Smithsonian
National Air and Space Museum

# NASA F-8 Supercritical Wing Collection

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1986


National Air and Space Museum Archives
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https://airandspace.si.edu/archives

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## Collection Overview

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| **Repository:** | National Air and Space Museum Archives |
| **Title:** | NASA F-8 Supercritical Wing Collection |
| **Date:** | 1964-1972 |
| **Identifier:** | NASM.XXXX.0104 |
| **Creator:** | National Aeronautics and Space Administration. Langley Research Center |
| **Extent:** | 5.85 Cubic feet (13 boxes) |
| **Language:** | English . |
| **Summary:** | The supercritical wing concept was developed by Dr. Richard T. Whitcomb of the NASA Langley Research Center in Hampton, Virginia. Whitcomb's airfoil was designed to delay formation of shock waves at high speeds. |

## Administrative Information

### Acquisition Information

NASA, gift, 1984, XXXX-0104, unknown

### Preferred Citation

NASA F-8 Supercritical Wing Collection, Acc. XXXX-0104, National Air and Space Museum, Smithsonian Institution.

### Restrictions

No restrictions on access

### Conditions Governing Use

Permissions Requests

## Biographical Note

Richard T. Whitcomb (1921- ) was born in Evanston, Illinois. His family later moved to Worcester, Massachusetts, where Whitcomb attended public schools. He received a B.S. degree in mechanical engineering from Worcester Polytechnic Institute in 1943. Following graduation he accepted a position with the National Advisory Committee for Aeronautics (NACA, the forerunner of NASA) at Langley Laboratories, Virginia. Whitcomb devoted much of his career to research in the problems of supersonic flight.

In the early 1950s Whitcomb discovered the transonic area rule concept. This rule amounts to a sensitive balance of fuselage and wing volume, which minimizes drag at transonic speeds. This concept was applied to post World War II fighters and resulted in operational military aircraft capable of supersonic flight.

Whitcomb earned international acclaim through his accomplishments with the area rule concept and the supercritical wing. Until his retirement from NASA he worked on aircraft energy efficiency and new winglet configurations.

## Historical Note

The supercritical wing concept was developed by Dr. Richard T. Whitcomb of the NASA Langley Research Center in Hampton, Virginia. Whitcomb's airfoil was designed to delay formation of shock waves at high speeds.

In comparison with conventional wing cross sections, the supercritical wing was flattened on top, delaying the formation of shock waves and moving them further aft along the wing to increase total wing efficiency. To compensate for the lift lost with the flattened wing top, the rear lower surface was shaped with a deeper, more concave curve. The Mach number (the speed of the aircraft calculated as a percentage of the speed of sound) at which the relative airflow reaches the speed of sound at some point on the airframe is called the critical Mach number. Below the critical Mach number the flow is said to be subcritical, and above the critical Mach number it is called supercritical. The initial wind tunnel tests of the supercritical wing indicated that the new airfoil shape could allow highly efficient flight near the speed of sound of approximately 660 mph at cruising altitudes.

Initial designs for the supercritical wing were produced in 1964. The development of the supercritical airfoils included three phases: slotted (1964-1966); integral (1967); and thickened trailing edge integral (1968-1969). Flight testing of the supercritical wing began in 1971 and ended in December 1972. A Ling-Temco-Vought (LTV) F-8 aircraft modified with the supercritical wing was used in these tests, making its first flight on 25 March 1955. The LTV F-8 was a single place land or carrier based supersonic aircraft equipped with radar to provide an all-weather capability. Its most unusual feature was the hydraulically operated variable incidence wing.

The blunt leading edge of the supercritical wing led to better takeoff, landing, and maneuvering characteristics. Subsonic transports, business jets, STOL (short takeoff and landing) aircraft, and remotely piloted vehicles made use of the supercritical wing technology, using less fuel and flying more efficiently than aircraft with conventional wings.

The F-8 Supercritical Wing Collection was received by the National Air and Space Museum in July 1984 from NASA's Langley Research Center. The collection was assembled originally by Dennis W. Bartlett Richard Whitcomb's colleague at Langley's 8-Foot Transonic Dynamics Tunnel. The material in the collection came from the offices and warehouses of the tunnel facility.

## Scope and Contents

This collection contains documents gathered from Langley Research Center on the development of the supercritical wing concept and the F-8 test bed program. The material primarily consists of notes and reports covering the wind tunnel development, flight testing, and evaluation of the concept. The collection also includes general and press information about the program.

