

29.4 ENGINE

- 29.4.1 **Engine – Amateur Freestyle Class I:** Amateur Freestyle Class I competitors will utilize Open class rules for engine modifications and other allowed modifications except the hull bottom and deck. The maximum displacement for Ski Division and Sport Division watercraft in Amateur Freestyle Class I competition is 800cc. For those competing on Runabout Division watercraft in Amateur Freestyle the engine displacement must not exceed 1300 cc for two-stroke watercraft and 2000cc for four-stroke watercraft.
- 29.4.2 **Engine – Amateur Freestyle Class II:** Amateur Freestyle Class II competitors will utilize Modified class rules for engine modifications and other allowed modifications except hull bottom and deck. The maximum displacement for Ski Division and Sport Division watercraft in Amateur Freestyle Class II competition is 900cc. For those competing on Runabout Division watercraft in Amateur Freestyle the engine displacement must not exceed 1300 cc for two-stroke watercraft and 2000cc for four-stroke watercraft.
- 29.4.3 **Engine – Pro Freestyle:** Pro Freestyle riders will utilize Modified rules for engine modifications and all other modifications except hull bottom and deck. The maximum displacement for Ski Division and Sport Division watercraft in Pro Freestyle competition is 1200cc. Competitor's competing on Runabout Division watercraft in Pro Freestyle the engine displacement must not exceed 1300 cc for two-stroke watercraft and 2000cc for four-stroke watercraft.
- 29.4.4 **Fuel Tank – Amateur Freestyle Class I:** Fuel tank must be OEM as supplied by the OEM manufacturer. An OEM fuel tank is the only tank that can be used to supply fuel to the engine.
- 29.4.5 **Fuel Tank – Amateur Freestyle Class II and Pro Freestyle:** The fuel tank may be modified or aftermarket. 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.

RULE 30 - TECHNICAL RULES – SPORT SPEC

- 30.1.1 **Overview:** The Sport Spec class is a class that was created by the membership and the rules for this class will be exactly as the rules created by the membership. Any addendum or changes will be listed in the Rules section on the APBA web site. The goal of the Sport Spec class is to integrate the five eligible watercraft from several different brands into a competitive racing class. To do this, spec rules – specific rules for each model – have been designed. **Eligible Models:** Kawasaki 'Vintage' X2, Kawasaki 'New Style' X2, Yamaha WaveBlaster, Polaris Hurricane and the Sea-Doo HX.
- 30.1.2 **General Rules:** The rules and regulations below are in addition to all General Technical rules listed in Rule 23. All models may update or backdate to OEM parts from the same models of different years. Please read through the entire rules listed below as there are exceptions and limitations for certain models on specific rules.
- 30.1.3 **Sea-Doo HX:** Sea-Doo HX engine, exhaust, intake and electrical system must remain OEM stock with no alterations of any kind other than primer, oil injection block off, rev limiter and general maintenance items.
- 30.1.4 **Seats:** Original equipment seat base must be used. The seat cover and

padding may be changed. Seat height may be changed provided the original seat base is used.

- 30.1.5 **Hull Extensions:** Hull extensions mounted on the hull's transom will be allowed. All edges must be radiused so that a hazard is not created. Fins, skegs, rudders and other appendages that may create a hazard are not allowed. Hull extensions 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.
- 30.1.6 **Engines:** Engines may be bored up to a max of 1mm over stock. Replacement piston assemblies may be used provided the original port timing, 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 APBA but such approval must be obtained in writing. Replacement piston assemblies must weigh within $\pm 25.00\%$ of the original equipment. Chamfering of cylinder ports must not exceed 1.00mm (0.04 in.) at a 30 degree maximum angle. No internal modifications of any kind, including grinding, surfacing, polishing, machining, shot peening, etc., will be allowed on any engine components. Engine girdle systems like one made by Pro-Tec Performance are allowed. Exterior of cylinders may be clearanced for girdle kit bolts. Kawasaki Vintage X2 may port and bore cylinders up to a max of 800cc. Kawasaki Vintage X2 may update to 750 or 800 Kawasaki motors & electronics. Yamaha 61x WaveBlaster may upgrade to OEM 62T style cylinders and 62T ignitions.
- 30.1.7 **Gaskets:** Replacement gaskets may be used but must be of the same type (e.g., sheet, o-ring, etc.) as their OEM counterparts. Replacement head and base gaskets must be of the same OEM thickness. All other gaskets shall be allowed a tolerance of plus or minus 20%. Head gaskets may be replaced for O-Rings for models allowed the use of aftermarket heads.
- 30.1.8 **Crankshaft:** 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 (e.g., holes and/or pockets not existing on the original part may not be on the replacement part). The total weight of the crankshaft assembly must be within $\pm 5\%$ of the original equipment weight. Crankpins may be welded and/or keyed to the counterweights.
- 30.1.9 **Cooling System:** The cooling system may be modified or aftermarket and aftermarket cooling lines and water bypass systems may be used. Additional cooling supply lines and fittings may be added to the pump. Fittings may not be added to the OEM cylinder head, cylinder, or crankcase. 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, etc.). Cooling system flush kits are allowed. Electronic water injection is not allowed. Sea-Doo HX must retain stock OEM water routing with no restrictions or alternative path of flow. Flow controller valves are allowed for all models except the Sea-Doo HX

