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# IRSA Guide Notes for IRSA Event Equipment Inspection

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## Contents

# 1 Introduction

These notes give guidance to equipment inspectors, who may form all or part of a technical committee, at IRSA events with the intention of streamlining the process for the mutual benefit of the customers and race committee as a whole.

These notes highlight the procedures thought to be necessary to achieve a basis for a fair competition. They make suggestions that may help improve the experience for the helpers as well as for the competitors who, we should not forget, are the consumers the race committee is serving.

These notes supplement, but do not replace, the excellent International Measurers' Manual produced by WS and available as a download.

International Measurers' Manual
http://www.sailing.org/tools/documents/IMManual2013-%5B14649%5D.pdf

It is essential reading for anyone leading the pre-event equipment inspection process.

## 1.1 Technical Committee - Equipment Inspector – Event Measurer

RRS 60.4 sets out how the technical committee at an event may protest a boat without needing to involve the race committee. This person or persons making up the technical committee should be appointed by the race committee. Ideally they/he/she will **not** be involved with inspecting boats on which they/he/she has performed initial certification control.

See the International Measurer's Manual for an excellent description of the **equipment inspector's** role.

## 1.2 Appoint an overall leader of the Technical Committee

The organising authority or race committee should appoint a single person responsible as chairman of the technical committee. This will enable the organising authority, the race committee and the umpire team to communicate efficiently with the equipment inspection team.

This person should be responsible for ensuring that:

- Sufficient time, helpers and other resources are available
- The helpers are adequately trained
- Specific tasks are delegated as appropriate
- Non-compliant equipment is brought into compliance before racing starts or that the boat is protested under RRS 60.4
- Non-compliance of equipment during the event results in a protest under RRS 60.4.

## 1.3 Why is equipment inspected before an event?

It is not mandatory to inspect the equipment used by any sailors before an event. To enter an event a **boat** shall have a valid **certificate** and the owner or other person in charge shall ensure the **boat** complies with the **class rules**. RRS 78.1.

Nevertheless at major events it is common practice to inspect equipment to a greater or lesser extent to check compliance with the class rules. At a minimum this may be checking that the **certificate** is valid. At the other extreme the whole measurement process used for **certification control** as well as further checks to ensure the boat is not changed beyond what is permitted by Section C of the class rules during the event may be employed.

The intention is to ensure that competitors may have confidence that the equipment used by other competitors at the event is known to comply with the class rules from the outset and continues to comply throughout the event.

It is usual for class rules to prevent substitution of hull, appendages (and the RRS prevent change of ballast and its position). Therefore it is normal for the **equipment inspectors** to place an **event limitation mark** on those pieces of equipment.

Some class rules limit the number of sails and/or rigs used during an event (IOM and M Class). The M, 10R and A Class also have a minimum mainsail luff length. Again, it is normal for an **event limitation mark** to be placed on those pieces of equipment that the owner declares he will use.

### 1.4 Why is equipment inspected during an event?

It is not mandatory to inspect the equipment used by any sailors during an event. However, once pre-event inspection has been undertaken it is normal to make random checks of equipment during the event.

This process, especially if stated in the SIs or carried out conspicuously from the outset, keeps competitors aware of the need to maintain the compliance of their equipment.

Once the compliance of equipment has been established at pre-event inspection it is reasonable that non-compliance is treated as a serious breach of the RRS and penalised accordingly.

### 1.5 When equipment does not comply with the class rules?

It is not acceptable to mark equipment that does not comply with the class rules with **an event limitation mark**.

Do not accept any equipment that exceeds the limitations in the class rules. A 1 mm excess is no more acceptable than a 10 mm excess.

When equipment is not compliant with the class rules the next step is straightforward. Avoid any argument and politely inform the competitor the equipment cannot be given the **event limitation mark** until it is corrected.

