

Viking KNARR

SCALE: 1/72

Length: 220mm

Width: 150mm

Height: 200mm

HISTORY:

The Knarr is a type of Viking ship which serves for long trade naval business. The Knarrs were very robust and very well resist again unfavorable conditions in open sea. This model represents the similar Knarr which was found near the village of Skuldelev at Denmark and which is known as Skuldelev 1. The original was built in Norway between years 1030 and 1050 mainly from oak and pine. Length of the ship was about 16.3m and displacement about 24 tones.

Recommended tool list:

- 1) Modeler's knife or scalpel
- 2) Mini drilling machine
- 3) Drill bits
- 4) Selection of abrasive paper
- 5) Scissors
- 6) Pliers
- 7) Clothes pegs or crocodile clips
- 8) Pencil
- 9) Rule
- 10) Set of needle files
- 12) Sewing machine

Before you begin:

Before you begin to build the model it is necessary with a vengeance read building instructions and plans. Also chronology of assembly steps is necessary to keep. You check if the parts go together before you glue it respectively you make any corrections with sandpaper. During the gluing, painting, lacquering and at work with another chemical materials is necessary well ventilated in your working room. You cut the parts from sheet until actually required for fitting. You cut by knife only in direction off ward your body so that you head to injury risk.

Coloring:

Medieval ships were protected against influence of salt water and woodworms by a mixture of tar and thanks to it the hull of ships was a reddish-brown or brownish-black color. This effect it is possible to get by staining of the wood by dark wood stain. It is recommended to use the wood stain before gluing of the parts. Decks of the ships were probably in naturally color of wood. Anchors and other metal parts were a black color.

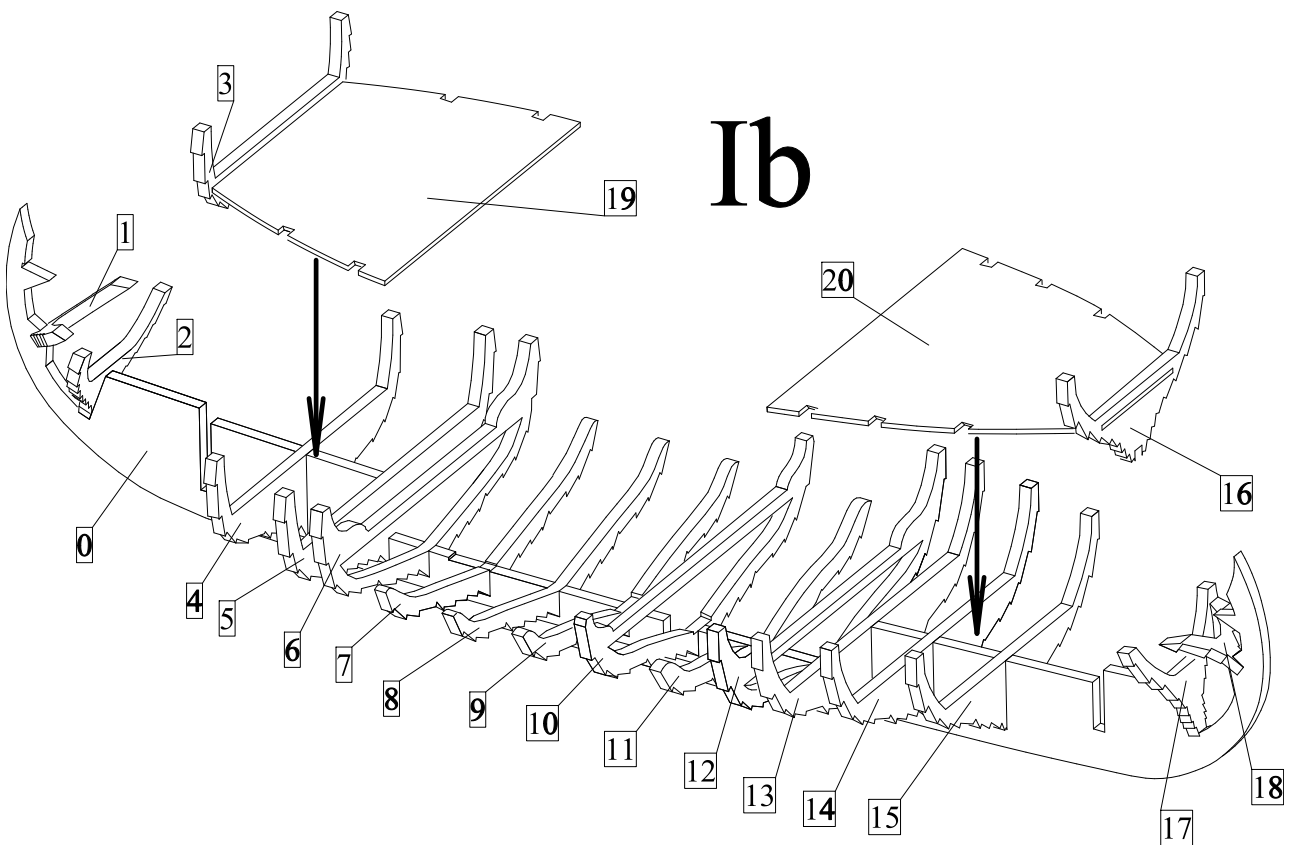
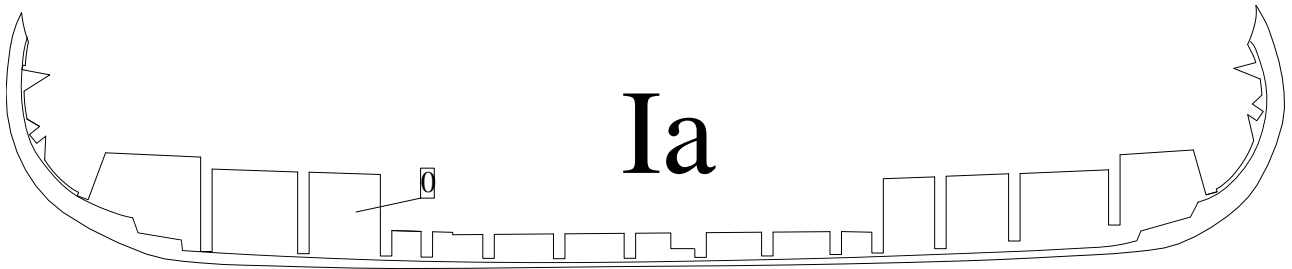
Bending of wooden strips:

