

SNIPE CLASS

INTERNATIONAL RACING ASSOCIATION

MEASUREMENT DATA SHEET

Use Standard Marking Procedure on this Form:

- (a) When NOT within the tolerance limits allowed, mark an "X" in the margin and state actual measurements.
- (b) Otherwise, do not write in the measurements of this boat except where specifically called for.
- (c) Draw a neat circle around number of each paragraph when you have verified or carried out all its details.
- (d) Thus, when your examination is completed, every paragraph number will be "circled" (indicating conformity); or will bear an "X" in the margin (something to be re-built or to be submitted to the International Measurement Committee for decision).

- 1. Measurers must fill in every blank space provided on this sheet. Each dimension shown must be verified by the measurer and if the dimension is not either the maximum or minimum or between the two, the measurer may recommend certificate good for local races only on home built boats, if discrepancy is MINOR and clearly shown. No discrepancies permitted on professionally built boats.
- 2. This boat must have been assigned a racing number by the Association which must be carved, burned, or molded into the centerboard trunk in an unobscured position. Minimum height of these numbers must be 1/2" (13 mm). Unless this is done, the boat cannot receive a Certificate of Measurement. In order to be eligible to race, every boat must have an official decal for the current year, permanently attached to the starboard side just forward of the transom. Decals will be issued by the appropriate secretary for each year that dues are paid.

3. Official Racing Number of boat on trunk. 27233

4. Boat's Name _____

5. Full name(s) and address(es) of owner(s) (please print)
Bo Lindstrom
Västan väg 109
21616 Malmö

6. Name and charter number of the fleet in which this boat is expected to compete.

GENERAL RESTRICTIONS

- 7. Boats to be eligible to race in this class must be built to conform in every way to this data sheet. Boats that do not meet all these requirements shall be ineligible to receive a Certificate of Measurement but they must retain their identifying numbers. Such boats cannot take part in any open or closed regattas whatsoever. Owners of such boats shall be ineligible to join SCIRA. The measurer must notify the Executive Secretary of any boats that cannot pass these requirements, giving the boat number, and name and address of both the builder and owner.
- 8. Options. Nothing is optional in these plans, specifications or restrictions unless definitely stated as such.

The purpose of the restrictions under which Snipe hulls and sails are approved is to insure that, to as great a degree as possible, all hulls and sails have identical racing capability. It is impossible to list every single variation that might turn up in the future, and it is impossible to make any set of restrictions in which, at some future date, someone cannot find what appears to be a legal means of obtaining some racing advantage. Any boat or sail having features which are not consistent with this purpose will not be approved and cannot race even though there is no specific restriction preventing the item in question. Improvements and changes will be made only when these changes do not obsolete older boats from the standpoint of racing capability or when they can be accomplished by anyone at reasonable expense.

Approved Options not covered elsewhere:

- ① Self-bailing cockpit: No restriction on method of construction.
- ② Hiking Straps: No restriction on number or location.
- ③ Tiller Extension: No restriction on cross section or length.
- ④ Boom Vang: No restriction on type. May be used at a time.
- ⑤ Cleats for Jib Sheets or Mainsail Sheets: No restriction on number, type or location.
- ⑥ Jib Fairleads: Any type or location permitted.
- ⑦ Mainsheet Bridle: Any type or location permitted. May be adjusted while racing.
- ⑧ Attachment of Jib Tack: The jib luff wire at the deck must be attached so it cannot be moved while racing. Tension on the cloth in the jib luff may be adjusted while racing. This restriction shall apply to all boats without regard to date of manufacture
- ⑨ Mainsail Clew Outhaul: Any type permitted. May be adjusted while racing.
- ⑩ Sliding Goosenecks: May be on track or in slot in mast. May be swiveling and may incorporate roller reefing gear. Must have some means to prevent downward movement beyond position giving maximum legal length of luff. The position of the gooseneck may be changed while racing. The tack of the sail shall be so located that the bolt ropes do not deviate appreciably from a straight line.
- ⑪ All metric measurements are taken to the nearest one-tenth of one millimeter. Questions must be resolved by using the customary system which is also shown, and which was used in designing the boat.
- ⑫ Movement of the mast, fore and aft or lateral, may be restrained by blocks at the deck level. Fore and aft guys may be used, with the fore guy attached to the mast no higher than the top band of the lower set of bands. Mast shall not be moved at the maststep while racing.
- ⑬ Floorboards are optional.
- ⑭ Length of whiskerpole is optional. 2640 mm
- ⑮ Boats must be measured by officially appointed or elected Fleet Measurers or by Class Measurers approved by SCIRA. No certificate shall be acceptable unless recommended and signed by such a Measurer. Boats must be weighed at the start of each season. Sails are subject to remeasurement and to cancellation of approval at any time. They must be measured at the start of each season and so marked. On any measured item (mast, boom, rudder, or centerboard), only one can be measured and these items can be changed only on irreparable damage or loss, after the start of any racing season.

