Alpha D Project

Peter Lobner, 8 February 2022

A team, inspired by Pierre Balaskovic, was set up in France to design and build a small, lenticular hull airship known as the Alpha D, which is intended initially for surveillance and thermography missions. This small lenticular airship also could be used as a personal airship and provide its owners with unique travel and camping opportunities in remote locations. This industrial project was initiated with start-up funding from a Corsican business incubator.

Rendering of the Alpha D airship.
Source : [https ://balaskovic.pagesperso-orange.fr/actualite.html](https://balaskovic.pagesperso-orange.fr/actualite.html)

The Alpha D is a two-seat, piloted airship with a hybrid fuel-gas / electric propulsion system and the following features:

- Capable of vertical takeoff and landing (VTOL) and hovering
- Uses boundary layer control (base blowing)

- Uses gaseous fuel-gas with the same density as air. No inflight ballast compensation is needed as fuel is consumed
- A peripheral mooring system makes it easy to secure the airship in almost any open space
- The airship is “dismountable.” It can be readily disassembled, transported in a standard 45-foot (13.7 m) container and reassembled

In his patent US20140070050A1, “Lenticular airship and associated controls,” Pierre Balaskovic commented:

> “….a lighter-than-air airship may present unique problems associated with aerodynamic stability, based on susceptibility to adverse aerodynamic forces. For example, traditional airships may typically exhibit low aerodynamic stability in the pitch axis. Lenticular shaped bodies may be aerodynamically less stable than either spherical or ellipsoidal shaped bodies. For example, the boundary layer airflow around the body may separate and create significant turbulence at locations well forward of the trailing edge. Therefore, systems and methods enhancing aerodynamic stability may be desirable.”

The boundary layer control system on the Alpha D would delay separation of the boundary layer and thereby improve the aerodynamic stability of the lenticular airship.

General characteristics of the Alpha D airship

Parameter	**Alpha D**
Diameter	26 m (85.3 ft)
Height	10 m (32.8 ft)
Envelope volume	2,400 m^3 (84,755 ft^3)
Speed, max	100 kph (62.1 mph)
Speed, cruise	72 kph (44.7 mph)
Speed, patrol	36 kph (22.4 mph)
Altitude	300 to 1,500 m (984 to 4,921 ft) MSL
Payload	450 kg (992 lb)
Endurance	8 hours

For more information

- “Pierre Balaskovic - Project Alpha D” https://balaskovic.pagesperso-orange.fr/actualite.html

Patents

- US20140070050A1, “Lenticular airship and associated controls;” Inventor: Pierre Balaskovic; Filed: 14 November 2013; Granted: 12 December 2017; Assigned to LTA Corp.: https://patents.google.com/patent/US20140070050

Other *Modern Airships* articles

- *Modern Airships - Part 1*: https://lynceans.org/all-posts/modern-airships-part-1/
- *Modern Airships - Part 2*: https://lynceans.org/all-posts/modern-airships-part-2/
- *Modern Airships - Part 3*: https://lynceans.org/all-posts/modern-airships-part-3/