## Series and Subseries Organization

The NASA F-8 Supercritical Wing Collection is divided into four series:

**Series 1 - Background Information**

The Background Information Series contains publicity material, articles, general information, and technical reports. The technical reports are then arranged chronologically.

**Series 2 - Wind Tunnel Testing**

Test reports of the Wind Tunnel Testing Series are arranged numerically, and reports are arranged alphabetically by folder title.

**Series 3 - Development and Flight Testing**

The Development and Flight Testing Series begins with work statements and requests for proposal (RFP) information. These are followed by notes arranged in chronological order. Developmental technical reports are in alphabetical order by folder title. The flight test reports are arranged chronologically. These reports are then followed by photographs.

**Series 4 - Evaluation of the Supercritical Wing**

Evaluation reports on the Supercritical Wing Series are in chronological order

## Names and Subject Terms

This collection is indexed in the online catalog of the Smithsonian Institution under the following terms:

Subjects:

Aerodynamics
Aerodynamics, Transonic
Airplanes -- Flight testing
Periodicals
Transonic wind tunnels
Vought F-8 (F8U) Crusader Family

Types of Materials:

Correspondence
Drawings
Manuscripts
Notes
Photographs
Publications
Reports

Names:

National Aeronautics and Space Administration. Langley Research Center
North American Aviation, Inc.
Whitcomb, Richard, 1921-

## Container Listing

### Series 1: Background Information, 1953-1971

Language: English.
Scope and Contents: General information about the supercritical wing and the LTV F-8 aircraft are covered in this series. The time span for this information is 1953-1971.
Arrangement: The technical reports are arranged chronologically.

| | |
|---|---|
| Box 1, Folder 1 | Supercritical Wing Publicity Information, 1969-1971 (1 of 2) |
| Box 1, Folder 2 | Supercritical Wing Publicity Information, 1969-1971 (2 of 2) |
| Box 1, Folder 3 | "The Chance Vought F-8A-E Crusader" -- article by Gerhard Joos, undated |
| Box 1, Folder 4 | "There's No Substitute for Flight-Testing" -- article by J. S. Butz, Feb. 1969 |
| Box 1, Folder 5 | F-8 Supercritical Wing General Information, undated |
| Box 1, Folder 6 | Boundary Layer Trip; F-8 calculations, undated |
| Box 1, Folder 7 | NATOPS F-8 Flight Manual, 15 August 1964 |
| Box 1, Folder 8 | Supercritical Wing Work Statements, 1967-1968 |
| Box 1, Folder 9 | NASA Supercritical Wing Presentation, March 1969 |
| Box 1, Folder 10 | Supercritical Wing Proposal, U.S. Navy, July 10, 1969 |
| Box 1, Folder 11 | Supercritical Wing Status Review, August 1969 |
| Box 1, Folder 12 | Supercritical Wing Progress Report, including photographs & drawings, 1969 |

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## Series 2: Wind Tunnel Testing, 1969-1971

Language: English.
Scope and Contents: Wind tunnel tests of the supercritical wing were conducting from 1969-1971. The series includes charts, data, notes, and photographs from these tests.
Arrangement: Test reports of the Wind Tunnel Testing Series are arranged numerically, and reports are arranged alphabetically by folder title.

| | |
|---|---|
| Box 2, Folder 1 | Test 27 - F-8 supercritical wing low turbulence pressure tunnel. Test 497 - F-8 8-foot probe, undated |
| Box 2, Folder 2 | Test 240 - Plots of mass flow of F-8 model in 16-foot wind tunnel, undated |
| Box 2, Folder 3 | Test 240 - Phase III for an F-8 model in a 16-foot wind tunnel measuring A1 control wing and high speed fuselage, undated |
| Box 2, Folder 4 | Tests 240 and 480 - Comparison of slots data for phase I of an F-8 model in both 8-foot and 16-foot wind tunnels, undated |
| Box 2, Folder 5 | Test 475 - Preliminary data, undated |
| Box 2, Folder 6 | Tests 475 and 480 - F-8 supercritical wing oil flow photographs, undated |
| Box 2, Folder 7 | Test 480 - Data, plots, and notes of wing-fuselage sections after 8-foot transonic pressure tunnel test, undated |
| Box 2, Folder 8 | Tests 480 and 492 - F-8 supercritical wing oil flow photographs, undated |
| Box 2, Folder 9 | Test 488 - F-8 supercritical wing test of side bodies, undated |
| Box 2, Folder 10 | Tests 488 and 492 - Preliminary data, undated |
| Box 2, Folder 11 | Tests 488, 492, and 514 - Drag-rise comparison plots with wide slots, undated |
| Box 2, Folder 12 | Test 492 -- Data, undated |
| Box 2, Folder 13 | Test 492 - F-8 drag due to lift factor vs. Mach number, plots and notes, undated |
| Box 2, Folder 14 | Test 493 - F-8 supercritical wing test, data for trim coefficient drag and coefficient lift, undated |
| Box 2, Folder 15 | Test 493 - Preliminary plots, undated |
| Box 2, Folder 16 | Test 497 - 1/11.5-scale F-8 Test; Mach probe position error calibration, undated |
| Box 2, Folder 17 | Tests 506 and 541 - Data of NASA Ames test 11-506 compared with 8-foot wind tunnel test 541, undated |

