MQ-9A Remotely Piloted Aircraft Radome Redesign

General Atomics - Aeronautical Systems Incorporated

Project Overview

Team Cerberus redesigned the MQ-9A radome for improved aerodynamics and quick access, enabling opening, removal, or locking within 30 seconds while withstanding 20-knot winds. The redesign features an optimized radome shape, quarter-turn fasteners for efficient locking, and gas struts for secure propping in the open position.

Meet Team Cerberus

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Team Lead

Joey Bishop
Manufacturing Lead

Matthew Buck
3D Modeling Lead

Jason Lee
Composite Lead

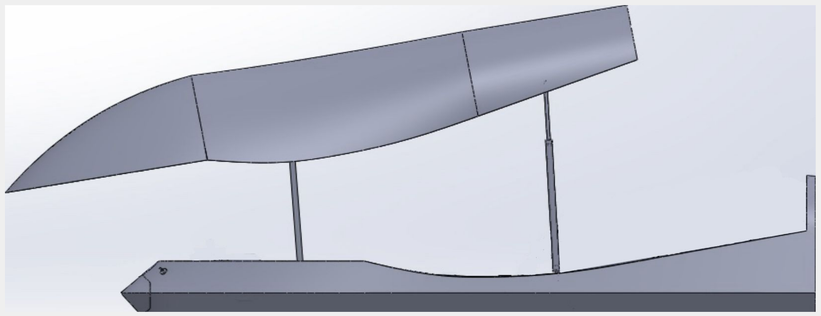
Jordan Roche
Mechanical Design Lead

General Atomics - ASI

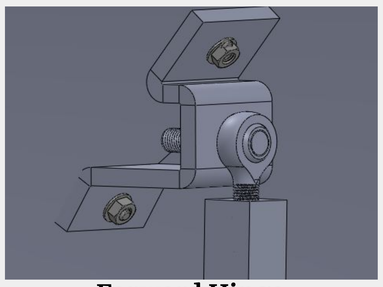
GA-ASI is a global leader in unmanned aerial systems, developing advanced solutions for military, security, governance, and environmental operations. It specializes in medium-altitude and small unmanned aircraft, as well as mission payload and exploitation technologies.

Thank you to our GA-ASI sponsors Chris Sam, Chris Aguilar, Eshan Sinha, Tallon McDonough, John Baun, and John Callaway for all the guidance and support.

