

SHIELDS CLASS SAILING ASSOCIATION

SECTION IV

Hull Specifications and Equipment Requirements

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1.0 Hull

1.1 Dimensions and Weights

Hulls of all Registered Yachts shall have the following dimensions and weights:

Length overall	30 feet, 2 1/2 inches
Waterline length	20 feet
Beam	6 feet, 5 1/4 inches
Draft	4 feet, 9 inches
Displacement	4,600 lbs.
Keel	3,080 lbs.

The following tolerances shall be allowed:

- (a) Hull displacement may be as much as 4% more or less;
- (b) Weight of the lead keel may be as much as 1% more or less;
- (c) Center of gravity of the hull may be as much as 3 inches horizontally and 1 inch vertically from the center of gravity shown in these Specifications;
- (d) Center of gravity of the lead keel may be as much as 1 inch horizontally and 1 inch vertically from the center of gravity shown in these Specifications.

1.2 Alterations to Hull Prohibited

No alterations of any kind shall be made to the hull, deck, keel or rudder except as permitted herein. This prohibition includes alterations to the leading edge of the keel, the rudder fairing strips and the after edge of the rudder.

(See Specifications 1.3, 1.4, 1.5, 3.1)

2.8 Rudder Shape and Thickness

The procedure to measure a Shields rudders shape is as follows:

- Step 1 – Stretch a string along the after edge of the rudder post, top to bottom
- Step 2 – Starting at the top of the rudder measure down along the string and mark the string every fifteen inches (15”) for three stations.
- Step 3 – At the top mark measure perpendicular to the mark (90 degrees to the string) a distance of 10 9/16 inches and mark – Reference point 1
- Step 4 – At the middle mark measure perpendicular to the mark (90 degrees to the string) a distance of 12 3/4 inches and mark – Reference point 2
- Step 5 - At the bottom mark measure perpendicular to the mark (90 degrees to the string) a distance of 9 7/8 inches and mark – Reference point 3
- Step 6 – At each of the marks established in Steps 3 – 5 measure the thickness of the rudder:

The thickness at each point shall be:	<u>No More Than</u>	<u>No Less Than</u>
Reference point 1	.53”	.48”
Reference point 2	.57”	.51”
Reference point 3	.47”	.42”

From these reference marks to the trailing edge of the rudder, the rudder shall, in cross section, be neither a square nor the corner of a triangle. The rudder shall be fair with no hollows both between the reference points and from the reference points forward to the forward edge of the rudder. (See Specification 1.2 and 1.5)

1.4 Rudder Fairing Strips

The rudder fairing strips shall be made of bronze, plastic or fiberglass. The fore and aft (true width) of the strips shall not exceed 1 1/2 inches.

1.5 *Fairing*

- (a) "Fairing" is defined as long-board (batten) sanding, filling low spots, eliminating high spots and other "micro-smoothing" techniques used to achieve improved water flow over and around the hull. Fairing shall not alter the basic design shape of the hull, keel, rudder fairing strips or rudder. (See Specification 1.2. and 1.3)
- (b) Fairing of the hull, keel, rudder fairing strips and the rudder is permitted in accordance with the definition of the term per the above and in accordance with Specification 1.2 and 1.3. Further, an owner of a Registered Yacht shall:
 - 1) Notify the National Measurer of his intent to fair;
 - 2) Provide the National Measurer with a letter stating his compliance with Specifications 1.2, 1.3 and 1.4 after fairing; and
 - 3) Be prepared to withstand the cost of a professional measurement or survey if, in the opinion of the National Measurer and a majority of the Technical Committee, such measurement or survey is warranted.
- (c) This Specification does not apply to the cost of a measurement or survey that might arise as a result of a protest under the Racing Rules.
- (d) Annual maintenance that consists of filling and fairing the area where the hull meets the deadwood and the deadwood meets the lead casting is permitted. Filling, fairing and repairing damage incurred as the result of grounding is permitted. Such maintenance or repair does not require notification to the National Measurer.

