



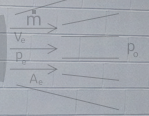
geaviation.com

Aviation.Test@ge.com



GE Aviation Test & Measurement

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GE Aviation designs and manufactures the world's most advanced aircraft engines for commercial and military applications. Bringing these engines to market safely and cost-effectively requires test facilities at each stage of the development process, as well as specific engineering expertise to design and perform testing. GE Aviation has made a significant investment in test facilities and is now making these unique capabilities available to select partners.

Specific test capabilities that are available:

Thermal Management Testing

Optimizing heat transfer out of the engine is critical to achieving peak performance and reliability. GE's state of the art Vehicle Energy System Integration Lab (VESIL) enables heat transfer testing in a fully integrated environment. The facility includes test enabling systems such as fuel and oil temperature control systems, air supply, heat sources, heat exchangers, air cycle machines and vapor cycle systems.

In this real-world test environment, engine and component makers can measure the effect of different components and interactions between sub-systems, optimizing engine performance and thermal management systems.

Controls and Fuel System Testing

GE Aviation's Controls and Fuel Testing facility enables engine OEMs to simulate the control system response to software and physical inputs. The lab enables high fidelity testing of the integrated control system, including the controller, software, fuel system, valves and actuators.

$$F = \dot{m} V_e + (p_e - p_o) A_e$$

Vibration Testing

GE Aviation has developed a wide array of high temperature machines and shake tables. Testing can cover a range of amplitudes and frequency patterns, including random vibration or sine sweep to identify specific failure modes or to validate fatigue life. GE's large shakers can achieve 150 G of maximum acceleration and 300 G shock force with a frequency range of 0 - 2700 Hz.

Flight Testing

GE Aviation has extensively retrofitted a 747-400 aircraft to allow on-wing testing of engines. GE's flying test bed allows engine designers and manufacturers to test in real-world conditions of operational altitude rather than at ground level. The facility location offers optimal weather and clear airspace to fly in real-world conditions with experimental engines safely and efficiently. GE Aviation can also provide flight test consulting services to help customers develop appropriate tests based on extensive domain expertise.



Aero and Combustion Testing

Tuning combustion systems is critical for engine performance, emissions requirements and product durability. GE Aviation's advanced Aero and Combustion Test Center enables engineers to test and tune combustion systems in real-world operating conditions before engine design is finalized. The test center can simulate the extreme pressures and temperatures that exist inside today's advanced engines, with temperature above 1400°F and pressure of 1000 psia. High pressure and low pressure turbines can also be tested at the module level, enabling design validation prior to integration into a full engine.



These are only a few examples of dozens of specialized test facilities within GE Aviation.

To start a conversation about how these facilities can help your business, contact us at:

Aviation.Test@ge.com

