# The Rationale for the Modification of Three of *Titanic's* Ventilators

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## Introduction

There were three particular ventilators on *Titanic* which had their intake ducts modified in comparison to any found on her sister ship *Olympic*. The purpose of this article is to describe these three ventilators, the modifications which were made to them, and the proposed rationale for making these changes.

## Background

*Titanic* was to be used as a test bed for new equipment which was considered an improvement to the equipment which was originally installed aboard her sister ship *Olympic*. One of the improvements was the installation of large 35 inch sirocco delivery fan ventilators to replace the smaller 30 inch sirocco delivery fan ventilators originally installed on *Olympic*. One of the problems with installing new equipment is that its performance parameters in actual service are unknown. One aspect that appears to have concerned Harland and Wolff regarding these large ventilators was whether their air intakes would draw in foul air from nearby sirocco cowled exhaust fans. To prevent this occurrence we see three of the 35 in. ventilators have their intakes modified to prevent this. The modifications were unique in each case. The reason for this might have been to test which modification was most effective. It turns out that on *Olympic* when these large 35 inch ventilators were installed during her 1913 refit that none of these intake modifications were incorporated. Subsequent testing of these ventilators probably showed that the draw of the intakes was not so powerful as to draw in air from nearby cowled sirocco exhaust fans.

## Ventilator #1

The first large 35 inch delivery fan on *Titanic* which had a modified intake was the 35 inch delivery fan forward and port of the first funnel. It was positioned directly aft of a 30 inch cowled sirocco exhaust fan. An image of this ventilator on *Titanic* is shown in Figure 1.

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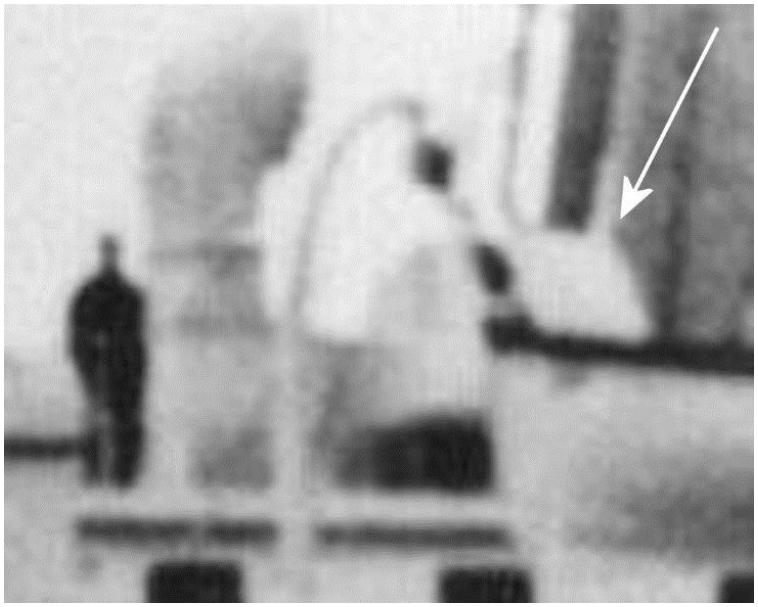

Figure 1

35 inch sirocco fan with hooded intake

Figure 2 shows a plan view of this ventilator where they installed a half round hood over the round intake on the forward side of the fan. Just forward of the fan you can see the 30 inch sirocco fan with cowled exhaust. The addition of the hood was thought to deflect exhaust from the cowled sirocco from being drawn into the 35 inch delivery fan.

