Measuring 210 sails made easy.

Supplies

1. A clean dry flat surface to lay sails out on.
2. Pencil
3. Pen
4. Indelible marker
5. 1 tape measure (steel >25 feet preferred)
6. 1 shorter tape measure or ruler
7. Clipboard
8. Supply of sail measurement forms (see attachment)

All measurements go on form, which is signed and given to skipper. Initial and date the tack of the sail with indelible marker.

Mainsail

1. Lay sail out flat
2. Measure Roach = head to clew (straight)
3. E-1
   - Fold head to tack and mark the fold (with a pencil) (i.e horizontal fold)
   - Move head aft from tack to clew, and mark (i.e. diagonal fold)
   - E-1 = Distance between these marks
4. E-2
   - Fold tack to clew and mark the fold at the foot (i.e vertical fold)
   - E-2 = distance between foot mark and prior leach mark

Genoa

1. Lay sail flat
2. Measure luff, foot and leech and enter these 3 distances into the form
3. Leech Roach = Lay straight edge from head to clew, measure from straight edge to (leech) sail edge
4. Foot Roach = Lay straight edge from tack to clew, measure from straight edge to (foot) sail edge

Spinnaker

1. Lay sail out flat, and measure luff, leach and foot distances
2. Lay sail flat, folded in half, with clew cringles together (i.e vertical fold, note sail will be almost oval, with the fold forming one edge).
3. "A" Girth - Measure from the head down the fold 6 feet and mark, measure the same 6 feet from head to leech and mark. "A" Girth is the distance between these marks.
4. "B" Girth - Same as "A" except measure down 12 feet from the head.
5. Skirt - Distance between head and the end of the fold.
6. Semi Girth - (this one sounds harder than it is, it is actually very easy). Set you tape measure to 9' 6". Put one end of the tape on and perpendicular to a straight edge or imaginary line between the head and clews, and verify that no part of the sail extends beyond the 9'6" on the tape measure.

Full sail measurement description as found on the 210 Class site:

http://www.210class.com/id1.html

Mainsail

(a) The size of the headboard shall be such that a measurement from the leech to the luff perpendicular to the luff and tangent to the top of the halyard attachment hole shall not exceed 4-1/2". The top of the halyard attachment hole shall be within 1/2" of the top of the sail. The main halyard shackle shall be attached at the hole in the headboard. The upper and lower battens shall not exceed 27". The two middle battens shall not exceed 36". Battens shall be approximately equally spaced along the leech. The roach of the mainsail may not be supported or stiffened by means other than the specified battens. Leech lines are permitted.

(b) The luff of the mainsail shall be governed by a measurement from the top of the lower black band. The top of the lower black band shall be a maximum of 28 feet 1-5/16" from the centerline of the main halyard sheave or 27' 11-7/8" from the bottom of the upper black band. The sheave shall not be over 3-1/2" in diameter.

(c) The foot of the mainsail shall be governed by the length of the boom as measured from the center of the clew outhaul pin at the outboard end of the boom to the after side of the mast. This dimension shall not exceed 13' 8" for either wooden or aluminum booms. Alternatively, the foot of the mainsail may be governed by the forward edge of a black band 3/4" wide at the outboard end of the boom. The forward edge of this black band shall be 13' 9-1/4" from the after side of the mast. No part of the sail may be aft of this point.

(d) The leech of the mainsail from the center of the hole in the headboard to the center of the clew cringle shall not be more than 31 feet 3" nor less than 29 feet at a tension of 5 lbs.

(e) The roach and draft of the mainsail shall be governed by measurements across the sail from the mid-point of the luff to the mid-point of the leech which shall not exceed 8 feet and from the mid-point of the foot to the mid-point of the leech which shall not exceed 14 feet 10". The mid-point of the leech shall be determined by folding the sail back on itself, bringing the peak to the clew and putting a spike or pencil through the eye of the headboard and the clew cringle, and drawing the middle half of the leech taut with the same tension on each half. The mid-point of the luff shall be determined in the same way except with the spike through the eye in the headboard and the tack cringle. The mid-point of the foot shall be determined similarly using the spike through the tack and clew cringles. The measurement shall be made on the floor with the sail smoothed to remove wrinkles as much as possible, particularly in the neighborhood of the dimensions being taken, but without pulling or stretching the cloth on the bias.

