

## 2024 UKOPRA OFFSHORE POWERBOAT RULES



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United Kingdom Offshore Powerboat Racing Association

- [Organisers Rules Responsibility](#)
- [Offshore Rules](#)
- [Class Subdivisions](#)
- [Engines / Fuel](#)
- [Hull](#)
- [Race Numbers](#)
- [National Flag](#)
- [Safety Equipment to wear](#)
- [Safety Equipment to be carried onboard](#)

# 2024 UKOPRA OFFSHORE POWERBOAT RULES

## Organisers Rules Responsibility

Riding crew members are responsible for their boats and equipment and will need to satisfy themselves that the boat is seaworthy and safe to race.

Organisers of UKOPRA events shall not be permitted to make any additions to these rules which by their nature would affect the eligibility of any boat EXCEPT in circumstances specifically affecting safety or in respect of special laws which may apply to the particular locality of the race.

- Organisers shall seek the approval of UKOPRA to make such additions.
- Organisers shall have the right to refuse any boat which they deem to be unsuitable and/or which does not conform to the requirements of these rules.
- Organisers are free to organise prize categories for varying types, such as classic boats, diesel engines etc., provided the craft comply with fundamental rules.
- Organisers may also organise separate races for the different classes and/or prize categories.

Changes to these rules can only be made following approval by the UKOPRA Committee.

- Such changes taking effect not less than six months after approval unless a special decision is mentioned in the wording of the decision with its justification.
- Changes affecting safety may be made at any time, according to their necessity.

The following rules and definitions are for racing powerboats which have been designed and are suitable for racing in open and unprotected waters.

# 2024 UKOPRA OFFSHORE POWERBOAT RULES

## Offshore 1, 2 and 3 Rules

Competitors may refuel during a race at recognised port or marina fuel outlets within harbour confines.

Ship to ship or air to ship refuelling at sea is not permitted.

Any competing craft may be towed and if a tow is accepted, then that competitor will be treated as a retirement from the race or that leg of the race.

No outside assistance is allowed during a race.

Digital communication is allowed.

## Emergencies

It must be understood that in every team/crew must be prepared for any/all eventualities with regard to their own safety.

If any team experiences difficulties or an emergency during the race, then they must be aware and prepared to be effectively on their own until rescue teams (from whatever source) can arrive.

Every team should have emergency plans which should include a risk assessment setting out how they would deal with an on-board emergency situation until such time as rescue teams arrive.

Racing is inherently dangerous, and crews must be prepared to ensure their own safety at all times. In the event of an emergency crew cannot rely on race organisers to facilitate a rescue and must be self-sufficient and capable of initiating their own rescue.

It is mandatory to stop racing and assist another competitor if in distress.

## Scrutineering and Testing

All boats are required to fill in a declaration.

The scrutineering team on request will assist the team mechanics with fitting and sealing of the engines and electronics ECM, PCM and other engine components.

The discretion of the scrutineers they will also provide (at an agreed cost to the competitor) passive data logging equipment to be installed to the engines.

Scrutineers will also need assistance to remove testing equipment post-race.

This is to ensure a level playing field and compliance with the weight / power rules.

Non-compliance with a request from the scrutineer will result in disqualification from the event.

# 2024 UKOPRA OFFSHORE POWERBOAT RULES

## Crew Licenses

All boats will carry a minimum of two crew members with valid UKOPRA licences and of minimum 18 years of age.

Only licensed drivers are permitted to control the boat when under the jurisdiction of the race organiser.

The issuing of licences is the task of UKOPRA.

UKOPRA will verify that the competitors have the necessary experience to take part in Offshore events.

As a reference for minimum competence:

- The Competitors who have not held a Licence must submit a detailed CV of their racing and boating experience to UKOPRA.
- This CV must demonstrate practical experience and theoretical knowledge to a minimum Authority qualification or military equivalent these may include:

RYA day Skipper – or RYA Coastal Skipper – or RYA Yachtmaster – or RYA Advanced Powerboat (not RYA Powerboat Level 2 on its own).

An international equivalent of qualifications will also be accepted.

## Qualifications

- Both driver and co-drivers must have first aid and resuscitation knowledge as defined by Red Cross or similar.
- It is recommended (for 2024) that a current sea survival certificate should be held by all crew members that have a life raft on board.
- All crew must have in date immersion test training and hold a current immersion test certificate (Boats with canopies).

# 2024 UKOPRA OFFSHORE POWERBOAT RULES

## Class Subdivisions

UKOPRA OFFSHORE CLASSES – 2024											
Class	Index	Maximum Declared HP	Minimum Weight	Minimum Length	Maximum Length	Additional Weight Per Length	Monohull Max Width	Assisted Monohull Additional Weight	Multihull Additional Weight	Minimum Buoyancy	Cube dimension space
		C101	C102	C103	C103	C104	C105	C106	C107	C108	C109
1	700	2300	3.3kg/hp	9.75m	15.3m	0.15kg/hp/m >12.0m	N/A	N/A	25%	Life raft	2.65/1.2/0.6
1L	TBC	1500	3.6kg/hp	9	15.3	0.15kg/hp/m >12.0m	N/A	N/A	25%	Life raft	2.65/1.2/0.6
2	810	1000	4.25kg/hp	7.5m	12.8m	0.1kg/hp/m >9m	N/A	N/A	25%	Life raft	2.65/1.2/0.6
3E	857	1000	4.5kg/hp	7.5m	10.05m	N/A	N/A	N/A	20%	500l	2.65/1.2/0.55
3D	870	400	4.75kg/hp	7.25m	9.25m	N/A	2.2m	10%	20%	460l	2.65/1.20/0.50
3C	910	200	5.0kg/hp	6.0*/7.5m	8.0m	N/A	2.1m	10%	20%	360l	2.65/1.20/0.45
3B	995	115	6kg/hp	5.0*/5.75	7.0m	N/A	2.0m	10%	20%	260l	2.35/1.20/0.45

### C101

In order to advance environmental solutions horsepower can be derived from any form either stored as fuel or generated.

