

## Research of the Unmanned Aerial Vehicles (UAV) PRz-1

*Tomasz MAIK<sup>[1]</sup>, Piotr STRZELCZYK<sup>[2]</sup>, Wojciech BAR<sup>[3]</sup>*

*<sup>[1]</sup> Trigger Composites,  
37-306 Grodzisko Dolne 800,  
Poland*

*email: [composites@trigger.pl](mailto:composites@trigger.pl)*

*<sup>[2]</sup> Rzeszów University of Technology  
Department of Aircrafts and Craft Engines  
ul. Powstańców Warszawy 8  
35-021 RZESZÓW*

*email: [piotstrz@prz.rzeszow.pl](mailto:piotstrz@prz.rzeszow.pl)*

*<sup>[3]</sup> Rzeszów University of Technology  
Department of Aircrafts and Craft Engines  
ul. Powstańców Warszawy 8  
35-021 RZESZÓW*

*email: [wbar@prz.edu.pl](mailto:wbar@prz.edu.pl)*

The PRz-1 UAV program was started in April 2005, at the Department of Aircrafts and Craft Engines, Rzeszów University of Technology. The aim was to create a base for further investigation of UAV technology, and to examine idea of using vortex lift in UAVs. Present paper describes effects of new wind tunnel, flight tests and plans for next investigations.

In order to previous wind tunnel tests (aerodynamic characteristics of a plane), stability parameters of a airplane was tested (pitch angle and aerodynamic characteristics in equilibrium state). To obtain airplane response on control surface deflection only two degrees of freedom was locked. The tests provided information about regions of dynamic stability and static stability of a construction and showed some interesting behavior of airplane.

Flight tests covered new control surfaces (similar to Junkers flap) and parachute system, which allows to recover the UAV in dangerous situations, but can also be used as standard landing procedure.

**Key words:** UAV, vortex lift, composites, stability, control, parachute system