

NATIONAL TWELVE CLASS RULES

INTRODUCTION

The object of the National Twelve Development Class is to provide racing of advanced standard in a type of dinghy which is capable of being developed in hull and rig design. Boats should be of economical construction and suitable for both salt and fresh water alike.

CLASS RULES

1 GENERAL

- 1.1 The National Twelve Owners' Association (NTOA) accepts no legal responsibility in respect of these Rules or of any claims arising therefrom.
- 1.2 The NTOA may examine any boat to ensure compliance with the Class Rules. The NTOA may refuse to issue a Measurement Certificate or may withdraw a certificate already issued.
- 1.3 In the event of disagreement between the Owner and NTOA over interpretation of these Rules, the RYA shall be asked to decide.

2 REGISTRATION AND MEASUREMENT CERTIFICATE

- 2.1 No two boats in the Class shall have the same name and therefore Owners should submit to the NTOA two or three names in order of preference. The name accepted shall be notified to the Owner by the NTOA
- 2.2 Change of ownership invalidates the Certificate but shall not necessitate re-measurement.
- 2.3 On initial measurement the registered Owner shall sign the measurement form, and obtain a witness signature, to confirm that their boat meets the buoyancy requirements described in rule 6.
- 2.4 The Certificate is valid for twelve months from the date of the original buoyancy test, or any subsequent re-tests provided the Certificate is suitably endorsed with the date of the test and signed by the registered Owner who shall arrange for such signature to be witnessed and endorsed by a club/class official.

NOTE: In Rules 2.3 and 2.4, where the registered Owner is under the age of 14 on the date of the buoyancy test the test shall be carried out by the registered Owner's parent or guardian who shall endorse the measurement form or certificate. In this case the 'registered Owner' stated in rule 6 shall be read as the parent or guardian of the registered Owner.
- 2.5 It is the Owner's responsibility to ensure that their boat complies with the Class Rules. In the event of the Owner effecting any alteration, replacement or repair, it is their responsibility to ensure that any necessary re-measurement is undertaken. Where required the Certificate is to be endorsed by a NTOA Approved Class Measurer.

3 IDENTIFICATION MARKS

- 3.1 The hull shall carry the sail number clearly cut into the centre thwart or upper face of the centreboard case in figures not less than 25mm high.
- 3.2 The Class insignia shall be the letter "N". The mainsail shall bear the insignia placed above the sail number. The insignia and numbers shall be placed:
 - above an imaginary line projecting at right angles to the luff from a point one-third of the distance, measured from the tack, to the head of the sail.
 - at different heights on the two sides of the sail, those on the starboard side being uppermost.The insignia and numbers shall be upright, without serifs, and with lines that are continuous and of uniform thickness. The minimum sizes shall be 300mm height, 200mm width (excluding the number 1), 40mm thickness and 60mm spacing. The insignia and numbers shall be of the same single uniform colour in sharp tonal contrast to the sail.

4 HULL DIMENSIONS

4.1 LENGTH overall shall not exceed 3660mm including stem band, if fitted, but excluding:

- (a) Rudder fittings and rudder control devices within 60mm of the centreline of the boat;
- (b) Transom opening cover devices that comply with 4.1.1.

4.1.1 Transom opening cover devices may be fitted but, if fitted, shall:

- (a) Be not less than 25mm from the outside surface of the hull shell excluding transom.
- (b) Not act as an extension of the hull surface.
- (c) When closed, not project aft more than 25mm beyond the measured length.

4.2 SHEERLINE

DEFINITION:-The sheerline is formed by the intersection of the upper surface of the deck or gunwale and the straight line projection of the outer surface of the skin at points 75mm and 125mm from the sheerline. At any transverse section at which such an intersection cannot be found, the sheerline shall be the highest point on the surface of the hull within 25mm (measured horizontally inboard) of the widest point of the hull skin at that section.

4.2.1 The sheerline shall be a fair continuous concave curve when viewed in side elevation.

4.3 BEAM

4.3.1 No part of the hull or deck shall be more than 52mm outboard of the sheerline.

4.3.2 The beam measured overall at the widest point shall be not more than 2000mm.

4.3.3 At midlength, measured 229mm above the lowest points on the outer surface of the skin (or on a straight line, bridging any hollows, parallel with the vertical plane through the fore and aft centreline) between 40mm and 150mm from the fore and aft centreline of the hull at midlength, shall not be less than 1168mm. This measurement shall be taken to the straight line bridging adjacent lands if any.

