

## ARTICLE XVI — RUDDER, SKEG AND TILLER

Rudder— $\frac{3}{4}$ " thick and not to vary more than  $\frac{3}{8}$ " from official plans. To be made of wood, chamfer not to extend more than 2" from any edge. A rudder arranged to tilt upward when striking an under water obstruction may be used in local races only. When in its downward position, it must have an outline meeting the requirements for standard rudders and it must be carried in that extreme downward position when racing. Only the rudder as shown on drawings may be used in National competition.

Skeg—To be as per plan, well bolted to keel. Not less than  $\frac{1}{8}$ " thick. The maximum depth at the after end shall not exceed  $7\frac{1}{2}$ ". (See note on keel heights. Art. 4, Paragraph 1.) Length along bottom shall be 3' 4". The bottom of skeg shall be a straight line. May be streamlined on its after edge only. Chamfer may not extend more than 2" forward of that edge.

Tiller—Of ash as shown.

Option—Kind of wood.

## ARTICLE XVII — PAINTING

To be given at least three coats inside and out. May be painted or varnished. Under side of deck need not be painted.

## ARTICLE XVIII — SAILS

*(This entire section rewritten and adopted as revised at annual meeting Jan. 17, 1941)*

1. Sails—No sails other than the standard size Jib, Mainsail and Spinnaker allowed. Storm Sails, or those especially cut to smaller dimensions than shown on the official sail plan for use in racing under heavy weather conditions, are prohibited. This refers to the three linear dimensions of the sail, viz. luff, leech and foot, and does not refer to the belly or draft the sailmaker may put into the Sails.


Loose-footed Mainsails, Jib Booms or part length Clubs, double luff Mainsails and perforated Sails, other than reef points or accidental, are barred.

2. Weight and Type of Cloth—Mainsail, Jib and Spinnaker to be of approved material. Silk sails barred. Mainsails and Jibs shall be made of sail cloth not lighter than 3.7 ounce material, this weight being based on a lineal yard  $28\frac{1}{2}$ " in width. The weight of the material in the Spinnaker shall be



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not less than 2 ounces, this weight being based on a lineal yard 38 inches in width.

3. Racing Number and Class Emblem—Size and design shown on drawings must be attached to each side of Mainsail.

4. Reefs—Sails may be reefed at the foot only. Roach reefs are barred. The revised official sail plan shows two reefs in the Mainsail and none in the Jib. The Jib, when used, must be used without reefing. The upper reef in the Mainsail is optional but the first or lower reef in that Sail is mandatory in all Sails hereafter ordered. The lower reef shall be 2 ft. 5 in. up from the foot, measured along the luff, and 2 ft. 8½ in. up from the foot, measured along the leech. The upper reef, if installed, shall be 2 ft. 5½ in. up from the lower reef, measured along the luff, and 2 ft. 7 in. up from the lower reef, measured along the leech.

5. Battens—Wood, as shown. Three in Mainsail, upper and lower 2'0", middle one 2'6"; same shall divide the leech into approximately four equal parts. Battens in Jib optional, but if used shall not be more than two at 1'0", dividing the leech into approximately three equal parts.

6. Size of Mainsail—Luff length governed by the side of the headboard which shall be 4" across, measured perpendicular to the mast, the limited size bolster at the mast-head, the permanent backstay, and the lengths given in Article XIII, Section 1. Measuring from tack to top of headboard, it should be approximately 23'5" when fully stretched. If longer, the headboard and roach to leech will foul the backstay.

Leech length measured from clew to top of headboard should be approximately 24'6" when fully stretched.

Foot length slightly under 10'0" when fully stretched. See limit of boom length, Article XIII, Section 2.

Two measurements across the Sail from luff to leech to be made on floor with Sail secured at three corners with five pound pull. At a point on the luff of Mainsail, six feet up from the center of the tack cringle and in line at right angles to the luff, a measurement shall be taken from leech to luff, and this measurement shall not exceed 8'3". A similar measurement shall be taken at a point six feet down the luff from the center of the forward hoisting eye on the headboard. This dimension shall not exceed 3'7½". Luff and foot of Sail shall not be measured, as these are controlled by black band and

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stopper (Article XIII, Section 1) and length of boom (Article XIII, Section 2).

