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FINDING AID TO THE CHARLES M. EHRESMAN PAPERS, 1897-2011

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Revised by: Tracy Grimm, November 20, 2019; Mary A. Sego, March 23, 2017;
September 29, 2015
Processed by: John Michael Foster, May 2, 2014

Descriptive Summary

Creator Information	Ehresman, Charles M., 1922-2012
Title	Charles M. Ehresman papers
Collection Identifier	MSF 490
Date Span	1897-2011, predominant 1960-1972, 1997-2009
Abstract	Correspondence, conference and research papers and presentations, multimedia materials, proposals and reports, research and teaching materials, subject files, and other materials documenting the work and professional activities of Charles M. Ehresman, designer of Purdue University's High Pressure Rocket Laboratory, associate professor of Mechanical Engineering, and operations manager of Purdue's Thermal Sciences & Propulsion Center (known today as Zucrow Laboratories). The collection also documents the design and construction of the High Pressure Rocket Laboratory and its early administration and operations, as well as materials pertaining to Maurice J. Zucrow, professor of Gas Turbines and Jet Propulsion in the Schools of Mechanical Engineering and Aeronautical Engineering and pioneer of rocket propulsion testing and development at Purdue University.
Extent	44.7 cubic feet (32 c.f. boxes, 26 mss. boxes, 5 CD boxes, 2 lantern slide boxes, 2 slide boxes, 1 flat box, 1 artifact box)
Finding Aid Author	John Michael Foster, 2014; Mary A. Segó, 2015
Languages	English
Repository	Virginia Kelly Karnes Archives and Special Collections Research Center, Purdue University Libraries

Administrative Information

Location Information:	ASC-R
Access Restrictions:	Collection is open for research. Materials pertaining to student grades and other student privacy-sensitive material are restricted because of reasons of

confidentiality. These materials are identified in the below inventory.

The collection is stored offsite. 24 hours notice is required to access the collection.

Acquisition Information:

Donated by Alecia A. Wiltgen, May 1, 2013

Custodial History:

Alecia A. Wiltgen to ASC, May 1, 2013

Accession Numbers:

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MSF 490, Charles M. Ehresman papers, Archives and Special Collections, Purdue University Libraries

Copyright Notice:

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Subjects and Genres

Persons

Ehresman, Charles M. (1922-2012)

Zucrow, Maurice J. (Maurice Joseph) 1899-1975

Organizations

Purdue University. Jet Propulsion Center.

Purdue University. Thermal Sciences and Propulsion Center (Zucrow Laboratories).

Purdue University. School of Mechanical Engineering.

American Institute of Aeronautics and Astronautics (AIAA).

Purdue University. Airport

Flight Archives at Purdue University

Topics

Rocket Propulsion Systems

Engines--water and hail ingestion research

Waterspout Research

Purdue University--Faculty

Form and Genre Types

Booklets

Books

Correspondence

Manuals

Miscellaneous materials

Photographs

Reports

Research Papers

Slides

Subject Files

Biography of Charles M. Ehresman

Charles M. "Chuck" Ehresman was born on May 23, 1922, in Elkhart, Indiana. He received his Bachelor of Science degree in Mechanical Engineering from Purdue University in 1949 and a Masters in Aeronautical Engineering from Purdue in 1951.

Between 1951 and 1964, Ehresman was employed in California with the Aerojet-General Engineering Corporation, working on liquid assist takeoff rockets for the Boeing B-47, F-84F, and F-84G, as well as liquid propellant boosters for the Bomarc and Titan I and II missiles and Atlas/Able, Delta II, Saturn V, and Nerva Nuclear rockets. While at Aerojet, Ehresman served as test engineer, group leader, research department head, research and development supervisor, and test operations manager.

In 1964, Ehresman returned to Purdue to oversee the design and construction of the University's High Pressure Rocket Laboratory at the Thermal Sciences and Propulsion Center (today's Zucrow Laboratories), later serving as its operations manager (1977-1981). He was promoted from visiting professor to associate professor of Mechanical Engineering in 1966 and in 1992, was awarded the academic rank of emeritus professor. Ehresman taught several courses related to system design, analysis of dynamic systems, control systems, and rocket propulsion for spaceflight, including Modeling and Analysis of Physical Systems (ME 375), Modeling and Instrumentation of Physical Systems (ME 385), Propulsion for Space Flight (ME 439), Automatic Control Systems (ME 475), and Liquid Rocket Propulsion Systems (ME 579E), and served on various School of Mechanical Engineering committees. His interests and work activities in instrumentation and application, facility design and system interaction, rocket propulsion, and water and hail ingestion in air breathing engines produced several dozen professional presentations and lectures and article-length publications, including many papers presented at American Institute of Aeronautics and Astronautics (AIAA) conferences between the 1980s and 2000s.

Ehresman also performed consultant work for the U.S. Research Office (Durham, NC, 1969), General Medical Instrument Division (El Monte, CA, 1970), Design & Manufacturing Company (Connersville, IN, 1971), Roper Corporation (West Lafayette, IN, 1975), and Zion Nuclear Power Station (Chicago, IL, 1980), and was a member of various academic, professional, and scholarly societies, including the AIAA, the Sigma Xi scientific research society, and the American Society for Engineering Education (ASEE).

Professor Ehresman died in August 2012 at the age of 90.

