

Press Information

METALLOCK EXPERTISE HELPS WITH SUCCESSFUL OUTCOME TO HMS ENDURANCE STERN TUBE SEAL CHANGE

Metallock Engineering UK's expertise in deep hole drilling in-situ has been put to the test for Deep Sea Seals enabling them to retrofit new stern tube seals to HMS Endurance, the Royal Navy's Ice Patrol and Research vessel.

A Class 1 Icebreaker she was originally built in Norway in 1990. Her Mission is "To patrol and survey the Antarctic and South Atlantic, maintaining Sovereign Presence with Defence Diplomacy and supporting the global community of Antarctica". This involves close links with the Foreign Office, United Kingdom Hydrographic Office and the British Antarctic Survey. She deploys annually to the Antarctic, her operating area for 7 months of the year. Her base port is Portsmouth, which is also the ship's affiliated town.

HMS Endurance, had been experiencing oil leaks to sea and oil ingress to its stern tube lubricating system and Deep Sea Seals (DSS) were called in by the MoD to supply and install new outboard and inboard seals and all the necessary pipework to connect with the tanks for the inboard lubricating system. DSS fitted an AC/Mk2 Coastguard anti-pollution seal system which differed from the existing system and required substantially modified pipework. Previously, only a single barrier seal had been used which was fed by a gravity lubrication system. The new AC system needed to be pump fed.

The new pipe configuration necessitated through-hole access holes in the aft and forward prop shaft bearing bosses, and new drilled and tapped holes for the outboard AC seal. This work was contracted to Metallock Engineering who, in addition, undertook responsibility for the new pipework (seal pipes) and necessary tanks installation.

For the outboard seal, Metallock drilled and tapped 24 new M20 tapped holes equispaced on a 710mm PCD. The new seal pipe arrangement had to pass through the 5940mm long stern tube itself and to provide pipe access, four 20mm diameter holes had to be drilled through the 1030mm of the aft bearing boss and four more through the 400mm of the forward bearing boss. The holes were positioned 30° either side of top and bottom dead centres on a 680mm PCD in the aft bearing boss and a 640mm PCD in the forward bearing boss. Additionally, a 32mm diameter through hole was drilled at bottom dead centre on similar PCDs in one boss inward end to accept a larger diameter pipe to drain oil from the stern tube.

Connections from the stern tube pipe runs to the various lubrication oil tanks was achieved using a spigot-located MK2 adaptor ring secured by 12 x M20 hex head screws. The system uses three tanks, one for the inboard seal, a main header tank and a void space header tank, all of which were fitted by Metallock Engineering UK.

Commenting on the project a Deep Sea Seals spokesperson said that they were contracted to supply the entire system, including its fitting which was outside their expertise. However, with the assistance of Metallock Engineering who not only carried out the necessary machining but also installed the seal pipes and tanks, the task was successfully achieved. HMS Endurance is now back on station in the South Atlantic with its new anti-pollution seal system.



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