7. Size of Jib—Luff not over 17'10". Leech not over 15'7". Foot not over 7'7".

Measuring Jib on floor, secured at three corners, five pound pull. Roach and draft governed by a measurement across Jib between points 11'0" down leech and luff from head of Jib, which must not exceed 5'2".

8. Size of Spinnaker—Luff and Leech—measured to under side of swivel—20'0". Foot—from clew to clew—14'0".

No smaller or larger lengths than the above Spinnaker measurements shall be permitted except for a tolerance of 6" plus or minus to take care of stretching or shrinking.

To control the girth the Spinnaker, when dry, shall be folded in half by putting the luff and leech and the two clews together, and then spread evenly and flat upon the floor.

For sanctioned events, the Measurement Committee is given discretion in not eliminating Spinnakers made prior to 1941 in cases where the skipper has only one Spinnaker and it is under size, provided such Spinnaker does not give the skipper an unfair advantage.

Two measurements "A" and "B", shall then be taken across the Sail.

Measurement "A" shall be taken between two points found as follows:

1. From under side of swivel 5'0" down luff and leech.
2. From under side of swivel in a STRAIGHT line 6'0" down the opposite side of the sail as folded, NOT measuring around the contour.

"A" shall measure 5'7".

Measurement "B" shall likewise be taken between two points 10'0" down luff and leech and 11'0" down the opposite side of the sail as folded, NOT measuring around the contour.

"B" shall measure 8'2".

A tolerance of 3" plus or minus is allowed on Spinnaker cross measurements "A" and "B" to cover stretching and shrinking.

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## ARTICLE XIX — FITTINGS

The actual pattern of fittings is optional; however, they should equal and serve the purpose of those indicated on the drawings. The position of chainplates and points of attachment of stays to hull shall be as shown on drawings. Use of a bridle on the backstay is not permitted. Except for belaying pins, which may be made of wood, fittings may be made of iron, steel, bronze, brass, copper or nickel or any alloy made basically of combinations thereof, but not of aluminum or other light weight metals. Other materials not permitted. They may be galvanized or plated.



## REVISIONS IN DRAWINGS

*The following revisions to the official drawings were authorized at the annual meeting of the class, January 17, 1941. New blueprints, incorporating these revisions, were available on April 1. All blueprints now supplied to builders are the new blueprints.*

The outside diameter of the tubing used in jumper struts and spreaders shall be stated as not less than  $\frac{5}{8}$ ". It is now stated as  $\frac{3}{4}$ ". The jumper strut and spreader fittings shall be reduced in size to harmonize with the smaller diameter of the tubing.

A distinguishing color band  $\frac{1}{2}$ " wide shall be shown around the mast, with its top edge 24 ft. 0 in. below the top of the main halyard sheave. Also a permanent stopper in the gooseneck slide, preventing the line of the top of the boom, when extended, from coming below the top of the color band.

The line indicating a reef in the jib shall be removed from the plans, as it is intended there shall be no provision for reefing that sail and that it shall be used without reefing or lowered in full. Two reefs shall be shown in the Mainsail but it shall be noted that the lower reef is mandatory and that the upper reef is optional. Their heights at tack and clew shall be as stated in Article XVIII of the Specifications.

Three battens shall be shown in the mainsail and two in the jib, of the lengths and at the places shown in Article XVIII of the Specifications. It shall be noted that jib battens are optional.



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The sail plan shall be redrawn to conform to the changes in sail and batten specifications, above set forth.

The detail of the masthead bolster shall be redrawn to show essential measurements more clearly.

The notation showing top of spinnaker halliard block 20'4 1/4" above deck shall be changed to read, "Top of spinnaker halliard block sheave 20'4 1/4" above deck."