Sources: Collection file and materials within the collection.

Collection Description

Scope

The Charles M. Ehresman papers (1897-2011; 44.7 cubic feet) document the work and professional activities of Charles M. Ehresman, designer of Purdue University's High Pressure Rocket Laboratory, associate professor of Mechanical Engineering, and operations manager of Purdue's Thermal Sciences & Propulsion Center (known today as Zucrow Laboratories). The collection also documents the design and construction of the High Pressure Rocket Laboratory and its early administration and operations, as well as materials pertaining to Maurice J. Zucrow, professor of Gas Turbines and Jet Propulsion in the Schools of Mechanical Engineering and Aeronautical Engineering and pioneer of rocket propulsion testing and development at Purdue University. Materials in the collection largely relate to the early years of the Thermal Sciences & Propulsion Center (TSPC), Ehresman's research and publications in the 1990s and 2000s, his teaching and advising activities between the 1960s and 1990s, and his involvement in AIAA activities, from presenting scholarship at the organization's conferences to serving on the AIAA's Historic Site Committee. Other materials of particular interest include Ehresman's research on water ingestion systems and waterspouts, as well as his efforts to organize historical information for the Thermal Sciences & Propulsion Center's 50th Anniversary (1999) and collected research for the Zucrow Labs history webpage. Types of materials in the collection include: books, correspondence, conference and research papers and presentations, multimedia materials, proposals and reports, research and teaching materials, and subject files.

The Papers are organized into eight series:

Arrangement

1. Research and Writings, 1920s-2000s (23.8 cubic feet). Series 1 is divided into four subseries: 1. Collaborative Research and Work – contains materials related to Ehresman's research water ingestion and hail tunnel gun systems and waterspouts in collaboration with other scholars. 2. Conferences, Presentations, and Publications – contains drafts and final copies of papers, many of which were presented at scholarly conferences and later published, in addition to research materials pertaining to specific papers, notes, conference information, correspondence, etc. 3. Multimedia – contains slides, compact and digital video disks, zip and floppy disks, VHS tapes, photographs, and images related to Ehresman's research and scholarly research, papers, and presentations. 4. Research Materials – consists of books and booklets, as well as binders containing various reference materials, used in Ehresman's research.

Items in the series are arranged chronologically by subject and material type.

2. Thermal Sciences and Propulsion Center (Zucrow Labs) Administration, 1940s-2000s (8.5 cubic feet). Series 2 is divided into three subseries: 1. History and Legacy – includes subject files, photographs and images, and various multimedia materials concerning the history and legacy of Purdue’s Zucrow Laboratories (formerly known as the Thermal Sciences and Propulsion Center.) 2. Lab Operations – contains subject files, photograph negatives, and slides pertaining to construction, operation, and administration of the TSPC. 3. Research Proposals and Reports – consist of research proposals and reports related to research and operations at TSPC.

Items in the series are arranged chronologically by material type.

3. Teaching and Advising, 1950s-2000s (6.8 cubic feet). Series 3 is divided into seven subseries: 1. Emeritus Professor Activities – includes Purdue University Retirees Association, Benefits Committee correspondence, agenda points and insurance and healthcare information. 2. School of Mechanical Engineering Materials – items pertaining specifically to the School of Mechanical Engineering. 3. Space Camp and 4-H Aerospace Workshop Materials – presentation, transparencies, notes, checklists, etc. 4. Student Files and Work – contains files for individual students (Restricted) and student papers and theses. 5. Teaching Materials – consist of teaching notes, course syllabi, homework problems and solutions, etc. 6. Textbooks and Instructor Manuals includes textbooks and instructor manuals presumably assigned by Ehresman in his courses. 7. Transparencies – presumably used by Ehresman in the classroom and for other instructional activities.

Items in the series are arranged chronologically by subject matter and type of material.

4. Aerojet Employment and Consultant Work, 1940s-1990s (1.2 cubic feet). Within this series are items from Ehresman’s employment with Aerojet-General Engineering Corporation, 1951-1964, and subject files from his consulting work in the years that followed. There are four bound volumes that contain items related to; “Handbook: Thrust Chamber Group,” “Proving Ground Rules Manual,” Blast Resistance reports, memos and miscellaneous documents, and “UCLA Blast Resistant Design Course,” – containing memoranda, diagrams, reports, design criteria, among other items.

Materials in the series are grouped as bound or loose material, and chronologically within each group.

5. Correspondence and Letters, 1964-2010 (0.8 cubic feet). The correspondence is comprised of general letters dating back to 1964, and work related correspondence and e-mails between Ehresman and his colleagues from 1985-2010. Please see the series listing below for names.

Material in this series is arranged chronologically.

6. Memberships and Associations, 1960s, 1980s-2010s (2.2 cubic feet). This series consists of documents, subject files, electronic files, meeting minutes, brochures, booklets, and other material from Ehresman's committee work with the American Institute of Aeronautics and Astronautics; Deputy Director of Education and Historic Site Committee. There are electronic files from his work with the AIAA Region III Student Conference, 2001-2004. The student information related to scholarship and award applications is restricted, due to matters of confidentiality. The AIAA Historic Site Committee material is mainly in electronic format and includes nominations and related correspondence, brochures, photographs and invitations to dedication ceremonies from the 1990s-2010. Among the documents are site recognition information from 2005 for the Purdue Airport, and Ehresman's documents for the nomination of Aerojet.

