

ANOTHER SUCCESSFUL REPAIR FOR ROYAL CARIBBEAN'S LEGEND OF THE SEAS

WARTSILA 12V46B CRANKSHAFT RENEWAL

Legend of the Seas was built in 1995 and was the most travelled cruise liner in the Royal Caribbean fleet before she was transferred to another cruise line in mid 2017. Prior to that transfer, however, a casualty on main engine #5 resulted in significant damage to one of the crankpins. Due to the depth of the crack in the crankpin, the crankshaft could not be salvaged by machining and would require replacement.

Large crankshaft replacements are a routine job for Goltens and having completed a successful crankshaft replacement on engine #1 in 2013, Goltens Singapore was engaged to inspect the engine in New Zealand and was awarded the contract for the crankshaft renewal.

CRANKSHAFT REPLACEMENT AND REBUILD:

Preparations were made the week prior to the vessel's arrival at the Singapore Cruise Center. Detailed planning involving work schedule, lifting/rigging methodology, work and safety procedures as well as backup planning were all completed.

Goltens technicians joined the vessel in Singapore and completed the dismantling of the engine on voyage to Navantia, Spain where the vessel was to dry-dock. The job was complicated by the limited space to store the dismantled components and rig the crankshafts. Goltens completed the replacement and rebuild of the engine to maker's specifications in dry-dock.

REPAIR RESULTS:

Once the engine was rebuilt, Goltens laser aligned the engine and the generator and flushed the lube oil system to clear any debris. The prescribed running in procedures and operational testing were accomplished on voyage after the dry-dock. Lastly, load testing of the repaired engine was completed to the customer's satisfaction.

PROJECT FACTS: CRANKSHAFT REPLACEMENT

Engine:	Wartsila 12V46B
Output:	15,635 HP
Vessel:	Legend of the Seas
Tonnage:	5,200 DWT



Legend of the Seas



Disassembly of engine on voyage



Dismantling of flywheel



Rigging of condemned crankshaft from engine



Laser check of main bearing pockets



Replacement crankshaft ready for installation



Rigging crankshaft into position



Rigging of new flywheel into engine room



Installation of cylinder heads during rebuild



Laser alignment of coupling



Inspection of engine during run in checks