NAUTOR SWAN 45

CLASS RULES

2006

VERSION 06-02, MARCH 2006

This version supersedes version 06/1, October 2005. Except as noted below, no changes of substance are included.

The presentation of the document has changed to be in accordance with the ISAF standard class rules to aid the class adoption as an ISAF recognised class. The primary benefit of this is to aid the sailor to understand which part of the boat's certification they are responsible for. Please therefore pay particular attention to Section C.

In re-presenting these rules, the qualifying requirements for relief and charter helmsmen have changed slightly. Additionally, Rule C.4, Advertising now only permits an NCA to revert to Category A advertising. In practical terms, the effects of both of these are considered to be minimal.

Changes of substance in this version from version 05/1, ie the 2005 Class Rules, are marked by a left marginal bar. Changes include:

- The changes to Rules C.2.2 and C.4 to reflect the wishes of owners as expressed by votes at class meetings during 2005.

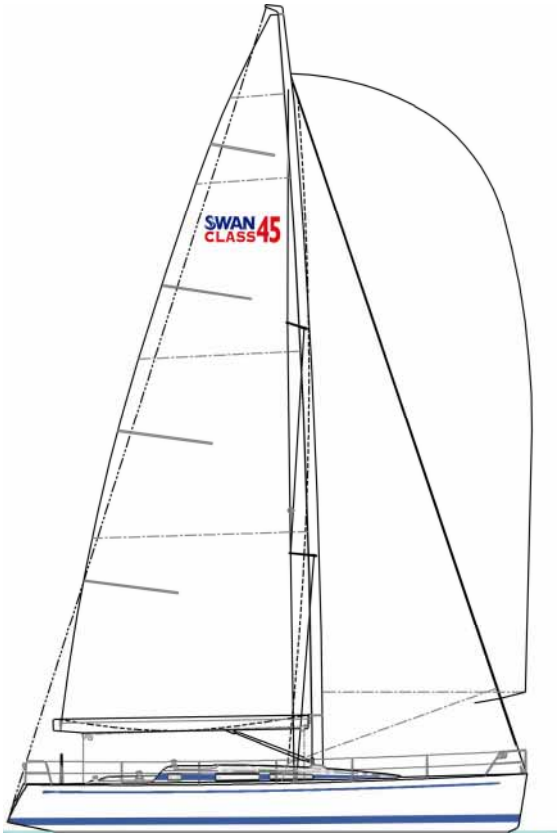
- The changes to Rule C.2.3 to C.2.7 are again intended to reflect the views of owners expressed during 2005, and also to improve the practical working of this rule.

It is intended that this version of the class rules will be substantive with effect from 1st April 2006 for the duration of 2006. However, Nautor and the Swan 45 Class organisation reserve the right to propose any changes that become urgently necessary.

NAUTOR SWAN 45

CLASS RULES 2006

VERSION 06-02, MARCH 2006



The Swan 45 was designed in 2001 by German Frers and was adopted as a recognised class in 2005.

INTRODUCTION

Swan 45 hulls, hull appendages, and rigs are manufacturing controlled to an ISAF approved manufacturing control system.

Swan 45 rigs in part and sails are measurement controlled.

Swan 45 hulls, hull appendages mast and boom shall only be manufactured by Oy Nautor AB, or its licensees, – in the class rules referred to as licensed manufacturers. Equipment is required to comply with the Swan 45 Building Specification.

Swan 45 hulls, hull appendages, and rigs may, after having left the manufacturer, only be altered to the extent permitted in Section C of the class rules.

Owners and crews should be aware that compliance with rules in Section C is NOT checked as part of the certification process.

Rules regulating the use of equipment during a race are contained in Section C of these class rules, in ERS Part I and in the Racing Rules of Sailing except were amended within.

These are closed Class Rules. Anything not specifically permitted by these Class Rules is prohibited. These rules and the official plans are intended to ensure that Swan 45s are as similar as possible as regards shape and weight of hull, deck, keel and rudder, and rig and sail plan and performance. All boats of the Class shall be built in accordance with these rules and the official plans except where variations are specifically permitted.

This introduction only provides an informal background and the Swan 45 Class Rules proper begin on the next page.

PART I – ADMINISTRATION

Section A – General

A.1 LANGUAGE

A.1.1 The official language of the class is English and in case of dispute over translation the English text shall prevail.

A.1.2 The word “shall” is mandatory and the word “may” is permissive.

A.2 ABBREVIATIONS

A.2.1

ISAF	International Sailing Federation
MNA	ISAF Member National Authority
NCA	National Class Association
ERS	Equipment Rules of Sailing
RRS	Racing Rules of Sailing
RORC	Royal Ocean Racing Club
RO	Royal Ocean Racing Club Rating Office
ICA	International Swan 45 Class Association
EC	Executive Committee of the Swan 45 Class Association
OSR	ISAF Offshore Special Regulations (www.sailing.org/specialregs)

A.3 AUTHORITIES

A.3.1 The international authority of the class is ISAF which shall cooperate with the ICA in all matters concerning these **class rules**.

A.3.2 The Class Chief Measurer shall be the RORC RO Technical Manager.

A.3.3 No legal responsibility with respect to these Class Rules, or accuracy of measurement, rests with any certification authority**,** any official measurer, any MNA, or any NCA. No claim arising from these Class Rules can be entertained.

A.4 ADMINISTRATION OF THE CLASS

A.4.1 The EC has delegated its administrative functions of the class to the RO.

A.4.2 The Class Chief Measurer shall be the RORC RO Technical Manager.

A.5 ISAF RULES

A.5.1 These **class rules** shall be read in conjunction with the ERS.

A.5.2 Except where used in headings, when a term is printed in “**bold**” the definition in the ERS applies and when a term is printed in “*italics*” the definition in the RRS applies.

A.6 CLASS RULES VARIATIONS

A.6.1 These Class Rules shall not be varied by notice of race and/or sailing instructions except as provided by A.7.2.

A.6.2 For events other than Swan 45 Class events, notices of race and/or sailing instructions may vary these Class Rules in respect of rules C.1.1 (i), C.2.2, and C.7.1 (a) (i) only. Additionally, for Swan 45 Class events, other than International events, Notices of race may vary Rules C.2.1, C.11.2 (a) and E.1.6 (b) (and consequentially Rule C.12.2).

A.7 CLASS RULES AMENDMENTS

A.7.1 Amendments to these **class rules** shall be proposed by the RO and approved by the EC and ISAF.