Among the general AIAA material are brochures, pamphlets, a few guides, membership information and letters of recognition, 1984-2009.

7. Maurice J. Zucrow Materials, 1890s-1970s, 1990s-2000s (0.25 cubic feet). The material in this series related to Maurice J. Zucrow. It includes glass lantern slides that were in a box labeled, "M. J. Zucrow." Many of the slides are of buildings which Zucrow helped plan and establish, and include planning documents for facilities, charts, diagrams and drawings. Also includes letters related to Zucrow's retirement from Purdue University.

Materials in the series are arranged chronologically within each of their respective groupings. Please note that material determined to have originally belonged to or created by Maurice Zucrow was removed from this series and transferred to the Maurice J. Zucrow papers (MSF 428) also held by Purdue Archives

8. Ehresman Miscellaneous, 1920s-2010s (0.6 cubic feet). The miscellaneous items are comprised of artifacts, and publications that did not fit into the other specified series. Among the artifacts are a flange size selector, pocket data books, and valve slide rules. The publications consist of an books, Associated Steel Company stock list, photographs, web page printouts for Professor Clark Hawk and Eric Newell, completed crossword puzzles, notes and diagrams, including handwritten notations, and issues of *Inside Purdue* and the *Exponent*. Please refer to the listing in the finding aid for detailed information.

Material in the series are arranged by type of material and chronologically within each.

Descriptive Rules

Describing Archives: A Content Standard

Processing Information

All materials in this collection are housed in acid-free boxes. Whenever possible, the original order of subject files was retained with overfilled folders divided into smaller sub-folders. Much of the material in the collection was found loose, without folders or other types of organization seen in Ehresman's papers. Loose items, when feasible, were placed in acid-free folders (marked "Loose Material" in the below inventory) and arranged by subject with other materials in the collection. Paperclips were removed from items and replaced with acid-free paper. Duplicate materials of three or more have been discarded. These items largely consisted of books and other published materials.

Originally processed boxes 63 and 67 as well as items from boxes 65 and 66 were moved to the Maurice J. Zucrow papers (MSF 428) in March 2017. The material was created by or originally belonged to Zucrow, so it was deemed more appropriate to reside with his papers.

DETAILED DESCRIPTION OF THE COLLECTION

Series 1. Research and Writings, 1920s-2000s

(23.8 cubic feet)

Sub-series 1. Collaborative Research and Work, 1960s-1990s

(2 cubic feet)

Box 1 *Collaborative Research and Work, 1977-1995*

Item

1. Bound Report, "Water Ingestion Into Axial Flow Compressors," 1980

Folder

1. Thermal Science and Propulsion Center Water Ingestion System Correspondence, 1977
2. Thermal Science and Propulsion Center Water Ingestion System Correspondence, 1978
3. Thermal Science and Propulsion Center Water Ingestion System Correspondence, 1979
4. Thermal Science and Propulsion Center Water Ingestion System Contract and Modifications Materials, 1977-1979
5. Thermal Science and Propulsion Center Water Ingestion System Proposal and Amendments, 1977
6. Thermal Science and Propulsion Center Water Ingestion System Technical Information and Compressor and Installation Drawings, circa 1978-1979
7. Thermal Science and Propulsion Center Water Ingestion System Checklists, Correspondence, Proposal for Supplementary Funding, Notes, 1982-1984, 1990, undated
8. Report, "Diffuser-Combustor Flowfield in Engine Situation with Water Ingestion," 1990
9. Hail Tunnel Gun System Diagrams and Service Manual, 1992, 1994
10. Hail Tunnel Gun System Service Manual, Diagrams, and Notes, 1992, 1995
11. Hail Injection Cascade Tunnel Meeting Notes, 1993
12. Hail Tunnel Reports, 1993-1994
13. Hail Tunnel Standard Video System Price Lists and Information, 1993-1994
14. Hail Injection Cascade Tunnel Meeting Notes, 1994
15. Hail Tunnel Plenum Diagrams and Notes, 1994
16. Hail Tunnel Still Camera and Tripod Price Lists and Information, 1994
17. Hail Tunnel Control System Diagrams, Notes, Reports, circa 1994-1995
18. Hail Tunnel Spinner Fax Cover Sheets, Notes, Invoices, Etc., 1994-1995
19. Hail Injection Cascade Tunnel Meeting Notes, 1995
20. Hail Tunnel Air System Fax Transmissions, Notes, Etc., 1995
21. Fan Blade and Disc for Hail Tunnel Diagrams and Notes, 1995
22. Hail Tunnel Fragment Catcher Ideas, Notes, undated

Box 2 *Collaborative Research and Work, 1970-1976*

Item

1. Progress Report, "A Study of Atmospheric Vortex Phenomena Associated with the Waterspout," 1973
2. Progress Report, "A Study of Atmospheric Vortex Phenomena Associated with the Waterspout," 1973 (copy 2)
3. Progress Report, "A Study of Atmospheric Vortex Phenomena Associated with the Waterspout," 1974
4. Final Report, "A Study of Atmospheric Vortex Phenomena Associated with the Waterspout," 1974
5. Binder, containing Waterspout Meeting Notes, 1970-1972; Activity Log, 1972-1973
6. Binder, containing Waterspout Correspondence and Memoranda, 1971-1972; Paper on "Waterspouts and Tornadoes Over South Florida," 1969; Newspaper Clippings, 1972, undated; Photographs, undated; Issues of *Purdue Alumnus* and *Mechanical Engineering News*, 1972