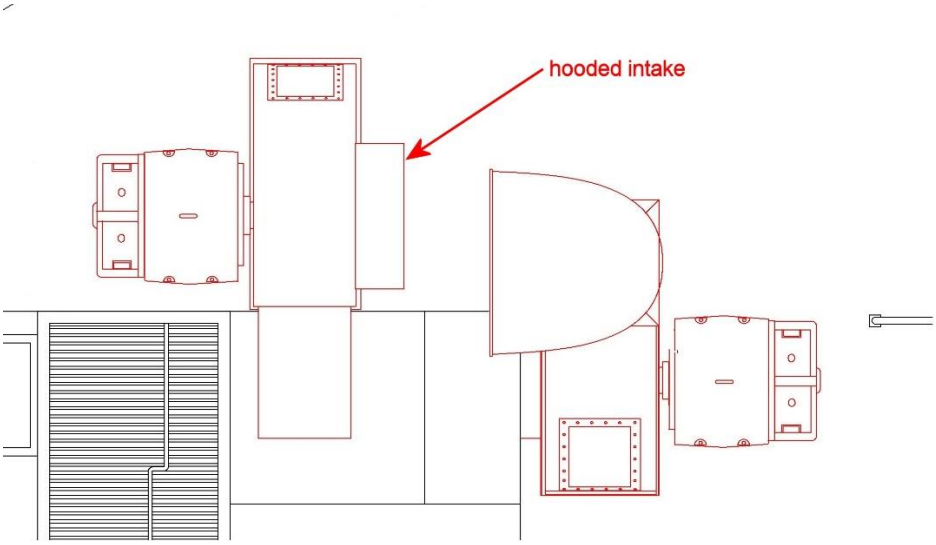


Figure 2

Plan view of 35 inch sirocco fan with hooded intake

Figure 3 is a four view drawing of this 35 inch sirocco fan with hooded intake.

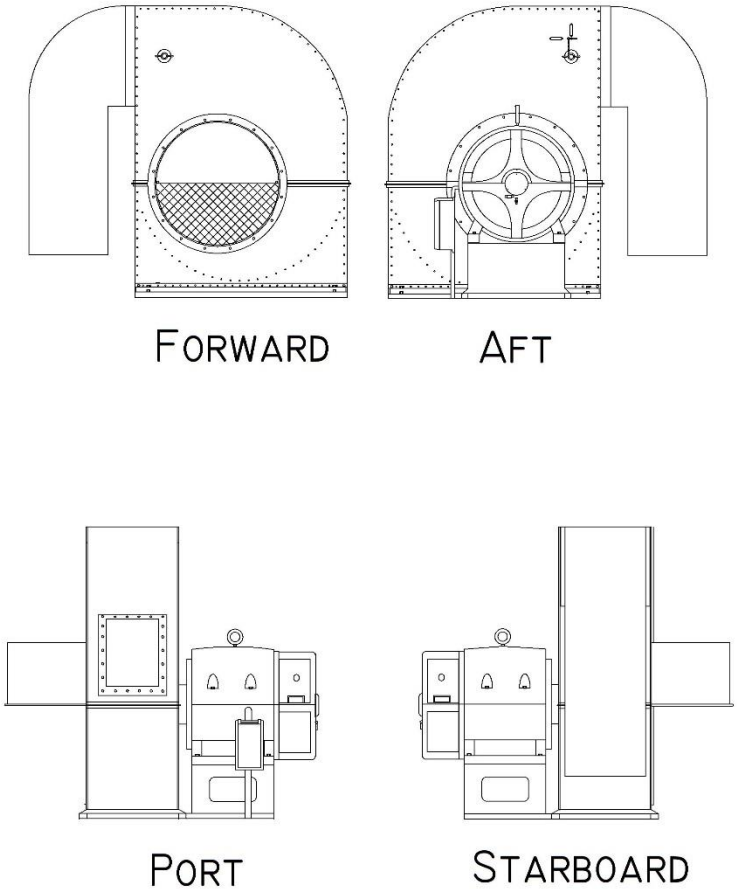


Figure 3

35 inch sirocco fan with hooded intake

## Ventilator #2

The second 35 inch sirocco ventilator on *Titanic* which had a modified intake duct was located on the aft port side of the deckhouse under the second funnel. This ventilator had a forward facing swan neck intake duct. Unlike most swan neck ducts for the 35 inch fans, the intake for the swan neck duct was on the bottom of the duct rather than forward facing. Figure #4 shows a comparison of the swan neck duct with the forward facing intake on *Olympic* on the left and the swan neck duct with the bottom facing intake on *Titanic* on the right.

