
Photo from a JP Aerospace vehicle taken 4/3/2004.

JP AEROSPACE

America's *OTHER* Space Program

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## From the edge of space to orbit.

This 6,000 foot long vehicle never touches the ground. This airship flies from the upper atmospheric station to orbit. It uses hybrid chemical/electric propulsion to slowly accelerate and reach orbit.

# *Three Part Architecture to Orbit.*

## Transfer point at the edge of space.

A two mile wide station parked at 140,000 feet is the new way station to space. The station acts not only as a port for the orbital airship but also as a research center, construction site and tourist destination.

## Earth to the top of the atmosphere.

High Altitude airships fly from the ground to the station at 140,000 feet.

***The atmosphere as a ladder to space.***

Balloons have carried people and machines to the edge of space for over seventy years. JP Aerospace is developing the technology to fly a balloon—or more accurately, their relative, the airship—directly to orbit.

Flying an airship directly from the ground to orbit is not practical. An airship large enough to reach orbit would not survive the winds near the surface of the Earth. Conversely, an airship that could fly from the ground to upper atmosphere would not be light enough to reach space. The resulting configuration is a three-part architecture for using lighter-than-air vehicles to reach space.

**The first part** is an atmospheric airship. It will travel from the surface of the Earth to 140,000 feet.
The vehicle is operated by a crew of three and can be configured for cargo or passengers. This airship is a hybrid vehicle using a combination of buoyancy and aerodynamic lift to fly. It is driven by propellers designed to operate in near vacuum.

**The second part** of the architecture is a suborbital space station. This is a permanent, crewed facility parked at 140,000 feet. These facilities, called Dark Sky Stations (DSS), act as the way stations to space. The DSS is the destination of the atmospheric airship and the departure port for the orbital airship. Dark Sky Station will be the construction facility for the large orbital vehicle.

**The third part** of the architecture is an airship/dynamic vehicle that flies directly to orbit. In order to utilize the few molecules of gas at extreme altitudes, this craft is big. The initial test vehicle is 6,000 feet long. The airship uses buoyancy to climb to 200,000 feet. From there it uses hybrid electric/chemical propulsion to slowly accelerate. As it accelerate it dynamically climbs. In nearly nine hours it achieves orbital velocity.

**Low cost bulk access to space**

Scaleable Technology.
True reusability, multiple orbital flights before servicing.
Large structures can be placed already assembled in orbit.

**Brings safety and reliability to reaching space.**

Both the climb to orbit and reentry are slow controlled processes. No high reentry heating, no big fuel tanks to explode.

***It is happening now.***

This is not fanciful speculation. The project is now over three decades in development with over one hundred and sixty real hardware test flights and countless development tests. It is being built completely with existing technology.

***It's being built now.***

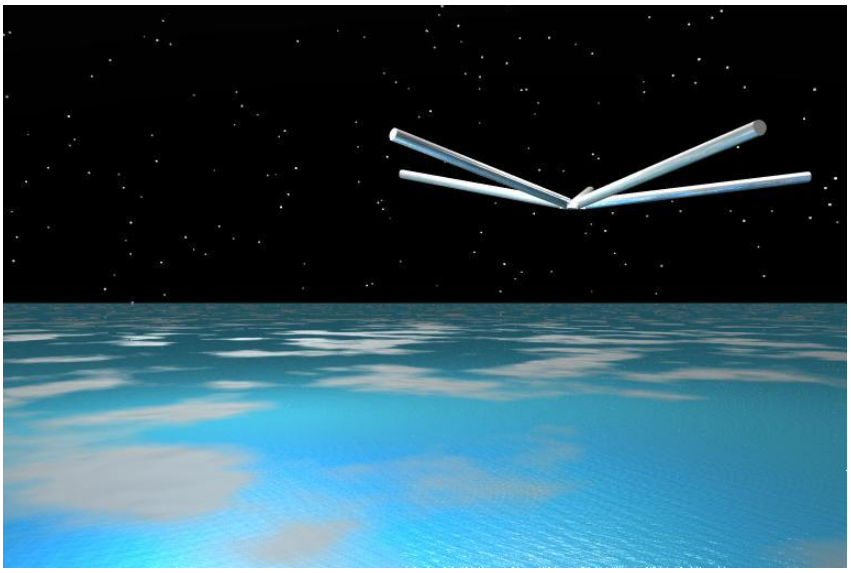
JP Aerospace has build the highest flying airships in the world operating at the edge of space. Several Dark Sky Station platforms have been built and flown. Key components have undergone hundreds of laboratory tests. Our ongoing research programs are building, testing and chip away at the remaining challenges.