Folder

1. Waterspout Research, Atmospheric Vortex Phenomena Association Correspondence, Diagrams, Etc., 1971-1972
2. Waterspout Research, Purdue Tornado Working Group Meeting Minutes, 1971-1972
3. Waterspout Research Progress Report, covering years 1971-1973
4. Waterspout Research, Probing Waterspouts Progress Report and Letters, 1971, 1973
5. Waterspout Research Proposal, Financial Report, Notes, Etc., 1972-1973
6. Waterspout Research Paper on Instrumentation for Probing Waterspouts, 1973
7. Waterspout Research, Essay on Waterspout Research, undated (Loose Material)
8. Waterspout Research, folder off loose materials found in above Waterspout Binder (Item #5), Correspondence and Summary, 1974-1975
9. Waterspout Research, folder off loose materials found in above Waterspout Binder (Item #5), Notes, Etc., circa 1970-1976

Sub-series 2. Conferences, Presentations, and Publications, 1940s-2000s

(7 cubic feet)

Box 3 *Conferences, Presentations, and Publications, circa 1950s-2000s*

Item

1. Book, *Sixth International Symposium on Air Breathing Engines Symposium Papers*, 1983

2. Book, *Papers from the Seventh International Symposium on Air Breathing Engines*, 1985

Folder

1. Ehresman M.S. Thesis, Purdue University, 1951
2. Ehresman Biographical Résumé, 1986; Ehresman Biographical Résumé, circa 1980s; Ehresman Biographical Sketch and Résumé, 1999 (Loose Material)
3. ISA Paper on the New Combustion Research Lab at Purdue (Philadelphia, 1970), Paper, 1970 (3 copies)
4. ISA Paper on the New Combustion Research Lab at Purdue (Philadelphia, 1970), Intent to Present a Paper Form, circa 1970 (Loose Material)
5. ISA Paper on the New Combustion Research Lab at Purdue (Philadelphia, 1970), Paper and Images, 1970 (Loose Material)
6. NASA Symposium (Cleveland, 1970), Notes on Space Shuttle, etc., 1970
7. AMS Paper on Instrumentation for Probing Waterspouts (Boston, 1973), Paper, 1973 (Loose Material)
8. IAF Paper on Maurice Zucrow and Rocket Research at Purdue (Dubrovnik, Yugoslavia, 1978), Paper, Conference Information, Etc., 1978
9. IAF Paper on Maurice Zucrow and Rocket Research at Purdue (Dubrovnik, Yugoslavia, 1978), Paper, 1978
10. AIAA Paper on Tech Development History of Aircraft in World War I (Dayton, 1981), Paper, Correspondence, and Research Materials, 1975, 1981
11. AIAA Paper on Tech Development History of Aircraft in World War I (Dayton, 1981), Paper, 1981 (Loose Material)
12. AIAA Paper on Effect of Humidity on Jet Engine Axial-Flow Compressor Performance (1983), Paper (2 copies), 1983 (Loose Material)
13. AIAA Paper on Rain Water Ingestion Effects in Jet Engines (Reno, 1983), Correspondence and Conference Information, 1983
14. AIAA Paper on Rain Water Ingestion Effects in Jet Engines (Reno, 1983), Drafts of Paper, circa 1983-1984; Research Materials, 1982-1983, undated
15. AIAA Paper on Rain Water Ingestion Effects in Jet Engines (Reno, 1983), Presentation, 1984
16. AIAA Paper on Rain Water Ingestion Effects in Jet Engines (Reno, 1983), Paper, 1984
17. AIAA Paper on Stagnation Pressure Probe for Droplet-Laden Air Flow (Reno, 1985), Paper Drafts, Correspondence, Notes, Etc., 1977, 1982, 1985-1986
18. AIAA Paper on Stagnation Pressure Probe for Droplet-Laden Air Flow (Reno, 1985), Paper, 1985 (Loose Material)
19. ISABE Paper on Developments in Reciprocating Engines for Aircraft (Beijing, 1985), Paper Drafts, Conference Program, Overheads, Etc., 1985-1991
20. ISABE Paper on Developments in Reciprocating Engines for Aircraft (Beijing, 1985), Paper and Paper Drafts, circa 1985
21. ISABE Paper on Developments in Reciprocating Engines for Aircraft

