

An Inventory and Production Control Problem for a Hybrid Remanufacturing System

P. Koken and S.W. Yoon

State University of New York at Binghamton
Binghamton, NY 13902, USA

Corresponding author's Email: yoon@binghamton.edu

Abstract: This article presents an inventory and production control problem in a hybrid remanufacturing environment where manufacturing and remanufacturing operations are performed at separate lines. New and remanufactured items have their own demand and sold at segmented markets. In this study, the returns are taken into account at the component level due to the fact that in real life there is unbalanced number of component returns. While some components have high return rates, others have lower return rates. For such an environment, dynamic lot sizing problem with returns at the component level (DLSPR-C) has been taken into account and an MILP model is presented for this problem. The problem was solved through simulated annealing (SA) algorithm. At varying return rates the behavior of the problem has been observed and the results are presented.

Keywords: Dynamic Lot Sizing Problem with Returns, Simulated Annealing, Constraint Handling