A.7.2 An NCA shall not amend these Rules other than Rules C.2.1, C.2.2, C.11.2 (a), C.12.2, and E.1.6 (b), for racing within its jurisdiction other than Area Championships. Any such changes shall be approved by 70% of NCA members and the RO who may impose limitations on their application.

A.7.3 An NCA may prescribe that standard items of equipment need not be carried aboard for racing within its jurisdiction other than Area Championships

A.8 CLASS RULES INTERPRETATION

A.8.1 Interpretation of **class rules** shall be made in accordance with the ISAF Regulations.

A.9 INTERNATIONAL CLASS FEE AND ISAF BUILDING PLAQUE

A.9.1 The licensed hull builder shall pay the International Class Fee.

A.9.2 ISAF shall, after having received the International Class Fee for the hull, send the ISAF Building Plaque to the licensed hull builder.

A.10 SAIL NUMBERS

A.10.1 Sail numbers shall be issued by a boat's MNA.

A.11 CERTIFICATION CONTROL AND EQUIPMENT INSPECTION

A.11.1 ERS Part III shall apply shall apply for equipment inspection.

A.11.2 **Certification control** is conducted by the ICA.

A.12 HULL CERTIFICATION

A.12.1 A **certificate** be issued by the RO and shall record the following information:

(a) Sail number
(b) Owner
(c) Hull identification
(d) Date of issue of initial **certificate**
(e) Date of issue of **certificate**
(f) **Corrector weight** mass
(g) Factory fitted options

A.13 INITIAL CERTIFICATION

A.13.1 For a hull not previously certified the builder shall enter all required details onto the certification control form.

A.13.2 The certification control form, together with any certification fee, shall be sent to the **certification authority**.

A.13.3 Upon receipt of a satisfactorily completed certification control form and the fee the **certification authority** may issue a **certificate**. The **certification authority** shall retain the original certification control form.

A.14 VALIDITY OF CERTIFICATES

A.14.1 A **certificate** becomes invalid upon:

(a) The date of expiry.
(b) Change of ownership.
(c) Other than permitted routine maintenance, any alteration or repair to items required by the certification control form to be measured controlled.
(d) Any alteration to official **corrector weights**.
(e) Withdrawal by the **certification authority**.

A.15 RE-CERTIFICATION

A.15.1 Upon expiry the owner shall apply to the **certification authority** for a new **certificate** together with any re-certification fee that may be required. A new **certificate** shall then be issued to the owner.

A.15.2 Upon change of ownership the new owner shall apply to the **certification authority** for a new **certificate** together with any re-certification fee that may be required. A new **certificate** shall then be issued to the new owner.

A.15.3 Upon alteration or repair to an item required by the certification control form, the relevant item shall be re-checked by an official measurer and the details and any re-

certification fee that may be required shall be sent to the **certification authority**. A new **certificate**, showing the dates of initial and new **certification control**, may then be issued to the owner.

A.15.4 Upon alteration to **corrector weights** the parts shall be re-weighed by an official measurer and the details and any re-certification fee that may be required shall be sent to the **certification authority**. A new **certificate** may then be issued to the owner.

A.16 RETENTION OF CERTIFICATION DOCUMENTATION

A.16.1 The **certification authority** shall retain the original documentation upon which the current **certificate** is based.

Section B – Not in Use

PART II – REQUIREMENTS AND LIMITATIONS

The **crew** and the **boat** shall comply with the rules in Part II when *racing*. In case of conflict Section C shall prevail.

The rules in Part II are **closed class rules**. **Certification control** and **equipment inspection** shall be carried out in accordance with the ERS except where varied in this Part.

Section C – Conditions for Racing

C.1 GENERAL

C.1.1 RULES

(a) RRS 50.4 shall not apply.
A spinnaker is defined as a sail set forward of the foremost mast with **half width** greater than 75% of **foot length**. Any other sail tacked down forward of the foremost mast is a headsail.

(b) ERS Part I – Use of Equipment shall apply except where deleted or amended by these class rules

(c) ERS G.2.2, Leech, shall not apply. MAINSAIL, HEADSAIL and SPINNAKER Leech is defined as: The aft edge.

(d) ERS G.2.3, Luff, shall not apply. MAINSAIL, HEADSAIL and SPINNAKER Luff is defined as: The fore edge.

(e) ERS G.4.2 (c) Head Point, SPINNAKER shall not apply. SPINNAKER Head Point is defined as:

SPINNAKER: The intersection of the leech and the luff, extended as necessary.

(f) SPINNAKER Half Luff Point is defined as: The point on the luff equidistant from the tack and head points.

(g) ERS G.7.1(b), Spinnaker Foot Length, shall not apply. SPINNAKER Foot Length is defined as: The distance between the clew point and the tack point.

(h) ERS G.7.5(b), Spinnaker Half Width, shall not apply. SPINNAKER Half Width is defined as: The distance between the half leech point and the half luff point.

(i) The Offshore Special Regulations Category 4.

C.2 CREW AND HELMSMAN

C.2.1 LIMITATIONS

The **crew** shall consist of no more than 4 persons either unclassified or classified as Group 3 under ISAF Regulation 22, Sailor Classification. All other **crew** shall hold a valid Group 1 or Group 2 classification.

C.2.2 WEIGHT

The total weight of the **crew** dressed in shorts and shirt shall not exceed 950 kg. The Race Committee may weigh a **crew** before and/or during an event.

C.2.3 HELMSMAN

(a) The Swan 45 Class is an 'Owner Driver' Class. The provisions below for helmsmen other than bone fide owners are included solely:

(i) to provide for relief helmsmen during a race.

(ii) to accommodate charterers.

(iii) to provide for an owner or charter helmsman unavoidably absent for part of an event.

(b) Boats shall be helmed by their bone fide owners, except as provided below.

(c) Exceptionally, in emergency boats may be helmed by any **crew** member.

C.2.4 RELIEF HELMSMEN.

(a) An owner or charterer may request permission for relief helmsmen in writing to the Class Manager a minimum of 14 days before a race. In approving relief

helmsmen, the Class Manager will consult with the owners panel defined by C.2.7 below.

(b) A relief helmsman is defined as: A member of the crew, currently classified as ISAF Group 1 and who in the last 5 years has only been classified as Group 1, or would have been so classified had he held a classification, nominated by the owner or charterer to helm the boat as permitted by Rules C.2.4 (c) and (d).