The declared HP figure needs to be the maximum horse power in the event of dyno testing and HP over the declared figure will result in disqualification from all previous races.

Inboard boats with a dyno sheet at the crank shaft can apply a -5% tolerance to their declared HP to account for drive train losses. This will not apply to manufacturer stated HP if the engine is supplied as a package.

Dyno Testing will be carried out using the industry standard of Standard Temperature Pressure (STP), as a correction factor.

Dyno sheets need to be produced before the first race. A zero-tolerance policy will be applied.

**C102** Minimum weight for the boat will be calculated from the declared horsepower in accordance with the table and must be declared before the start of season.

Weighing will be carried out after the race and solely at the discretion of the technical scrutineer. The declared minimum weight will be of the craft, crew, equipment, and residual fuel in the condition it passed the finish line, and any collected ballast must be drained prior to weighing.

To facilitate the weighing of craft all craft must carry suitable and certified slings to achieve a single point lift. A zero-tolerance policy will be applied.

**C103** The craft length will be measured between perpendiculars of the external moulded length of the boat, taken at the extreme bow and the interface between the hull and bracket/engine/drive.

**C104** The minimum weight for each boat will be increased by the tabulated figure for the amount of length over and above that stated.

For example, a 15 m boat of 2000hp within Class 1 will be applied as 3.3 kg per HP plus 3m x 0.15 kg per HP after drive loss if appropriate.

## 2024 UKOPRA OFFSHORE POWERBOAT RULES

2000HP – 5% Drive Loss = 1900 HP.

1900HP x 3.3KG = 6270 KG.

(1900HP x 0.15KG) x 3M = 855 KG

Min weight = 6270 KG + 855 KG = 7125 KG

**C105** The maximum width of a monohull is defined the widest measurement across the chines and above this the craft will be determined as an assisted lift monohull.

**C106** Assisted lift monohull minimum weights are defined as monohull weight increased by the stated percentage.

**C107** Multihull minimum weights are defined as monohull weight increased by the stated percentage. Multihulls were reintroduced to classes 1 and 2 for 2022 and the UKOPRA committee reserves the right to monitor their safe reintroduction and amend requirements for them at any time during the season. Multihull will be strictly a clear flow tunnel with no form of compression allowed within or behind the tunnel.

**C108** Buoyancy of craft is the express responsibility of competitors, and it is recommended to carry sufficient to keep a boat afloat in the event of hull damage. Boats that cannot achieve the minimum buoyancy can alternatively carry a life raft sufficient to support the whole crew. Life rafts are mandatory on some races and will be notified in race instructions.

**C109** Cube dimension sizes are determined by ensuring a box of the dimensions quoted can be accommodated within the external hull fabric of the dimensions shown. Internal structures are ignored for the purposes of the rule.

# 2024 UKOPRA OFFSHORE POWERBOAT RULES

## Engines / Fuel

- Non homologated engines are accepted. HP rating is as that given by the manufacturer and engines should not be modified in any form from manufacturers specifications.
- A lower rated base powerhead may be modified to bring it up to a declared horsepower that will be subjected to dyno testing if required.
- All classes require 3N requires a declaration of Horsepower to be made that will be subject to Dyno testing at the request of the scrutineer.
- Minimum buoyancy requirements are not a guarantee that a boat will not submerge. Competitors are to make their own assessment as to suitability.

The noise level is to be measured by means of a phonometer which conforms to the specifications laid down by IEC and ANSI, a precision sound meter using the "A" weighting and set to slow response.

- ECU/PCM's equipped with data memory, must not have the memory erased or modified without the prior permission of the Scrutineer.
- Any information sourced by the Scrutineer from the ECU/PCM's race data memory which does not correspond with the technical data declared by the manufacturer in the homologation file will be viewed as reason for disqualification.

Departure from the foregoing determines the need for declaration of horsepower and the costs and risk associated with confirmation of the declaration are to be borne by the competitor.

Violation of any of the above rules will entail disqualification.

## Propulsion

One hundred per cent of the propulsive effort shall be derived from the water while proceeding at racing trim in calm water.

All craft must be able to be manoeuvred ahead and astern and have neutral capability, operated by controls at the helmsman's position. This facility must be a permanent installation and able to be demonstrated as practical at any time.

Boats running two or more propulsion systems must have either an external tie bar to stabilise out drives or some other protective device that will prevent drives colliding should a failure occur.

No multi-ratio transmissions, torque converters, or variable ratio drives are permitted.

## Exhaust

The engine exhaust manifolds, pipes and exhaust driven turbines, from the engine outlet to the point of exit must be water cooled by the water jackets or shielded.

