ABSTRAK

Bulldozer merupakan salah satu alat berat yang penting dalam kegiatan pertambangan dan konstruksi terutama *bulldozer* Komatsu D85E-SS-2 untuk pekerjaan pendorong tanah, meratakan tanah, dan membuka akses jalan memanfaatkan *blade* yang terpasang pada *bulldozer*. Pekerjaan *bulldozer* sangat bergantung dengan *undercarriage* yang terpasang sebagai penggerakan dan karena pekerjaannya yang berat, *undercarriage* tidak dapat terhindar dari kerusakan dan keausan selama beroperasi sehingga perlu dilakukan penelitian terhadap keausan, sisa umur, dan kerusakan dari komponen-komponen pada *undercarriage* khususnya pada komponen *track shoe*, *track link*, dan *carrier roller*.

Metode yang digunakan untuk melakukan analisa pada penelitian ini adalah dengan menghitung keausan dan sisa umur komponen serta menganalisa kerusakan dengan menggunakan metode FMEA terhadap data-data yang diperoleh langsung dari pengukuran dan keterangan mekanik di lapangan.

Berdasarkan hasil perhitungan keausan dan sisa umur komponen, diperoleh persentase keausan di akhir penelitian pada komponen *track shoe* sebesar 47,65 % di bagian kanan dan 47,83 % di bagian kiri, *track link* 36,50 % di bagian kiri dan 36,30 % di bagian kanan, dan *carrier roller* 19,27 % di bagian kiri dan 19,18 % di bagian kanan. Sisa umur komponen *track shoe* sebesar 1793 jam di bagian kiri dan 1780 jam di bagian kanan, *track link* sisa umur sebesar 1321 jam di bagian kiri dan 1330 jam di bagian kanan, dan *carrier roller* sisa umur komponen sebesar 4159 jam di bagian kiri dan 4180 jam di bagian kanan. Hasil analisa menggunakan metode FMEA diperoleh nilai RPN komponen *track shoe* sebesar 240, *track link* sebesar 448, dan *carrier roller* sebesar 336.

Kata Kunci : *Bulldozer* komatsu D85E-SS-2, FMEA, keausan, *undercarriage*

ABSTRACT

Bulldozer is an important heavy equipment in mining and construction, especially The Komatsu D85E-SS-2 bulldozer is used for earthmoving work, leveling the ground, and opening access roads using a blade mounted on a bulldozer. The work of bulldozers is very dependent on the undercarriage installed as a mover. Because of the heavy work, the undercarriage cannot be avoided from damage and wear during operation so it is necessary to do research on wear, remaining life, and damage to the components on the undercarriage, especially on the track shoe component. track links, and carrier rollers.

The method used to perform the analysis in this study is to calculate the wear and remaining life of the components and analyze the damage using the FMEA method on data obtained directly from measurements and mechanical information in the field.

Based on the results of the calculation of wear and remaining component life, the percentage of wear at the end of the study on the track shoe components was 47.65% on the right and 47.83% on the left, 36.50% track link on the left and 36.30% on the left. the right side, and carrier roller 19.27% on the left and 19.18% on the right. The remaining life of the track shoe components is 1793 hours on the left and 1780 hours on the right, the track link has a remaining life of 1321 hours on the left and 1330 hours on the right, and the carrier roller remaining component life of 4159 hours on the left and 4180 hours on the right. The results of the analysis using the FMEA method obtained that the RPN value of the track shoe component is 240, the track link is 448, and the carrier roller is 336.

Keywords : Bulldozer Komatsu D85E-SS-2, FMEA, wear, undercarriage