

Titanic's Standing Rigging and Associated Hardware

By Bob Read, D.M.D.

Introduction

The purpose of this article is to describe and illustrate *Titanic's* standing rigging and associated hardware. There are two types of rigging used on ships. Standing rigging is used for structural support and does not move. Running rigging is used to move objects. The rigging itself moves in the process of moving other objects. For the modeler, the associated hardware and attachments will be illustrated.

The Masts

The mainmast and foremast required considerable support not only because of their heights but because they were used to support rigging used to handle heavy cargo. The attachment of standing rigging to the masts occurs at three levels: lower, middle, and upper. The lower stays were the largest in diameter and were progressively smaller in diameter as they were attached higher on the masts.

The Mast Stays.

The mast stays were galvanized steel wire rope (GSWR). An example of this kind of rope is shown in Figure 1.



Figure 1

Galvanized steel wire rope

The attachment hardware at both ends of each individual stay consisted of a galvanized Flemish eye thimble and collar as shown in Figure 2.



Figure

Flemish eye thimble and collar

Unlike the appearance of the rope, thimble and collar in Figure 2, on *Titanic* these were all treated with a process known as “service”. This process consisted first of “worming”. Small diameter cord is wound around the wire rope in between the strands. Next, canvas is wrapped around the wire rope covering the worming. This is called “parceling”. Next twine is tightly and closely wrapped around the parceling and worming. This is called “serving”. The final step is that a tar mixture is applied to the treated rope. This is called slushing. A typical mixture would include Stockholm tar, boiled linseed oil, and Japan drier. This mixture cures to a hard finish which will not rub off. The wire rope treated this way would prevent chafing against skin, clothes, or equipment. The steps in this treatment are shown in Figure 3.

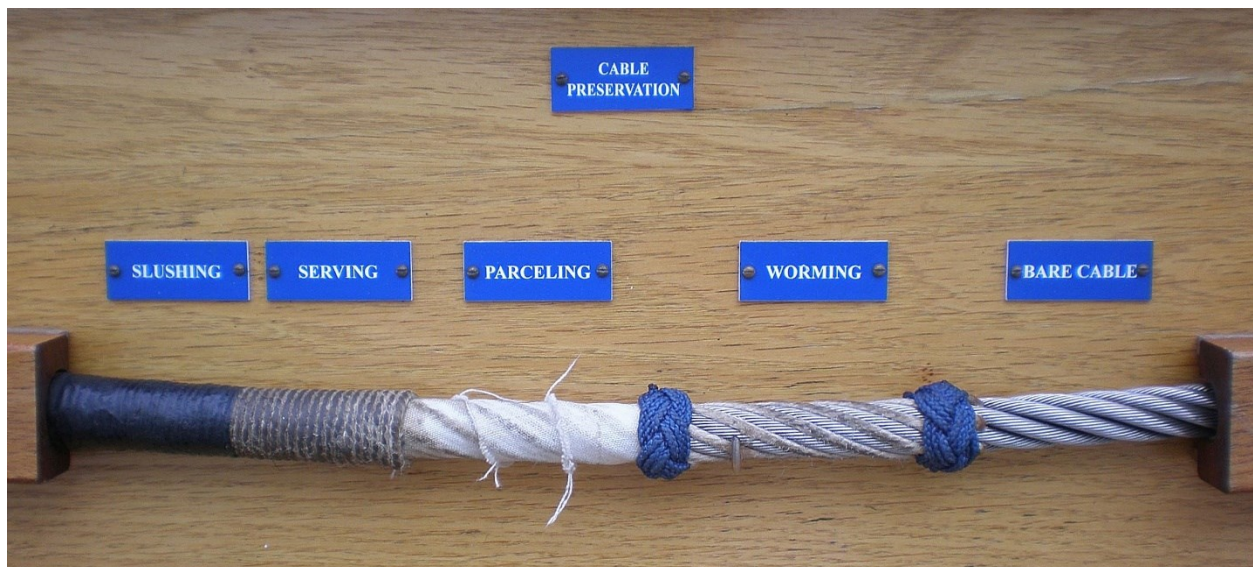


Figure 3

Treatment of ends of wire rope standing rigging

A similar treatment is applied to both ends of all standing rigging. The treatment is applied to the wire rope before it is turned around the galvanized thimbles at either end of the stay or shroud. Figure 4 shows the lower ends of the funnel stays “serviced”.



Figure 4

Lower ends of funnel shrouds “serviced”

Mast Standing Rigging Sizes

The galvanized steel wire rope (GSR) used for the standing rigging was graduated in size from the lower to upper with the lower sizes being larger. Rigging sizes were specified according to their circumference. The rigging sizes for the masts were:

Lower: 5-1/2 inch (1.75 inch diameter)

Middle: 4.25 inch (1.27 inch diameter), 4 inch (1.27 inch diameter)

Upper: 4 inch (1.27 inch diameter), 3 inch (.95 inch diameter).

The turnbuckles at the terminal ends of all these stay and shroud sizes were different. Figure 5 shows the two sizes of turnbuckles used for the standing rigging to the masts.

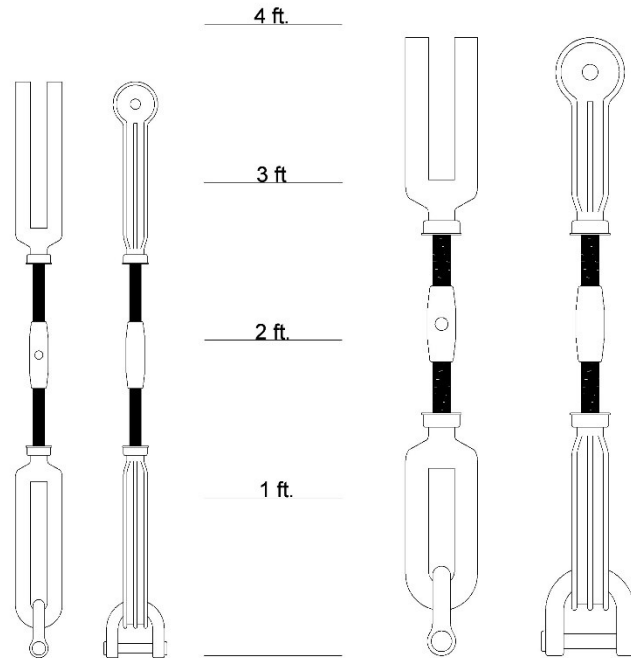


Figure 5

Sizes of turnbuckles used with mast standing rigging

The lower rigging to the masts used the larger turnbuckle type. The middle and upper standing rigging used the smaller size turnbuckles.

One other aspect about the terminology used for the standing rigging has to do with the backstays vs. shrouds. Shrouds were the port and starboard (P&S) lower rigging to the masts. There were three shrouds aside on both the mainmast and the foremast. The aft two shrouds on both masts were “rattled”. That is, they had “ratlines” consisting of galvanized steel rods attached on either side of these masts along their lengths. These acted as ladders that crew could climb for various service.

All other P&S rigging was referred to as backstays. The fore and aft rigging was all termed forestays.

Attachment of Rigging to the Masts

On the masts, the wire rope rigging is attached by eyes on the masts which are held by bands on the masts Figures 6, 7, 8 and 9 show the lower, middle and upper attachment eyes on *Olympic's* mainmast.