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| Box 2, Folder 18 | Test 512 - Static pressure wing test of F-8 supercritical wing in 8-foot wind tunnel, undated |
| Box 2, Folder 19 | Test 514 - Steel wing fence and transition investigation, undated |
| Box 2, Folder 20 | Tests 514 and 515 - Plots of Reynolds number effects on F-8 aluminum and steel wings, undated |
| Box 2, Folder 21 | Test 515 - Plots, drawings, and notes of F-8 control test, undated |
| Box 2, Folder 22 | Test 515 - Charts and notes, undated |
| Box 2, Folder 23 | Test 515 - Data and plots, undated |
| Box 3, Folder 1 | Test 515 - Beta derivatives by Dennis Bartlett, undated |
| Box 3, Folder 2 | Test 522 - 1/11..5-scale F-8 model test of the landing gear and speed brake, undated |
| Box 3, Folder 3 | Test 522 - F-8 supercritical wing speed brake test; notes and drawings, undated |
| Box 3, Folder 4 | Test 523 - F-8 supercritical wing vertical tail mounted body of revolution, undated |
| Box 3, Folder 5 | Tests 523 and 526 - Comparison plots of final data, undated |
| Box 3, Folder 6 | Tests 523 and 526 - Fuselage side fairings; Photograph, drawing, notes, and plots, undated |
| Box 3, Folder 7 | Tests 523 and 526 - Performance data of sting cross-sectional, F-8 cross-sectional with side fairings, and vertical-tail body of revolution, undated |
| Box 3, Folder 8 | Test 523 and 532 - Test 523 on line of fuselage side fairings-vertical tail mounted on body, undated |
| Box 3, Folder 9 | Test 532 - Plots and notes on the F-8 area distrubtion from Atkins and Merrel using 1/11.5 mylars for fuselage additions, undated |
| Box 3, Folder 10 | Test 532 - Comparison plots of F-8 test final data, undated |
| Box 3, Folder 11 | Tests 532, 536, and 541 - Notes and comparison of F-8 tests, undated |
| Box 3, Folder 12 | Test 536 - Final plots, undated |
| Box 3, Folder 13 | Tests 536 and 541 - Drag-rise plots for test 541 with configuration 217 and computations and configurations 216 and 213 from test 536, undated |
| Box 3, Folder 14 | Test 541 - Preliminary plots, undated |

