

MYA CLASS MEASURER TRAINING

class specific study material – 10R

Release Version 1.1

url for Q&As relevant to the 10 Rater Class on the IRSA website.

<https://www.radiosailing.org/classes/tenrater/question-answers>

A description of the measurement method for rig and sails can be found at the following link.

<https://www.radiosailing.org/classes/tenrater/class-rules/category/149-measurement>

Except where noted below it is taken that the **class rules** are un-noteworthy for the following reasons:

- The **class rule** requires no further explanation
- The **class rule** is in line with normal ERS and SCR practices
- No class specific equipment is required to confirm compliance

NB

Whereas the IRSA was the authority for the Ten Rater class rules when this document was drafted, the International Ten Rater Class Association (ITCA), is now the responsible authority. It may take a while before all the relevant class rules material is moved from the IRSA website to the ITCA website.

Section D – Hull

D.1.2 See Q&A concerning the display of the **hull** registration number.

D.2.1 See Q&A concerning the correct placement of the waterline **limit mark** on a reverse sloping transom'. See Figure L.4.

See Q&A concerning placement of waterline **limit marks** on **boats** with plumb ends and zero overhang. See Figure L.4.

D.2.3(a) See the Q&A concerning Vee tailed aft overhang.

D.2.3(b)(6) Use a 1 mm diameter drill or a length of wire of 1 mm diameter with a 300 mm straight edge to make checks.

D.2.3(b)(1) This measurement is rarely necessary. If it is necessary it is important that ERS H.3 is respected. See Figure L.6.

There is a typo in Figure L.6. The correct reference is to D.2.3 (b)(1).

Section F – Rig

- F.2 Note that the term 'rig' here is the ERS defined term **rig** and, therefore, the area associated with spars and other items but excluding **sails**.

Section G – Sails

- G.1 Note the definition of rig is specific to this class rule, as defined in A.1.4, and how it varies from the ERS definition of **rig**. Both terms are used as appropriate.
- G.1.2 (a) **Certifying** of a sail is normally carried out by the official measurer signing and dating the sail using an indelible pen.
- See the Q&A concerning **certification** of **sails** smaller than the **sails** of the **certified rig**.
- G.1.2(b)(c) The area of the **mainsail** and the **headsail** of the **certified rig** are determined by the calculation carried out using the certification software.
- Round those figures to three decimal places and add them to the **sails** of the **certified rig** as well as all alternative **sails**, each according to its parent **sail**.
- Note At an event it will be easy for the **equipment inspectors** to check that the **sails** in each rig group offered by the competitor truly belong to that rig group and **certificate**. See Q&A.*
- G.1.4(b) Where the **mainsail** has a **double luff** some care is required to measure the **cross widths** as it is the half girth of the **sail** that shall be measured (as if the spar were not present and the pocket were flattened)
- G.1.4(f) This is a variation to the ERS handling of headboards which are normally considered to be part of the **sail** for measurement purposes.
- G.1.4(g) Where the **sail luff** is in a track in the **mast** the cross widths are taken to the aft side of the spar.
- G.1.4(i) The ERS prescribes that the **clew point** may be found by extending the **sail edges** where the **sail** is cut away in that area. This system, and the WS/RYA system of using a batten of a certain stiffness, is replaced by the requirement to extend the **sail edges** using the same gauge used for controlling the upper and lower **leech** profile in the Marblehead class. See Figure L.2.0.
- A gauge with an accurately made 900 mm radius of length at least 200 mm (a gauge for the Marblehead class will normally be circa 400 mm long) is required to carry out this check.
- G.1.4(j) The ERS prescribes that the **tack point** may be found by extending the **sail edges** where the **sail** is cut away in that area. This system, and the WS/RYA system of using a batten of a certain stiffness, is replaced permitting a mark to be placed on the luff to define the tack point.
- Note this permission only applies if any part of the **sail** does not extend more than 25 mm below the **tack point** when tested as shown in Figure L.2.0.

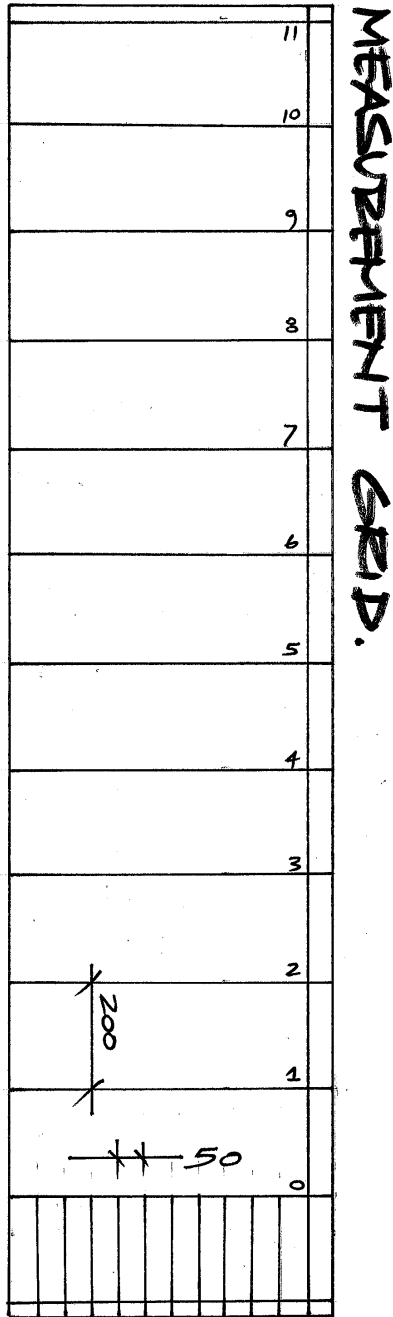
G.1.4(k) Where no part of the **sail** extends more than 25 mm below the applied mark, the **tack point** is found as shown in the lower diagram of Figure L.2.0.

