** Handlepole (and mounting bracket) may be modified or aftermarket provided it functions as originally designed. Handlepole attaching point may be reinforced.
- 9.2.12 **Sport and Runabout Division Only:** Seat assembly may be modified or aftermarket. Seat height may be changed.
- 9.2.13 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.
- 9.2.14 Original bilge pump may be modified or disconnected. Aftermarket bilge draining systems that do not create a hazard are allowed.
- 9.2.15 Engine compartment foam may be removed, modified or aftermarket.
- 9.2.16 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.
- 9.2.17 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.

### 9.3 ENGINE — TWO-STROKE

Engines may be bored. Aftermarket piston assemblies are allowed. Engine displacement must not exceed class designation (e.g., 800cc in 800 Modified, 1200cc in 1200 Modified, etc.). The number, type, and placement of rings on piston may be changed.

**Freestyle ONLY:** 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. The maximum displacement for a supercharged or turbocharged Ski type PWC is 800cc in any Freestyle class.

- 9.3.2 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.

**Freestyle ONLY:** 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.

- 9.3.3 Cylinder and cylinder head may be modified or aftermarket.
- 9.3.4 Crankshaft assembly may be modified or aftermarket. Stroke and rod length may be changed.
- 9.3.5 Engine bed and motor mounts may be modified or aftermarket. Engine may be repositioned in the hull.
- 9.3.6 Engine gaskets may be modified or aftermarket.
- 9.3.7 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.
- 9.3.8 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.
- 9.3.9 Replacement starter motor and bendix may be used.
- 9.3.10 Oil-injection system may be disconnected or removed.
- 9.3.11 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.

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

- 9.4.1 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.
- 9.4.2 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.
- 9.4.3 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.
- 9.4.4 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. Original equipment fuel tank, 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.

**Freestyle ONLY:** 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.

- 9.4.5 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.
- 9.4.6 Reed valve assemblies may be modified or aftermarket. Rotary valve may be modified or aftermarket.

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

- 9.5.1 Ignition system, electrical box, flywheel and flywheel cover may be modified or aftermarket. Battery charging circuit may be disabled and/or removed.
- 9.5.2 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.
- 9.5.3 Engine temperature sensor assembly may be disconnected and/or removed.

#### **9.6 DRIVELINE**

- 9.6.1 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.

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