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| Box 3, Folder 15 | Test 541 - Fuselage pressure data, undated |
| Box 3, Folder 16 | Tests 541 and 600 - F-8 supercritical wing fuselage side fairing report of section-lift curves, undated |
| Box 3, Folder 17 | Test 565 - test plots, undated |
| Box 3, Folder 18 | Test 579 - Drag-rise plots, undated |
| Box 3, Folder 19 | Test 579 - F-8 buffet data, undated |
| Box 3, Folder 20 | Test 579 - 1/11.5-scale F-8 supercritical wing test: mass-flow, side fairings off and on, and buffet for TmX-2633 and TmX-2471, undated |
| Box 3, Folder 21 | Test 583 - F-8 supercritical wing side fairing orifice locations. Drawings and plots., undated |
| Box 3, Folder 22 | Test 600 - Wind tunnel trim curves comparison with flight data, undated |
| Box 3, Folder 23 | Test 600 - F-8 Supercritical wing test: tunnel wall insert notes, boundary layer trip arrangement drawings, charts, run instructions, shift notes, and angle of attack channel 46 Endevco, undated |
| Box 3, Folder 24 | Test 600 - F-8 flight tunnel computations, undated |
| Box 3, Folder 25 | Test 602 - F-8 supercritical wing test charts, undated |
| Box 3, Folder 26 | Test 602 - Plots and data of test of the F-8 (1/16- scale) model, undated |
| Box 3, Folder 27 | Test 602 - 1/16-scale F-8 tests: data, charts, run instructions, shift notes, and transition arrangements, undated |
| Box 4, Folder 1 | Test 603 - 1/11.5-scale F-8 test: angle of attack instrumentation and Finley Boeing laser interferometer, undated |
| Box 4, Folder 2 | Test 603 - Data, undated |
| Box 4, Folder 3 | Test 611 - Test of the boundary layer of the F-8 (1/11.5-scale) model, undated |
| Box 4, Folder 4 | Test 612 - Dynamic pressure data of test in an 8-foot wind tunnel of an F-8 (1/11.5-scale) model, undated |
| Box 4, Folder 5 | Test 612 F-8 supercritical wing test: charts, undated |
| Box 4, Folder 6 | Tests 612 and 613 - 1/11.5-scale F-8 tests, undated |
| Box 4, Folder 7 | Tests 612 and 621 - Notes and comparison plots for group I of tests 621 and 612. Also includes AIAA paper #72-1008, "Transonic Wall Interference Effect on Bodies of Revolution" by Lana Couch, undated |

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| Box 4, Folder 8 | Tests 612 and 621 - Comparison plots. Test 612: 1/11.5-scale F-8. Test 621: 1/16-scale F-8., undated |
| Box 4, Folder 9 | Tests 612 and 621 - Data of F-8 scale effects, undated |
| Box 4, Folder 10 | Test 613 - Drawings, notes, and data of test of the wing tip spline on the F-8 (1/11.5- scale) model in an 8-foot wind tunnel, undated |
| Box 4, Folder 11 | Test 615 - Notes, drawings, and data of test of F-8 tip mounted flow nacelles and plots for F-8 (1/16-scale) model wing tip nacelles, undated |
| Box 4, Folder 12 | Test 615 - 1/16-scale F-8 test: test plots, undated |
| Box 4, Folder 13 | Test 621 - 1/16-scale F-8 Test: Reynolds number and dynamic pressure effects, undated |
| Box 4, Folder 14 | Test 621 - Trailing edge truncation report - notes and plots, undated |
| Box 4, Folder 15 | Test 621 - Plots (trailing edge modification) using F-8 (1/16-scale) model, undated |
| Box 4, Folder 16 | Test 621 - F-8 (1/16-scale) model plotting instructions of inlet and exit areas. Duct dimensions and orifice location are included. Notes and drawings., undated |
| Box 4, Folder 17 | Tests 621 and 622 - 1/16-scale F-8 tests; Test 621: trailing edge truncation data. Test 622: mass flow data., undated |
| Box 4, Folder 18 | Test 634 - Test plots - upper surface modifications using F-8 (1/16-scale) model, undated |
| Box 4, Folder 19 | Test III - Notes and drawings of F-8 supercritical wing 1/11.5-scale model and full-scale aircraft test, undated |
| Box 5, Folder 1 | F-8 Area Distribution - Drawings and plots from cordax., undated |
| Box 5, Folder 2 | F-8 Area Distribution - Basic F-8 and supercritical wing F-8 area distribution; drawings, undated |
| Box 5, Folder 3 | F-8 Area Distribution - Ideal F-8 area distribution with/without fuselage side fairings, undated |
| Box 5, Folder 4 | F-8 Area Calculations - F-8 distribution and finest ratio calculations of area due to lift, undated |
| Box 5, Folder 5 | F-8 Charts - 1/16-scale F-8 side fairing template charts, undated |
| Box 5, Folder 6 | F-8 Coordinates - Cape and glove intersection, rear fuselage intersection; charts and printouts, undated |