On Sail and Deck Plan the following notations shall appear: "Tracks optional for both jib sheet lead and dead end," and "Note: Installation of track or traveller for main sheet blocks is not permitted."

A note shall be added to the stem detail drawing to the following effect: "If 3/8" half round stem band is used to protect face of stem, face may be made 3/8" wide at the 6" water line."

On the construction section, the provision for use of 3/8" Tego bonded plywood shall be changed to read, "Not less than 3/8" resin bonded plywood."

On drawings showing spars, a note shall be added showing more clearly that the 10' dimension from end of boom to mast includes the space taken up by the gooseneck fitting. A note shall also be added in connection with the mast showing that "Backing blocks may be inserted at points where fittings are attached."

A note shall be added as follows: "If desired to stiffen the skeg, a 1/8" piece of brass may be extended down the transom and the after face of the skeg. If owner wishes to have the rudder mounted on a track, the track may be set on a batten, provided the batten does not extend below the water line and does not change the normal position of the rudder or the normal distance between the forward edge of the rudder and the after face of the skeg."

#### GENERAL INSTRUCTIONS AND NOTES FROM MEASUREMENT COMMITTEE

*The following general instructions to builders and present Lightning owners were issued by Chief Measurer Judge L. S. Oliver following the adoption of revisions in plans and specifications at the Annual Meeting of the Class, January 17, 1941.*

We call to your attention the necessity of keeping all sails uniform, except for such variances in draft of the jib and

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mainsail as the sailmaker, in his discretion, within the limits specified, may put into those sails. The draft of the spinnaker is specified within very narrow limits, allowing the sailmaker no discretion, for the express purpose of having all spinnakers as nearly as possible exactly the same in size, shape and fullness. Your spinnaker is probably either undersize, or oversize, or too flat or too full and should at once be measured. If it is not strictly within the limitations, it should be sent to your sailmaker to be recut.

Your mainsail and jib should also be measured and sent to be recut if not in accordance with the measurements above given.

Boom, including attachment to mast, cannot exceed 10 ft.

Spinnaker poles with fittings cannot exceed 6 ft. 9 in.

Top of spinnaker halliard block sheave shall be placed on mast 20 ft.  $4\frac{1}{4}$  in. above deck.

A distinguishing color band  $\frac{1}{2}$  in. wide must be painted around the mast, the top edge of which shall be 24 ft. below the top of the main halliard sheave. A stopper shall be installed to prevent the line of the top of the boom coming below the top of this color band.

All boats must have canvas covered decks as specified. Covering boards are not permitted.

Masts are to be made solely of spruce or Douglas fir.

Cockpits should be kept strictly according to regulation size and plan.

Wherever the plans do not give specific measurements, measurements must be ascertained by scaling from the plans. In all cases, however, specified dimensions, if given, take precedence over figures determined by scaling.

Centerboard may be streamlined. Must be painted and not polished.

Notches may be cut in centerboard trunk to permit dropping the centerboard to its correct position, but not beyond same, as shown by plans, when the head of the centerboard has been cut down.

Bottom frames may be continuous from chine to chine and cut from one piece of timber, but in such cases the floor timbers should nonetheless be attached to the frames. Where frames

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are made continuous, they should still be cut on a separate arc from centerline of keel to chine on each side of the boat.

Offsets for the height of the bottom are measured from the base line to the fair line of the bottom at the centerline disregarding the amount the keel stands proud of the bottom planking.

Masts may be built either in accordance with Spar Detail drawing or in accordance with Rufus Smith's book. Rake of mast is determined by scaling the plan.

Running rigging is not specified.  $\frac{5}{8}$  in. has been found satisfactory. Size and quality is a matter of personal preference.

Standing rigging must be wire rope of size and strength specified on plans. Solid wire not permitted.

Folding type of rudder may be used for local races, provided it is used in full downward position. It cannot be used in national competition.

