

***EFFECTIVENESS ANALYSIS OF TREPOS (TRAVEL PROTECTION SYSTEM) INSTALLATION ON EXCAVATOR PC210-10M0 AS A PREVENTIVE MAINTENANCE MEASURE FOR UNDERCARRIAGE COMPONENT AT PT UNITED TRACTORS SITE BENDILI***

Alva Rizki Amanullah  
20/457145/SV/17592

***ABSTRACT***

*PAMA is a company engaged in mining contractors whose operations are supported by several partners. One of the main units of PAMA's work partners is the PC210-10M0 which, if damaged, will have an impact on the company's revenue because the unit is rented out based on working hours. The main problem experienced by PC210-10M0 owned by PAMA's work partners is the frequent occurrence of undercarriage breakdowns that occur due to operational methods up to 2866.2 hours or 48% of the total PC200/210 unit breakdowns that occurred in the last 7 months. The purpose of this study is to determine the effectiveness of the installation of TREPOS (Travel Protection System) on the PC210-10M0 excavator unit as a preventive maintenance measure for undercarriage components.*

*This research uses the FMEA method in analyzing the priority of handling failures based on the background of the problems that occur. The SMART method (Specific, Measurable, Achievable, Reasonable and Time) is carried out in determining the target project so that the research is directed and does not widen. Some methods in terms of check and control of the manufacture and operation of the tool the author uses the PDCA (Plan, Do, Check and Action) and PICA (Problem, Identification, Corrective, and Action) methods. In general, the research analysis is comparative to the before and after project comparison data.*

*The results show that with the help of TREPOS (Travel Protection System) can reduce the intensity of travel time units that exceed 20 minutes and produce travel time dominance in the range of time 10 - 20 minutes. TREPOS also succeeded in reducing the intensity of the unit's unscheduled breakdown by surviving 3439 hours without unscheduled breakdown. Through extend life component reaching 48% on the carrier roller component, 42% on the track roller component, 33% on the sprocket component and 86% on the track link component, the saving cost obtained by PAMA's partners reached Rp65,114,026 when compared to the before project data. Based on the results of the analysis, the installation of TREPOS plays an effective role in determining the maintenance strategy for undercarriage components.*

*Keywords : undercarriage, TREPOS, excavator, preventive maintenance, breakdown unschedule, travel time*

**ANALISIS EFEKTIVITAS PEMASANGAN TREPOS (TRAVEL PROTECTION SYSTEM) PADA EXCAVATOR PC210-10M0 SEBAGAI UPAYA PREVENTIVE MAINTENANCE KOMPONEN UNDERCARRIAGE DI PT UNITED TRACTORS SITE BENDILI**

Alva Rizki Amanullah  
20/457145/SV/17592

**INTISARI**

PAMA adalah perusahaan yang bergerak dalam bidang kontraktor pertambangan yang dalam operasionalnya didukung oleh beberapa mitra kerja. Salah satu unit utama mitra kerja PAMA adalah PC210-10M0 yang jika mengalami kerusakan akan berdampak pada pendapatan perusahaan karena unit tersebut disewakan berdasarkan jam kerja. Masalah utama yang dialami oleh PC210-10M0 milik mitra kerja PAMA adalah sering terjadinya *breakdown undercarriage* yang terjadi akibat metode operasional hingga 2866,2 jam atau 48% dari total keseluruhan *breakdown unit* PC200/210 yang terjadi dalam 7 bulan terakhir. Tujuan dari penelitian ini untuk mengetahui efektivitas dari pemasangan TREPOS (*Travel Protection System*) pada unit *excavator* PC210-10M0 sebagai upaya *preventive maintenance* komponen *undercarriage*.

Penelitian ini menggunakan metode FMEA dalam menganalisis prioritas penanganan kegagalan berdasarkan latar belakang permasalahan yang terjadi. Metode SMART (*Specific, Measurable, Achievable, Reasonable and Time*) dilakukan dalam penentuan *target project* agar penelitian terarah dan tidak melebar. Beberapa metode dalam hal *check and control* dari pembuatan dan operasional alat penulis menggunakan metode PDCA (*Plan, Do, Check and Action*) dan PICA (*Problem, Identification, Corrective, and Action*). Secara umum analisis penelitian bersifat komparatif terhadap data pembandingan *before and after project*.

Hasil penelitian menunjukkan bahwa dengan bantuan TREPOS (*Travel Protection System*) dapat mengurangi intensitas *travel time unit* yang lebih di atas 20 menit dan menghasilkan dominasi *travel time* pada *range time* 10 – 20 menit. TREPOS juga berhasil menekan intensitas *breakdown unschedule unit* dengan bertahan 3439 jam tanpa *breakdown unschedule*. Melalui *extend life component* mencapai 48% pada komponen *carrier roller*, 42% komponen *track roller*, 33% komponen *sprocket* dan 86% komponen *track link* menghasilkan *saving cost* yang didapat mitra kerja PAMA mencapai Rp65.114.026 jika dibandingkan dengan data *before project*. Berdasarkan hasil analisis, pemasangan TREPOS berperan efektif dalam penentuan *maintenance strategy component undercarriage*.

Kata kunci : *undercarriage, TREPOS, excavator, preventive maintenance, breakdown unschedule, travel time*