Figure 6

Attachment of shrouds to lower mast position



Figure 7

Attachment of shrouds to lower mast position

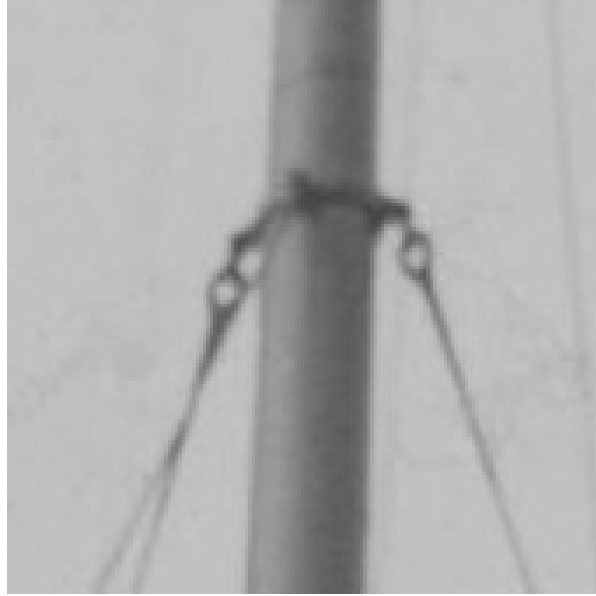


Figure 8

Attachment of backstays to middle mast position

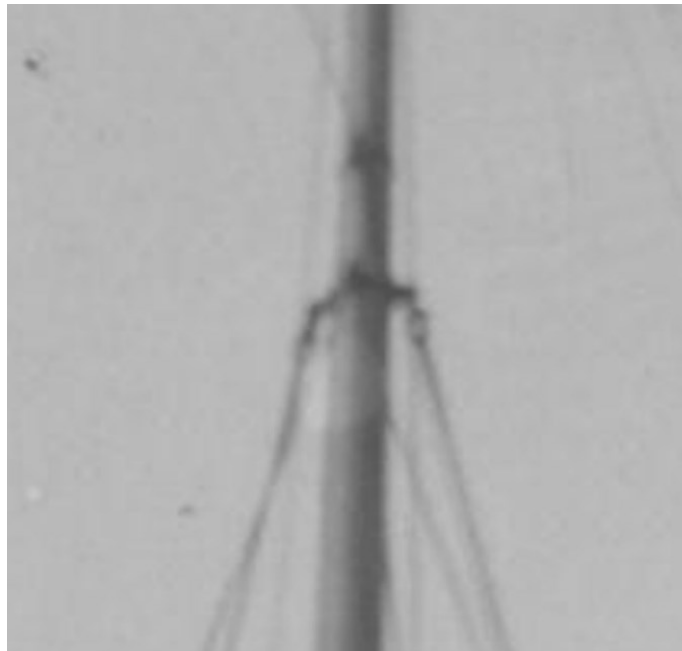


Figure 9

Attachment of backstays to upper mast position

The masts and stays are all attached at their lower ends by turnbuckles. Figure 9 shows a generic “closed body” turnbuckle.



Figure 10

Generic closed body turnbuckle

The turnbuckle consists of three main parts. The first part is the forks. The forks have an eye on one end which is an attachment point and on the other end is a second part which is a threaded rod. The third part is the collar into which the rods thread. When the collar is rotated in one direction, the forks and rods move toward each other. When it is rotated in the opposite direction the forks and rods move away from each other. One of the forks is attached to the thimble of a shroud or stay. The other fork is attached to a shackle which is attached to an eye at the lowest end of the shroud/stay/turnbuckle group. When the collar is attached to both fork rods and is rotated, the stay is tightened to the desired tension.

The standing rigging to the masts consists of three main points of attachment. At the lower mast attachments there were port and starboard shrouds. The third attachment was formed by double forestays. At the middle attachment there were backstays on port and starboard. The third point of the middle point of attachment to the masts was formed by the single forestay. The upper attachment points were the same in composition as the middle attachment points. The turnbuckle hardware at the lower ends of the shrouds and stays had different attachment points. All the shrouds and backstays had their turnbuckles attached to padeyes on the inner surface of the shell plating. The forestays were all attached to padeyes on decks and deckhouse roofs. The backstays to the foremast were attached to special plates used to anchor the padeyes.

The specifics of the standing rigging to the masts will be shown in the following drawings.

Figure 10 shows the plan and elevation views of the lower rigging to the foremast.

