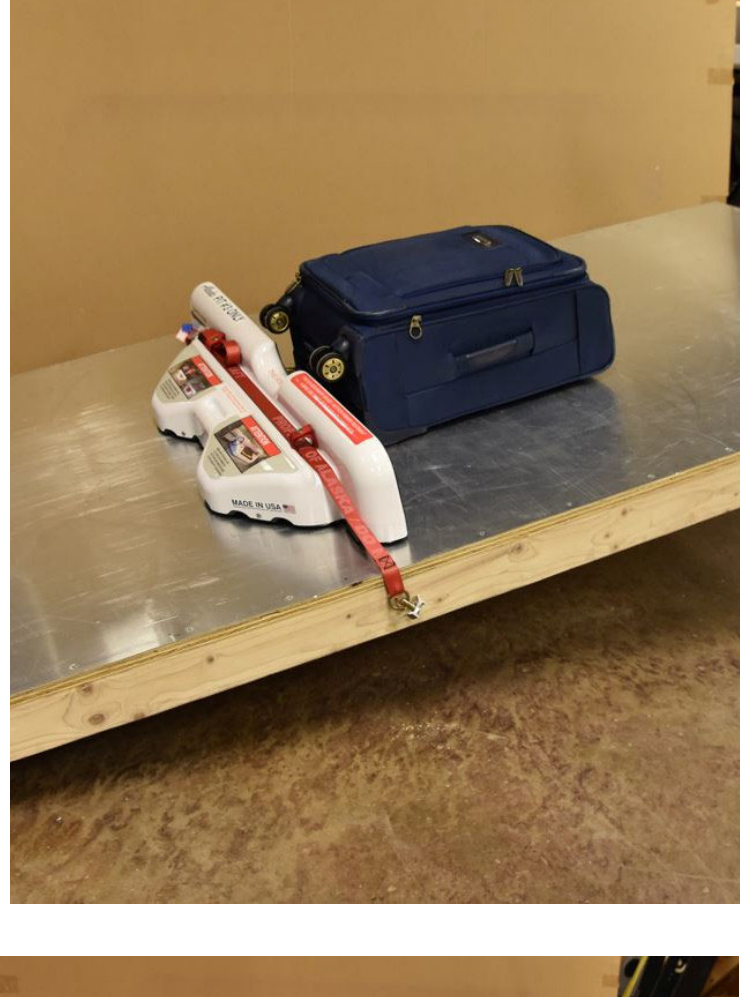


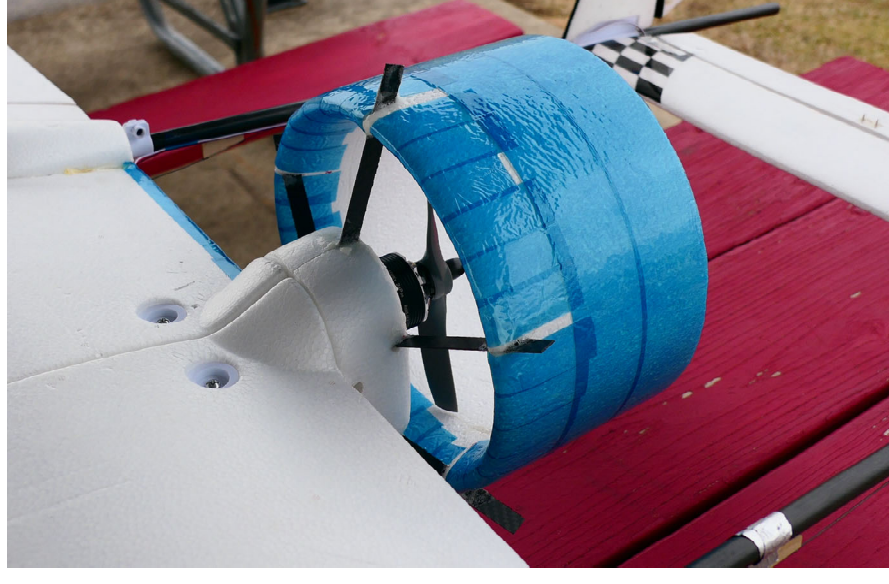
Cargo Stop Block Testing

DARcorporation engineers worked with JANA Engineering to evaluate the effectiveness of the Cargo Stop Block, a cost-effective tool to minimize the impact on aircraft stability and fuel burn. Aggressive aircraft maneuvering during take-off, landing braking or turbulence can cause baggage to shift, particularly in aircraft that do not have multiple cargo nets in the cargo bay. The Cargo Stop Block also improves operational safety for the ground service agents that no longer have to force open cargo doors that have become blocked due to a load shift, risking personal injury. As a result, operational performance also improves as cargo and commodities can be accessed and unloaded without delay. Stop Blocks are an effective tool in preventing load shifts that can impact the safe carriage of commodities, such as mobility aids, human remains, and