(f) The leech and foot of the sail shall be fair, normal curves.

(g) Mainsails may be "jiffy" reefed using not more than three additional tack and/or clew points. The maximum reef to be not more than 3 feet perpendicularly

above the foot at the tack and 3 feet 6 inches perpendicularly above the foot at the clew.

(h) The use of a zipper luff and/or zipper foot is prohibited on any sail.

Genoa Jib:

Luff	19' 0"	19' 6"
Foot	12' 4"	13' 4"
Leech	18' 0"	19' 8"

(a) Measurements are to be taken from intersecting points of straight lines tangent in pairs as practicable to the edges of the sail at each corner. The luffs of the working jib and genoa jib shall be so constructed that they shall not be less than 19 feet with a maximum of two pounds tension along the luff and so that it cannot be stretched to more than 19 feet 6 inches at any tension. The luff of the blade jib shall be so constructed that is shall not be less than 21 feet with a maximum of two pounds tension along the luff and so that it cannot be stretched to more than 21 feet 11 inches at any tension. The luffs may enclose a stainless steel wire whose relationship to the head and tack cringles is not adjustable while racing. The luff of the jib shall be adjusted while racing only by tension on the head and tack cringles. The luff of the jib may have any kind or number of hanks but not a zipper. The foot and leech of the jibs shall be measured under a tension of approximately 5 lbs. Each side is to be measured without tension on the other sides and with the sail flat on the floor.

(b) (d) No part of the foot of the genoa jib shall extend more than **3" below a straight line between the measuring points** of the tack and clew with the sail spread flat between the tack and clew without tension.

(c) (e) No part of the leech of the blade jib shall extend aft of a straight line between the measuring points of the head and clew with the sail spread flat and with not more than 5 lbs. of tension applied to all three corners of the sail. **No part of the leech of the genoa jib shall extend more than 2" aft of a straight line** between the measuring points of the head and clew with the sail spread flat and with not more than 5 lbs. of tension applied to all three corners of the sail.

(d) A maximum of 3 battens may be used to support the leech of the blade jib but battens are not required. The battens, if used, must be approximately equally spaced along the leech and may not be longer than 12.5 inches.

Battens for stiffening shall not be used to support the leech of the genoa jib.

(e) The clew measurement point of the blade jib must be no more that 7 feet 8 inches and no less than 7 feet 2 inches from the luff of the sail at that point along the luff where the two are closest. The measurement shall be made with the sail spread flat between the clew and the luff without tension.

Spinnaker

Measurements	Minimum	Maximum
Luff and Leech (measured from underside of swivel to center of tack and clew cringles with luff and leech pulled out straight and smooth but with no tension)	21’ 4”	22’ 0”
Foot	8' 8"	9' 0"
Girth A	5' 8"	6' 4"
Girth B	8' 9"	9' 7"
Skirt (a straight line from under side of swivel to mid-point of foot)	----	24' 11"

(a) The last four measurements above shall be made with the sail laid out on a flat floor**, folded in half,** with the clew and tack cringles together; and with the sail smoothed out so that there is an equal amount of cloth on each side of the mid line. The long seams should be smoothed into diagonal straight lines and the mid line and the luff and leech should be permitted to assume their natural curves and should not be pulled into straight lines.

(b) **Girth A is the distance between the point where an arc centered at the head of the sail (at the under side of the swivel) with a radius of 6 feet** cuts the leeches and the mid line of the spinnaker.

(c) Girth B is the distance between the points where an arc centered at the head of the sail (at the under side of the swivel) **with a radius of 12 feet** cuts the leeches and the mid line of the spinnaker.

(d) In addition to the above restrictions, **the semi-girth of the spinnaker, measured at right angles to a line running** from the swivel to the clew cringles, with the spinnaker laid out as described above, shall not at any place exceed 9 feet 6".

(e) The use of a single-ended line sewn directly or bridled to the central portion of the spinnaker and employed solely for the purpose of taking the spinnaker down is permissible.