



Łukasiewicz
Institute
of Aviation

UAV launch system technology
using rocket boosters

UAV BOOSTER

CHARACTERISTICS

Łukasiewicz – Institute of Aviation engineers, as part of the ILR – 33 AMBER 2K suborbital rocket project, have developed secondary thrusters. They constitute the rocket's auxiliary stage, the purpose of which is to support the launch and the first phase of the rocket's flight by stabilizing the descent from the launch pad (high thrust at launch) and increasing the overall performance, including the maximum ceiling (high total impulse).

The above experience as well as the exceptional knowledge of Łukasiewicz – Institute of Aviation engineers in the field of space and unmanned technologies, allowed us to design:

- A launch subsystem for UAVs with rocket accelerators.
- A technical solution in the form of a self-actuated launch mechanism.
- The technical solution of the separation system between the accelerator and the UAV.

KEY FEATURES

Advantages of UAV launch with rocket accelerator:

- Minimization of the launch path.
- Larger angle of climb after takeoff.
- Significant increase in the possible takeoff mass and speed of the object.
- Increased duration of flight.
- Improved ability to take off in various weather conditions.
- Ability to take off from watercrafts.

In the auxiliary engine design, a homogeneous propellant was proposed. Compared to other solutions, it does not generate hydrogen chloride and significantly reduces the plume. Thus equipped, the UAV can achieve the effect of reduced detectability.



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