DEMAND FORECASTING AND INVENTORY POLICY
FOR SPARE PART: A CASE STUDY

Name : Satrya Pratama
NRP  : 9111.202.718
Counselor : Prof. Ir. I Nyoman Pujawan, M.Eng., Ph.D.

ABSTRACT

Spare part availability is a key performance to support repair and maintenance activity in the workshop. It is important to maintain the spare part inventory in a proper stock. Then a good demand forecasting is a main aspect to determine the optimum number of spare part inventory especially if dealing with an intermittent demand of spare part.

PT. XYZ in Truck Workshop Division had a problem in determining the optimum inventory of hydraulic cylinder spare part for truck crane. The hydraulic cylinder problem such as leakage was unpredictable since it was not continuous. This type intermittent demand usage of spare part was creating a problem of high truck crane’s breakdown.

The research for demand forecasting of truck crane’s hydraulic cylinder spare part was conducted by designed and developed the decision maker system model using ABC analysis to classified the type of critical or non-critical spare parts. Forecasting process to predict future demands were used Croston and Single exponential smoothing method. (s,S) inventory policy was applied to maintain and control the spare parts inventory level. Finally, both forecasting methods were being compare based on the forecasting accuracy, inventory level, and inventory costs to obtain the best one.

Based on the research, the Croston demand forecasting method was the most accurate demand forecasting method to create the inventory level and the most appropriate inventory cost for the related case study. The application of (s,S)
inventory policy were improving the spare part availability and finally improved the equipment availability and truck crane rental income.

**Keywords:** Demand Forecasting, Croston Method, Single Exponential Smoothing, (s,S) inventory policy, ABC analysis, hydraulic system spare parts, MAPE.