Note These procedures to establish the **tack point** are associated with the need to unambiguously identify the **tack point** and achieve a strict upper limit on the height of the tallest **sail**.

Sail Measurement Grid

A sail measurement grid should be constructed on a material that is stable with heat and moisture. Suitable materials are 100 micron or thicker Mylar film and worktop laminate if space and portability permit.

The layout and dimensions are shown in the sketch below. It is important that the lines are correctly spaced and on orthogonal axes. The width of the grid needs to be large enough to handle the maximum likely luff perpendicular – 550 mm is suggested.



Section H – Rating and Weight

- H.1 Note the definition of certified waterline length is specific to this **class rule**, as defined in A.1.4.
- H.3 Currently there is no IRSA prescribed system for calibration of the weighing equipment. Please use the MYA approved system which describes in detail the equipment required and how it shall be used to calibrate the weighing equipment and take readings.

Section J – Rig Area

- J.1(a) In simple language: one **boom spar**, not exceeding 22 mm deep, may extend each **sail tack** and/or **clew** without being included in the **certified rig** area.
- The spar cross section referred to is neither the **vertical** nor the **horizontal boom spar cross section** as defined in the ERS but the largest spar cross section. See Figure L.1.3.
- See Q&A concerning which spars can be omitted from the **certified rig** area.
- J.1(b) Where there are any additional **boom spars** it is those with the larger areas that are included in the **certified rig** area.
- The area of all **spars** whose maximum cross section exceeds 22 mm is included in the **certified rig** area.
- J.1(c) See Q&As concerning rotating **mast** fittings and faired in fittings.
- J.2 Note that the term 'rig' here is the ERS defined term **rig** and, therefore, the area associated with spars and other items but excluding **sails**.
- J.2.1 It is unlikely that the area of the **rig** components will exceed 10% of the maximum permitted sail area, hence the component areas will be found using J.3 and J.4
- The maximum permitted sail area in square metres is found by dividing 1.25 (the maximum rating divided by 8) by the certified waterline length in metres.
- If the area of the **rig** components does exceed 10% of the maximum permitted sail area, then use K.3 to find the area of the components.
- J.2.2 Items not included in **rig** area measurement.
- There is a typo in J.2.2(b) which should refer to J.1(c).
- J.3 Many spars have a constant diameter or an evenly tapered profile. In these cases their area is found on the certification control form from simple measurements.
- J.4 The area of spars that have an irregular profile, including those with a stepped taper, is found by taking width measurements at regular intervals as defined by the measurement grid. The calculations are carried out by the certification control form.
- See the Q&A concerning the area of a mast stub i.e. where there is a mast stub that may remain in the hull and which supports a pin acting as the rotation point of a mast.
- See the Q&A concerning the measurement of the **mast spar** when it passes the deck at two points.

Section K – Sail Area

- K.1 Note that the **certified** sail area is one of the two components of the **certified rig** area. The other component is the **certified rig** area.
- certified rig** area = **certified** sail area + **certified rig** area

K.2.1 Most **sails** requiring measurement for the purpose of determining the rating of the boat and issuing a **certificate** will be **soft sails** that do not have a **double luff**. Their measurement is described in K.2.2.

See the Q&A concerning the possibility of a ‘virtual’ largest **sail**, large enough for alternative smaller **sails** to comply with.

Mainsails with a smaller **luff** length, used in stronger winds, often have a **double luff**. The measurement of these, and other **sails** that are not **soft sails**, is described in K.3.

K.2.2(c) The **sail** is marked at **luff** and **leech** to show where the uppermost cross width is taken.

K.2.2(f) ERS H.5.2 require hollows in the **leech** to be bridged when taking measurements. In addition the Ten Rater **class rules** requires hollows in the **luff** and the **foot** to be bridged in the same way. See figure L.2.5.

K.3.2(c) The **sail** is marked at **luff** and **leech** to show where the cross widths are taken.

K.3.2(d) For a **mainsail** with a **double luff** it is the skin girth that is measured. Half the skin girth is equivalent to the cross width of the **sail** taken with the **mast spar** removed and the **double luff** flattened. See Figure L.3.4.

