Richard T. Whitcomb Collection

ABSTRACT:
This collection contains papers and articles by and about Richard T. Whitcomb, NASA engineer who invented the Area Rule, Supercritical Wing and Winglets, all designed for planes to use less fuel and fly faster. The collection also includes many awards given to Dr. Whitcomb, including the National Medal of Science.

BIOGRAPHICAL HISTORY

Richard T. Whitcomb was born in 1921 in Evanston, Illinois. His family moved to Worcester when he was young. As a boy, he made model airplanes and won contest awards.

He graduated from Worcester Polytechnic Institute in 1943 with a bachelor's degree in Mechanical Engineering and a concentration in Aeronautics.

SCOPE AND CONTENT:
Most of the collection relates to Richard Whitcomb's career with NACA (National Advisory Committee for Aeronautics) and NASA (National Aeronautics and Space Administration) and spans the years from 1954 to 1980.

The materials are organized in series: Early Achievements; NASA work and career, including papers by Richard Whitcomb; Patents and Patent-related materials; Correspondence; Awards; Articles and reports by others; Articles with reference to Richard Whitcomb; News articles about Whitcomb and his achievements; Reference books; Photographs; Trophies; Mementos; Academic Robes.

Container List

<table>
<thead>
<tr>
<th>Container</th>
<th>Folder</th>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Series I Early Achievements

Container List

<table>
<thead>
<tr>
<th>Container</th>
<th>Folder</th>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Box 1</td>
<td>Folder 1</td>
<td>c. 1936</td>
<td>Model airplanes, articles and stationary</td>
</tr>
<tr>
<td>Box 1</td>
<td>Folder 2</td>
<td>1939</td>
<td>Diploma, North High School</td>
</tr>
<tr>
<td>Box 1</td>
<td>Folder 3</td>
<td>1943, 1956</td>
<td>Diplomas, WPI Bachelor of Science, Honorary Doctor of Engineering</td>
</tr>
<tr>
<td>Container</td>
<td>Folder</td>
<td>Date</td>
<td>Title</td>
</tr>
<tr>
<td>----------</td>
<td>--------</td>
<td>------------</td>
<td>----------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Box 1    | Folder 5 | June 25, 1952 | Memorandum
"A Study of the Flow over a 45 degree Sweptback Wing-Fuselage Combination at Transonic Mach Numbers," by Richard T. Whitcomb and Thomas C. Kelly, National Advisory Committee for Aeronautics |
| Box 1    | Folder 6 | Sept. 3, 1953  | Memorandum
"Recent Results Pertaining to the Application of the Area Rule," by Richard T. Whitcomb, National Advisory Committee for Aeronautics (NACA) |
| Box 1    | Folder 7 | 1956       | Report
| Box 1    | Folder 8 | 1960       | Technical Report
"A Supersonic Area Rule and an Application to the Design of a Wing Body Combination with High Lift-Drag Rations," by Richard T. Whitcomb and John P. Sevier, Jr. - NASA |
| Box 1    | Folder 9 | n.d., c. 1960s | Papers
| Box 1    | Folder 10 | Feb. 29, 1972 | Symposium Report
Supercritical Wing Technology - A Progress Report on Flight Evaluations, with 2 papers by Richard T. Whitcomb |
| Box 1    | Folder 11 | July 1976 | NASA Technical Note
"A Design Approach and Selected Wind-Tunnel Results at High Subsonic Speeds for Wing-tip Mounted Winglets," by Richard T. Whitcomb |
| Box 1    | Folder 12 | Nov. 14, 1994 | Lecture
| Box 1    | Folder 13 | Nov. 30, 2005 | Oral history interview
Interview re. history of NASA, with Richard Whitcomb, by Robert Ferguson |
| Box 2    | Folder 1 | February 1980 | Album 1
Richard Whitcomb's retirement from Langley Research Center |
| Box 2    | Folder 2 | February 1980 | Album 2
Richard Whitcomb's retirement from Langley Research Center |
| Box 2    | Folder 3 | February 1980 | Guest signatures
Richard Whitcomb's retirement from Langley Research Center |
Series III Patents and Patent-Related Material

