

ABSTRACT

PT XYZ is an Indonesian automotive company engaged in manufacturing commercial vehicle components (pick-up cars and trucks). The current unstable economic condition has an impact on all aspects. One of the impacts that is currently occurring is that competition in the industrial world is becoming increasingly fierce, so industrial players must have a competitive advantage to maintain business continuity. Companies are required to be able to make cost savings in order to be able to compete with competitors. The main problem in this research is that the inventory of components for the ACL engine assembly is experiencing overstock, resulting in increased inventory costs due to the company's ordering system not being optimal and the ACL engine assembly being a new product so it does not meet consumer demand. This research aims to analyze the inventory of ACL engine assembly components. To find out which ACL engine assembly components require more attention in order to minimize losses that the company can experience and to determine the optimal order quantity so as to minimize total inventory costs.

There are five ACL engine assy components in the most expensive component price category, such as alternator, motor starter, o-ring, oil cooler, gasket/ EGR which has a storage cost of IDR 1.080.000.000. The erratic demand for ACL engine assemblies causes a difference in the company's estimated demand of 24.597 units with the actual demand of 15.064. this makes it difficult for the company to determine the right number of engine components so that in the production process there is no shortage of inventory or buildup of engine components. The large number of ACL engine assembly components remaining in the warehouse with an average storage of 1.318 units resulted in more costs being incurred by PT XYZ. The ordering cost in actual conditions is IDR 181.789.800 and the storage of ACL engine assy components will continue to increase as ACL engine assy components continue to be ordered which results in a buildup of ACL engine assy components in the warehouse. Orders for ACL engine assembly components are made quite frequently, the costs of ordering and storing engine components are increasing, and there is a buildup of engine

component inventory in the warehouse. The company routinely places orders even though orders for ACL engine assembly components are still carried out predictively. The company also appears to have not monitored its inventory of machine components. It seems that the company has not planned the purchase of machine components properly, to determine the quantity or to determine the order time. PT month with a total inventory of 172.179 units.

To answer problems regarding inventory control, the ACL engine assembly component requirements planning method can be used, namely the Material Requirement Planning (MRP) method with the Wagner Within algorithm lot sizing technique. In goods, inventory control is emphasized on material control. In service goods, control is prioritized less on materials and more on supply services because consumption often coincides with the procurement of services and so does not require inventory. Inventory functions to facilitate the running of company operations which are carried out successively for business processes.

The results obtained were inventory costs of IDR 82.453.420.224 with an order frequency of 24 times and total inventory of 107,601 units. The results of data processing using the material requirements planning method with the Wagner Within algorithm lot sizing technique resulted in a decrease of 37.995%.

Keywords: Inventory, MRP, Wagner Within, Total Inventory Cost