- (Beijing, 1985), Notes on Conference, Etc., 1984-1985
22. ISABE Paper on Developments in Reciprocating Engines for Aircraft (Beijing, 1985), Photocopied Research Materials (from 1956, 1963, 1983-1984, 1998 undated), Abstract, Conference Information, 1985
 23. ISABE Paper on Developments in Reciprocating Engines for Aircraft (Beijing, 1985), Paper, 1985 (2 copies)
 24. ISABE Paper on Developments in Reciprocating Engines for Aircraft (Beijing, 1985), Figures and Photograph Negatives, circa 1985
 25. *Journal of Propulsion and Power* Paper on Stagnation Pressure Probe for Droplet-Laden Air Flow, 1986 (2 copies)
 26. ISABE Paper on Water Ingestion Simulation (Athens, 1989), Correspondence, Paper Drafts, Grant Applications, 1988-1989
 27. AIAA Paper on Liquid Rocket Propulsion (Sacramento, 1991), Photocopied Research Materials (from 1967, undated) Abstract, Notes, Correspondence, Etc., 1990-1993
 28. *Journal of The British Interplanetary Society* Paper on Liquid Rocket Propulsion Applied to Manned Aircraft (1993), Paper, 1993 (Loose Material)
 29. AIAA Paper on Hail Ingestion Simulation Tunnel (San Diego, 1995), Paper and Paper Drafts, circa 1995
 30. AIAA Paper on Hail Ingestion Simulation Tunnel (San Diego, 1995), Paper, 1995 (Loose Material)
 31. AIAA Paper on Hail Ingestion Simulation Tunnel (San Diego, 1995), Paper Drafts, circa 1995 (Loose Material)
 32. AIAA Paper on Hail Ingestion Simulation Tunnel (San Diego, 1995), Overheads, Conference Information, Etc., circa 1995 (Loose Material)
 33. AIAA Paper and Presentation on B47 ATO (Cleveland, 1998), Presentation Notes, 1998
 34. AIAA Paper and Presentation on B47 ATO (Cleveland, 1998), Faxed Research Information, 1997; Ehresman Paper (from 1991); Photocopied Images, undated
 35. AIAA Paper and Presentation on B47 ATO (Cleveland, 1998), Reference Materials, 1997-1998
 36. AIAA Paper and Presentation on B47 ATO (Cleveland, 1998), Abstract, Paper, Correspondence, Conference Information, Etc., 1997-1998, 2000, 2002, 2004

Box 4 *Conferences, Presentations, and Publications, circa 1950s-2000s*

Folder

1. AIAA Paper and Presentation on B47 ATO (Cleveland, 1998), Reference Materials, 1997-1998, 2000, 2004
2. AIAA Paper and Presentation on B47 ATO (Cleveland, 1998), Reference Material from Fred Menard, 1997
3. AIAA Paper and Presentation on B47 ATO (Cleveland, 1998), Final Manuscript, Conference Information and Forms, Outline, Etc., 1997-1998

4. AIAA Paper and Presentation on B47 ATO (Cleveland, 1998), Reference Material from Judith Bauer, 1991-1997
5. AIAA Paper and Presentation on B47 ATO (Cleveland, 1998), Vincent Condello Contact Information and Letter, 2000
6. AIAA Paper and Presentation on B47 ATO (Cleveland, 1998), Paper, 1998 (2 copies)
7. AIAA Paper and Presentation on B47 ATO (Cleveland, 1998), Fred Johnson AFFTC Historian Materials, 1997-2000
8. AIAA Paper and Presentation on B47 ATO (Cleveland, 1998), Camera Ready Final Draft with Corrections, 1998
9. AIAA Paper and Presentation on B47 ATO (Cleveland, 1998), Reference Material from Alwyn Lloyd, Correspondence, Etc., 1997-1999, 2001-2002
10. Comments on J.A.C. Kentfield's AIAA Paper on Pulsed Detonation (Cleveland, 1998), Articles, Notes, Etc., 1998
11. AIAA Paper on First Production Rocket in the U.S. (Huntsville, 2000), Photocopied Research Materials (1967, undated); Images, undated; Receipts, Correspondence, Etc., 2000
12. AIAA Paper on First Production Rocket in the U.S. (Huntsville, 2000), Paper, 2000
13. AIAA Paper on First Production Rocket in the U.S. (Huntsville, 2000), Paper and Session Information, 2000
14. AIAA Paper on First Production Rocket in the U.S. (Huntsville, 2000), Paper, 2000 (Loose Material)
15. AIAA Paper on Curtiss-Wright XLR 25 (Reno, 2000), Marvin Meyer Material, 1999-2001
16. AIAA Paper on Curtiss-Wright XLR 25 (Reno, 2000), Correspondence, Notes, E-Mails, Conference Information, Paper Drafts, Etc., 1999-2000
17. AIAA Paper on Curtiss-Wright XLR 25 (Reno, 2000), Rocket Development References, Photocopied Research Materials (1944, 1948-1949, 1955-1958, 1987, undated); Images, undated; Correspondence, Etc., 1999-2000, 2002-2003
18. AIAA Paper on Curtiss-Wright XLR 25 (Reno, 2000), Paper, 2000 (3 copies)
19. AIAA Paper on Curtiss-Wright XLR 25 (Reno, 2000), August Zoll, Aviation Hall of Fame Notes, undated; Photocopied Research Materials, (from 1950-1951, 1957); Correspondence, 1999; Images and Photographs, undated
20. AIAA Paper on Kellogg Rocket (Indianapolis, 2002), Conference Information, Forms, and E-Mails, 2002
21. AIAA Paper on Kellogg Rocket (Indianapolis, 2002), Paper Drafts, Images, and Notes, circa 2002
22. AIAA Paper on Kellogg Rocket (Indianapolis, 2002), Conference Information, Paper Draft, Overheads, Notes, Etc., 2002
23. AIAA Paper on Kellogg Rocket (Indianapolis, 2002), Correspondence, E-Mails, Etc., 2000-2001
24. AIAA Paper on Kellogg Rocket (Indianapolis, 2002), Paper, 2002 (2 copies)
25. AIAA Paper on Kellogg Rocket (Indianapolis, 2002), Photocopied Research Materials and Images (from 1951-1953, 1962, undated); Abstract, undated;