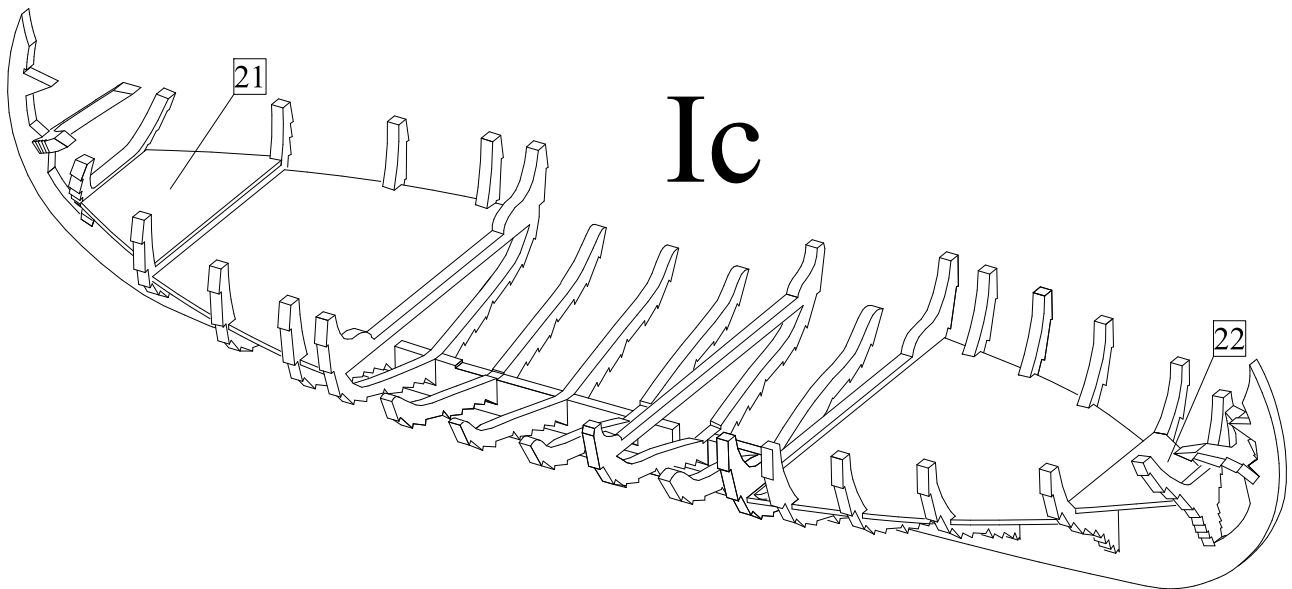
The Wooden strips will be more flexible if you will boil it in hot water about 10-15 minutes. You can bend the strips along any cylindrical area but ideal is using of special plank bender (it would be best to use electric plank bender). If you need to do very small radius so you must bend it in more steps.

Model building process:

I) Framing of a hull I:

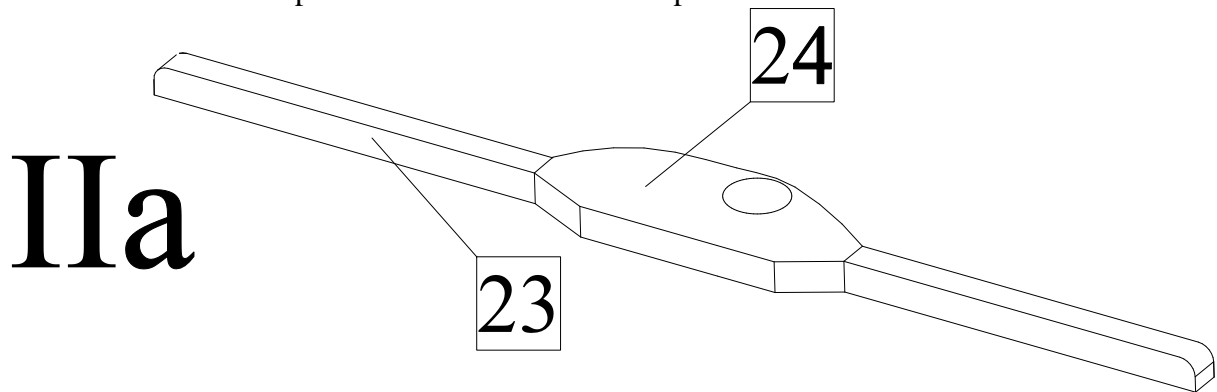
- a) First draw on both sides of the keel 0 contours of planking. The contours draw after the plan 1.
- b) Run frames 4, 5, 6, 12, 13, 14, 15 into the keel 0. Then run also frames 3 and 16 together with decks 19 and 20 into the keel 0. Then glue all frames and to the decks and to the keel.
- c) Glue decks 21 and 22 to a bow and stern o the ship.





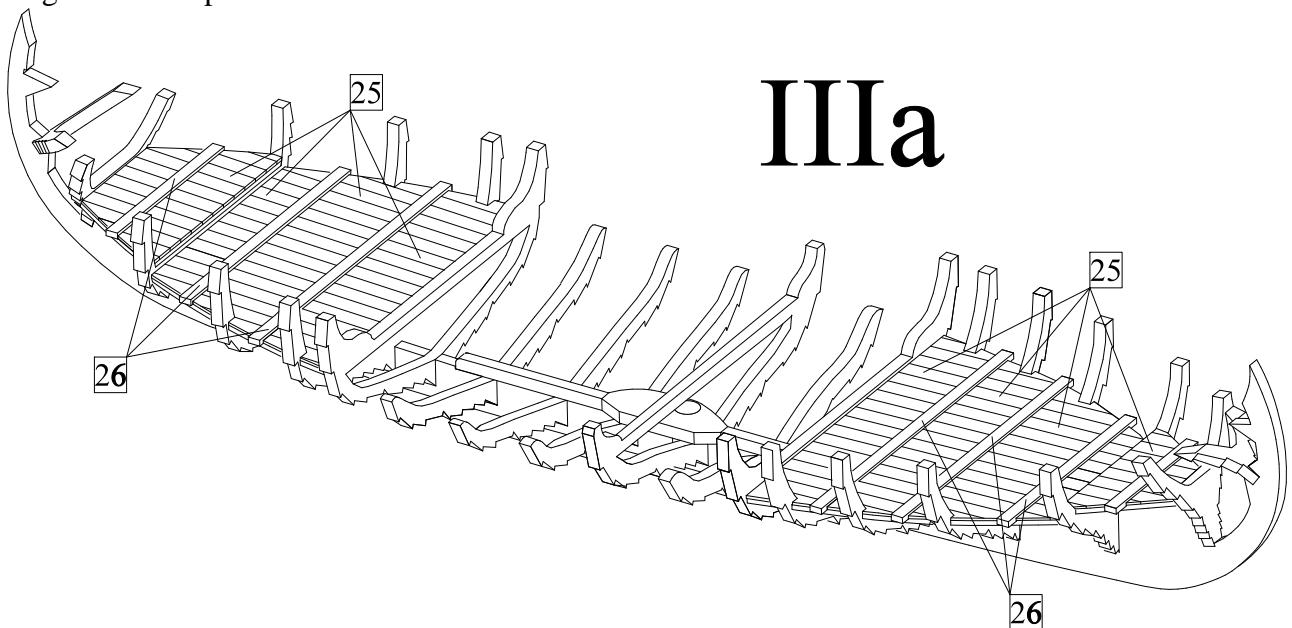
II) Mast foot:

a) Make a mast foot from parts 23 and 24. First glue the part 23 to the part 24 and then sharpen them by a sand paper into rounded shape. Finally glue the mast foot to the keel 0. An exact position of the mast foot in the ship is in 1:1 scale shown in the plan.



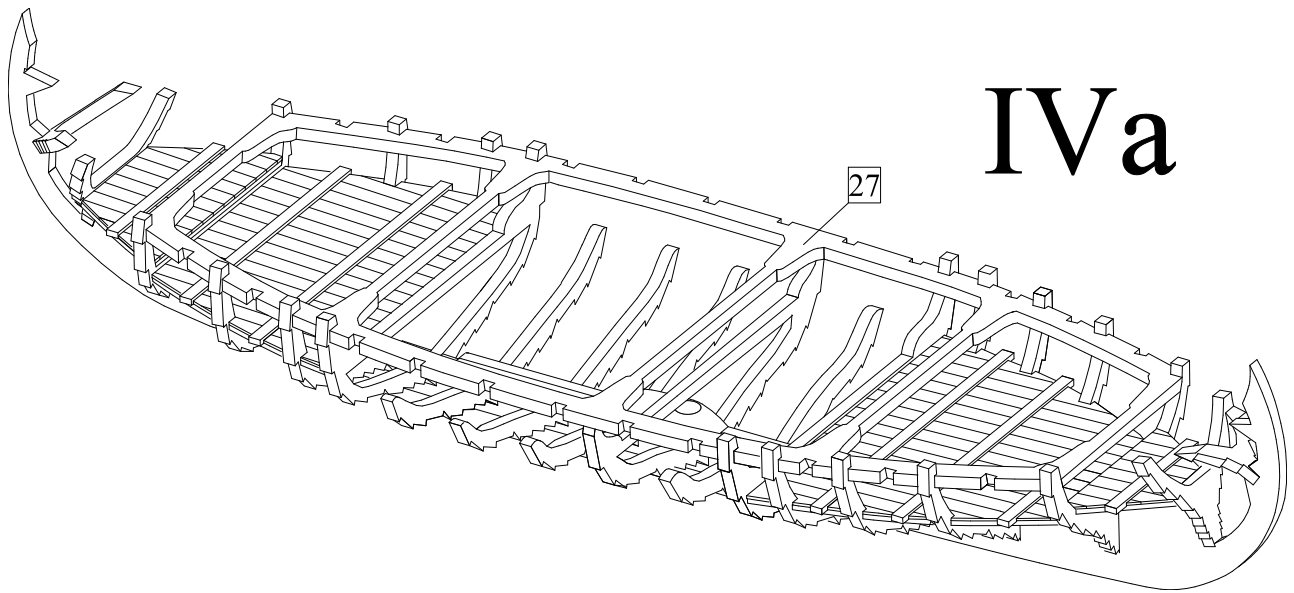
III) Deck planking:

a) First plank all deck by transverse strips 26. Then glue between the transverse strips also longitudinal strips 25.

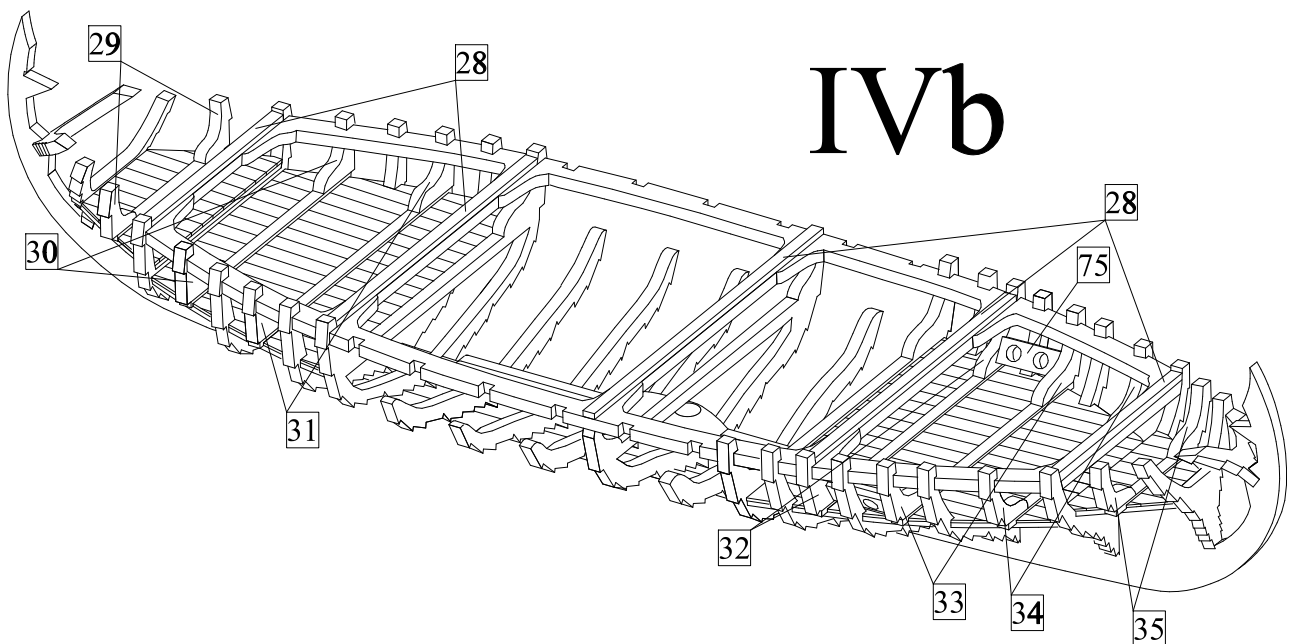


IV) Framing of a hull II:

a) Glue an inner frame 27 to the frames 3-16.

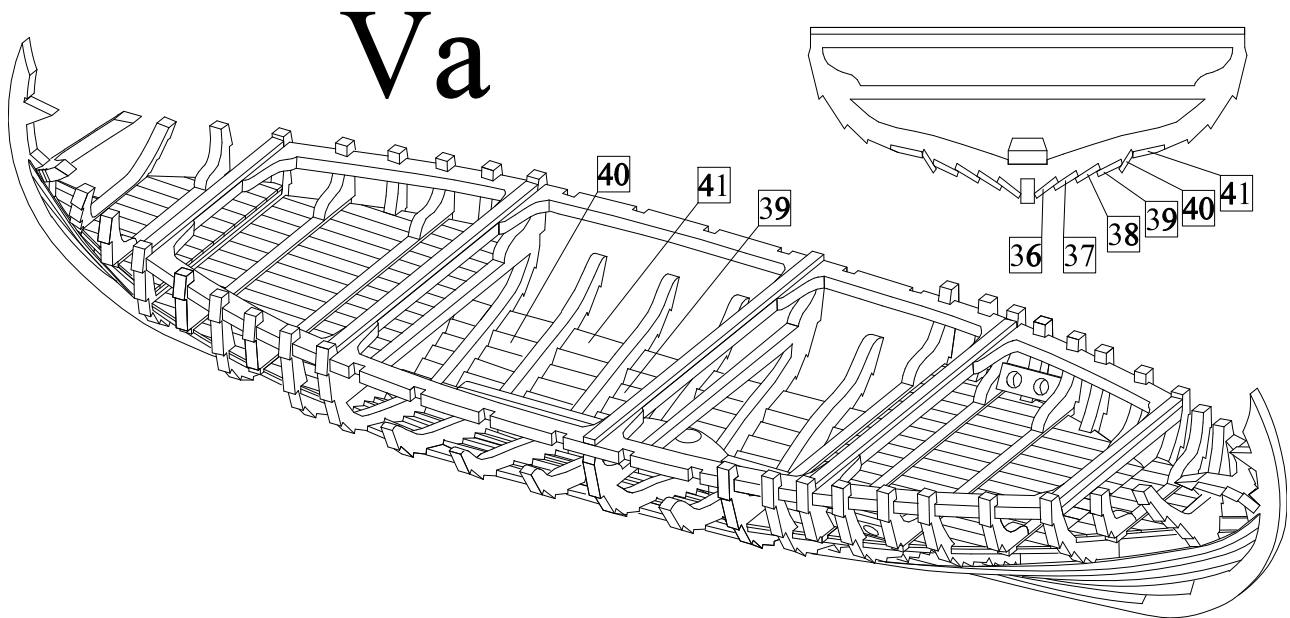


b) First glue transverse beams 28 to the frame 27. Then glue frames 29-35 to the transverse strips 26 and to the frame 27. Finally glue to the frames 14 a board with holes 75.