1.6 *Perforations - Hull/Deadwood*

Perforations through the hull or deadwood to allow for drainage when the boat is out of the water are permitted. One through-hull perforation above the waterline is permitted for the exhaust of a bilge pump. (See Specification 10.1)

1.7 *Perforations - Bulkheads*

Perforations in the fore and aft bulkheads are permitted. Such perforations shall be made watertight while racing. One or two small holes not to exceed 3/8 inch in diameter may be drilled as close as possible to the top of the aft bulkhead to accommodate lines for trimming the backstay. (See Specifications 7.2, 10.1)

1.8 *Bulkhead Hatches*

While racing, fore and aft bulkhead hatches shall be in place. When in place, fore and aft bulkhead hatches shall be fully seated and secured against gaskets of soft rubber or its equivalent. Hasps of other devices may be replaced or altered to hold hatches in place more securely.

1.9 *Stiffening Stringers*

Addition of stiffening stringers forward of the forward bulkhead and aft of the after bulkhead is permitted.

1.10 *Anti-fouling paint*

Anti-fouling paint shall be used on the bottom at all times.

1.11 *Ballast*

No ballast or dead weight shall be carried in the bilge. Normal gear and equipment may be carried therein.

2.0 Deck

2.1 Deck Supports

A wooden king post located between the mast partners and the forward edge of the cockpit is required. Further deck supports are permitted. The type of support(s) and their location is optional. This Specification is the basis for a tie-rod system and/or glass reinforcement in the area of the partners.

2.2 Mast Partners

- (a) The mast partners shall be no more than 7 1/2 inches in the fore and aft direction.
- (b) The aft edge of the mast partners shall be 9 feet 11 3/4 inches (+/- 3/4 inch) measured aft from the projected path of the headstay at the deck.
- (c) The aft edge of the mast partners shall be 11 feet 3 3/8 inches (+/- 3/8 inch) from a vertical projection of the mooring line groove in the bow chock or from the foremost part of the bow if no bow chock exists. The shape of the partners is optional. (See Specification 5.4)

2.3 Chainplates

The chainplates may be either L-shaped or inverted T-shaped. Alteration of L-shaped chainplates in accordance with Chris Craft's recommendation, dated April 1968, is permitted.

2.4 Toe Rail

The toe rail shall be in place and be at least 5/8 inch in width and at least 3/4 inch in height.

2.5 Control Console

A console made of wood or metal may be located between the mast and the forward edge of the cockpit coaming. It may be used as a base for a compass or as a base for cleats and blocks to assist in trimming the mainsail downhaul, Cunningham, spinnaker foreguy, topping lift, boomvang or a combination of these.
(See Specifications 7.3, 8.13, 8.14, 9.6, 10.4, 10.5, and Sec V-Sails, 5.3)

2.6 Rubrail

A rubrail is optional. The rubrail is defined as the layer of rubber, wood, or plastic material between the toe rail and the deck. (See Specification 2.4)

2.7 Perforations (Deck)

Perforations through the deck, between the bulkheads only, for the purpose of mounting equipment or leading control lines are permitted. One through-deck perforation in an air tank for the exhaust of a bilge pump is permitted.
(See Specifications 7.2, 8.5, 8.16, 10.1, 10.5)

2.8 Backstay Gland

A sheave to turn the backstay pennant is permitted. Sheave must be gasketed to be as watertight as practical.
(See Specifications 7.2)

3.0 Cockpit

3.1 Additions to the Cockpit

Additions within the cockpit for comfort or convenience such as cabinets, racks and steps are permitted.

3.2 Cockpit Seats

Two seats are required. They shall consist of no less than 6 slats, 1/2 inch thick, 1 1/2 inches wide and 51 inches long. Folding seats are permitted.

3.3 Hiking Strap Prohibition

No hiking straps or other device shall be rigged by any member of the crew for the purpose of supporting his weight outboard of the sheerline.
(See Sec. III - Basic Rules, 5.3)

3.4 Cockpit Floorboards

Floorboards shall be neither altered nor removed for racing.

3.5 Cockpit Coaming

There shall be a wood cockpit coaming in place encircling the cockpit, no less than five (5) inches in height and with a thickness of no less than 1/2 inch, and projecting a minimum of two (2) inches above the deck. The cockpit coaming may be strengthened by the addition of wood blocks or other materials.