Note how a multiple element **sail** is measured in Figure L.3.1 – each element is treated as a separate part.

The skin girths of other possible shapes are shown in Figure L.3.4 and L.3.5.

Section C – Conditions for Racing

It is not necessary to check compliance with Section C rules as part of **certification control**.

The reason for this is that after **certification** owners are free to amend the factors that determine compliance with Section C rules without having to have the equipment **certified** again. This saves them having to engage an **Official Measurer** each time they alter something.

Many owners will appreciate you checking that their boats comply with Section C **class rules**. Nothing prevents an **Official Measurer** from providing this service if he is content to provide it.

Another reason is that several Section C rules may only be checked when the boat is rigged and in racing trim. Indeed that trim will change with wind and other conditions which is why **certification** of compliance with such rules is impractical.

The freedom to amend the weights and positions of equipment comes with the responsibility to maintain the boat in compliance. Without access to the necessary templates it may be difficult for an owner to establish that his boat remains compliant after making alterations. This does not, however, absolve the owner from carrying out that checking process which may be accomplished by an **Official Measurer** who has the necessary equipment.

Compliance with the rules of Section C will be the concern of anyone acting as an **equipment inspector** at an event where a failure to comply is a matter for protest by the technical committee (the **equipment inspectors**) RRS 60.4.

Although not part of **certification control** as Section C rules only apply at an event, the following notes are included here to assist with the process of checking that a boat is compliant to allow Official Measurers to advise owners.

C.3.1 The restrictions on advertising are simple to check and advise the owner about if necessary.

See Q&A. Extract below:

Hull - On each side of the **hull**, and may include the name or mark of the designer or builder - One mark to fit within a rectangle measuring 15% of **hull length** x 150mm.

Spars and Equipment - On each side of **spars** and on each side of other equipment - One mark not exceeding 50mm length.

Sails - On each side of **sails** - One mark to fit within a 50mm diameter circle.

A template gauge cut in plastic sheet or tough card is a useful aid.

C.4.1. Compliance of the flotation of the **boat** to its waterline **limit marks** should be carried out where there are no draughts that will disturb the flotation.

C.4.1(c) It would be difficult for a **boat** to fail to comply with this rule if it complies with C.4.1(d).

C.4.1(d) The water surface is the plane surface remote from the **hull** and un-affected by any meniscus effects.

Various methods of setting straight edges or planes coincident with the water surface exist, and of bringing them into contact with the **hull** such that verification of compliance can be established.

C.4.2 Note the definition of the datum waterplane in A.1.4.

Testing for compliance is simplified by constructing a simple gauge to the following specification:

One piece 30** mm x 6 mm x 1500 mm long – a single 6 mm diameter hole drilled on the centreline through one end and 25 mm from the end - a slot or a 400 mm long series of 6 mm diameter holes drilled on the centreline and through the other end at 50 mm intervals.

Two pieces 30 mm x 6 mm x 740 mm long – a single 6 mm diameter hole drilled on the centreline through one end and 25 mm from the end.

Two of each M6 bolts and nuts.

Connect one of the shorter pieces perpendicular to the end of the longer with the single hole. Connect the other shorter piece perpendicular to the other end such that the

distance between the two shorter pieces is approximately the same as the certified waterline length.

When the ends of the gauge are held to the inboard edge of the waterline limit marks the gauge should pass below the appendages.

** The 30 mm dimension may be increased with advantage in which case the length of the two shorter pieces will need adjusting to suit.



The assembled gauge showing the horizontal bar and two hinged pieces.



Detail of the slotted connection at one end and hole-to-hole connection at the other

C.8.2 (a) Whereas the sail identification marks rules, other than for the class insignia, were in the RRS, they are now in a Supplementary Class Rules document. See note below.

C.8.2 (b) The requirement to carry a class insignia is a Section C rule. See note below.

Note

The reasons for rules for identification on sails being Section C rules are:

- **Certified sails** may be stocked for sale without having the other marks applied.
- Sail marks may need to be changed at events where there is a conflict of numbers and it is unreasonable to require re-**certification** after an owner has had to alter his sail marks
- If there is a problem with the legibility of the sail marks then this will normally only be apparent at an event. At an event it is simpler where the legibility of sail marks is challenged for it to be dealt with by a race committee and protest committee under the RRS without having the complication of **certification** and **Official Measurers** involved.

It was found that the 2017-2020 Identification on Sails rules of Appendix E contained errors and the 2021-2024 version has repeated those errors. To resolve this situation the IRSA has produced the IRSA Supplementary Class Rules which provide corrected Identification on Sails rules for the IOM and other classes.

This makes the compliance of sail marks a **class rules** issue again, rather than a racing rules issue. However, it remains a Section C rule.

Note that, whereas new sails shall carry two digit numbers (and single digit boat or personal numbers shall carry the preceding '0'), permission remains for existing sails with a single digit to be used at most events provided they were compliant at the time of their certification i.e. the certification of the sail.

end