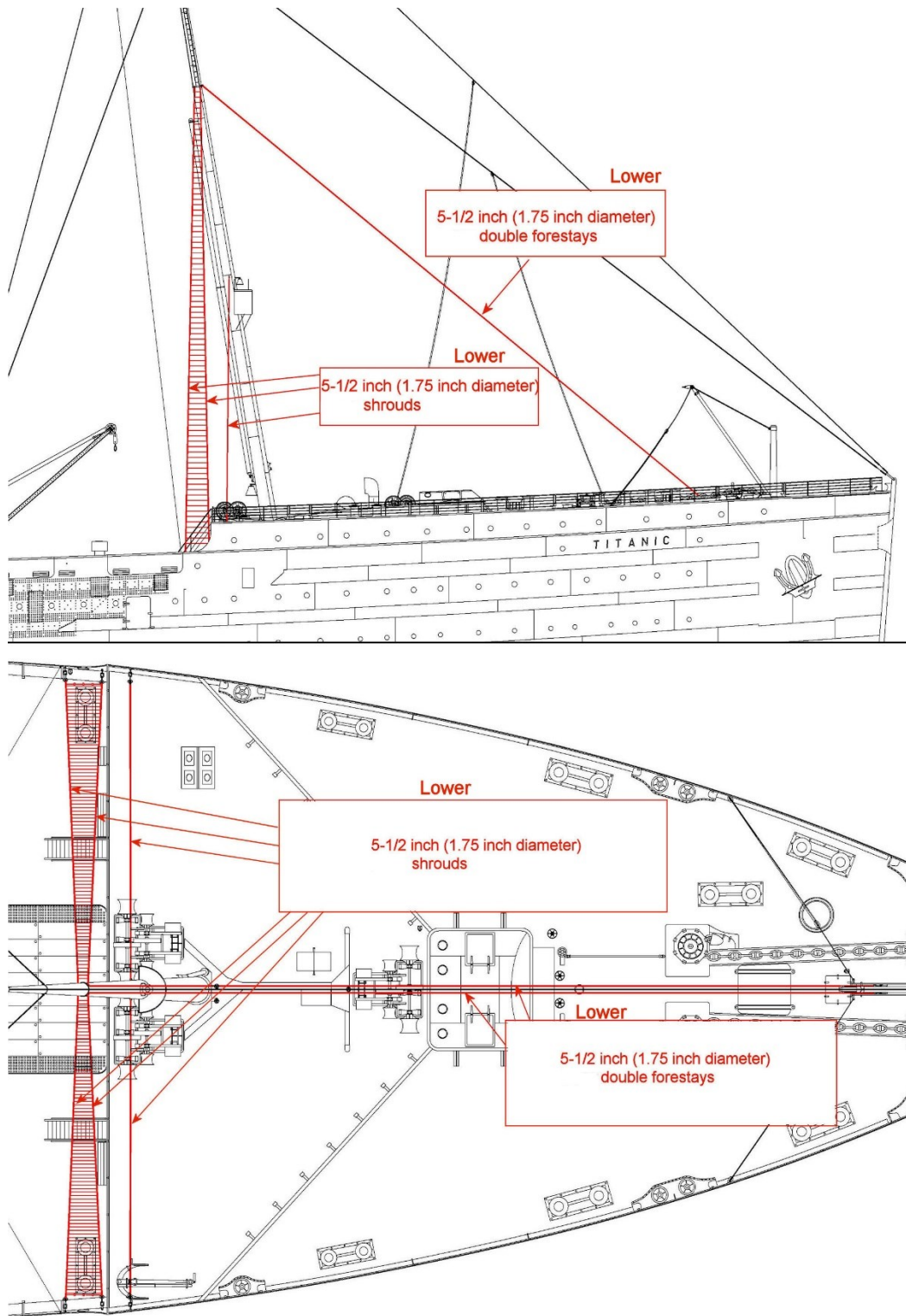


Figure 11

Elevation and plan views of standing rigging to the lower foremast position

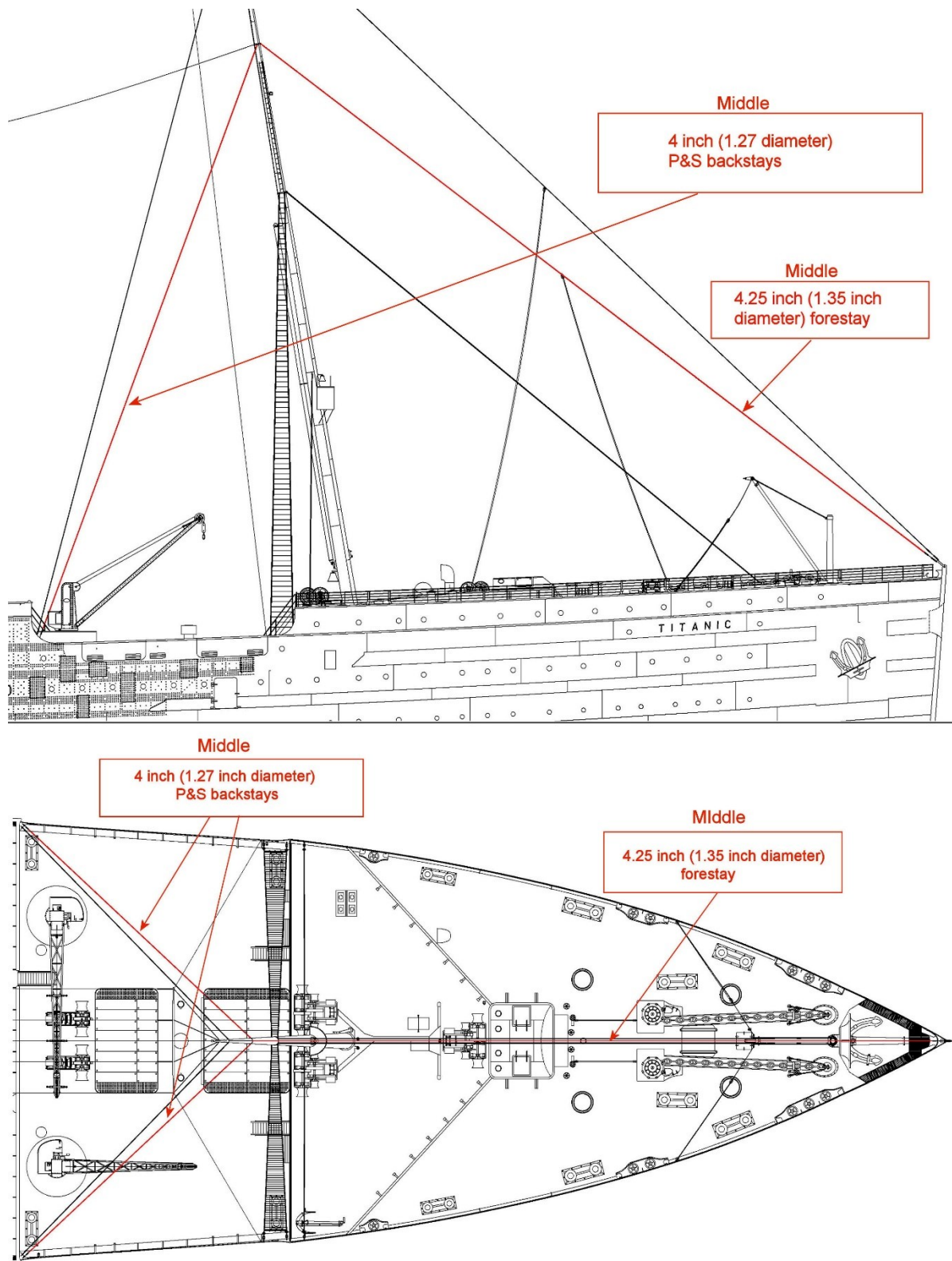


Figure 12

Elevation and plan views of standing rigging to the middle foremast position

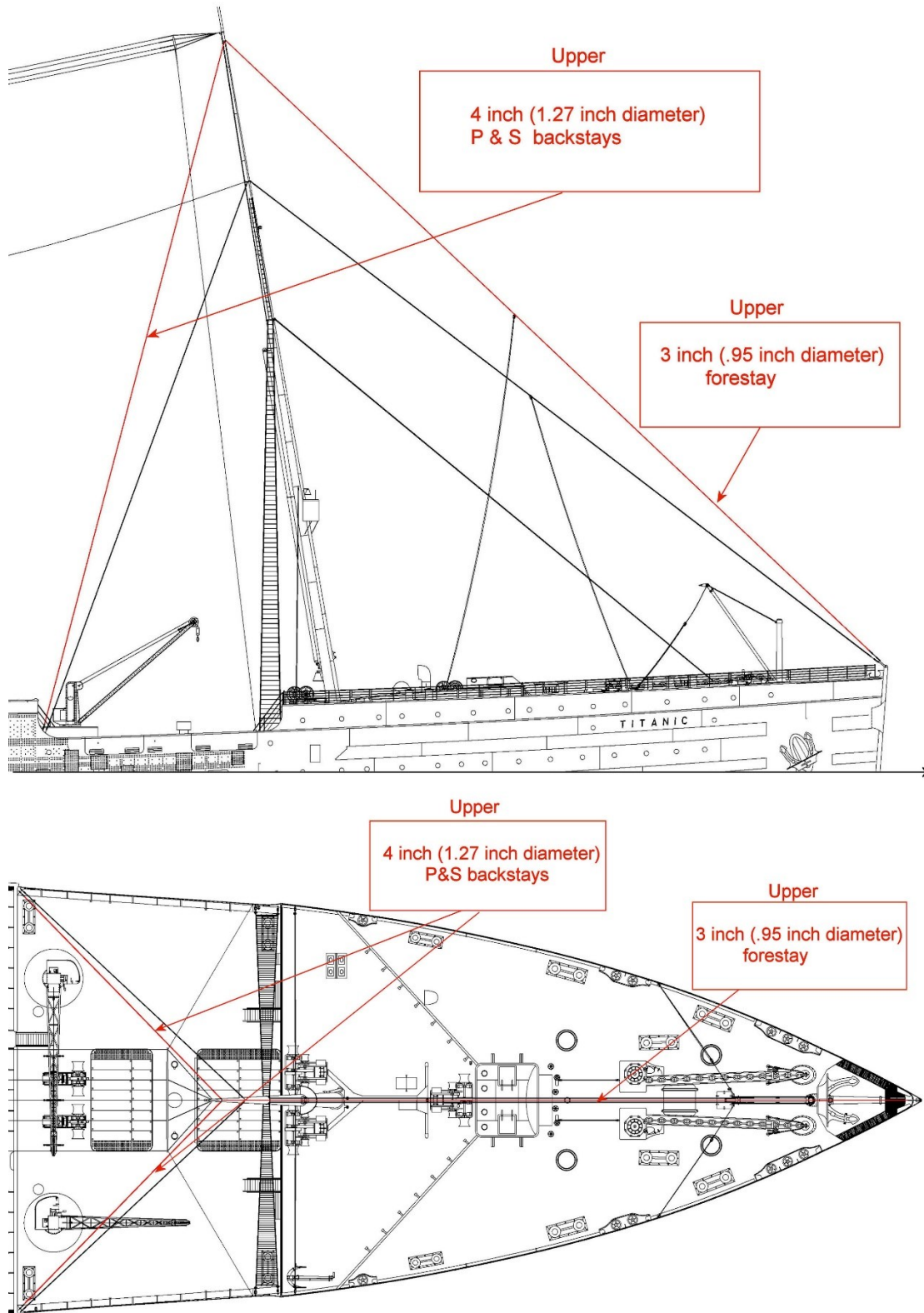


Figure 13

Elevation and plan views of standing rigging to the upper foremast position

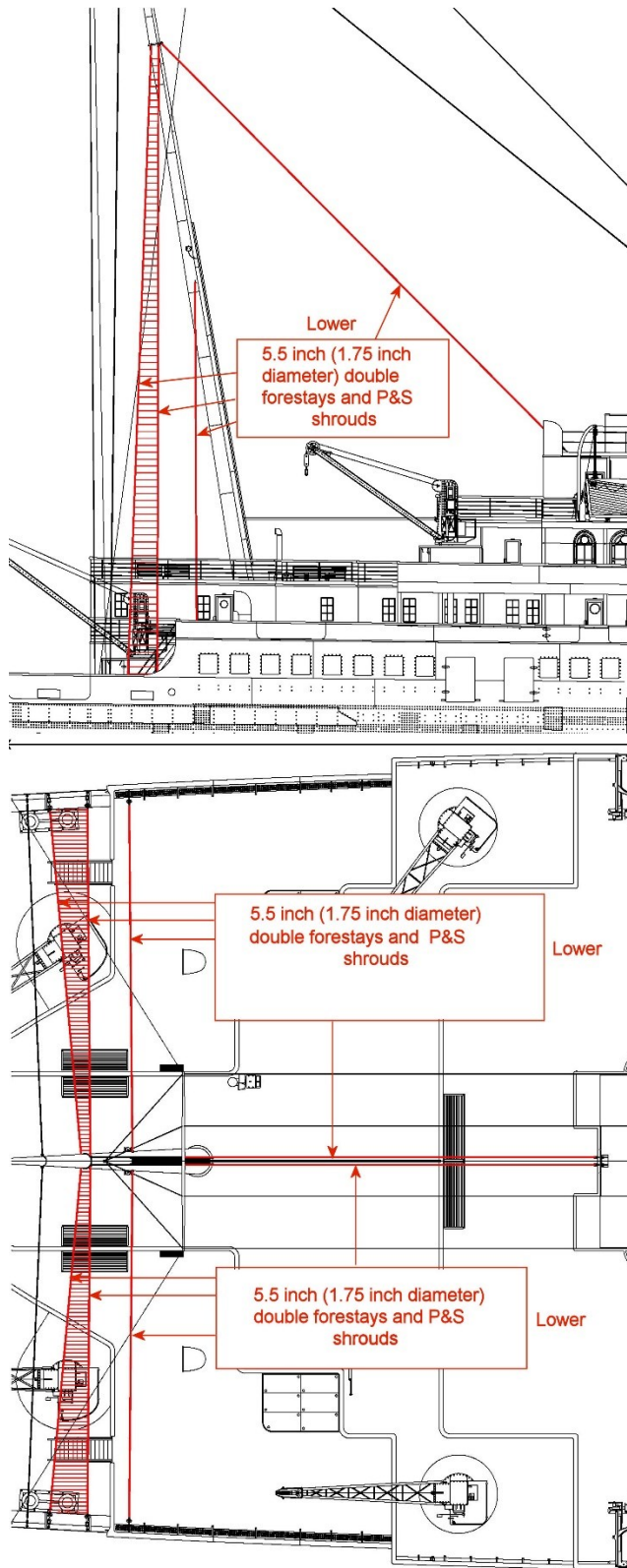


Figure 14

Elevation and plan views of standing rigging to the lower mainmast position