(c) Except as provided by Rules C.2.3 (c), C.2.4 (e), and C.2.6, in a race with a time limit up to 4 hours a relief helmsman shall not helm the boat:

(i) at the start or finish of a race.

(ii) at any mark rounding.

(iii) for more than a total of 20 minutes.

(d) Except as provided by Rules C.2.3 (c), C.2.4 (e), and C.2.6, in a race with a time limit of more than 4 hours, the boat shall be helmed by her bona fide owner or charter helmsman for the first hour of the race. Thereafter the boat may alternatively be helmed by any previously approved relief helmsmen.

(e) Notices of race may modify Rules C.2.4 (c) and (d).

C.2.5 CHARTERS

(a) Charter helmsmen shall request permission to helm in writing to the Class Manager a minimum of 14 days before a race. In approving charter helmsmen, the Class Manager will consult with the owners panel defined by Rule C.2.7.

(b) A charter helmsman shall:

(i) be Classified Group 1 under the ISAF Sailor Classification Code.

(ii) in the last 5 years have only been classified as Group 1, or would have been so classified had he held a classification.

(c) The owner of a Swan 45 may not race in the Swan 45 Class at the Swan 45 World Championships, Gold Cup or at a Swan 45 Area Championship event at which his boat is racing under charter.

(d) A charter helmsman, other than one who is the bone fide owner of a Swan 45, shall not helm a boat at the Swan 45 World Championships, Gold Cup or at more than two Swan 45 Area Championship events in any one calendar year.

C.2.6 OWNER OR CHARTER HELMSMAN ABSENT

In the unavoidable absence of an owner or previously approved charter helmsman:

a) at the Swan 45 World Championships, Gold Cup or at a Swan 45 Area Championship event, a previously approved relief helmsman may helm the boat for races on not more than one day.

b) at other events, an owner or charterer may request permission from the protest committee for a previously approved relief helmsman to helm the boat as necessary.

c) at all events, if no relief helmsman has been previously approved, then approval for a relief helmsman shall first be sought from the Class Representative (who shall be a member of the Executive Committee) using the criteria defined by rule C.2.4 (b).

C.2.7 OWNERS PANEL

(a) At events other than the Swan 45 World Championships, Gold Cup or a Swan 45 Area Championship event, any dispute concerning a helmsman shall be referred to a panel of a minimum of three owners appointed by the NCA. At the Swan 45 World Championships, Gold Cup or at a Swan 45 Area Championship event, the panel shall be appointed by the EC and may additionally include members of the EC in an advisory but non voting capacity.

(b) In considering applications for permission as a relief or charter helmsman, the panel:

(i) Shall confirm eligibility under Rules C.2.4 (b) or C.2.5 (b).

(ii) May consider and use any other facts that it considers relevant.

(c) Any owner or charterer may request a review of the eligibility of any helmsman. In considering such reviews, the panel:

(i) Shall if relevant confirm eligibility under Rules C.2.4 (b), C.2.5 (c), and C.2.6.

(ii) Shall if relevant consider and confirm bone fide ownership or charter.

(iii) May consider and use any other facts that it considers relevant.

(iv) Shall in accordance with ISAF Regulation 22 consult with the ISAF Sailor Classification Commission before rejecting any helmsman on the grounds that his current classification is incorrect.

(d) Panel findings shall be final and shall not be subject to review by any other body.

(e) Race results prior to any panel finding shall be unaffected, except that when the panel finds that there may have been a gross breach of good manners or sportsmanship, it shall report its findings to the protest committee. All panel findings shall be reported to the RO.

(f) The Race Committee shall post the names and ISAF Registration Numbers of all helmsmen on the Official Noticeboard at an event.

C.3 PERSONAL EQUIPMENT

C.3.1 There are no restrictions on personal equipment

C.4 ADVERTISING

C.4.1 LIMITATIONS

Racing under these Class Rules is ISAF Regulation 20, Advertising Code, Category C, limited to the extent that competitor advertising on the hull is only permitted on the transom. This rule may be modified to ISAF Regulation 20, Advertising Code, Category A by an NCA for racing within it's jurisdiction other than Area Championships.

C.5 CLASS ASSOCIATION MEMBERSHIP

C.5.1 The owner (or charterer) shall be a current member of the Swan 45 Class Association.

C.6 PORTABLE EQUIPMENT

C.6.1 MANDATORY

(a) FOR USE

(i) A second anchor. The minimum combined weight of anchor and chain for the main anchor shall be 32 kg and for the second anchor 12 kg.

C.6.2 OPTIONAL

(a) FOR USE

(i) There are no restrictions on portable equipment except where stated in these **class rules**.

(ii) Any item of internal equipment listed by Rule D.4.1 (b) Optional Equipment, may be carried. Boats wishing to fit equipment of similar function and weight may apply to the RO for dispensation. No other fixed items of internal equipment may be carried. Boats wishing to fit additional equipment may apply to the RO for dispensation.

C.7 BOAT EMPTY WEIGHT

C.7.1 The "empty" condition is defined as fully rigged with **mast**, **boom**, one **spinnaker pole**, standing rigging, halyards, main sheet and vang. All other loose equipment including but not limited to **sails**, sheets and loose deck gear, safety equipment, anchors, fuel, water, food, catering utensils, personal effects, and tools shall be removed. Fixed extras such as generators, watermakers, electronic equipment etc. may be left aboard and shall be recorded on the certification control form.

C.7.2 Minimum weight in empty condition shall be 9850 kg.

C.7.3 Following weighing in empty weight condition by an official measurer, removal of any corrector weights shall invalidate the certificate. A new certificate shall be issued in accordance with Rule A.14.1 (d).

C.8 HULL

C.8.1 MODIFICATIONS, MAINTENANCE AND REPAIR

(a) With the exception of normal maintenance, which includes painting and minor repairs, no modifications are permitted to the hull external surface. The gelcoat surface shall not be removed except by light sanding prior to painting.

(b) Routine maintenance such as painting and polishing to the hull and deck is permitted without new **certification control** and re-**certification**.

(c) The minimum specification of internal equipment and fitout, engine, strut drive and propeller is defined by D.4.1(a). No item shown shall be moved or removed. Modifications to required internal equipment are permitted provided that the weight of the item is not reduced, except that with the exception of fairing, no modifications shall be made to the strut drive or propeller.

