

SUPSALV Supports SWRMC with USS THE SULLIVANS Rudder Repairs

31 JAN 2017

Southeast Regional Maintenance Center (SERMC) requested the Supervisor of Salvage and Diving (NAVSEA 00C), also known as SUPSALV, to provide welding repairs to the port and starboard rudders of USS THE SULLIVANS (DDG 68) which is home ported at Mayport Naval Station. To conduct these repairs, SUPSALV barged its full rudder cofferdam set from Norfolk, VA to Mayport, FL the week of 10 January 2017.



Rudder cofferdams arrive by barge in Mayport, FL. They were used to establish a dry habitat for both port and starboard rudders of USS THE SULLIVANS (DDG 68) to facilitate rudder repairs.

The 00C team first conducted weld repairs to the starboard rudder. This involved setting a small sidemount cofferdam (habitat), pumping it dry, preparing the defects for weld repairs, preheating the plates, grinding, welding, inspecting, certification, and finally HYCOTE preservative. The starboard rudder repairs were completed on 15 January.



Upper section of the cofferdam being lowered into the water in preparation to begin port side rudder repairs. Note the stern of THE SULLIVANS in the background and NAVSEA UWSH Operations Specialist, Russ Mallet monitoring.

Port rudder repairs, which started on 13 January, were a far more complex repair. Three cofferdam modules were required for this process. The upper, middle, and lower cofferdams were set over the course of 2 days. The combined modules are so large that the repair technicians (welder/divers) needed to set up scaffolding within the cofferdam to reach all of the rudder's surfaces. After beginning the repair of previously identified rudder plates, additional structural defects were identified beneath the shell plating.

NAVSEA 00C representatives met with the SEA 05 Ship Design Manager and SERMC engineers and mapped out the plan to conduct the repairs. Six large shell plates were replaced, internal web frames repaired, and stiffeners and doubler plates installed.

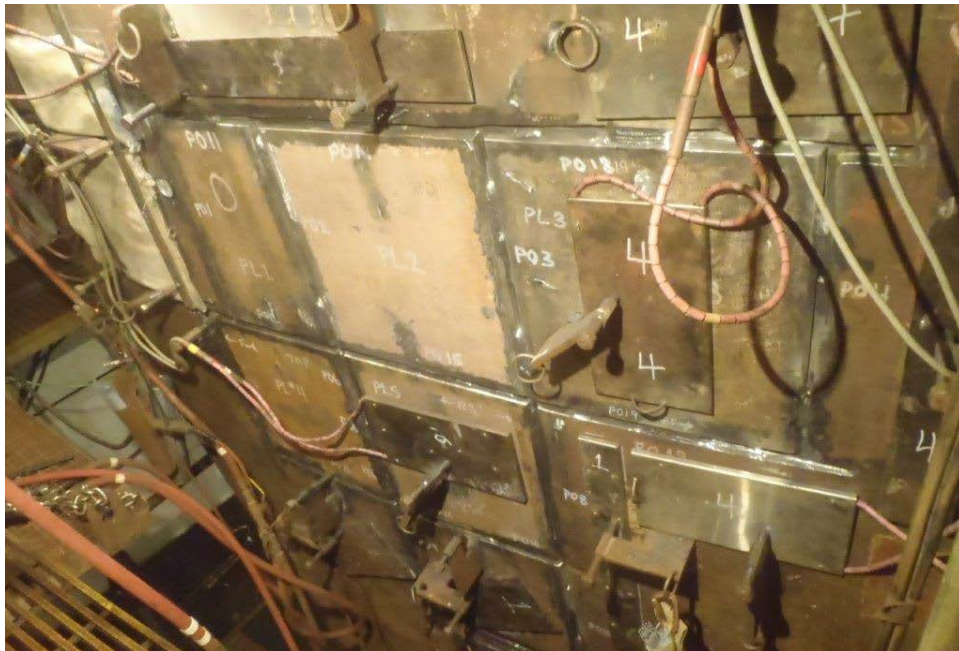


A view of the port rudder with shell plating removed during weld repairs.

As the operation progressed, the repair plan had to be revised to account for additional damage found. All internal repairs needed to be completed before shell plating could be cut and fit.



Interior of a rudder void after weld repairs and preservation.



As rudder voids were finished, plates were fitted and tack welded in place in preparation for final welds. Heating elements were held in position to preheat the plates prior to conducting final welds.

After final welds, flush grinding was accomplished, NDT inspections conducted, and HYCOTE applied. This project wrapped up the week of 30 January after 20 days of 24 hours-a-day operations. The SUPSALV team repaired a significant structural defect without drydocking the ship, allowing USS THE SULLIVANS to return to sea, fully capable and ready to respond to our Nation's requirements.



USS THE SULLIVAN's port rudder, with final welds and flush grinding complete on 6 large shell plates removed for repair.