



计算机集成制造系统 » 2015, Vol. 21 » Issue (第3期): 788-799 DOI: 10.13196/j.cims.2015.03.024

产品创新开发技术

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## 面向两级可修复备件库存系统的动态管理模型

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### Dynamic management model oriented to two-echelon repairable-item spare parts inventory system

摘要 图/表 参考文献 相关文章 (15)

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**摘要** 在企业管理中,当使用现场备件需求率发生变化时,传统可修件库存策略往往造成备件资源配置不合理。为解决该问题,针对两级可修复备件库存系统,放宽备件分配与送修动态管理模型(Distribution and Repair in Variable Environments,DRIVE)中“完全串件系统”假设,建立了基于计划期末设备“停机数不大于允许值概率”及“期望可用度”指标的库存分配模型,并将横向库存调整和库存预分配作为预防库存滞留的资产均衡手段。为描述系统瞬时行为、评估不同库存策略,建立了便于扩展的双线程Monte Carlo仿真模型。在使用现场需求动态变化的条件下,对所建库存模型与传统模型进行了仿真实验。结果分析表明,保障效能相比传统模型有了明显提高,从而验证了模型的有效性。

**关键词** : 备件, 库存, 动态管理, 综合保障

**Abstract** : To solve the problem that the unreasonable allocation of spare parts would be incurred by traditional repairable-item inventory policy when demands at operational sites changed dynamically in the enterprise management,the assumption of Complete Cannibalization in Distribution and Repair in Variable Environments(DRIVE)model was relaxed for two-echelon repairable-item inventory system.The two inventory distribution models were established respectively on the basis of end-of-horizon expected availability and probability of having tolerant number or fewer devices down.Lateral inventory transshipment and pre-distribution were presented as balance methods for asset position in prevention from inventory retention.To describe the transient behavior of item-repair/inventory system and evaluated the different inventory policies,extendable Monte-Carlo simulation model was established in dual-thread framework.In context of uncertain demands from dynamics of mission at operational sites,the simulation experiment was used to compare the proposed model with traditional model,and the result showed that the support effectiveness was improved remarkably,and the validity of proposed model was also verified.

**Key words** : spare parts inventory dynamic management integrated logistics support

ZTFLH: V215.7

**基金资助**:国防预研基金资助项目(51304010206,51327020105)。

引用本文:

王慎<sup>1,2</sup>,李庆民<sup>3+</sup>,王文斌<sup>4</sup>,李华<sup>1</sup>,刘任洋<sup>1</sup>. 面向两级可修复备件库存系统的动态管理模型[J]. 计算机集成制造系统, 2015, 21(第3期): 788-799.

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