C.8.2 FITTINGS

(a) The minimum specification of deck equipment and fitout is defined by Nautor drawing 1-20-0849, revision G, 17.01.2003, '45 DECK ASSEMBLY'. No item shown shall be moved unless specifically listed. Modifications to or replacement of required deck equipment is permitted provided that the weight of the item is not reduced. With the exception of linked or pedestal winch systems, any other item of deck equipment may be fitted. The location of the following items is optional:

(i) Bulls eye fairleads (Item No. 4)

(ii) Aft guy blocks (Item No. 11)

(iii) Pad eyes (Item No. 13)

(iv) Tweeker blocks and cleats (Item No. 14)

(v) Dorade box (Item No. 52)

(vi) Foot rest (Item No. 53)

(vii) Pad eyes for outboard sheeting (Item No. 55)

(viii) Swivel bases, blocks and cleats for foreguy and vang (Item No. 56)

(ix) Vang turning blocks (Item No. 57)

(x) Furling line clutch (Item No. 67)

(xi) Headsail inhaul padeye (Item No. 71)

(xii) Winch handle holder (Item No. 73)

C.9 HULL APPENDAGES

C.9.1 MODIFICATIONS, MAINTENANCE AND REPAIR

(a) **Keel** and **Rudder** fairing and painting is permitted without new **certification control** and re-**certification** provided that the minimum dimensions detailed by Appendices 2 and 3 are met.

C.10 RIG

C.10.1 MODIFICATIONS, MAINTENANCE AND REPAIR

(a) No component may be moved or modified. Replacement components may be from any source provided that the weight of the component is not reduced.

(b) Materials for running rigging are optional.

C.10.2 MAST

(a) DIMENSIONS

(i) two **limit marks** of minimum width 25 mm shall be indelibly marked around the mast.

(i) With the mast jacked up, the upper edge of the **lower limit mark** shall not be more than 1800 mm above the **mast datum point** (see F.1.4 (a))..

(ii) The lower edge of the **upper limit mark** shall not be more than 18660 mm above the upper edge of the **lower limit mark**.

C.10.3 BOOM

(a) DIMENSIONS

(i) An **outer limit mark** of minimum width 25 mm shall be indelibly marked around the boom.

(ii) The fore edge of the **outer limit mark** shall not be more than 6660 mm from the aft face of the mast **spar**.

C.10.4 STANDING RIGGING AND RIG POSITION

(a) DIMENSIONS

(i) Headstay length measured between the pin centres of the headstay tangs on the bow and the mast shall not be more than 19500 mm.

(ii) The horizontal distance measured from the front face of the mast **spar** at deck level to the centre of the headstay projected as necessary shall not be more than 5400 mm.

(b) USE

(i) shrouds and headstay shall not be adjusted.

(ii) the mast **spar** position at deck level shall not be adjusted.

(iii) The mast heel shall be securely fixed and shall not be adjusted in any plane.

C.10.5 RUNNING RIGGING

(a) USE

(i) The masthead spinnaker halyard shall not be used and may be removed.

C.10.6 SPINNAKER POLE

(a) MANUFACTURER

(i) Manufacturer is optional.

(b) MATERIALS & CONSTRUCTION

(i) The **spar** may be of any material.

(c) FITTINGS

(i) Fittings are optional.

(d) DIMENSIONS

(i) The length of the **spinnaker pole** measured on or near the centreplane of the boat from the forward face of the mast **spar** to the extremity of the **spinnaker pole** shall not exceed 5440 mm.

(e) WEIGHT

(i) The weight of a **spinnaker pole** shall not be less than 7 kg.

C.10.7 JOCKEY POLE

(a) MANUFACTURER

(i) Manufacturer is optional.

(b) MATERIALS & CONSTRUCTION

(i) The **spar** may be of any material.

(c) FITTINGS

(i) Fittings are optional.

(d) DIMENSIONS

(i) The length of the jockey pole measured between the extremities of the pole shall not be greater than 5440 mm.

C.11 SAILS

C.11.1 MODIFICATIONS, MAINTENANCE AND REPAIR

(a) Routine maintenance is permitted without new certification control and re-**certification**.

C.11.2 LIMITATIONS

(a) Not more than 1 mainsail, 5 headsails, and 4 spinnakers shall be carried aboard. Additionally, unlimited OSR Heavy Weather jibs, OSR Storm Jibs, and OSR Storm Trysails may be carried aboard.

(b) Unless otherwise prescribed by a Notice of race, no more than one set of sails may be measured in for an event.

C.11.3 MAINSAIL

(a) IDENTIFICATION

The sail numbers and national letters shall comply with the RRS.

C.11.4 SPINNAKERS

(a) IDENTIFICATION

The sail numbers and national letters shall comply with the RRS.

Section D – Hull

D.1 GENERAL

D.1.1 RULES

(a) The **hull** shall comply with the **class rules** in force at the time of initial **certification.**

D.1.2 CERTIFICATION

(a) See A.13

D.1.3 IDENTIFICATION

(a) The hull shall carry the ISAF Plaque permanently displayed.

D.1.4 BUILDERS

(a) The sole builder of Swan 45s is Oy Nautor AB.

D.2 HULL, DECK, BULKHEADS, INTERIOR FITOUT

D.2.1 MATERIALS & CONSTRUCTION

(a) Swan 45s shall only be built from approved Class moulds in accordance with these **class rules** including the official plans and specifications as detailed by Appendices 1 to 5.

(b) The hull shape shall comply with Appendix 1.

D.2.2 CONSTRUCTION

(a) The hull deck and bulkheads shall be built In accordance with the construction drawings.

D.3 ASSEMBLED HULL

D.3.1 INTERIOR FITTINGS

(a) MANDATORY

(i) The minimum specification for internal equipment is as shown by Nautor drawings 3-51-1257D, 'Installations 2-Cabins', 26.04.2002, and 3-51-1258D, 'Installations 3-Cabins', 26.04.2002.

(ii) The strut drive is Volvo Penta MS25S.

(iii) The propeller is Flex-o-fold 2-blade 17"x13" LH Racing.

