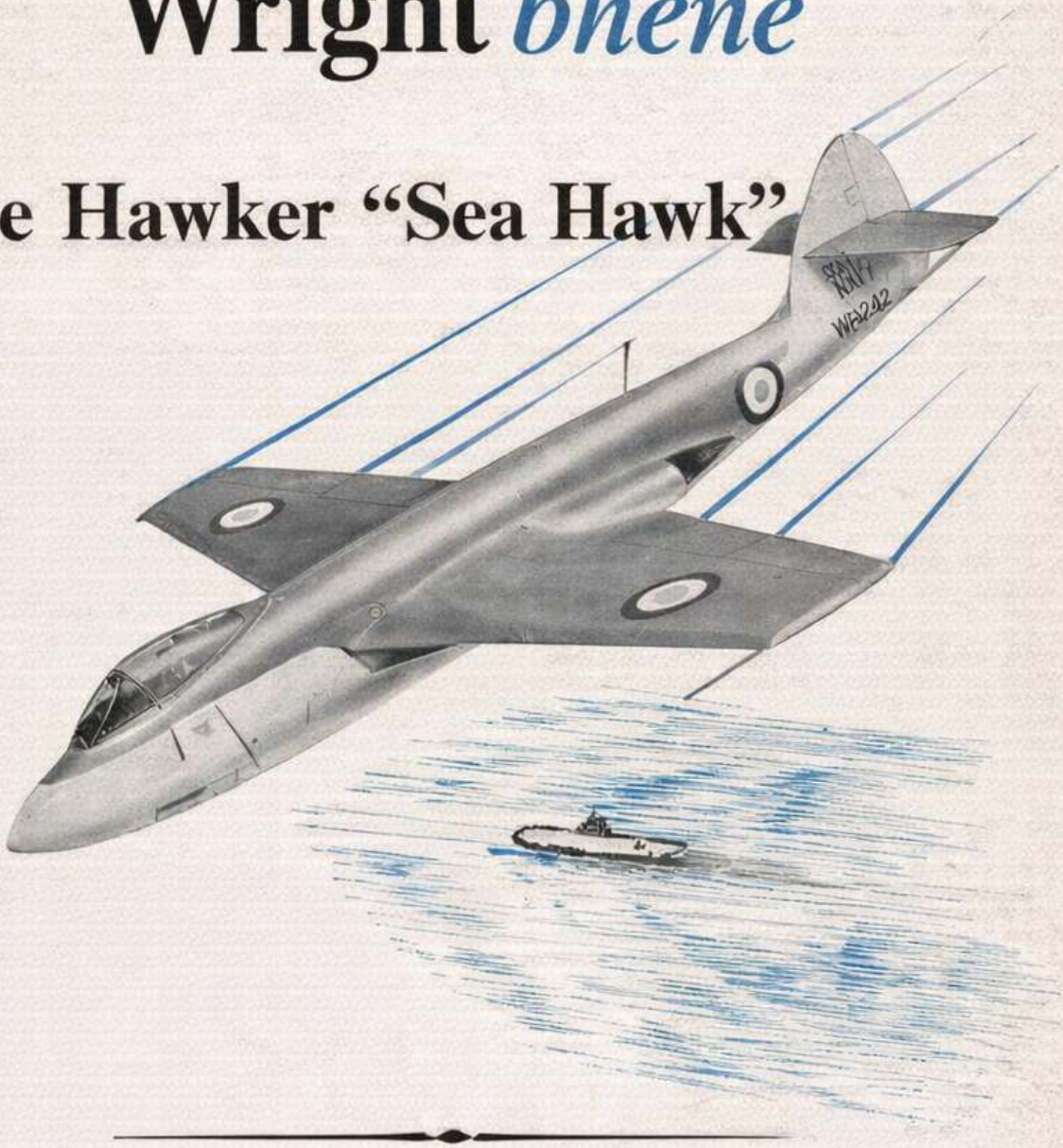
Wright *bhene*

The Hawker "Sea Hawk"



Harry
Rishika
Karan
Nikhil

Aircraft Design Proposal

Laws of Motion – National Aeromodelling Competition 2025–26

1. Our Aircraft Design

Our aircraft is a payload-optimized fixed-wing radio-controlled aircraft designed specifically for the **Laws of Motion – National Aeromodelling Competition 2025–26**. It follows a **transport-aircraft-inspired configuration**, similar to an Airbus-style airliner, adapted for propeller-driven RC operation.

