

## **Descriptive Finding Guide for the Wilhelm F. Schult Personal Papers SDASM.SC.10126**

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San Diego Air and Space Museum Library and Archives

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2001 Pan American Plaza, Balboa Park

San Diego 92101

URL: <http://www.sandiegoairandspace.org/>

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**Language of Material:** English

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

**Title:** Wilhelm F. Schult Personal Papers

**Identifier/Call Number:** SDASM.SC.10126

**Physical Description:** 1.25 Cubic Feet 2 boxes 6" X 18" X 10"

**Date (inclusive):** 1895-1979

**Abstract:** Wilhelm Schult was a designer and researcher at Ryan Aeronautical who, in the 1930s, began his own independent research into the flying wing aircraft design.

**Conditions Governing Access**

The collection is open to researchers by appointment.

**Conditions Governing Use**

Some copyright may be reserved. Consult with the library director for more information.

**Immediate Source of Acquisition**

The materials in this Collection were donated to the San Diego Air and Space Museum.

**Preferred Citation**

[Item], [Filing Unit], [Series Title], [Subgroups], [Record Group Title and Number], [Repository "San Diego Air & Space Museum Library & Archives"]

**Scope and Contents**

This collection consists of 2 boxes 6" X 18" X 10" containing drawings, calculations, photographs, and negatives. One folder in the collection is restricted for conservation reasons.

**Related Materials**

Northrop Grumman Subject Files

Horton Subject Files

**Biographical / Historical**

Wilhelm F. Schult was born in Winthrop, Massachusetts in 1895. He studied mathematics and engineering at Massachusetts Institute of Technology. In 1927, he moved to San Diego and began work for Ryan Aeronautical Company and other companies. In the 1930s, he began to do independent research in the design of flying wing aircraft. He built scale models and tested them in flight and in wind tunnels. This collection contains his research. He passed away in 1979 and was buried in Massachusetts.

 <https://www.flickr.com/photos/sdasmarchives/sets/72157649893139635>

**Subjects and Indexing Terms**

McDonnell Douglas aircraft

Flying Wing Airplanes

Northrop Grumman Corporation

Boeing Airplane Company

Wright Aeronautical Corporation

Schult, Wilhelm F.

Ryan Aeronautical Company

Lockheed Aircraft

Boeing Company

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**Box 01**

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#### **Folder 01 - Plans and Drawings**

**Physical Description:** 1. Booklet, Hartshorn Tie rods and Fittings (2 copies). 2. Pencil sketches, pursuit model. 3. Material list, model W800 parts. 4. Material list, all parts. 5. Drawings, sail plane, model S-1, Feb. 17, 1968. 6. Drawings, sail plane, model S-35. 7. Second copy, S-35. 8. American Standard nuts and bolts chart. 9. Fastener Diagrams. 10. Wing diagram, 132" chord. 11. Comparison Chart, ship vs. plane. 12. Magazine photo of "mystery," racer. 13. Development problems and trends bibliography. 14. Magazine photograph, Curtiss all metal pursuit plane. 15. Table of blade angles. 16. Biography, Wilhelm F. Shult. (2 copies) 17. Analysis of fuselage loading conditions. 18. Installation diagram, Curtiss Jupiter engine 19. Installation diagram, cowling Jupiter engine. 20. Valve timing diagram Jupiter engine. 21. Exhaust manifold, Jupiter engine. 22. Drawing model 28 six passenger transport Nov. 4, 1955. 23. Single place sail plane model S-34 Feb. 17, 1968 (2 copies). 24. Single place sail plane model S-34 Feb. 17, 1968 with pilot (2 copies) 25. Ryan flying boat. 26. Installation drawing, Wright R975 engine. 27. Bending diagram.

#### **Folder 02 - Photographs**

**Physical Description:** 1. 72 Photographs depicting flying wing models and other items.

#### **Folder 03 - Miscellaneous specifications and drawings**

**Physical Description:** 1. Boeing 707 specifications 2. Boeing 747 specifications. 3. Diagram, unidentified aircraft. 4. Articles, Aviation magazine, 1935- 1939. 5. Diagram target flying wing model S-30. 6. Diagram target flying wing model S-30 performance at various altitudes. 7. Diagram VSTOL flying wing tilt-wing type model S-32. 8. Performance diagram VSTOL flying wing S-32. 9. Diagram flying wing racer. 10. Wind tunnel test results. 11. Cards with mathematical equations. 12. Wind tunnel test results model S-26. 13. Midget recon wind tunnel test data. 14. 24 passenger flying wing Jan. 31, 1939. 15. Unknown drawing and performance statistics. 16. Drawings, flying wing interceptor Dec. 7, 1946. 17. Wind Tunnel results model S-25 Oct. 1, 1945. 18. Chord diagram, unknown aircraft. 19. Concept drawing, flying wing bomber. 20. Flying wing bomber, performance statistics. 21. Model XB368 performance specs and bomb layout. 22. Mean line calculations, 9 pages. 23. Chart of national logarithms. 24. Mean line diagram 25. Wing section, three views.