(b) OPTIONAL

The following items of equipment are optional:

		Drawing No. 3-51-1257D	Drawing No. 3-51-1258D
	Item	Item No.	Item No.
(i)	Seawater foot pump	36	22
(ii)	Fridge compressor	19	20
(iii)	Accumulator tank	15	16
(iv)	Pre filter	14	15
(v)	Feed pump	13	14
(vi)	Spectra membrane	11	12
(vii)	Spectra clark pump	10	11
(viii)	Fuel/water tank	34	8
(ix)	Fuel/water deck fill	33	7
(x)	Cabin heater	1	1
(xi)	Adapter for Borescope	45	47
(xii)	3-way valve Jabsco	43	42

(xiii)	Drinking water purifier	35	36
(xiv)	Deck shower	30	34

(xv) The approved list of optional equipment is as defined by Nautor document ‘List of Optional Equipment. Swan 45', January 2002, updated November 2003.

(xvi) Weed cutters/deflectors may be fixed to the hull surface immediately forward of the rudder and keel. No dimension of a weed cutter/deflector may exceed 0.075 m. Weed cutters/deflectors shall have no moving parts.

(xvii) The door separating the saloon from the fore cabin may be removed and need not be carried aboard.

D.3.2 DECK FITTINGS

(a) MANDATORY

The minimum specification of deck equipment is as shown by Nautor drawing 1-20-0849, revision G, 17.01.2003, ’45 DECK ASSEMBLY', with the exception of those items listed as optional

D.3.3 FACTORY WEIGHT

(a) The completed hull and deck, including all internal equipment, engine, strut drive and propeller, deck equipment, keel, and rudder shall be weighed as Factory Weight. Minimum factory weight shall be 9490 kg.

D.9.4 HULL CORRECTOR WEIGHTS

(a) The weight of the boat shall be brought up to minimum Factory Weight by the installation of forward and aft lead **corrector weights** in the positions shown by Appendix 4. Forward and aft corrector weights shall be approximately equal in weight.

(b) The builder shall record Factory Weight and the weight of **corrector weights** fitted.

Section E – Hull Appendages

E.1 KEEL AND RUDDER

E.1.1 RULES

(a) The **keel** and **rudder** shall comply with the **class rules** in force at the time of the **certification**.

E.1.2 CERTIFICATION

(a) The **keel** weight shall be recorded on the **certificate**.

E.1.3 MANUFACTURERS

(a) Manufacturers of hull appendages shall be licensed by Oy Nautor AB.

E.1.4 MATERIAL & CONSTRUCTION

(a) The keel shall be built in accordance with the manufacturing specification

E.1.5 DIMENSIONS

(a) Keel and rudder shapes may be checked at any time by an official measurer. No dimension shall be less than shown by Appendices 2 and 3.

(b) The keel and rudder shall be located as shown by Appendices 2 and 3. The builder shall record the keel position on the certification control form.

(c) Maximum keel draft, as shown by Appendix 2 shall be recorded on the certification control form by the builder.

E.1.6 WEIGHTS

(a) The keel, excluding removable bulb ballast, keel nuts and washers, shall weigh minimum 3870 kg and maximum 3950 kg. The builder shall weigh the keel and record the weight on the certification control form.

(c) The rudder shall weigh not less than 33 kg. The builder shall weigh the rudder, and record the weight on the certification control form.

Section F – Rig

F.1 GENERAL

F.1.1 RULES

(a) The **spars** and their fittings shall comply with the **class rules** in force at the time of **certification** of the **spar**.

(b) The standing and running **rigging** shall comply with the **class rules**.

F.1.2 MODIFICATIONS, MAINTENANCE AND REPAIR

(a) The **mast** and **boom** shall comply with Appendix 5. No component may be moved or modified.

F.1.3 CERTIFICATION

(a) Builders shall certify that the mast and boom and ancillary components comply with the approved Swan 45 mast and boom construction and material specifications and drawings held by Oy Nautor AB.

F.1.4 DEFINITIONS

(a) MAST DATUM POINT

The **mast datum point** is the forward face of the mast at sheerline height measured at 45^0 to the horizontal abreast the mast **spar**.

F.1.5 MANUFACTURER

(a) Builders of Swan 45 **masts** and **booms** shall be licensed by Oy Nautor AB.

(b) The **mast**, standing rigging and **boom** shall comply with Nautor drawing 1-81-3218 revision C 20-11.2003, 'SAILPLAN', and the dimensions in Appendix 5.

F.2 MAST

F.2.1 MATERIALS & CONSTRUCTION

(a) The **spar** shall be constructed in accordance with the construction drawings.

F.2.2 DIMENSIONS

	Minimum (mm)	Maximum (mm)
Mast athwartships dimension at **lower limit mark**	133	136
Mast fore and aft dimension at **lower limit mark**	272	275
Mast athwartships dimension at **upper limit mark**	103	106
Mast fore and aft dimension at **upper limit mark**	142	145
Butt below **mast datum point**	1465	1475
Spreader 1 above **mast datum point**	6950	6960
Spreader 2 above **mast datum point**	13100	13115
D3 above **mast datum point**	18890	18905
Headstay pin above **mast datum point**	18660	18675
Upper spinnaker halyard above **mast datum point**	20690	20705
Masthead above **mast datum point**	20775	20990

F.2.3 WEIGHT

(a) The builder shall weigh the mast in the following condition:

(i) Fully rigged with all shrouds, headstay, backstay, spreaders, lights, antennae, instrument sensors, displays and brackets, wiring and all permanently attached fittings.

(ii) All halyards, running rigging and associated loose blocks and tackle shall be removed. Messengers of not more than 4mm diameter and long enough to replace the internal portions of running rigging may be used.

(iii) All fittings and standing rigging shall be in their normal positions with standing rigging pulled taut down the rig. Moveable items, such as spinnaker pole heel cars shall be at their lower limit of travel.

(b) The centre of gravity of the **mast** in the condition as in (a) shall not be less than 6800 mm above the upper edge of the **lower limit mark**.

(c) The weight of the **mast** in the condition as in (a) shall not be less than 285 kg.

F.3 BOOM

F.3.1 FITTINGS

(a) MANDATORY

As per the manufacturing specification.

F.3.2 DIMENSIONS

As per the manufacturing specification

F.3.3 WEIGHT

(a) The builder shall weigh the **boom** in the following condition:

(i) Fully rigged including outhaul.

(ii) All reef lines shall be removed. Messengers of not more than 4mm diameter and long enough to replace the internal portions of reef lines may be used.

(b) The weight of the **boom** in the condition as in (a) shall not be less than 43 kg.

Section G – Sails

G.1 GENERAL

G.1.1 RULES

(a) **Sails** shall comply with the **class rules** in force at the time of **certification**.