The external surface of the shield must not exceed 150 C at any time.

The exit must be located in such a position whereby the crew cannot be affected by exhaust fumes.

# 2024 UKOPRA OFFSHORE POWERBOAT RULES

## **Shaft Guards**

Inboard propelled craft must have a protected shield to each input drive shaft which shall include at least two rings which completely encircle the shaft and a 180-degree scatter shield over each universal joint.

In the event of a failure this protection shall be capable of containing the shafts and couplings from causing damage to the hull skin, fuel tanks, any other installation and or component, and from causing any danger to the crew.

## **Compartments**

Inboard engines are to be installed in a compartment separated from the cockpit and other accommodation which is to have adequate ventilation.

Vent holes in bulkheads or covers shall not be in close proximity to the drivers and crew without flame trap protection. The compartment(s) shall have rigid covers.

## **Fire Extinguishers**

For all inboard engine installations, it is mandatory to have a fully automatic fire- extinguisher system, though it is permitted to have a separate manual system.

## **Batteries**

Batteries shall be housed in ventilated compartments, mounted upon a secure and solid platform, and be fitted with an isolator switch. The battery isolator switch position must be clearly marked for safety reasons and easily accessible to the crew.

## **Electrical Harness**

Properly protected terminal boards shall be used with flexible (not solid core) cabling supported well up to the terminals and at suitable intervals throughout the length of any run.

Where relative movement or vibration occurs across any gap, cables shall be sheathed in plastic or metal tube anchored at both ends.

Reinforced cable suitable for marine duty shall be used.

Electrical equipment in engine compartments shall be kept to a minimum and sited away from heat or fuel.

## **Engine Cut-Off Open Boats**

- Engine cut-off switches for connection to all crew are mandatory (first man out shuts off engine). An emergency override system to restart engines shall be mandatory. The lanyards used must not exceed 20 cm between the driver and the boat. The lanyards shall be attached to all crewmembers at all times when the boat is at racing speeds.
- The lanyards must be able to support ten times the strength necessary to operate the device or to resist a load of ten kilos. Having chosen the biggest value, they must be capable of operating the device in any direction on a horizontal level.
- Lanyards are not necessary when restraint systems are used.
- If the engine is a Diesel, the action of the device should operate on the injection pump gear.



# 2024 UKOPRA OFFSHORE POWERBOAT RULES

## **Engine Cut-Off Canopy Boats**

Canopy and restraint equipped boats shall have a engine cut-off switch that is accessible from each crew member whilst racing. These switches need to be clearly labelled.

## **Engine and Fuel Compartment Bulkheads**

Bulkheads of engine and fuel tank compartments must be sealed to the hull across the bottom and have sufficient height above the bottom to prevent fuel and fumes flowing throughout the boat. The separate compartments thus formed must have provision for separate pumping out of bilges.

Fuel containment systems (tanks, cells, etc.)

All boats must have fuel filling and fuel venting capabilities outside the crew containment area. Canopied craft are to have fuel tanks contained in sealed compartments from the hull and crew area to avoid leakage of liquid or vapour being released into the area being used by the crew. Fuel filling / fillers are to be outside of the crew compartments.

Closing of the fuel flow must be done by means of a device, the control of which must be in the cockpit and within reach of every crew member. No sleeved cables are allowed, so as to eliminate the cable being able to be bonded in a fire.

The fuel tank or tanks must be grounded to enable the discharge of static electricity. 606.4

Fuel tanks may be constructed as an integral component of the hull construction or may be fabricated material suitably secured to the hull.

Purpose designed and constructed rubberised collapsible fuel cells may be used.

Fuel may not be transferred during a race except by means of permanently installed fuel lines connected to the tanks.

## **Hull (Check against 103)**

Hull measurement Class 1,2 and 3

All boats are required to have a measurement certificate.

- All hull measurement is to be taken while the boat is ashore.
- The length must be measured between perpendiculars of the external moulded length of the boat, taken at the extreme bow and the interface between the hull and bracket/engine.
- Hull extension beyond the transom shall be deemed to be “fixed trim tabs” and shall not be included in the measured length.
- Hull extensions added to the bow and/or any extending parts, rubbing strakes, fenders, stabilizing trim tabs and rudder assemblies are not to be included in the measured length.
- When defining “extreme bow”, any form that constitutes the bow and its construction and contributes to the performance of the boat shall be included in the measured length. Any other attachment that is added to meet a minimum length requirement shall not be included in the measured length.

# 2024 UKOPRA OFFSHORE POWERBOAT RULES

## **Minimum Flotation**

All boats shall contain a minimum volume of buoyancy permanently installed in the hull. The minimum volumes measured in litres are as listed in the class table.

If a boat is constructed of wood, the wooden weight content of the boat may be accepted as buoyancy as per the following formula: Wood weight in kg x 2 = litres of buoyancy.

## **Ballast Tanks**

Bow ballast tanks are permitted. They must be emptied before weighing, this will be checked by the technical observer.

## **Deck**

The deck must be able to bear the weight of a standing man 100kg at any point.

Deck - Outboard Motor Propelled boats.

Wherever the motor is, the hull shall be fully decked to the stern, incorporating a well formation if desired. Any holes for the passage of cables, fuel pipes, etc., shall be fitted with sealing grommets and be above the lowest point of the stern structure.