HULL

- ⑩ Thickness of sides, transom, sides of centerboard trunk, and bottom:
 Fiberglass: 1/8" (3 mm) min.
 Fiberglass & Foam Sandwich or Fiberglass & Honeycomb Sandwich: 1/8" (3 mm) Outerskin and 1/16" (1.5 mm) Inner skin, min.
 Wood: Density of .0185 lbs per cubic inch (512 Kg per cu. m) or greater - 1/2" (12.7 mm) min. Density of less than .0185 lbs per cubic inch (512 Kg per cu. m) - 3/4" (19.1 mm) min.
 Plywood: 3/8" (9.5 mm) min.
 Plywood and fiberglass: 3/8" (9.5 mm) minimum plywood, plus fiberglass.
 Thickness of plywood deck: 1/4" (6.4mm) minimum. Exterior grade plywood may be used.
 - ⑪ Keel width 4" (101.6 mm) ± 1/8" (3.2 mm) on flat under surface from stern to station 2, and minimum 2" (50.8 mm) wide at station 1.
 - ⑫ Stem must be a smooth curve and it must follow the table of stem offsets as shown on drawing.
 - ⑬ Maximum chine radius is 3/4" (19.1 mm) at station 1, tapering to 1/8" (3.2 mm) at station 2, and is 1/8" (3.2 mm) from there aft.
 - ⑭ Maximum lack of flatness in any cross section is 1/8" (3.2 mm) per foot (304.8 mm) of distance over which the lack of flatness is being checked.
- ⑮ - 18.

DECK

19. Forward deck. This must extend the full width of the boat to a point at least 72½" (1841.5 mm) aft of the stem. Maximum crown of deck 5" (127 mm). The top of the sprayboards must be minimum 2" (50.8 mm) vertically above the deck for minimum 2' (609.6 mm) of their respective lengths. Maximum projection of deck or sheer molding beyond sheer is 1¾" (31.8 mm) in a horizontal plane, level with the sheer.
20. After deck minimum 18" (457.2 mm) in length.

COCKPIT

22. Maximum width of cockpit 40" (1016 mm). If the deck alongside the cockpit curves down on a radius, the maximum width shall be checked at the intersection of the deck with a plane 2" (50.8 mm) below the sheer. Cockpit corners may be square or rounded to any desired radius.

CENTER-BOARD

23. Verify dimensions with drawing. No other shape permitted. Slot in centerboard trunk maximum 21¾" (546.1 mm) long and no more than ½" (12.7 mm) in width if in fiberglass nor 9/16" (14.3 mm) if in wood or plywood. The aft edge of centerboard trunk shall be perpendicular to base line. Forward edge of centerboard trunk shall either be perpendicular or slope forward 1/4" (6.4 mm) maximum at the top of trunk. Boards must be uniform thickness except within 1" (25.4 mm) of edges which may be tapered off. Centerboard may be cut out for lightness. (See drawing.) The top of the front leg of a centerboard may be sloped back at an angle not greater than 45 degrees, starting at a point 12" (304.8 mm) above the centerpunch mark 33½" (850.9 mm) from the bottom of the board. The handle of the centerboard shall be installed in such a manner that the aft edge of the centerboard is perpendicular to the base line when the centerboard is completely down.
26. The centerboard must be restricted while racing, in such a manner that not less than 12 inches (304.8 mm) extends below the keel when the board is at its maximum height.
27. The dimensions for boards as given on the drawing on the back of this sheet must be adhered to. There shall be no inserts or other means of changing the distribution of the weight. Boards shall be made of any hard aluminum alloy. 6061T6 or its equivalent is recommended. The thickness of the board shall be 3/8" (10 mm). If seals are used on the centerboard trunk, they shall be used at the top of the trunk only. Any type of seals may be used.

