

HIMSEN 6H25/33 CRANKSHAFT REPLACEMENT - SINGAPORE

CRANKSHAFT REPLACEMENT AND FULL ENGINE REBUILD IN ONLY 5 DAYS AT ANCHORAGE

Goltens received a call from the operator of a nine year old crude oil tanker about damage to one of its three HiMSSEN 6H 25/33 diesel generator sets. The engine had recently undergone routine overhaul but during operation, the engine went to overspeed and triggered a shutdown.

The ship's crew performed an initial inspection of the engine and found that the #5 crankpin had seized during the overspeed and subsequent shutdown. Further inspection revealed that the crankpin journal was badly damaged beyond the repair limits and the crankshaft was condemned.

THE REPAIR:

Goltens immediately mobilized the team to attend the vessel at anchorage in Singapore. The vessel's timeline was extremely tight and completing the repair quickly was of the utmost importance. Goltens' team completed the following scope to restore the engine to operation:

- Dismantling of the engine components and lifting the engine block to remove the damaged crankshaft.
- Inspection of engine block, main bearing pocket calibration and trueness check via laser.
- Installation of new crankshaft with new bearing shells.
- Checks on bearing clearance and gear train back lash.
- Calibration & crack test of pistons and connecting rods.
- Calibration of all cylinder liners as per technical instruction from engine maker.
- Installation of all cylinder units, aux pumps, and fuel component.
- Alignment of engine with alternator according to engine maker specifications.
- Final assembly of all remaining engine components and reconnection of all air, fuel, water, and oil lines.
- Checking of valve and fuel timing
- Verifying crankshaft deflection readings after assembly was completed
- Full flushing of the engine prior to op-test

PROJECT FACTS: CRANKSHAFT REPLACEMENT

Engine Maker:	HIMSEN
Engine Model:	6H 25/33
Location:	Singapore Anchorage
Vessel Type:	Crude Oil Tanker
Year of Build:	2011



Figure 1: Block lifted, removing condemned crankshaft



Figure 2: Hydraulic tensioning main journal bearing caps



Figure 3: Torqueing of cylinder head studs

RESULTS:

Once the flushing of the engine was completed, Goltens performed full checks on the auxiliary engine's safety devices and verified all were in working order and completed all pre-start checks.

The engine was tested up to 75% of its maximum load with all parameters acceptable. After only 5 days onboard, Goltens turned over the fully operational engine to the Chief Engineer with all in order.



Figure 4: Hydraulic tensioning big end conrod bolts



Figure 5: Calibrated pistons positioned for installation



Figure 6: Hydraulic Tensioning of cylinder head studs



Figure 7: Engine reassembled with exception of gallery covers