The Descriptive Finding Guide for the Philip Bono Personal Papers SDASM.SC.10166

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San Diego Air and Space Museum Library and Archives
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San Diego 92101
URL: http://www.sandiegoairandspace.org/

Language of Material: English

Contributing Institution: San Diego Air and Space Museum Library and Archives

Title: Philip Bono Personal Papers

Identifier/Call Number: SDASM.SC.10166

Physical Description: 3 Cubic FeetDescription: The collection consists of four archival boxes, 12-1/2 x 15 x 9-3/4 inches, three of which contain document folders, and one that contains photographs and presentation slides.

 Content Notes: The collection contains items reflecting Mr. Bono's career and his lifelong passion for aviation and, particularly, space travel. There are papers, reports, drawings, patent records, photographs, slides, news clippings, and other memorabilia, from 1947 until the early 1990s. Included are documents and reports about his various space vehicle concepts and other aerospace projects. Twenty-six lithographs went to Curatorial.

Date (bulk): bulk

Abstract: Philip Bono worked as a research and systems analyst for North American Aviation. His first "tour" with Douglas Aircraft Company was from 1949 to 1951, doing structural layout and detail design. From 1951 to 1960, he worked primarily in structures design at Boeing. Between 1947 and 1949, he worked at Northrop Aircraft R&D. From 1984-1986, he was general manager of Cal-Pro Engineering Consultants doing structures integration and subsystems stress analysis. From 1966 to 1988, he again worked at Douglas Aircraft after Douglas' merger with McDonnell Aircraft where he did the majority of his advanced space design work.

Biographical / Historical

Philip Bono was a renowned space engineer who was probably 30 years before his time. He was born in Brooklyn, New York on January 13, 1921. He graduated from the University of Southern California in 1947 with a B.E. degree in mechanical engineering, and served three years in the U.S. Naval Reserves. After graduation in 1947, Mr. Bono worked as a research and systems analyst for North American Aviation. His first "tour" with Douglas Aircraft Company was from 1949 to 1951, doing structural layout and detail design. From 1951 to 1960, he worked primarily in structures design at Boeing. Between 1947 and 1949, he worked at Northrop Aircraft R&D. From 1984-1986, he was general manager of Cal-Pro Engineering Consultants doing structures integration and subsystems stress analysis. From 1966 to 1988, he again worked at Douglas Aircraft after Douglas' merger with McDonnell Aircraft where he did the majority of his advanced space design work. He pursued single-stage to orbit space launch vehicles as being simpler and cheaper than conventional launch vehicles. He then proposed to make these vehicles reusable. Among Mr. Bono's designs were: One Stage Orbital Space Truck (OOST) Recoverable One Stage Orbital Space Truck (ROOST) Reusable Orbital Module, Booster, and Utility Shuttle (ROMBUS) Ithacus Pegasus Hyperion Saturn Application Single Stage To Orbit (SASSTO) Although his visionary designs were never actually built, his contributions pioneered the advancement of the Space Shuttle, a vertical take off horizontal landing version of the SSTO spacecraft. From his ROOST design onwards, Bono advocated space launch vehicles without wings, usually using rocket-assisted vertical takeoff and landing (VTVL) configurations. He patented a reusable plug nozzle rocket engine that had dual use as a heat shield for atmospheric reentry. In 1965 and 1967, he obtained two patents for a Recoverable Single Stage Spacecraft Booster. In 1969, he co-authored with Kenneth Gatland "Frontiers of Space," which was published in several languages. Less than three months after Bono's death, the first McDonnell Douglas launch vehicle based on his pioneering work on VTOL, a research test vehicle the DC-X (Delta Clipper), began a largely successful series of test flights. Among his many awards and recognitions, the Council on International Nontheatrical Events recognized Mr. Bono for his motion picture, "The Role of the Reusable Booster." His ROMBUS design was featured in the "Flight to the Moon" attraction at Disneyland in Anaheim, California in 1967. He was granted Charter Membership in the International Astronautical Academy in 1960, and acknowledgment by the American Institute of Aeronautics and Astronautics in 1963, 1965, and 1966 through 1968. He achieved Fellowship in The British Interplanetary Society in 1961, and was elected a Fellow of the Royal Aeronautical Society in 1972. His wife of 43 years, Camille, died in November 2014. His son Richard and daughter Patricia, both live in Costa Mesa, California, and daughter Kathryn Hickman lives in Livermore, California. Philip Bono died on May 23, 1993 at the age of 72 in Costa Mesa, California.