RUDDER

28. See that rudder is substantially made of wood, fiberglass or fiberglass and foam. See that tiller is strong and attached firmly to rudder head in such a manner that it cannot be slid fore and aft. There shall be a suitable means of preventing rudder from falling off with boat inverted.
29. The basic rudder thickness above and below the waterline shall be 3/4" (19.1 mm) minimum and 1½" (38.1 mm) maximum.
30. The width of blade below waterline shall be 10¾" (260.4 mm) maximum and 9 7/8" (250.8 mm) minimum at any point. This measurement is taken across rudder at approximately right angles to its leading edge.
32. Metal rudder blades are prohibited. Where pivoting rudders are desirable because of purely local conditions, they may be used for local point score races only. They may not be used in any regattas or championships. Tillers must be direct connected and all above the aft deck. Rudder must at all times be attached as shown in the plans. Vertical adjustments or changes in angle are not permitted. Rudder must be attached to the transom and as close to the transom as conveniently possible with 1½" (38.1 mm) maximum clearance.

MAST, BOOM AND RIGGING

33. Only one mast shall be measured. It shall be stepped on the keel, or no higher than 2" (50.8 mm) above the top of flotation tank in bottom. The butt of the mast shall be positively retained in the step by means of a collar, cable or other suitable means.
34. The minimum allowable length from sheer molding shall be 20'-1" (6121.4 mm).
35. The center line of the mast shall be located 60 (1524 mm) to 64 inches (1625.6 mm) aft of the stem. This measurement shall be taken to the mast step. The hole in the deck where the mast goes through the deck shall have a maximum size of 3" (76.2 mm) athwartship x 10" (254 mm) fore and aft.
36. Rotating masts are prohibited.

37. The mast must be minimum 1½" (38.1 mm) athwartships at the top band or at any point below.

38. If mast is made of wood, it must be minimum 2" (50.8 mm) athwartships and minimum 3" (76.2 mm) fore and aft at deck. If mast is round (not streamlined), the dimension at deck shall be minimum 2½" (63.5 mm) in diameter. Give dimensions of this mast.

41. Measure distance from sheer to the intersection of the jib stay with surface of the mast . . . See sketch on measurement drawing for method of determining the intersection. Dimensions may be 15' (4572 mm) maximum, 14'9" (4495.8 mm) minimum. Shroud intersection must be within 2" (50.8 mm) above or 5" (127 mm) below. If a tube projecting in front of the mast is used for the jib halyard, the tube shall be attached to the mast by a strap running from the front of the tube to the front of the mast, the intersection with the mast being between 14'9" (4495.8 mm) and 15'0" (4572 mm) above the sheer. The tube shall not project more than 4" (101.6 mm) from the front of the mast, and the forestay and the strap shall form a straight line when the forestay is under tension in its normal position.

42. Halyards must be used, and they must lead down the mast toward the boat, alongside or inside the mast. The length of the luff of the mainsail shall be limited while racing by the following means: Bands 1" (25.4 mm) wide shall be painted around the mast in color to contrast with the color of the mast, the bands being located as follows:

1. The lower edge of the top band to be not more than 20 feet ½ inch (6108.7 mm) above the sheer.
2. One more band whose lower edge is 6" (152.4 mm) below the lower edge of the top band.
3. Two additional bands, the upper edge of each band being a maximum of 16'9" (5111.8 mm) below the lower edge of the corresponding top band.

In racing, the sail must be set so that the edge of the sail is limited at the top by the lower edge of one of the bands, and at the bottom by the top edge of a corresponding band. Tape which is not readily removable and which soon becomes as permanently attached as paint (such as one mil mylar) may be used for bands. Easily removable tape such as electricians or plastic decorative tape is not acceptable.

