

## **ABSTRACT**

*PT DNS was established in 1975, it is an automotive components manufacturing company that produced the spark plug, this product has important role as a tool as needed to ignite a mixture of air and fuel called Spark Ignition Engine (SIE), motorized vehicles cannot be operated without spark plugs. With a lot of order came from its customers, the company must be able to optimized machine's work and its maintenance crew, since it's the main supporting resources of production process.*

*There are two methods was used in this research, which are Risk Based Inspection (RBI) and Life Cycle Cost (LCC). Based on the results of research using RBI methods, has obtained an average Remaining Life based on the corrosion rate that affects the remaining wall thickness pipes for components that has the highest Risk Priority Number value from the critical subsystem for 29 years , Based on that result, interval inspection schedule can be optimized based on level of risk which is determined by Risk Matrix method, which this proposal aims to maintain the performance of the engine in producing a spark plug and minimize expenses for inspection fees.*

*Based on the results of research using LCC method, the total cost that will be spent by the company for the next 29 years based on the average remaining life, starting from 2015 until 2043, and in the 14th year (2028) is the smallest Total Annual LCC value with maintenance set crew conditions  $M = 1$ , where there is the best balance for all components of the costs is worth Rp 918.907.948,10. Based on a minimum value of Total Annual LCC has been chosen where the condition maintenance crew sets  $M = 1$ , so 2 technicians is the optimal amount of maintenance crew, this condition is based on maintenance cost as well shortage cost that will be spent by the company.*

*Key Words : Interval Inspection, Remaining Life, Maintenance Crew, Risk Based Inspection, Life Cycle Cost*