## **Guard Rails**

Rails or wires or hand holes shall be fitted which shall extend fore and aft to enable crew to proceed from the cockpit to the whole deck for the working of mooring, anchoring and towage and access to deck hatches.

No ropes can be used as rails or hand holds.

## **Mooring cleat**

All boats shall be fitted with a well secured cleat or Sampson post on the fore-deck adequate for anchoring in a seaway and for towing at sea over a prolonged period.

## **Cranage**

Teams should ensure that their boat has fixed lifting points, and their own certified lifting strops with a single point lift, which must be carried in the boat at all times during the event.

Boats must be fitted with a minimum of three lifting eyes, either through deck or topside hull cleat type, suitably engineered to withstand lifting the boat fully equipped and fuelled with an adequate safety margin.

It is the responsibility of the team owner to ensure the strops and lifting eyes are suitable for lifting the boat.

## **Steering**

The steering arrangements shall be sited so that the safe handling of the boat shall not be prejudiced by interference to the driver's line of sight across the bow at any state of trim in calm water.

## **Windshield**

Windshields, if fitted, shall be strong and well supported. All edges of plastic material and framing shall be effectively padded. Transparent windscreens are to be made of polycarbonate material.

## 2024 UKOPRA OFFSHORE POWERBOAT RULES

### **Open Cockpits**

The cockpit opening shall provide seating positions for at least two drivers, with the following minimum dimensions; length 0.66m, width 0.53m per driver, with a round-off radius of 0.25 m.

There shall be a minimum cockpit clear depth of 0.38m everywhere, with the exception of seats, steering wheel, and controls. Measurement is done from the upper part of the cockpit edge or from the top of the cockpit coming if it is substantial.

All cockpit seats must be securely fixed to the main hull structure. A seat for each crew member must be provided. The crew should be seated at all times when racing or attempting the race start.

The structure of cockpit fairings must at least equal the strength of the main deck i.e. be able to be walked on at any point.

For Class 1, only the overdeck water deflectors are mandatory (recommended for all classes).

The Reinforced Water Deflector must be designed and constructed of materials of sufficient strength to provide adequate crew protection, both over and under the deck and hull.

The forward fairing on the deck must rise to a minimum height of the chin of the tallest crew member when in the normal driving position.

It is recommended that lateral protection covering be provided up to the shoulders.

The 50 mm of the Water Deflector must be at least 45 degrees from the horizontal, with a minimum 300 mm width per person measured transversely in the horizontal plane.

The Reinforced Water Deflector must be designed and constructed so as to present no hazard if the crew is thrown forward and must be so designed that it would not restrict the crew from being ejected. In all cases, the visual requirements in 615.10 must be adhered to.

Measurers and Scrutineers will examine boats with the crew in the normal driving position. The flares described in UKOPRA Offshore Rules must be readily accessible from the deck.

Rear of head protection is recommended. If fitted, it should be at least 300 mm wide and the height of the padding must extend at least 6 % of the height of the safety helmet as worn by the crew whilst in the normal driving position.

If a monohull has a canopy and/or restraints, it must conform to the same criteria as multihull boats as described in these rules.

### **Canopies and Partial Canopies**

Riding crew members are solely responsible for their boats and equipment and will need to satisfy themselves that the boat is seaworthy and safe to race.

## 2024 UKOPRA OFFSHORE POWERBOAT RULES

### Partial Canopies

All competitors and crew members who race in boats with restraints, canopies, and partial canopies must hold a current immersion test certificate.

Partial canopies may be permitted subject to the technical inspector's approval, this process must be commenced a minimum of 3 months before the event.

There must be an opening hatch with a minimum open space sufficiently large (minimum 55cm X 82.5cm) for each person in the boat to exit immediately.

Alternatively, there must be an open space in the rear of the craft sufficiently large (minimum 1.3m X 1.3m) for all crew to exit the boat immediately.

Access at this opening must not be restricted in any way whatsoever.

Partially canopied boats must have restraint systems fitted which, if fitted, must comply with the following Offshore rules:

- Crew Immersion Test
- Air Supply
- Stop buttons for engine cut-off
- Rear of Head Protection
- Specification of 5 or 6 strap Harness Additionally, the following rules apply:
- Boat builders/designers must confirm in writing that the boat is designed for such activities and to race in a given class. This confirmation to include key safety points below, with detailed technical drawings supplied as appropriate.
- Crew must be able to demonstrate that they can safely exit the boat (maximum recommended exit time 30 seconds) and this may be subject to scrutineer testing at events.
- Seat belt mounts must be of appropriate strength and position, considering the boats maximum designed speed.
- Structure of the partial canopy must be of similar strength to the hull/running surface of the boat.
- The screen must be of suitable materials and have flanges adequate to offer the strength required to meet the anticipated loads and speed of the craft.
- All crew must have in date immersion test training and hold a current immersion test certificate.
- Doors or hatches must be so designed to allow them to be easily opened from inside and out and must be labelled to allow rescuer to immediately understand opening system and backup system – hinges must have removable pins.
- There must be an air system provided for each crew member – spare air systems are not acceptable.
- There must be a minimum clearance between seats or door aperture of 40cm if this is the primary exit route.

