

Solar Flight - Sunship solar powered airship

Peter Lobner, 2 August 2019

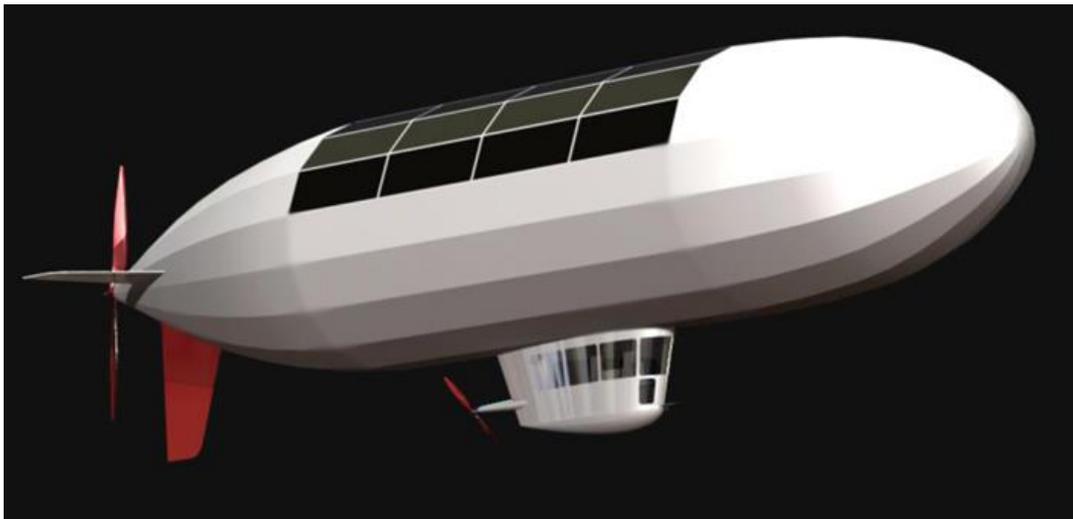
Background

Eric Raymond founded Solar Flight, Inc. in 1986 in Ramona, CA. He was the 1979 US hang gliding champion and the designer, builder and pilot of the solar-electric powered, fixed-wing sailplane Sunseeker I, which he designed for a mission to fly across the US on solar power. That mission was accomplished in the summer of 1990, with Raymond piloting Sunseeker I from Desert Center, CA to Spot, NC, completing the first solar-powered aircraft flight across the US on 3 September 1990, 32 days after the start of the mission.

Solar Flight website is here: <https://www.solar-flight.com/contact-us/>

Sunship solar-powered airship

Eric Raymond started developing the design for the Sunship solar-powered, rigid airship in about 1990. The airship was designed to be as small as possible, but large enough to be able to cross the Atlantic and Pacific Oceans on solar power. It was designed to carry three people at lower altitudes, two people to medium altitudes, and one person at high altitude. The Sunship might have been able to break the airship altitude record for zeppelins of 24,000 ft.



Sunship airship. Source: <https://www.technologicvehicles.com/fr/>

The August 1991 issue of Popular Mechanics offered the following details on the design of Sunship in an article written by Rick Titus:

“State-of-the-art materials and construction are the key to his design. The airship’s keel and inner support structure will be made of small-diameter aluminum tubing wrapped in Kevlar thread. A thin Kevlar foam sandwich will make up the ‘cap,’ or fitting base for the photovoltaic array that generates electricity for the engines. The rest of the airship’s external skin will be Tedlar, a Dupont product similar to Mylar, but many times stronger and more ultraviolet resistant.

Lift will come from helium contained in six separate bladders, taking up most of the envelope’s internal space. Batteries, or more likely, hydrogen fuel cells, will be mounted along the keel to provide power for night flying.

Current plans call for the craft to be 100 ft. long, but only 18 ft. in diameter. The resulting profile is sleek enough that a 5-horsepower electric motor swinging a 16-ft prop should be able to push it along at 60 mph. At night, on stored power, cruise speed drops to 40 mph.

The 2-passenger gondola will be built of carbon fiber sandwich and will contain navigational, communication and emergency survival equipment. Two electric motors will also be housed there, providing thrust for landing and takeoff, as well as emergency backup power.

