

FAILURE INVESTIGATION OF AXLE SHAFT AT SUGARCANE TRANSPORTERS

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Abstract

This research aims to investigate the failure of axle shafts in sugar cane transport trains at PT Madubaru PG-PS Madukismo, Yogyakarta. Axle shaft failure is a serious issue that can lead to accidents and disrupt production processes. In this study, we designed the distribution of axle shaft loads, determined the maximum acceptable load limits, identified critical zones on the axle shafts, and selected the most efficient and safe materials for axle shaft construction.

The research method involved data collection, modeling, and analysis using Ansys software. The results indicate that the axle shafts failed due to fatigue life, and ST 70 material is more efficient than AISI 4340 with an increase in the fatigue life value of ST 70 material by 0.76% compared to AISI 4340 material and an increase in the safety factor value of ST 70 material by 0.11% compared to AISI 434 material. The recommendation for replacing the axle shaft material is ST 70.

Keyword: Failure, Axle Shaft, Sugar Cane Transport Train