## 2024 UKOPRA OFFSHORE POWERBOAT RULES

- The nominated skipper of the vessel accepts ultimate responsibility for complying with all of the above requirements.
- Carbon monoxide sensors and/or alarms must be fitted in all canopied boats.

***These rules are important safety rules and require adhering to, however certain rules may be slightly varied where a team feel there is a better safer alternative solution.***

***If this is the case, then a team should write UKOPRA with the fullest written details and drawings.***

***If the committee in conjunction with the scrutineering team concurs to this requested variation, then they may be accepted for use in the championship.***

# 2024 UKOPRA OFFSHORE POWERBOAT RULES

## **Boats with Restraints**

These rules are important safety rules and require adhering to, however certain rules may be slightly varied where a team feel there is a better safer alternative solution.

If this is the case, then a team should write to the Championship committee with the fullest written details and drawings.

If the committee in conjunction with the scrutineering team concurs to this requested variation, then they may be accepted for use in the championship.

All the crew, who must be seated, must have a restraint system comprising of and conforming to the following rules:

- A Reinforced Cockpit with Canopies is defined as a containment area for crew and can be constructed as an integral part of the boat.
- This Reinforced Cockpit Area must be designed and constructed to a specification capable of withstanding the forces of a water impact when running at the highest design speed of the boat, and therefore protecting all members of the crew in the event of an accident.
- The various components that constitute the Reinforced Cockpit shall be properly maintained to ensure reliable operation of all components, with emphasis being placed on the canopy release mechanism, emergency air supply and restraint systems.

These rules also apply to any boat in any class using Reinforced Cockpits with Canopies. Cockpit Evacuation / Immersion Training

- Before racing in a craft with restraint systems, all crews must have passed in the last fourteen months, an immersion training in a restraint system to ensure that they can exit a reinforced cockpit crew compartment successfully.
- Prior to taking the Immersion training, all crews must have a valid scuba certificate or have received suitable training.
- An immersion Certificate to certify the passed test, showing the expiry date, must be delivered by recognised experts.
- All riding crew members using restraints must sign an indemnity form prior to competing in any race or practice.

## **Drawings and Measurement**

The responsibility for the design and construction of the canopy rests solely with the participant.

## 2024 UKOPRA OFFSHORE POWERBOAT RULES

### Reinforced Cockpit Area

The reinforced cockpit(s) shall be of a closed type design with a minimum of one opening hatch and constructed to a similar strength as the running surface of the boat.

This area must be the sides, floor, decking and bulkheads fore and aft.

All new cockpits built after 1 January 2019 shall be built by a UKOPRA registered cockpit builder.

Cockpit builders wishing to be registered must submit drawings and laminate specifications to UKOPRA – this process can take a month.

Canopies must be a composite structure with the following features.

- Polycarbonate areas are strongly recommended to be as small as possible while still maintaining that the driver and co-driver have clear, safe and undisturbed visibility ahead at sea level whilst racing. It is strongly recommended that these polycarbonate areas are built using 12 mm thickness, or more.
- The combined visibility of driver and co-driver must be through a horizontal arc of 22 degrees (112.5 degrees either side of the center line of the boat).
- These polycarbonate panels are to be recessed into the composite structure and may be bonded using a suitable bonding agent. It is recommended that there is also a through bolted outer flange for the fitting of the polycarbonate panels.

### Screen Flanges

Screen flanges shall be a minimum of 50 mm at forward direction and mm towards sides and should be fastened every 100 mm if using “bobbins”; it is recommended to use metal “bobbins” with heads, as opposed to the recessed plastic type.

The outer polycarbonate area of the flange fitting must not be painted, so that the measurer/ scrutineer may monitor any discrepancies.

- Window to flanges joints must be glued.
- Bolts: min 6 mm stainless steel, nylock nuts, washers
- Bolt spacing: max. 10 cm if not glued
- The outer edges of the canopy surrounding the hatch, must be fitted with a water deflector, (height 10 mm min) to prevent water forcing open the hatch in the event of a capsize.

# 2024 UKOPRA OFFSHORE POWERBOAT RULES

## **Roll Bar**

These Restraint Cockpits must be fitted with an internal roll bar, two in a tandem cockpit as a minimum.

There must also be, between the two single cockpits, an anti-compression strut or structure of similar strength to the roll bar.

Roll bar in front of/around each crew member.

Roll bar strong enough and well secured to the bottom stringers.

Central compression strut to hold roll bar, for side-by-side cockpits. Side compression struts may also be necessary for side-by-side cockpits.

Alternatively, instead of a compression strut, the design of the cockpit primary structure will consist of a center roof rib connected to the roll bar and the aft bulkhead with sufficient strength to satisfactorily react the design impact loads.

## **Hatches**

- Hatch openings shall have a minimum of 25 mm flange.
- Hatches must have a slot for pry bar, on the opposite side of the hinges, use in emergency/rescue.
- Hatches should be recessed on the front and sides.
- The outer edges of the canopy surrounding the hatch, should be fitted with a water deflector, (height 10 mm min) to prevent water forcing open the hatch in the event of a capsize.
- Water deflector to be fitted only on front and sides of hatch, not behind of hatch. (A water deflector on back of hatch might force water into cockpit area.)

It is mandatory that the hatches are constructed to the same specification as the cockpit.

