



Demonstrating the viability of full-scale fatigue testing of helicopters

DST is undertaking a research program to develop and demonstrate the technologies required to conduct full-scale fatigue testing of helicopters.

While full-scale durability tests are routinely conducted for fixed-wing aircraft, the complex, high-frequency flight loading of helicopters has been particularly challenging to replicate in the laboratory.

Under the Helicopter Advanced Fatigue Test – Technology Demonstrator (HAFT-TD) program, DST has designed and commissioned a 3 Degree-of-Freedom Dynamic Demonstrator test rig that will be used to develop a load application system and control system algorithms to replicate and apply the complex flight loads.

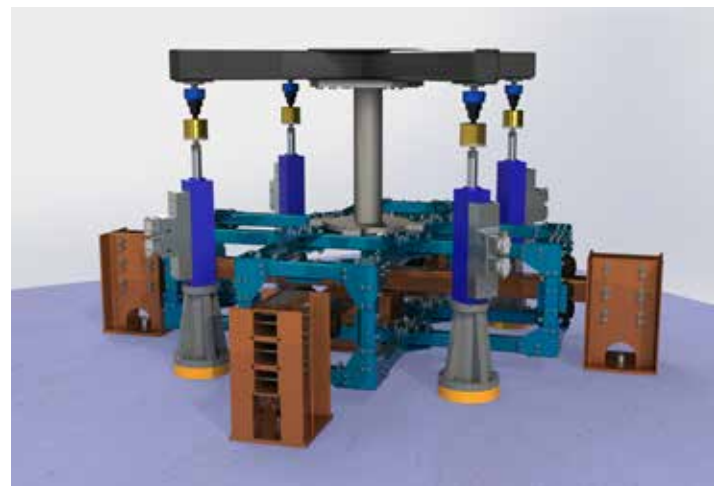
The project aims to mature several technologies to the point where full-scale helicopter airframe durability testing is a viable option for fleet sustainment managers and new helicopter designs.

The ability to conduct full-scale fatigue testing of helicopters could transform the way helicopters are certified and in-service structural integrity is managed. In the short term, it could provide the certification basis to extend the life of US and Australian Romeo fleets. In the long term, it could influence the future vertical lift programs.

DST partners

HAFT-TD is a collaborative research project between Australia and the United States, with DST and the United States Naval Air System Command (NAVAIR) providing the technical expertise, the US Navy the

test article, and Australia's Capability and Sustainment Group's MH-60R Program Office providing \$5 million over 5 years.



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