

IN-SITU INSPECTION RESULTS IN CRANKSHAFT REPLACEMENT AND COMPLETE OVERHAUL

CRANKSHAFT REPLACEMENT, ENGINE AND TURBOCHARGER OVERHAUL AND LASER ALIGNMENT & CHOCKING ON MAK 6M32C

After a main engine casualty, the owners of the Chemical Tanker Kerem D invited Goltens to inspect the damage on the vessel's MAK 6M32C crankshaft. The damage was significant, showing several large cracks and signs of significant overheating.

The extent of the damage was such that the crankshaft was condemned and required replacement. Goltens submitted a proposal for the replacement of the crankshaft and a full overhaul of the engine during the replacement process.

GOLTENS OFFERS A COMPLETE PACKAGE

In addition to the crankshaft replacement, supply of required spare engine parts and the overhaul of the engine, the owners requested that Goltens organize all aspects of the job inclusive of port facilities and logistics. This included arrangements for:

- A suitable repair berth at the port of Rotterdam
- Shore power supply
- All required scaffolding
- Crane service and lifting arrangements
- Stiffening the upper deck and side decks for crankshaft transportation
- Transportation of all main components
- Design and fabrication of special tools for transportation of the crankshaft onboard the vessel and special hydraulic tools required for the job
- All required steel work and welding

CRANKSHAFT REPLACEMENT AND OVERHAUL:

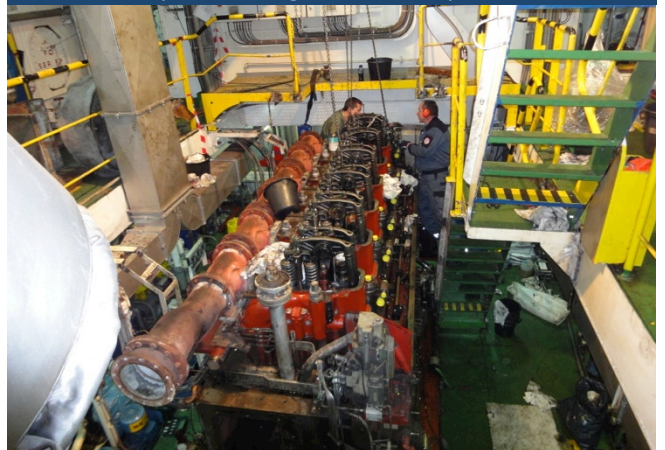
Goltens started with the disassembly of the engine removing the condemned crankshaft, liners, pistons and marine heads out of the engine room. These major items were all taken to Goltens workshop in Rotterdam for detailed inspection.

PROJECT FACTS: M/V KEREM-D

Engine Make / Model:	MAK 6M32C
Engine Output:	2.942 kW / 4.000 HP
RPM:	600
Vessel Type:	Chemical Tanker
Gross Tonnage:	3,988 tons



Disassembly of the engine and components



Rigging replacement crankshaft into the engine room

Goltens arranged for the delivery of the replacement crankshaft and overhauled all parts including the turbocharger and air cooler in its workshop.

With specially designed hydraulic tools, Goltens removed the flywheel hub from the crankshaft and reinstalled the flywheel hub on the replacement crankshaft.

The engine's camshaft was also fully inspected including full calibration measurements to the bearing pockets and bearing shells.

REASSEMBLY AND COMMISSIONING:

Goltens then completed the full reassembly of the engine inclusive of assembly of the flexible coupling and laser alignment and chocking of the engine.

Engine commissioning and dock trials were followed by successful sea trials to the full satisfaction of the owner and class surveyors.

Once again Goltens provided a complete, one stop solution to the customer and provided advice and assistance to the insurance company throughout the process.



Crankshaft ready for installation



Preparing hydraulic installation of the flywheel hub