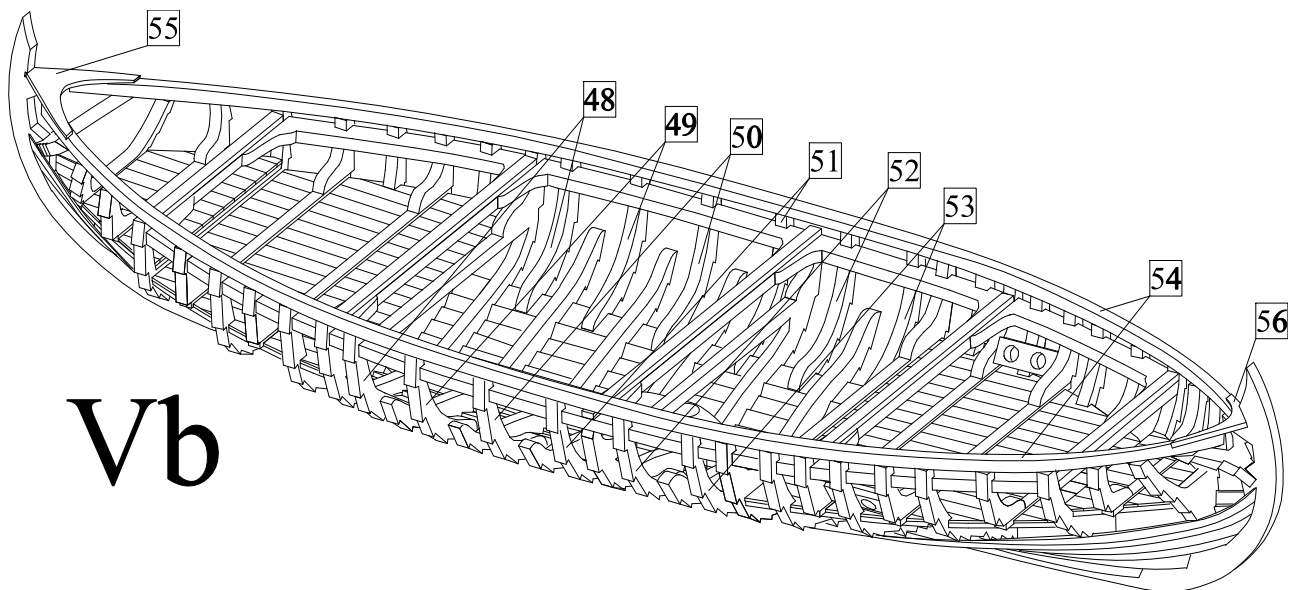


V) Hull planking:

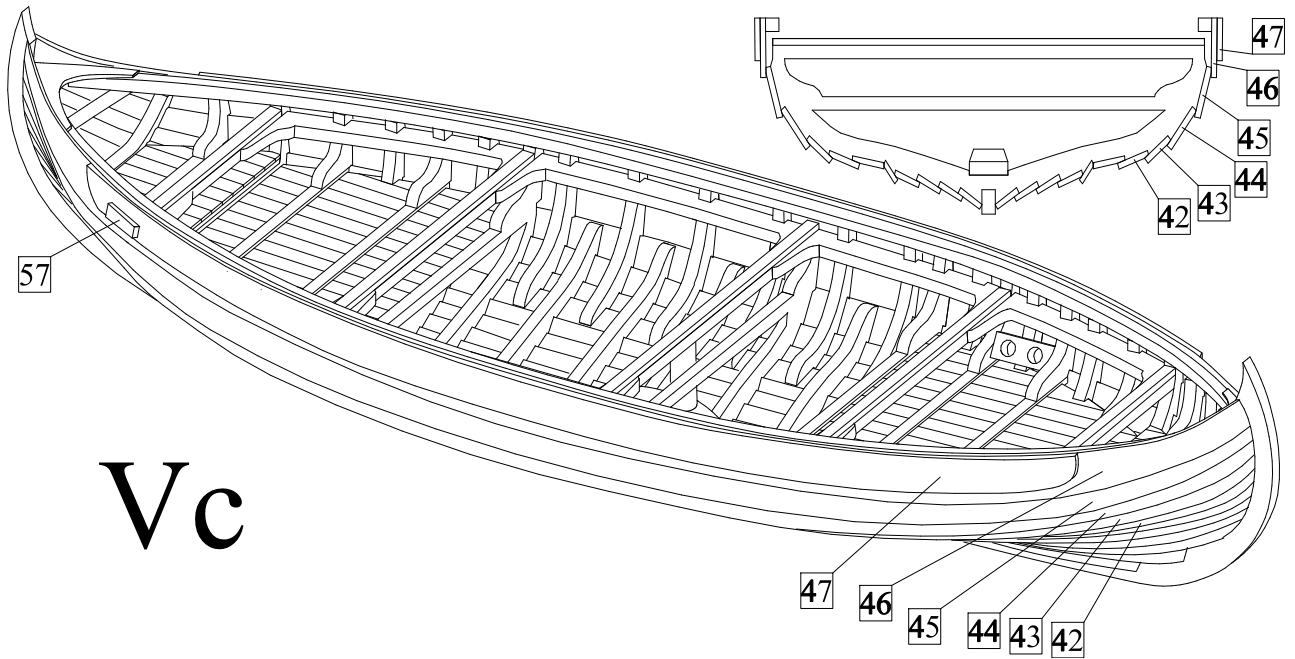
a) The hulls of Viking ships were built by clinker planking method. It means that neighbor planks are overlapped. For this reason it is very important to keep exact order of gluing of the planks! First glue lowest planks 36 to the frame of the hull. Start to glue the planks to a middle part of the ship and subsequently glue it to bow to stern. Then glue also other planks in sequence from 37 to 41. An arrow in the plan shows an orientation of the planks.



b) First glue frames 48-53 to the planks 41 and frame 27. Then bend beams 54 into needed shape and then glue them to the hull. Finally glue to the bow and stern parts 55 and 56.



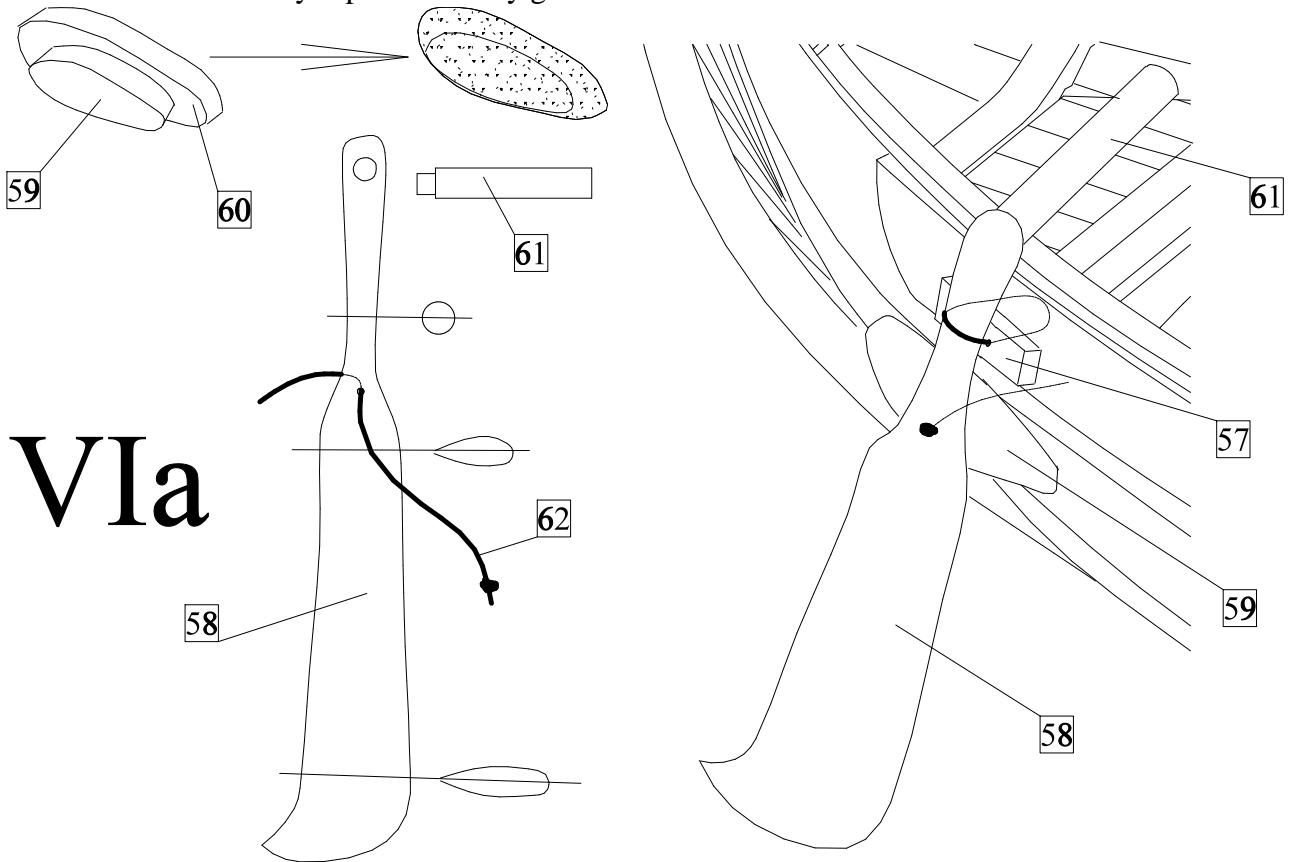
c) Plank the hull also by rest planks 42-47. Then glue a part 57 to the plank 47 on starboard.



