

# “What Height Are *Titanic’s* Funnels?”

---

February 16, 2018

By Bob Read, D.M.D.

## Introduction

The question posed in the title of this article is one that I have seen asked over the years more times than I can count. It is a question that is almost exclusively asked by modelers whether they are building actual models or digital models. The question arises because at some point the modeler must actually create the funnels and therefore must have accurate measurements to guide him. This brief guide will help the modeler by revealing information that he probably hasn't considered.

## Sources

There is no primary source or plan which survives of which I am aware that documents the heights of *Titanic’s* four funnels. I say “heights” because if one is speaking of the height of the exterior skin of the funnel from its base to its highest point then all four funnels are different. The only plan which can be measured which shows the funnels is the original Harland and Wolff *Titanic* Rigging Plan. This particular plan has its shortcomings. First, the scale of the original plan is 1/144. At this scale 1/12 inch equals one foot. This makes precise measurements very difficult. Second, the plan is drawn as a waterline plan with the waterline 30 ft. above the keel baseline. Figure 1 is a greatly reduced image of the *Titanic* Rigging Plan.

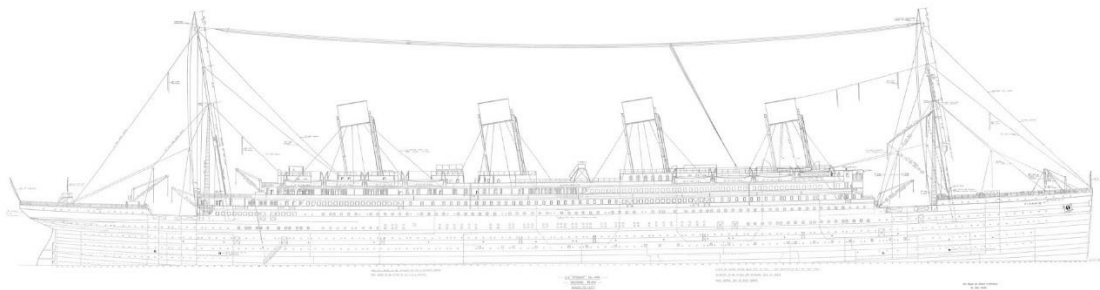


Figure 1

## Measurements

Before any measurements are taken it must be asked whether the modeler has completed the structural support for the funnels in the form of deckhouses or whether he has not begun any building of his model. It will be assumed in this article that the modeler has completed building the foundational elements for the funnels and wants to begin construction of the funnels. The reason this is important is because if measurements are taken at this stage, the tops of the

boiler casings where the funnels rest probably aren't exactly accurate with respect to the *Titanic* Rigging Plan. That really isn't a big problem. The most important consideration at this point is that the top of the funnels at their highest points coincide with the measurement of the keel to the top of the funnels taken from the keel baseline to the highest forward point of the funnels.

Another important consideration is producing the accurate "rake" of the funnels. This is the measurement of how much the funnels tilt aft. The *Titanic* Rigging Plan specifies that the funnels are raked 2 in. aft for every 12 inches of height. In degrees this works out to be 9.46 degrees of aft tilt of the funnels. Figure 2 shows where this measurement is taken.

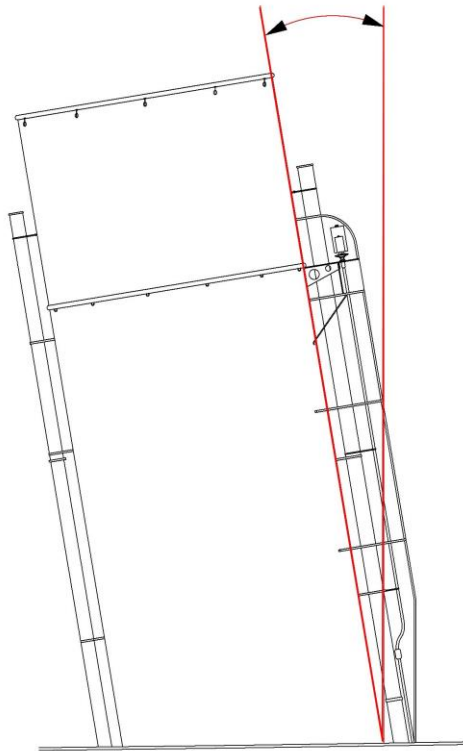


Figure 2

Since the tops of the boiler casings where the funnels sit are angled depending on where they are located because of the sheer of the ship the angle of rake is taken from an absolutely vertical plumb line.