4.4 DEPTH

4.4.1 At midlength shall be not less than 510mm measured vertically from the sheerline to the outside of the skin 150mm from the fore and aft centreline of the boat.

4.4.2 At no transverse section shall the depth of the hull measured vertically from the sheerline to the bottom of the hull exceed 800mm.

5 HULL CONSTRUCTION

5.1 DECK

Boats may be open or decked.

5.2 TOPSIDES

Aft of 1220mm from the stem, in any vertical, athwartships plane through the fore and aft centreline, the skin shall be not more than the following from a girth band stretched under the hull from points on the skin 75mm below the sheerline

- (i) more than 450mm measured along the band from the hull centreline: 3mm
- (ii) less than 450mm measured along the band from the hull centreline: 35mm

For a boat of normal clinker construction, the skin shall be regarded as a taut band touching all lands.

6 BUOYANCY

6.1 SECURITY, MINIMUM NUMBER & SIZE

Buoyancy tanks, bags or other apparatus shall be securely fastened and fitted. Where, in order to comply with the requirements of 6.3, air filled buoyancy units are fitted:

6.1.1 The number of buoyancy units shall be such that:

- (a) with any one unit free to flood at least 40kg of positive buoyancy remains within other intact units and/or the hull.
- (b) where two or more units are fitted, with any two units free to flood at least 20kg positive buoyancy remains within other intact units and/or the hull.

6.1.2 For the purposes of 6.1.1, where one or more units of buoyancy are contained or enclosed with another, they shall be counted together as one unit.

6.2 RIGID FOAM

If the material of the hull shell has an average specific gravity of more than one, rigid foam buoyancy, of not less than 42kg positive buoyancy, shall be securely fitted forward of amidships and rigid foam buoyancy of not less than 28kg positive buoyancy, shall be securely fitted aft of amidships.

6.3 BUOYANCY TESTING

The boat shall be maintained so that, with the mast stepped and with sails, boom and all loose gear removed, it shall at all times pass the following tests:

6.3.1 The boat while supporting a minimum weight of 180kg distributed evenly about a point 1500mm forward of the transom, and having been swamped by depressing a gunwale, shall float approximately level for a period of ten minutes. When the boat retains no water after swamping, the registered Owner may suspend this test; in such instances the air-test of 6.3.5 shall be carried out.

6.3.2 The registered Owner shall check the buoyancy on initial measurement with the swamped boat floating on each side for five minutes while supporting a minimum weight of 135kg and with the stepped mast horizontal. The mast may be supported above the top coloured band during the test.

In both the above tests, the weight may be made up of iron and/or denser material and/or by people not immersed above the knees.

6.3.3 At the completion of tests 6.3.1 and 6.3.2, buoyancy tanks shall not have leaked more than a total of 1.5 litres, inflatable buoyancy shall have no signs of deflation and the registered Owner shall be satisfied that the condition and fastenings of buoyancy apparatus are sound.

6.3.4 When all buoyancy units in a boat consist of built-in buoyancy tanks, and the buoyancy apparatus is unchanged then, after checking that the condition of all buoyancy units is sound and that all built-in buoyancy tanks pass the air test given in 6.3.5 below, the registered Owner may renew the buoyancy endorsement for a period of 12 months.

6.3.5 AIR TESTS FOR BUILT IN BUOYANCY TANKS

To be conducted as follows:-

A - On the tank being tested only, hatches and drain holes shall be closed normally using only the boat's hatch covers, stoppers and fastenings except where tubes to a pressure/vacuum source and gauge are connected. All other tanks hatches and drain holes shall be open.

B - Each tank shall: be tested independently under both pressure and vacuum. In each case a differential pressure of 125mm on a water gauge shall be produced.

C -After isolating the buoyancy tank from the pressure/vacuum source the pressure differential shall not reduce from 125mm to 50mm in less than 30 seconds.