- Correspondence, 2000-2001
26. School of Aeronautics and Astronautics Colloquium (2002), Overheads, Research Materials, Presentation Notes, 2000, 2002
 27. School of Aeronautics and Astronautics Colloquium (2002), E-Mails, Abstract, Biographical Sketch, circa 2002 (folder 1 of 2)
 28. School of Aeronautics and Astronautics Colloquium (2002), E-Mails, Abstract, Biographical Sketch, circa 2002 (folder 2 of 2)
 29. AIAA Paper on Space Propulsion Technology Base for Thermal Nuclear Rocket (Huntsville, 2003), Paper, 2003 (2 copies)
 30. AIAA Paper on Space Propulsion Technology Base for Thermal Nuclear Rocket (Huntsville, 2003), E-Mails, Correspondence, Invoices, Etc., 2002-2003
 31. AIAA Paper on Space Propulsion Technology Base for Thermal Nuclear Rocket (Huntsville, 2003), Images and Diagrams, Paper, circa 2002-2003
 32. AIAA Paper on Space Propulsion Technology Base for Thermal Nuclear Rocket (Huntsville, 2003), Photocopied Research Materials (from 1963, 1967, 1981, 1989, 1991-1992, undated); Miscellaneous, 1997, undated
 33. AIAA Paper on Space Propulsion Technology Base for Thermal Nuclear Rocket (Huntsville, 2003), Correspondence, Invoices, E-Mails, Conference Information and Forms, 2003
 34. AIAA Paper on Space Propulsion Technology Base for Thermal Nuclear Rocket (Huntsville, 2003), Paper Draft and Notes, circa 2003
 35. AIAA Paper on Space Propulsion Technology Base for Thermal Nuclear Rocket (Huntsville, 2003), Abstract, E-Mails, Conference Information, 2002-2003
 36. AIAA Paper on Space Propulsion Technology Base for Thermal Nuclear Rocket (Huntsville, 2003), Photocopied Research Material (from 1961, 1981, 1991, undated); Proposed Abstracts, 2002; E-Mails, 2002; Fax, 2003; Images and Diagrams, undated

Box 5 *Conferences, Presentations, and Publications, circa 1950s-2000s*

Folder

1. AIAA Paper on Space Propulsion Technology Base for Thermal Nuclear Rocket (Huntsville, 2003), Paper, 2003 (2 copies, loose material)
2. Air Force Association Presentation on the Wright Brothers (2003), Images, Etc., 2003
3. RTFOWG Meeting (2004), Agenda, Presentation, Etc., 2004
4. Presentation on the Life of Theodore von Kármán (2004), Presentation and Scanned Images, 2004
5. Presentation on the Life of Theodore von Kármán (2004), Research Materials (from 2000, undated); Notes, undated
6. Presentation on the Life of Theodore von Kármán (2004), Messages, E-Mails, Conference Information, 2004
7. AIAA Paper on Life of the Aerobee Rocket (Ft. Lauderdale, 2004), Paper,

- 2004 (2 copies) (Loose Material)
8. Correspondence, concerning AIAA presentation by Clay Boyle, "Aerojet Propulsion for Space Systems," 2004 (Ft. Lauderdale, 2004)
 9. AIAA Paper on General Electric's Efforts in Rocket Propulsion Development (Tucson, 2005), Paper and Paper Drafts, Correspondence and E-Mails, Images, Etc., 2005
 10. AIAA Paper on General Electric's Efforts in Rocket Propulsion Development (Tucson, 2005), Paper, 2005 (2 copies)
 11. AIAA Paper on General Electric's Efforts in Rocket Propulsion Development (Tucson, 2005), Paper Drafts, Conference Information, Invoice, circa 2004-2005 (Loose Material)
 12. Kiwanis Program on Nuclear Propulsion in Regard to Mars Initiative (2005), Photocopied Research Materials (from 1993 2002-2003, undated); Notes, undated; Issue of *Aerospace America* magazine, 2004; Printout and Transparencies of Presentation, circa 2005
 13. AIAA Paper on BOMARC Missile Advances (Sacramento, 2006), Paper, 2006 (2 copies)
 14. AIAA Paper on BOMARC Missile Advances (Sacramento, 2006), Paper, Conference Information, Etc., 2006, 2008
 15. AIAA Paper on BOMARC Missile Advances (Sacramento, 2006), Photocopied Research Materials (from 1951, 1954-1955, 1957, 1959, 1962, 1967, 1973, 1997, 2003-2006, undated); E-Mails, Correspondence, Conference Information, Etc., 2005-2006 (folder 1 of 3)
 16. AIAA Paper on BOMARC Missile Advances (Sacramento, 2006), Photocopied Research Materials (from 1951, 1954-1955, 1957, 1959, 1962, 1967, 1973, 1997, 2003-2006, undated); E-Mails, Correspondence, Conference Information, Etc., 2005-2006 (folder 2 of 3)
 17. AIAA Paper on BOMARC Missile Advances (Sacramento, 2006), Photocopied Research Materials (from 1951, 1954-1955, 1957, 1959, 1962, 1967, 1973, 1997, 2003-2006, undated); E-Mails, Correspondence, Conference Information, Etc., 2005-2006 (folder 3 of 3)
 18. AIAA Paper on Bell Co. (Cincinnati, 2007), Notes, Messages, Conference Information, circa 2006-2007
 19. AIAA Paper on Bell Co. (Cincinnati, 2007), Drafts of Papers, Notes, circa 2006-2007
 20. AIAA Paper on Bell Co. (Cincinnati, 2007), Photocopied Reference Materials (from 1955, 1967, 1970, 1975, 1987, 2006, undated)
 21. AIAA Paper on Bell Co. (Cincinnati, 2007), Correspondence, E-Mails, 2006-2007
 22. AIAA Paper on Bell Co. (Cincinnati, 2007), Correspondence, 2007; Bell Aircraft Museum Webpage Printout, 2007; Press Release, undated
 23. AIAA Paper on Bell Co. (Cincinnati, 2007), Paper, 2007 (2 copies) (Loose Material)
 24. AIAA Paper on Bell Co. (Cincinnati, 2007), Scanned and Photocopied Reference Materials, undated
 25. AIAA Paper on Bell Co. (Cincinnati, 2007), Presentation, Paper, and Images,

