PART V – PREPARATION FOR MEASUREMENT

FREEBOARD MEASUREMENT PROCEDURE

To secure an accurate and fair measurement, it is necessary to have close co-operation between owner and Measurer. It is desirable, therefore, that the owner be reasonably familiar with the requirements below.

5.01 Hull Measurement Ashore.

The hull and appendage measurements (Part VI) and propeller installation measurements (Part VII) shall be taken ashore with the yacht exactly level athwartships and approximately in the same longitudinal trim which it might reasonably be expected to assume when afloat in measurement trim.

5.01.1 The yacht shall be presented for measurement ashore in an accessible location, clear of obstructions (see 5.01.2 below), properly and firmly chocked and leveled as above. The weight of the yacht shall rest on the keel except as is necessary to chock the hull as above. A centerboard locked to prevent movement for racing shall be in its locked position and measured as a keel. Rigging shall be slack. All appendages shall be fitted and any fairings, as permitted under 2.03.7.3, shall be in place.

5.01.2 The hull will be surveyed with a Hull Measuring Instrument (HMI) or approved laser scanner (LS). In either case the machine will be set abeam the hull and relocated fore and aft along the length of the hull, both port and starboard. Measurement points will be recorded from the deepest part of the hull or appendage up to the sheer line.

5.01.3 Clearance for the operation of the HMI or LS must be provided around the hull, in the construction of the cradle and the means of supporting the keel. Nominally, clear areas (including the ground surface) are required 1.5m (4 ft) forward and abaft the hull and 2.0m (6 ft) on either side of the hull. With some HMIs the minima are 60cm (2 ft) forward and abaft the hull and 1m (3 ft) on either side. The Measurer should be consulted for details. Cradle support struts and athwartships cradle bulkheads can usually be accommodated, but longitudinal cradle bulkheads and keel support channels prohibit reaching required measurement points.

5.01.4 Sheer Point. At any measured station, the sheer point is the highest point, in the vicinity of the hull/deck join, where a tangent at 45 degrees can be rested on the hull. See Appendix 3.

5.01.5 Sheer Line. The sheer line is defined as the line passing through the sheer points defined above.

5.02 Measurement Afloat.

Inclined stability and freeboards shall be measured on one occasion with the yacht afloat in measurement trim (see 5.02.2 below). Normally, the yacht's spinnaker pole(s) will be required for suspending the inclining weights (see Part VIII) and a dinghy or raft must be available for use by the Measurer. The owner or the owner's Authorized Representative (see Measurement Inventory Form, Appendix 2) must be present for flotation measurement.

5.02.1 Specific Gravity (SG): The specific gravity of the water shall be measured at this time and recorded as SG. The water shall be sampled from a level 0.3m (one foot) below the surface.

5.02.2 Measurement Trim: The owner or his representative will put the yacht in measurement trim by following the procedure defined below. The Measurement Inventory set out in Appendix 2 shall be used to ensure and record compliance with the requirements. No substitutions are permitted during measurement afloat.

a) The yacht shall be completed and equipped for sailing.

1. All standing rigging and related fittings used while racing will be attached in their normal positions. Running rigging forward of the mast and all halyards and lifts shall be taken to the foot of the mast and hauled tight. All other pieces of running rigging abaft the mast shall be taken to their aftermost position and hauled tight. All halyard tails shall be taken to their normal working positions. If the halyard weight varies significantly along its length, the tail shall be on the cabin floor for the inclining experiment, with the halyard fully hoisted, attached to a light messenger. A halyard may be used as a topping lift.
2. One set of sheets and guys and any running rigging not carried permanently on spars and other portable deck gear used in sailing the yacht shall be stowed just abaft the mast on the cabin sole.

b) Main and mizzen booms shall be secured at the low points of respectively P (see 9.07) and PY (see 9.17). From 1/1/2002, no spinnaker pole shall be aboard while measuring freeboards. Masts shall be raked aft to the limit of their adjustment. Where this limit is forward of the vertical the mast shall be set vertical.

c) No sails shall be aboard.

d) All mattresses, cushions, and pillows must be aboard during measurement and shall be stowed in their normal bunks. Safety, navigational and cooking equipment shall be aboard and all portable gear normally stowed aft of the foremost mast shall be in its normal position for racing. All portable gear normally stowed forward shall be placed abaft the foremost mast on the cabin sole for measurement, unless otherwise specified in this Rule.

e) No clothing, bedding, food, stores, dinghy, man-overboard pole or liferafts shall be on board.

f) Additional equipment on board during measurement shall be itemised in the Measurement Inventory.

g) The bow of the yacht shall not be depressed through lying to a mooring.

h) Ballast shall be fixed below the cabin sole, or as low as possible at any station and sealed to the hull structure to prevent movement. The yacht shall not be ballasted in such a manner as to induce list. Anchors and chain shall be secured in clearly marked stowage. Yachts shall be measured with at least one anchor. The batteries shall be secured in their proper stowage. The weights of these items and their distances from the stem will be recorded on the Measurement Inventory. Anchor rope shall not be forward of the foremost mast.

i) All tanks shall be empty at the time of measurement, with the exception that the fuel tank can contain a small amount sufficient only for maneuvering.

j) Hydraulic systems including hydraulic tanks shall be full for measurement and shall remain full when racing.

k) Bilges and other areas where water may collect shall be dry. There must be no effort to artificially moisten decks, rig, equipment or gear.

l) No one shall be on board while flotation measurements are being taken.

m) Centerboard(s) and drop keels shall be fully raised. If any drop keel or movable appendage is to be locked when racing it shall be so locked for measurement and the locking device shall be in place.

n) If an outboard motor, where it is the yacht's engine, is to be carried when racing it SHALL BE provided with a proper locker and/or mounting bracket. It shall be in this stowage at the time of measurement and at all times when racing.

5.03 Mast and Rig Weight.

Assessment of pitch gyradius (Part VIII) requires measurement and/or the classification of various features of the yacht. Masts which qualify as carbon shall be measured for total rig weight and vertical center of gravity, prepared as specified under 9.14. Other elements of pitch gyradius require counting of spreaders, jumpers and runners, the classification of hull construction, rudder construction and accommodation.