

ABSTRACT

***HOSE DAMAGE ANALYSIS ON KOMATSU PC300-8M0 TO IMPROVE
MAINTENANCE PLANNING ACCURACY AT PT UNITED TRACTORS
SEMEN GRESIK***

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The hydraulic system on the Komatsu PC300-8M0 Excavator has an important role in supporting the unit's operations, especially in the process of digging and moving materials. Damage to hose components occurs frequently and can cause significant downtime. This research aims to analyze the types of hose damage, determine the factors that cause it, and provide optimal maintenance recommendations to improve the accuracy of maintenance planning. The method used is Failure Mode and Effect Analysis (FMEA) to identify and rank the risk of component failure based on the Risk Priority Number (RPN) value. Reliability Centered Maintenance (RCM) is also used to determine effective maintenance intervals. The results showed that the dominant damage to the hose was hose burst at coupling, with the highest RPN value of 168. Based on the calculation of Mean Time to Failure (MTTF) and Mean Time to Repair (MTTR), the optimal inspection interval is obtained every 423 working hours. By implementing the right maintenance strategy, it is expected to reduce the frequency of hose failures, improve operational efficiency, and reduce unit downtime.

Keywords: hose, failure mode and effect analysis, risk priority number, reliability centered maintenance

INTISARI

ANALISIS KERUSAKAN HOSE UNIT KOMATSU PC300-8M0 UNTUK MENINGKATKAN KETEPATAN PERENCANAAN PERAWATAN DI PT UNITED TRACTORS SEMEN GRESIK

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Sistem hidrolik pada *Excavator* Komatsu PC300-8M0 memiliki peran penting dalam menunjang operasional unit, terutama dalam proses penggalian dan pemindahan material. Kerusakan pada komponen hose sering terjadi dan dapat menyebabkan downtime yang signifikan. Penelitian ini bertujuan untuk menganalisis jenis-jenis kerusakan hose, menentukan faktor penyebabnya, serta memberikan rekomendasi perawatan yang optimal guna meningkatkan ketepatan perencanaan pemeliharaan. Metode yang digunakan adalah *Failure Mode and Effect Analysis* (FMEA) untuk mengidentifikasi dan memberi peringkat risiko kegagalan komponen berdasarkan nilai *Risk Priority Number* (RPN). *Reliability Centered Maintenance* (RCM) juga digunakan untuk menentukan interval perawatan yang efektif. Hasil penelitian menunjukkan bahwa kerusakan dominan pada hose adalah *hose burst at coupling*, dengan nilai RPN tertinggi sebesar 168. Berdasarkan perhitungan *Mean Time to Failure* (MTTF) dan *Mean Time to Repair* (MTTR), diperoleh interval pemeriksaan optimal setiap 423 jam kerja. Dengan penerapan strategi perawatan yang tepat, diharapkan dapat mengurangi frekuensi kegagalan hose, meningkatkan efisiensi operasional, dan mengurangi downtime unit.

Kata kunci: *hose, failure mode and effect analysis, risk priority number, reliability centered maintenance*