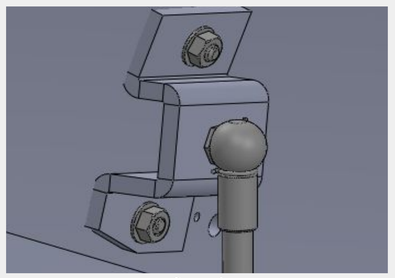
Full Assembly CAD Model



Forward and Aft Hinges

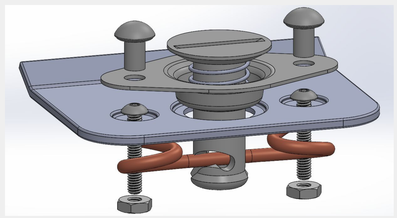


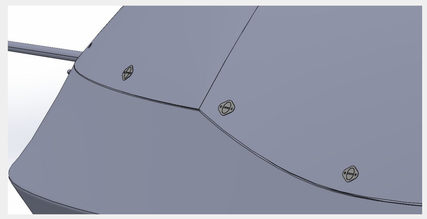
Forward Hinge



Aft Hinge

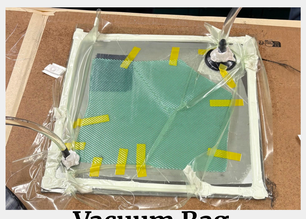
Locking Mechanism





Manufacturing and Assembly

Testing Techniques

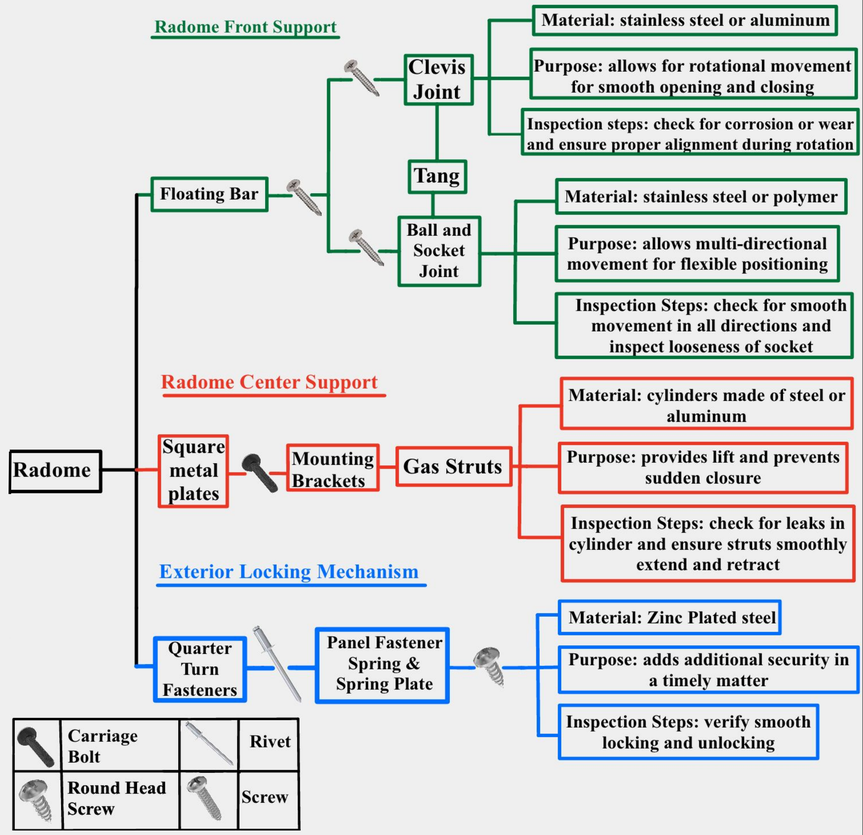


Vacuum Bag Demonstration

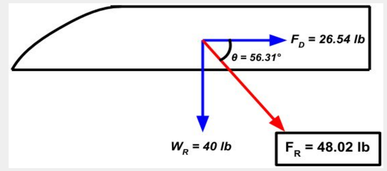
Fiberglass Release Test

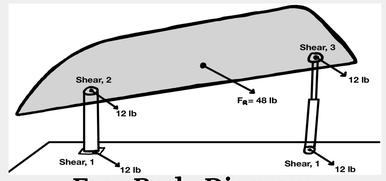
XPS Foam Reaction

System Level Diagram

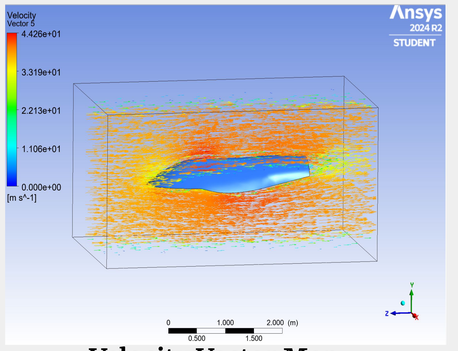


Analysis Models

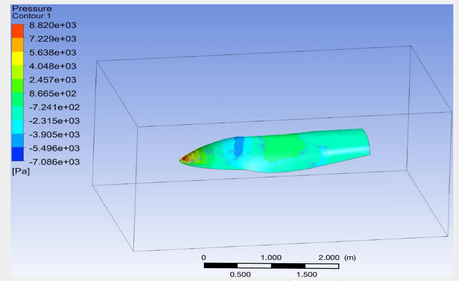




Free Body Diagrams



Velocity Vector Map



Pressure Contour of Radome

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