Vc

VI) Rudder oar:

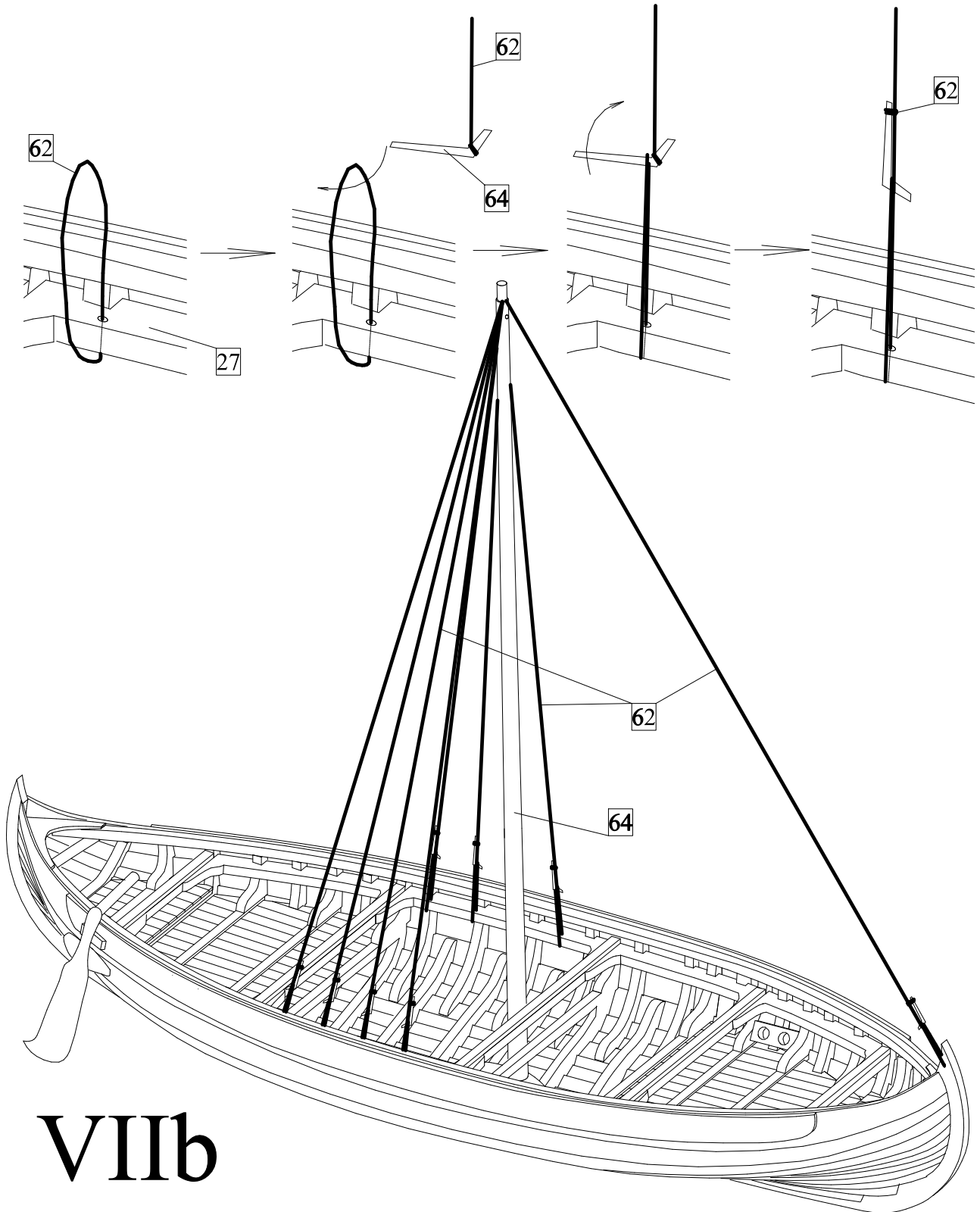
a) First glue together parts 59 and 60. Then sharpen the parts 59 and 60 into rounded shape and glue them to the hull. Then sharpen into needed shape by a sand paper also the rudder oar. Then tie the rudder oar to the hull by rope 62. Finally glue to the rudder oar a handle 61.



VIa

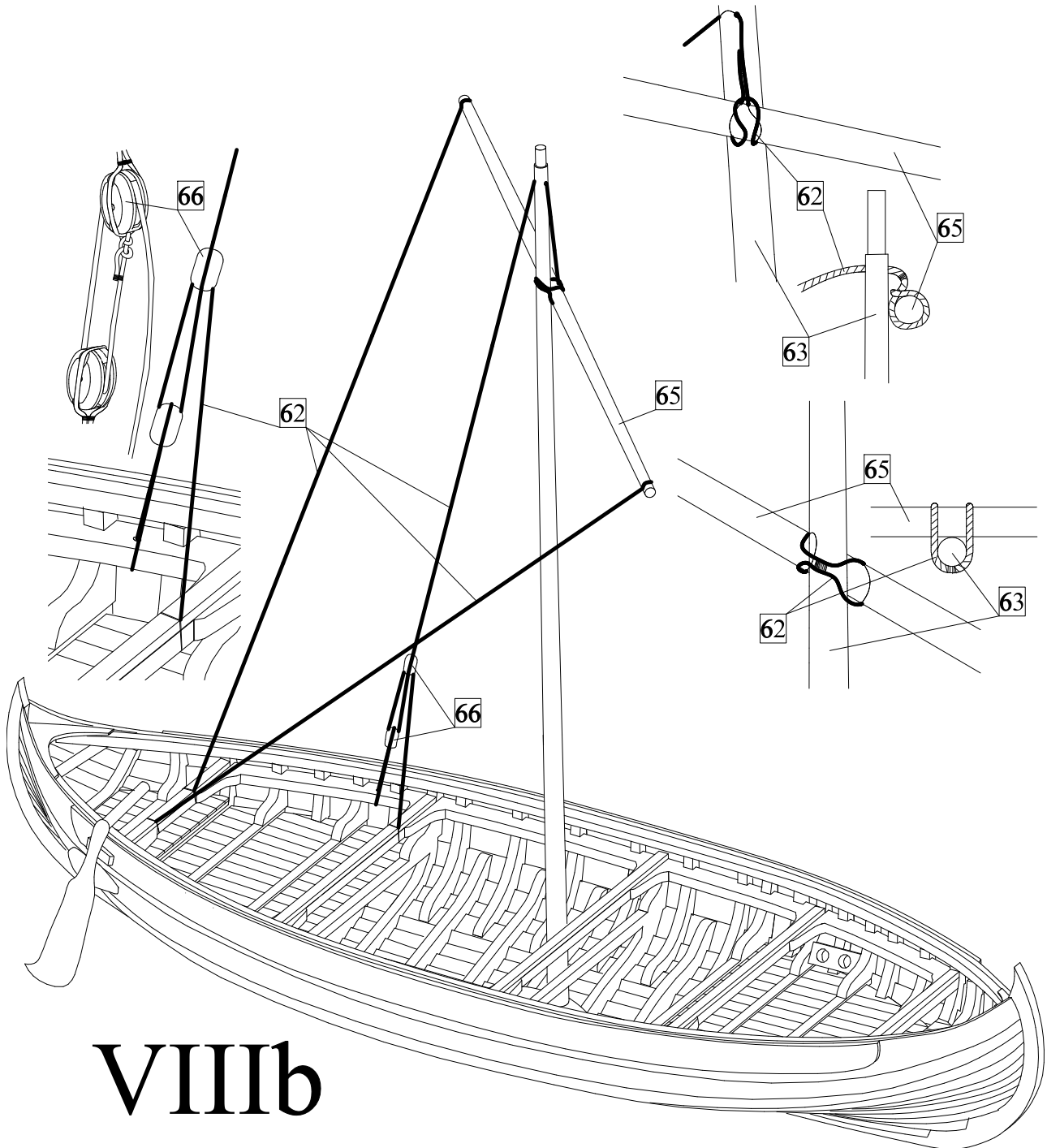
VII) Mast:

