

MOTION TRAJECTORIES OF THE VEHICLE WITH MASS INJECTION PRE-COMPRESSOR COOLING TURBOJET ENGINES AS THE FIRST STAGE OF AIRCRAFT-SPACE SYSTEMS

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The motion of the vehicle with Mass Injection Pre-Compressor Cooling turbojet engines as the first stage of an aircraft-space system during the “steep – climb” maneuver is discussed. The aim of the maneuver is to climb at the preset inclination angle of the trajectory in order to launch a rocket with small payload into the low-earth orbit.

Aircraft-space system, the first stage, Mass Injection Pre-Compressor Cooling turbojet engine, “steep-climb” maneuver

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References

1. Responsive Access Small Cargo Affordable Launch (RASCAL) Independent Performance Evaluation David Young AE8900 Special Project Report May 3, 2004 School of Aerospace Engineering Space System Design Laboratory Georgia Institute of Technology

Atlanta, Georgia 30332-0150. <http://hdl.handle.net/1853/8372>.

2. Balakin V.L Motion trajectories of supersonic aircraft as the first stage of aircraft-space systems// V.L Balakin, V.I. Potapov// Polyot (Flight): Russian scientific and technical Journal – 2009. – № 2. – p.7-15.