G.1.2 CERTIFICATION

(a) The official measurer shall **certify** mainsails and headsails in the **tack** and spinnakers in the **head** and shall sign and date the **certification mark**.

(b) The RO may appoint one or more persons at a sailmaker to measure and **certify sails** produced by that manufacturer

G.1.3 SAILMAKER

(a) **Sails** may be manufactured by any sailmaker.

G.1.3 CONSTRUCTION

(c) **Sail** construction is free provided it does not involve

(i) Artificially thickened areas (eg foamed sails)

(ii) Multiple surfaces whether inflated by the action of the wind or otherwise.

G.2 MAINSAIL

G.2.1 IDENTIFICATION

(a) The class insignia shall conform with the dimensions and requirements as detailed in the diagram available from the class manager and be placed in accordance with the diagram shown in Appendix 6.

G.2.2 CONSTRUCTION

(a) The construction shall be: **soft sail**.

(b) Any number and length of battens may be used.

(c) The following are permitted: Stitching, glues, tapes, bolt ropes, corner eyes, headboard with fixings, Cunningham eye or pulley, **batten pocket patches**, batten pocket elastic, batten pocket end caps, mast and boom slides, leech line with cleat, windows, tell tales, sail shape indicator stripes.

G.2.3 DIMENSIONS

Mainsail dimensions shall not exceed:

(a) **Top Width** (HB) 266 mm

(b) **Three quarter width** (MTW) 2800 mm

(c) **Half width** (MHW) 4530 mm

G.3 HEADSAILS

G.3.1 CONSTRUCTION

(a) The construction shall be: **soft sail**.

(b) The following are permitted: Stitching, glues, tapes, bolt ropes, corner eyes, headboard with fixings, Cunningham eye or pulley, **batten pocket patches**, batten pocket elastic, batten pocket end caps, leech line with cleat, windows, tell tales, sail shape indicator stripes.

G.3.2 DIMENSIONS

Headsail dimensions shall not exceed:

(a) **Luff length** (LL) 19000 mm

(b) **Luff Perpendicular** (LP) 5760 mm

(c) **Half width** (HHW) 3080 mm

G.4 SPINNAKER

G.4.1 CONSTRUCTION

(a) The construction shall be: **soft sail**.

(c) The following are permitted: Stitching, glues, tapes, corner eyes, tell tales, sail shape indicator lines.

G.4.2 DIMENSIONS

(a) The maximum spinnaker area shall not exceed 153 m^2.

(b) Spinnaker area shall be calculated as follows:

Spinnaker Area = ((SLU + SLE)/2) * ((SF + (4 * SHW))/5) * 0.83

SLU	=	**Spinnaker Luff Length**
SLE	=	**Spinnaker Leech Length**
SHW	=	**Spinnaker Half Width**

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PART III – APPENDICES

Dimensions, Weights and Equipment

Appendix 1 Hull Rocker

The builder shall record the height of 5 points on the hull centreline as H1, H4, H6, H8, H10 at stations 1, 4, 6, 8 and 10 as shown below. The heights shall fall within the tolerances in Table A1.1.

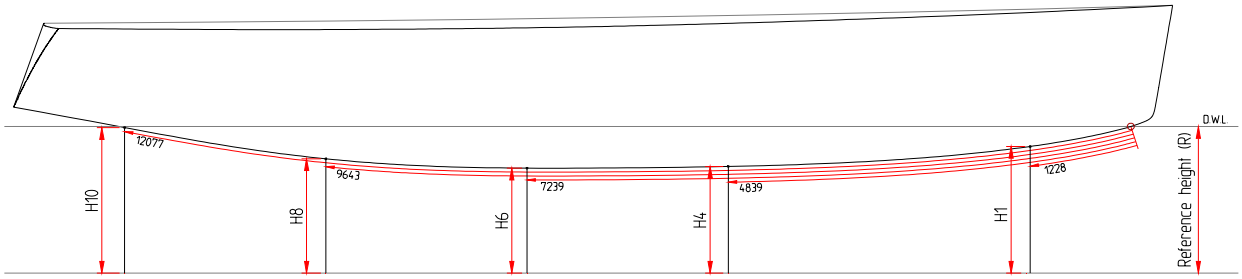


Table A1.1

Station	Min. [mm]	Rocker (R-H) [mm]	Max. [mm]
1	243		263
4	499		519
6	515		535
8	398		418
10	004		024

Appendix 2 Keel

The keel shall be located and shall have draft within the tolerances defined by Table A2.1.

