ABSTRACT

Gear pump machine 51-98P01 is a machine that is available at PT Polyfin Canggih which functions as a of transportation machine for raw materials from one department to another. Because of the machine's function, if there is a downtime on the machine, tproduction process will stop operating because the raw material cannot be flowed. Downtime occurs due to several factors, damage to components on the machine, age that has exceeded the optimal limit, and the number of maintenance crew that is not suitable. Therefore, the Life Cycle Cost (LCC) method is used to determine the optimum age of the engine and the optimal number of maintenance crew using the Life Cycle Cost (LCC) method. In addition, a calculation of the proposed maintenance time interval is also carried out to achieve a certain reliability value using a simulation of reliability improvement to see the effect of reliability on the total LCC. Based on data processing using the LCC method, it is known that LCC in 2018 is Rp1,333,195,316 while the optimum LCC is Rp.690,180,267 with optimal machine life of six years and the number of crew maintenance is one person. Simulation of reliability improvement that carried out on the gear pump machine components shows a decrease in the total cost of the LCC engine.

Keywords: *Downtime, Failure Cost, Life Cycle Cost, Maintenance Crew, Reliability, Support Cost*