

ABSTRAK

Undercarriage merupakan salah satu sistem utama pada *excavator* yang memiliki kontribusi besar terhadap biaya perawatan, karena lebih dari 50% total biaya operasional alat berat berasal dari komponen-komponen yang mengalami kontak langsung dengan permukaan kerja. Komponen seperti *idler*, *track shoe*, dan *sprocket* rentan mengalami keausan akibat beban operasional, kondisi tanah, serta frekuensi penggunaan. Penelitian ini bertujuan untuk menganalisis tingkat keausan serta memperkirakan sisa umur pakai ketiga komponen tersebut pada *excavator* komatsu PC200-8, sekaligus mengidentifikasi faktor penyebab utama keausan menggunakan pendekatan metode *fishbone* (tulang ikan). Hasil yang diperoleh berdasarkan penelitian yang telah dilakukan yaitu persentase keausan komponen selama 11708 jam untuk sisi kiri *idler* 50%, *track shoe* 44,8%, dan *sprocket* 21,13%. Sisa umur pakai pada sisi kiri *idler* 11708 jam, *track shoe* 14425 jam, dan *sprocket* 43701 jam. Persentase keausan komponen selama 11708 jam pada sisi kanan *idler* 54,75%, *track shoe* 38%, dan *sprocket* 19,88%. Sisa umur pakai pada sisi kanan *idler* 9676 jam, *track shoe* 19102 jam, dan *sprocket* 47185 jam. Hasil diagram *fishbone* mengungkap bahwa faktor dominan penyebab keausan meliputi kondisi medan, pola pengoperasian operator, dan interval pemeliharaan yang kurang optimal. Penelitian ini memberikan gambaran komprehensif mengenai kondisi aktual komponen *undercarriage* serta dapat menjadikan dasar perencanaan pemeliharaan preventif yang lebih efektif berguna menekan biaya downtime dan meningkatkan umur pakai komponen.

Kata kunci: *Excavator*, *Undercarriage*, *idler*, *track shoe*, *sprocket*, *Diagram Fishbone*.

ABSTRACT

The undercarriage is one of the main systems on an excavator that has a large contribution to maintenance costs, because more than 50% of the total operational costs of heavy equipment come from components that are in direct contact with the work surface. Components such as idlers, track shoes, and sprockets are susceptible to wear due to operational loads, soil conditions, and frequency of use. This study aims to analyze the level of wear and estimate the remaining service life of these three components on a Komatsu PC200-8 excavator, while identifying the main causes of wear using the fishbone method approach. The results obtained based on the research that has been done are the percentage of component wear for 11708 hours for the left side of the idler 50%, track shoes 44.8%, and sprockets 21.13%. The remaining service life on the left side of the idler is 11708 hours, track shoes 14425hours, and sprockets 43701 hours. The percentage of component wear during 11708 hours on the right side of the idler is 54.75%, the track shoe is 38%, and the sprocket is 19.88%. The remaining service life on the right side of the idler is 9676 hours, the track shoe is 19102 hours, and the sprocket is 47185 hours. The results of the fishbone diagram reveal that the dominant factors causing wear include field conditions, operator operating patterns, and suboptimal maintenance intervals. This study provides a comprehensive picture of the actual condition of undercarriage components and can be the basis for more effective preventive maintenance planning to reduce downtime costs and increase component service life.

Keyword: *Excavator, Undercarriage, idler, track shoe, sprocket, Fishbone Diagram.*