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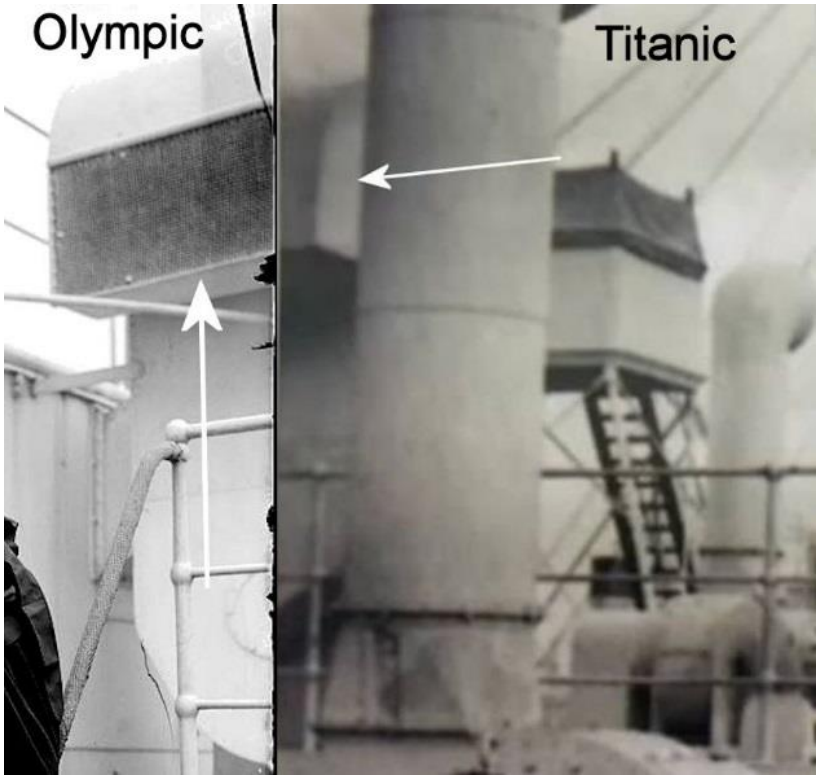


Figure 4

*Olympic/Titanic* swan neck intake comparison

Figure 5 shows a plan view of the 35 inch sirocco fan on *Titanic* and the 20 inch sirocco with cowled exhaust near it.

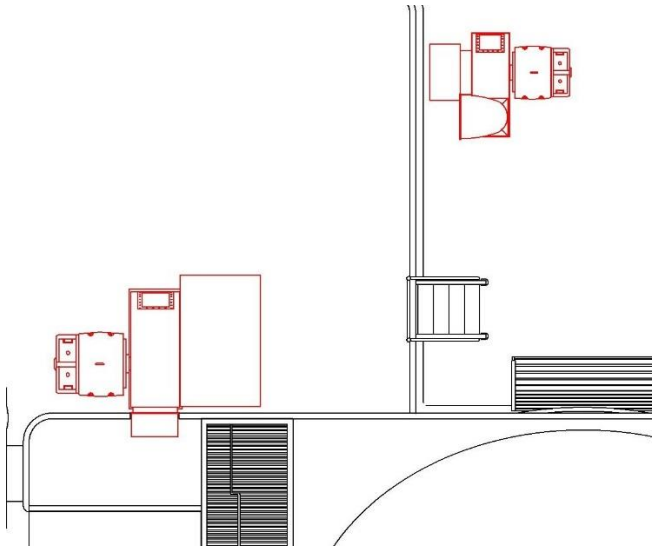

Figure 5

Plan view of 35 inch sirocco fan with swan neck intake

Figure 6 shows a four view drawing of the 35 inch sirocco fan with swan neck intake on the aft port corner of the deckhouse under the second funnel.