43. Length of boom shall be 8'8" (2641.6 mm) maximum, 8'6" (2590.8 mm) minimum, measured from the aft side of the mast (the aft side of the mast includes the sail slot and material enclosing the boltrope). The foot of the mainsail shall not be stretched beyond the following limit while racing; the aftermost edge of the sail at the clew shall not be farther aft than the forward edge of a band 1" (25.4 mm) wide, and forward side of which is 8' 4 7/8" (2562.2 mm) aft of the inside aft edge of sail slot projected downward.

44. The maximum depth of boom, no matter what type or material, shall be 4" (101.6 mm) at its widest point, minimum 3½" (88.9 mm) for a wood boom. Check Maximum width at any point 3" (76.2 mm). Minimum thickness of plank boom ¾" (19.1 mm). If slotted boom is used, the maximum depth of 4" (101.6 mm) includes the material forming the slot. Booms shall be essentially straight and shall not be tapered nor have lightening holes.

45. Aluminum extrusions may be used for masts and booms and masts may be tapered subject to Para. 37. Masts must be made of alloy 6061T6 or equivalent. Booms may be made of alloy 6063T6 or equivalent. Weight of such mast with winches, halyards, stays, gooseneck, spreaders and butt end must be at least 20 lbs (9.1 Kg), and nothing may be added to the basic mast except necessary fittings or reinforcements. Center of gravity in the condition when weighed, with the stays and halyards extended full length and temporarily taped to the mast, shall be at least 60 inches (1524 mm) above the upper band of the lower set of bands. Masts having an athwartship dimension of 2 1/8" (54 mm) or less must use spreaders. Any section which may be used for a mast may be used for a boom. For booms only, a basic section 2½" (63.5 mm) deep and at least 7/8" (22.2 mm) wide at its widest point may be used. The height of the boom at either end may be reduced for access to the boltrope.

46. Boom and mast may be slotted to take sail bolt rope provided dimensions are met.

48. All boats must have a jib stay and two side shrouds. No backstay may be used. Shroud anchorages must be not more than 4" (101.6 mm) in from the sheer, and between 70" (1778 mm) and 78" (1981.2 mm) aft of stem. Anchorages of jib stay and shrouds may be under deck, but location and length of jib stay and shrouds must be incapable of change during a race. The use of elastic light line between the shrouds and the mast is permitted.

60. All other rigging optional. So-called streamlined rigging not permitted. Running rigging optional. If, in the opinion of the Measurer, the rig shall be considered unsound, weak or unseaworthy, the Measurer must not recommend a Measurement Certificate. Changes must not be made after the Certificate is issued, unless the owner has Measurer recheck the rig.

WEIGHT LIMIT

51. THE BOAT COMPLETE MUST BE WEIGHED. THIS WEIGHT DOES NOT INCLUDE ANCHOR, PADDLE, WHISKERPOLE, LIFE PRESERVERS, BAILING EQUIPMENT (unless permanently attached), SAILS, OR ANY OTHER LOOSE GEAR. IT DOES INCLUDE MAST, BOOM, RIGGING, MAINSHEET, CENTERBOARD, RUDDER, AND TILLER. BOATS THAT DO NOT MEET THE WEIGHT LIMIT MUST HAVE WEIGHT PERMANENTLY ADDED BEFORE THEY CAN BE GIVEN MEASUREMENT CERTIFICATES.

52. The weight of this boat as outlined above is 149 lbs. Amount of ballast 175.9 lbs.

53. All boats must be weighed before issuing a measurement certificate and must be re-weighed at the start of each season.

54. The Measurer shall either witness the weighing of the boat or require the owner to furnish a weight certificate signed by at least two witnesses and the owner as well as the owner of the scales, that the minimum weight of the boat complete complies with this paragraph. The minimum weight shall be 381 lbs (173.2 Kg). The bare hull including deck, centerboard trunk, floorboards, flotation, hull fittings, and sailway equipment shall weigh 276 lbs (125 Kg) minimum. In addition ballast up to 33 lbs (15 Kg) may be permanently added in any location, subject to the requirements for Moment of Inertia. All ballast must be installed where it may be seen and it shall be attached with peened over bolts or glass cloth. The bare hull including ballast, as defined above, shall be subjected to the moment of inertia test as contained in the Supplement to the Measurement Data Sheet for Moment of Inertia Test.