Immediate Source of Acquisition

This collection was donated to the San Diego Air and Space Museum.

Scope and Contents

Description: The collection consists of four archival boxes, 12-1/2 x 15 x 9-3/4 inches, three of which contain document folders, and one that contains photographs and presentation slides. Content Notes: The collection contains items reflecting Mr. Bono's career and his lifelong passion for aviation and, particularly, space travel. There are papers, reports, drawings, patent records, photographs, slides, news clippings, and other memorabilia, from 1947 until the early 1990s. Included are documents and reports about his various space vehicle concepts and other aerospace projects. Twenty-six lithographs went to Curatorial.

Related Materials

G/D Convair Collection Space Files McDonnell Douglas Files

https://www.flickr.com/photos/sdasmarchives/albums/72157669057850210

Conditions Governing Access

The collection is open to researchers by appointment. Some copyright restrictions may apply.

Subjects and Indexing Terms

Mars Mission

Douglas Aircraft Company

Bono, Philip

Boeing Airplane Company

Box 1 of 4

SERIES I: Correspondence

Folder 1 – Correspondence, 1960-1964.
Folder 2 -- Correspondence, 1965-1966.
Folder 3 -- Correspondence, 1967.
Folder 4 -- Correspondence, 1968.
Folder 5 -- Correspondence, 1969-1970.
Folder 6 -- Correspondence, 1971-1976.
Folder 7 -- Correspondence, 1977-1988.

Series II: Book Documents

Folder 8 -- Book correspondence.
Folder 9 -- Book correspondence with Publisher.
Folder 10 -- Book correspondence with Kenneth Gatland.
Folder 11 -- Book publicity and reviews.

Series III: Project Documents

Folder 12 -- Ithacus.
Folder 13 -- Mars Mission.
Folder 14 -- Military/Commercial Transport.
Folder 15 -- Pegasus.
Folder 16 -- ROMBUS (folder #1 of 2).
Folder 17 -- ROMBUS (folder #2 of 2).
Folder 18 -- ROOST.
Folder 19 -- SASSTO.
Folder 20 -- Space Shuttle Concept.
Folder 21 -- Umbress.
Folder 22 -- Reusable Launch Vehicles.
Folder 23 -- Ballistic Reusable Launch Vehicle, Preliminary Report.
Folder 24 -- Projects: Miscellaneous.
Folder 25 -- Project-Related Drawings.
Folder 26 -- Drawing: Eight-Man Earth Launch Vehicle - Boeing.
Folder 27 -- Engineering Studies/Working Papers.
Folder 28 -- Presentations/Conferences.

Series IV: Papers and Reports by Philip Bono

Folder 29 -- Preliminary Design for a Manned Mars Vehicle, August, 1960.
Folder 30 -- Conceptual Design for a Manned Mars Vehicle, August 1960.
Folder 31 -- Preliminary Design for a Manned Mars Vehicle With Modifications for Lunar and Venus Missions.

Box 2 of 4

Series IV: Papers and Reports by Philip Bono (continued)