animals, in addition to preventing cargo hold interior damage. DARcorporation engineers simulated the environment and movement of the cargo bay, at various pitch angles, using different types of luggage and cargo. They were able to determine the acceleration levels required to cause baggage shifts. Using the Advanced Aircraft Analysis (AAA) software, DAR engineers were able to estimate the resulting impact to aircraft stability and fuel burn.



Skyhunter UAV with Ducted Fan

DARcorporation modified the Skyhunter UAV propulsion system by replacing the open propeller with a ducted fan. The duct was a rapid prototype using in-house design tools and manufactured from foam using a CNC router. The duct allows for a smaller diameter to produce sufficient take-off thrust with minimal additional drag. This initial modification required repositioning the tail forward.

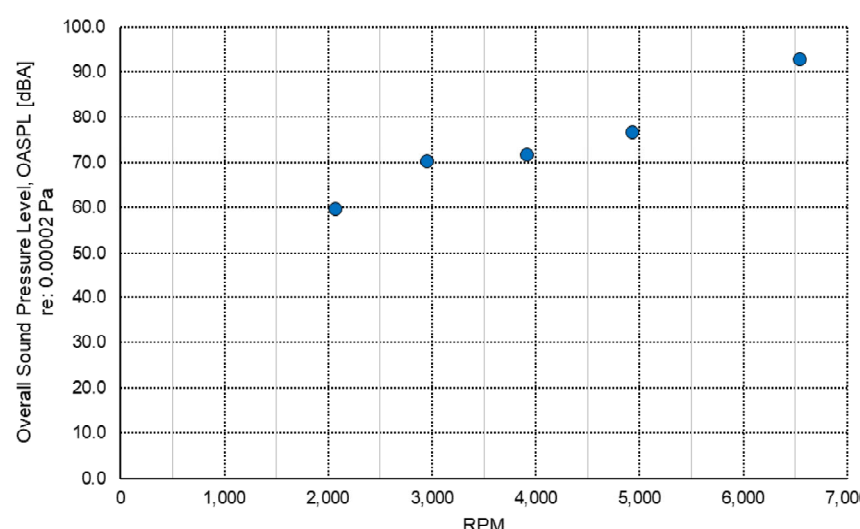
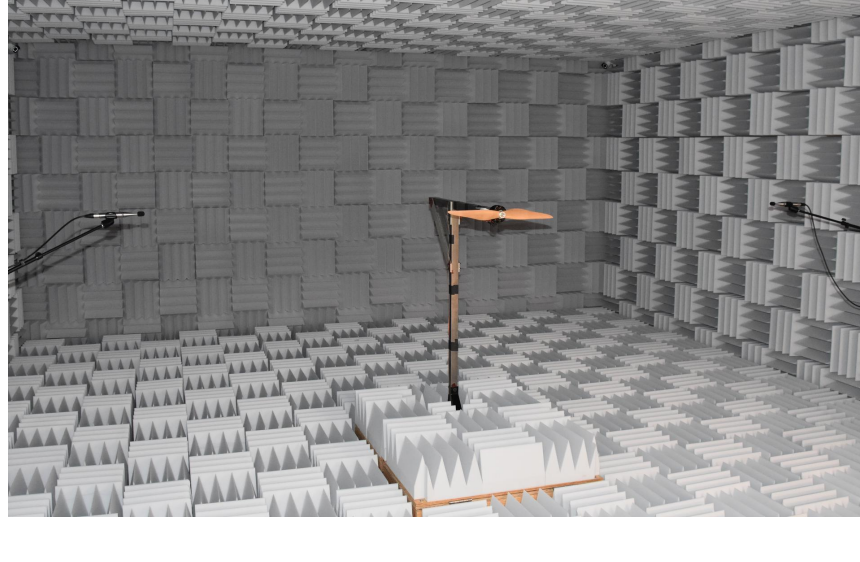


