ABSTRACT

CV Kurnia Gemilang is providing services of heavy equipment a company for excavation of sand and stone material following maturation employment land. Units of heavy equipment is kind of type Hydraulic Excavator Komatsu PC200-7. CV Kurnia Gemilang should really ensure viable to operate heavy equipment. Currently Type Hydraulic Excavator Komatsu PC200-7 is a key facility that is owned by CV Kurna Gemilang are still experiencing disruption which resulted in damage to the operation of heavy equipment. The high amount of damage it will interfere with the performance of the machine, causing the cost of treatment and the risk of damage to hurt the company. CV Kurnia Gemilang also do not have a strategy for inventory management components for heavy equipment, this will result in the operation of heavy equipment longer and must have been a lost opportunity for the company. Therefore CV Kurnia Gemilang determination need to optimization of maintenance intervals taking into account the risk of failure, maintenance costs are based on methods Risk-Based Maintenance and Marginal Assurance.

Based on Pareto diagram, from the system Hydraulic Excavator Komatsu PC200-7 selected six critical systems, Fuel and Air System, Lubrication System, Cooling System, Operating System, Steering System, and System Starter. The six critical system that was later used as the object of research for the specified time interval maintenance optimization using the Risk-Based Maintenance (RBM). Activity optimal treatment is effective and efficient care. Effective characterized by high reliability of the system, while efficient refers to the size of the cost of care and the risk of damage that may arise. By combining the two is expected to be obtained care activities that can improve the reliability of critical systems at the cost and risk of damage as small as possible. As for the optimization procurement of critical components, used Marginal Assurance method that aims to determine the number of combinations of components and the optimal procurement period based on component reliability. With this method the optimal component procurement is expected to increase the level of assurance on the availability of components in the warehouse, so that downtime can be minimized due to logistics activities.

Based on the results of data processing, optimal maintenance intervals based RBM is 270 hours for Fuel and Air System, Operating System, and Steering System, 540 hours for Cooling System, Lubrication System, and System Starter by 80% over the critical system reliability values between 0 , 5 to 0.8. Activities and proposed treatment time interval gives the total cost and risk of Rp 74.343.912,00 smaller than the total cost and the risk that existing treatments for Rp 138.327.028,00. Procurement optimal component is 2 period in 2 years by the number of combinations Tooth = 32, Roller = 76 and Bucket Hose = 8 pieces with a total cost of Rp 242.806.110,65 and the overall level of assurance level of 92.9%.

Key Words : *reliability*, RBM, *preventive maintenance, Marginal Assurance*