55. Weight certificates from builders will not be accepted.

56. All boats shall comply with the following flotation requirement: When the boat has been capsized and has remained in any position long enough to take in as much water as possible in high wave conditions, it shall, upon being righted, float so that the lowest point around the cockpit edge where water might enter the boat is at least 6" (152.4 mm) above the water when the boat is supporting 300 lbs (136.4 Kg). This may be accomplished by means of tanks, flotation bags, self-bailing cockpits, increased low density flotation material, or any other suitable means. Holes with maximum total area 100 square inches (645.2 sq. cm) may be made in the transom to facilitate drainage. Where transom drains are used to comply with this rule they should have a minimum area of 45 square inches (290.3 sq. cm) total.

In boats meeting the requirements of this rule, the centerboard trunk may have a minimum height of 9" (228.6 mm) above the outside of the keel if the boat, after capsizing and being righted, floats high enough so that water will flow out of the trunk; otherwise, the trunk shall be 2" (50.8 mm) above the water level in the boat after capsizing and being righted.

57.

MISCELLANEOUS

58. Measurer must notify the owner of the following essential requirements: Boat must carry wearable life preservers for all occupants at all times, and race committees may require wearing them when racing when they consider it necessary. Suitable paddle or oar must be carried. Anchor with a minimum weight of 4 lbs. (1.8 Kg) must be carried with 50' (15.2 m) of suitable line.

59. There shall be no advertising matter whatever on the outside of any boat or sails. Any boat infringing this ruling shall be subject to loss of measurement certificate. Measurers shall not issue a certificate to any such boat.

60. Give name and address of builder of boat Skipperboat

61. Sliding seats, hiking boards, trapeze rigs, and other artificial methods of supporting the skipper's or crew's weight to balance the boat are prohibited. This does not prevent the use of hiking straps or any kind of line or cord attached to the boat within 8" (203.2 mm) of the top of the deck. It is permissible for the crew to hold on to the side stays.

CONSTRUCTION OF FIBERGLASS HULLS

76. Only professional boat builders can make fiberglass Snipe hulls. Effective January 1, 1965, the construction of fiberglass hulls has been allowed under the same tolerances as approved by IYRU and now in effect for wood hulls. The loft lines do not show any sheer molding. Part or all of a sheer molding may be molded with the hull.

MATERIALS: Cloth, woven roving or mat may be used, with either polyester or epoxy resins. Glass content must be at least 30% by weight.

FLOTATION: 6½ cubic feet (.184 cu. m) of Styrofoam, Urethane foam, or equivalent, having a density of 2 pounds per cubic foot (32 Kg cu. m) maximum must be built into the hull. Balsa wood enclosed in resin-impregnated fiberglass cloth is considered equivalent. Supposedly airtight compartments are not considered adequate.

TOLERANCE: All fiberglass boats are to be measured to standard tolerances.

The thickness of the hull must be uniform except where reinforced locally such as at the keel, the chine, the stem, the mast step, and where the stay anchorages and rudder gudgeons are attached. Increased thickness due to incorporation of flotation material in either the sides or bottom of the hull is not a violation of this requirement.

If desired, floorboards may be bonded directly to the bottom of the boat, omitting supports. A fiberglass and foam sandwich floor structure may be used.

DECKS: The deck may be plywood as specified in the measurement data sheet, or it may be fiberglass. In general, a fiberglass deck will require some type of double surface and core construction to secure adequate stiffness.

Each builder's method of construction must be approved by the Rules Committee.

CONSTRUCTION OF PLYWOOD HULLS

77. BOTTOM AND SIDES: The weight of the plywood used must be at least one pound, two and one-half ounces per square foot (5.65 Kg per square meter). If 3/8 inch (9.5 mm) material is used throughout, fiberglass or other covering material may be used to bring the hull up to minimum weight.

FLOTATION: Three cubic feet (.085 cu. m) of Styrofoam must be installed in the hull.