***It's being paid for now.***

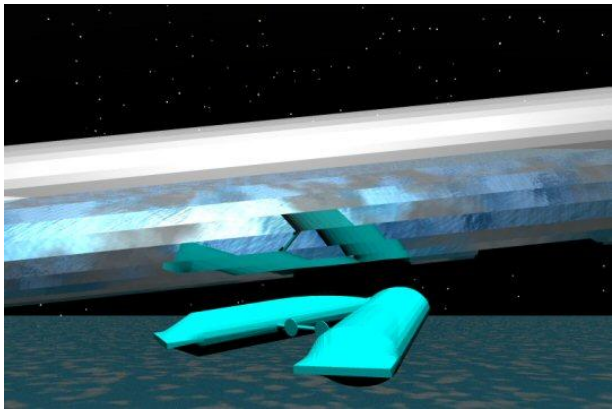
This new way to space has not and will not require a massive pile of capital to accomplish. Each component has its own business application and funding source. It is a pay-as-you-go system. For example, funding the atmospheric airship was provided by the Department of Defense for use as a reconnaissance vehicle. The DSS has multiple customers in the telecommunications community. Research flight have been paid for through high altitude advertisement and adventure TV shows.

First Stage Airship

The first stage airship climbs vertically during most of its flight.

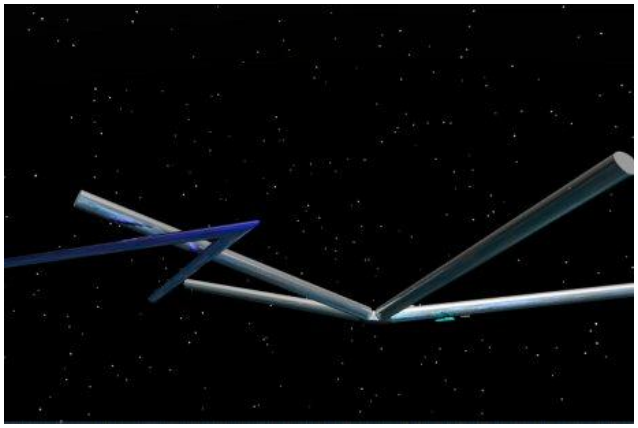


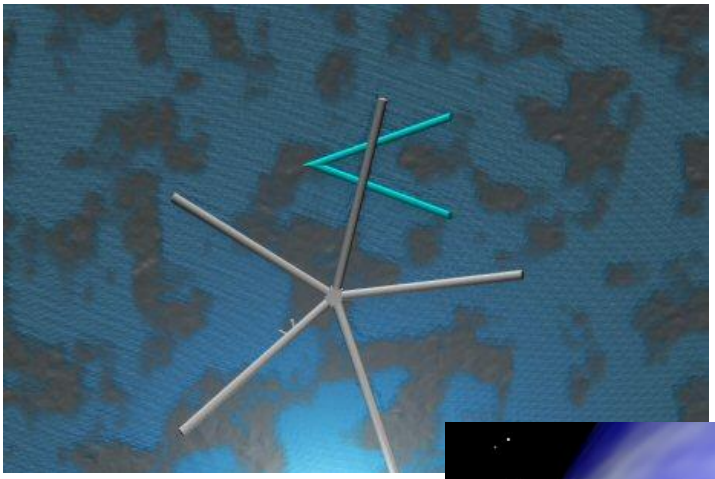
Dark Sky Station



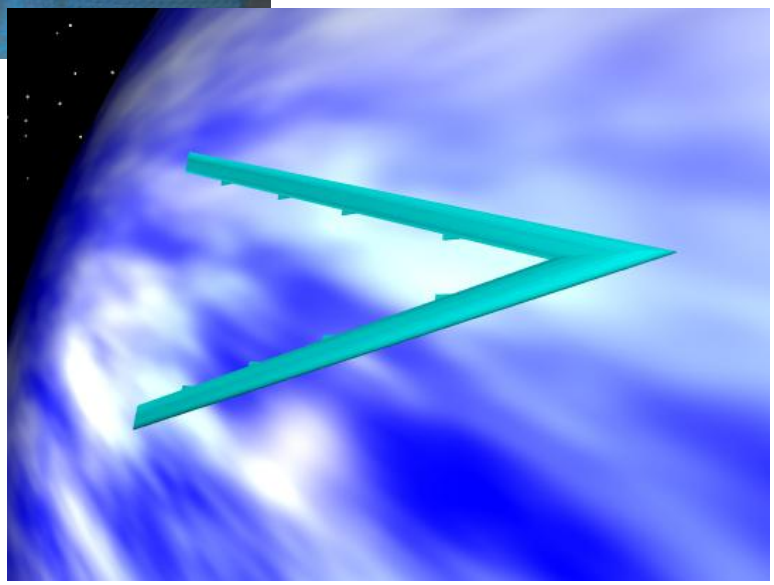
The first stage airship docked with the Dark Sky Station at 140,000 feet.