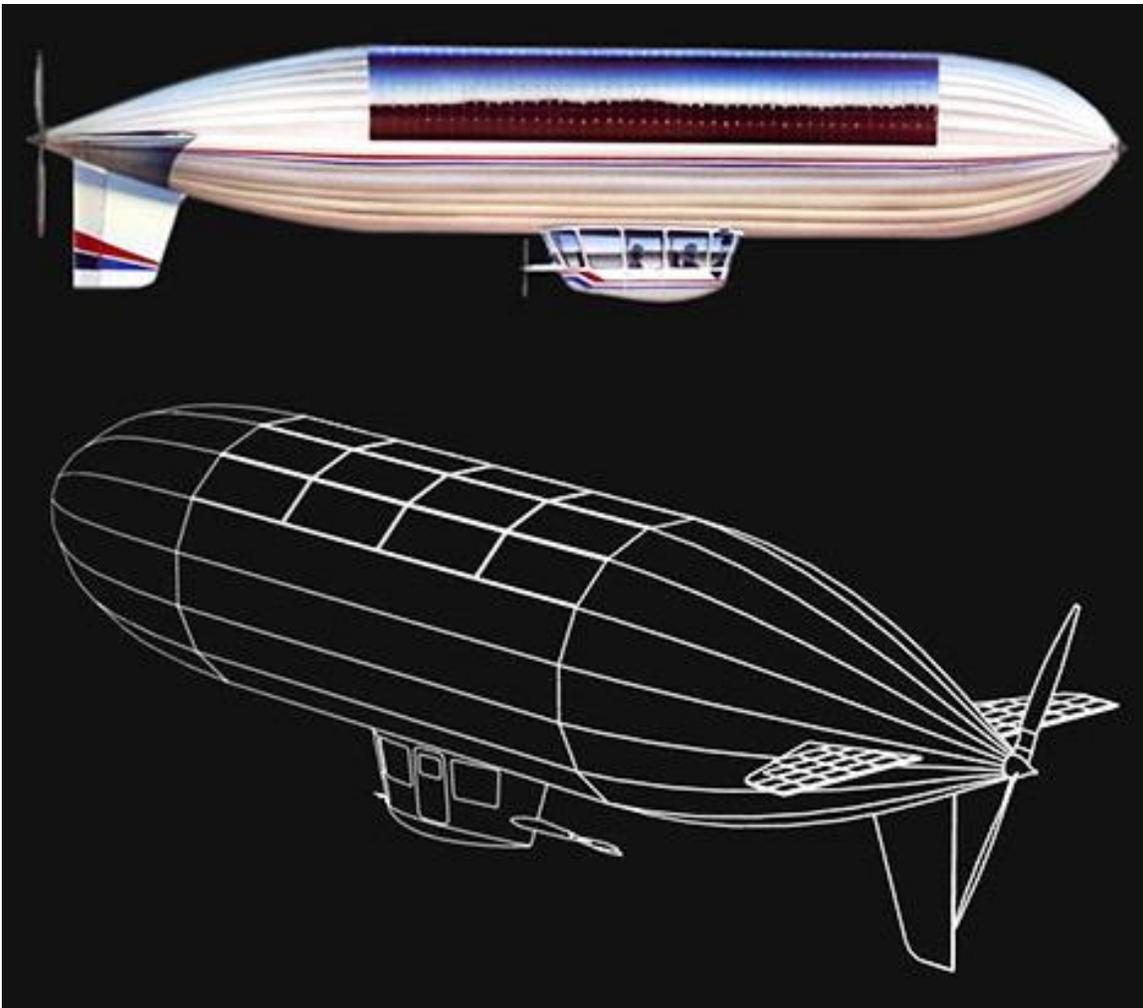
Despite the ship’s long range, Raymond expects to make numerous stops. Some promotional, some for maintenance. Should bad weather or mishap force an unscheduled stop, the pilot can fire a rocket-propelled anchor into the ground, allowing him to come to rest without a ground crew.

For most of the trip, however, the blimp will be accompanied by support crews and weather teams. The result should be a rather grand expedition, which Raymond hopes will go a long way toward proving that current solar technology can power long-distance aircraft.”

