

ABSTRAK

Bulldozer memiliki fungsi yang sangat penting dalam membantu proses produksi pada bidang pertambangan, sehingga menuntut unit harus tetap dalam keadaan prima untuk beroperasi. *Undercarriage* merupakan bagian utama dari *bulldozer* yang berfungsi untuk menopang dan mendukung berpindahnya unit dari satu tempat ke tempat lainnya. Karena unit *bulldozer* melakukan pekerjaan yang sering bergerak sehingga memungkinkan komponen pada *undercarriage* saling bergesekan yang berpotensi menyebabkan keausan. Apabila ada komponen *undercarriage* yang mengalami keausan kemungkinan berpengaruh terhadap produktivitas dan menurunnya performa dari *bulldozer* tersebut. Berdasarkan dari studi di lapangan ada beberapa permasalahan yang terjadi pada komponen *track roller*, *carrier roller*, *track link*, dan *track shoe*. Penelitian ini dilakukan untuk menganalisa terhadap tingkat keausan dan sisa umur pemakaian komponen dengan menggunakan metode FMEA.

Berdasarkan dari hasil perhitungan diperoleh persentase keausan *track roller* sebesar 19,25%, tingkat keausan *carrier roller* sebesar 104,41%, tingkat keausan *track link* sebesar 42,20%, tingkat keausan *track shoe* sebesar 12,48%. Sedangkan untuk sisa umur komponen didapat hasil *track roller* 3770 jam, sisa umur pemakaian komponen *carrier roller* sebesar (-61) jam, sisa umur pemakaian komponen *track link* sebesar 1008 jam, sisa umur pemakaian komponen *track shoe* sebesar 13113 jam.

Kata kunci : Bulldozer, Undercarriage, Track roller, Carrier roller, Track link, Track shoe, FMEA

ABSTRAK

Bulldozers have a very important function in helping the production process in the mining sector, so it demands that the unit must remain in prime condition to operate. The undercarriage is the main part of the bulldozer that serves to support and support the movement of the unit from one place to another. Because the bulldozer unit does a job that moves frequently, allowing the components on the undercarriage to rub against each other which has the potential to cause wear. If there are undercarriage components that are worn out, it may affect the productivity and decreased performance of the bulldozer. Based on field studies, there are several problems that occur in the components of track rollers, carrier rollers, track links, and track shoes. This study was conducted to analyze the level of wear and residual service life of components using the FMEA method.

Based on the calculation results obtained the percentage of wear of the track roller by 19.25%, carrier roller wear rate by 104.41%, track link wear rate by 42.20%, track shoe wear rate by 12.48%. As for the remaining component life, the track roller results are 3770 hours, the remaining service life of the carrier roller components is (-61) hours, the remaining service life of the track link components is 1008 hours, the remaining service life of the track shoe components is 13113 hours.

Keywords : Bulldozer, Undercarriage, Track roller, Carrier roller, Track link, Track shoe, FMEA