The measurement of the height of each funnel is first taken from the *Titanic* Rigging Plan. Figure 3 shows where this measurement is taken on a full profile plan. If taken from the *Titanic* Rigging Plan, 30 ft. would have to be added to the measurement since it is a waterline plan.

Go To Next Page

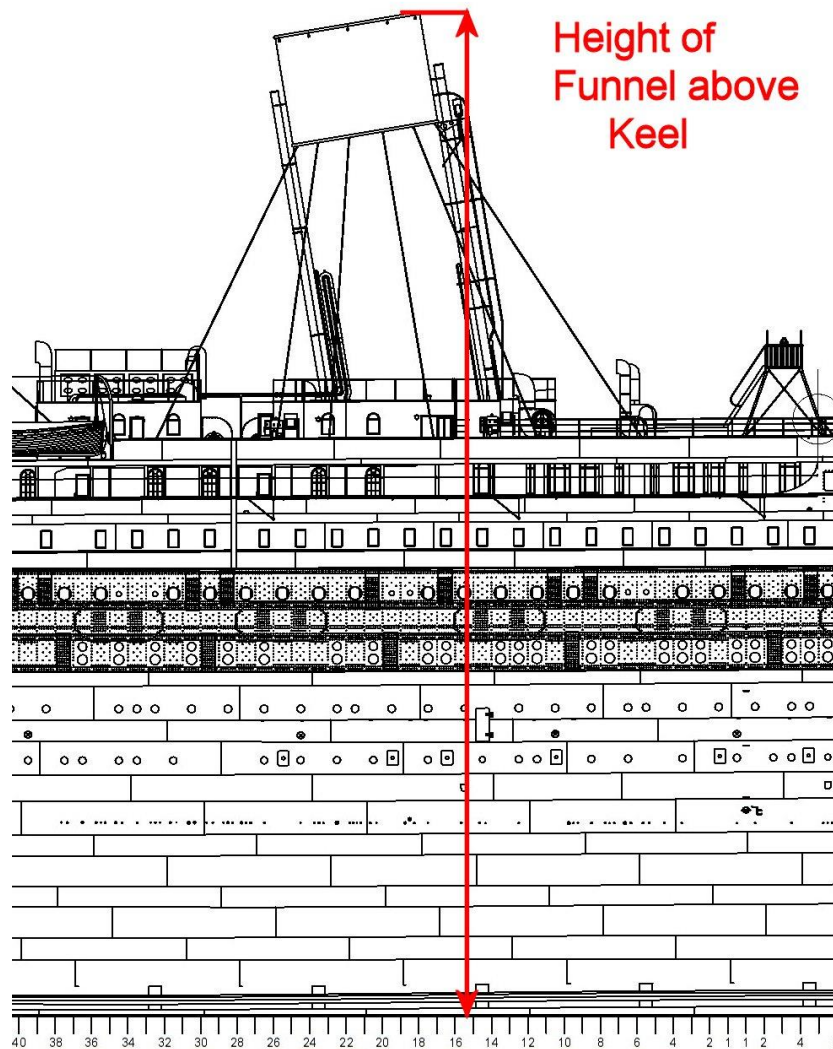


Figure 3

The actual measurements taken for the height of each funnel above the keel for the four funnels is shown below. These are full size measurements which would have to be scaled to your model. They are taken from the keel baseline to the highest point of the funnel as shown in Figure 3.

Funnel #1: 163 ft. 8 in.

Funnel #2: 165 ft. 2 in.

Funnel #3: 165 ft. 2 in.

Funnel #4: 163 ft. 8 in.