Folder 1 -- ROOST (2 reports): Integrated Systems Study for a One-Stage Orbital Space Truck, December 1962; Economic Potential of a One-Stage Orbital Space Truck, August 1962.
Folder 2 -- Saturn (2 reports): Saturn SIVB Stage as a Test Bed for Booster Recovery, May 1966; Recent Trends in Post-Saturn Propulsion -- Expendable Solid or Reusable Liquid Systems?, September 1967.
Folder 3 -- Two reports: Enigma of Booster Recovery -- Ballistic or Winged?, May 1967; Implications of Booster Recovery on Unconventional Propulsion Systems, May 1964.
Folder 4 -- Two reports: Variable-Payload Booster -- Next Generation of Large Launch Vehicle?, April 1967; Rocket-Sled Launching Technique and its Implications on Performance of Reusable Ballistic (Orbital Global) Transport Systems, October 1967.
Folder 5 -- Three reports: On the Application of Space Techniques to Terrestrial Transportation, October 1964; A New Dimension in Terrestrial Transportation -- Byproduct of the Space Age, undated; Reusable Rocket Booster as a Military Terrestrial Transport, October 1967.
Folder 6 -- Two reports: A Near-Term Technique for Land-Recovery of an Earth Orbital Stage, October 1966; The Influence of Unconventional Structures and Materials on Booster Reusability, April 1964.
Folder 7 -- Three reports: The Rombus Concept, January 1964; Rombus -- An Integrated Systems Concept for Reusable Orbital Module (Booster and Utility) Shuttle, June 1963; Reusable Booster for Lunar Logistics and Planetary Exploration, 1964.
Folder 8 -- Four reports: Beyond the Supersonic Airlines, November 1964; Advanced Launch Vehicle Concepts, March 1963; Advanced Rocket Concepts, January 1964; Reusable Booster for Lunar Logistics and Planetary Exploration, September 1964.
Folder 9 -- Two Journal of British Interplanetary Society articles: Rocket-Sled Launching for Reusable Ballistic Transport Systems, 1970; Expendable Solid and Reusable Liquid Systems in Post-Saturn Propulsion, 1970.
Folder 10 -- Magazine articles: Rocket Troop Transport, Ordnance Magazine, July-August 1968; Global Rocket Transport Offers Instant Thrill-a-Minute Travel, Society of Automotive Engineers Journal, 1965; Advanced Rocket Concepts, Mechanical Engineering Magazine, January 1964.
Folder 11 -- Magazine articles: Five articles on Rombus, rocket transport, Pegasus, and Reusable Spacecraft.
Folder 12 -- Magazines articles: Three articles on Military Transport, and ROOST.

Series V: Business Documents

Folder 13 -- Personal file.
Folder 14 -- Lists of Philip Bono articles, reports, presentations, slides.
Folder 15 -- "Mars in Our Pocket," fiction by Phil Bono.
Folder 16 -- Humor.
Folder 17 -- Organization Charts.
Folder 18 -- Employment Records.

Folder 19 -- Patents.
Folder 20 -- Philip Bono listing in Who's Who.
Folder 21 -- Resumes.
Folder 22 -- Personal Business Enterprises.
Folder 23 -- Certificates and Awards.
Folder 24 – Memorandums Folder contains 23 items, primarily memorandums and correspondence related to the financing of Lindbergh's flight: Memo from T. Claude Ryan to Frank Mahoney, June 1928.

Series VI: Newspapers

Folder 28 – Philip Bono.
Folder 29 – Douglas Aircraft In-House News.
Folder 30 – Letters to the Editor.
Folder 31 – Hyperion.
Folder 32 – Ithacus.
Folder 34 – Mars Mission.
Folder 35 – Pegasus.
Folder 36 – Photo Captions for Press Releases.

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Series VI: News Clippings/Press Releases (continued)

Folder 1 – Post-Saturn Concepts.
Folder 2 – Reusable Space Vehicles.
Folder 3 – ROMBUS.
Folder 4 – ROOST.
Folder 5 – SASSTO.
Folder 6 – Vehicle Noise Control.
Folder 6 – Vehicle Noise Control.

Series VII: Engineering Data (aircraft)

Folder 8 – Engineering Data: "Stress Analysis for the Airframe and Missile Structural Design," by Philip Bono.
Folder 9 – Engineering Data: Stress Analysis

Series VIII: Vellums

Folder 10 – Vellums of Project Articles - English, folder #1 of 2.
Folder 11 – Vellums of Project Articles - English, folder #2 of 2.
Folder 12 – Vellums of Project Articles - Foreign Language.

Series IX: Photographs

Folder 13 – Partial index and duplicate photographs.
Folder 14 – Vellum photographs for overhead projector presentations.
Folder 15 – 3" x 4" glass slides - Bono_0154 to _0173.
Folder 16 – 3" x 4" glass slides - Bono_0174 to _0193
Folder 17 – 3" x 4" glass slides - Bono_0193 to _0207.

Box 4 of 4

Series IX: Photographs (continued)

Folder 1 – Photographs - Bono_0001 to _0026.
Folder 2 – Photographs - Bono_0027 to _0050.
Folder 3 – Photographs - Bono 0051 to _0075.
Folder 4 – Photographs - Bono_0076 to _0100
Folder 5 – Photographs - Bono_0101 to _0126.
Folder 6 – Photographs - Bono_0127 to _0153.
Folder 7 – Photographs - Bono_0209 to 0216
Folder 8 – Three DVDs of Philip Bono photographs.

Series X: Slides

Folder 9 – Box, 9-3/4" x 12-3/4" x 3-1/2" of 380 Philip Bono presentation slides (mixed, with duplicates).