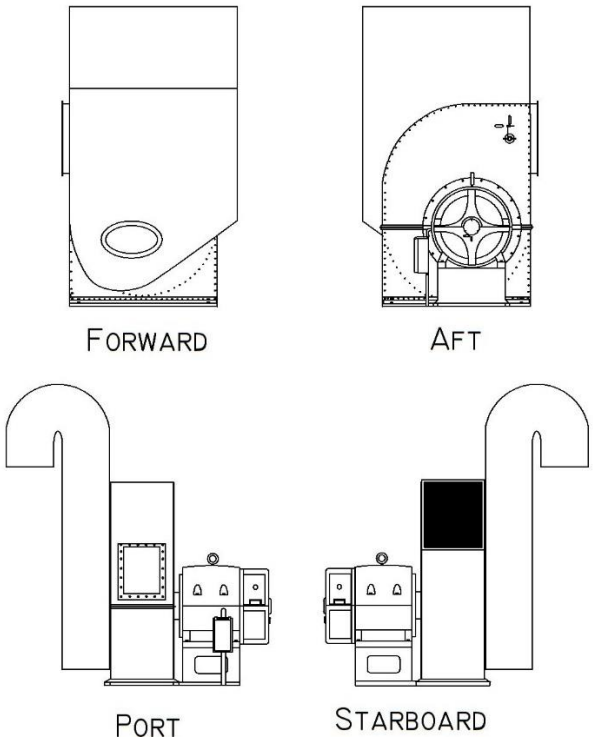


Figure 6

35 inch sirocco fan with modified swan neck intake

## Ventilator #3

The third 35 inch sirocco fan ventilator on *Titanic* which had a modified intake was located on the port forward side of the tank room. It had a forward mounted aft facing swan neck intake. In addition, the intake on the swan neck was on the bottom like the previous ventilator, #2. It was modified to shield its intake from the 30 inch cowled sirocco exhaust located on the aft port side of the deckhouse under the third funnel. Figure 7 shows this ventilator on *Titanic*.

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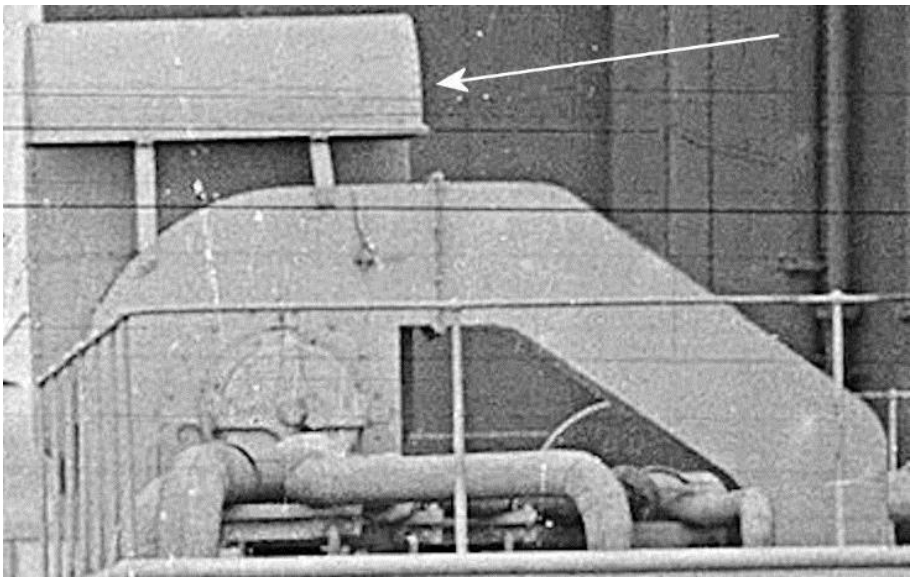

Figure 7

35 in. sirocco fan with modified swan neck intake

Figure 8 is a plan view of this ventilator showing the proximity of the cowled sirocco fan which exhausted forward of it.