4.0 Winches

4.1 Winches

Winches shall not be geared or be of the reel or self-tailing type. The maximum diameter of the rope-bearing portion of any winch drum shall be 3 inches.

4.2 Halyard Winches

There shall be at least two and not more than three halyard winches. They shall be located below deck. The below-deck location of halyard winches is optional.
(See Specifications 4.1, 8.10 and Official Plan 2.)

4.3 Sheet Winches

There shall be at least two and not more than four sheet winches, all of which shall be located on deck. Handles for these sheet winches may be located above or below deck. Two sheet winches are required and shall be at the forward locations shown on Official Plan 2. Optional sheet winches may be located no less than 1 foot eight inches or no more than of 2 feet 6 inches, center to center, aft of the required winches. Turning blocks or "ratchet" blocks may be installed in place of the optional winches. (See Specification 4.1. and Sec. VII – Official Sail Plans)

5.0 Mast

Masts may be rigged or fitted out by anyone but only in accordance with the Specifications and Official Plans 1 and 2.

5.1 *Dimensions/Shapes/Weights*

The dimensions, weights and shapes of the mast, boom and spinnaker pole shall conform to the Specifications and to Official Plans 1 and 2.

5.2 *Fabrication of the Mast*

Existing masts shall have been built only by Cape Cod Shipbuilding (Zephyr Products), Chris Craft Corporation or Henry Hinckley and Co. Only Zephyr Products shall build new masts.

5.3 *Alternate Fabrication of the Mast*

Masts may be fabricated in two parts. The lower part or section shall not be more than 2 feet long. A two-part mast, when assembled, shall in all other respects conform to the Specifications and to Official Plans 1 and 2.

5.4 *Mast Blocks/Wedges*

Masts may be blocked at the partners. Mast blocks or wedges shall not be changed or moved while racing. (See Specification 2.2)

5.5 *Mast Weight/Center of Gravity*

Completely stripped, masts shall weigh at least 75 pounds. The center of gravity shall be at least 18 feet from the heel of the mast.

5.6 *Spreaders*

Existing aluminum spreaders shall have been made only by Cape Cod Shipbuilding (Zephyr Products), Chris Craft or Henry Hinckley. Only Zephyr Products shall build new aluminum spreaders. Wooden spreaders are permitted. (See Sec. VII - Official Plan 2)

5.7 *Mast Marking/Mast Band*

A band, 1 inch wide and of a contrasting color shall be placed on the mast with the upper edge located 2 feet 5 inches above the deck at the centerline. While racing, no part of the mainsail shall extend below the upper edge of this band. (See Sec. VII - Official Plan 2)

5.8 *Gooseneck Fitting*

A fixed gooseneck attached to the mast is permitted. The manufacturer of the gooseneck fitting is optional. The location of the gooseneck is optional except that the top of the boom shall not be below the top edge of the marking band on the mast. (See Specifications 5.7, 6.1)

5.9 *Standing Rigging*

Standing rigging shall be of the types and sizes shown on Official Plans 1 and 2 and shall be fastened to the mast and hull only where shown in the Plans and only in the manner provided for in the Plans and in these Specifications. Use of "Stamaster" brand turnbuckles has been ruled by the class to be prohibited.

5.10 *Adjustments to Standing Rigging*

Adjustments to the headstay and the shrouds are prohibited while racing.

6.0 Boom

6.1 *Fabrication of the Boom*

Booms may be rigged or fitted out by any person. The boom section may be fabricated by any manufacturer in conformance with the cross-sections used by Zepher Products, Chris Craft and Hinckley. "Cut outs" to lighten the boom are prohibited except that the aft end of the boom may be partly cut on a diagonal with the underside of the diagonal cut left open. The boom must conform to this Specification, all other Specifications pertaining to it and its equipment and with Official Plans 1 and 2.

(See Specifications 5.8, 6.2, 6.3, 6.4, 7.3, 7.4, 7.5, 8.2, 8.6, 8.7, 8.8, 8.18)

6.2 *Length of the Boom*

The length of the boom from the after face of the mast shall not exceed 13 feet 8 inches

6.3 *Boom Marking/Boom Band*

A band, 1 inch wide and of a contrasting color shall be placed on the boom with the inner edge located 13 feet 3 5/8 inches from the after face of the mast. While racing no part of the mainsail shall extend beyond the inner edge of this band.

