

A Case Study

Stacker Crane Repairs

Background to Repair

An international logistics and warehouse operator was experiencing wear problems with the side guide faces of their 22 metre tall computer controlled stacker cranes. Nicol and Andrew were called in to offer an in-situ machining solution to restore the parallelism to the masts and subsequently the accuracy of the lifting carriage.

Findings

Over a number of years the side contact faces had worn because of uneven usage over the working height of 22 metres. Out of parallel readings of up to 5mm were observed. Consequently the lifting carriage roller assemblies could not be set accurately enough to ensure that the pick up forks would "repeat park" for pallet collection.

Repair Procedure

Minor modifications to the lifting carriage itself enabled Nicol and Andrew to utilise its own hoist drive assembly. This allowed the restoration work to progress with the minimum of dismantling and disruption to the stacker crane. Utilising a matching pair of high powered finishing grinders and guided by a centrally mounted linear rail running the complete height of the mast, enabled both contact faces to be machined at the same time and setting.

Performing the Repair

Prior to the machining operation a dimensional and visual survey was undertaken in order to limit the metal removal. The linear guide rail was set to the mean attitude of the guide faces. Enough material was removed to ensure clean up and the removal of any flaking.

Timescale

The average timescale required to complete the survey (including setting up), the machining and the rebuild of the stacker crane ready for use, was 7 days or less.

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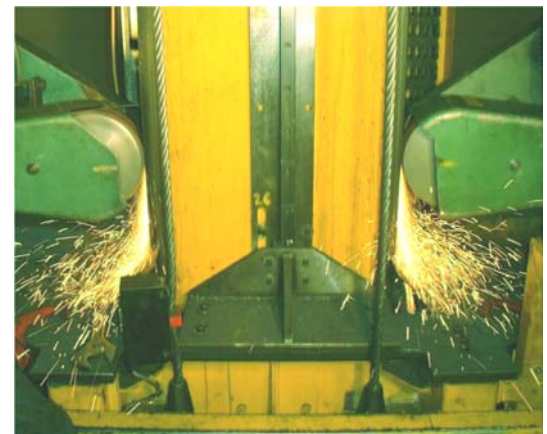
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Over 50 years in the in-situ repair business



The 22 Metre High Stacker Mast



Grinding of the Mast Guide Rails

Key Benefits of this In-Situ Repair

- Improved smoothness of running
- Accurate positioning of the lifting carriage
- Increased accuracy of pick up
- Improved roller assembly life
- Reduced spillage and subsequent aisle closure

Nicol & Andrew Plc

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