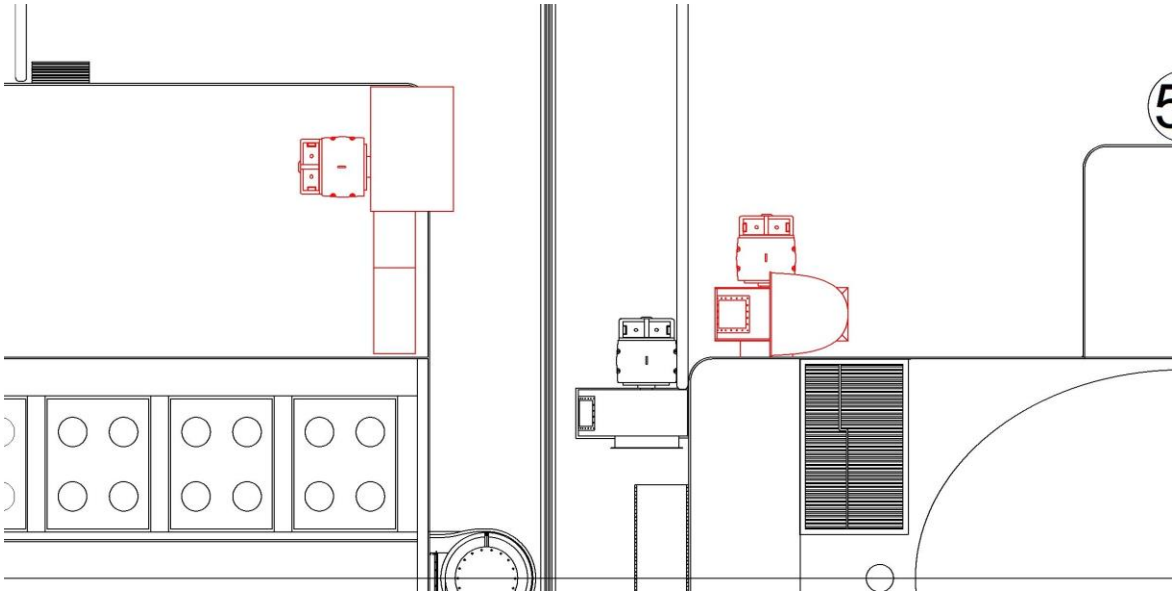

Figure 8

Plan view of 35 in. sirocco fan with modified swan neck intake

Figure 9 is a four view drawing of this 35 inch sirocco fan with modified swan neck intake.

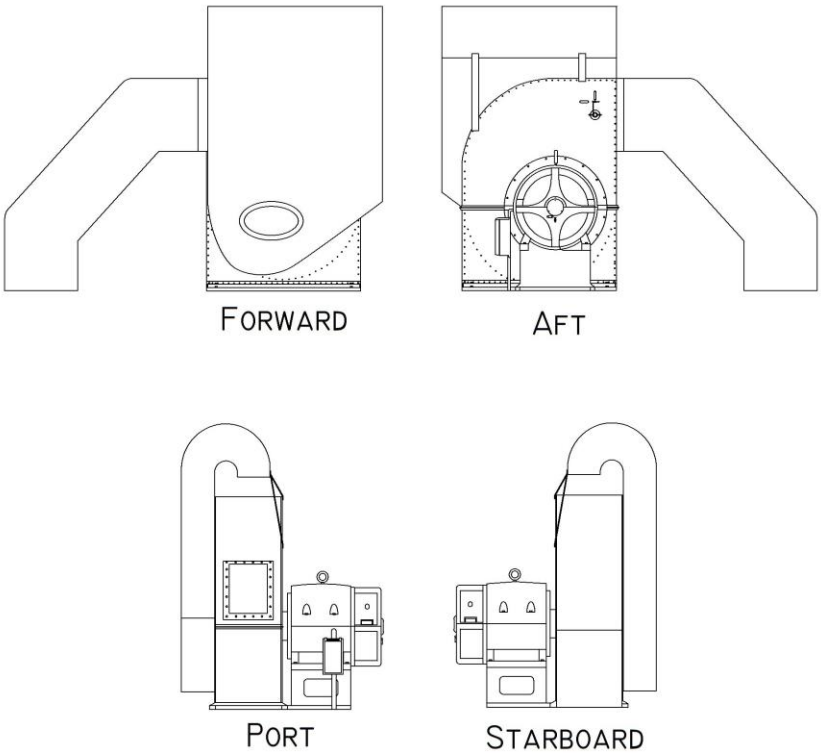


Figure 9

35 in. sirocco fan with modified swan neck intake

## Exceptions?

One might look at other ventilator configurations and suppose that there are exceptions to the rule that on *Titanic* they avoided close proximity between upwind sirocco fans with cowl exhausts and downwind delivery sirocco fans with forward facing intakes. The first situation like this we will examine is the 30 inch sirocco fan with cowl exhaust forward and starboard of the second funnel. Downwind of it is a 35 inch sirocco delivery fan with a forward facing swan neck intake. Figure 10 is a plan view of these two ventilators.

