SUMMARY

HASAMI WAKAS HARAHAP. Design and Implementation of Kanban System To Reduce Finished Goods Inventory (Case Study of PT. IGP Group Astra Otoparts). Supervised by M. SYAMSUL MAARIF and YANDRA ARKEMAN.

A large inventory is one of waste that can be caused by excess production because it is not in accordance with consumer demand. Over production is producing something earlier or in greater quantities than the customer needs. In addition to impacting large inventory over production also causes other wastes such as excess labor costs, storage costs, and transportation costs. IGP has a very large inventory problem and high production overtime costs so it needs to be improved and research related to large inventory and high production overtime. Lowering inventory can be done by changing the production system from push system to pull system or kanban system. Kanban system aims to deliver goods in demand, exact quantity, and on time (Just-In-Time). Prerequisites for implementing Just In Time with kanban system is to follow takt time, create information streaming and material flow (Value Stream Mapping), create heijunka, and calculate kanban population.

The kanban system design process is divided into 3 three steps, the first is creating Value Stream Mapping or MIFC (Material & Information Flow Chart). The second step makes heijunka is to level the consumer withdrawal by using Toyota's goal chased method. The third step counts the population of Kanban Production Instruction (PIK) using Monden's formula. The research was conducted at PPIC Department (Production Planning & Inventory Control), Jakarta Plant Division, PT IGP Astra Otoparts. Technique of collecting data in this research is done by collecting secondary data obtained from internal company.

Based on the steps of kanban system design obtained takt time value of 50 seconds / unit, decreased lead time from 2.4 days to 0.8 days using Value Stream Mapping, pulling ratio 1-2 part withdrawal kanban per 16 minutes using heijunka, and total production instruction kanban circulating as many as 659 kanban with finished good assembly line assembly rear axle - b maximum 397 kanban or 397 units. In addition it can be concluded that the implementation of kanban system can reduce inventory, finished goods inventory costs, and decreased lead time. FG inventory decreased 39% from 2016 to 2017 from an average monthly FG inventory of 1652 units to 1010 units. While inventory cost decreased significantly 44% from the average inventory cost per month in 2016 amounting to Rp 7.15 M to Rp 4 M in 2017. Lead time in total also decreased 42%. Implementation of kanban system also can be concluded can decrease overtime production cost. The production overtime cost decreased Rp 5.6 M from Rp 38.7 M in 2016 to Rp 33.1 M in 2017. The total cost saving from the improvement of production system by applying the kanban system amounted to Rp 8.75 M ie Rp 5.6 M from decreasing overtime production cost and Rp 3.15 M from decrease of Finished Goods inventory.

Keywords: just in time, shortening lead time, inventory reduction, kanban system