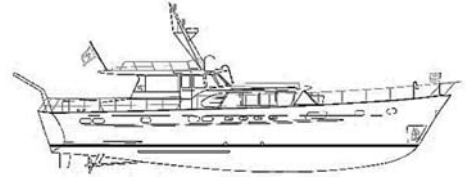


SERENA

Davit Report
10/03/2020



Summary:

The owner has requested to change the aft davits to stainless steel and modify the design so the davits are at a 90 degree angle to improve the overall lines of the vessel.

The drawing below shows the proposed design, and some details on the testing of the design via FEA modeling for load testing.

There are currently 2 lifting lines in the davit construction.

1. The primary line was originally cable and has been changed to Spectra. This is a better lifting material and lends itself well as a non-corrosive material.
The primary is used for lifting of the tender and runs through the interior of the davit structure to the electric winch below the aft deck in the laz. Area.
2. The secondary line is used for the support of the passerelle and adjustment of angle for different docking configurations when being used in Med docking situations.
This line is run through the internal structure to a manual winch mounted on the inboard sides of each davit. Due to the spacing of the davits, it is not possible for a single person to lower both lines together making this a two-person operation.



Existing Star. Davit



Manual Winch for Passerelle



Passerelle Line

Tender Line

In the new design, we would propose to use a single line for both operations, as both operations cannot be done simultaneously. (Tender cannot be in place during passerelle opps. And Passerelle can not be in place during tender opps.)

In the new configuration, the manual winches would be removed and both operations could be performed by a single individual using the electric operation of the davit.

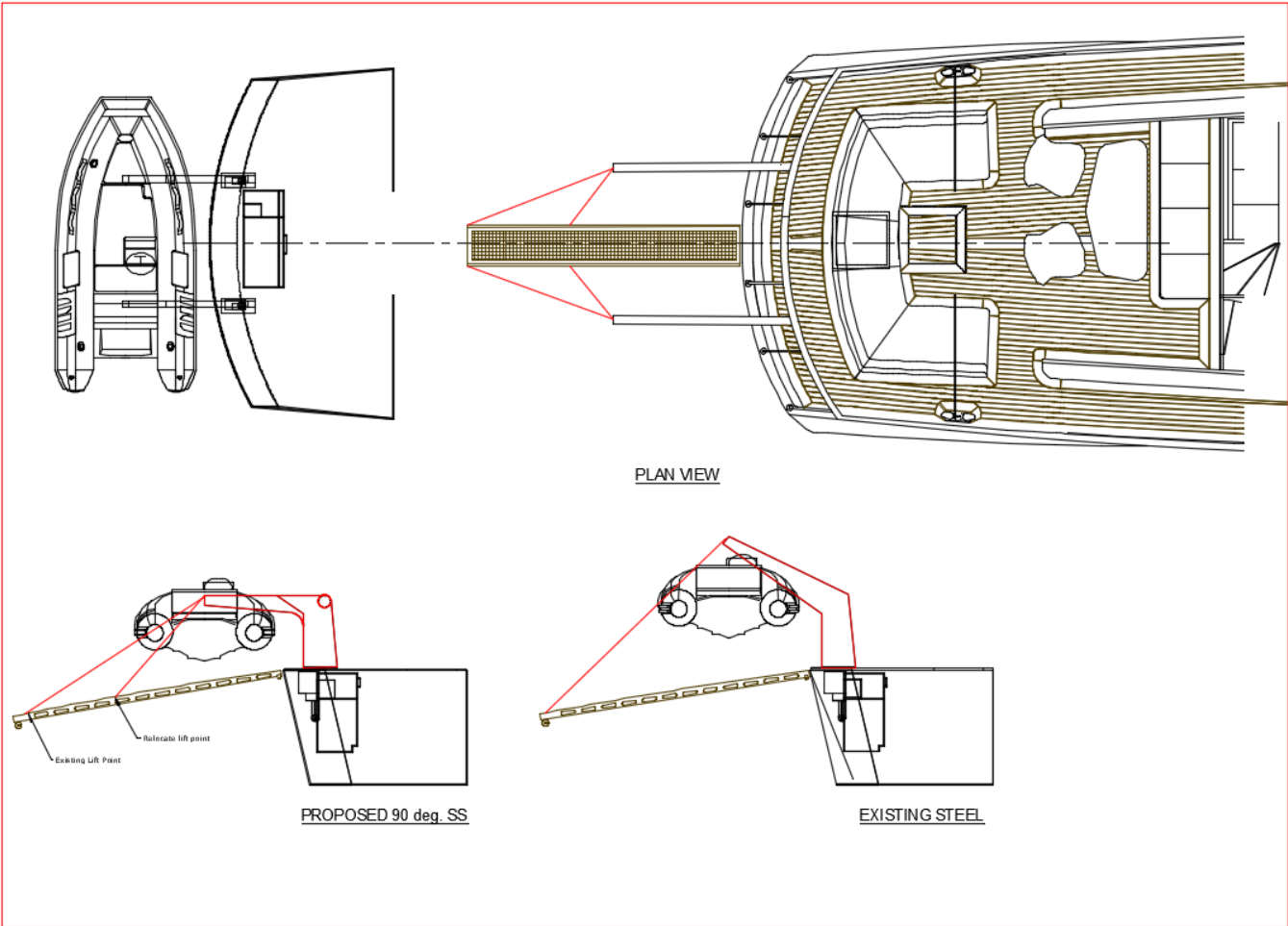
In the new design, the tender will hang approx. 10" lower than the existing configuration, however the tender can be pulled up tight to the under side of the davit to prevent swing during rough sea conditions.

