

Asset: Dive support vessel
Project: Knuckle boom crane slew gearbox sleeve repair
Location: UK
Date: 2015

When you discover a fault you need immediate specialist support to identify the root cause and fix the problem.



CASE STUDY

Challenge/objectives

After discovering cracks in the weld connecting the four slew gearbox sleeves to the pedestal floor on their Hydramarine knuckle boom crane our client contracted us to identify the cause of the cracking and advise how it could be rectified.

Solution applied

- One of our design engineers was immediately mobilised to survey the crane, where they discovered that in addition to the cracking the gearbox sleeves were not adequately welded to the floor to allow them to resist the forces generated when slewing the crane.
- After further inspection we discovered the sleeves had only been welded by 270 degrees and to implement a full 360 degree weld at this point the crane would have to be removed or jacked up from the pedestal.
- Modelling of the crane floor was conducted which determined it was fit for purpose in its original form, so our design team then carried out calculations to determine the weld repair that would be required.
- To avoid the costly and time consuming exercise of deconstructing the crane we devised a plan to carry out the repair between the upper side of the crane floor and the gearbox sleeve rather than on the underside, where the weld was previously applied.
- This process involved stripping hydraulic, mechanical and electrical components before the plated box section surrounding the gearbox sleeve could be removed.
- The 360 degree welds were completed on all four gearbox sleeves and the cracks in the floor platework were repaired.
- Following weld completion all steelwork and box section was re-instated and all of the previously removed hydraulic, mechanical and electrical components were reinstated to the crane, before a load test was successfully completed.

Summary of services/equipment deployed

- Engineering and design support
- Hydraulic flushing equipment
- Fabrication support
- Welding, fabricating and mechanical tooling supply
- Lifting equipment supply



Initially identified floor cracks



Weld repair

Outcome/benefits

The solution applied by the Sparrows Group provides a number of benefits:

- Immediate troubleshooting to diagnose root cause and prevent further failures
- Multi-disciplined engineering to ensure comprehensive support
- Project management to provide a timely turnaround
- Cost effective repair strategy
- Minimal crane down time



Completed work



Committed
Actively committed to ensuring one high standard of HSEQ globally



100%
of our people are staff



Experienced specialists
Decades of knowledge and skill with safety critical equipment