MOMENT OF INERTIA TEST

78. All bare hulls, as defined in paragraph 54 must be subjected to the moment of inertia test. (For a full description of the method, see SUPPLEMENT TO THE MEASUREMENT DATA SHEET FOR MOMENT OF INERTIA TEST.)

The moment of inertia of the hull is calculated from the following formula:

$$I = \frac{CD^2T^2}{4\pi^2}$$

Where: I = Moment of Inertia

C = Spring constant, lb. per ft (Kg per M.)

D = Distance to axis, Ft (M)

T = Time of one complete oscillation, seconds

$\pi = 3.1416$

The minimum moment of inertia of the hull as determined from the formula above shall be:

English - 200 (slug ft²)

Metric - 27.6 (metric slug M²)

If the hull moment of inertia does not meet this minimum, weight shall be moved to or added to the ends to bring it up to the minimum.

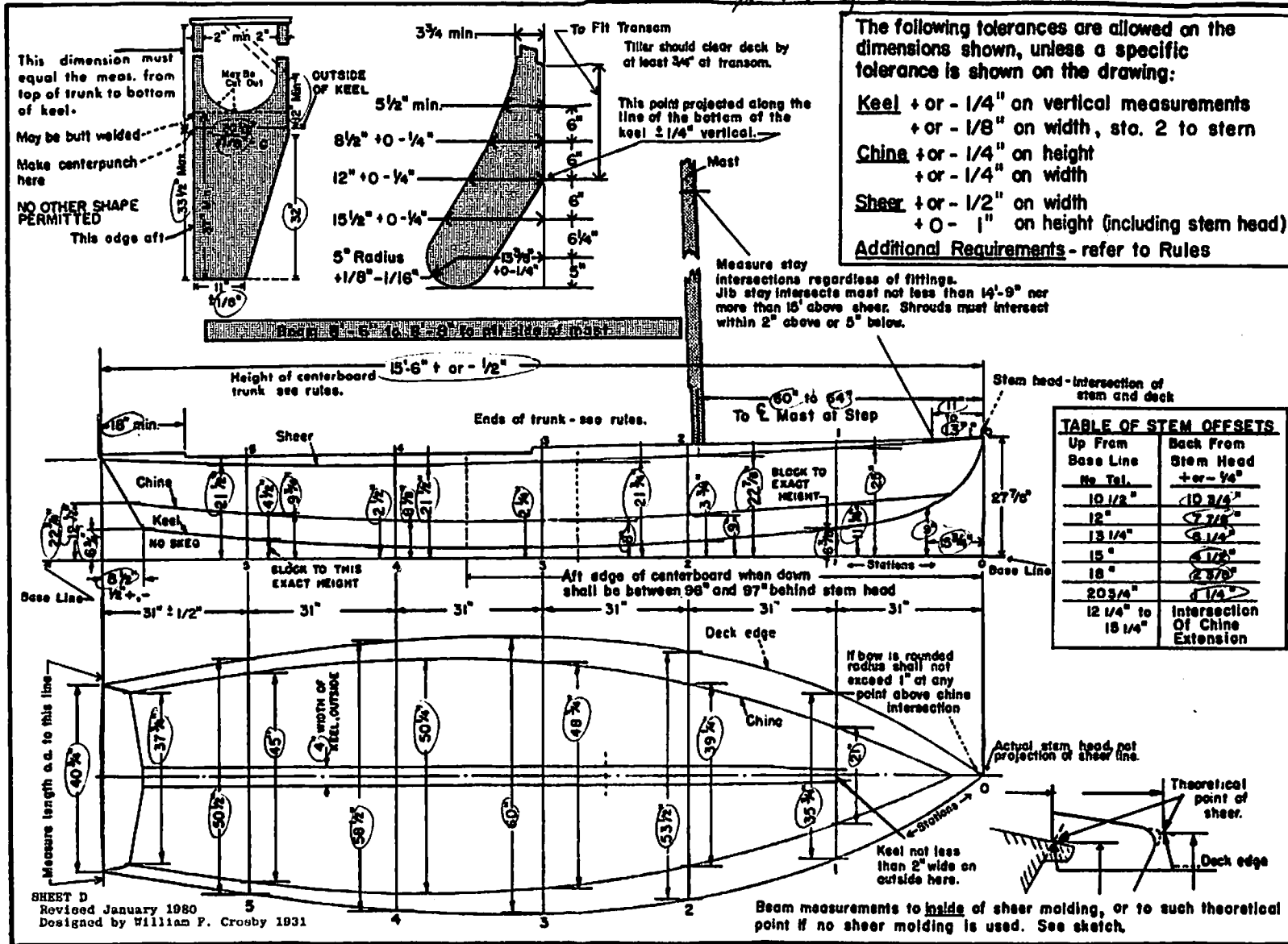
The Moment of Inertia for this boat is _____
Amount of weight and location _____