(See Sec. VII - Official Plans)

6.4 *Mainsheet Bail*

A bail for the Mainsheet turning block shall be located 13 feet 3/4 inches from the after face of the mast. The turning block may be a double block.

(See Sec. VII - Official Plans)

6.5 *Boom Sleeve/Reinforcement*

A sleeve not to exceed 3 feet in length may be inserted in the boom or fixed to it externally in order to reinforce the area where the boomvang and/or mainsheet are located. (See Specification 6.1)

7.0 Backstay/Boomvang/Outhaul Adjustments

7.1 Adjustments of these controls shall be by manual hauling.

7.2 *Backstay and Backstay Pennant*

The backstay may be led aft, amidships or forward. The purchase shall not exceed 8:1. The arrangement for turning the backstay pennant under the afterdeck is optional. (See Specifications 1.6, 2.6, 7.1)

7.3 *Boomvang*

The boomvang shall consist of a line or a combination of a wire leader or pennant attached to a line that runs through blocks. The purchase shall not exceed 8: 1. The location of the attachment and the means of attachment to the boom, mast and/or console located between the mast and forward cockpit coaming is optional.

(See Specifications 2.4, 6.1, 7.1 and Sec. VII - Official Plan 2)

7.4 *Outhaul (Mainsail)*

An internal outhaul and jiffy reefing "gear" is permitted in the boom. The purchase of the outhaul shall not exceed 8: 1. Jiffy reefing tack hooks may be attached to the gooseneck.

(See Specifications 6.1, 7.1 and Sec. VII - Official Plan 2)

8.0 Control Line Specifications

8.1 Mainsheet Trim Arrangement

The location of a block and cleat on the boom for adjusting the mainsheet is optional. (See Specification 6.1 and Sec. VII - Official Plan 2)

8.2 Preventer

A single part preventer may be attached to the boom and to a shroud or chainplate. (See Specification 6.1)

8.3 Traveler Support

A support for the traveler track, made of fiberglass, wood or metal, may be mounted on the afterdeck. The support may be straight or curved and shall not extend beyond the inboard edge of the rubrail. The height above the centerline of the deck shall not exceed 1 inch. The height above the deck on the outboard ends of the support shall not exceed 3 inches. For a curved support, the chord dimension of the bend shall not exceed 4 inches.

(See Specifications 8.4, 8.5)

8.4 Traveler

A straight or curved traveler track with a sliding car may be mounted on the traveler track support on the afterdeck. The track shall not extend beyond the inboard end of the rubrail. The types of track and car are optional. A metal tang or similar device may be mounted between the top of the track and the rubrail for the purpose of preventing the mainsheet from catching the end of the track while jibing.

(See Specifications 8.3, 8.5, and Sec. VII - Official Plan 2)

8.5 Traveler Controls

Lines to adjust the traveler may be led above or below deck and may be trimmed amidships. The type of lines and control arrangement is optional. The purchase of such arrangement shall not exceed 8: 1.

(See Specifications 2.6, 8.3, 8.4)

8.6 Cleats

There shall be bow and stern mooring cleats. The type, number and location of all other cleats are optional. However, cleats shall not be of a type or in a location that will alter the lead of the main, jib or spinnaker sheets.

8.7 Blocks

The type and size of blocks for sheets is optional. Separate light air blocks for light spinnaker sheets are permitted.

(See Specification 8.18)

8.8 Shackles

The type and size of shackles is optional.

8.9 Halyards

Halyards may be of wire, wire/rope or rope only. Synthetic materials such as Kevlar or Spectra are permitted.

8.10 Jib Halyard Control

A jib halyard control-tensioning device other than the halyard winch itself is prohibited. (See Specifications 4.2 and Sec. V - Sails 5.1)

8.11 *Spinnaker Halyard*

The spinnaker halyard may be wholly outside the mast. The top of the sheave of the halyard block shall be at the same height as the spinnaker halyard fairlead as shown on Official Plan 2.

