An Inventory Model of Equipment Spare Parts – A Case Study of Company A in TFT-LCD Industry

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ABSTRACT

Inventory management is one of critical aspects of successful management. Inventory was typically classified into raw materials, component parts, spare parts, work-in-process, sub-assemblies, and finished goods. Among these inventory types, characteristics as well as demand patterns of spare part items are absolutely the most variant and complicated of all. In equipment spare parts, the most important characteristic was the “high difference in variations of demand intervals”, which leading to complicated inventory management. This study focused on the spare parts inventory management of large equipments. In addition to the original characteristics of spare parts, the most important characteristic was the variety of items. Thus, In recent years, many scholars invested a lot of time and effort in spare parts inventory management and developed many strategies of spare parts’ inventory management. However, most of the methods were complex, and couldn’t be successfully implemented in the industry and still remained on the theoretical stage.

In this study, we established an inventory classification model based on the characteristic of spare parts. Four classification schemes were applied and spare parts were classified into eight categories. An inventory management policy for each item category is also suggested. The proposed model does not require complex for obtaining policy parameter values. Finally, using the spare parts of TFT-LCD industrial process equipments as an example, the performance of the proposed model is evaluated. The result showed that it not only reduced inventory levels but also labor cost.

Keyword: equipment spare parts inventory classification inventory control