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RE: Airworthiness Statement for the Flying Fish Phase I Unmanned Seaplane

The purpose of this memo is to document the certification process used to certify the airworthiness of the Flying Fish Phase I unmanned seaplane outlined in this COA application. These unmanned seaplanes are used solely for research purposes and will be operated in an uninhabited University-owned region of Douglas Lake in central Michigan.

Each Flying Fish Phase I platform is carefully inspected for airworthiness at multiple stages during the assembly of the aircraft, immediately before flight, and immediately following flight. The Flying Fish Phase I airframe is an experimental platform designed and built at the University of Michigan currently as part of a DARPA-sponsored project. An R/C modeler with over 50 years of experience in all phases of designing, building, and flying model aircraft is responsible for closely supervising all design, construction, and final assembly/inspection activities with support from Aerospace, Marine Engineering, and Electrical Engineering faculty. All materials and components are carefully inspected upon receipt. Structural components and assemblies are manufactured by technicians with substantial manufacturing experience spanning aerospace, marine engineering, and automotive applications. Each component and assembly is carefully inspected for integrity and quality of construction by our experienced R/C modeler before final assembly into the airframe. Each servo is individually tested for performance, range of motion, and water-tight operation, and the pushrods and control surfaces are individually tested and calibrated in the laboratory prior to and during installation. Propellers are balanced to performance standards and each engine is broken-in on the ground with a minimum of four full battery cycles. Immediately prior to manual deployment to the water surface, each Flying Fish platform goes through a detailed pre-flight check, which includes a detailed airworthiness inspection of control surfaces, battery energy and function, engine run-up, and a radio check for range and potential interference issues. After manual retrieval from the water, detailed logs are maintained for each airframe including total drift/flight mission time, flight times, repairs, and regular performance and structural evaluations. Associated documents in this COA application further describe the hazard analysis, safety guidelines, and standard operating procedures for our Flying Fish Phase I unmanned seaplane.

Sincerely,

Ella M. Atkins
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Certified Private Pilot, ASEL
AMA member and hobbyist