## 2 Preparing for pre-event equipment inspection?

### 2.1 What resources are required to carry out equipment inspection?

The tasks that may be carried out and the estimated time to carry out the task accurately by experienced and fully prepared equipment inspectors (minutes) are estimated as follows:

| Check/Class | A | 10R | M | IOM |
|---|---|---|---|---|
| Certificate is valid (checked at registration) | 1 | 1 | 1 | 1 |
| Sail sizes (x mins per suit) | 2 | 3 | 2 | 2 |
| Sail marks (x mins per suit) | 0.5 | 0.5 | 0.5 | 0.5 |
| Rig compliance (x mins per rig) | 2 | 1 | 2 | 1 |
| Number of rigs | 1+2 suits | 5 | 6 | 3 |
| **Time per boat (likely)** | **10** | **23** | **22** | **11** |

| | | | | |
|---|---|---|---|---|
| Weight of fin and ballast | 2 | 1 | 1 | 2 |
| Weight of rudder | - | - | - | 2 |
| Weight of boat | 3 | 2 | 2 | 2 |
| Weight of batteries | 3 | 3 | 3 | 3 |
| Boat number displayed and engraved | 1 | 1 | 1 | 1 |
| Placement of appendages | 1 | 1 | 1 | 1 |
| Placement of internal ballast | - | - | - | 1 |
| Flotation of boat | - | 3 | - | 2 |
| Draught of boat | 1 | 1 | 1 | - |
| Waterline length of boat | 1 | 1 | - | - |
| Other hull measurements | 2 | - | - | - |
| Transmitter aerial protection | 1 | 1 | 1 | 1 |
| Total time (minutes) | 25 | 37 | 32 | 26 |
| **Total time (hours)** | **0.42** | **0.62** | **0.53** | **0.43** |

The number of boats at an event may be around 80 for IOM and M so it will be obvious that efficiencies in carrying out the equipment inspection task are important to minimise the time spent on this process for the mutual benefit of race committee and competitors.

## 2.2 How many people/days are needed for the equipment inspection team?

| This depends on: | | example |
|---|---|---|
| Time to carry out the tasks chosen from the list above | X (hours) | 0.43 |
| Number of competitors | N | 80 |
| Number of helper days available | HD | 5 |
| Number of helpers available | H | 4 |
| Working time available per helper per day | T (hours) | 8 |
| Working days available to complete the task | W (days) | 2 |
| | | |
| Total inspection time required | N x X (hours) | 34.4 |
| Total helper hours available | HD x T | 40 |
| Helper days required | HD = N x X / T | 4.3 |
| Helpers per day required | H = HD / W | 2.2 |
| Working days required to complete the task | W = N x X/ (H x T) | 1.1 |

The example shows 2 people working on one day and 3 people working on one day are sufficient for the task which can be completed in the total time available with a safety factor. However 8 hours is a long working day, the work space has to be prepared, equipment has to be set up, there should be time for checking rules and helpers need to have breaks. There will be multiple cases of sailors whose equipment does not comply and who need to return for re-measurement. Double the number of helpers would be more realistic.

## 2.3 What can possibly go wrong?

### 2.3.1 Competitors do not arrive in good time

If two days are scheduled for measurement but competitors are allowed to check in/register at the event at any time up to the close of those two days it is possible that no one shows up until the last hour.

The Sailing Instructions could require either a) competitor registration by 10 am on the last day for equipment inspection or b) some other inducement for competitors to arrive in good time. Not permitting competitors to race or practice until equipment inspection has been completed is a crude but effective way of encouraging them to arrive early. Perhaps there are better ways to spread the work over the total available time.

In the absence of some requirement for competitors to arrive in good time the equipment inspection team should be prepared to deal with the consequences of late arrivals, either by having surplus helpers and space in the later stages of registration or by being prepared to carry on working until the task is completed.

### 2.3.2 Available working space

The space available to carry out the equipment inspection may be too limited and progress is impeded. Or it may be too far from where boats are stored to make access straightforward.

The space available needs to be appropriate for the number of competitors and equipment inspectors working at any one time. Keep competitors and officials not involved in the process out of the room.

### 2.3.3 Competitors waste time

Often competitors present equipment that is not compliant. This is most usually because they have not maintained the boat in compliance in the time since it was first certified. They fail to take the necessary steps before pre-event measurement and leave it to others to point out what needs rectifying. This wastes everybody's time.

