

# Laser 4000 Class Measurement Rules By Law 1

Version 6 (2009)

## 1 Introduction

1.1 The Laser 4000 was created as a strict one design dinghy where the true test when raced is between crews and not boats and equipment. The fundamental objective of the Laser 4000 Class Rules ("the Rules") is to ensure the strict one-design concept is maintained.

1.2 The English text of the Rules shall govern.

## 2 Fundamental Rules

2.1 The Laser 4000 shall be raced only with hull, mast, spinnaker pole, sails, battens, centreboard, rudder system, tiller, fittings, equipment, standing rigging and running rigging conforming to these rules.

2.2 No additions, alterations or repairs may be made to any part of the boat including the hull, mast, boom, gnav, racks, spinnaker pole, sails, battens, centreboard, rudder system, tiller, fittings, equipment (including location), standing rigging or running rigging supplied by a licensed Builder (see paragraph 3) except when such an addition, alteration or repair is specifically authorised by these Rules (see paragraph 4).

2.3 Replacement of the hull, mast, boom, gnav, racks, spinnaker pole, sails, battens, centreboard, rudder system, tiller, fittings, equipment (including location), standing rigging and running rigging shall only be from parts supplied by a licensed Builder unless such replacement from another supplier is specifically authorised by these Rules (see paragraph 4).

2.4 Where replacements, alterations or repairs are authorised by these Rules, these shall be carried out using materials of construction and in a manner that gives no weight or other advantage.

## 3 Definition of Builders and Hull Identification

3.1 The Builders of the Laser 4000 shall be only those licensed by Performance Sailcraft Europe Limited and approved by each of Warsash 5000 Limited and The Laser 4000 Class Association.

3.2 Laser 4000 shall have a licensed Builder's hull identification plaque incorporating the boat's sail number fixed in the rear of the cockpit.

## 4 Permitted Placements, Additions, Alterations and Repairs

4.1 The following may be replaced by any of similar function, but of a different type, size and from any supplier:

- Trapeze handles, cleats and rings, provided that these are not rigged for a continuous trapeze system and that the wire section remains minimum 3500mm length;
- Tiller extension and universal joint;
- Method of retaining rudder stock to boat;
- Shackles, pins, except for the rack pins which must be of a pin and ring type;
- Spinnaker ratchet blocks.

4.2 The following may be replaced by any of similar type, size and function, but from any supplier:

- Cam cleats;
- Blocks;
- Mainsheet swivel base;
- Running rigging, except the jib halyard, with any of different length and diameter, except the spinnaker sheets which shall not be less than 6 millimetres in diameter. Aramid and high modulus fibres are permitted except for the mainsheet and spinnaker sheets. All lines must be of a uniform diameter;
- Standing rigging and the jib halyard with wire of the same diameter as that supplied by the licensed Builder.

4.3 The following additions and alterations are permitted and may include parts which can be obtained from any supplier:

- Non slip material (maximum thickness 5 millimetres) may be added anywhere on the decks or racks;
- Additional footstrap loops may be fixed to the racks up to a maximum total of two on each side, or all footstrap loops may be removed;
- The use of flexible adhesive tape, Velcro, plastic bobbles and shockcord to prevent snagging of sails, sheets and lines is unrestricted but shall not modify the effective sheeting of any sail, nor the intended purpose or action of any equipment;
- The jib sheet purchase may be reduced;
- Additional purchase may be incorporated into the mainsheet system using the existing sheet attachment points; extra blocks may be used to facilitate these additional purchases;
- The method of attaching sheets to jib and spinnaker is unrestricted provided that the attachment system is less than 10cm;
- The taper on the trailing edge of the foils may be finished to a maximum of 75 millimetres from the trailing edge. Surface refinishing (but not fairing) of foils is permitted providing the original shape, thickness and characteristics are not altered;
- One electronic or mechanical device correlating data relating to magnetic north and the boats heading may be fitted;
- Calibration marks of any kind are permitted;
- Any design of mechanical wind indication devices is permitted;
- Wedges may be fitted under cleats;
- A soft bearing material (e.g. Velcro) may be fixed with adhesive to the inside of the centreboard case;
- A towing rope may be attached to the bow eye, or the mast;
- Any additional equipment required for safety purposes may be fitted or carried provided it is not used in contravention of these Rules;
- Clips ties or bags to secure safety or other equipment are permitted;
- Tell-tales may be attached to any part of the equipment;
- "Fast" pins may be used on the lower shroud adjusters only;
- The two toestraps for the helm may be arranged and secured in any way to the existing toe strap attachment points provided that the equipment used does not alter the intended function of any other equipment;
- One timing device may be attached to the boat;
- The mainsail ratchet block and centre jammer may be replaced by a single ratchet block in the same position;
- The eyes on the underside of the racks for the kicker/cunningham take up system may be replaced by 2 blocks in the same position.
- Righting lines may be added in any configuration to be used solely to aid capsiz recovery.