<table>
<thead>
<tr>
<th>Container List</th>
<th>Folder</th>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
</table>
| Box 2          | Folder 4 | July 8, 1958 | Patent
Apparatus for Reducing Exhaust Gas Pressure in Internal Combustion Engines |
| Box 2          | Folder 5 | February 24, 1959 | Patent
Fuselage Shaping to Reduce the Strength of Shock Waves about Airplanes at Transonic and Supersonic Speeds |
| Box 2          | Folder 6 | August 4, 1959 | Patent
Fuselage Shaping to Reduce the Strength of the Initial Shock Wave on Lifting Airplane Wings |
| Box 2          | Folder 7 | January 3, 1961 | Patent
Boundary-Layer Control Means for Lifting Wings |
| Box 2          | Folder 8 | April 27, 1976 | Patent
Airfoil Shape for Flight at Subsonic Speeds |
| Box 2          | Folder 9 | 1970 | Legal Case, U. S. Court of Appeals
Law suit for Patent Infringement, General Dynamics Corp. & American Airlines v. Richard T. Whitcomb |
| Box 2          | Folder 10 | 1971 | Legal Case - Petition to Supreme Court
Richard T. Whitcomb v. General Dynamics Corp. & American Airlines |

Series IV Correspondence

<table>
<thead>
<tr>
<th>Container List</th>
<th>Folder</th>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Box 3</td>
<td>Folder 1</td>
<td>1954-2005</td>
<td>Miscellaneous Correspondence</td>
</tr>
<tr>
<td>Box 3</td>
<td>Folder 2</td>
<td>1974-2007</td>
<td>Correspondence from WPI</td>
</tr>
</tbody>
</table>

Series V Awards

<table>
<thead>
<tr>
<th>Container List</th>
<th>Folder</th>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Box 3</td>
<td>Folder 3</td>
<td>1954</td>
<td>The Collier Trophy documentation, literature, articles</td>
</tr>
<tr>
<td>Box 3</td>
<td>Folder 4</td>
<td>1956</td>
<td>WPI Honorary Degree - articles about</td>
</tr>
</tbody>
</table>
Distinguished Service Medal from NACA (National Advisory Committee for Aeronautics) - articles about

U. S. Junior Chamber of Commerce - The Ten Outstanding Men of 1956 - articles about award

Sylvanus Albert Reed Award, American Institute of Aeronautics and Astronautics - correspondence, program, articles

October 10, 1973
National Medal of Science - program, correspondence, articles

Wright Brothers Memorial Trophy, National Aeronautic Association - correspondence, program, article

Aircraft Design Award, American Institute of Aeronautics and Astronautics, for Supercritical Wing - correspondence

H. J. E. Reid Award, NASA Langley Research Center - for Outstanding Paper - "A Design Approach and Selected Wind-Tunnel Results at High Subsonic Speeds for Wing-Tip Mounted Winglets"

Honorary Doctor of Science Degree, Old Dominion University - correspondence, article

NASA Lifetime Achievement Award - program, correspondence, article

National Academy of Sciences Award in Aeronautical Engineering - award, articles

Smithsonian National Aviation and Space Exploration Wall of Honor - correspondence, certificate

Induction into the National Inventors Hall of Fame, Akron, Ohio - inductee summaries, published interview, correspondence

20"X23" framed

WPI Honorary Degree

Doctor of Engineering

21 1/4"X25 1/2" framed - October 10, 1973
National Medal of Science

17 1/2"X20 1/2" framed - Quantity 2
Daniel Guggenheim Medal

16 1/2"X20 1/2" framed
National Air and Space Museum Trophy

For Outstanding Achievements in Aerospace Technology
### Series VI Articles and reports by others