The new davits would be constructed of 3/8" 316 Stainless Steel polished and occupy the same footprint as the existing davits.

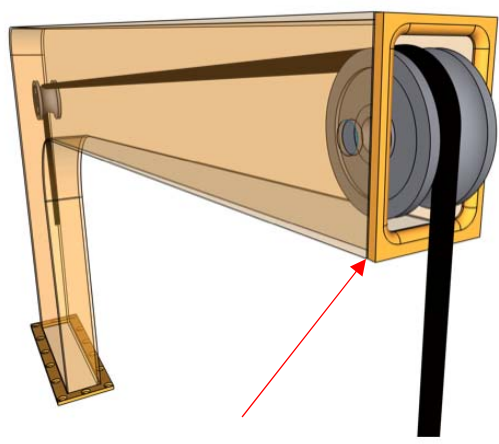
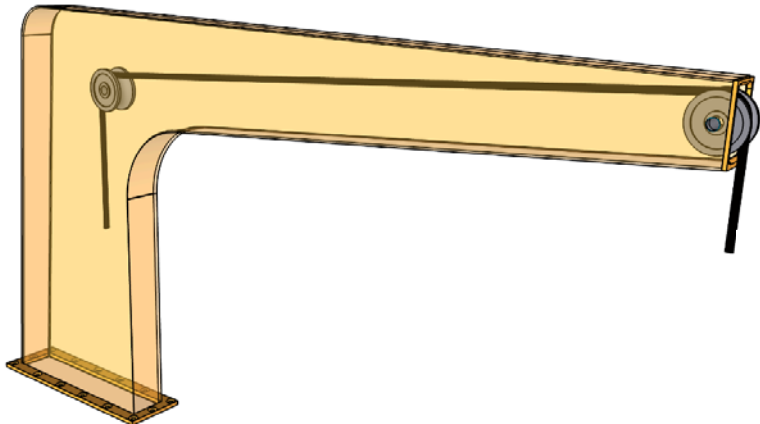
All testing has proven the new davits constructed of this material would have a lifting capacity of 2000 lbs. while the current davits have a lifting capacity of 1700 lbs.

We have noted a possible addition or relocation of the line to the passerelle for a better angle of attack on the lines when the passerelle is deployed. (This may or may not be required, as we are not looking at a heavy load.

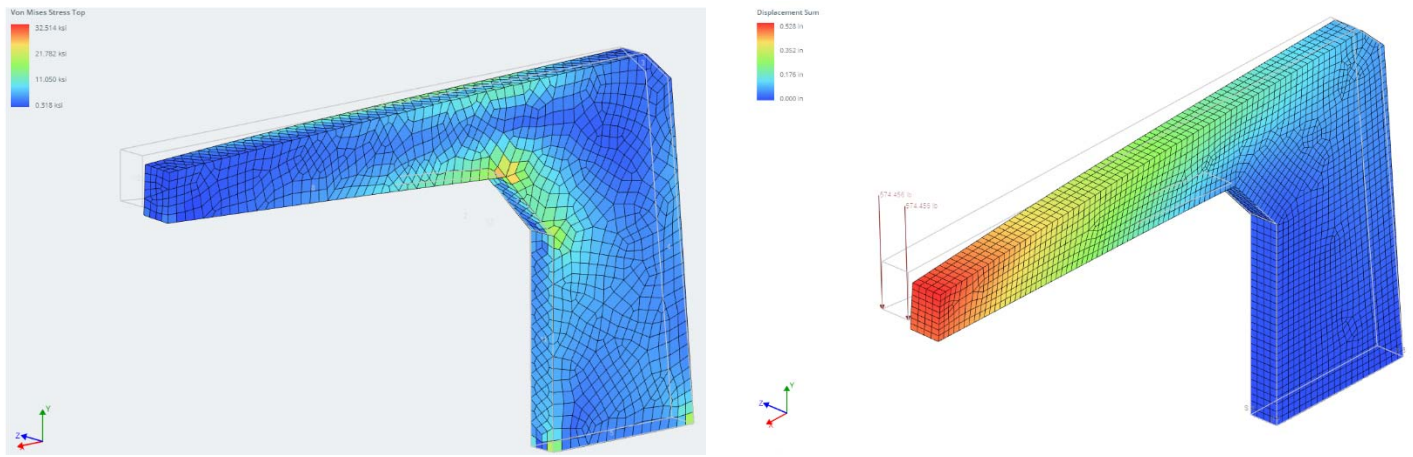
However should the vessel dock stern too at a dock higher than the transom of the vessel, the angle could be better than using the existing pick point.



New Davit Proposal



Anti-Chaff Guard



Finite Element Analysis (FEA) Model for Load Testing

During testing, we ran the model with the davit being made of 1/8" material and 3/16" material. With the structure being made of 1/8" material, the tip deflection is 1/2" under full load of 2000 lbs.

With the material being at 3/16" material, the load can be lifted to 2200 lbs.

We will probably build the davits from the 3/16" material to minimize deflection of the material during welding / construction.

This will increase the physical weight of the davits by approx. 40 lbs.