EXCEPTION TO APPLICABILITY OF PRIOR RULES

The changes made to the measurement rules are effective with boats built after January 1, 1976. The new centerboard shape and thickness must be used after January 1, 1976 on all boats in the World Championship, Western Hemisphere Championship and European and African Championship. Those existing boats which cannot use a 3/8" (10mm) thick board because of trunk slot width shall use a 5/16" (8mm) thick board of the new shape. The length of the trunk slot shall be 21½ inches (546.1 mm) maximum.

MEASUREMENTS ARE CAUTIONED TO FILL OUT THIS DATA SHEET IN FULL AND AS ACCURATELY AS POSSIBLE: Those measurements found correct should be "circled" carefully on the drawing below, preferably with colored pencil. If certain measurements are *not* within the limits shown, cover same on the drawing with an "X" and use a reference letter or line across to your marginal note, giving the actual measurement.

Briefly note exceptions here (If additional explanatory sheet is attached, check. . .)



SHEET D
Revised January 1980
Designed by William F. Crosby 1931

Beam measurements to inside of sheer molding, or to such theoretical point if no sheer molding is used. See sketch.

SNIPE CLASS INTERNATIONAL RACING ASSOCIATION

3. Official Racing Number of boat on trunk. 27233
4. Boat's Name _____
5. Full name(s) and address(es) of owner(s) (please print)
BO LINDSJO.
VINSTANVAG 109
21616 MAIMMO
6. Name and charter number of the fleet in which this boat is expected to compete.

60. Give name and address of builder of boat SKIPPER

WEIGHT LIMIT

51. THE BOAT COMPLETE MUST BE WEIGHED. THIS WEIGHT DOES NOT INCLUDE ANCHOR, PADDLE, WHISKERPOLE, LIFE PRESERVERS, BAILING EQUIPMENT (unless permanently attached), SAILS, OR ANY OTHER LOOSE GEAR. IT DOES INCLUDE MAST, BOOM, RIGGING, MAINSHEET, CENTERBOARD, RUDDER, AND TILLER. BOATS THAT DO NOT MEET THE WEIGHT LIMIT MUST HAVE WEIGHT PERMANENTLY ADDED BEFORE THEY CAN BE GIVEN MEASUREMENT CERTIFICATES.
52. The weight of this boat as outlined above is 172.8 lbs.
 Amount of ballast 14.8 lbs.

MOMENT OF INERTIA TEST

78. All bare hulls, as defined in paragraph 54 must be subjected to the moment of inertia test. (For a full description of the method, see SUPPLEMENT TO THE MEASUREMENT DATA SHEET FOR MOMENT OF INERTIA TEST.)
 The moment of inertia of the hull is calculated from the following formula:

$$I = \frac{CD^2 T^2}{4\pi^2}$$

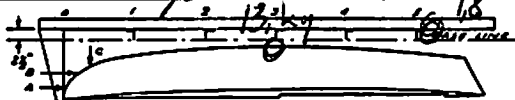
Where: I = Moment of Inertia
 C = Spring constant, lb. per ft. (Kg per M.)
 D = Distance to axis, Ft (M)
 T = Time of one complete oscillation, seconds 2.16 sek
 $\pi = 3.1416$

The minimum moment of inertia of the hull as determined from the formula above shall be:
 English - 200 (slug ft²)
 Metric - 27.6 (metric slug M²)

If the hull moment of inertia does not meet this minimum, weight shall be moved to or added to the ends to bring it up to the minimum.