The large orbital airship also docked with the Dark Sky Station.

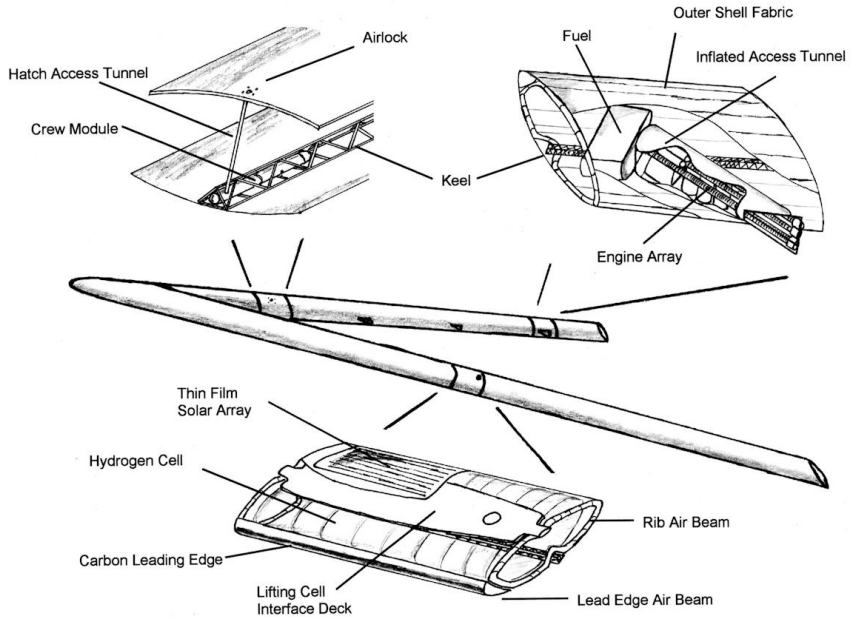




The DSS from above.

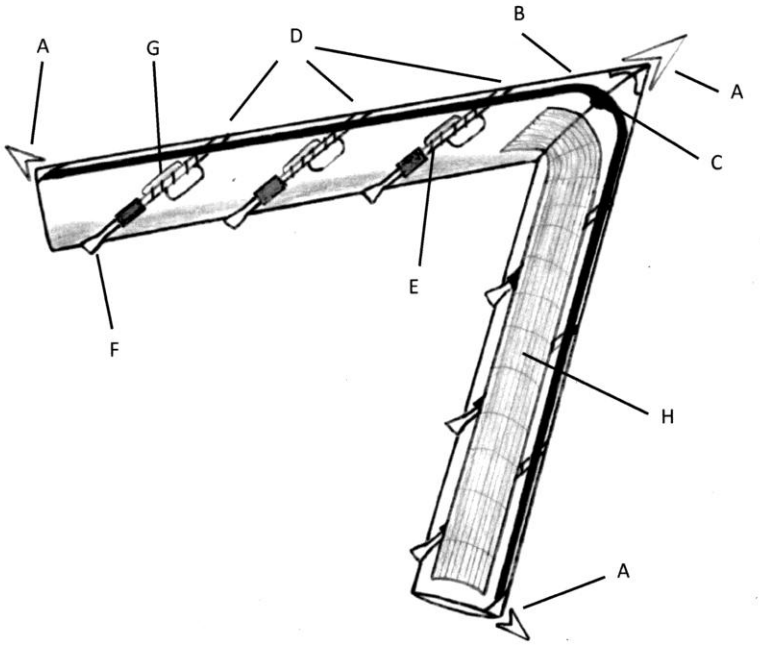


Ascender heading to orbit.




Orbital Ascender Cutaway

## Orbital Ascender Primary System




A. Projected Energy Drag Reduction for Nose and Wing Tips
B. Weak Plasma Hypersonic Boundary Layer Control (Entire Leading Edge)
C. Thin Film Hall Effect Power Reclamation
D. Engine Plasma Tap for MHD Seed Source
E. Symphony Rocket Engine
F. Magnetic Nozzle/Faraday MHD Power Generation
G. Battery Banks
H. Thin Film Solar Cells

## *The Reality*

90 foot development Ascender airship.

175 foot development Ascender airship.