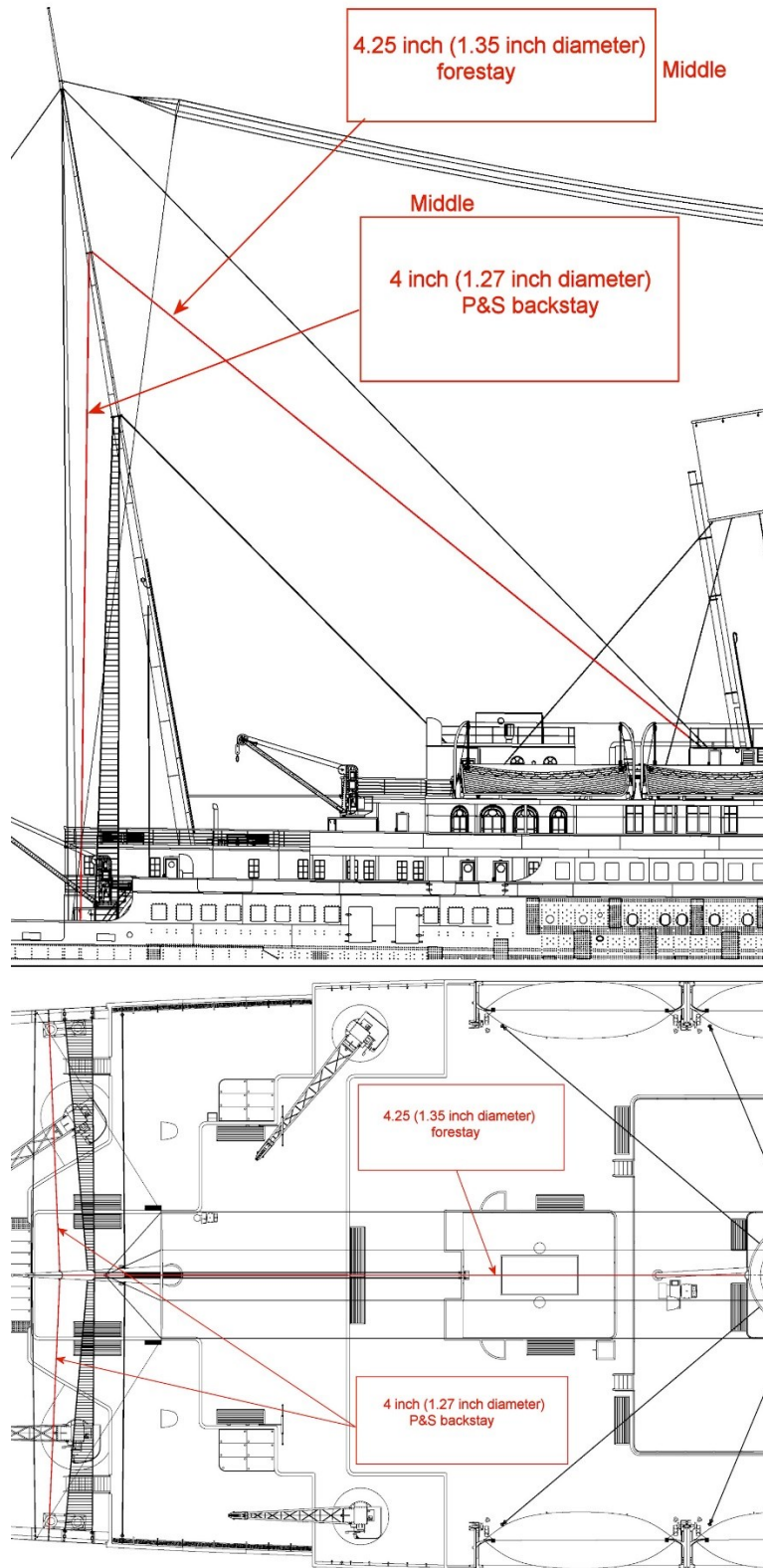


Figure 15

Elevation and plan views of the standing rigging to the middle mainmast position

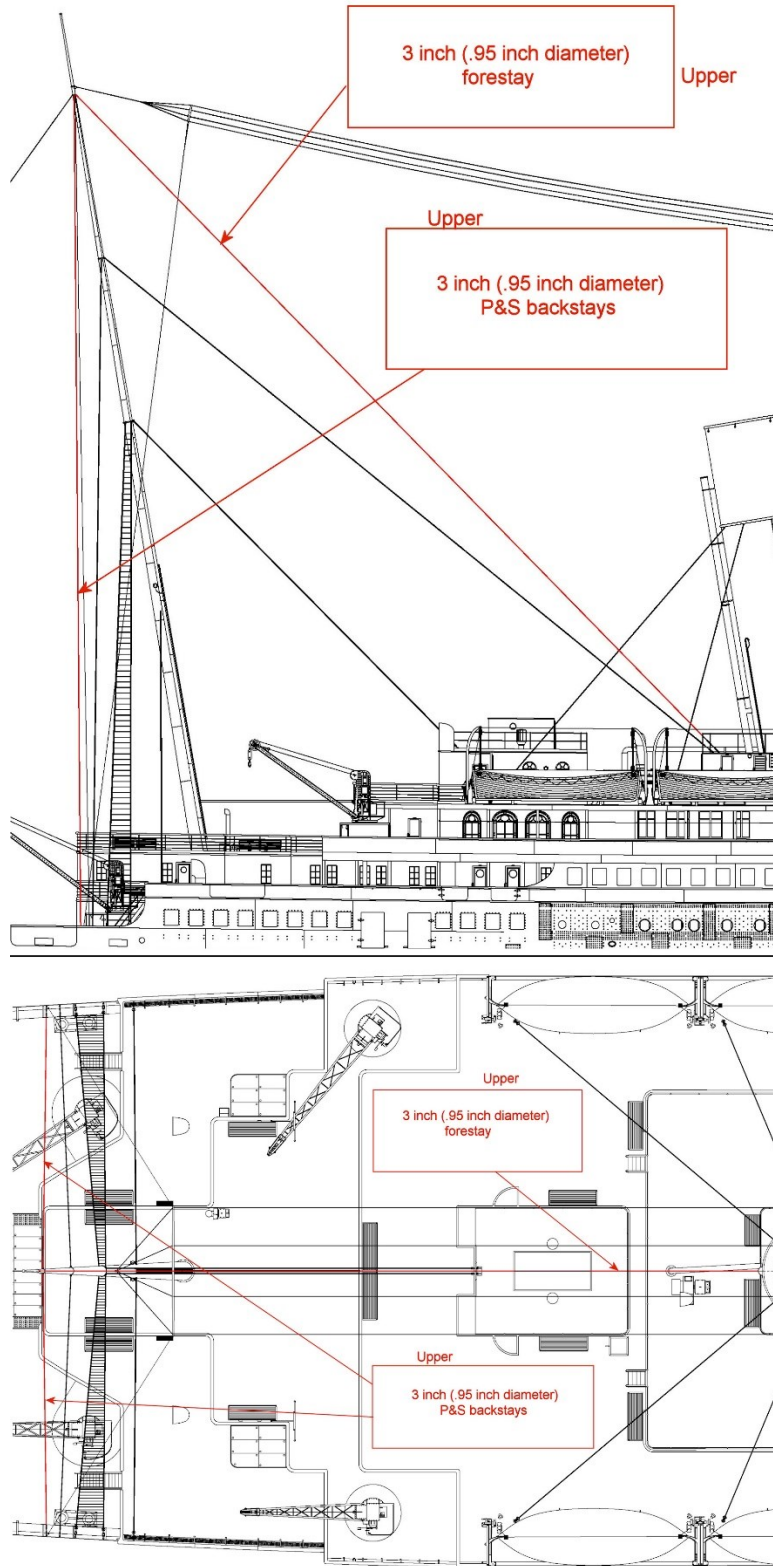


Figure 16

Elevation and plan views of the standing rigging to the upper mainmast position

Utility Standing Rigging

There are two particular lines rigged which would fall more into the category of utility rigging rather than standing rigging. These two lines might more accurately be