The hatches shall be fitted with a catch which has a positive open and positive close mechanism and should hold the hatch against lateral forces.

These hatches shall be able to be opened from both inside and outside the cockpit and must have a second emergency mechanism to allow the rescue team to easily remove the hatch from outside if necessary.

These hatches should be fitted with hinges with short release pins. This is important because long pins invariably bind the hinge.

There should be one or more divers grab handles fitted to the outside of each hatch.

Canopy hatch release handles, which must be provided both inside and out, must be painted fluorescent orange or have a fluorescent orange background panel to identify them and directional arrows to indicate the method of opening.

The canopy lid hinges and the canopy hatch covers release mechanism must not encroach within the canopy aperture area, and these hinges and release mechanisms must not in any way hinder the exiting of crew members when fully race fitted.

Canopy openings should have the entry/exit apertures located directly above the crews' heads.



## 2024 UKOPRA OFFSHORE POWERBOAT RULES

The canopy aperture openings should be at least 0.55 m in length and 0.55 m in width.

If the crew is seated side by side, then the opening should be at least 0.55 m x 0.825 m wide.

In tandem configuration, the opening(s) should be 0.55 m x 0.55 m per crew member. The canopy apertures should be cut with all corners having a radius of 0.025 m minimum or 0.25 m maximum.

The radius should be constant and have a smooth finish to relieve stress.

The canopy aperture must have a 20 mm wide (minimum) fluorescent orange band around the opening, both inside and outside of the opening.

It is mandatory that one single air supply (not oxygen) and a bottle will be provided for each riding crew member.

The air supply must be securely fixed adjacent to, or on each one of them. It is recommended that sufficient air be provided in each individual bottle for ten minutes.

Air bottles must have a pressure gauge fitted for visual checking at pre-race scrutineering. This gauge should be filled with liquid and be at least 5 cm in diameter for easy reading.

Air supply bottles shall be "Turned On" before leaving the dock to go to starting a race or taking part in practice and/or testing.

Reinforced Cockpits must have flood tubes or other means of flooding the cockpit to equalise the pressure quickly in an accident. The floor of the cockpit should be as air tight as possible to help the cockpit pressure equalise far more quickly when in an upturned position.

Boats with restraints must have stop buttons/switches located in the cockpit area, immediately accessible to driver, co-driver and rescue officers. The stop buttons/switches must be identified by a fluorescent colour.

These switches must shut off all fuel pumps as well as the ignition circuit.

In the case of diesel boats, the stop control cable for the fuel injection pump shall be a non-sleeved cable, so as to eliminate the cable being able to bond in a fire.

Cockpits with Restraints must be fitted with rear of head protection for each crew member. This must be an integral part of the seat, which must be attached directly to the structure of the Restraint Compartment.

The head protection must be a minimum of 0.2m wide and extend at least 75% of the height of the safety helmet as worn by the crew whilst in the normal seating position. There must be a minimum safe vertical and lateral clearance between the canopy and each of the crew members when in the normal seating position.

The Restraint System must consist of a 5 or 6 strap harness and should utilise a 75 mm lap belt, a 50 mm strap over the shoulder harness rated at 4,100kg (9,000 lb.) and grommeted to prevent chafing or cutting of the belt. Harness straps must be attached directly to the

cockpit structure. Those straps close behind the driver's head and neck must be 100 mm to

150 mm apart at point of attachment.

## 2024 UKOPRA OFFSHORE POWERBOAT RULES

The shoulder harness should be installed at 90 degrees to the spine at shoulder line to minimise compression injuries under high "G" loading. All straps must be free to run through intermediate loops or clamps/buckles. All anchor point bolts must be fitted with backing plates of 10cm minimum width.

The driver harness attachment bolts in reinforced cockpits must consist of minimum grade EN8 bolts, with an 8 x 1.25 mm thread and locked nuts. There must be a spacer and plain washers on each bolt. The spacers must be glued to the cockpit structure. Intention of these spacers is to prevent buckling of surface material near bolts. This always leads to local delamination which easily spreads out over cockpit structure, when it is under stress.

On the sides of the structure, which has to take up the force on the attachment bolts, there must be a stainless steel plate (washer of minimum 3mm thickness and 100 cm<sup>2</sup> area).

When using seats with suspension, and therefore not using a bulkhead restraint anchorage, drawings must be lodged with UKOPRA of the measurer and approved prior to boat measurement. All restraint systems must have a common method of release. The single lever method (sometimes called the NASCAR type) or rotary type, are both acceptable restraint release systems.

Both types of restraint release must be examined for satisfactory operation by the scrutineer before every race.

The shoulder harness should be installed 90 degrees to the spine at shoulder line

to minimise compression injuries and the high "G" loading

Lap belt should continue in straight line to anchorage.

A quick release steering wheel may be fitted on a boat with personal restraints, but all drivers must be able to exit the cockpit without removing the steering wheel.

Rear view mirrors are mandatory, as well as a method of cleaning the canopy whilst under way.

Each wing mirror must have a minimum size of 60 sq.cm and be bolted on 2 points to assure proper mounting.

All crew containment areas of inboard engine canopied boats must be fitted with a carbon-monoxide sensor and/or alarm.

Each Reinforced Cockpit Area shall have one or more water activated light(s) or similar.