- a) Make a mast 64. First sharpen the mast by a sand paper into conical shape. Then drill a hole for control of yard into the top of the mast. The mast is in 1:1 scale shown in the plan.
- b) Tie the mast by shrouds to the hull. First drill holes for the shrouds in the hull. Then tie the rigging 62 with shroud pins 64. The tying of the shrouds is shown below.



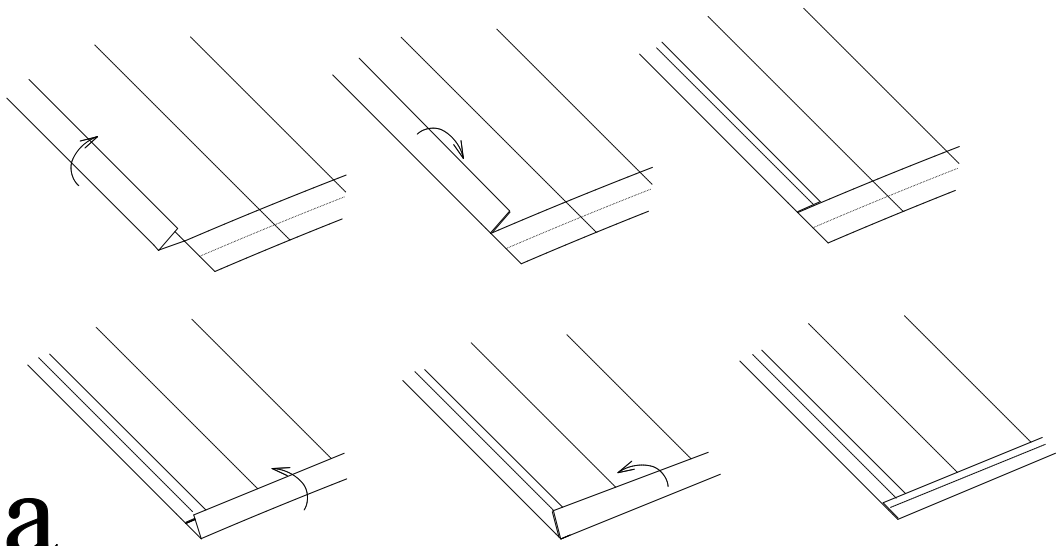
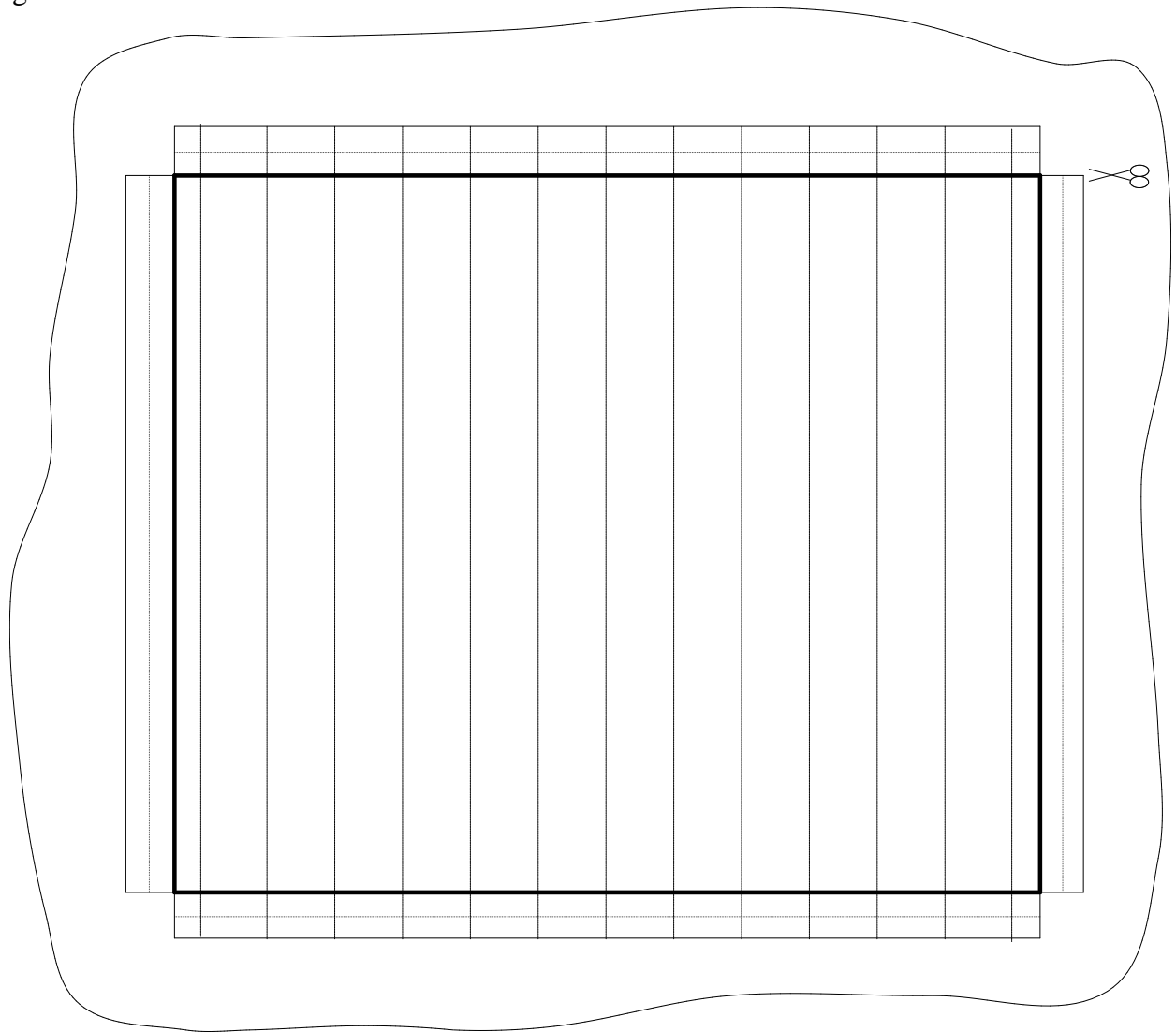
VIII) Yard:

- a) Sharpen by a sand paper a yard 65 from a dowel 3mm. The yard is in 1:1 scale shown in the plan.
- b) First tie a rope for raising and lowering to the yard. The second end of the rope tie through block 66 to the hull. Then tie the yard to the mast. Finally tie ropes for control to the ends of the yard and then tie them to the hull. The tying of the yard is shown below.



