



http://en.wikipedia.org/wiki/Rutan_Voyager

**INVENTORY TO
THE JACK A. MARCHAND PAPERS
ON THE VOYAGER PROJECT, 1986-1990**

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Descriptive Summary

Creator Information	Marchand, Jack A.
Title	Jack Marchand papers on the Voyager Project
Collection Identifier	MSF 353
Date Span	1986-1990
Abstract	Papers, letters and newsletters that Jack A. Marchand collected as part of the volunteer team for the Voyager Project.
Extent	1 folder
Finding Aid Author	Mary A. Sego, 2010
Languages	English
Repository	Virginia Kelly Karnes Archives and Special Collections Research Center, Purdue University Libraries

Administrative Information

Location Information:	ASC
Access Restrictions:	Collection is open for research.
Custodial History:	Transferred from the Purdue University Aviation Technology Library on December 30, 2009.
Accession Number:	20091230
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Subjects and Genres

Persons

Marchand, Jack A.

Yeager, Jeana

Rutan, Dick

Topics

Voyager (Airplane)

Flights around the world

Form and Genre Types

Letters (correspondence)

Newsletters

Papers

Occupations

Air Pilots

History of the Voyager Project

The Model 76 Voyager was the first aircraft to fly around the world without stopping or refueling. It was piloted by Dick Rutan and Jeana Yeager. The flight took off from Edwards Air Force Base's 15,000 foot runway in the Mojave Desert on December 14, 1986, and ended successfully 9 days, 3 minutes and 44 seconds later, on December 23. The aircraft flew westerly 26,366 statute miles at an average altitude of 11,000 feet. This definitively broke a previous record set by a United States Air Force crew piloting a Boeing B-52 that flew 12,532 miles in 1962.

Voyager's takeoff took place at 8:01 AM local time. As the plane accelerated, the tips of the wings, which were heavily loaded with fuel, were damaged as they scraped against the runway, ultimately causing pieces to break off at both ends. The aircraft accelerated very slowly and needed approximately 14,200 feet of the runway to gain enough speed to lift from the ground, the wings arching up dramatically just before take-off. During the flight, the two pilots had to deal with extremely cramped quarters. To reduce stress, the two intended to fly the plane in three-hour shifts, but this did not prove to be very successful and they became extremely fatigued.

The plane also continuously reminded the pilots of its pitch instability and fragility. They had to maneuver around bad weather numerous times, most perilously around the 600 mile wide Typhoon Marge.^[2] Libya denied access to the country's airspace, forcing precious fuel to be used. As they neared California to land, a fuel pump failed and had to be replaced with its twin pumping fuel from the other side of the aircraft. The plane safely came back to earth, touching down at 8:06 AM at the same airfield 9 days after take-off. The average speed for the flight was 116 miles per hour.

The aircraft was first imagined by Jeana Yeager, Dick Rutan, and his brother Burt as they were at lunch in 1981. The initial idea was first sketched out on the back of a napkin. Voyager was built in Mojave, California, over a period of 5 years. The Voyager was built mainly by a group of volunteers working under both the Rutan Aircraft Factory and an organization set up under the name Voyager Aircraft.

The airframe, largely made of fiberglass, carbon fiber, and Kevlar, weighed 939 pounds when empty. With the engines included, the unladen weight of the plane was 2250 lb. However, when it was fully loaded before the historic flight, it weighed 9,694.5 pounds due to the large amount of fuel required for the long-distance flight.^[3] The aircraft had an estimated lift to drag ratio (L/D) of 27.^[4]

Voyager had front and rear propellers, powered by separate engines. The rear engine, a water-cooled Teledyne Continental IOL-200, was planned to be operated throughout the flight. The front engine, an air-cooled Teledyne Continental O-240, was operated to provide additional power for takeoff and the initial part of the flight at heavy weights.

Voyager is now on display at the Smithsonian Institution's National Air and Space Museum in Washington, DC.