All boats with restraints must have their bows painted fluorescent orange for at least 0.5 m. Only boats with restraints and closed canopies are allowed to use orange coloured bows. If the hull is of a similar colour, then there must be a white separating band of at least 0.15 m wide to ensure that the fluorescent orange band is obvious.

## 2024 UKOPRA OFFSHORE POWERBOAT RULES

The number of riding crew members must be written in black (so they read correctly if the boat is capsized) in at least 0.25 m high numbering on the orange nose in the best of the following three locations where the shape of the boat allows:

- a) The lower running surface.
- b) The topside of the hull.
- c) The deck of the hull

Should any boat be found to have contravened the riding crew number requirement, the penalty shall be disqualification from that event.

Note: Numbers shall be placed on the orange nose, not the white band area.

# 2024 UKOPRA OFFSHORE POWERBOAT RULES

## Race Numbers

All boats are to be allocated a race number by UKOPRA.

- These numbers shall be painted in waterproof black paint or to be made of black coloured self-adhesive materials of adequate strength.
- They shall be applied to a white or yellow background.
- No number may begin with a zero.
- All numbers shall be plain and up- right.
- On all boats the numbers shall be positioned as far forward as possible. The numbers must be placed on:
  - The foredeck within front / of boat.
  - Both sides of the full within front / of boat.
  - Those numbers displayed on the foredeck and on the underside of a tunnel must read correctly from the transom and shall be underlined by a black bar.

Race numbers shall include a prefix letter:

To match each sub-class of classification.

No part of any advertising, sign writing, flags, badges, emblems or marks of any kind shall be within 60 cm of the race number.

British boats will be expected wherever possible to make a race number change where an overseas competitor has the same number.

### Dimensions

Minimum dimensions for individual numbers must be:

- Height = 30 cm; width = 23 cm; thickness = 5 cm; spacing = 13 cm.
- The background shall extend at least 23 cm in front of and beyond the end number and at least 6.5 cm above and below the numbers.

The height must be to the minimum height measured vertically.

The class prefix will precede the numbers and they will be separated by a dash.

The class prefix must conform with the same minimum dimensions as the race number.

## 2024 UKOPRA OFFSHORE POWERBOAT RULES

### National Flag

All boats are to fly their appropriate national flag of the designated driver as determined by the entry, with minimum dimension 450 mm X 300 mm throughout the race.

Alternatively, the flag must be painted, or glued, on a panel of not less than 450 mm X 300 mm on both sides of the hull.

# 2024 UKOPRA OFFSHORE POWERBOAT RULES

## Safety Equipment – To Wear

### Lifejackets

- Each person aboard a boat must wear, during the race and practice, an efficient racing vest.
- All crew must wear a racing vest suitable for their class.
- Specification: All vests must have inherent buoyancy of at least 150 Newton and be fitted with collars.
- The Grabner & Hutch Wilco Motorboat Offshore Racing vests are also acceptable. Lacing ties and/or straps must be adequate & in good condition.
- All straps must be at least 40mm wide & have a minimum breaking strain of 500kg. There must be lifting straps at the front or on the shoulders.
- Zips are not permitted as the sole means of fastening a racing vest.
- Where zips are used as an ancillary means of closure, they must be in working order.
- Tears/rents or bad repairs through which buoyancy material may leak out are not permitted.
- Vests shall be at least 60% orange or yellow or have orange or yellow panels.
- Vests must have a lifting eye or strap attached to the main harness.
- Vests must not be able to ride up over the wearer's head & be secure to wearer's body. The disposition of the solid buoyancy must be such as to ensure that an unconscious person shall float face up in the water.
- The vest must have impact protection material covering the back.
- For crew using restraints, the racing vest must be negative buoyancy unless manually inflated.
- The use of an automatically inflatable racing vest is prohibited these must be manual.
- The efficiency of the crash helmet and racing vest is the sole responsibility of the wearer.

### Helmets

Any person aboard any boat partaking in races must wear an adequate helmet of orange color throughout the race and during practice runs.

Helmets may only be removed when effecting repairs and the boat is "off plane".

- Each crew member's helmet must be identified with their boat race number.
- This number shall be placed on the top surface of the helmet and shall be read from the rear.
- The numbers shall have a minimum height of 75 mm and shall be of the same style as the boat race number.
- These numbers shall be painted in waterproof black paint or be made of black coloured self-adhesive material of adequate strength.
- The choice and efficiency of a helmet is the sole responsibility of the wearer.

## 2024 UKOPRA OFFSHORE POWERBOAT RULES

### **Personal safety**

It is mandatory that either (or both) is carried:

#### **PLB personal locator beacon**

It is recommended each crew member carries a PLB personal locator beacon.

Or

#### **E.P.I.R.B.**

A portable emergency position indicating radio beacon (E.P.I.R.B.) operating on 406 MHz shall be carried and stowed in an easily accessible position.

Numbers and expiry dates need to be presented at race control and be available for scrutineering.

#### **Mini Flares**

It is mandatory for each crew member to carry mini flare or a day and night flare on their person.

#### **Protective Clothing**

All crew members whilst racing must wear suitable protective clothing that covers the torso and all limbs to the wrists and ankles.

Protective clothing used must be durable enough to provide bodily protection and it is recommended to be fire retardant.