One may wonder why the middle two funnels, #2 and #3, are higher than #1 and #4. This 18 inch difference in height was incorporated to compensate for the sweep of sheer of the hull. If the funnels were exactly the same height from the keel baseline a profile view would make it appear that there was a corresponding sweep of sheer of the heights of the funnels. With the middle two funnels being slightly higher it made the funnels appear level. Figure 4 illustrates how this was accomplished for ships with different numbers of funnels.

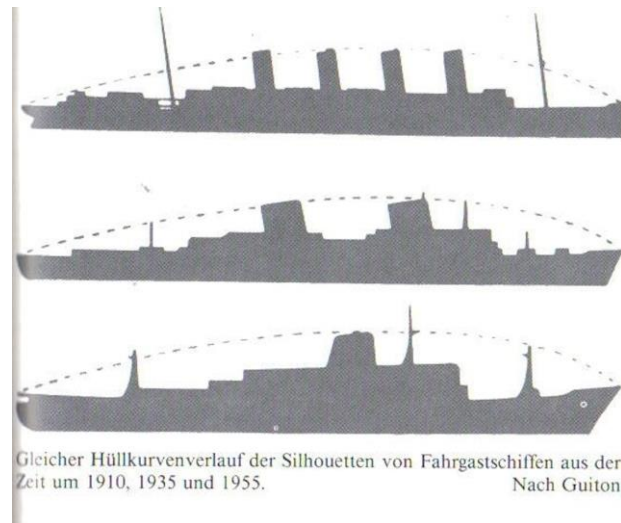


Figure 4

## Applying Measurements to the Model

If one is doing a digital model then there is no problem applying the measurements to the model. With a real built-up model there can be some challenges. First, a profile drawing of a funnel should be made of stiff card stock or plastic. The funnel drawing should have sufficient length of the funnel from top to bottom so its height can be adjusted. The next thing to be done is to support the model on a flat surface so that it rests on the keel without any tilting from port to starboard. A measuring jig should be created which can be adjusted to various heights. The height of the individual funnel as given in the table previously given is set on the measuring jig. A measurement is also taken on the model's boiler casing where the forward edge of the funnel will set. The difference in these two heights will determine how high above the casing that the funnel must be. This measurement is marked on the profile drawing for this funnel and the bottom edge of the funnel is cut to this measurement. Ideally a profile drawing cut-out for each funnel would be done repeating the procedures given above. Figure 5 shows where the measurements would be taken from the top of the boiler casing where the funnel will sit to the forward highest point of the funnel.

Go to next page

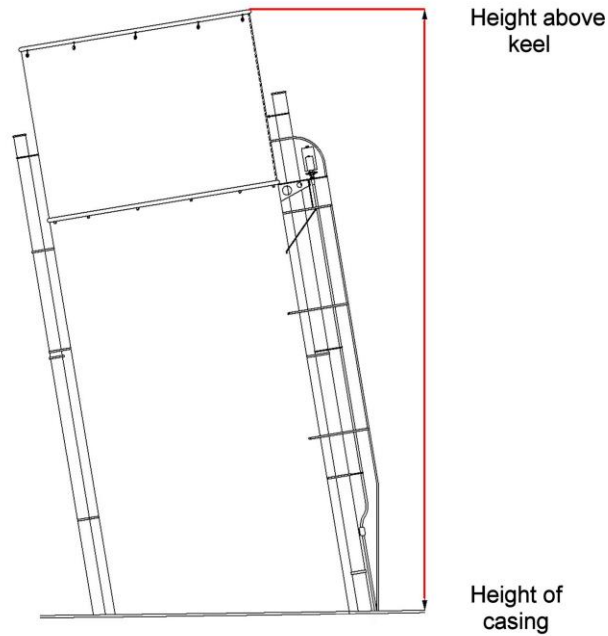


Figure 5

Extra attention should be given by the modeler to perfecting the measurements of each funnel with the profile drawings before the funnels are actually built because the funnels are possibly the most noticed feature of a *Titanic* model. If they are off in their alignment or heights, the entire model will suffer.

## Conclusion

There are other aspects of the dimensions of the funnels which have not been covered in this article since it was not intended to be an exhaustive analysis of the funnels. The primary aspect which has been covered in this article is the height of the individual funnels which were each different in terms of the height of the exterior skin of each funnel.