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The Comparative Study of Fatigue Crack Propagation Experiment and Computer Simulation on the Component Materials for the Crane Life Remained

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ABSTRACT

This study presents fatigue crack propagation experiments and the simulation used to estimate the life remaining in a crane that is currently in use at a port. The fatigue crack propagation experiments were performed by an Instron 8516 fatigue testing machine and the simulation was performed using the AFGROW software. The simulation results indicated that the critical size of the crack in the upper flange surface of the main jib was 107.4 mm and that it would take 818,000 cycles to reach that point. If the main jib of the crane undertakes 28,800 cycles per annum then its remaining lifespan should be 28.4 years.

KEYWORDS

Crane, Fatigue Crack Propagation, Computer Simulation, Crane Life Remained

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