6.4 ANNUAL TEST

Before a certificate can be obtained, and thereafter at least every 12 months, the registered Owner* shall certify that the condition and fastenings of buoyancy apparatus are sound and that the boat has passed tests 6.3.1, 6.3.2 and 6.3.3 on initial measurement and 6.3.1 and 6.3.3 or 6.3.4 and 6.3.5 on subsequent annual tests. In all cases where the registered Owner* is not satisfied or where the buoyancy arrangements are changed the tests defined in 6.3.1, 6.3.2 and 6.3.3 are obligatory.

*In the case of the Owner being under the age of 14 the responsibilities set out in this rule should be undertaken by the registered Owner's parent or guardian.

7 FOILS

7.1 When fully lowered the centreboard shall not protrude more than 1070mm.

7.2 When fully raised the centreboard shall not protrude below the hull or above the sheerline.

7.3 The centreboard shall be raised or lowered only by rotation, in its plane of operation, about one pivot within the profile of the hull. The pivot shall be in one fixed position related to both the hull and the centreboard.

7.4 When being raised to its fully raised position no part of the centreboard exposed below the hull shall move forward in relation to the hull.

7.5 With the exception of the centreboard, centreboard pivot and slot gaskets of not more than 3mm in thickness, no device or contrivance shall be used to displace water from the space below the waterline within the profile of the hull through which the centreboard is permitted to be moved.

- 7.6 Between the lowest point of the hull at the transom and 300mm above this point, some point on the axis around which the rudder pivots while steering shall be within 50mm of the vertical transverse plane passing through the after-most point of the hull at the centreline.

8 WEIGHTS & WEIGHING

DEFINITIONS:

A CORRECTOR is a piece of any material rigidly attached to the hull or mast for the purpose of adjusting the weight to comply with Class Rules.

MAST WEIGHT shall include the spar, fittings, permanently fitted corrector weights and, where fitted, the following items of rigging: jib halyard, mainsail halyard, shrouds (but excluding lower shrouds), diamond wires, forestay, jib-stick rigging (guide line and retrieval elastic only) and burgee halyard. Excluded are: booms; jib-sticks; jib-stick launching lines; mast-bend control struts; spars and levers; all other removable gear not essential to the function of the mast.

ESSENTIAL FIXED METALWORK AND FITTINGS are items rigidly attached to the hull essential to the sailing of the boat and its compliance with the Class Rules. For example, stem band if fitted, keel band if fitted, bow fitting, jib fairleads, sheet horse, rudder pintles, centreboard pin, chainplates, centreboard hoist and kicking strap anchorage, mast step, centreboard and halyard cleats, toe straps, drain hole rings and suction bailers.

The ALL-UP WEIGHT is the combined weight of the hull, correctors attached to the hull, MAST WEIGHT and centreboard. The weight of the hull includes the buoyancy apparatus and its fastenings; ESSENTIAL FIXED METALWORK AND FITTINGS; permanently fitted items; normal centreboard hoisting gear; mainsheet block and attachment system; lower shrouds (where fitted); shroud, lower shroud and jib halyard purchases and control lines; mast bend control devices and their control lines (including kicking straps) but excludes: sails; boom; jib-stick and launching lines; sheets; rudder; tiller and all other gear.

8.1 MAST WEIGHT and CENTRE OF GRAVITY

- 8.1.1 The MAST WEIGHT shall be not less than 5.5kg. The measured MAST WEIGHT shall be permanently marked on the spar.
- 8.1.2 The centre of gravity of the items comprising the MAST WEIGHT shall be not less than 2285mm above the sheerline in way of the mast. The centre of gravity shall be determined with all fittings in their normal position and the rigging stretched down the length of the spar as though the sails were hoisted with the halyard tails suspended from the mast no higher than the sheerline (or at the mast foot when this is above the sheerline). The measured centre of gravity location shall be permanently marked on the spar.

8.2 ALL-UP WEIGHT

- 8.2.1 Boats shall be weighed with their internal and external surfaces and permitted cordage dry to the satisfaction of the measurer.
- 8.2.2 The ALL-UP WEIGHT shall be not less than 78kg.
- 8.2.3 A maximum of four correctors may be fitted to the hull and, if fitted, shall be above the approximate waterline.

