

# DETERMINING FLOW REGIMES AROUND ROCKET BOOSTERS ON A PART OF THE LAUNCH ORBIT

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Two actual launch paths are chosen as an example to consider the main regimes of flow around rocket boosters with oversized head caps, special attention being paid to regimes of high-altitude flying. Reynolds and Mach numbers varying with altitude are calculated on the basis of parameters of these paths (time, velocity and altitude). Then, taking into account the Tsyun diagram showing the separation into the principal flow areas, flow regimes of carrier rockets are determined, in particular, the transition from the standard gas dynamics area to the slip flow area.

*Atmosphere, head cap, carrier rocket, path, flow regimes.*

## References

1. GOST 4401-81. Standard atmosphere. Parameters. Moscow: Gosstandart, 1981 – 180 pp.
2. Arzhanikov N. S., Sadekova G. S. Aerodynamics of high velocities. – Moscow: “Vysshaya shkola”, 1965 – 560 pp.

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