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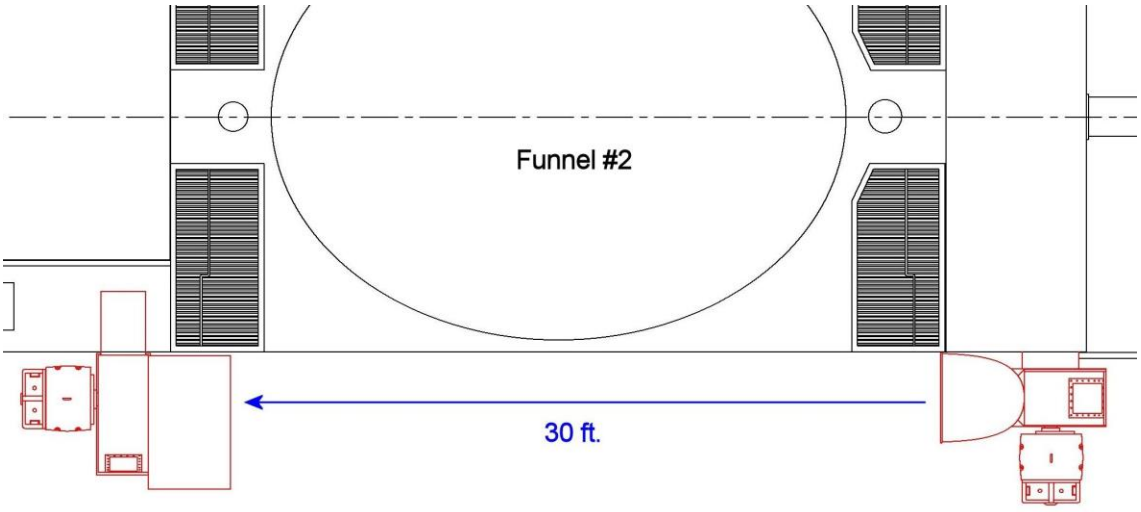


Figure 10

Plan view of ventilators on starboard side of funnel #2

Since the 35 inch sirocco fan with a swan neck intake was modified, we can surmise that the 30 ft. distance between it and the sirocco with cowl exhaust forward of it was of sufficient distance to prevent excessive exhaust from being drawn into the aft ventilator with the swan neck intake.

The next pair of ventilators which might be viewed as an exception to the rule that on *Titanic* they avoided close proximity between upwind sirocco fans with cowl exhausts and downwind delivery sirocco fans with forward facing intakes are the two ventilators on the forward port side of the deckhouse under funnel #3. Figure 11 is a plan view of these ventilators.

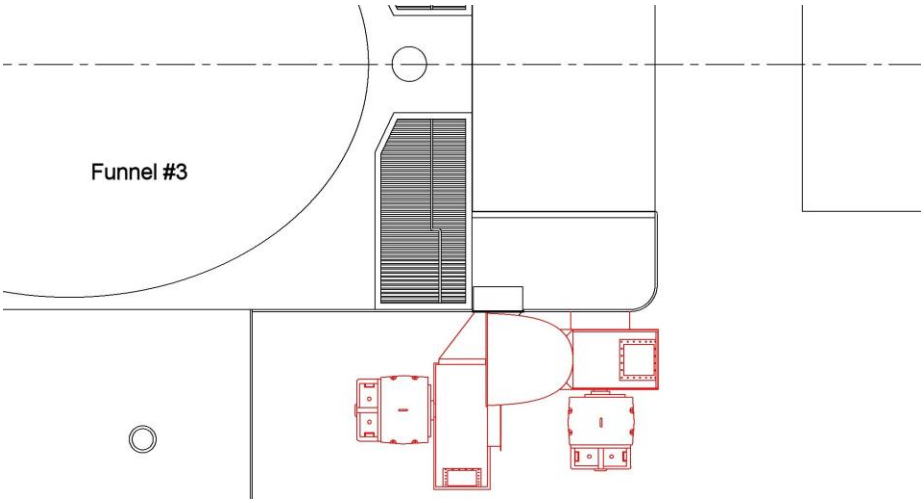


Figure 11

Plan view of ventilators on forward starboard side of funnel #3

The reason that these ventilators are not an exception can be seen in an elevation drawing shown in figure 12. The exhaust of the cowled sirocco fan is not forward of the intake of the open intake of the 35 inch sirocco delivery fan aft of it.