provided they are of mechanical type (not electronic).

- 30.1.10 **Exhaust:** Aftermarket Exhaust systems are allowed for the Kawasaki X2 (new and old style), Yamaha WaveBlaster and Polaris Hurricane. These exhaust systems must be 'Wet Style' systems. Dry pipes are not allowed on any models. Aftermarket water injection is NOT allowed. Sea-Doo HX must retain the entire OEM exhaust system.
- 30.1.11 **Waterboxes:** Waterboxes may be modified or aftermarket with the exception of the Sea-Doo HX which must retain the OEM waterbox. Waterboxes may be relocated.
- 30.1.12 **Ventilation:** 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.
- 30.1.13 **Ignition:** Ignition components (stator, flywheel, pick ups, relays) must remain stock.
- 30.1.14 **Electronic Control Unit (ECU):** 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. ECUs may NOT offer adjustable timing. (Advents, etc) No additional sensors may be added (e.g., exhaust gas temperature, detonation sensors, etc). Engine temperature sensors may be disabled. ECU may not be programmed to alter the original function of the OEM controls and or switches. The stator plate may be retarded but NOT advanced. Sea-Doo HX must use stock CDI, but increased rev limiter is allowed. Kawasaki X2s may use timing advance kit or FPP jumper. Polaris stators may be updated providing timing is not adjusted.
- 30.1.15 **Driveline Components:** No internal modifications of any kind, including grinding, surfacing, polishing, machining, shot peening, etc., will be allowed on any pump components (e.g., pump stator). Kawasaki Vintage X2 may upgrade to Magnum Pumps (144mm and below).
- 30.1.16 **Flame Arresters:** Aftermarket flame arresters that meet USCG, UL-111 or SAE J-1928 Marine standards may be used. Flame arrestor mesh can not be removed or modified. Pre-filter flame arrestor covers are allowed. Sea-Doo HX must retain the entire OEM intake system – flame arrester assembly, carbs, rotary valve and rotary timing.
- 30.1.17 **Carburetor:** Carburetors may be modified or aftermarket on Old Style X2 and Yamaha WaveBlaster only. All other models the carburetor must remain OEM. Carburetor jets (replaceable type), needle valves, and needle valve springs may be changed. The choke may be removed provided additional air intake for the engine is not created. An aftermarket primer system may be installed. No drilling, tapping or boring any part of the carburetor. Throttle plate angles or modifications to the throttle plate are not allowed. No other carburetor modifications are allowed. Sea-Doo HX, New Style X2 and Polaris Hurricane are not allowed bored or aftermarket carburetors. New style X2 and Polaris Hurricane are allowed to re-jet OEM Carburetors.
- 30.1.18 **Intake Systems:** Intake manifolds may be modified or aftermarket provided no modifications are made to the OEM cases. Aftermarket Reed Spacers are allowed. Polaris Hurricane, Old Style X2 and Yamaha WaveBlaster may use aftermarket reed blocks and reeds. Sea-Doo HX intake must remain OEM. New Style X2 must use stock reed blocks and reeds.