Source(s):

1. ["Official FAI database". http://records.fai.org/general_aviation/aircraft.asp?id=2696](http://records.fai.org/general_aviation/aircraft.asp?id=2696). Retrieved 2007-09-05.
 2. Joint Typhoon Warning Center (1987). [Chapter 3: Northwest Pacific and North Indian Ocean Tropical Cyclones](#). Retrieved on 2007-12-19.
 3. [Rutan Voyager - Smithsonian National Air and Space Museum](#)
 4. David Noland, "Steve Fossett and Burt Rutan's Ultimate Solo: Behind the Scenes," *Popular Mechanics*, Feb. 2005 ([web version](#))
- David H. Onkst. [Dick Rutan, Jeana Yeager, and the Flight of the Voyager](#). U.S. Centennial of Flight Commission.
 - [Time Magazine - Flight of Fancy](#) By Richard Stengel; Scott Brown/Mojave Monday, Dec. 29, 1986
 - Retrieved April 8, 2010 from http://en.wikipedia.org/wiki/Rutan_Voyager

Collection Description

Scope

The Jack A. Marchand papers on the Voyager Project (1986-1990; 1 folder) are papers, newsletters, and correspondence Marchand collected as part of the volunteer team for the Voyager Project. Many of Marchand's students at Purdue University wrote reports on the Voyager Project. The papers are organized chronologically.

Descriptive Rules

Describing Archives: A Content Standard

Processing Information

All materials have been housed in acid-free folders and acid-free boxes.

DETAILED DESCRIPTION OF THE COLLECTION

Voyager Project Folder, 1986-1990

(1 folder)

1 Folder Contents

Items

1. Voyager background sheet, undated
2. Background sheet on Jeana L. Yeager and Richard (Dick) G. Rutan, 1986
3. Voyager fact sheet, undated [front has picture of the Voyager and Jeana Yeager and Dick Rutan]
4. "Flying's Last Great Adventure," Edwards Park, *The Saturday Evening Post*, November, 1985, pp. 52-55, 57.
5. *OMNIA: The Quarterly Magazine of Allied-Signal Incorporated*, Summer 1986
6. *Voyager Milestone Newsletter*, No. 3, September 1986 [signed by Jeana Yeager]
7. Letter written by Jack A. Marchand, addressed to Voyager, dated December 31, 1986 [the letter states how 25% of Marchand's electrical technology orientation class chose the Voyager as a report topic]
8. Voyager Aircraft, Incorporated, "Welcome to the Voyager Family" letter, January, 1987
9. *Voyager Milestone Newsletter*, No. 4, March 1987
10. "Damaged Voyager starts round the world," John Antczak, no publication information available, undated
11. Thank you letter addressed to Jack A. Marchand, from Voyager, signed by Kelly Chandler, January 21, 1988
12. Letter addressed to Jack A. Marchand, from Voyager, in regards to instrument panel, January 27, 1988
13. Letter addressed to Voyager, from Jack A. Marchand, follow up to previous letter, February 3, 1988 (2 copies)
14. *Voyager Milestone Newsletter*, No. 5, March 1988 [the year after issue]
15. News release, "Voyager Flies With King Avionics," undated
16. "Join The Voyager Adventure!" membership form, undated (2 copies)
17. Voyager Fact Sheet – Round-The-World Aircraft, undated (2 copies)
18. "The Challenge: Around The World Flight," fact sheet, undated
19. "World Records" fact sheet, undated (2 copies)
20. Voyager product update, price listing, undated
21. "Voyager," by Jeana Yeager and Dick Rutan with Phil Patton, order sheet, undated
22. "On the epic flight, both crew and aircraft had the right stuff," Hercules advertisement featuring Dick Rutan and Jeana Yeager, undated
23. Multisensor navigation management system KNS-660, specification sheet, undated
24. "Voyager, The World Flight," the official log, flight analysis and narrative explanation, compiled by Jack Norris, 1988 [inscriptions and signatures to Marchand and his class from Jack Norris, Jeana Yeager and Dick Rutan, along with signatures from other crew members on the back cover]
25. Photograph of flight panel, undated

26. Post-flight update letter from Jeana Yeager on Voyager Enterprises, Incorporated, letterhead, 1990