This time wasting can be minimised by triaging the equipment before it is presented for formal checking. Try to arrange to have one helper triage (pre-inspect) each competitor's equipment for obvious failings (sail marks not correct, cross width points on sails missing, limit marks on spars missing, boat number not displayed on deck or permanently marked in hull) before allowing the competitor through to the main process.

### 2.3.4 Competitors and helpers are non-cooperative

A major impediment to timely pre-event checking is caused by non-cooperative helpers and/or competitors. Often these feed off each other. A friendly, helpful, polite, encouraging (but nevertheless firm) approach by the helpers will be appreciated by the competitors. Likewise competitors who are in a positive mood will be appreciated more by the helpers.

A smiling, enthusiastic young lady on the reception desk will engender a more positive response from tired, anxious competitors than will a disinterested, grumpy old man. This may be a sexist and/or ageist stereo-typical portrayal but it is a serious point.

### 2.3.5 Make it easy for the helpers.

Having good facilities for the helpers (solid work benches, chairs, space, tools, time, adequate breaks) will ensure they are able to carry out their tasks well.

Is the work space properly heated or ventilated?

Arranging for someone to provide regular refreshments to the helpers will assist them greatly.

Having a training session where each of the helpers becomes familiar with each step in the process will improve their confidence and ability and will allow substituting for others while they take a break.

### 2.3.6 Have class rules and any interpretations available

Adequate copies of the class rules and any interpretations should be available. Be aware that there are also Q&As on the IRSA website that explain many aspects of measurement/rule compliance.

Be prepared to find that some competitors are more aware of the content of the class rules documentation and best measurement practices than you may be.

### 2.3.7 Avoid criticism of measurement tools

If equipment will be weighed as part of the equipment inspection process then it is essential that calibration weights are available during the process. Certificated scales, even if recently certificated to the highest standard, should not be seen as a substitute for the use of calibration weights of a reasonable standard. Many competitors in an IOM fleet will have access to calibration weights to assist with the maintenance of their equipment. It is unacceptable, therefore, not to have access to the same when checking at an event and their use will normally end any arguments.

The cost of modern scales with a precision/resolution of 1 gram up to 6 kgs and 2 grams up to 40 kilograms is modest – approx. Euro 20 and Euro 60 from www.r-g.de

The cost of calibration weights of sufficient precision for our purposes is also modest. M1 standard quality weights typically are precise to within 0.05 gram per 1 kilogram. The price of a 2 kg M1 standard calibration weight is about £17. The price of a 10 kg M1 standard calibration weight is about £46.

The lower M3 quality standard gives precision of 1 gram per kilogram is not acceptable for our purposes and gives a cost saving of only around 10-15% anyway.

Good quality measurement tapes and rules that read in whole millimetres only will normally be of sufficient accuracy. Cheap DIY standard tapes are known to be inaccurate. It is essential to have access to a certified tape to avoid any doubt in the minds of the owners and/or the jury should any measurements be found to be close to or outside of tolerances. Please see the International Measurers Manual for details.

### 2.3.8 Measurement jigs

Build accurate measurement jigs, as identified in the class rules, or of your own design if not identified in the class rules to assist with the task. For example a super-large pair of dividers can be used to determine if the half height leech point is approximately correctly placed. If it is in doubt then a more accurate method can be used.

### 2.3.9 Use checklists

Arrange for the registration pack for each competitor to contain a check list of tasks to complete to achieve successful pre-event equipment inspection. When it is successfully completed the competitor may return to registration to receive his 'goody' bag. See Appendices 1 and 3 – Competitor check lists.

Ensure the equipment inspectors have and use checklists as an aid to covering each step in their part of the process. See Appendices 2 and 4 – Equipment Inspector check lists.

### 2.3.10 Event limitation marks

It is normal to use event limitation marks to make it clear that equipment has been checked, and to differentiate between equipment that has been checked in for the event and equipment that has not.

Competitors do not appreciate large and/or ugly marks being applied to their equipment. Event limitation marks can be well designed and need not be large – a well designed mark can be as small as 15-20 mm square.

Marblehead class boats may use no more than 6 sail/rig units at an event but owners may possess more than this. Stamping each sail with the event limitation mark helps avoid non-compliance with this rule.

