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A SIMULATION-BASED OPTIMIZATION MODEL TO SCHEDULE PERIODIC MAINTENANCE OF A FLEET OF AIRCRAFT

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ABSTRACT

A simulation-based optimization model for scheduling the periodic maintenance of a fleet of fighter aircraft is introduced. A genetic algorithm is utilized to find an efficient maintenance schedule for the fleet. The efficiency of a schedule is considered in terms of average aircraft availability and it is evaluated through discrete-event simulation describing aircraft usage and maintenance. The simulation-optimization model is intended as a decision aid for maintenance designers. An example scheduling case demonstrates that the model is capable of producing efficient maintenance schedules. The quality of the obtained solution is discussed utilizing the simulation model embedded in the simulation-optimization model.