

Justification of some basic characteristics for the launch equipment of the 21st Century spaceports

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The main approaches to the creation of new launch complexes for spaceports are addressed. Methodological foundations for the computational analysis of the dynamics and strength of launch complex aggregates are presented. The mathematical models for determining the stress-strain state of load-bearing structures of launch complex aggregates under static and dynamic loads are investigated. The methodological developed apparatus was applied for upgrading the launch complex at Plesetsk cosmodrome, for designing the launch complexes at Guiana Space Centre and at Vostochny cosmodrome, all these examples described in the article.

Keywords: *starting system, launch complex, physical simulation, method of finite elements, method of superelements, space rockets, hydrocarbon fuel, Vostochny cosmodrome, rollover, SOYUZ.*

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