With respect to sail measurements, the term "fully stretched" refers to the sail measurement after sail has been pulled out to approximately its limit in the course of usage. New sails should be so cut that, when stretched, they will not exceed the measurement limitations.

Seam battens may be used.

Seats must be of width shown on drawings.

Spreader is continuous and extends through mast.

Face of stem tapers considerably. It is not intended to be kept uniform.

Sail track is  $\frac{5}{8}$  in.

The vee strut and spreader tubing has been reduced to  $\frac{5}{8}$  in. with  $\frac{1}{8}$  in. wall.

Minimum weight of hull with rigging, mast and boom, rudder, tiller and centerboard must be not less than 700 lbs.

Tracks and adjustable slides may be installed for jib sheet leaders and dead ends.

Backing blocks may be inserted in mast at points where fittings are attached, but they should not be larger than necessary and should not completely fill opening in mast.



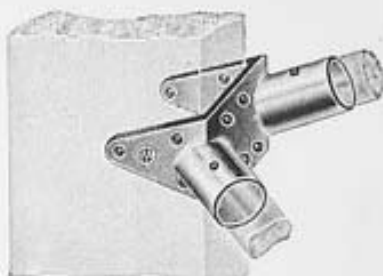
"Fiege" Turnbuckles  
Fig. 319



Eye End Mast Tangs  
Fig. 9896



"Fiege" Eye End Sockets  
Fig. 3191



Vee Strut Fittings  
Fig. 627



Spinnaker Pole Fittings  
Fig. 6540

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*THE FOLLOWING ARE NOT PERMITTED:*

Gaskets in or at the bottom of the centerboard well, regardless of the purpose for which they were installed.

Reefs in the jib.

Wooden struts and spreaders.

Traveler or tracks for main sheet blocks.

Extensions of skeg aft of the vertical line of the transom. However, if desired to stiffen the skeg, a  $\frac{1}{8}$  in. piece of brass may be extended down the transom and the after face of the skeg. If owner wishes to have the rudder mounted on a track, the track may be set on a batten, provided the batten does not extend below the water line and does not change the normal position of the rudder or the normal distance between the forward edge of the rudder and the after face of the skeg.

Bridle for backstay over tiller.

Enclosing centerboard trunk.

Elimination of splash coaming.

Leading halliards down inside the mast.

Two outboard motor hatches or hatch in forward deck.

Solid wire or rod rigging.

Mortising bottom frames to side frames or side frames to deck beams.

Covering boards.

You no doubt appreciate the rapidity with which variances tend to spring up and develop, and realize the absolute necessity of a sharp periodic checking up if we are to keep our class strictly "one-design." We ask your cooperation respecting your own boat and your friendly insistence that all other owners in your fleet likewise cooperate.



# **NOTICE**

## **TO BUILDERS AND SAILMAKERS**

The association will refuse to issue a number or grant a measurement certificate to any yacht on which the royalty has not been paid or which was not built by a recorded owner of official Lightning Class plans.

### **PLANS**

Plans are not transferable. They are sold subject to the terms and conditions of the notice thereon. Plans and specifications are subject to annual revision, only as provided in Constitution and By-Laws. The responsibility of keeping advised as to these annual revisions rests with the purchaser of plans and specifications. Never copy another Lightning.

### **ROYALTIES**

A royalty, or number tax, must be paid by the builder to the association on each Lightning built. A royalty must also be paid by the sailmaker on each suit of sails made, amounting to 40 cents on jibs, 60 cents on mainsails and 60 cents on spinnakers.

### **PROTECTION OF NAME AND EMBLEM**

The Lightning name and emblem as applied to sail boats has been registered with the U. S. Patent Office and the Lightning Class Association is granted exclusive use thereof. No boat may properly be sold, or entered in any race, as a "Lightning", or at any time display the Lightning emblem upon its sails or otherwise, unless the number tax or royalty on such boat has been paid to the association by the builder or owner thereof. For the benefit of owners, and prospective owners, the association proposes to take whatever steps necessary to protect both the Lightning name and emblem from any unauthorized use.