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| Box 5, Folder 7 | F-8 Duct Skin - friction calculations, undated |
| Box 5, Folder 8 | F-8 Inlet and Exit - Drawings and notes of inlet and exit areas base pressure corrections, undated |
| Box 5, Folder 9 | F-8 Ordinates - North American Rockwell F-8 ordinates, undated |
| Box 5, Folder 10 | F-8 Performance Information - takeoff and landing angles, mass-flow data, attach point strength, aircraft positions, cowl shape, drag correlation, and roll tail estimate, undated |
| Box 5, Folder 11 | F-8 Rake - Experiment with model and full scale; includes notes and drawings, undated |
| Box 5, Folder 12 | F-8 Rake and Pressure Measurements - report "Supercritical Wing Pressure Distribution" by Lawrence C. Montoya; notes and full-scale drawing of the wake survey rake for the F-8 supercritical wing, undated |
| Box 5, Folder 13 | F-8 Supercritical Wing Drag Values - full scale drag values using 8-foot transonic pressure tunnel results, undated |
| Box 5, Folder 14 | F-8 Supercritical Wing Fuselage Coordinates - coordinates with side fairings and base parachute fairing; vertical reference is model water line 10.317, undated |
| Box 5, Folder 15 | F-8 Supercritical Wing Rear Fairings - notes, plots, and data before test 512, undated |
| Box 5, Folder 16 | F-8 Supercritical Wing-I Static Twist - thickness distribution data, undated |
| Box 5, Folder 17 | F-8 Supercritical Wing-I Streamwise Coordinates - North American Rockwell resolved steamwise coordinates: F-8 supercritical wing-I full scale, undated |
| Box 5, Folder 18 | F-8 Supercritical Wing Model Aerodynamic Derivatives - 1/11-scale model; derivatives of Langley Research Center wind tunnel test, undated |
| Box 5, Folder 19 | F-8 Supercritical Wing Wetted Area - Calculation of wetted area on F-8 supercritical wing; Three-view drawing of the F-8 and notes included, undated |
| Box 5, Folder 20 | TF-8 Supercritical Wing Model Coordinates, undated |
| Box 6, Folder 1 | TF-8 Supercritical Wing Fuselage Coordinates - taken after 8-foot wind tunnel test 541. Vertical reference is model water line 10.317, undated |
| Box 6, Folder 2 | TF-8 Supercritical Wing Fuselage Coordinates - high speed front and rear side fairings, undated |
| Box 6, Folder 3 | F-8 Wind Tunnel Test Photographs - NASA Ames Research Center, undated |

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| Box 6, Folder 4 | F-8 Wing Deflection - calculations; charts, computer printouts, notes, undated |
| Box 6, Folder 5 | Langley Simulator - studies note, undated |
| Box 6, Folder 6 | Lift Interference - Notes and computer printouts, undated |
| Box 6, Folder 7 | Non-Dimensional Streamwise Coordinates, undated |
| Box 6, Folder 8 | Oil Flows - photographs of 1/16-scale F-8 supercritical wing oil flows, undated |
| Box 6, Folder 9 | Original Wing Ordinates - Langely wing planform 802; 1/11.5-scale drawing of the wing planform of the F-8 supercritical wing included, undated |
| Box 6, Folder 10 | Protuberances - drawings of protuberances on the F-8 supercritical wing, undated |
| Box 6, Folder 11 | Reference Dimensions - North American Rockwell reference notes, undated |
| Box 6, Folder 12 | Streamwise F-8 Wing Coordinates - supercritical wing-I resolved coordinates and steel wing streamwise cordax coordinates, undated |
| Box 6, Folder 13 | Supercritical Wing Deflection - calculations and drawings, undated |
| Box 6, Folder 14 | Wing Cross Sectional Area - fuselage station 27 outboard from North American Rockwell steamwise coordinates; includes computer printouts and charts, undated |

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# Series 3: Development and Flight Testing

Language: English.

Scope and Contents: Flight tests of the supercritical wing were needed to confirm the wind tunnel results. The flight tests began in March 1971 and ended in December 1972. Photographs and technical reports are included in this series.

Arrangement: The Development and Flight Testing Series begins with work statements and requests for proposal (RFP) information. These are followed by notes arranged in chronological order. Development technical reports are in alphabetical order by folder title. The flight test reports are arranged chronologically. These reports are then followed by photographs.