IX) Sail:

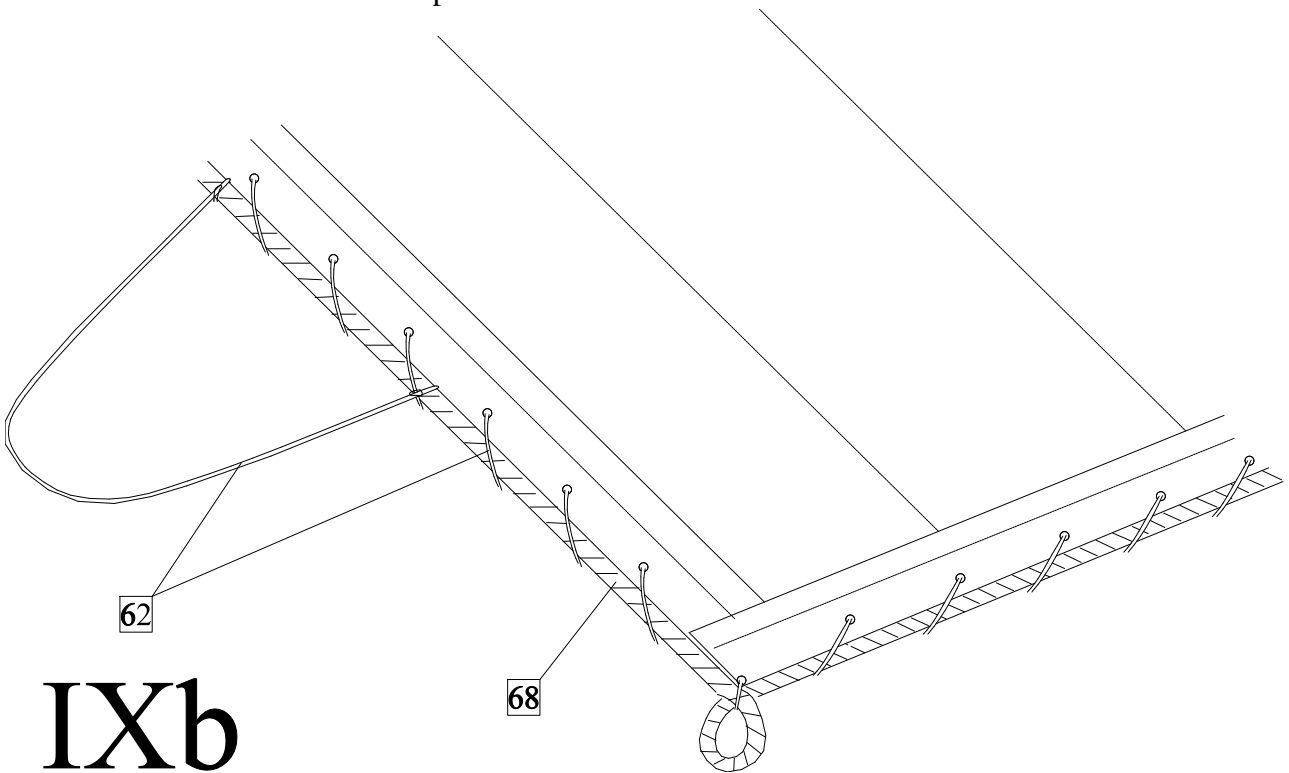
a) Make a sail 67. First draw by pencil contours of the sail on the. To the border of the sails add about 10mm for fell. By the pencil draw on the cloth also seams which divided the sail into simple segments. Then scissor the sail with fells and sewn it like it is shown below.



IXa

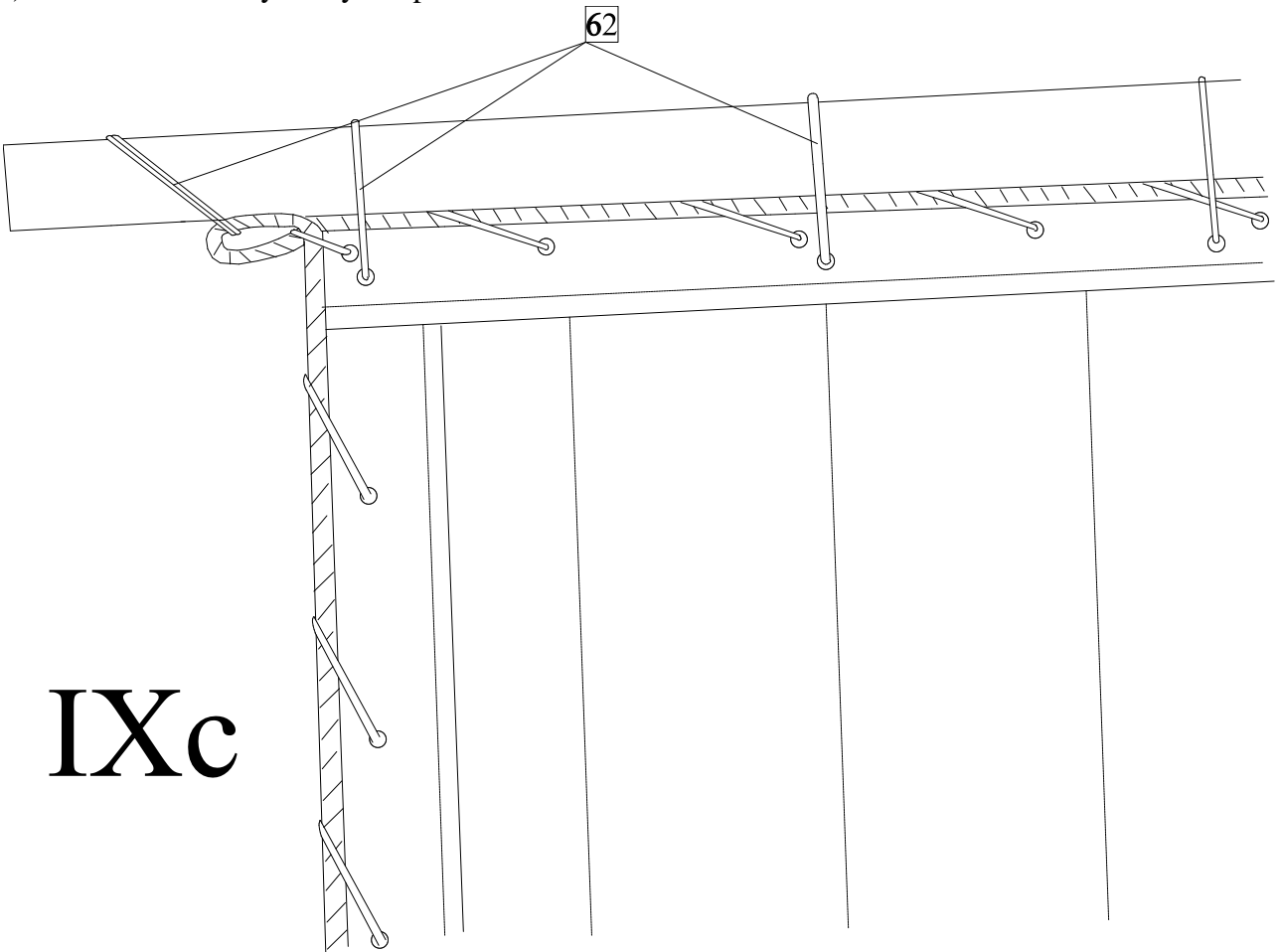


b) To the circumference of the sail sew on a rope 68 so that in the corner of the sail will eyes with diameters about 3mm. Then tie ropes 62 to sides of the sail.