It is normal for the fin to be removable from the hull and the ballast to be removable from the fin. Marking each appendage, and marking the join of the ballast with the fin and the fin with the hull is useful to demonstrate the fin remains in the same attitude.

If the fin is a loose fit in the fin box, or if the ballast is a loose fit on the fin, insist any play is corrected before signing off the check list.

If it looks as if it is possible to change the attitude of the fin in the hull you should record the measurement from, say, the junction of the fin and ballast to the lower tip of the transom.

### 2.3.11 Make it easy for the competitors.

Making it easy for the competitors to progress through the equipment inspection stage and get on with some practice sailing will maximise their co-operation. Competitors appreciate clear information/instructions about the equipment inspection process.

Institute a formal queuing system – at registration give each competitor either an appointment time or a numbered ticket for inspection. Tell the competitors that they should get another appointment time or ticket from the office if they miss their place in the queue. If using numbered tickets you should use the notice board and/or the public address system to notify which numbers (ticket, or boat) should present for the next session.

Many competitors will travel to the event with minimal tools. Having simple tools and materials available for those competitors whose equipment has been referred during the triage stage will assist them in making a smooth passage through the equipment inspection process. A supply of black self adhesive sail material, scissors, felt tip pens, dry marker pens, limit mark tape, sail making materials, eyelets and eyeleting tools, files, hacksaw, drill and bits, etc and a clean, level, dry working space to use them will be appreciated by competitors whose equipment has been rejected.

## 2.4 If the worst happens

If a competitor claims his equipment is compliant even after the equipment inspectors have rejected it, the next step is straightforward. Avoid any argument and politely inform the competitor that you will make a protest under RRS 60.4. Leave the tricky stuff to the jury.

## 2.5 Random inspection during the event

Once the event has started it is generally appreciated by competitors if equipment inspection is carried out from time to time on boats as they leave the sailing area.

As a general rule it is best to make more checks early in the event to signal to the competitors that you are serious about continuing to check. Step up checking again if wind conditions change and cause boats to use other rigs.

Some class rules, mostly the Section C class rules, can only be checked when the boat is in sailing trim. One example of this is the requirement in the IOM, M and A classes for a line projected through the head point and tack point of the headsail to cut the mast at or below the limit mark. There are other Section C rules that can only be checked with the boat rigged for racing.

To avoid accusations of targeting individuals/countries/manufacturers it is wise to choose the boats at random – for example boats placing X and Y in the next heat where X and Y are numbers determined by drawing numbered balls from a bag. The boats to be checked should be boats not taking part in the following heat (unless it is A heat that is being checked). If a boat has indicated it is protesting another boat the inspection team should take the next placed boat instead and check the chosen boat after racing at the next opportunity.

Be aware that IOM, Marblehead and Ten Raters can weigh as much as 50 grams over their original dry weight, even when drained of bilge water, due to condensation or wetting of the interior. An A Class might be 100 grams over weight when drained. You could test this in advance of the event by weighing a selection of boats dry, introducing water into the hull, rotating the boat to wet the inside well, draining the boat carefully and re-testing. Armed with this data you will be confident about challenging a boat that does not give a sensible weight during the event.

If a boat has been drained of a lot of bilge water prior to weighing and weighs within a few grams of the weight recorded in pre-event measurement it will probably be under weight when properly dry.

## 2.6 Feedback

What is missing from this guide? Tell us please.

This guide can be improved if equipment inspectors give feedback after an event. Especially useful would be confirmation of the time taken to check boats along with the checks that are made. Reporting 22 minutes per boat does not mean much unless the report also states which checks were made. Any bad experience can be especially useful for identifying areas that can be improved. It is good to have good feedback too.

