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Mixed replenishment policy for ATO supply chain based on hybrid genetic simulated annealing algorithm. (English) [Zbl 1407.90055](#)

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Summary: Timely components replenishment is the key to ATO (assemble-to-order) supply chain operating successfully. We developed a production and replenishment model of ATO supply chain, where the ATO manufacturer adopts both JIT and (Q, r) replenishment mode simultaneously to replenish components. The ATO manufacturer's mixed replenishment policy and component suppliers' production policies are studied. Furthermore, combining the rapid global searching ability of genetic algorithm and the local searching ability of simulated annealing algorithm, a hybrid genetic simulated annealing algorithm (HGSAA) is proposed to search for the optimal solution of the model. An experiment is given to illustrate the rapid convergence of the HGSAA and the good quality of optimal mixed replenishment policy obtained by the HGSAA. Finally, by comparing the HGSAA with GA, it is proved that the HGSAA is a more effective and reliable algorithm than GA for solving the optimization problem of mixed replenishment policy for ATO supply chain.

MSC:

[90B06](#) Transportation, logistics and supply chain management

[90B05](#) Inventory, storage, reservoirs

[90C59](#) Approximation methods and heuristics in mathematical programming

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Full Text: [DOI](#)

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