



OSPREY I

DESIGNED FOR MODULARITY



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Osprey I is a 10K solid rocket, designed by the University of Calgary's Student Organization for Aerospace Research (SOAR). This rocket's primary goal is to serve as a testing platform for design verification on components and subsystems that will be integrated into our future hybrid rockets. Osprey I has a projected apogee of 10,154 ft and uses a Cesaroni N2200 motor.

The Design

A cross-section of Osprey I is shown below.

Some notable design features include:

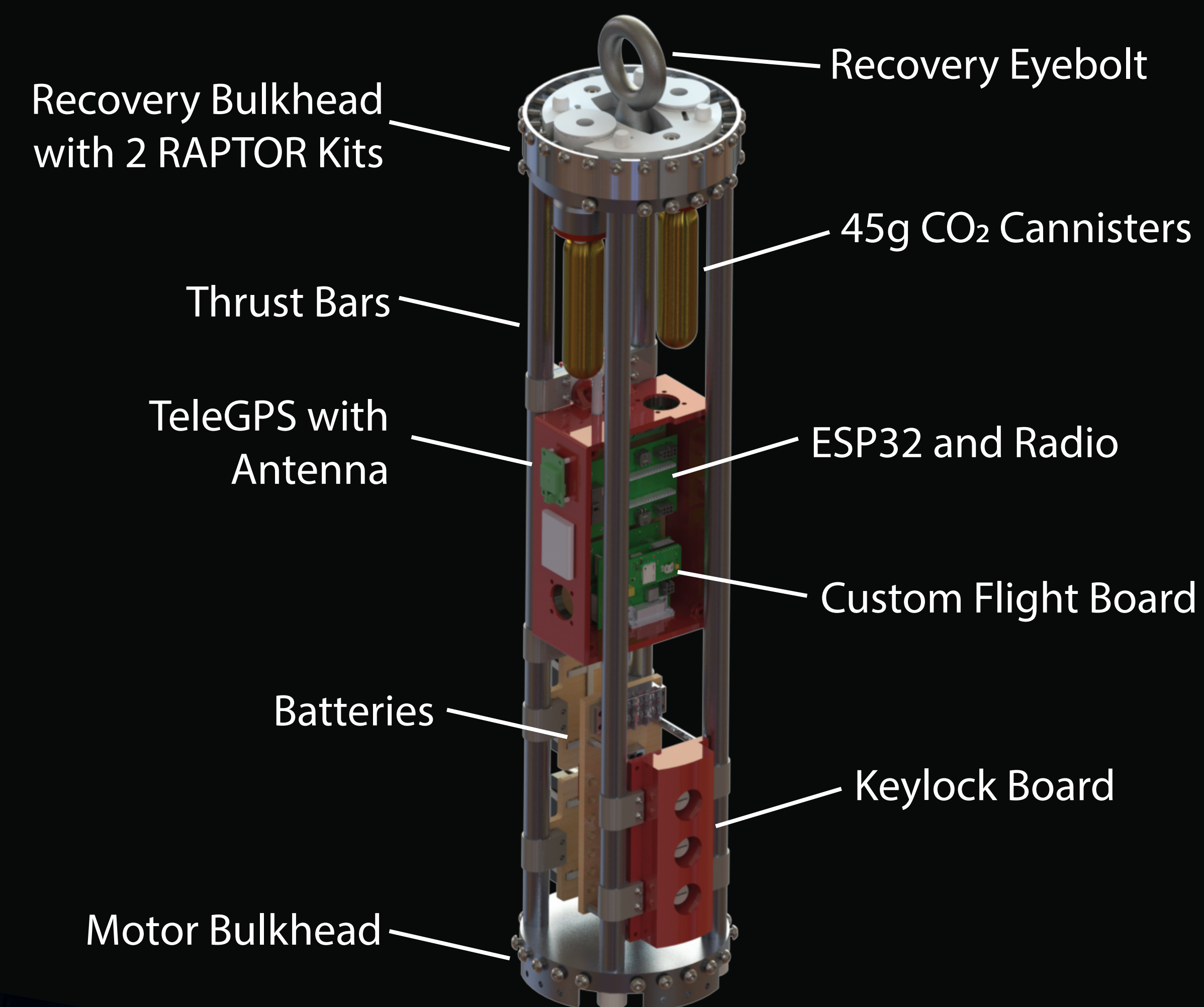
- A dual-deployment parachute ejection system that employs two RAPTOR kits
- A thrust bar structure in the avionics bay for modularity
- A motor tube that can hold 3-grain to 6-grain Pro98 motors
- A payload that senses atmospheric property changes during descent.

Testing

On February 26th, 2022, SOAR conducted a successful test flight of Osprey in Viking, AB.

Additionally, the team has been conducting various tests to ensure reliability of all subsystems. Some of these tests include:

- Recovery ejection testing
- Range testing of radio communications
- Mock launches
- Functional payload tests



The Payload

An onboard 2U scientific payload was designed to characterize the troposphere. The main objectives are (1) to obtain accurate density readings for validating the atmospheric pressure model, (2) to profile CO₂ and humidity levels at various altitudes, and (3) to obtain temperature gradients for determining the lapse rate. Gathering experimental data for launch sites will produce more accurate simulation results.

