DEUTSCHE AIRCRAFT AND DLR SUCCESSFULLY COMPLETE GROUND VIBRATION TEST ON D328 UPLIFT DEMONSTRATOR

News / Manufacturer

Deutsche Aircraft, in collaboration with the German Aerospace Center Institute of Aeroelasticity, has successfully completed a Ground Vibration Test on the D328 UpLift flying testbed, D-CUPL. This achievement marks a significant step forward in the UpLift programme, an initiative funded by the Federal Ministry for Economic Affairs and Energy to accelerate the maturation of new technologies for sustainable aviation, boosting innovation and economic value creation.

What is the GVT?

The Ground Vibration Test is a critical procedure in aircraft development. It is used to determine the aircraft's modal properties, including its natural frequencies, damping ratios and mode shapes. This information is essential for validating structural dynamics and refining the numerical models used in flutter analysis and loads calculation.

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A Test of Precision and Scale

Over a two-week test period, the D328 UpLift was suspended using actively controlled air springs. The structure was excited at over 20 locations using electrodynamic shakers, while 237acceleration sensors captured the dynamic response.

Key test outcomes:

- 3 aircraft configurations
- 45 hours of excitation time
- 50 distinct eigenforms identified

Simon Binder, Senior Engineer, Loads & Aeroelastics, at Deutsche Aircraft stated:“This successful GVT campaign is a cornerstone in validating the Global Finite Element Model in support of the structural modifications designed for the UpLift D-CUPL.”

Julian Sinske from the DLR Institute of Aeroelasticity commented: “With the ground vibration test, we have reached an important milestone in the UpLift project. We can now evaluate upcoming modifications to the research aircraft in terms of their aeroelastic behaviour. I’m pleased that we conducted the test efficiently and achieved high-quality results. The new air spring support played a decisive role in this.”

A Collaborative Effort

Deutsche Aircraft extends their sincere thanks to the team involved, especially their partners at DLR. The successful completion of this test powerfully demonstrated the possibilities when industry and applied research operate in sync.

The D328 UpLift continues to serve as a beacon of innovation, enabling real-world testing of future propulsion and energy systems, sustainable fuels and advanced systems integration to shape the future of aviation.

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