| | |
|---|---|
| Box 7, Folder 1 | Work Statement - for installation of a supercritical wing and wide-body junction on a TF-8A aircraft; includes many drawings, undated |
| Box 7, Folder 2 | Work Statement - negotiated work statement concerning F-8 supercritical wing, undated |
| Box 7, Folder 3 | Work Statement -- review of work statements on supercritical wing, undated |
| Box 7, Folder 4 | Final Work Statements - memos, final work statements, and comments on negotiations between NASA and LTV on F-8 supercritical wing program, undated |
| Box 7, Folder 5 | LTV Original Proposal and NASA's Informal Statements, undated |
| Box 7, Folder 6 | Request for Proposal - issued 20 February 1969, 20 February 1969 |
| Box 7, Folder 7 | Comments about the Request for Proposal, undated |
| Box 7, Folder 8 | November 1967 Notes - notes of presentation given on 20 November 1967 for supercritical wing program review, 20 November 1967 |
| Box 7, Folder 9 | Visit Summaries (1968-1969), 1968-1969 |
| Box 8, Folder 1 | Notes: 1968-1971, 1968-1971 |
| Box 8, Folder 2 | NASA Trip to Edwards AFB, April 1970 |
| Box 8, Folder 3 | Notes - May 1970; includes "Supercritical Wing Pressure Distribution" paper by Lawrence C. Montoya, May 1970 |
| Box 8, Folder 4 | Notes - July and October 1970 - collected data on F-8 Supercritical wing about stability/control and handling characteristics, October 1970, July 1970 |
| Box 8, Folder 5 | Correspondence with Edwards Air Force Base, 1971 |
| Box 8, Folder 6 | Data of F-8 area distributions, undated |

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| Box 8, Folder 7 | Construction Tolerances - aircraft construction tolerance information, drawings, and reports, undated |
| Box 8, Folder 8 | Layout of coordinates for supercritical wing on F-8, undated |
| Box 8, Folder 9 | Data comparison of 8-foot and 16-foot wind tunnel tests, undated |
| Box 8, Folder 10 | Data Transmittals - F-8 supercritical wing data transmittals from Flight Research Center, undated |
| Box 8, Folder 11 | Data Transmittals - F-8 supercritical wing data transmittals to Flight Research Center, undated |
| Box 9, Folder 1 | F-8 Supercritical wing day notes, undated |
| Box 9, Folder 2 | Drawings - General arrangement drawings of XF8U-1, undated |
| Box 9, Folder 3 | F-8 Analysis, undated |
| Box 9, Folder 4 | F-8 Boundary Layer Data, undated |
| Box 9, Folder 5 | F-8 Buffet Data, undated |
| Box 9, Folder 6 | F-8 Notes - includes 621 data; papers "Aerodynamic smoothness" by John P. Morris, "Scale Effect Studies of Airfoil Profile Drag at High Subsonic Speed" by Dezso George-Falvy and "Review of Drag Measurements from Flight Tests of Manned Aircraft with Comparisons to Wind-Tunnel Predictions" by Jon S. Pyle and Edwin J. Saltzman, undated |
| Box 9, Folder 7 | Final contract for F-8 supercritical wing, undated |
| Box 9, Folder 8 | Flight Program Notes, undated |
| Box 10, Folder 1 | Flutter Analysis Reports and Memos, undated |
| Box 10, Folder 2 | Flutter Notes, undated |
| Box 10, Folder 3 | Fuselage Side Fairings Information, undated |
| Box 10, Folder 4 | F-8 Fuselage Sections Drawings, undated |
| Box 10, Folder 5 | Fuselage Side Additions, undated |
| Box 10, Folder 6 | General Calculations for F-8 Supercritical Wing, undated |
| Box 10, Folder 7 | F-8 Supercritical Wing Load Tests, undated |
| Box 10, Folder 8 | Logs - F-8 configuration logs data, undated |

