

ABB's modernization on Adventure of the Seas increases the lifetime of the vessel and secures the operational reliability.



Increasing lifetime of the vessel, securing operational reliability, and enhancing the maintainability of the vessel.

Success by collaboration

Modernization scope

The modernization project on Adventure of the Seas included the upgrade of the existing PSR Cycloconverter Drive control platform to the AMC34 platform as well as the upgrade of the existing AC110 propulsion control platform to AC800M propulsion control platform.

The vessel

Adventure of the Seas was delivered in 2001 in Kvaerner Masa-Yards in Turku, Finland (today known as Meyer Turku Shipyard). She is operated by Royal Caribbean International (RCI), and is the third vessel of the Voyager class. The main purpose for upgrading of the Cycloconverters to match today's advanced technology was to lengthen the overall lifetime of the vessel, also by ensuring lifecycle services availability.

The project

The customer's dry docking schedule allowed to do one of the first control upgrades without time pressure. The whole 4 weeks docking time was utilized to achieve good quality and reliable system. Total project started couple years earlier from

discussions about life cycle status and ABB's solution presentations to improve the situation. The actual project was executed in eight months, which is exceptionally short for such an extensive project.

All the works at dry dock were completed 1 day earlier than scheduled and transfer trial from Grand Bahamas to Puerto Rico was possible to start earlier. That allowed ABB to test and tune the system to perfection without time pressure, even though in normal case 48 hours of testing time is suitable. All the sea trial tests and tuning of the new control systems were executed on transfer trial without need of additional sea trials.

In addition to the material supply, the overall ABB scope of supply included installation work, commissioning phase and testing. Even with a tight schedule and shortened timeline ABB was able to complete this pilot project successfully. The project team worked seamlessly together in Marine and Ports Finland, getting support and assistance from the local ABB units in the United States of America and Switzerland.

Adventure of the Seas was updated also with the new propulsion control panels, which are touch screens with good functionality together with clear graphics. The vessel is now prepared with Remote Diagnostic System (RDS) availability in the future, enabling remote connection between the vessel and the shore side ABB Integrated Operations Centers providing 24/7 service.

The drydock started in October 2016 just after the hurricane Matthew hit Freeport, Bahamas, quite badly, leaving the island in challenging conditions for such a big project. ABB, together with RCI, had a common goal of executing the modernization project with the highest level of excellence and commitment from both parties, as well as all other stakeholders involved in the project.

Collaboration with Royal Caribbean Cruises Ltd.

“Modernization of the Adventure of the Seas three (3) PSR Drive Controls to new AMC 34 System and Propulsion Controls to AC800M System was an extraordinary and challenging project, never done before on passenger vessel”, says Andrew A. Szymkiewicz (Marine Superintendent) from Royal Caribbean Cruises Ltd. “ABB Finland, Switzerland and Florida along with Royal Caribbean Cruises committed the best available resources to successfully complete two Azipod and Fixipod upgrades. This remarkable achievement will pave the way for future propulsion upgrades onboard passenger and other vessels.”

“This project was a great challenge both from engineering and commissioning point of view, but with great co-operation and support from RCCL we were able to finish the job on time, and fully tested.”, says Marcus Martelin (in image below), ABB Marine & Ports, VP Service, Passenger segment.



Maintenance and upgrade of Azipod propulsion systems

Shaft line works are nowadays routine works hence requiring specific competence and excellent coordination. Due to hurricane Matthew some of spare parts could not arrive to Grand Bahamas in time and logistics had to be reorganized. Despite of challenging works and act of nature the project was completed in schedule.

The scope included Shaft line Works for Azipod® and Fixipod Propeller Seal and Inner Shaft Seal Replacement, Fixipod Stator and Rotor Cleaning (CO2), Oil Treatment Unit (OTU) Modernization for NDE on All Three Pod Units, Azipod® Drive-End Lubrication Oil Pump Modernization, Slewing Bearing Replacement, Azipod® Thrust Bearing Cassette Modernization and Harmonization, Maintenance Tanks and Installation.

Maintenance of Electrical systems

On top of all modernization works also regular maintenance was conducted on LV and MV Switchboards.



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