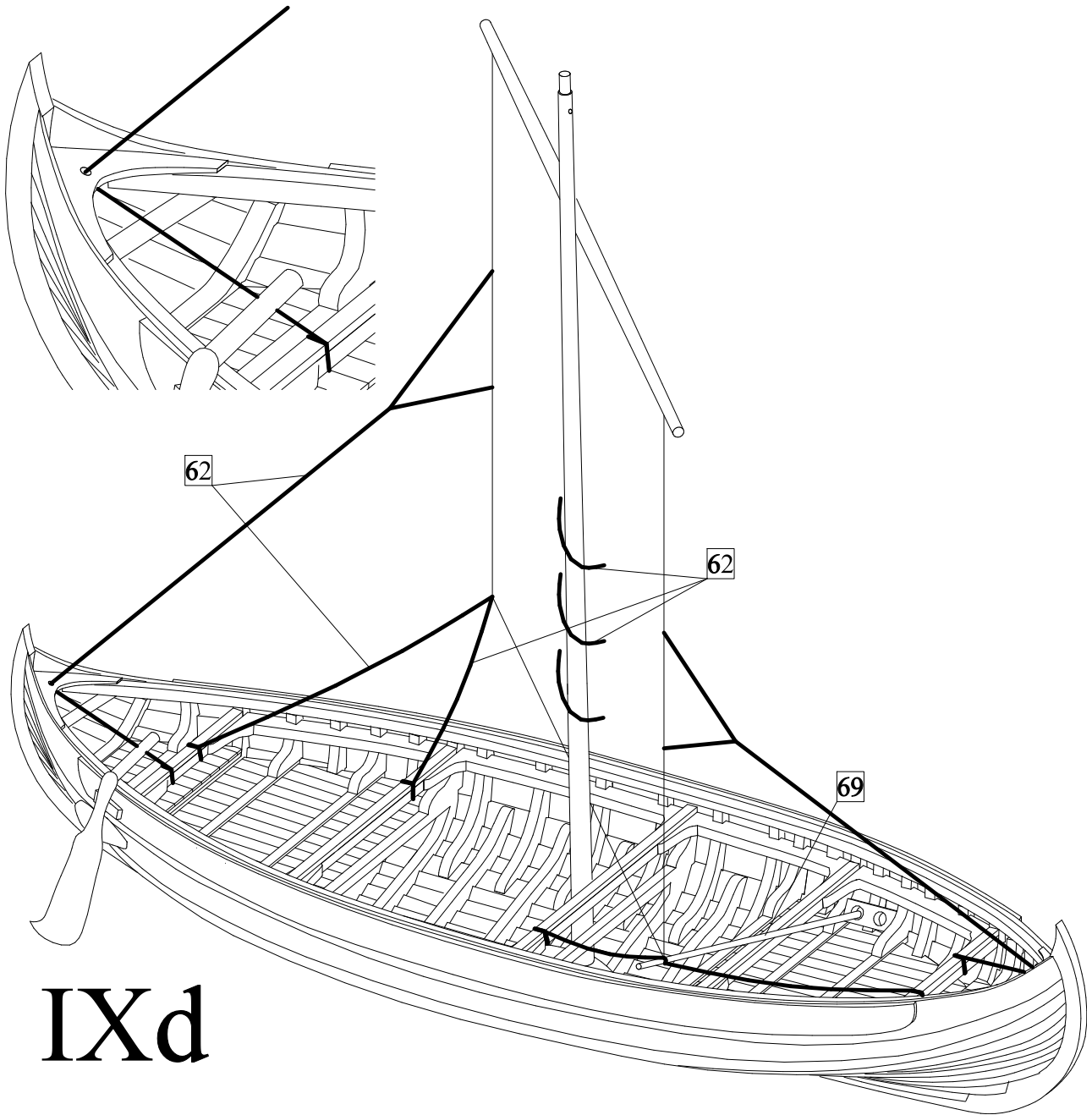
IXb

c) Tie the sail to the yard by a rope 62.



IXc

d) Tie the sail by ropes 62 to the hull and to the bar 69.

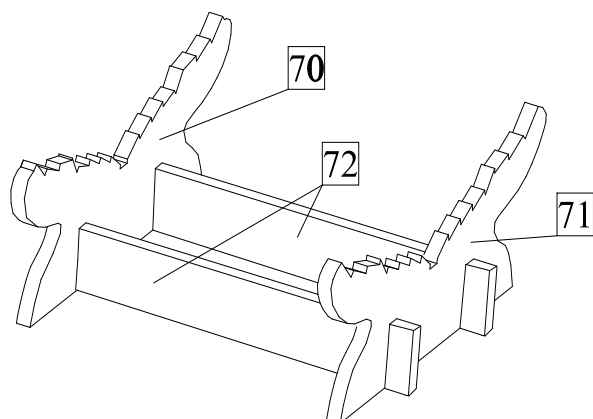


IXd

X) Stand

a) Make a stand from parts 70-72.

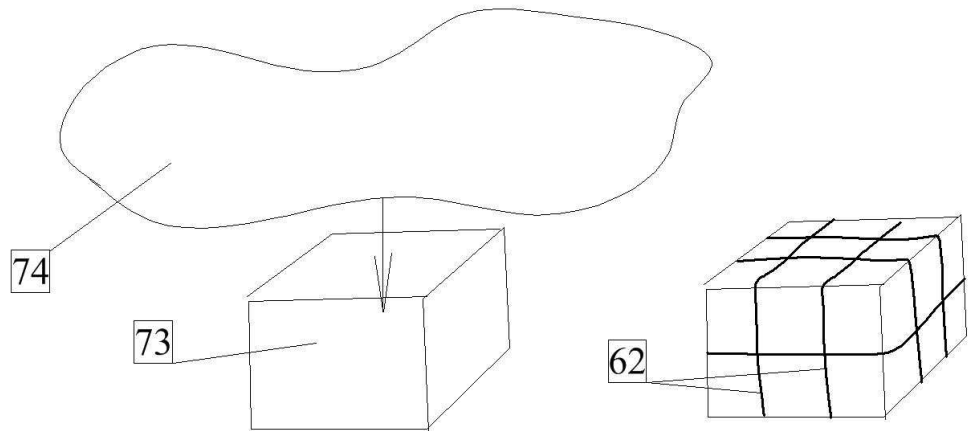
Xa



XI) Ship load:

- a) Make a ship load. Cut out the bales 73 from balsa strip 10x10mm and then pack them by a cloth 74 and rope 62.
- b) Finally install the bales and barrels into the hull.

XIa



Part list:

0	Keel	plywood 2mm	1pcs
1-18	Frames	plywood 2mm	1pcs
19, 20	Deck	plywood 0,8mm	1pcs
21, 22	Deck	plywood 0,8mm	1pcs
23, 24	Mast foot	plywood 2mm	1pcs
25	Deck	strip 1x3mm	6pcs
26	Deck	strip 1x2mm	2pcs
27	Frame	plywood 2mm	1pcs
28	Beams	strip 1x2mm	2pcs
29-35	Frames	plywood 2mm	2pcs
36-47	Planking	plywood 0,8mm	2pcs
48-53	Frames	plywood 2mm	2pcs
54	Beam	strip 2x2mm	2pcs
55, 56	Reinforcements	plywood 0,8mm	1pcs
57	Rudder oar bed	strip 1x2mm	2pcs
58-60	Rudder oar	plywood 2mm	1pcs
61	Rudder oar	dowel 2mm	1pcs
62	Rigging	nit 0,5mm	5m
63	Mast	dowel 4mm	1pcs
64	Shroud pins	plywood 1,5mm	9pcs
65	Yard	dowel 3mm	1pcs
66	Block	block 3mm	2pcs
67	Sail	cloth	1pcs
68	Rigging	rope 0,75mm	1m
69	Bar	dowel 2mm	1pcs
70, 71	Stand	plywood 2mm	1pcs
72	Stand	plywood 2mm	2pcs
73	Ship load	balsa strip 10x10mm	1pcs
74	Ship load	cloth	1pcs
75	Boards with holes	plywood 2mm	2pcs
76	Barrels	barrel 12x14mm	12pcs