

# Abstract

**Mootaz M Ghazy**

## **Evaluating Two Dimensional Warranty Reserve with Accounting for Usage Intensity**

Evaluating warranty reserve fund is one of the most intricate problems undertaken by sellers. Many Researchers introduced two dimensional models to build realistic models for evaluating warranty cost as a function of product age and its usage extent within a specified warranty period. Most researchers assumed that customers have similar attitudes with respect to usage. However, such similar attitudes cannot be guaranteed. The present work proposes a new random parameter  $\theta$  in the failure rate model in order to account for the random variation of usage intensity and its effect on the product characteristic life. Expected value of warranty reserve was calculated using mathematical formulas. Furthermore, Monte Carlo simulation was used to calculate warranty reserve for different policies at different risk probabilities