8.3 RECORDING

- 8.3.1 The ALL-UP WEIGHT, the weight of the centreboard, the weight and the number of the hull correctors and the minimum MAST WEIGHT will be recorded on the Certificate.
- 8.3.2 The weight of each corrector shall be legibly marked upon it, in a readily visible position. The weight of the centreboard shall be legibly marked upon it by impressed figures in a position where it is visible when the board is retracted into the case.
- 8.3.3 The minimum MAST WEIGHT shall be permanently marked on the boom.

8.4 RE-WEIGHING

The MAST WEIGHT and ALL-UP WEIGHT of the boat may be adjusted within these Rules at any time by the addition or removal of correctors or by altering the weight of the centreboard provided that the boat is re-weighed by a NTOA Approved Class Measurer and the new weights recorded on the Certificate and boom, as necessary.

9 SPARS

- 9.1 Only a single masted rig is permitted.
- 9.2 Only one set of cross trees or spreaders is permitted.
- 9.3 Booms including fixed fittings, shall be capable of passing through a circle of 102mm diameter.
- 9.4 The mast shall be fitted so that any or both of the sails can be lowered by the crew from within the boat, without endangering the stability of the mast or its security in the boat.
- 9.5 Prohibitions: Jumper struts, permanently bent masts and booms, rotating masts and other similar contrivances.

10 HEIGHT OF SAIL PLAN

10.1 MAINSAIL

The height of the mainsail shall not exceed 6100mm measured from the sheerline in way of the mast. The actual point of measurement shall be marked by the lower edge of a band of contrasting colour on the mast. Where such band is not of paint, the point of measurement shall be additionally marked by inscribing or similar into the mast surface.

10.2 FORE TRIANGLE

The height of the fore triangle shall not exceed 4575mm measured from the sheerline in way of the mast. The top of the fore triangle is the point at which the luff of the foresail being extended, would cut the foreside of the mast when held at a downward slope of 2:7 (angle 16 degrees) to the mast.

11 MEASUREMENT OF SAILS

11.1 SAIL AREA

Maximum 8.400 sq.m.

11.2 UNITS OF MEASUREMENT

Measurements shall be taken in millimetres (mm) and shall be taken to the next higher mm.

11.3 MAINSAIL

DEFINITIONS

HEAD - the head shall be taken as the highest point of the sail projected perpendicular to the luff or its extension.

CLEW - the clew shall be taken as the aftermost point of the sail projected to the foot or its extension.

- 11.3.1 The measurement L shall be not less than the distance between the lower edge of the upper coloured band and the upper edge of the lower coloured band on the mast. Where these bands are not of paint, the actual point of measurement shall be additionally marked by inscribing or similar into the mast surface. The upper edge of the lower band shall be not less than 380mm above the sheerline in way of the mast, indicating the lowest position of the top of the boom or of any point of attachment on the sail at or near the tack unless such point is within the boom or boom fitting and is above the centreline of the boom.
- 11.3.2 The headboard or headstick, shall not extend more than 125mm aft of the head. The head of the sail shall not extend above the lower edge of the upper coloured band.
- 11.3.3 The measurement F shall be not less than the distance from the inner edge of a band of contrasting colour on the boom to an extension of the line of the after side of the mast sail track, excluding any curvature. Where such band is not of paint, the actual point of measurement shall be additionally marked by inscribing or similar into the boom surface. No part of the sail shall extend beyond the inner edge of the coloured band.
- 11.3.4 The area shall be calculated from $\frac{L \times F}{2,000,000}$ and shall be rounded up to the next 0.001sq.m.
- 11.3.5 Battens. Sails shall have not more than three battens of maximum width 55mm and of maximum length 765mm except that the top batten may be of any length provided that it does not project more than 100mm outside the sail. The centreline of any batten shall fall within 55mm of a leech measurement point as defined in Rule 11.3.6.
- 11.3.6 The cross width measurement shall be the distance from the leech measurement point as defined below to the nearest point of the fore edge of the sail. The half point of the leech shall be determined by holding the head to the clew and the quarter and three quarter leech points by holding the clew and the head to the half point of the leech.

The width at the half point shall not exceed: $\frac{F}{2} + 595\text{mm}$

The width at the quarter point shall not exceed: $\frac{3F}{4} + 395\text{mm}$

The width at the three quarter point shall not exceed: $\frac{F}{4} + 580\text{mm}$

The above three calculations shall be rounded down to the next whole mm. When the width measurements are taken the sails shall be smoothed out in a dry condition. The measurements shall be taken over the full width of the sail including roping and any hollows in the leech shall be bridged by straight lines. The measurements shall be taken to the next higher mm.