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17th October 2017

# Appendix 1 Competitor check list – M Class

## International Marblehead Class – XYZ Championship – NMOP Year

Competitor name _____ Boat No _____ Sail No _____

*Note to equipment inspector – please initial when task successfully completed*

| Task | | Initials |
|---|---|---|
| **Certificate** | | |
| *Competitor – present your certificate to start registration procedure* | | |
| Certificate not valid/not available - proceed to jury | | - |
| Certificate valid - proceed to triage | | - |
| **Triage check** | | |
| *Competitor - present all sails/rigs that you intend to use and the hull (no fin, ballast or rudder required at this stage)* | | |
| Triage is not successful - correct the equipment | | - |
| Triage is successful - proceed to sail/rig inspection | | - |
| **Sail/rig inspection.** | | |
| *Competitor - present all sails/rigs you intend to use at the event.* | | |
| A 1 rig | sail sizes | |
| | sail marks | |
| | limit mark positions | - |
| B 1 rig | sail sizes | |
| | sail marks | |
| | limit mark positions | - |
| C 1 rig | sail sizes | |
| | sail marks | |
| | limit mark positions | - |
| C 2 rig | sail sizes | |
| | sail marks | |
| | limit mark positions | - |
| C 3 rig | sail sizes | |
| | sail marks | |
| | limit mark positions | - |
| B 2 rig | sail sizes | |
| | sail marks | |
| | limit mark positions | - |
| Number of rigs | event marks applied | - |
| Rig inspection is not successful - correct the equipment | | - |
| Rig inspection is successful - proceed to hull inspection | | - |

## International Marblehead Class – XYZ Championship – NMOP Year

Competitor name _____ Boat No _____ Sail No _____

### Hull/boat inspection

*Competitor - present the hull, fin, ballast, rudder.*

Length of hull
Draught of boat
Weight of fin and ballast
Weight of boat
Boat number displayed and engraved

Hull inspection is not successful - correct the equipment -

Hull inspection is successful - proceed to rig height inspection -

### Rig height inspection

*Competitor - present the hull, A1, B1 and C1 rigs.*

A 1 rig - height of lower limit mark above deck
B 1 rig - height of lower limit mark above deck
C 1 rig - height of lower limit mark above deck

Rig height inspection is not successful - correct the equipment -

Rig height inspection is successful - proceed to rc inspection -

### RC equipment inspection

*Competitor - present boat batteries and transmitter,*

Weight of batteries
Protection of aerial

RC equipment inspection is not successful - correct the equipment -

RC equipment inspection is successful - proceed to registration -

### Notes

end

# Appendix 2 Equipment Inspector check list – M Class

## International Marblehead Class – XYZ Championship – NMOP Year

Equipment Inspector check list – use as a prompt list when making checks

**Triage check**

Sail marks (insignia, numbers, national letters) present
Sail leech points present
Spar limit marks present
Hull identification present (displayed on deck, engraved in hull)

**Sail/rig inspection.**

| | |
|---|---|
| Each rig | mainsail head width |
| | mainsail cross widths |
| | mainsail luff perpendicular |
| | lower limit mark to upper limit mark distance |
| | mainsail batten spacing and length |
| | apply event limitation mark(s) |
| Each rig | headsail head width |
| | headsail cross widths |
| | headsail luff perpendicular |
| | headsail luff |
| | headsail batten spacing and length |
| | apply event limitation mark(s) |
| Each rig | insignia present? |
| | sail number – correct number? |
| | sail number – correct height? |
| | sail number – correct spacing? |
| | sail number – single colour? |
| | sail number – legible? |
| | national letters – present? |
| Rigs | no more than six – apply event limitation marks |

**Hull/boat inspection**

| | |
|---|---|
| Length of hull | within limit? |
| Draught of boat | within limit? |
| Weight of fin and ballast | not a class rule but a precaution against change |
| Weight of boat | as above |
| Check fit of fin in hull for absence of movement | is an alternative position possible? |
| Check fit of ballast on fin for absence of movement | is an alternative position possible? |
| Hull | apply event limitation mark |
| Fin | apply event limitation mark |
| Ballast | apply event limitation mark |
| Rudder | apply event limitation mark |

**Rig height inspection**

| | |
|---|---|
| Check height of lower limit mark and compare with certificate | A1, B1, C1 rigs and lower rigs if time |