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| Box 10, Folder 9 | F-8 Model Tests Configuration Logs - data, undated |
| Box 10, Folder 10 | Narrative - NASA F-8 project record narrative, undated |
| Box 10, Folder 11 | Ordinates - F-8 supercritical wing final wing ordinates and planform, undated |
| Box 10, Folder 12 | Ordinates - F-8 supercritical wing ordinates from North American Rockwell, undated |
| Box 11, Folder 1 | Ordinates - F-8 supercritical wing ordinates from North American Rockwell, undated |
| Box 11, Folder 2 | Planform - Supercritical wing planform, undated |
| Box 11, Folder 3 | Pratt and Whitney J57P4 Engine Data, undated |
| Box 11, Folder 4 | Schedules - F-8 supercritical wing schedules, undated |
| Box 11, Folder 5 | Tunnel and Flight Data, undated |
| Box 11, Folder 6 | Wing - wing sections, phase 1, undated |
| Box 11, Folder 7 | Wing - wing sections, phase 2, undated |
| Box 11, Folder 8 | Wing - wing sections, phase 3; includes drawings, notes, and plots, undated |
| Box 11, Folder 9 | Wing Glove - ordinates of the F-8 supercritical wing, August 27, 1969 |
| Box 11, Folder 10 | Supercritical Wing Flight Test Program - comments, memoir and notes covering proposed supercritical wing flight test program, undated |
| Box 11, Folder 11 | Flights 33-40 - preliminary data for flights 33-40, supercritical wing 1-8, undated |
| Box 11, Folder 12 | Flights 33-40 - flight test information phase 1, flights 33-40. Narrative of first flight of the F-8 supercritical wing on 9 March 1971 included, undated |
| Box 11, Folder 13 | Flights 41-59 - F-8 supercritical wing flight test data for phase 2, flights 41-59, undated |
| Box 12, Folder 1 | Flights 60-80 - F-8 supercritical wing flight test data for phase 3, flight 60-80. Flight notes, flight requests, initial schedules, and flight plans included, undated |
| Box 12, Folder 2 | Flights 81-102 - F-8 supercritical wing flight test data for phase 4, flights 81-102, undated |
| Box 12, Folder 3 | 29 February 1972 Symposium, 29 February 1972. Includes three papers by Richard T. Whitcomb: "The NASA Supercritical Airfoil and Its Application to Swept Wings", "Comments on Wind-Tunnel: Flight Correlations for the F-8 |

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| | Supercritical Wing Configuration", and "Evolution of the F-8 Supercritical Wing Configuration", 29 February 1972 |
| Box 12, Folder 4 | Flight Test Data, December 1971- January 1972 |
| Box 12, Folder 5 | Report NA-69-220, Vol. 1 -- "Technical Proposal for Design. Fabrication. and Installation of a Supercritical Wing and Wing-Body Junction on a TF-8 Aircraft", vol. 1, undated |
| Box 12, Folder 6 | Report NA-69-220, Vol. 2 -- "Business Management Proposal for Design, Fabrication and Installation of a Supercritical Wing and Wing-Body Junction on a TF-8 Aircraft", vol. 2, undated |
| Box 12, Folder 7 | Rockwell Correspondence, undated |
| Box 12, Folder 8 | F-8 Model Photos - supercritical wing after test 480, undated |
| Box 13, Folder 1 | F-8 Model Photos and Drawings, undated |
| Box 13, Folder 2 | F-8 Model Photos - Model photos of F-8 with supercritical wing, phase 3, undated |
| Box 13, Folder 3 | F-8 Supercritical Wing Aircraft 1 and Model 1 Photographs, undated |
| Box 13, Folder 4 | F-8 Supercritical Wing Aircraft with Fairings Photographs, undated |
| Box 13, Folder 5 | F-8 Supercritical Wing Model 2 Final Configuration photographs, undated |
| Box 13, Folder 6 | F-8 Supercritical Wing Model 1 Final Configuration Photographs, undated |
| Box 13, Folder 7 | North American Rockwell Supercritical Wing Construction Photographs and 5 Black and White Negatives, undated |
| Box 13, Folder 8 | F-8 Supercritical Wing AIAA Model Photographs, undated |

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# Series 4: Evaluation of the Supercritical Wing

Language: English.
Scope and Contents: Evaluation of the supercritical wing program showed that the design was highly successful. Flight test reports are included in this series.
Arrangement: Evaluation reports on the Supercritical Wing Series are in chronological order

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|---|---|
| Box 13, Folder 9 | Source Evaluation Board - notes, memos, manuals, undated |
| Box 13, Folder 10 | Summary of F-8 Supercritical Wing Tests, undated |
| Box 13, Folder 11 | "Preliminary Evaluation of the Handling Qualities of the Supercritical Wing/F-8 Aircraft" - report, undated |
| Box 13, Folder 12 | "Preliminary Lift and Drag Results for a Flight Vehicle with a Supercritical Wing", February 1972 by Jon S. Pyle, February 1972 |
| Box 13, Folder 13 | Four F-8 Supercritical Wing Reports"Evolution of the F-8 Supercritical Wing Configuration" by Thomas C. Kelly and Dr. Richard T. Whitcomb, "Piloting and Operational Aspects" by T.C. McMurtry, "The Supercritical Wing Buffet Characteristics" by V.M. DeAngelis, and "'F-8 Supercritical Wing Pressure Evaluation" by Lawrence C. Montoya and Richard D. Banner, undated |

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