11.4 JIB

DEFINITIONS

HEAD - the Head shall be taken as the highest point of the sail material on a projection perpendicular to the luff or its extension.

TACK - the Tack shall be taken as the lowest point of the sail material within 50mm of the luff or its extension.

CLEW - the Clew shall be taken as the point on the opening of the clew cringle furthest from the nearest part of the luff.

11.4.1 When measured the jib shall be dry, be laid flat along the line of measurement (flaking either side, if necessary) and have just sufficient tension applied to remove wrinkles across the line of the measurement being taken.

11.4.2 The luff (L) measurement shall be the distance between the defined Head and Tack.

11.4.3 The diagonal (D) shall be the distance between the defined Clew and the nearest point on the luff. Any local hollows in the luff shall be bridged by straight lines.

11.4.4 The area shall be calculated from $L \times D/2,000,000$ and shall be rounded up to the nearest 0.001sq.m. The curved edges of the leech and foot shall not be accounted for in the measurement. Anything attached to the luff of the jib for a total length of more than 500mm which has a cross sectional dimension of more than 10mm shall be measured and added to the jib area.

11.4.5 The sail shall be attached by not more than one point in the vicinity of each of the defined Head, Tack or Clew.

The points of attachment in the vicinity of the Head and Tack shall be not more than 30mm from the luff or its extension. The point at which the luff, extended as necessary, intersects the hull or fixed bow fitting shall not move more than 20mm horizontally.

Additionally the sail may be supported by a single stay of not more than 4.5mm in diameter (excluding normal end fittings) contained within, or linked to, the luff. A Cunningham may also be fitted but, if fitted, its line of pull shall be approximately parallel to the luff, and when pulled taut, the Cunningham shall be no lower than the Tack.

11.4.6 No battens or other forms of stiffening save as mentioned in 11.8 below are permitted. Where the clew cringle is placed within the sail material its centre shall be no more than 26mm from the nearest edge of the sail; any local hollows in the sail shall be bridged by straight lines.

11.4.7 RRS 50.4 shall not apply. All jibs are Headsails for the purposes of ISAF Racing Rules of Sailing.

11.5 MARKING AND RECORDING OF SAIL MEASUREMENTS

11.5.1 Only one set (three) of contrasting coloured bands is permitted.

11.5.2 The actual area of each jib shall be permanently marked on its tack and signed and dated by the measurer.

11.5.3 The area of the largest jib which may be used in conjunction with the coloured bands denoting the size of the mainsail shall be marked on the boom adjacent to the coloured band.

11.5.4 The actual widths of each mainsail recorded at the time of measurement shall be permanently marked on the clew of the sail and signed and dated by the measurer.

11.5.5 Mainsail area, maximum permitted jib area, together with L and F measurements and maximum permitted mainsail cross widths shall be recorded on the certificate. The sail plan may be altered within these Rules, provided that the sails and spars are re-measured by a

NTOA Approved Class Measurer. The new details shall be entered on the certificate and the old dimensions deleted.

- 11.5.6 The markings required by rules 11.5.2 and 11.5.4 shall be made on woven material at least 20,000 sq.mm. (mainsail) or 12,000sq.mm. (jib) which shall be permanently fixed on, or form part of, the sail in the vicinity of the appropriate corner (clew of mainsail/tack of jib) and comply with the requirements of Rule 11.8.

11.6 JIBSTICKS

- 11.6.1 The jib may be boomed out by a jibstick attached to the mast.

11.7 PROHIBITIONS

- 11.7.1 Not more than one jib and not more than one mainsail may be used in any one race.
11.7.2 Spinnakers.
11.7.3 Double luffed sails except as permitted by Rule 11.4.5.

