ABSTRACT

PT. Kereta Api Indonesia (Persero), hereafter PT KAI (Persero) or "Company", is a State-owned Enterprise that provides, organizes, operates and manages the Indonesia Railway transportation system. As a biggest railway industry in Indonesia, in terms of inventory, the company must be dealing with inventory management, company has thus the need to better manage the replacement of inventory in order to reduce the inventory cost, much less the slow moving inventory lingered in the warehouse as a result of overstock. Unlike fast moving, slow-moving items are more expensive, more critical, and more difficult to forecast, therefore, the inventory management of them is more complicated. As of 2010, approximately IDR 50 billion cumulative slow moving inventory value existed in PT KAI warehouses, the following five years, by the end of 2015 the value got increased worth IDR 70 billion and practically reached 0.8 million items. One of PT KAI's central warehouses, Yogyakarta Central Warehouse (GPYK) once had more than 26% items that worth 55% all of slow moving at the end of 2015. Besides the increase of inventory cost, the lingered slow moving item stored in the warehouse could be changing the inventory status of obsolescence to become scrap, which will be auctioned not more than 10% of purchasing cost. Thus, author aims to manage slow moving item to stress or reduce inventory cost.

In this thesis author then analyses the state of the art about the slow moving inventory problem for items characterized by poisson-distributed demand data, static lead time, and V class items by using Continuous Review (s,Q) model with VED classification sparepart inventory to minimize total relevant cost inventory.

The suggested model determines the optimal order size and reorder point to reduce annual total relevant cost (TRC) inventory (along with CSL or cycle service level and fill rate) and contributes two new costs, stockouts and safety stock cost. The percentage of reduced annual six SKUs TRC is up to 52% from existing TRC or

gained to be exact IDR 4.1 million of savings, resulting the average percentage of CSL and fill rate as much as 98%.

Although the suggested model contributes two new costs, the annual total relevant cost (TRC) inventory decreases. The suggested model also implicates CSL (cycle service level) and fill rate when determining minimum TRC that turn out decreasing, yet, suggested CSLs are over 98% which are still acceptable. Based on these different conceptualizations, the author offers propositions for further empirical exploration on slow moving inventory.

Keywords: Slow moving, Poisson distribution, continuous review (s,Q), cycle service level, fill rate, total relevant cost TRC.