

ABSTRACT

PT Kereta Api (Persero) is one of state company moved in transportation and it is believed by government to maintain railway in Indonesia with mission to become the first choice of transportation service and the stakeholders preference to increase of safety and service. Locomotive is very important facilities for operational task, to make locomotive can operating in good, one of factor that must pay attention is reliability of locomotive systems. Reliability is defined as ability of system to implement the function during operating period. With the reliability system high, it is required maintenance strategy based on reliability-centered maintenance and also optimalization of repair channel.

The planning of maintenance policy based on RCM through seven steps, begin from system selection and information collection, system description, system function and failure function, failure mode effect and analysis, logic tree analysis, and task selection if available alternative maintenance was not effective and efficient to apply on systems. While optimalization of repair channel begin from calculate purchasing cost and population cost to get acquisition cost, and then calculate operation cost, maintenance cost, and shortage cost to get sustaining cost. After that Life Cycle Cost can be calculated from adds acquisition cost and sustaining cost. The value of Life Cycle Cost will get optimalization of repair channel with minimum cost.

The result using RCM method on locomotive component, especially on diesel engine and mechanic systems, in determining maintenance policy are 12 parts on Schedule On-Condition tasks, 4 part on schedule failure finding, 15 part on no scheduled maintenance. Determination of optimalization of repair channel is calculated with 11 repair channel and locomotive retirement age ($n=15$ years until $n=25$ years). Optimal repair channel is 4 repair channel and retirement age 15 years with cost Rp 106.497.390.715.

Keywords: RCM, Optimalization of Repair Channel, Reliability