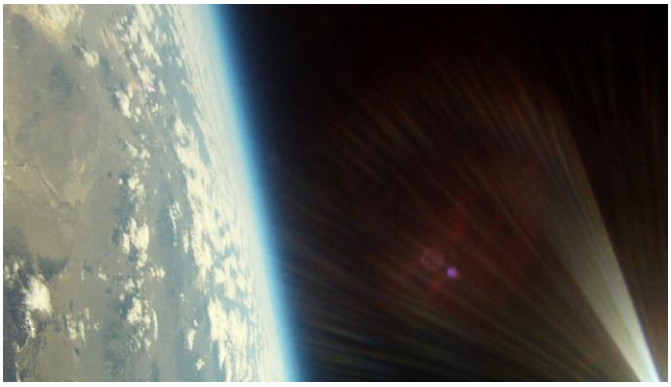

26 foot testbed Ascender airship.

Small Dark Sky Station Flight Test.

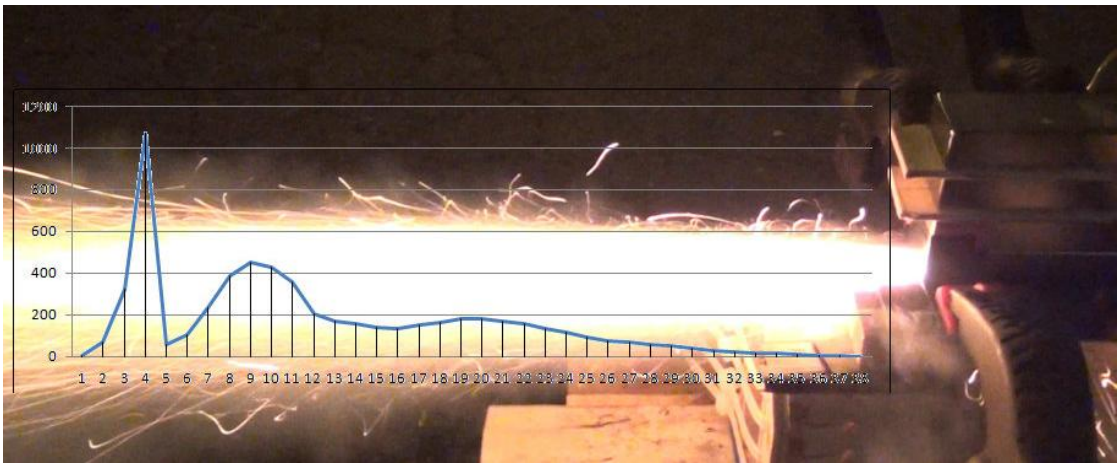
70 foot Dark Sky Station Flight Test.

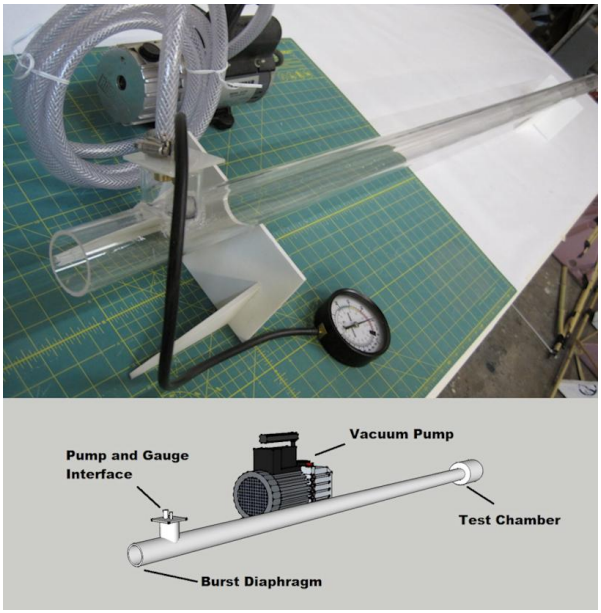
World's highest flying airship: ***Tandem***

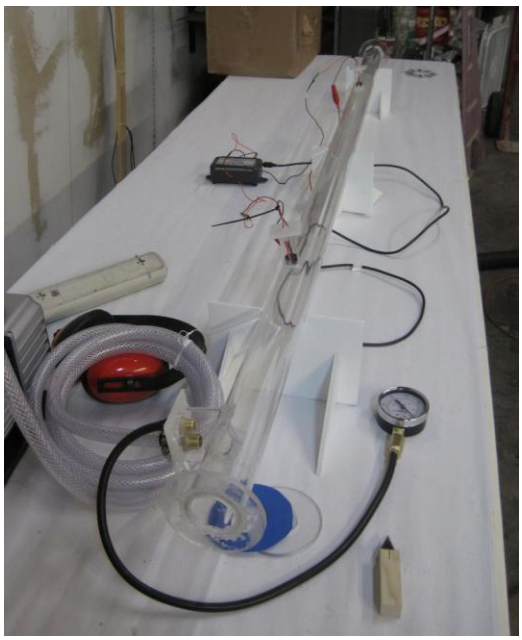
Airship to Orbit research and development at the edge of space.