The Moment of Inertia for this boat is 2.16 sek
 Amount of weight and location 13.8 kg + skott paik
3 kg

HULL NO. 27233 DATE 25/7-1990
 OWNER BO LINDSJO



(Date) 25/7-1990 (Measurer's Signature) _____

Recommended for Certificate _____ (Initial)

SUPPLEMENT TO THE MEASUREMENT DATA SHEET FOR MOMENT OF INERTIA TEST

All bare hulls including ballast, deck, centerboard trunk, floorboards, flotation, hull fittings and sailaway equipment shall be subjected to and comply with the Moment of Inertia Test as described below.

Set the moment of inertia jig up on a hard level surface and check to see that it is reasonably level both lengthways and sideways. Also check the 104" dimension from the aft side of the riser to the front side of the 3/4" dia. balance rod.

Carefully balance the bare hull (defined in para 54) by moving it back and forth on the balance rod so that the top of the deck is level with the horizontal line on the riser. Be sure to use a thin metal plate (6" x 6" x 1/8" is recommended) between the balance rod and the keel. Also the spring attachment assembly minus springs should be in position on the fore deck. When the hull is balanced, attach the springs to the spring attachment assembly and then to the hooks on the riser, being careful to stabilize the hull while doing this operation. Adjust the spring attachment assembly so that the centerline of the spring bolt is 1" from the aft side of the riser and clamp the assembly to the deck with the hook bolt through one of the holes in the jib stay fitting. Recheck to see that the top of the deck is level with the horizontal line within plus or minus 1/4" and adjust the hull position if necessary.

The hull should now be free to oscillate about the pivot rod, being restrained only by the springs. Check this by displacing the hull approximately 3" to 4" above or below the horizontal and allowing it to oscillate. Please notice that an oscillation is one complete cycle, from starting point to farthest away point and back to starting point.

The moment of inertia of the hull is calculated from the following formula:

$$I = \frac{CD^2 T^2}{4\pi^2}$$

Where: I = Moment of inertia
 C = Spring constant, lb. per ft. (Kg. per M.)
 D = Distance to axis, Ft (M)
 T = Time of one complete oscillation, seconds
 $\pi = 3.1416$

For our purpose, $D = 104" - 1" + 9/32" = 103.281 = 8.6067(2.6233M.)$ The spring constant will be furnished with springs from SCIRA. We can now simplify the formula to:

$$\text{(English) } I = \frac{8.6067 \text{ ft}^2 C T^2}{4 \times 3.1416^2} = 1.8763 (C T^2) \text{ slug ft.}^2$$

$$\text{(Metric) } I = \frac{2.6233 \text{ m}^2 C T^2}{4 \times 3.1416^2} = .1743 C T^2$$

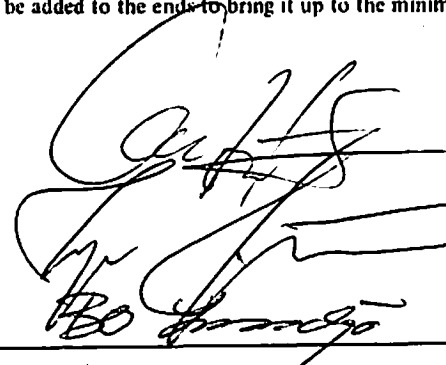
Proceed to time the hull oscillations through a minimum of fifty complete oscillations. Divide the total time by the number of oscillations to arrive at the average time for one complete oscillation. Repeat this procedure twice to check that the average oscillation time is correct to the nearest thousandth of a second, starting with 3" to 4" bow displacement each time. Please note that the stop watch is started at the beginning of the first oscillation but the number count is started at the end of the first oscillation.

Using the average time for one complete oscillation, solve the formula for moment of inertia.

The minimum moment of inertia of the hull as determined from the formula above shall be:

English - 200 (slug ft²)
 Metric - 27.6 (metric slug M²)

If the hull moment of inertia does not meet this minimum, weight shall be added to the ends to bring it up to the minimum.


 BO LINDSJO