termed jackstays since they are used as a place to attach haliards. The first is a line from the upper rigging position on the mainmast to the poop deck under the docking bridge. Figure 17 shows this line.

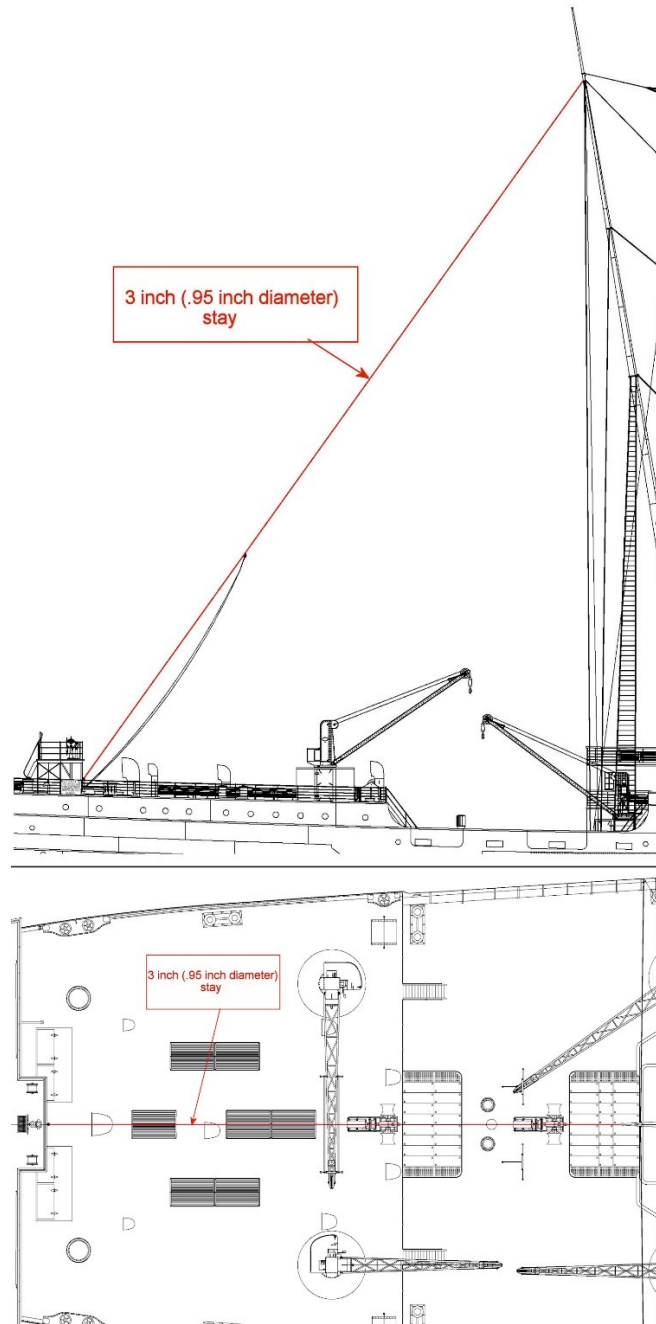


Figure 17

Elevation and plan views of jackstay rigged to mainmast

The second line was rigged from the forward aspect of funnel #1 to the foremast. Figure 18 shows a drawing of this line. Only the aft line had a turnbuckle on deck to tension it.