11.8 STIFFENING

- 11.8.1 Except for stiffening as detailed in Rule 11.8.2 the body of the sail shall be flexible and be capable of being folded flat in any direction without permanently damaging the sail or its reinforcement.
- 11.8.2 Reinforcement having the effect of stiffening the sail is permitted only at the Head, Tack and Clew and at Cunningham or reefing eyes (or reefing points) adjacent to the luff and leech. This reinforcement shall be within a distance from the relevant corner or Cunningham or reefing eye of 320mm and shall be capable of being folded parallel within an outside diameter of 15mm without damage and:
- (i) shall be within a distance of 320mm from the relevant corner or Cunningham or reefing eye, and
 - (ii) in the area of the tack shall have a total height of no more than 150mm. The measurement shall include any fittings, eyes and other sail furniture that extend the height of the reinforced area.
- Tabling of 40mm maximum width from the edge of sail is permitted provided it can be folded as above.
- 11.8.3 Other reinforcement is permitted, provided it can be folded as described in Rule 11.8.1 and is not stiffened by the addition of bonding agents, close stitching or otherwise.
- 11.8.4 Glued seams shall not be considered as a stiffening provided that they can be folded as described in Rule 11.8.1.

12 CREW

The crew shall consist of two persons including the helmsman.

13 GENERAL PROHIBITIONS

The following are prohibited:

- 13.1 Bowsprit, bumpkin, outriggers, sliding seats, bilge boards, double rudders and all similar contrivances; inside ballast, hydraulic, pneumatic or electronic equipment; electrical equipment other than lights save that the following electronic items are permitted:
- (a) One or more electronic time pieces.
 - (b) One or more electronic devices correlating only data relating to magnetic north and the boat's heading.
- 13.2 The use of any apparatus or contrivance outboard or extending outboard the purpose or effect of which is or may be to support or assist in supporting a member of the crew outboard or partially outboard.

14 ADVERTISING

- 14.1 Advertising is permitted in accordance with the ISAF Advertising Code Category C.

NOTES

Rule 4.3.3 (Rise of floor)

Boats first registered before 1st January 1995 may alternatively comply with Rule 4.2.2 in the Rules effective 1st March 1993.

Rule 5.2

For boats first registered before 1st January 1995 consult rule 5.2.2 (Topsides), as it was in force prior to that date.

For boats first registered after 1st March 1980 a hull shall only be considered of normal clinker planking when no plank exceeds 155mm in width.

Rule 7

Shall apply to all boats irrespective of their date of measurement and/or certification.

Rule 8

A boat holding a certificate issued before 1st March 1972, need not re-weigh any correctors or the centreboard provided that none is altered or removed. As soon as any alteration or removal takes place, then metric weight markings shall be compulsory.

A boat measured before 1st January 2000, and complying with the mast, hull, centreboard and corrector weight rules then in force, shall not be required to comply with the marking requirements of Rule 8.1 or the Mast Weight recording requirements of Rules 8.3.1 and 8.3.3 herein until such time as any item is re-weighed when the whole of Rule 8 herein shall be applied.

Rule 10.2

Shall apply only to boats first registered after 1st February 1953.

Rule 11.3.5

Shall apply to sails first measured on or after 1st March 1976. Sails first measured before this date shall conform with rules then in force.

Rule 11.3.6

Shall apply to sails first measured on or after 1st January 2007. Sails first measured before this date shall conform to the rules then in force, unless the Owner wishes to apply Rule 11.3.6 herein.

Rule 11.4

Shall apply only to sails first measured after 1st March 1993. Sails first measured before this date shall conform to the rules then in force, unless the Owner wishes to apply Rule 11.4 herein.

Rule 11.5

Metric markings shall not be compulsory on sails and booms measured prior to 1st March 1972, provided that all sail markings are in imperial units. As soon as any mark is in metric units then all sail marks shall be in metric units.

Effective: 1st February 2010

Previous Issues:

1 st January 2007	1st March 1990	1st March 1973
1st April 2006	1st March 1989	1st March 1972
1 st May 2005	1st March 1987	1st March 1971
1 st May 2004	1st March 1986	1st March 1970
1st March 2003	1st March 1985	1st March 1969
1st February 2002	1st March 1984	1st March 1968
1st January 2000	1st March 1983	1st March 1967
1st March 1999	4th December 1981	1st July 1966
1st March 1998	1st March 1980	1st April 1965
1st March 1997	1st March 1979	15th January 1964
1st January 1996	1st March 1978	18th September 1963
1st January 1995	1st March 1977	20th March 1962
1st March 1993	1st March 1976	3rd April 1961
24th May 1991	1st March 1975	22nd February 1959
1st March 1991	1st March 1974	1st May 1958