2007

26. AIAA Paper on Bell Co. (Cincinnati, 2007), Frank Winter Papers History, circa 2007
27. AIAA Paper on Bell Co. (Cincinnati, 2007), Photographs, undated
28. AIAA Paper and Presentation on Propulsion Test Facilities at Zucrow Laboratories (Cincinnati, 2007), Printout of Presentation, Paper Drafts, 2007
29. AIAA Paper and Presentation on Propulsion Test Facilities at Zucrow Laboratories (Cincinnati, 2007), Photocopied Reference Material (from 1970); Images, undated; E-Mails and Paper Drafts, 2006-2007
30. AIAA Paper and Presentation on Propulsion Test Facilities at Zucrow Laboratories (Cincinnati, 2007), E-Mails, Proposed Video Outline, 2006
31. AIAA Paper and Presentation on Propulsion Test Facilities at Zucrow Laboratories (Cincinnati, 2007), Paper, 2007 (Loose Material)
32. AIAA Paper on Plug Nozzle (Denver 2009), E-Mails, Abstracts, Conference Information, Etc., 2009 (Loose Material)
33. ASM Paper on G.E. Plug Nozzle (Orlando 2009), Photocopied Research Materials (from 1966, 1973, undated); Abstract, E-Mails, 2009
34. ASM Paper on G.E. Plug Nozzle (Orlando 2009), Photocopied Research Materials (from 1963-1965); Notes, circa 2009; Résumé for Alfred R. Graham, undated; Correspondence, 2007-2008
35. AIAA Meeting (Orlando 2009), Conference Information, 2009 (Loose Material)
36. AIAA Paper on Liquid Propulsion Pioneers (Nashville, 2010), E-Mails, 2010 (Loose Material)
37. Presentation on Pre-World War II Purdue Aeronautical Engineering (ME) Faculty, undated
38. Lecture Notecards, "Liquid Rockets On Manned Aircraft Slides," undated (pertaining to slides in Box 1 of Box 8 below)
39. Lecture Notecards, "Ray Stiff Photos ATS F84F B47 Solid and Liquid, Solid Sea Planes, Bell X-2 Aerojet's AL1000," undated (pertaining to slides in Box 2 of Box 8 below)
40. Lecture Notecards, concerning Wright Brothers; Old Rheinbeck Aerodrome; World War I Aircraft; undated

Box 6 *Conferences, Presentations, and Publications, 1948-2006*

Binder

1. "Early Papers and Articles on Research and AIAA Activities," 1970, 1972-1974, 1985-1986, 1990, 1992-1993, 1995
2. "Current Papers and Articles on Research," 1981-1982, 1985-1986, 1991, 1993-1995, 1998, 2000, 2002-2006
3. "B47 Solid And Liquid Rockets YLR45" (for AIAA Paper, Cleveland, 1998; and containing diagrams and photographs, undated; copy of paper, 1998)
4. "Curtiss-Wright XLR25-CW-1 Rocket Engine Info" (for AIAA Paper, Reno, 2000; containing photocopied research material from 1948, 1951-1953,

- 1957, 1960, 1999, undated)
5. "M.W. Kellogg YLR47-K-1 Rocket Photos" (for AIAA Paper, Indianapolis, 2002; containing copy of paper, 2002; photographs and negatives, undated)

Box 7 *Conferences, Presentations, and Publications, 1950s-2000s*

Binder

1. "Rocket-Dyne AR2-3 AR-3 AR-4 Rocket Engines H2O2 JP" (for School of Aeronautics and Astronautics Colloquium, 2002; containing photocopied research material, 1990, 1999-2000, undated; images and diagrams, undated; handwritten message, e-mail, 2001)
2. "Aerobee and Seabee Photos" (for AIAA Paper, Ft. Lauderdale, 2004; containing copy of paper, 2004; photographs, photograph negatives, and scanned images, undated)
3. "GE Rocket Info Report" (for AIAA Paper, Tucson, 2005; containing conference information, 2005; paper abstracts, circa 2005; reference notes, undated; photocopied G.E. reports on liquid bi-propellant rocket propulsion, undated; correspondence and e-mails, 2004; internet research, 2004, undated; document on G.E. Schenectady citations, 2001; photocopied G.E. hybrid rocket motor reports, 1953, 1959)
4. "Vince Granato Notes on G.E. Rocket Effort" (for AIAA Paper, Tucson, 2005; containing e-mails and correspondence, 2004; thank you card, 2004; draft narrative of Malta G.E., 2003; photocopied technical history of the Pacific Missile Test Center, undated; list of events, undated; photocopied article on G.E. ICBM Heat Problem, 1956; site description for Malta Rocket Fuel Area, 2002; brief history of Malta Test Station, undated; miscellaneous and incomplete photocopied articles, undated)
5. Unlabeled (for Purdue Workshop on Multiphase and Reacting Flow Simulation, 2005; containing workshop information, 2005; note cards, undated; information on history of Zucrow Laboratories, undated)