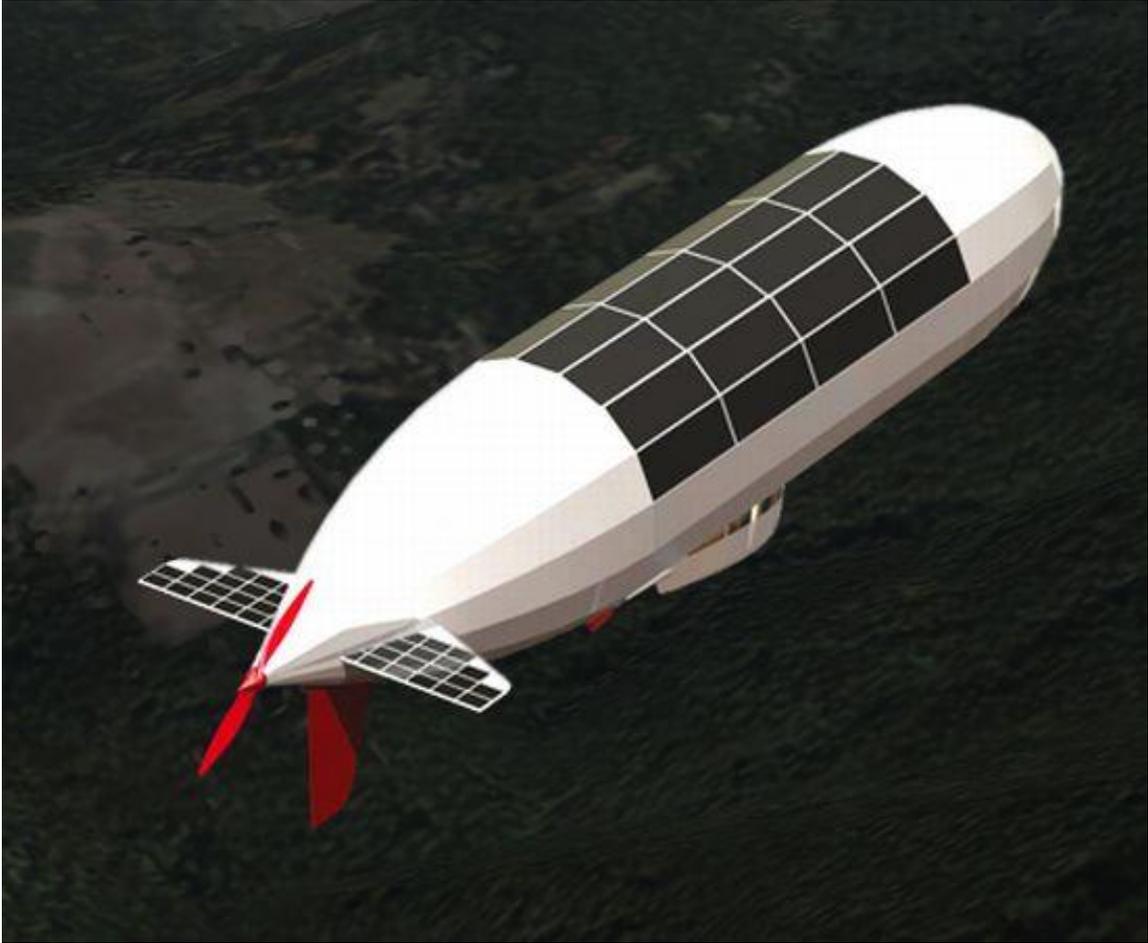
You can read the complete article, “Rebirth of the Blimp,” in the August 1991 issue of Popular Mechanics, which you can find in the on-line Popular Mechanics archive here:

https://books.google.com/books?id=49gDAAAAMBAJ&source=gbs_all_issues_r&cad=1&atm_aiy=1990#all_issues_anchor

While it was a very exciting concept, the Sunship airship was never built. Among the practical issues confronting the project was the lack of a suitable hanger that was large enough for constructing Sunship at the Ramona, CA airport.



Source: http://www.likecool.com/Solar_Powered_Sunship--Concept--Gear.html



Rendering of the Sunship airship.
Source: <https://www.technologicvehicles.com/fr/>