#### **Folder 04 - Single person sailplane drawing**

**Physical Description:** One (1) item. Restricted for conservation reasons.

#### **Folder 05 - Design and Stress Analysis of Model S-2**

**Physical Description:** One (1) book, Design and Stress Analysis of High Speed Low Wing Monoplane model S-2, by Wilhelm F. Schult, engineer, general specifications, performance and loading data, 82 pages.

#### **Folder 06 - Design and Stress Analysis of Model S-1**

**Physical Description:** One (1) book, Design and Stress Analysis of 5 Place High Wing Monoplane, model S-1, by Wilhelm F. Schult, engineer, loading weight and balance calculations, 73 pages.

#### **Folder 07 - Preliminary design of Flying Wing Pursuit**

**Physical Description:** One (1) book, Preliminary Design of Flying Wing Pursuit with Allison 1000 to 1600 H.P. model S-6, by Wilhelm F. Schult, engineer, descriptions and performance calculations, 19 pages

#### **Folder 08 - Photographic negatives of pursuit and other models**

**Box 02**

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#### **Folder 09 - Books and Magazine Articles**

**Physical Description:** 1. Concise Calculation Procedure for the Aeroelastic Problem. 8 pages. 2. By W. J. Gaugh and J. K. Slap. 3. Presentation, The Metalclad Airship by W. Fritsche , typed presentation, 34 pages. 4. Hand book of instructions for airplane designers, 25 pages. 5. Articles from Aviation Magazine from 1935 to 1939 in chronological order, "Engine Power Factor", editorials, article, "What Plane Shall we Take?" 6. Manual, M- 43.1, by Wilhelm Schult, aerodynamic calculations, 7 pages.

#### **Folder 10 - Miscellaneous Calculations and drawings**

**Physical Description:** 1. Article, "closure" 1 page. 2. Chassis details for Fokker D VIII, 1 page. 3. Development trends in rockets, 1 page. 4. Design drawings and calculations 5 pages. 5. Wing stress, 2 pages. 6. Pencil calculations, no aircraft identification. 7. Propeller calculations, 8 pages. 8. Air mail plane calculations, 1 page.

#### **Folder 11 - Additional blueprints and drawings**

**Physical Description:** 1. Airplane performance and design chart. 2. Installation diagram, Fowler flap wing. 3. Performance estimate for model S-12. 4. Schult XP 800 three view drawing S-5 April 1945. 5. Design drawing for pursuit or convoy escort, Feb. 6, 1935. 6. Propeller cross section for liberty engine. 7. Installation diagram, Curtiss OX 5 engine.

#### **Folder 12 - Design Schult XP800**

**Physical Description:** One (1) book, Preliminary Design and Stress Analysis of Schult XP 800 model S-5, by Wilhelm F. Schult, engineer, containing drawings and calculations, 24 pages.

#### **Folder 13 - Applied Transonic Aerodynamics**

**Physical Description:** 1. One (1) book, Applied Transonic Aerodynamics, by W.L. Koch, engineer, North American Aviation, outline of problems encountered in high speed flight, 73 pages. 2. One (1) book, Applied Transonic Aerodynamics, Wilhelm F. Schult, engineer, outline of problems encountered in high speed flight, 24 pages.

#### **Folder 14 - Principles of High Speed Flight**

**Physical Description:** One (1) book Principles of High Speed Flight, by H.M. Conway, Jr. Southeastern Research Institute, Atlanta, Georgia, aerodynamic studies and calculations, 48 pages.

#### **Folder 15 - Preliminary Design Pursuit**

**Physical Description:** One (1) book, Preliminary Design of Flying Wing Pursuit with Allison 2400 H.P. motor model S-11, By Wilhelm F. Schult, engineer, containing performance and general specifications, 34 pages.

#### **Folder 16 - Preliminary Design Heavy Bomber**

**Physical Description:** One (1) book, Preliminary Design of Heavy Bomber with 4 P & W Twin Wasp motors, 4000 H.P. model S-12, by Wilhelm F. Schult, engineer, performance and stability calculations, 42 pages.

#### **Folder 17 - Photograph of Wilhelm Schult flying wing models in display case**