

ABSTRACT

PT XYZ is one the the leading automotive manufacturing company in Indonesia which manufactures four-wheeled and two-wheeled vehicles. In the production process of four-wheeled vehicles, the company is assembling the CKD part in Plant Cakung which is located in Cakung, East Jakarta. Completed Knock Down (CKD) is a four-wheeled vehicle components imported directly from Japan in a decomposed state, with a complete set of components and then assembled in Indonesia. The problem that occurs in PT XYZ is the un-optimal of CKD part boxes stacking in the containers in the distribution of it from main warehouse in Plant Tambun II to Plant Cakung. The un-optimal of CKD part boxes stacking in the containers affects the amount of containers used which is undertaken by the company.

This study discusses the Container Loading Problem with attention to the characteristics of the CKD part boxes and the containers are used with the aim to minimize the free space in the containers and and reduce the container utilization to minimize the transportation cost. The method used in this study is the genetic algorithm. Genetic algorithm is a method that is based on the solution of natural selection for an individual assigned the arrangement of genes with the best, and able to provide a solution how is the optimal stacking patterns of CKD parts boxes in the container through the process of iterating through several generations.

The result of genetic algorithm is able to increase the efficiency of the containers space used become 80,17% and reduce the transportation cost up to 6,39% per month.

Key words : *Transportation, Container Loading Problem, CKD Parts Boxes, Containers, Genetic Algorithm.*