IN-SITU X-Y MILLING ON BADLY DAMAGED MAIN ENGINE GUIDE RAILS

MITSUBISHI 6UEC52LA CASUALTY RESTORED IN ONLY 10 DAYS

A 7,934 DWT refrigerated cargo vessel experienced a sudden main engine casualty after an oil mist detection alarm sounded during engine start up. Upon initial inspection, a damaged crosshead bearing and broken screw were found.

At the ship manager's request, Goltens immediately dispatched their In-Situ Machining Supervisor together with their Technical Manager to check the main engine guide shoe condition. Goltens' inspection revealed severe and deep scoring all along the length of the guide shoe support rails on 3 cylinders as well as serious damage to the guide bearings.

As Mitsubishi's authorized service partner, Goltens was requested to provide a comprehensive solution to repair and restore the engine to service while in a scheduled yard period in China with an aggressive completion schedule to minimize the vessel's downtime.

Goltens' In-Situ specialists modified their in-situ X-Y milling machinery in their workshop to fit within the engine crankcase. After modification at Goltens workshop, the tools were immediately transported to vessel engine room where Goltens' diesel specialists had dismantled the damaged cylinders.

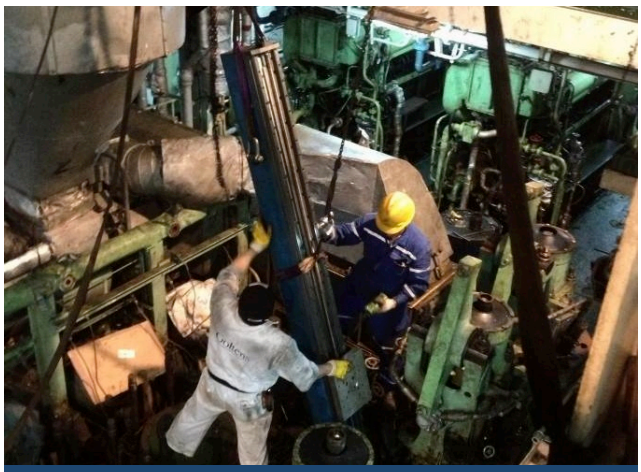
IN-PLACE MACHINING AND DIESEL REPAIR SCOPE:

- Machining Cylinder No. 1 FWD & AFT guide rail port side to -2.50mm undersize and starboard side to -0.75mm undersize;
- Machining Cylinder No. 2 FWD & AFT guide rail port side to - 1.50mm undersize and starboard side to -1.00mm undersize;
- Machine polishing Cylinder No. 3 FWD & AFT guide rails for Port side and STBD side;
- Rebabbitting of the 12 guide shoes for Cylinders 1 and 2
- Rebuilt Cylinder Numbers 1, 2 and 3 after machining
- Commissioning test and successful sea trial

MITSUBISHI ENGINE REPAIR RESULTS:

Goltens' Diesel, Rebabbitting and In-Situ Machining service teams completed the entire job within 10 days, inclusive of workshop preparation and mobilization work. This was a full week earlier than committed to the owner significantly reducing the downtime and expense for the owner.

PROJECT FACTS:	HAI FENG 618
Vessel type:	Refrigerated Cargo Ship
Tonnage:	7,934 DWT
Main Engine:	Mitsubishi 6UEC52LA
Power:	7,061 KW



X-Y Milling Machine being rigged into the engine

Milling in process on damaged guide rail

Deep pre-machining damage visible on guide rail

Post-machining surface of the guide rail