Aerodynamic analysis shows a large static margin for the default and modified designs and the opportunity for flight efficiency improvement. With the successful flight test, next steps include replacing the empennage with horizontal and vertical control vanes aft of the duct and moving the center of gravity aft. These changes could reduce trim drag and surface area, in addition to further take-off efficiency improvements.



Propeller Testing

DARcorporation engineers have designed, manufactured and tested several propellers in our in-house anechoic chamber. Acoustic data was recorded and processed to determine the sound pressure levels of the propeller at a range of throttle settings. Peak frequencies for the propeller were identified in the data. The acoustic test results were combined with the thrust and torque measurements from the propeller test stand.



AIAA SciTech 2023 National Harbor, MD January 23-27

DARcorporation attended the 2023 SciTech Forum presented by the American Institute of Aeronautics and Astronautics in January. This event was attended by over 5,800 professionals. Dr. Willem Anemaat presented a research paper titled "Multhopp's Method for the Pitching Moment of Bodies Revisited", where the destabilizing effect of aircraft fuselages is analyzed. DARcorporation engineers continuously perform this type of in-house research to improve the methods utilized in Advanced Aircraft Analysis (AAA).

We hope to see you at the 2024 AIAA SciTech Forum in Orlando, Florida: January 8-12, 2024.



DENVER, CO
MAY 9-11, 2023
Please Visit Our Booth (#3848)

AIAA Aircraft Design Technical Committee

At the January 2023 AIAA SciTech Forum, Dr. Willem Anemaat, DARcorporation President, announced his resignation from the AIAA Aircraft Design Technical Committee after 19 years of distinguished service. Dr. Anemaat was the AIAA Aircraft Design Subcommittee after 19 years of distinguished service. He is currently on the AIAA Wichita Section Council as Honors and Awards Chair.

Dr. Wanbo Liu, DARcorporation Chief Engineer, was elected as a new member of the AIAA Aircraft Design Technical Committee effective May 1, 2023.

Frequently Asked Questions

All DARcorporation software programs have a Frequently Asked Questions (FAQ) pages on our website. If you do not find what you need, please reach out to us for assistance. We will then add your question and solution to the FAQ pages.

[AAA FAQ](#)

[FlightStream FAQ](#)

[FAR 23 LOADS FAQ](#)

[SharkCAD FAQ](#)

Social Media Links



DARth Vader adopted us on April 19, 2017. He was pretty beat up, hungry and homeless. He now spends his days laying on keyboards and desks, crashing staff meetings, lounging in his cat tree or bed and supporting the engineering staff. DV loves cuddles, snacks and is the perfect distraction when a report is due or deadline is looming. He has a Facebook presence so please like his page to stay current on his antics.

We would also appreciate you Liking our DARcorporation Facebook page, following us on LinkedIn and visiting our YouTube Channel, which offers software training tutorials and videos of projects and testing.

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Contact DARcorporation



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