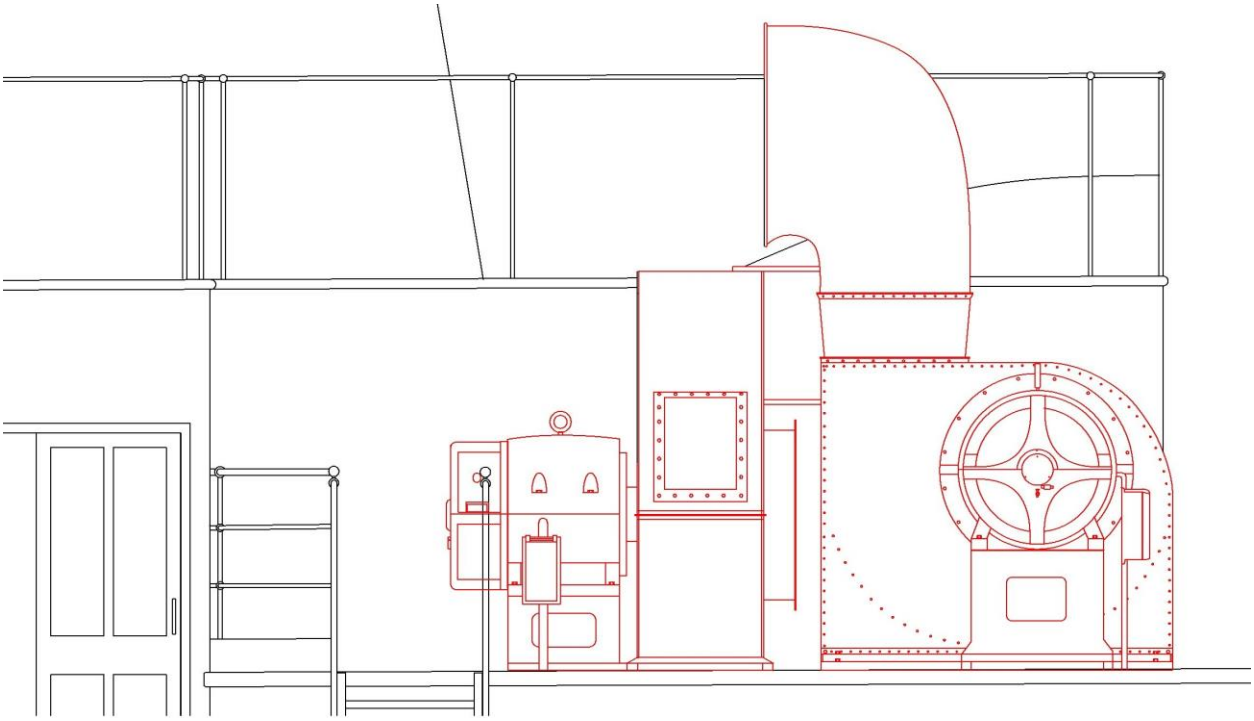

Figure 12

Elevation view of ventilators on forward starboard side of funnel #3

One interesting aspect here is that on *Olympic* the cowled sirocco here was mirrored horizontally so that the cowl was forward of the motor. If this configuration had been retained, the cowl would have exhausted forward of the intake and it would have needed to be modified to shield it from the exhaust. By placing the cowl aft of the motor of the ventilator the cowl did not exhaust forward of the intake of the 35 inch sirocco delivery fan.

## Conclusion

This article has described three *Titanic* ventilators with modified intakes. These modified intakes were never duplicated later on *Olympic* or *Britannic*. The most likely reason is that it was found that the precautions used in shielding these intakes from nearby sirocco fans with cowl exhaust was not actually necessary after real world experience and testing.