

## **ABSTRACT**

*Spare part is one of the important components that the engine needs when it is damaged or when doing maintenance, therefore the availability of spare parts must be maintained. However, at present the inventory management for spare parts of fanuc engines at PT XYZ can be said to be not good because of the occurrence of the stockout phenomenon in 2017.*

*PT XYZ is an automotive company engaged in manufacturing, assembling and distributing motorcycles. The phenomenon of stock out that occurs can cause companies to experience losses due to the greater machine down time which causes the production target of the fanuc machine to not be met.*

*The aim of this research is to improve service level by designing optimal safety stock, reorder point and expected backorder policies for fanuc machine spare parts at PT XYZ using the Expected Backorder (EBO) method.*

*The results of the application of the Expected Backorder (EBO) method on the supply of spare parts for fanuc machines, gave an increase in service level that was initially at 78% to 91% even though the total inventory cost increased up to 63% from the total actual inventory cost which initially amounted to Rp93,464,799.60 to Rp.152,500,513.60. This happens because of a decrease in stock out or shortage cost savings and an increase in message costs and storage costs.*

**Keywords:** *Spare Parts, Stock out, service level*