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# The aerodynamics of the reentry vehicle with a functioning retropack at transonic and supersonic flow

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*Retropack application is a way of braking of reentry vehicle. Regardless of the retropack configuration when jets interact with incoming flow, complex three dimensional pattern of the flow takes place. Pressure distribution over the vehicles surface and its aerodynamic characteristics change. So it is necessary to make more detail investigations of this moment. The experimental studies results of the flow around the reentry vehicle model with a functioning retropack at transonic and supersonic flow velocities are presented. The analysis of the physical flow patterns, streams flow regimes and their influence on the vehicles aerodynamic characteristics was carried out, the change of the base pressure was analysed. Also, the results of numerical simulation using different schemes comparing with the experimental results are introduced.*

**Keywords:** reentry vehicle, aerodynamic characteristics, transonic and supersonic flow, retropack, jets injection, base pressure.

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