

## 2023 Ski Modified

### SKM.1 MODIFIED COMPETITION

Intended to promote interest in personal watercraft competition with highly enhanced handling characteristics while maintaining moderate engine performance levels. Watercraft competing in this class must conform to the specifications which follow.

**DISPLACEMENT:** The maximum displacement for this category 1500cc. There are two separate displacement ranges for this category: 0-1100cc and 1101cc-1500cc.

**ONLY OEM HOMOLOGATED NATURALLY ASPIRATED FOUR STROKE ENGINES ARE ALLOWED .**

SKM.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 parts 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 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 on OEM units. IJSBA recognized hull identification numbers must be affixed to aftermarket hulls, top decks, and combinations of the two.

**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. Previously approved hulls, top decks, and other components may cease to be legal if the producers fail to meet the compliance obligations set by IJSBA.

SKM.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.)

SKM.1.3 Sound level shall not exceed 86 dB(a) at 22.86m.

SKM.1.4 Engine fuel must consist of gasoline meeting the criteria defined in Section 19.4.3 (Appendix).

### SKM.2 HULL

SKM.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.

SKM.2.2 Approved aftermarket hulls may be affixed to OEM top decks. An aftermarket top deck may be used from an approved aftermarket hull manufacturer. Top decks may have an approved affixed appendage, mounted to the bow/front side of the watercraft that diverts spray and stabilizes handling. Approved appendages must be noted on IJSBA's website and must remain exactly in the same specifications as the approved design.

OEM and aftermarket top 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.

SKM.2.3 Aftermarket hoods may be used.

SKM.2.4 All watercraft may be equipped with a maximum of two 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 (2.50 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. All appendages below the point where the top deck intersects with the bottom deck shall be counted towards sponson length. Total sponson length may not exceed 90 inches.

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.

SKM.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.

SKM.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 for Ski and Sport Division or 177.80mm (7.00 in.) for Runabout Divisions. 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.

SKM.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.

SKM.2.8 Replacement bumpers may be used provided a hazard is not created.

SKM.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.

SKM.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.

SKM.2.10 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.

SKM.2.11 Original bilge pump may be modified or disconnected. Aftermarket bilge draining systems that do not create a hazard are allowed.

12.2.12 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.

SKM.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.

SKM.2.14 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.

SKM.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.

### SKM.3 ENGINE — 0-1100 CC

SKM.3.1 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.

SKM.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 (.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.

SKM.3.3 Crankshaft must remain stock. Replacement bearings or bearing shells are allowed, providing they maintain their original type and dimensions.

SKM.3.4 Camshaft timing may be changed.

SKM.3.5 Intake and exhaust valves may be shimmed with OEM or aftermarket shims. Valves and valve seats but be OEM but valve springs and valve retainers may be aftermarket.

SKM.3.6 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. 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.

SKM.3.7 Valve cover may be modified or replaced for cosmetic purposes and/or weight reduction only.

SKM.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. 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.

SKM.3.9 Exhaust manifolds that have previously been drilled or tapped may be used so long as the holes are filled or capped.

SKM.3.10 No internal modifications of any kind, including grinding, surfacing, polishing, machining, shot peening, etc., will be allowed on any engine components.

SKM.3.11 Replacement starter motor and bendix may be used.

SKM.3.12 Replacement engine mounts may be used.

#### SKM.4 ENGINE- FOUR STROKE 1101 CC-1500 CC

SKM.4.1 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.

SKM.4.2 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 (.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.

SKM.4.3 Crankshaft must remain stock. Replacement bearings or bearing shells are allowed, providing they maintain their original type and dimensions.

SKM.4.4 Camshaft(s) must remain stock. Replacement bearings or bearing shells are allowed, providing they maintain their original type and dimensions.

SKM.4.5 Intake and exhaust valves may be shimmed with OEM or aftermarket shims. Valves, valve seats, valve springs, and valve retainers must be OEM.

SKM.4.6 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. 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.

SKM.4.7 Valve cover may be modified or replaced for cosmetic purposes and/or weight reduction only.

SKM.4.8 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. 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.

SKM.4.9 Exhaust manifolds that have previously been drilled or tapped may be used so long as the holes are filled or capped.

SKM.4.10 No internal modifications of any kind, including grinding, surfacing, polishing, machining, shot peening, etc., will be allowed on any engine components.

SKM.4.11 Replacement starter motor and bendix may be used.

SKM.4.12 Replacement engine mounts may be used.

## SKM.5 AIR/FUEL DELIVERY — FOUR-STROKE

SKM.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. Fuel tank, fuel filler and relief valve may be aftermarket if approved by IJSBA. 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.

SKM.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.

#### SKM.9 DRIVELINE -- FOUR STROKE

SKM.9.1 Impeller, impeller housing, stator vane assembly, pump mounting plate and/or pump shoe may be aftermarket if the manufacturer is approved by IJSBA. 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. Approved accompanying aftermarket venturi and directional nozzle may be used.

SKM.9.2 Couplers, bearing housing and driveshaft may be modified or aftermarket provided they maintain a 1:1 drive ratio between the engine and the pump.