8.12 *Spinnaker Pole*

Spinnaker poles may be built by any person. The pole must conform to this Specification and Official Plans 1 and 2. The length of the spinnaker pole shall not exceed 9 feet 4 inches including fittings. It shall have a minimum diameter of 2 inches, preferably using #6061-T6 aluminum. A 2 1/2-inch diameter tube of thicker aluminum is recommended for poles without a bridle. Poles with a diameter in excess of 2 inches may be tapered to 2 inches at the ends.

8.13 *Spinnaker Foreguy/Downhaul*

The foreguy may be led either through the fairlead shown on Official Plan 2 or through or around the bow mooring cleat.

8.14 *Spinnaker Pole Topping Lift*

The topping lift may be rigged using fairleads, sheaves or blocks with or without mechanical advantage.

8.15 *Spinnaker Pole Bridle*

A bridle for the foreguy and the topping lift is optional.
(See Specification 8.12 and Sec. VII - Official Plans)

8.16 *Spinnaker Twing Lines*

Twing lines are permitted.
(See Specification 2.6)

8.17 *Spinnaker Pole Mast Track*

Alteration or replacement of the spinnaker track on the mast is permitted for the purpose of making the tracks stronger. There shall be no change in the length or location of the track. Adjustment of the spinnaker attachment ring shall only be done manually.

8.18 *Spinnaker Sheets*

Spinnaker sheets shall not be attached to the boom. Separate light sheets are permitted. Synthetic materials such as Kevlar or Spectra are permitted.
(See Specification 8.7 and Sec. VII - Official Plan 2)

8.19 *Jib Sheet Tracks/Carriage (Cars)*

The makes of jib sheet tracks and carriages (cars) are optional, but only manually operated systems are permitted.
(See Specification 8.20, 8.21)

8.20 *Jib Sheet Carriage (Car) Controls*

The jib sheet carriage (car) may only be moved manually while racing.
(See Specification 8.19)

8.21 *Jib Sheets*

The jib sheets may be rigged with either one or two parts using one or both tracks.
(See Specifications 8.7, 8.19, 8.20, 8.22, 8.23)

8.22 Reaching Leads

One reaching lead, port and starboard, may be located on the deck against the inboard edge of the toe rail. (See Specification 2.6)

8.23 Jib Sheet Carriage (Car) Track Placement

The jib sheet tracks shall be located on deck exactly as indicated below and in the following drawing.

To position the tracks:

- 1) Swing arcs from the centerline of the headstay 11 feet 9 1/2 inches to the deck at the sheer.
- 2) Connect the points thus established with a straight edge.
- 3) Establish the centerline of the deck at the midpoint of this line.
- 4) Establish the positions of aft ends of both 8 degree tracks on this thwartships line.
- 5) Lay out centerline of 8 degree tracks. Tracks shall be 18 inches long.
- 6) Lay out centerlines of thwartship tracks from midpoints of the 8 degree tracks at 90 degrees to them. Thwartship tracks shall be 15 inches long.
- 7) There shall be a 1 inch clearance between tracks as shown in the drawing.