The aircraft features a **high-mounted dihedral wing** with **wing-mounted tractor propellers**, providing efficient thrust distribution, enhanced lateral stability, and predictable low-speed handling under payload load. A high-wing layout further improves stability during climb and cruise.

The design prioritizes a high payload-to-empty-weight ratio, with a centrally located payload bay near the center of gravity and a **simple single-channel servo-operated payload release system**, ensuring reliable, repeatable performance while remaining fully compliant with competition constraints.

Aircraft Design Highlights

- Transport-aircraft-inspired layout, visually similar to an Airbus-style airliner
- Fixed-wing, propeller-driven RC aircraft optimized for low-speed, high-lift flight
- High-mounted wings with positive dihedral for improved lateral stability
- Wing-mounted tractor propellers for efficient thrust distribution
- High-wing configuration providing inherent stability under payload load
- Streamlined cylindrical fuselage for efficient payload accommodation
- Centrally located payload bay near the aircraft center of gravity
- Simple, single-channel servo-operated payload release mechanism

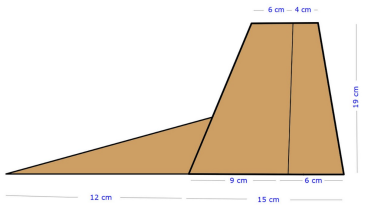


Figure 1: Overall aircraft configuration

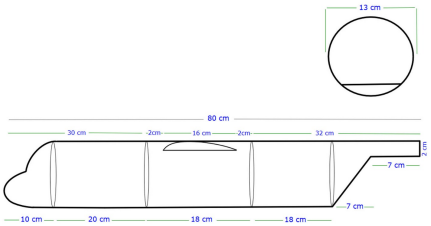


Figure 2: Wing and propulsion layout

2. Expected Lifting Capacity

- Expected payload capacity: 15–20 golf balls

- Total payload weight: 425 g to 500 g
- Minimum flight time with payload: > 180 seconds
- Empty aircraft weight: below 1.2 kg

3. Materials Used

- Kraft foam board for wing and fuselage structure
- Carbon fiber spars for wing reinforcement
- Lightweight plywood / composite plates

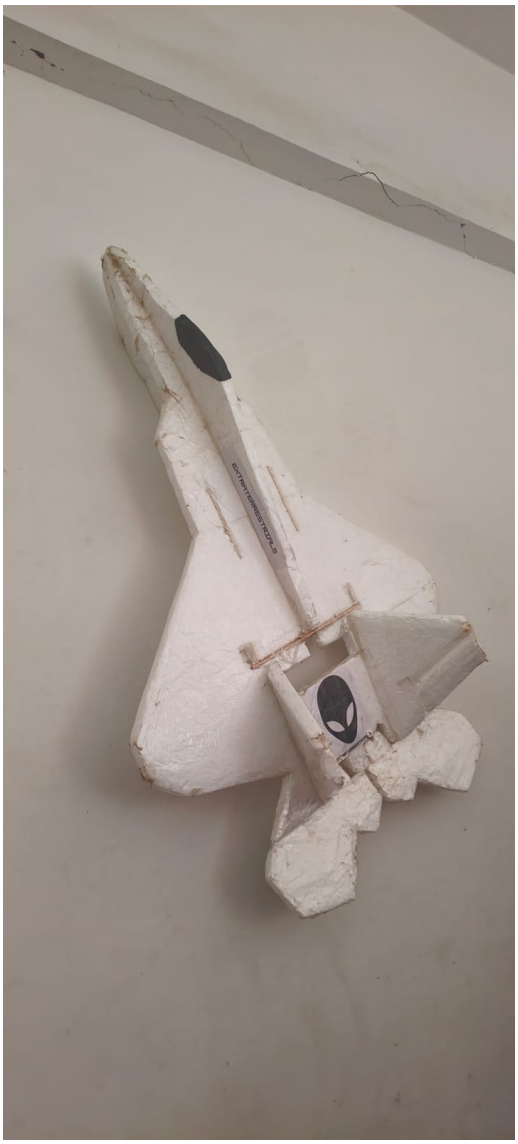


Figure 3: Payload dropping mechanism and internal bay layout