

ABSTRACT

The balance of the assembly plant has an important role to the sustainability of the production process. Distributing work elements and workloads at each work station in the assembly line will have an impact to the smoothness and performance of an assembly system. Moreover, if there are several types of products must be assembled in an assembly line with the different amount of demand for each product. PT. Gaya Motor is a company that responsible for managing the assembly process of five types of BMW products namely; F15 (X1 Series), F30 (3-Series), F48 (Series-X5), G30 (5-Series), and G12 (7-Series). Each type of product has it's own cycle time and number of demand, where the highest number of demand is on F15, F30, and G30. In the assembly plant's case of PT. Gaya Motor is, the available cycle time (taktime) is too high and makes the demand target unfulfilled. The reason is working elements contained in each work station in the production floor of PT. Gaya Motor not allocated properly, which makes the cycle time of each station high, and it caused the unfulfillment of the assembly target. Therefore it is necessary to do research for line balancing process at overhead department in production floor of PT. Gaya Motor using mixed-model approach of assembly line problem (MALBP). In this research, the method used that is Heuristic Rank Positional Weight (RPW). By distributing work elements, the results obtained a successful cycle which is reduce to 25.28 minutes and it can increase production yield to 16 units / day for all three models (F-15, F-30, G-30).

Keywords: assembly line balancing, ranked positional weighted-moving target (RPW-MVM), mixed-model assembly line balancing problem (MALBP)