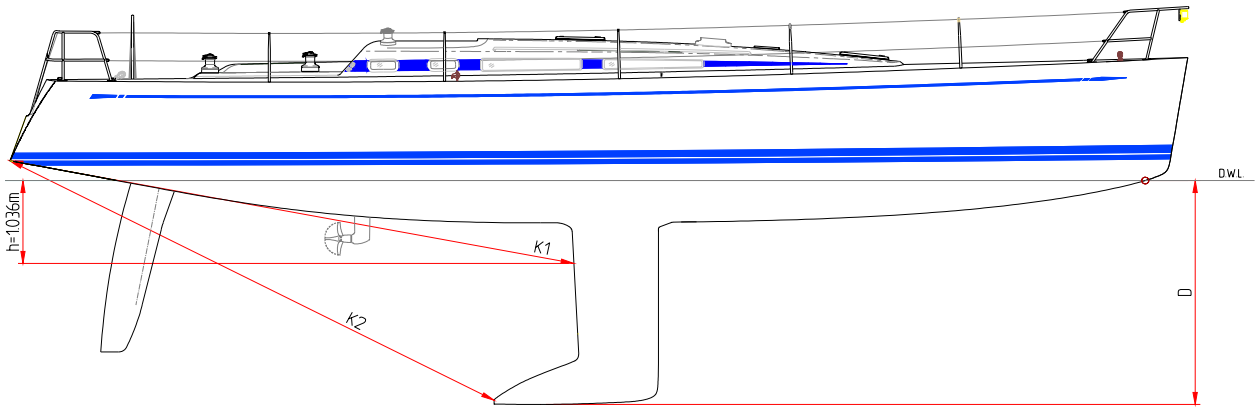


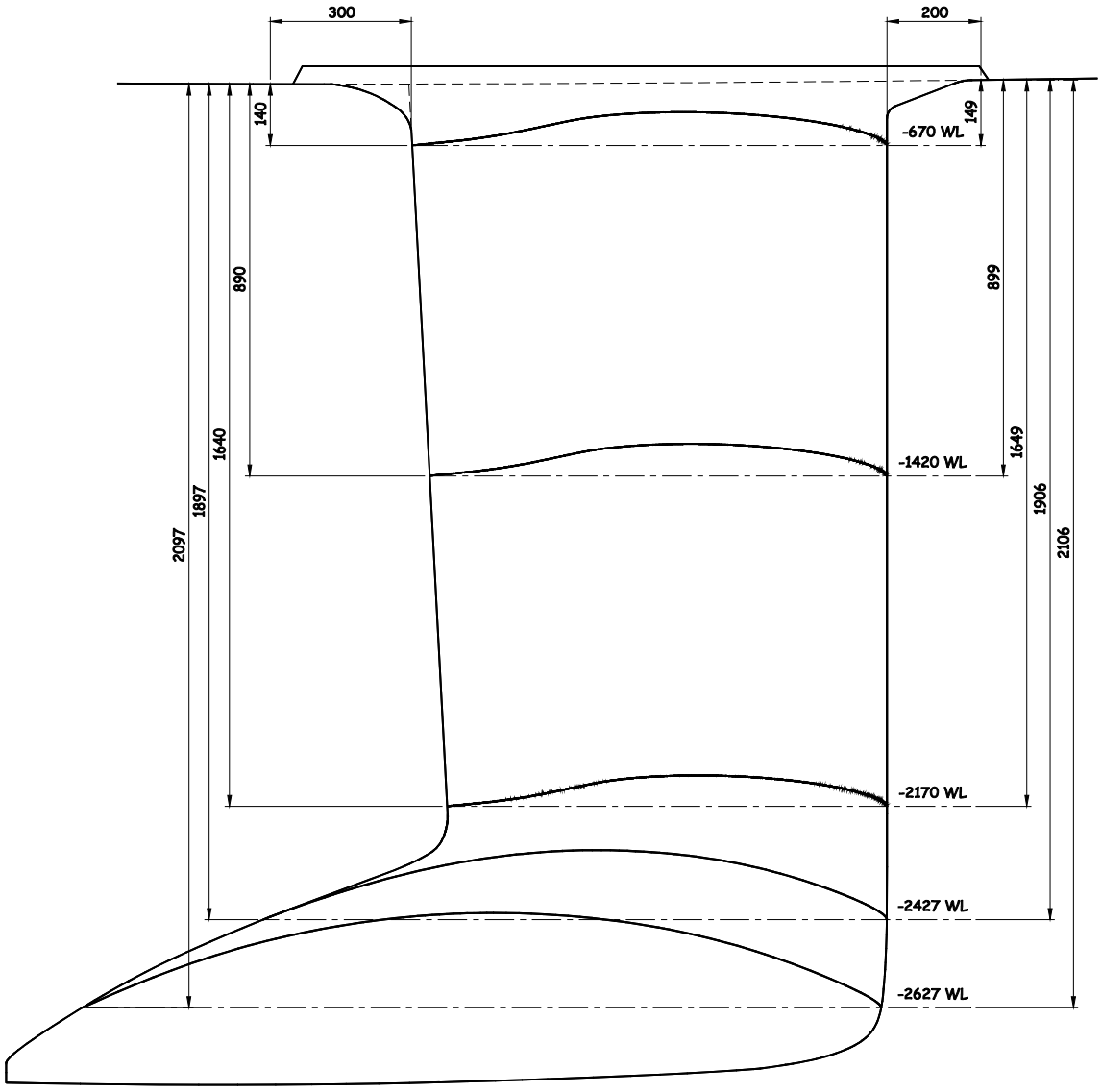
Table A2.1

	Min. [mm]	Measurement [mm]	Max. [mm]
K1	6670		6730
K2	6350		6415
D	2790		2820

Table Of Keel Offsets

Chords and half breadths in millimetres.
Chord lengths and chord sections are minima.

Section	Chord Length	100%	90%	80%	70%	60%	50%	40%	30%	20%	10%
-670 WL	1010	001	011	027	049	067	074	076	071	061	044
-1420 WL	973	001	011	026	047	064	072	073	069	059	042
-2170 WL	935	001	010	025	045	062	069	070	066	057	041
-2427 WL	1327	000	051	093	126	147	157	155	142	115	073
-2627 WL	1700	000	077	137	179	205	215	209	189	151	092