4.4 Repairs and preventative maintenance to hull, mast, boom, gnav, racks, spinnaker pole, rudder system, tiller, fittings, equipment, standing rigging, running rigging and sails may be carried out without violation of these Rules provided such repairs are made in such a way that the essential shape and characteristics or function of the original are not affected. When setting up the spreaders the following parameters should be followed –

- From a line taken between the centrelines of the shrouds at the spreader ends the distance from that line to the aft face of the mast shall be 150mm plus or minus 10mm. The spreader length measured from the centreline of the aft face of the mast to the centreline of the shroud shall measure 457mm plus or minus 15mm.

4.5 Preventative maintenance shall include the replacement of fastenings with alternatives providing that the equipment is replaced in the original position and in accordance with these Rules where relevant.

4.6 Sanding and refinishing is only permitted for the purpose of repair. Cleaning is permitted with non-abrasive detergents only. Waxing is permitted with non-abrasive waxes only.

## 5 Measurement

5.1 The Laser 4000 shall conform to these Rules. All the equipment listed in the Equipment list in Appendix 1 shall be carried in the position as supplied by the Builder and the Laser 4000 shall be rigged in accordance with the Rigging Diagrams in Appendix 1. In the case of a measurement dispute explicitly covered by these Rules, the procedure set out in paragraph 5.2 shall be adopted.

5.2 A sample of 5 sailboats or, if appropriate, a sample of 5 items, not the subject of a measurement dispute, shall be measured using identical techniques. The dimensions of the disputed sailboat or item shall be compared to the measurements taken from the sample and if the item is outside the maximum or minimum dimensions obtained from the sample, the matter together with details of the measurement methods and any other relevant information shall be referred to the Chief Measurer of the Class Association whose decision shall be final and binding on all parties.

5.3 In the event of a dispute alleging non-compliance with these Rules, the matter together with any relevant information shall be referred to the Chief Measurer of the Class Association whose decision shall be final and binding on all parties.

5.4 The Chief Measurer shall, from time to time, issue official interpretations of the Rules, which should be read in conjunction with the Rules and are deemed to be binding.

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6.1 The District Measurer shall carry out the duties prescribed in paragraph 6 of this By-Law and in accordance with instructions from the subject of an interpretation of the Chief Measurer, providing that such interpretation shall be committed to writing following such intention of adding weight by water absorption or holding water in pockets, compartments, containers or any other method.

6.2 No person shall be nominated for the position of District Measurer unless he has been displayed, to the satisfaction of the District Chairman:

6.3 The District Chairman upon satisfying himself in respect of the items set forth in paragraph 6.1 above, shall submit the recommendation of the appointment of the District Measurer to the Executive Secretary, or designated member, of the World Council.

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6.5 The responsibilities of the District Measurer and any assistant shall include generally the area defined by the licensed Builder.

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6.7 The maximum rack setting shall be determined in accordance with the equalisation chart in Appendix 2. The helm and crew weights shall be measured under the conditions set out in Rule 7.4.

