



Sunseeker Duo First Powered Flights

APRIL 22, 2014: Solar Flight revealed today that it has been test flying a new solar powered airplane; *Sunseeker Duo*. The *Duo* is the most advanced solar powered airplane in the world and the first that might be suited to production. It is also the first solar powered airplane with a passenger seat. The project is led by husband and wife; Eric and Irena Raymond. The *Duo* is Solar Flight's third solar powered airplane.

The first flight was conducted at Solar Flight's test facility in Voghera, Italy by Eric Raymond on December 17; the anniversary of the Wright Brothers' first flight at Kitty Hawk. Solar Flight's mission is to lead the way for the future of sport aviation using the most advanced technologies in the world. Irena says, ***"We are working very hard to have the airplane tested and ready for passenger flights by this summer. No sight is more captivating than Earth from above. It will be even more beautiful from the cockpit of a solar powered airplane."***

The engineering challenges to build solar powered airplanes are formidable. The structure must be incredibly light and aerodynamically efficient to perform well with only the power from integrated solar arrays. Because of the demanding requirements, solar powered airplanes have mostly been built as engineering novelties to break records or win prizes, rather than with the intent for practical use. The great triumph of the *Sunseeker* series is to integrate the huge number of conflicting design challenges into high performance, practical sport airplanes. Eric Raymond, who has spent his entire life building and flying airplanes, makes it look deceptively easy. There are three airplanes in the *Sunseeker* family. *Sunseeker I* first flew in 1989 and during the summer of 1990 it became the first solar powered airplane to cross the United States. A long series of modifications resulted in a new airplane, *Sunseeker II*, which was completed in 2006. In 2009, again with the airplane's designer Eric Raymond in the cockpit, *Sunseeker II* made a tour of the European continent that included the first solar powered crossing of the Alps. The original airplane has logged more time than the combination of all other solar powered airplanes. *Sunseeker Duo* is the most advanced airplane to date. It uses all of the lessons learned during 25 years with the original *Sunseeker* and implements new materials and new technologies.

“The lithium batteries today have seven times more capacity than the nickel cadmium batteries we used in Sunseeker I. When we first sketched the concept for this airplane, we couldn’t imagine solar cells with greater than 20% efficiency. These technologies are a dream come true.” said Eric Raymond.

Over the past two months, the flying qualities of the airplane, as well as the performance of the battery system, motor, propeller, folding hub mechanism, and landing gear retraction systems have been explored. After some instability in pitch was observed during the unpowered test flights, more area and additional solar cells were added to the horizontal stabilizer. Now the airplane is docile with good control authority in the air and on the ground. The performance is better than the previous airplane in every category; operations are easier because the landing gear and systems are more conventional; and the airplane has enough excess power to carry a passenger and baggage.

“Flying a solar powered airplane really can’t be compared to anything else, it’s totally unique. In sailplanes you are usually stuck under the clouds and in conventional airplanes you have terribly noisy cockpits. In both you have a sense of urgency about energy that detracts from the experience. In a solar powered airplane, you fly on top of the clouds. The horizon looks a little different when you’re flying with an unlimited supply of free energy. That’s what I’m most excited about with the new airplane - sharing this experience, it changes you.” stated Eric Lentz-Gauthier, one of the pilots of the original *Sunseeker*.

The *Sunseeker Duo* has a wingspan of 22 meters; an empty weight of 280 kg and 1510 solar cells with 23% efficiency. The motor has a maximum output of 25kW. The airplane is able to cruise directly on solar power with two people on board and is capable of durations in excess of 12 hours. It uses a battery pack located in the fuselage to store energy harvested from the solar cells which line its wings and tail surfaces.

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url: www.solar-flight.com

video: <https://vimeo.com/92499008>

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