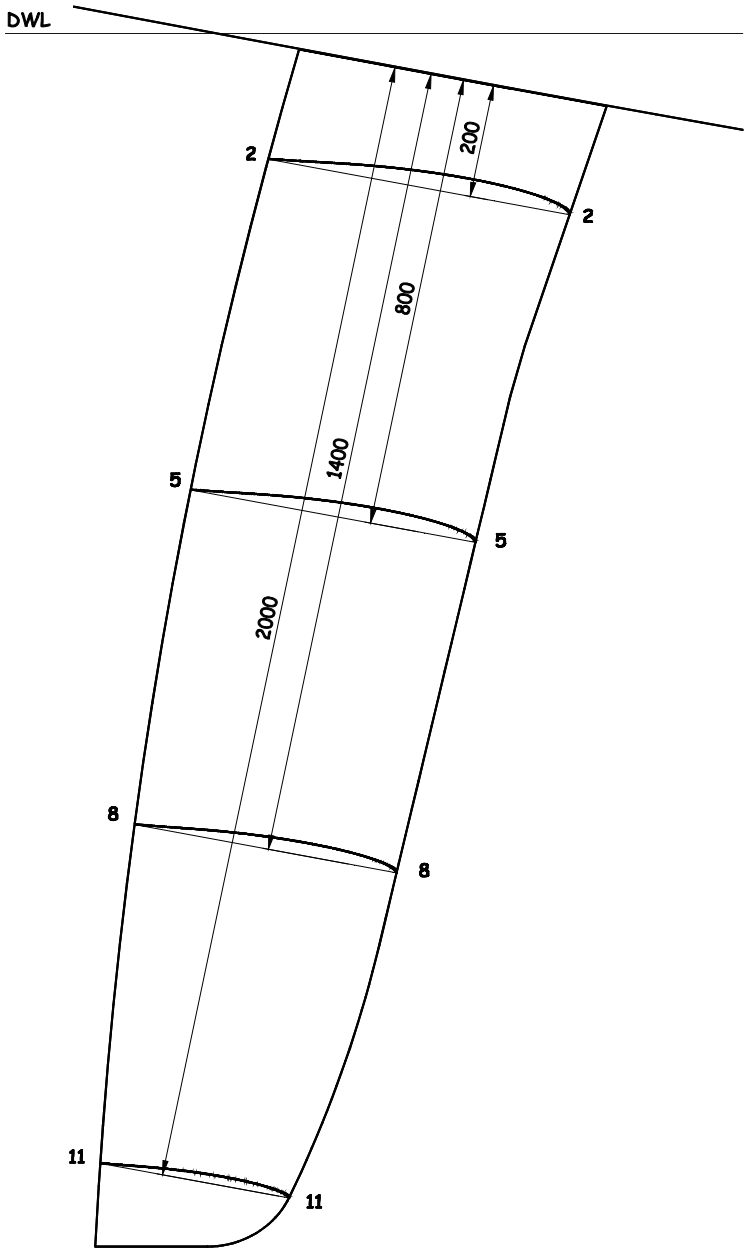


Appendix 3. Rudder

Table Of Rudder Offsets

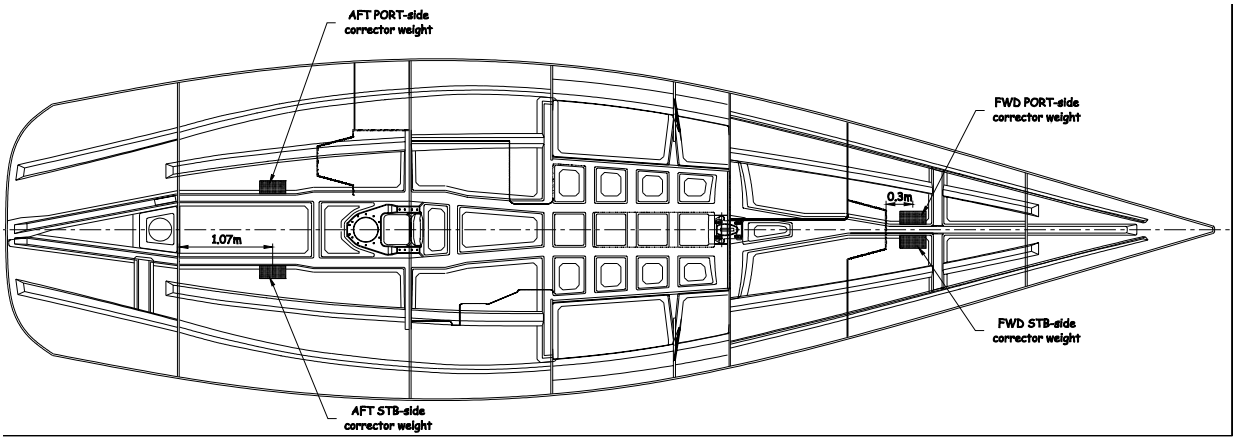
Chords and half breadths in millimetres.
Chord lengths and chord sections are minima.

Section	Chord Length	100%	90%	80%	70%	60%	50%	40%	30%	20%	10%
2-2	510	001	007	014	020	025	029	030	030	028	022
5-5	482	001	006	012	018	023	026	027	028	025	020
8-8	443	001	005	010	015	019	022	023	023	021	017
11-11	319	001	004	007	010	013	015	016	016	015	011



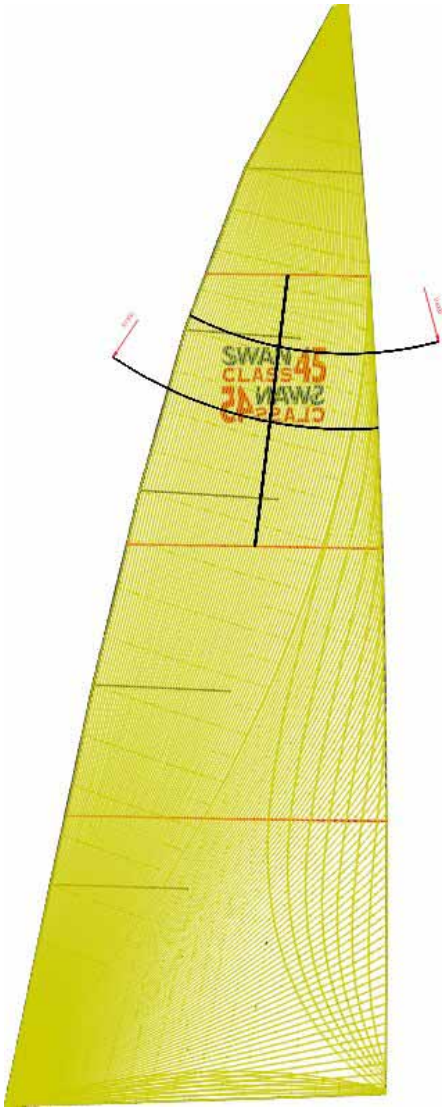
Appendix 4. Corrector Weight Positions

Forward and aft corrector weights shall be located as shown by Nautor drawing 3-11-0545



Appendix 5. Class Insignia

The Class insignia shall be placed on both sides of the mainsail between arcs of radius 6.00m and 7.30m measured from the head of the sail with the centres of the insignias on the centre line of the sail. The top of the starboard logo shall be on the 6.00m arc and the bottom of the port logo on the 7.30m arc as shown below.



APPENDIX 6 - CHAMPIONSHIP RULES

While competing in a class event the following shall apply.

A6 SUPPORT BOATS

A6.1 Except in emergency, while racing under these Class Rules:

(a) Individual support or coach boats shall not have contact of any nature either by radio, telephone, vocal signal, visual signalling of any kind i.e. tactical placement, flags and/or different colours of clothing, or the transfer of equipment, persons or victuals, with a boat from the time the boat leaves the dock each day until the boat has finished racing for the day.

(b) Individual support or coach boats shall not approach closer than 100 metres to any boat that is racing, except at a mark rounding or the finish where they shall not approach closer than 30 metres to the mark or finish line.

(c) At the Warning Signal individual support or coach boats shall leave the area being used by the boats and may station themselves outside of either the committee boat or the start line outer distance mark, but no closer to either end than 30 metres.

(d) Infringements of this rule will result in a penalty to the boat associated with the support boat and may be either place penalties or disqualification at the discretion of the protest committee.