Engine, Structure and Hypersonic Drag Reduction Research.

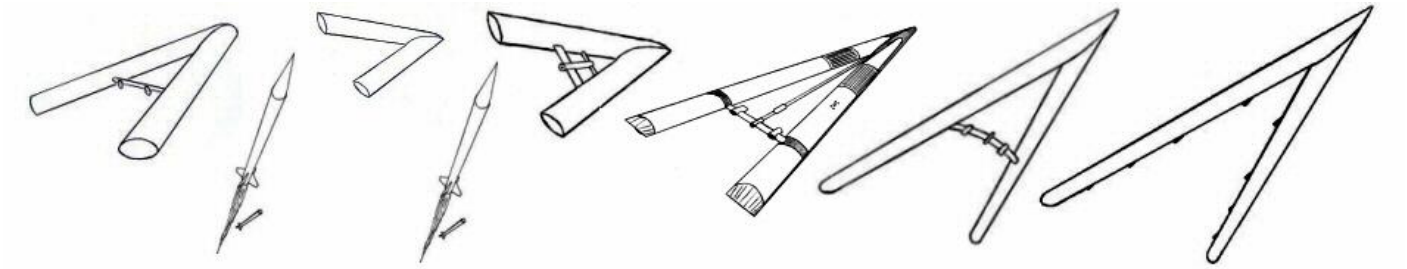


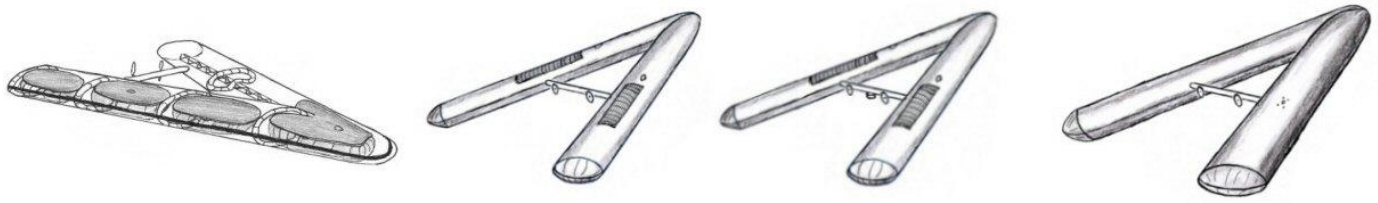



Shock Tube for active drag reduction experiments.

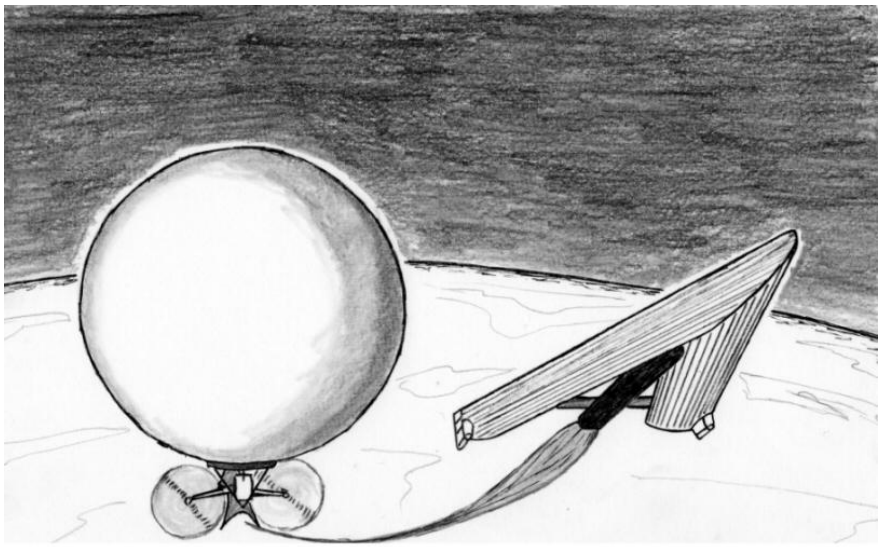
What's to come?



Orbital Ascender Development Path



Atmospheric Airship Development Path



Mach Glider Launched From Advanced Tandem with Quad Engine.

***Transatmospheric Ascender Assembly at the Block 2 Dark Sky Station***