<table>
<thead>
<tr>
<th>Container</th>
<th>Folder</th>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Box 3</td>
<td>Folder 17</td>
<td>1936 &amp; 1940</td>
<td>Paper - &quot;Liquid Propellant Rocket Development,&quot; by Robert H. Goddard, 1936; Astronautics, Journal of the American Rocket Society, 1940</td>
</tr>
<tr>
<td>Box 3</td>
<td>Folder 18</td>
<td>February 27, 1941</td>
<td>Memorandum - &quot;Tests of a Stern Propeller on a 1/40 scale model of the Airship 'Akron' in the 19-foot pressure tunnel,&quot; by James McHugh and R. H. Neeley</td>
</tr>
<tr>
<td>Box 4</td>
<td>Folder 1</td>
<td>January 24, 1961</td>
<td>Design Information Memorandum - &quot;Boundary Layer Ingestion,&quot; by H. D. Sowers, General Electric Co.</td>
</tr>
<tr>
<td>Box 4</td>
<td>Folder 2</td>
<td>June 20, 1963</td>
<td>Report - &quot;Tests on a Rear Inlet Model 1:5 in the Standard Wind Tunnel of the DFL Braunschweig from 4/1/63-4/28/63</td>
</tr>
<tr>
<td>Box 4</td>
<td>Folder 3</td>
<td>2002, 2003</td>
<td>NASA Reports</td>
</tr>
</tbody>
</table>

### Series VII Articles, papers about Richard Whitcomb/his achievements

<table>
<thead>
<tr>
<th>Container</th>
<th>Folder</th>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
</table>
Box 4  Folder 6  January 1976


Box 4  Folder 7  1995

*Article [printed from Internet]* - "NACA and the 'Century Series’" [references to Richard Whitcomb, p. 1 of 4, p. 1 of 7]

Box 4  Folder 8  July 2002

*Article about Richard Whitcomb - "The Man Who Could See Air,“ in Air & Space Smithsonian*

Box 4  Folder 9  2003

*NASA Publication - From Research to Relevance - Significant Achievements in Aeronautical Research at Langley Research Center (1917-2002), by Mark A. Chambers [see pp. 6, 13]*

Box 4  Folder 10  1955-c. 1980

*News articles - Area Rule*

Box 4  Folder 11  1969-1978

*News articles - Supercritical Wing/Airfoil*

Box 4  Folder 12  1977

*News articles - Winglets*

Box 4  Folder 13  c. 1960s-2000s

*News articles - general*

Box 4  Folder 14  1980

*News articles upon Richard Whitcomb's retirement from NASA*

---

**Series VIII Books**

**MS 52_008**  Papers, Personal

<table>
<thead>
<tr>
<th>Container</th>
<th>Folder</th>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Box 4</td>
<td>Folder 15</td>
<td>1914, 1937</td>
<td>Books of tables, for reference</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><em>A Short Table of Integrals, compiled by B. O. Peirce; Logarithmic and Trigonometric Tables</em></td>
</tr>
<tr>
<td>Box 4</td>
<td>Folder 16</td>
<td>1993, 2003</td>
<td>2 books re. awards</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><em>Daniel Guggenheim - The Man and His Medal 1929-1993; Inductees of the National Inventors Hall of Fame</em></td>
</tr>
</tbody>
</table>

---

**Series IX Photographs**

**MS 52_009**  Papers, Personal

<table>
<thead>
<tr>
<th>Container</th>
<th>Folder</th>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Box 5</td>
<td>Folder 1</td>
<td>c. 1940s-2000s</td>
<td><em>Portrait photographs of Richard Whitcomb</em></td>
</tr>
</tbody>
</table>
Photographs that were with retirement albums, including portraits, trophies, other

Collier Trophy

October 10, 1973

National Medal of Science

Wright Brothers Trophy

Henry I. E. Reid Award

Richard Whitcomb at work, groups, planes, models

Photographs - various [many are snapshots]

