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.
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