**RC equipment inspection**

| | |
|---|---|
| Weigh batteries | ensure they are the same weight within a few grams |
| | apply event limitation mark(s) |
| Transmitter aerial | ensure adequate |

more important items marked like this

# Appendix 3 Competitor check list – 10R Class

## International Ten Rater Class – XYZ Championship – NMOP Year

Competitor name _____ Boat No _____ Sail No _____

*Note to equipment inspector – please initial when task successfully completed*

| Task | | Initials |
|---|---|---|
| **Certificate** | | |
| *Competitor – present your certificate to start registration procedure* | | |
| Certificate not valid/not available - proceed to jury | | - |
| Certificate valid - proceed to triage | | - |
| **Triage check** | | |
| *Competitor - present all sails/rigs that you intend to use and the hull (no fin, ballast or rudder required at this stage)* | | |
| Triage is not successful - correct the equipment | | - |
| Triage is successful - proceed to sail/rig inspection | | - |
| **Sail/rig inspection.** | | |
| *Competitor - present all sails/rigs you intend to use at the event.* | | |
| No 1 rig | sail sizes | |
| | sail marks | |
| | limit mark positions | - |
| | rig weight | - |
| No 2 rig | sail sizes | |
| | sail marks | |
| | limit mark positions | - |
| | rig weight | - |
| No 3 rig | sail sizes | |
| | sail marks | |
| | limit mark positions | - |
| | rig weight | - |
| No 4 rig | sail sizes | |
| | sail marks | |
| | limit mark positions | - |
| | rig weight | - |
| No 5 rig | sail sizes | |
| | sail marks | |
| | limit mark positions | - |
| | rig weight | - |
| Number of rigs | event marks applied | - |
| Rig inspection is not successful - correct the equipment | | - |
| Rig inspection is successful - proceed to hull inspection | | - |

## International Ten Rater Class – XYZ Championship – NMOP Year

Competitor name _____ Boat No _____ Sail No _____

### Flotation inspection

*Competitor - present the boat with heaviest rig*

Boat floats with waterline limit marks
at or outboard of waterline endings -

Flotation inspection is not successful - correct the equipment -

Flotation inspection is successful - proceed to hull inspection -

### Hull/boat inspection

*Competitor - present the boat*

Length between waterline limit marks
Draught of boat to limit marks
Weight of fin and ballast
Weight of boat
Boat number displayed and engraved

Hull inspection is not successful - correct the equipment -

Hull inspection is successful - proceed to rig height inspection -

### RC equipment inspection

*Competitor - present boat batteries and transmitter,*

Weight of batteries
Protection of aerial

RC equipment inspection is not successful - correct the equipment -

RC equipment inspection is successful - proceed to registration -

### Notes

end

# Appendix 4 Equipment Inspector check list – 10R Class

## International Ten Rater Class – XYZ Championship – NMOP Year

Event Inspector check list

### Triage check

Sail marks (insignia, numbers, national letters) present
Waterline length limit marks present
Hull identification present (displayed on deck, engraved in hull)

### Sail/rig inspection.

| | |
|---|---|
| Each rig | mainsail cross widths |
| | apply event limitation mark(s) |
| Each rig | headsail cross widths |
| | apply event limitation mark(s) |
| Each rig | insignia present? |
| | sail number – correct number? |
| | sail number – correct height? |
| | sail number – correct spacing? |
| | sail number – single colour? |
| | sail number – legible? |
| | national letters – present? |

### Flotation inspection

| | |
|---|---|
| Waterline endings | inside limit marks? |

### Hull/boat inspection

| | |
|---|---|
| Length between waterline limit marks | complies with certificate? |
| Draught of boat to limit marks | within limit? |
| Weight of fin and ballast | not a class rule but a precaution against change |
| Weight of boat | as above (1994) |
| Weight of boat | complies with certificate? (July 1st 2016 onwards) |
| Check fit of fin in hull for absence of movement | is an alternative position possible? |
| Check fit of ballast on fin for absence of movement | is an alternative position possible? |
| Hull | apply event limitation mark |
| Fin | apply event limitation mark |
| Ballast | apply event limitation mark |
| Rudder | apply event limitation mark |

### RC equipment inspection

| | |
|---|---|
| Weigh batteries | ensure they are the same weight within a few grams |
| | apply event limitation mark(s) |
| Transmitter aerial | ensure adequate |

more important items marked like this