# 2024 UKOPRA OFFSHORE POWERBOAT RULES

## Safety Equipment - Carried onboard

Whilst on the water at an event, all the relevant safety equipment, i.e., restraints, racing vests, helmets and racing suits must be worn whilst the race boat is on the plane.

The following equipment shall be carried and stowed to the satisfaction of the Race Committee.

Boats meeting the criteria of the UKOPRA rules on restraints and canopies must comply with the requirements regarding storage of safety equipment contained in those rules.

### **Buoyancy**

It is recommended that boats should have enough buoyancy in the race boat or in the material used for its construction to ensure that the boat floats if capsized or holed.

Boats which do not have sufficient buoyancy may be refused entry to any competition by the organizers of each individual event if deemed unsafe by the organizing committee or promoter.

### **Bilge Pumps**

Suitable and automatic bilge pumps shall be fitted to the boat capable of pumping out all sections of the boat even where water-tight bulkheads are fitted. They shall be accessible and be fitted with a suction pipe leading to the lowest point of the bilge and with a discharge pipe overboard. There shall also be at least one manual bilge pump in the boat.

### **Pump**

All RIBS shall carry a hand or foot pump capable of being operated below the gunwale.

### **Inflatable Life Raft (Also see C-108)**

It is mandatory that every boat carries one certified and in date Inflatable Life Raft capable of carrying the complete crew, together with adequate fresh water and a first-aid kit. The life raft shall be stowed in an easily accessible position so that in the event of emergency the life raft can be quickly released, particularly in the event of fire. Aviation style life rafts are not acceptable for Ultra Marathon races where the total race length exceeds 500nm.

The life raft is recommended to comply with ISAF Offshore Special Regulations (OSR) Appendix A Part 2 or ISO 9650 Type 1 Part 1, Group A standard, and should be fitted with a boarding ramp. (Or equivalent NA approved standards)

### **VHF Radio**

All boats will carry a shipboard installation of a fully synthesized VHF transceiver with GMDSS capability carrying all 55 International Channels, with an aerial output of not less than 25 watts. Organisers may require additional channel(s) to be programmed into this radio to comply with local regulations.

In addition, a multi-channel waterproof hand-held VHF radio, which should be carried by one crew member at all times when racing.

Each vessel must have a Ship's Licence for their radio equipment and at least one crew must have an Operator's Licence, both Licences and MMSI numbers to be checked presented at Race Control and be available for scrutineering. VHF handheld radio is recommended for each boat as a back-up.



# 2024 UKOPRA OFFSHORE POWERBOAT RULES

## **First Aid Kit**

All boats shall carry an adequate medical kit and emergency thermal protective aids for each member of the crew.

Medical Compress and Knife

All crew must carry on their person whilst racing a whistle, medical compress and a knife.

## **Radar Reflector**

All boats must carry a RADAR reflector suitable for the boat or a Search & Rescue Transponder - SART.

## **Anchor And Sea Anchor**

Anchor/s with adequate anchor lines must be carried at all times and shall be of a weight and type adequate to hold the boat and shall be properly stowed in an accessible place.

All boats must carry a sea anchor in a easily accessible location with warp ready to be deployed.

Boats also need to carry a suitable sea anchor ready for rapid deployment.

## **Fire Extinguishers**

Two (2) fire extinguishers to be immediately accessible to the crew, and must minimum of 2kg each, or of equivalent capacity.

Inboard boats also require fire suppression devices in the engine bay. See inboard section.

The extinguishers must fulfil the classification ABC (eq. US: classification AB).

- American Class A Class B
- European Class A Class B Class C UNCLASSIFIED Class D
- Australian/Asian Class A Class B Class C Class E Class D Class F
- Fuel/Heat source Ordinary combustibles Flammable liquids Flammable gases Electrical equipment Combustible metals cooking oil or fat Class F
- Class C Class D Class K

## **Compass and Charts**

Compass - All boats must be equipped with a liquid filled magnetic compass. Compass deviation cards for magnetic compasses must relate to adjustment within the 7 months prior to the date of the event. Electronic compasses may be used in addition. Charts/back-up navigation system – All boats must carry at all times: Either: A comprehensive set of paper charts which must be in date and corrected to current Notices to Mariners. These charts must be of suitable scales and detail to enable safe navigation over the entire course.

Or

A properly installed electronic chart plotter containing chart data of suitable scales and detail to enable safe navigation over the entire course. In addition to the installed chart plotter a portable chart plotter containing chart data of suitable scales and detail must be carried to enable safe navigation over the entire course. This additional unit must be provided with additional emergency

## 2024 UKOPRA OFFSHORE POWERBOAT RULES

batteries to ensure a minimum of 8 hours operation. Nautical Almanac – All boats must carry at all times a nautical almanac or excerpts from a nautical almanac providing detailed navigational information of the entire course.

### **Navigation Lights**

Navigation lights in working order shall be carried in accordance with International Rules for the Prevention of Collisions at Sea.

### **Strobe Light**

All boats shall have a White or Orange High Intensity Strobe Light fitted to indicate 'coming off plane' but not needing assistance.

- The strobe light must be able to be operated by the throttle man if a problem occurs, to enable any following race boats to take avoiding action.
- The strobe light shall be mounted on the top rear of the canopy.
- This strobe light may also be used as a substitute for the orange retirement flag when returning to port under reduced power.