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## 7 Weight and Righting Moment Equalisation

7.1 The weight and righting moment equalisation rules are part of the stringent onedesign principles of the Laser 4000 Class.

7.2 It is the responsibility of the helm and crew to comply with the following requirements whilst racing.

7.3 The minimum number of standard weights to be carried onboard by a Laser 4000 shall be determined in accordance with the equalisation chart in Appendix 2. The helm and crew weights shall be measured under the conditions set out in Rule 7.4.

7.4 The weights must be provided by a licensed Builder, and must be 5.5 – 6.5 Kg. These weights must be positioned and secured in the area defined by the licensed Builder.

7.5 The maximum rack setting shall be determined in accordance with the equalisation chart in Appendix 2. The helm and crew weights shall be measured under the conditions set out in Rule 7.4.

7.6 For the purposes of measuring, the crew will be defined as the person who will wear the trapeze harness during the race. The weight of the helm for the purposes of Rule 7 shall be measured as the actual weight of helm in light clothing plus two kilograms. The weight of the crew for the purposes of Rule 7 shall be measured as the actual weight of the crew in light clothing plus three kilograms.

7.7 The total weight of all clothing and equipment worn by the helm and crew shall not exceed 12 Kg each, weighed in accordance with Appendix J of the Racing Rules of Sailing.

7.8 No clothing or equipment of the helm and crew shall be worn with the specific feature or intention of adding weight by water absorption or holding water in pockets, compartments, containers or any other method.

7.9 Ballast Weights and Rack Settings shall not be changed from the time the sailboat has been launched until fifteen minutes after the sailboat has come ashore.

7.10 Any helm or crew may be required to demonstrate their compliance with Rule 7 when required to do so by the Chief Measurer (or one of his appointed assistants), another competitor or the race committee. Once informed of the measurement request, the helm and crew are required to remain by their boat until the measurement is complete.

7.11 Where a helm and crew have completed a race, and not retired, and subsequently it has been determined that they have failed to comply with Rule 7, they shall be penalised.

7.12 Where the Chief Measurer (or one of his appointed assistants) considers the breach of Rule 7 to have been significant and deliberate he shall issue a written warning to the helm and crew. A second occurrence within a period of one year will result in the helm and crew being suspended from membership of the Class Association and the matter being reported to the National Sailing Authority.

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## 8 Sailing Requirements

8.1 The Laser 4000 shall be raced with 2 persons onboard.

8.2 Only the crew as specified in Rule 7.4 may trapeze from the Laser 4000 whilst racing.

8.3 The helm and the crew shall not race a Laser 4000 in any event unless they comply with paragraph 7 of these Rules.

8.4 No person is permitted to race a Laser 4000 in any Fleet, inter-Fleet, District or other sanctioned event unless the owner, or a joint owner, or a nominated representative of an organisation owning the Laser 4000 is a

current Full Member or either the helm or the crew is a current Full or Associate Member of the Class Association.

8.5 Whilst racing, the Laser 4000 shall be rigged in accordance with the Equipment and Rigging Diagrams contained in Appendix 1 and shall carry all the equipment and rigging included in those Diagrams.

8.6 National Letters must be placed within a rectangle 900mm height and 1400mm length placed in the bottom aft corner of the third panel from the head of the sail. The Starboard Letters shall be above the port. 8.7 Sail Numbers must be placed within a rectangle 900mm height and 1400mm length placed in the top aft corner of the fourth panel from the head of the sail. The Starboard Numbers shall be above the port.

## **9 Racing Rules of Sailing**

9.1 Rule 51, "Shifting Ballast" of the Racing Rules of Sailing shall not apply. 8.9 Rule 50.2, "Spinnaker Poles and Whisker Poles" of the Racing Rules of Sailing shall not apply.

9.2 For the purposes of racing and competition, the Class Association has designated that advertising is permitted in accordance with the ISAF Advertising Code sections 20.3.1 and 20.3.2 (b) [Category C].