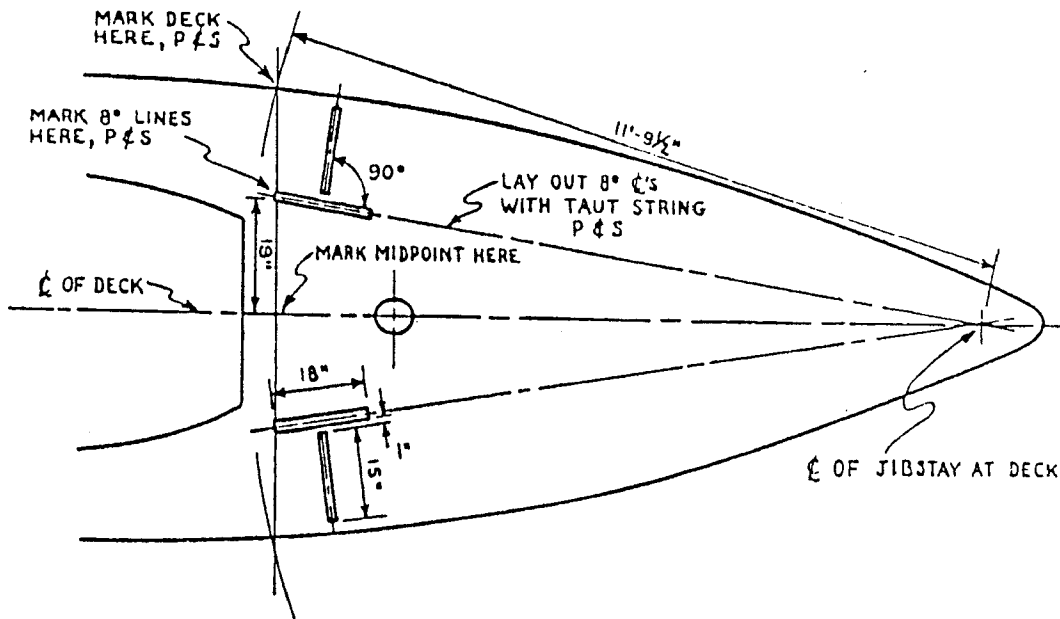


Fig 1: Jib Sheet Carriage Track Placement

9.0 Mandatory Equipment

The following equipment shall be considered mandatory and shall be carried at all times:

9.1 Anchor

A 13-pound Danforth anchor or its equivalent and at least 100 feet of 1/2 inch nylon anchor line. (See Appendix V – Measurers Interpretations)

9.2 Lifejackets

One U.S. Coast Guard approved life jacket of suitable size for each person aboard plus at least one U.S. Coast Guard approved throwable device carried in an accessible place.

9.3 Paddle

A paddle or an oar at least 4 feet long must be carried on board at all times.

9.4 Sound making devise

A horn, whistle or similar noise-making device as specified by the local Fleet when racing in local waters shall be carried on board at all times. A horn is required for the National Regatta unless this provision is waived by the local host Regatta Committee.

9.5 Pump

A pump and a sturdy 5 gal bucket suitable for bailing must be carried on board at all times.

9.6 Compass

A working compass must be on board at all times.
(See Specifications 2.4, 10.5)

10. Optional Equipment

The following equipment is optional and is permitted:

10.1 Fixed Bilge Pumps

A bilge pump permanently mounted to the hull. One through-hull perforation above the waterline or one through-deck perforation is permitted for the exhaust of the pump. One watertight perforation through a bulkhead for the run of the hose is permitted. The location of the pump, the run of the hose and the perforations mentioned herein are optional.

(See Specifications 1.5, 1.6, 2.6, 9.5, 10.11)

10.2 Tiller Extension

A tiller extension or hiking stick is permitted.

10.3 Inclinometer

An inclinometer is permitted. The location is optional.

10.4 Cunningham.

A cunningham is permitted. The arrangement of its control lines is optional.

10.5 Compasses

Additional compasses are permitted. The location of all compasses is optional.
(See Specifications 2.4, 2.6, 9.6)

10.6 *Measuring Marks*

Reference or measuring systems such as a ruler, ruled device or tape for determining the position of the backstay, outhaul, Cunningham, sheets and/or halyards is permitted. Such devices shall measure linear distance; they shall not measure tension. Location of such devices is optional.

10.7 *Telltails*

Telltails on sails and standing rigging are permitted.
(See Sec V - Sails 4.9)

10.8 *Windex*

Masthead wind direction indicator (fly) is permitted.

10.9 *Electronic Devices*

VHF radios, am/fm radios, radio cassettes, compact discs and other portable devices capable of playing music and receiving commercial radio and marine weather forecasts are permitted. Such devices shall not be used to communicate (transmit) individually with another party who is located ashore or on another vessel except in case of an emergency.

Prohibition: No electrically powered equipment is permitted other than that mentioned herein. Electronic instrumentation is not permitted.

10.10 *Running Lights*

Portable running lights are permitted.

10.11 *Automatic Bilge Pump*

An automatic bilge pump is permitted only when on the mooring.

10.12 *Outboard engine brackets*

Protrusions that might damage another yacht shall be removed while racing.

10.13 *Spinnaker Container*

A spinnaker bucket, turtle, fixed or movable bin to launch the spinnaker is permitted.