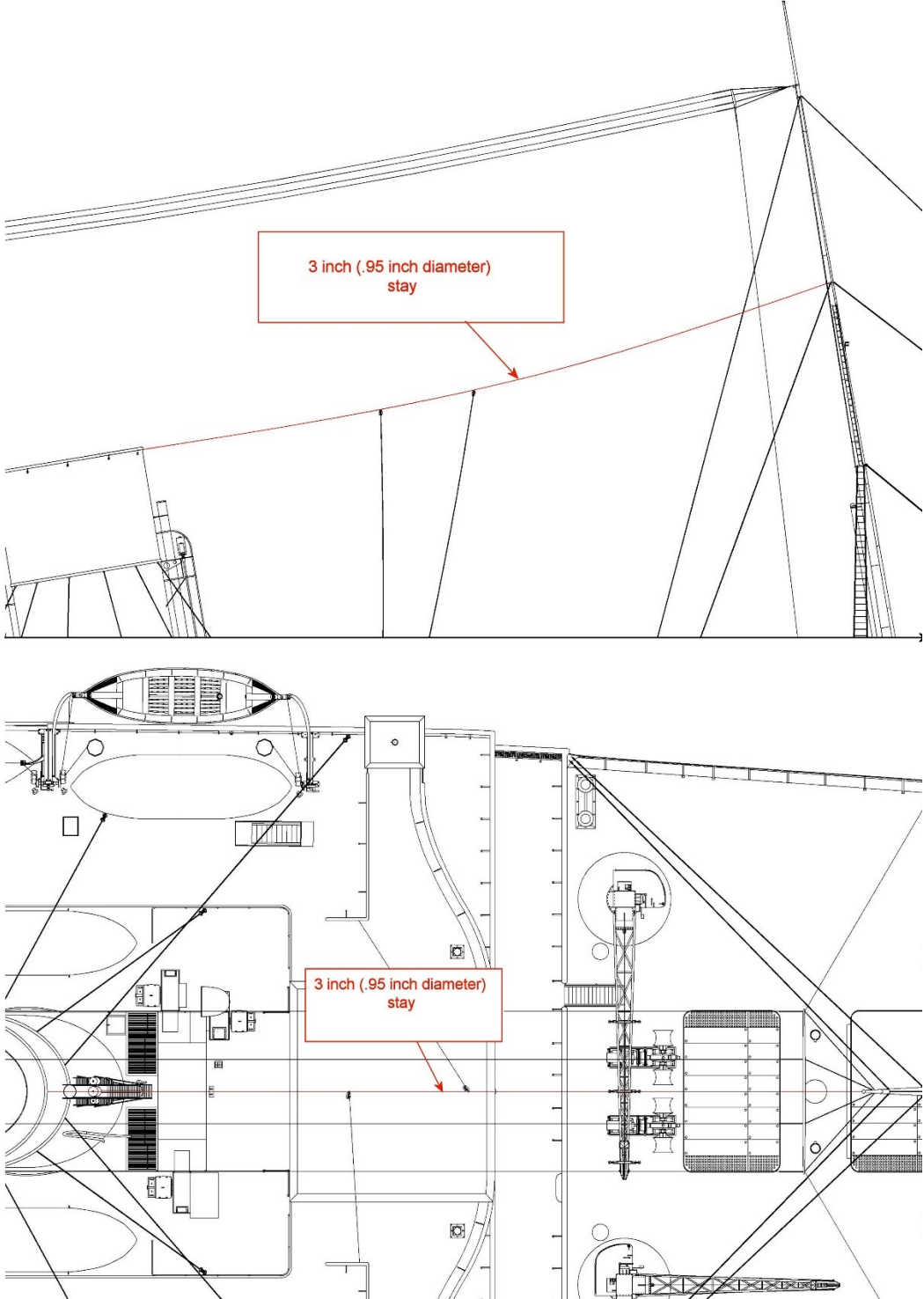


Figure 18

Elevation and plan views of jackstay rigged to foremast

The Funnels

The standing rigging to *Titanic's* funnels was the same galvanized steel wire rope used for the masts. This standing rigging was set up the same way as the standing rigging to the masts in that there were thimbles and collars rigged on both ends of each shroud. All of the standing rigging to the funnels was termed "shrouds". The major difference was that turnbuckles were not used at the lower terminal ends of the shrouds. Instead, a hemp lanyard was used to tension the shroud to an eye connection on deck. Figure 19 shows the connection of the funnel shroud at the deck level. The shrouds were all a uniform size at 4-inch wire (1.27 inch diameter.)



Figure 19

Connection of funnel shrouds at deck level

The connections of the shrouds to the funnels were at eyeplates which were riveted to the lower reinforcement band of the funnels. There were 6 shrouds aside on each funnel. Figure 20 shows a photo of the shroud connections to the funnel.

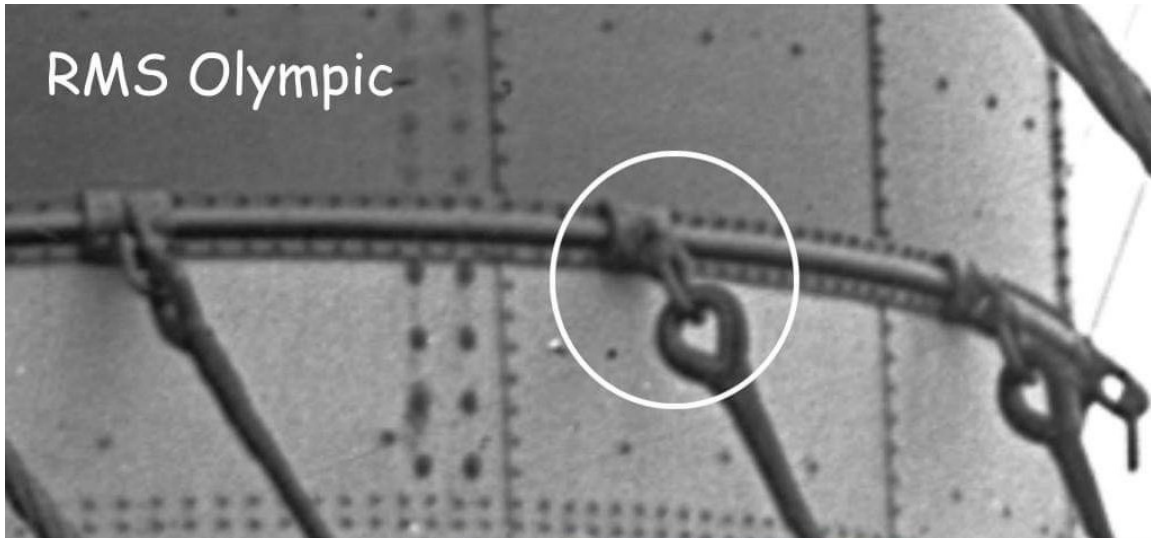


Figure 20

Connections of shrouds to the funnel

Figure 21 shows the locations of the connections of the funnel shrouds around the perimeter of the funnels.

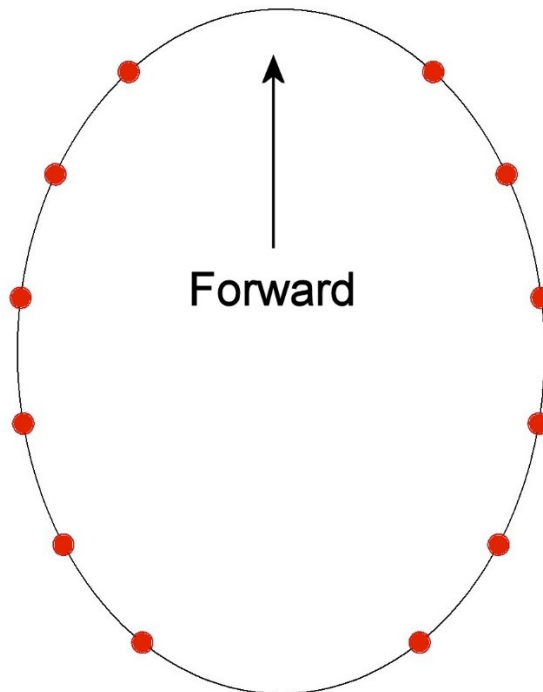


Figure 21

Funnel shroud connection locations to the funnel (in red)

The following elevation and plan view drawings show the shroud connections to each of the four funnels.

