

CASE STUDY

CRANE CONTROL CIRCUIT REPLACEMENT PROJECT

A thorough gap analysis and upgrade of your cranes' PLC systems provides fleet consistency and ensures reliability

BENEFITS

Delivery of a reliable, fully working control system

Application of a simplified system to enhance usability

Implementation of a standardised system across all cranes to optimise usability



ASSET

Floating Production, Storage and Offloading (FPSO) unit

LOCATION

UK

CHALLENGE

Following two separate uncontrolled lowering incidents, our customer had serious concerns about the Programmable Logic Controller (PLC) system on their on board A/S Hydralift cranes. All three cranes on board were hydraulically powered from the central hydraulic power unit through couplings in the crane king posts.

Investigations highlighted that a previous upgrade of a control cab from a different Original Equipment Manufacturer (OEM) on one of the cranes was the cause of the issue as the control software was significantly different.

We were contracted to conduct a gap analysis, including some reverse engineering of the control system to fully understand it, and implement a solution to rectify the problem.

SOLUTION

After a full review of the electrical and hydraulic control circuits, we conducted a gap analysis against the relevant crane standards to produce a basis of design document for the customer. On receipt of a functional design specification, we planned the replacement of all three control circuits, requiring that the original functionality be maintained.

The replacement control circuits were designed around the GE Intelligent Platforms RX3i Programmable Logic Controller (PLC) and the Wolverine Zone 2 Human Machine Interface (HMI) display. They were enclosed in an EEx enclosure assembly while operational limits were provided by the Mipeg 2000R combined system, which included:

- Mipeg 2000R Safe Load Indicator (SLI)
- Mipeg Rope Speed Indicator (RSI) – Load hoist speed
- Mipeg Operational Limit Monitor (OLM) – Slew and boom angle position.

As the Mipeg OLM had originally been installed on only one crane, we upgraded the remaining two cranes. One of the cranes required upgrading to an electric joystick, so seven Wandfluh SD6 digital amplifier modules were used to control proportional valves in the hydraulic circuit.

SUMMARY

- Three new control systems (based on the GE Intelligent Platform)
- Wolverine Hazardous Area HMI operator panels
- Engineering support
- Installation and testing
- Project management.

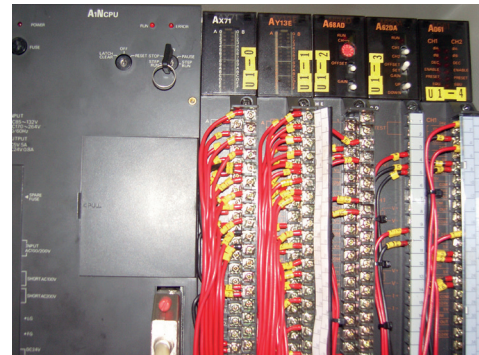
1.



2.



3.



1. New GE Wolverine HMI in crane cab.
2. Original crane driver console.
3. Original Mitsubishi PLC.

DELIVERY ASSURED

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