

**FEATURES OF ALGORITHMS FOR COMPUTING THE FLOW IN THE
PASSAGE OF A COUNTER-PRESSURE AIR INTAKE**

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Air intake shape designing is the key problem in the development of a ramjet. The aim of this paper is to formulate an algorithm for on-the-fly computing of supersonic flow stagnation in the passage of an air intake at its pre-designing stage. Consideration is given to computing flows in the passages of counter-pressure air intakes by the marching method using a quasi-one-dimensional approach to computing the subsonic flow at the passage outlet and by the time relaxation method. The efficiency of these methods is compared. It is suggested that the gas-dynamic flow parameters be determined at the pre-designing stage using the algorithm of on-the-fly computing by the marching method with the determination of the normal shock position for which the required flow velocity coefficient at the outlet section of the air intake passage is realized.

Keywords: *ramjet, air intake, velocity coefficient, total pressure recovery factor, marching calculation, relaxation method, on-the-fly calculation algorithm.*

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