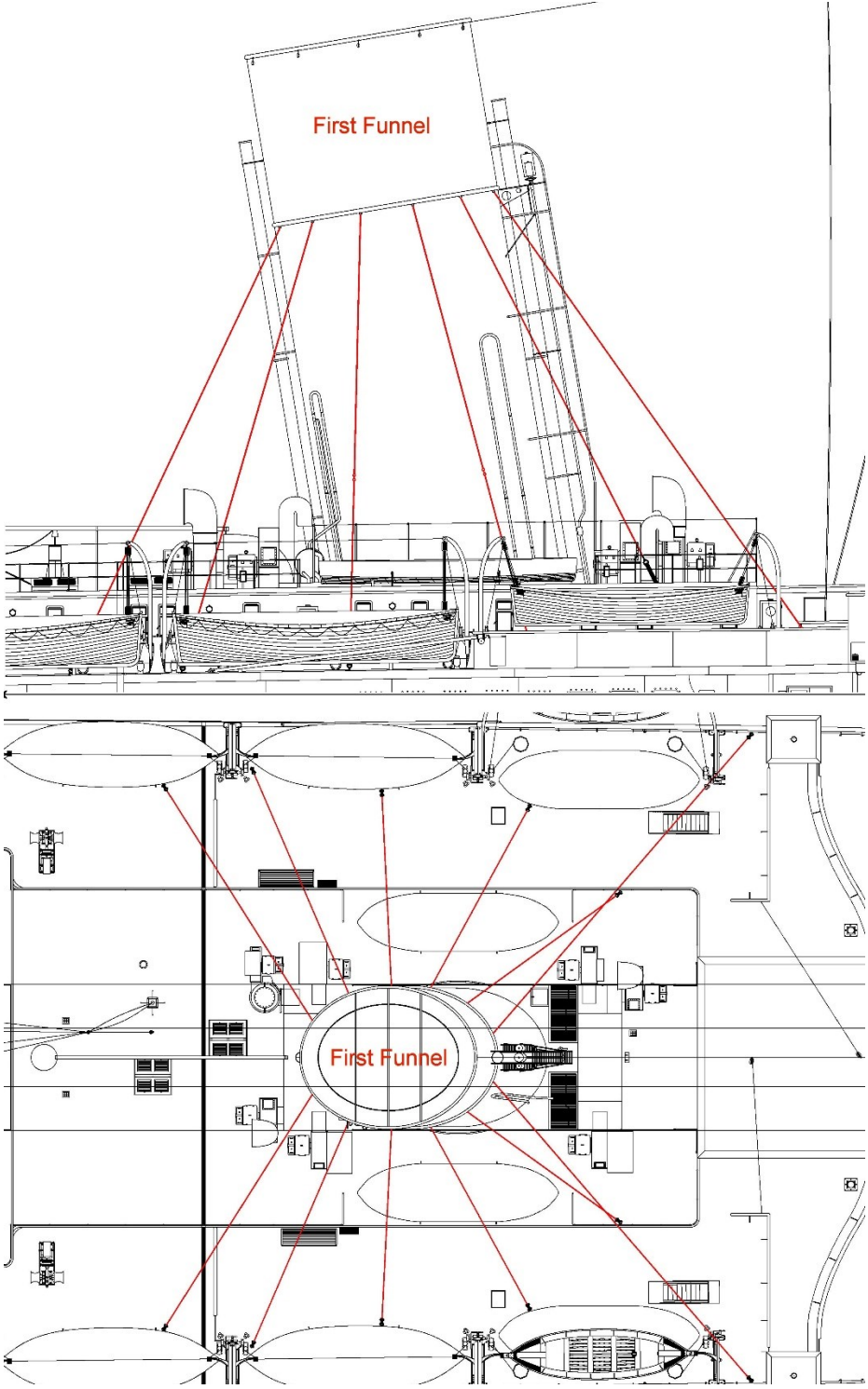


Figure 22

Shroud connections to funnel #1

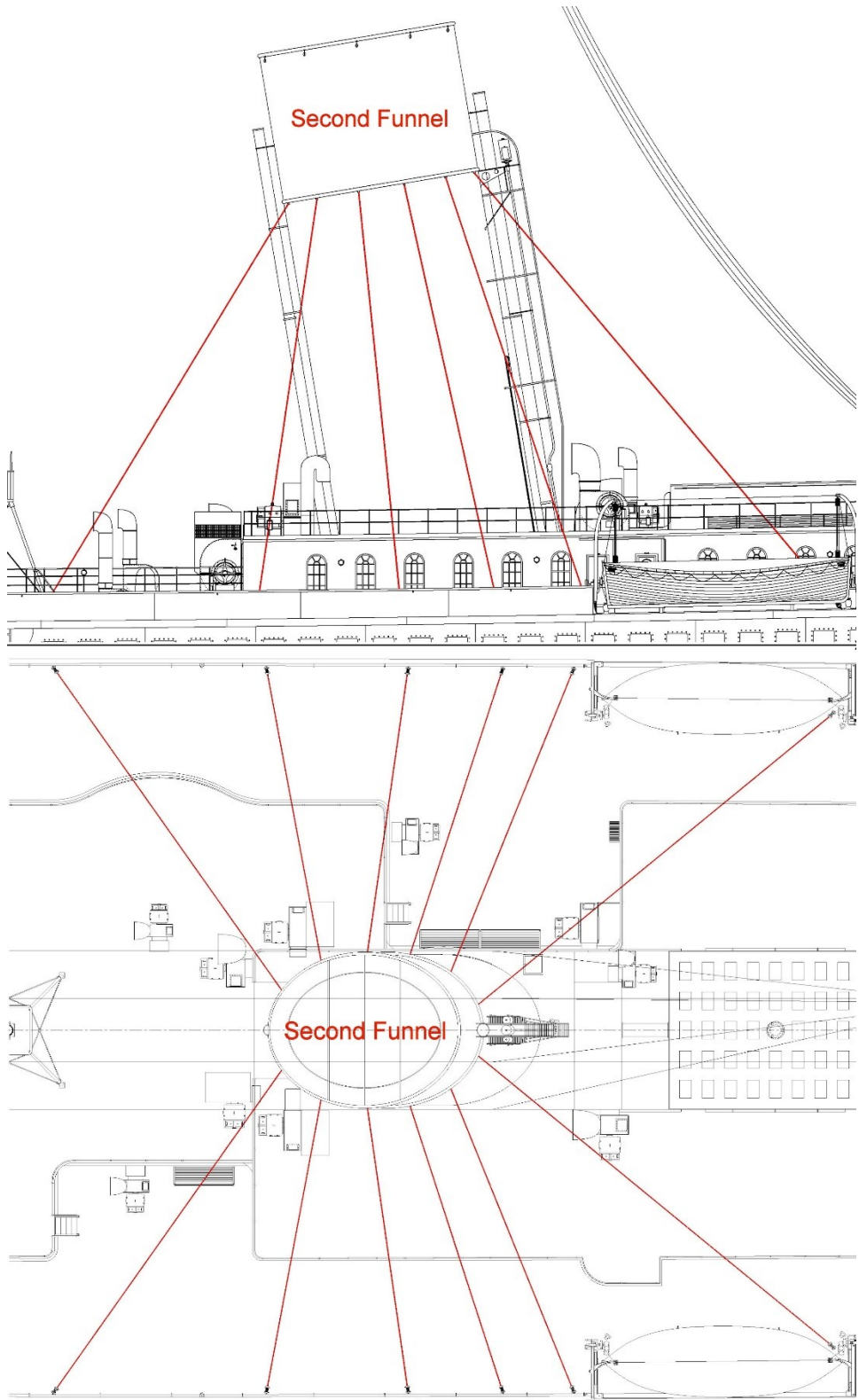


Figure 23

Shroud connections to funnel #2

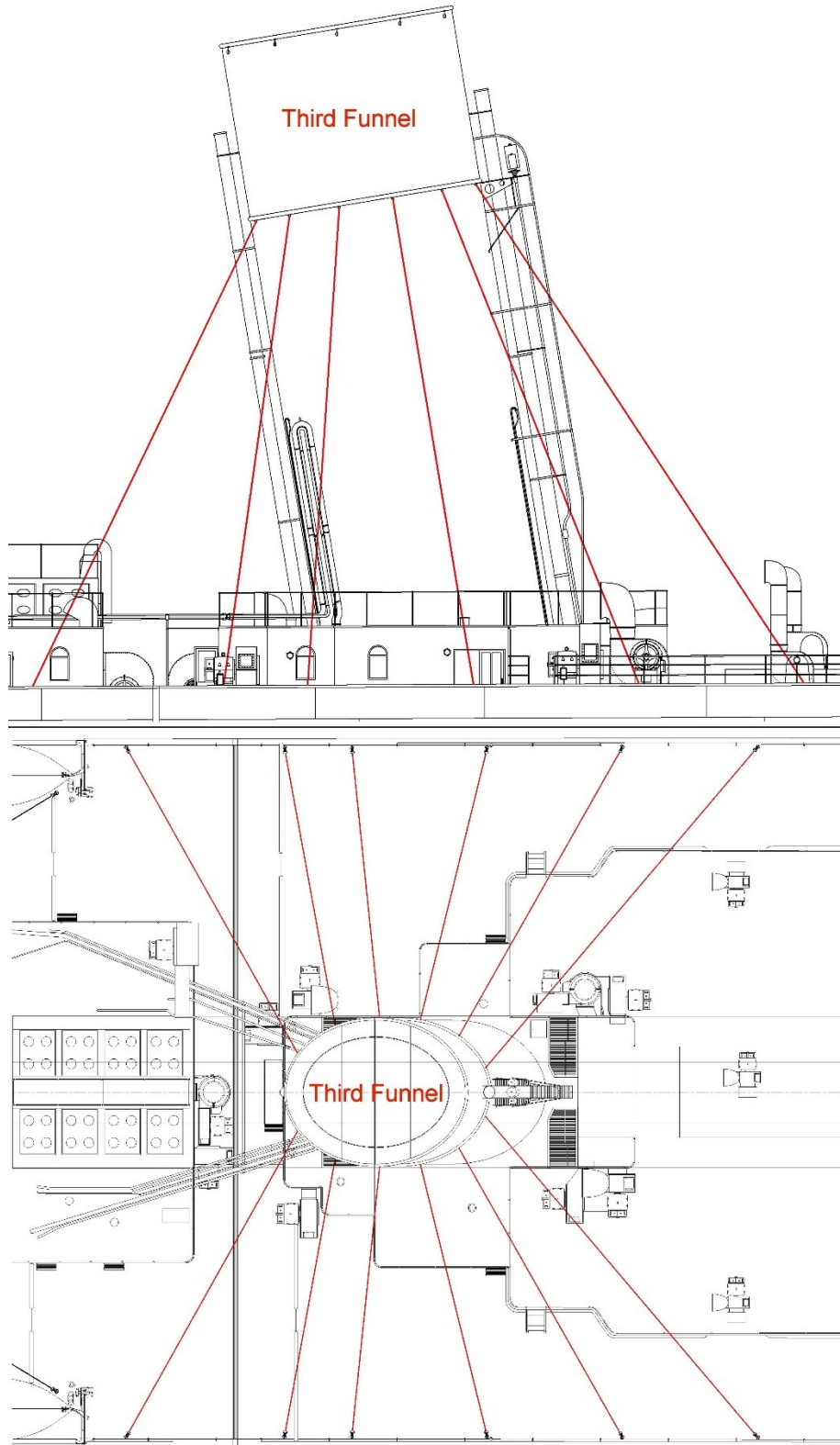


Figure 24

Shroud connections to funnel #3

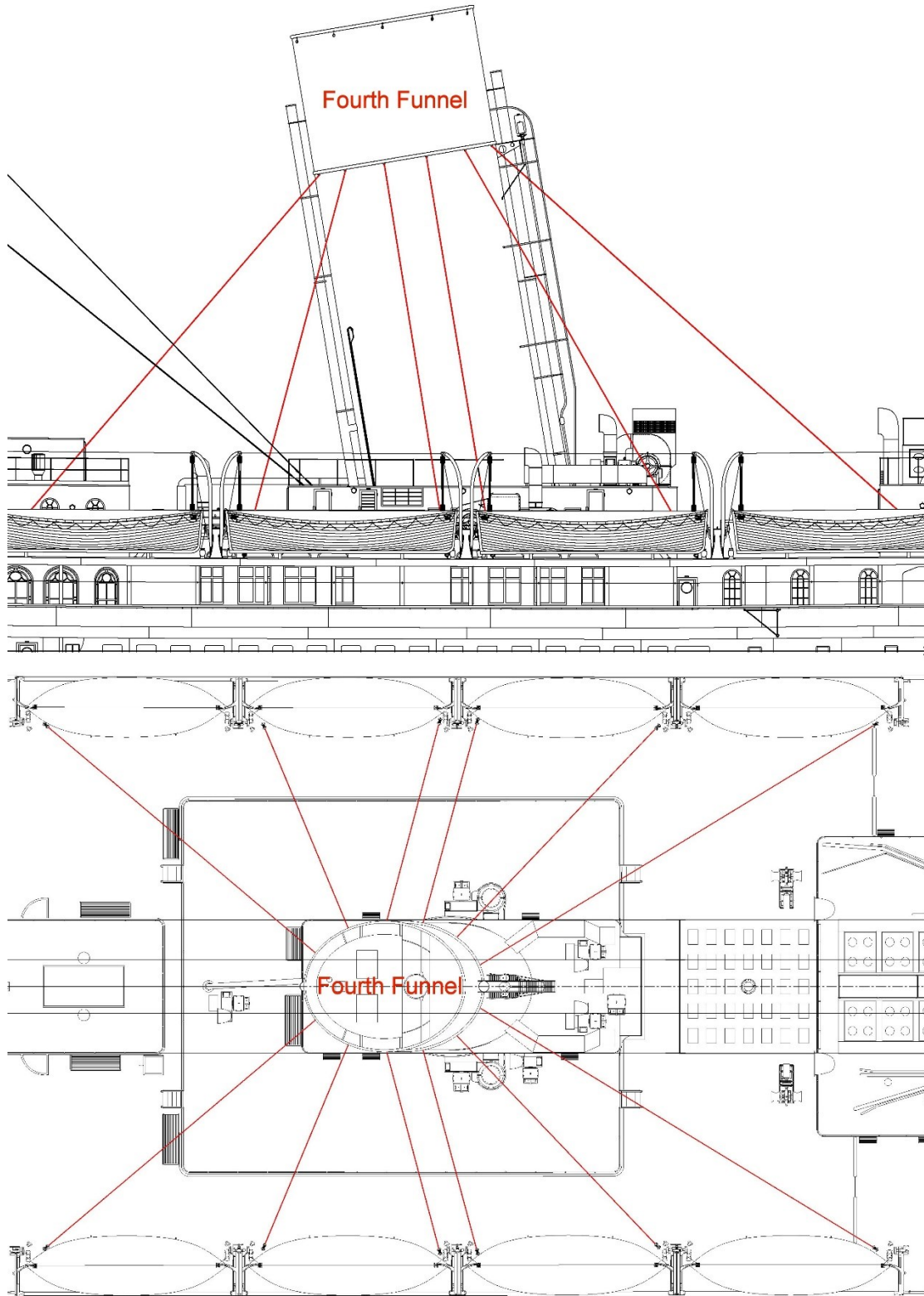


Figure 25

Shroud connections to funnel #4

Conclusion

This article has shown the standing rigging locations and associated hardware for *Titanic*. The running rigging would consist of rigging to the cargo cranes, anchor crane, lifeboats, flag and arc lamp haliards and the extensive and complex rigging for cargo handling. It is beyond the scope of this article to cover the running rigging. For the modeler, the rigging for cargo handling could be dispensed with unless he was specifically going to model those operations. The other running rigging is not nearly as complex.