



**FINDING AID TO
THE LEN CORMIER PAPERS,
1944-2006**

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Descriptive Summary

Creator Information	Cormier, Len, 1926-2008
Title	Len Cormier papers
Collection Identifier	MSP 207
Date Span	1944-2006, predominant 1980-1988
Abstract	Engineering designs, blueprints, topographical maps, posters, and papers related to Len Cormier's work to design reusable launch vehicles including the Space Van. Includes a scale model of the Space Van.
Extent	7.85 cubic feet (1 mss. boxes, 1 c.f. box, 7 large flat boxes)
Finding Aid Author	Mary A. Segó, 2016
Languages	English
Repository	Virginia Kelly Karnes Archives and Special Collections Research Center, Purdue University Libraries

Administrative Information

Location Information:	G-64E
Access Restrictions:	Collection is open for research. The collection is stored offsite; 24 hours notice is required to access the collection.
Acquisition Information:	Donated by David Latzko and Anne Greenglass.
Accession Number:	20150115; 20150116
Preferred Citation:	MSP 207, Len Cormier paper, Karnes Archives and Special Collections, Purdue University Libraries
Copyright Notice:	Purdue University per deed of gift.
Related	United States Patent 20090173830 A1: Rocket-powered kite plane

Materials Information: for gentle climb and acceleration to extreme staging altitudes - <https://docs.google.com/viewer?url=patentimages.storage.googleapis.com/pdfs/US20090173830.pdf>
*Although the patent application was filed in 2006, it was granted in 2009, a year after Cormier's death.

Subjects and Genres

Persons

Cormier, Len, 1926-2008

Organizations

PanAero Incorporated
North American Aviation Incorporated
North American Rockwell
National Academy of Sciences
Commercial Space Transportation Advisory Committee (U.S.)
Flight Archives at Purdue University

Topics

Launch vehicles (Astronautics)--Design and construction
Space vehicles
Space travel
Space Van 2011
SabreRocket model
Commercial space transportation

Form and Genre Types

Blueprints
Engineering designs
Model (Space Van)

Occupations

Aerospace consultant
Aerospace engineer
Entrepreneur
Fighter pilot

Biography of Len Cormier

Leonard N. Cormier was born in Boston in 1926. He joined the Navy in 1943 and served as a Naval Aviation Cadet, a fighter pilot, and executive officer of an anti-submarine warfare patrol squadron. He joined the Navy Reserves in 1947 and achieved the rank of lieutenant commander in 1958. He retired from the reserves in 1966.

Cormier received a bachelor's degree in physics from the University of California at Berkeley in 1952. He was involved in space programs most of his career. He worked at NASA at the beginning of his career as well as the National Academy of Sciences in Washington. As a staffer at the Academy in 1957, he attended the International Geophysical Year proceedings when the Soviets surprised the world with the launch of Sputnik. This event left a great impression on him, and it was then that he decided to pursue better access to space through affordable, reusable space vehicles.

In the 1960s, he was project engineer for space transportation systems at the Los Angeles Division of the former North American Aviation Incorporated. He also spent two years as a project engineer and program manager for fighter systems at the former North American Rockwell. Cormier was also a private entrepreneur, and in 1967 he formed a company called TranSpace (later known as Third Millennium Inc.). This marked the beginning of his work on a commercial approach to spaceflight.

In 1978 Cormier left Rockwell International, where he had worked on the Space Shuttle. He believed the Space Shuttle was overdesigned, and that a launch vehicle could be designed at a fraction of the cost. Over the years he worked to bring his idea to fruition through his company, PanAero Incorporated. He created a conceptual design for the Space Van 2011, which was a two-stage horizontal takeoff and landing craft he believed could service the International Space Station and do other orbital missions much cheaper than the cost of a space shuttle or Soyuz. Cormier struggled to obtain sufficient investors for his Space Van, which underwent numerous revisions over the years. One of his last attempts was in 2003 by trying to win the X Prize, a \$10 million award offered to the first private team to fly a manned rocket into space. He competed against 20 teams for the prize with his SabreRocket model but lost.

He was a charter member of the Department of Transportation's Commercial Space Transportation Advisory Committee.

Cormier passed away on June 16, 2008.

Sources:

Lamb, Yvonne Shinhoster. "Len Cormier; Designed Lower-Cost Space Van." *The Washington Post*, 16 July, 2008, p. unknown. (obituary)

Len Cormier. From Wikipedia, the free encyclopedia, 2016, https://en.wikipedia.org/wiki/Len_Cormier/. Accessed 25 August 2016.

Collection Description

Scope

The Len Cormier papers (1944-2006; 7.85 cubic feet) document Cormier's work as a commercial space flight pioneer. The majority of the papers include drawings/designs, blueprints, and papers related to engineer Cormier's work to design commercial reusable launch vehicles and other orbital vehicles. Types of materials include blueprints, engineering designs, maps, a model (Space Van), papers, posters, reports, topographical maps and VHS tapes.

