

Escape: hybrid personal airship concepts

Peter Lobner, 5 August 2019

Escape is a set of novel design concepts, developed by Robbie McIntosh in 2011, for small, personal airships carrying two to four persons for exploration and recreation. The initial set of designs included three concepts:

- Concept 1: Luxury
- Concept 2: Utility
- Concept 3: Sport

Novel engineering features were incorporated into these designs:

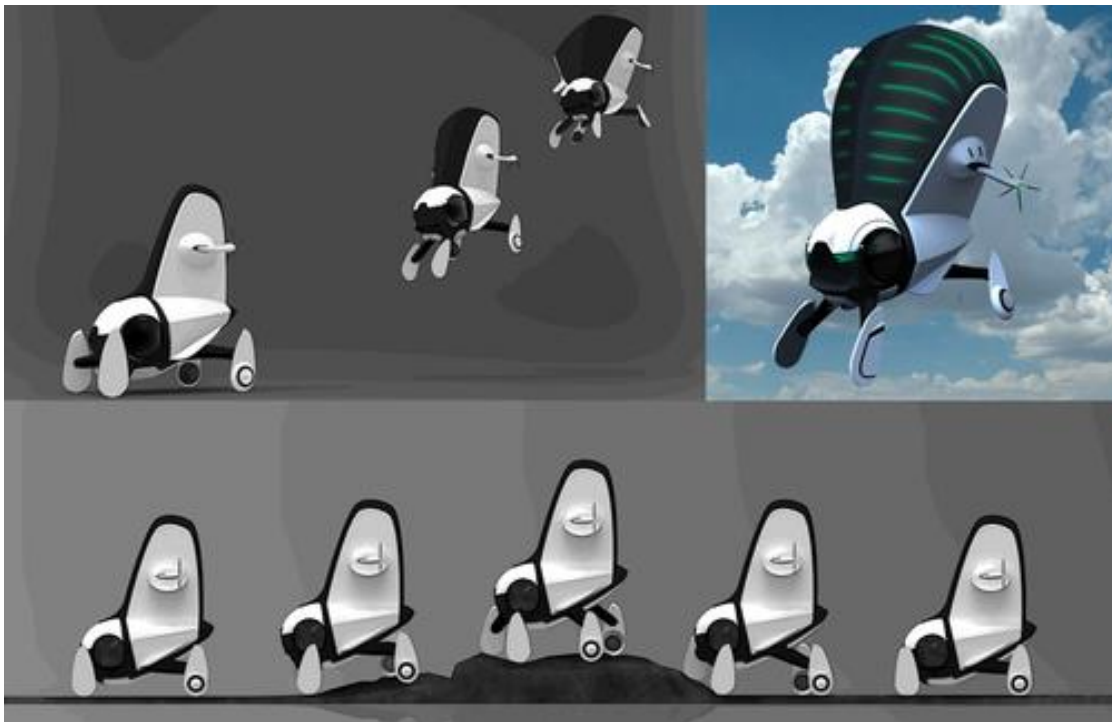
- Carbon fiber airframe structure
- Polycarbonate shell (Concepts 2 & 3) or facade (Concept 1)
- Inflated polyurethane tubing formed gas envelope structure (Concept 1)
- Customized exterior lighting effects (polyester weather resistant coated fabrics impregnated with optic fibers for visual display)
- Organic shapes



Concept 1 (left), Concept 2 (center) & Concept 3 (right).

Macintosh commented, "Original concept designs for Escape received mixed reviews. Peers thought the concepts were too

traditional and didn't push the fundamentals of the concept far enough. Therefore a more drastic design was conceived.” The result was Concept 4, a small, variable buoyancy, variable volume airship concept that features a helium lifting gas envelope that can be depressurized and folded within a compact fin-like structure, making the vehicle heavier-than-air while on the ground with the helium stored in a pressurized tank aboard the vehicle. To become airborne, the fin is opened and the helium is expanded into the full-size lifting gas envelope needed for lighter-than-air flight. Escape Concept 4 essentially is a small, flying SUV that can traverse rough terrain on the ground.



Concept 4



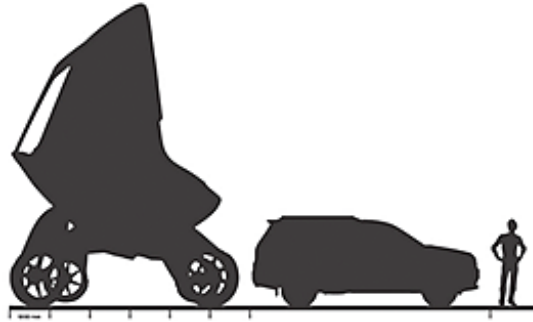
Further design iterations refined the shape of Escape, while retaining the basic functionality of Concept 4.



Escape



Escape



Relative size of Escape and a typical sport utility vehicle (SUV)



Escape traversing rough terrain (left) and in flight with the gas envelope expanded (right)

You'll find more details on Robbie McIntosh's website at the following link. This is the source of the graphics in this section.

<http://www.robbiemcintoshdesign.com/escape>

Be sure to read the "Escape Full Project". Here's the direct link:

<https://static1.squarespace.com/static/54d6ec02e4b05b179816fade/t/54e015f4e4b0409b065a1db8/1423971828757/CJ+ROBBIE+MCINTOSH.pdf>