

## **ABSTRACT**

*PT Kereta Api Indonesia is a company that organizes railway transportation services. Diesel Railcar is one of railway that used to transport passengers and has its own drive motor. Maintenance policy of railcar KD2 PATAS was not effective and efficient yet because did not pay attention to the age and damage characteristics of the components. This leads to a damage with high frequency and cost of maintenance on KRD that need the proposed maintenance task with the right maintenance intervals. In addition, to avoid delays of repair activities due to the unavailability of the required component, we need to calculate the number of optimal spare parts.*

*Based on the calculation results of Risk Priority Number (RPN), there is elected 5 critical subsystems such as compressor, lube oil system, cooling system, combustion air system and charging system. The determination of maintenance task to all the components on the critical subsystems with Reliability Centered Maintenance (RCM) method generates preventive maintenance strategy such as scheduled on condition task, scheduled discard task and scheduled restoration task. Meanwhile, maintenance intervals are adapted to task of each failure mode with the results of interval for 500 hours to 17.280 hours. Maintenance cost to do preventive maintenance is about Rp 170.949.037,00 for one year with profit 9,7% from the total cost of existing preventive maintenance . Furthermore, spare parts that are classified based on the type of repair are consists of 3 repairable components and 24 nonrepairable components. Number of spare parts are calculated with Poisson Process and are generated 11 pieces of repairable components and 194 pieces of non-repairable components.*

**Keywords:** *Diesel Railcar, Risk Priority Number, Reliability Centered Maintenance, Preventive Maintenance, Spare Parts, Poisson Process*