The papers are organized into three series:

Arrangement

- 1. Blueprints, 1977-1990 (3.35 cubic feet).** This series contains numerous blueprints for Cormier's reusable space launch vehicles: "Space Van," M5 (Mach) Turbojet, and "Windjammer," along with others from throughout his career. Materials in the series are arranged by type of launch vehicle and/or as miscellaneous, then chronologically within each group.
- 2. Posters and Topographical Maps, 1949-1974 (1.0 cubic feet).** Contained within this series are posters from Cormier's personal collection, including several related to space and the Lunar X Prize, which promotes private investment in space exploration and technology. There are also 10 topographical maps from the United States Department of the Interior, Geographical Survey, "15 Min, Series (Topographic)." The majority of these are from the 1950s.
- 3. Miscellaneous Items – Model, Report, VHS Tapes, Printed Material, and Computer (3.5 cubic feet).** This last series contains various type of materials. There is a model of one of Cormier's space launch vehicles, a computer which contains some of Cormier's working files (yet to be processed), VHS tape, "Around Space: PanAero X-Prize Team," (Host, Dr. Kent Miller, and Len Cormier, 2002). Printed material includes, two reports, one entitled, "Proposal to Supply Commercial Orbital Transportation Services Demonstrations in response to NASA/Johnson Space Center Announcement COTS-01-01," and a packet of information related to the history of the American aircraft industry.

Descriptive Rules

Describing Archives: A Content Standard

Processing Information

Whenever possible, original order of the materials has been retained. All materials have been housed in acid-free folders and acid-free boxes.

DETAILED DESCRIPTION OF THE COLLECTION

Series 1. Blueprints, 1971-1990

(3.35 cubic feet)

Box 1 *“Space Van” Blueprints, and Miscellaneous Blueprints, 1980-1986 (many undated)*

Item

1. 2 Navy VTOL Fighter Pan Aero, undated
 2. “NASA Mach 5 Inlet Part 1 of 2,” undated
 3. 3 - “L’ Aventurier & Astro-Trader,” undated
 4. 2 - 300-mph Tracked A/C Train, undated
 5. 2 Miscellaneous maps, undated
- “Space Van”
1. “Space Van @ min-1980”
 2. “82-21000 Space Van – Orbiter/Booster May 12, 1982”
 3. “8RL10 Space Van 1985” Third Millennium, INC Space Van – Orbiter Stage
13 Jan 85
 4. “2-Engine Micro Van (1986)” “2 RL10 Micro Van”
 5. “Passenger Module (R 8L10),” undated
 6. “Misc Space Van,” undated
 7. “TPS (8 RL10),” undated

Box 2 *Blueprints, NASA Langley, and VTOL (Vertical Takeoff), 1977-1979*

Item

1. NASA/Langley 1977-1979 (4)
2. VTOL/ANSER 1978-1979 (2)

Box 3 *Blueprints, 1971-1990*

Item

M5 Turbojet, 1979

1. “M5 Inlet/Mode Splitter Assembly February 21, 1979” Mode Splitter
Assembly Mach 5 Inlet. NASA/LRC P.O. L80488, February 21, 1979
2. Ram Jet Duct Mach 5 Inlet NASA/LRC P.O. L80488, February 22, 1979
3. “TJ Duct/M5 Inlet Feb 22, 1979 Fig 15” “Reusable Tactical Booster”
4. “STRJ M5 Turbojet TR 5” “STJ-509 Mach 3 TJ,” undated
5. “NASA Mach 5 Inlet Part 2 of 2,” undated

WindJammer

1. “1971 SSTD/ “Windjammer” Transpace 71-1001: Flight Stage of a Stage-
and-one-half Space Shuttle Concept: “WindJammer”
2. “Early Version SSTD/NTHL” Three-view General Arrangement MMI’s Design

- 3. Exercise Vehicle (DEV), June 14, 1990 (copy)
- 3. SD10/SSTD VTHL, June 14, 1990 (original)
- 4. Miscellaneous Blueprints (8), undated

Box 4 *Blueprints, 1979*

Item

- 1. Ram Jet Duct Mach 5 Inlet NASA/LRC P.O. L80488, February 22, 1979
- 2. "M5 Inlet/Mode Splitter Assembly February 21, 1979" Mode Splitter Assembly Mach 5 Inlet. NASA/LRC P.O. L80488, February 21, 1979
- 3. "STRJ M5 Turbojet TR 5" "STJ-509 Mach 3 TJ," undated
- 4. "NASA Mach 5 Inlet Part 2 of 2," undated