Snapshots and 2 negatives of Richard Whitcomb - Area Rule

Slides - NASA Supercritical Airfoil

Slides - NASA Supercritical Airfoil

Photographs on Tiles

Photographs on tiles

---

Series X Trophies and Medals

Papers, Personal

MS 52_010

<table>
<thead>
<tr>
<th>Container</th>
<th>Folder</th>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cabinet</td>
<td>T1</td>
<td>1954</td>
<td>Collier Trophy&lt;br&gt;bronze on wood stand, approximately 8&quot;X8&quot;X14&quot; high</td>
</tr>
<tr>
<td>Cabinet</td>
<td>T2</td>
<td>1974</td>
<td>Wright Brothers Memorial Trophy&lt;br&gt;Metal model of Wright Brothers Plane on granite stone on black stand, approximately 11&quot;X11&quot;X11&quot;</td>
</tr>
<tr>
<td>Cabinet</td>
<td>T3</td>
<td>May 2007</td>
<td>Lifetime Award&lt;br&gt;From AIAA [American Institute of Aeronautics &amp; Astronautics, Hampton Roads Section, approximately 8 1/2&quot;X3&quot;X11 1/2&quot; high</td>
</tr>
</tbody>
</table>
**Cabinet M1**

January 1956  
Medal - NACA  
*Round 1 1/2" diameter medal on blue ribbon with white stripe, from National Advisory Committee for Aeronautics to Richard T. Whitcomb for Distinguished Service*

**Cabinet M2**

1973  
National Medal of Science  
*Round 3 1/4" diameter medal*

**Cabinet M3**

2001  
Daniel Guggenheim Medal  
*2 1/2" diameter medal, to Richard T. Whitcomb for Great Achievement, Aeronautics, 2001*

**Cabinet M4**

2003  
Patent Medal  

**Cabinet M5**

June 5, 2003  
WPI Presidential Medal  
*Round medal 3" diameter on maroon and gray ribbon. "Richard T. Whitcomb ’43 100 Years of Powered Flight June 5, 2003*

**Cabinet M6**

NASA Exceptional Scientific Achievement  
*Round 1 1/2" diameter medal on blue striped ribbon*

**Metal Cabinet M7**

Air Force Medal  
*Round 1 1/2" diameter medal on blue ribbon “To Richard T. Whitcomb for exceptional civilian service to the Department of the Air Force”*

**Cabinet M8**

Exceptional Scientific Achievement Medal  
*2 pins in case, one with NASA symbol, other blue with white center*

---

**Series XI Other Memorabilia**  
MS 52_011  
Papers, Personal

**Container List**

<table>
<thead>
<tr>
<th>Container</th>
<th>Folder</th>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Box 6 - 12&quot;X16&quot; box</td>
<td>1988</td>
<td>Gavel</td>
<td></td>
</tr>
</tbody>
</table>
10” long. Inscribed: Presented to the Langley Alumni Association from the Center Employees March 25, 1988 |
| Box 6 - 12"X16" drop-front box |  | NACA Symbol | Symbol mounted on wood base 6 3/4"X12 1/2" with hanger on back |
| Box 6 - 12"X16" drop-front box | 1972 | Paperweight | Green oval with gold writing: TACT - First Chips, TACT Wing 3-8-72 Dr. R. T. Whitcomb |
| Box 6 - 12"X16" Drop-front box |  | Paperweight | White 3 1/2” square - 75 Years NACA NASA Langley Research Center |
**Series XII Academic Cowls**

<table>
<thead>
<tr>
<th>Container</th>
<th>Folder</th>
<th>Date</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Box 7</td>
<td></td>
<td></td>
<td>Academic Cowls</td>
</tr>
</tbody>
</table>

2 Academic Cowls

**Paperweight**

*Rounded rectangle 2 3/4"X4 1/4" WPI Celebrates 100 Years of Powered Flight*

**Desk Sign**

*Lightweight sign 5"X1" with blue background and white writing: 1954- Richard Travis Whitcomb, NACA Research Scientist - For discovery and experimental verification of the area rule, a contribution to base knowledge yielding significantly higher airplane speed and greater range with same power.*

**Pins**

2 airplane pins (tie pins)