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К ВОПРОСУ О ПОСТАНОВКЕ ЗАДАЧИ ОПТИМИЗАЦИИ ПРОЕКТНЫХ ПАРАМЕТРОВ РАКЕТНОГО ДВИГАТЕЛЯ НА ТВЁРДОМ ТОПЛИВЕ
ON THE STATEMENT OF PROBLEM OF OPTIMIZATION IN DESIGN PARAMETERS OF SOLID ROCKET ENGINE

The problem of the optimization the design parameters of the solid rocket engine as a nonlinear mathematical programming problem with equality/inequality constraints is formulated. The elements of a mathematical model of the solid rocket engine and an algorithm for the determination of the configuration and overall dimensions of the charge with slots in the front bottom of the combustion chamber at the initial design stage are presented. The structure of the optimized parameters of the solid rocket engine includes geometric parameters characterizing the initial charge configuration resulting in the selection of such a configuration, which will provide a required program of variations in time of a thrust performance of the engine in its operation.

Keywords: solid rocket engine, design parameters, optimization.

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