Box 5 *"Space Van" Blueprints, 1980-1988*

Item

- 1. Transpace 80-0004-2A Space-Van Carrier/System Concept, December 11, 1980
- 2. Transpace 80-0004-2A Space-Van Carrier/System Concept, December 11, 1980 – Black photo quality transparency
- 3. "Space Van Barrier/System Concept, December 11, 1980" Transpace 80-0004-2 Space Van Carrier/System Concept, December 11, 1980
- 4. "80-0004-1A Space Van – Orbiter, April 5, 1981" Transpace 80-0004-1A Space Van Orbiter Stage, April 5, 1981
- 5. "First Cut Revised Space Van, January-April 1982"
- 6. "82-2100 May 12, 1982 Space Van – Orbiter Booster" Transpace 82-21000 Space Van Orbiter/Booster Stage, May 12 1982
- 7. Space Van Orbiter/Booster December 8, 1982
- 8. Transpace 83-23000B Space Van Space Stage Inboard Profile, September 21, 1983
- 9. Third Millennium Inc Space Van Booster Stage. MMI 85-22 000 27 July 1985. "8RL10 Space Van w/ Large Booster Wing, 1985"
- 10. Third Millennium Inc Micro Van Orbiter 1986
- 11. Space Van System Cargo-Only Mode with Delayed Recovery Stage (DRS) 7 February 1988
- 12. "1988 Space Van" Space Van System Cargo-Only Mode with Delayed Recovery Stage (DRS) 7 February 1988
- 13. "1988 Space Van"
- 14. Micro Van Artwork Large Wing Booster Artwork, undated
- 15. "Space Van Misc," undated

Box 6 *Blueprint, Parabolic Solar Collector, undated*

Item

1. Parabolic Solar Collector, undated

Series 2. Posters and Topographical Maps, 1944-1974

(1.0 cubic feet)

Box 7 *Posters and Topographical Maps, 1944-1974*

Item

Posters

1. Ernest Hemmingway – “To Have and To Have Not,” movie poster with Humphrey Bogart and Lauren Bacall, circa 1944 (“door poster” written on poster)
2. United States Air Force Global Navigation and Planning Chart, circa 1970
3. Midnight Rider poster, 1973
4. National Geographic Islands of the Pacific, December 1974
5. Felt, Butterfly, Black Light poster, undated
6. Psychedelic Woman poster, undated
7. National Geographic Islands of the Pacific, December 1974
8. “Discover a New Horizon,” *Space News*, undated
9. “Our Ticket to Space,” undated
10. “New Race to Space,” undated
11. “Prize X,” undated
12. Designer grid sheets, blank (2)

Topographical Maps – United States Department of the Interior, Geographical Survey, “15 Min, Series (Topographic),” 1949-1958

Item

1. “Sentinel Quadrangle Arizona Maricopa Co.,” 1949
2. “New York Butte Quadrangle, California – INYO County,” 1950
3. “Ubehebe Peak Quadrangle, California - INYO County,” 1950
4. “Keller Quadrangle, California - INYO County,” 1951
5. “Waucoba Washington Quadrangle – California - INYO County,” 1951
6. Phoenix, 1954 (Rev. 1969)
7. “Dry Mountain Quadrangle – California - INYO County,” 1957
8. “Soldier Pass Quadrangle – California - INYO County,” 1958
9. “Waucoba Spring Quadrangle – California - INYO County,” 1958
10. “Last Chance Range Quadrangle – California – Nebraska,” 1958

Series 3. Miscellaneous Items – Model, Flash Drive, VHS Tapes, Reports, Printed Material, and Computer

(3.5 cubic feet)

Box 8 *Model of Experimental Space Vehicle, undated*

Item

1. Model of Experimental Space Vehicle, undated

Box 9 *Flash Drive, VHS Tapes, Reports, and Printed Material, 1983-2007*

Item

1. Flash Drive, SpanVan11 working files, 2007
2. VHS tape, "Around Space: PanAero X-Prize Team," (Host, Dr. Kent Miller, and Len Cormier, 2002)
3. VHS tape, "Panaero Bumble Bee," Master, undated
4. Report, "Bridging Study Final Report for Vela Technology Development, Incorporated," September 29, 1997
5. Report, "Proposal to Supply Commercial Orbital Transportation Services Demonstrations in Response to NASA/Johnson Space Center Announcement COTS-01-01," Submitted by, Len Cormier, President, PanAero, Incorporated, March 3, 2006
6. Document, "A History of the American Aircraft Industry," undated
7. Magazine, *Geo*, Volume 5, October 1983 (includes article, "SPACE INC.: With imagination, nerve and enough money, anybody can put a rocket into space or try," segment about Cormier, pp. 58-59)
8. Magazine, *Final Frontier*, May/June 1992 (includes article, "Countdown to Freedom: After years of wrangling with Congress, and several trips back to the drawing board, NASA finally begins building its space station," by Leonard David)
9. Magazine, *Discover*, July 2002 (includes article, "X-Prize: Does anyone hear Charles Lindbergh chuckling?" by David E. Fisher and Marshall Jon Fisher, pp. 50-56)

Box 10 *Computer and Accessories, undated*

Item

1. Dell computer, keyboard, monitor, cables, mouse, and user manuals, undated