Sub-series 3. Multi-media, 1940s-2000s

(4.2 cubic feet)

Box 8 *Slides, circa 1940s-2000s*

Box

1. Sleeve #1: "Slides for 25AL1000 Aerojet Production," 1978 (1 slide), 1980 (2 slides), 1986 (1 slide), 1993 (2 slides), undated (4 slides); Sleeve #2: Slide Carousel, "Liquid Rockets on Manned Aircraft Lecture Slides," 1970s-1980s, 2000s, undated (Sleeve 1 of 4); Sleeve #3: Slide Carousel, "Liquid Rockets on Manned Aircraft Lecture Slides," cont. (Sleeve 2 of 4); Sleeve #4: Slide Carousel, "Liquid Rockets on Manned Aircraft Lecture Slides," cont. (Sleeve 3 of 4); Sleeve #5: Slide Carousel, "Liquid Rockets on Manned Aircraft

- Lecture Slides," cont. (Sleeve 4 of 4); Sleeve #6: "Early Aerojet Slides Some Used in Rocket AIAA Lecture," 1980 (1 slide), undated (34 slides) (Sleeve 1 of 2); Sleeve #7: "Early Aerojet Slides Some Used in Rocket AIAA Lecture," cont. (Sleeve 2 of 2); Sleeve #8: "Rocket Course Intro," 1980 (7 slides), 1986 (3 slides), undated (3 slides)
2. Sleeve #1: Slide Carousel, "Ray Stiff Photos ATO F84F B47 Solid and Liquid, Solid Sea Planes, Bell X-2 Aerojets AL1000," 1980s, circa 2000s (Sleeve 1 of 2); Sleeve #2: Slide Carousel, "Ray Stiff Photos ATO F84F B47 Solid and Liquid, Solid Sea Planes, Bell X-2 Aerojets AL1000," cont. (Sleeve 2 of 2); Sleeve #3: "Curtiss-Wright Slides XLR25-CW-1 Rocket and Goddard," 1999 (6 slides), undated (29 slides) (Sleeve 1 of 2); Sleeve #4: "Curtiss-Wright Slides XLR25-CW-1 Rocket and Goddard," cont. (Sleeve 2 of 2); Sleeve #5: "Uncropped B47 Slides From Fred Johnson History of F. Edwards," 2001 (1 slide), undated (25 slides) (Sleeve 1 of 2); Sleeve #6: "Uncropped B47 Slides From Fred Johnson History of F. Edwards," cont. (Sleeve 2 of 2); Sleeve #7: Unidentified, 2003 (3 slides); Sleeve #8: "Wright Bros.," 2003 (3 slides), undated (16 slides)
 3. Sleeve #1: Slide Carousel, "Ray Stiff's Photos, Victor Angowski Photos of Kellogg Rocket, Aerojet Employees May 3 1943," undated (Sleeve 1 of 2); Sleeve #2: Slide Carousel, "Ray Stiff's Photos, Victor Angowski Photos of Kellogg Rocket, Aerojet Employees May 3 1943," cont. (Sleeve 2 of 2); Sleeve #3: "Aerobee Sounding Rocket," undated (Sleeve 1 of 2); Sleeve #4: "Aerobee Sounding Rocket," cont. (Sleeve 2 of 2); Sleeve #5: "NERVA Photos," 2002 (2 slides), undated (24 slides) (Sleeve 1 of 2); Sleeve #6: "NERVA Photos," cont. (Sleeve 2 of 2); Sleeve #7: "Slides for 25AL1000, GALCIT Development," undated; Sleeve #8: "Slides for 25AL1000 GALCIT Development," undated
 4. Sleeve #1: "NERVA Photos," undated (Sleeve 1 of 2); Sleeve #2: "NERVA Photos," cont. (Sleeve 2 of 2); Sleeve #3: "B47 ATO Presentation," undated (Sleeve 1 of 2); Sleeve #4: "B47 ATO Presentation," cont. (Sleeve 2 of 2)

Box 9 *Compact and Digital Video Discs, 1998-2009*

Disk

1. "B47 Original, YLR45 Take-Off at EAFB," 1998
2. "Alumni Photos," 1998
3. "B47 Photos, Screen Saver," 1998, 2002
4. "GALCIT and Aerojet Photos of 25AL1000 Rocket Engine," 2000
5. "Boeing Rocketdyne, Screen savers, Wallpaper, Rocket Propulsion Systems," 2000
6. "Pictures of the 25AL1000 Rocket: The First Mass Produced Liquid Rocket," 2000-2002
7. "Fifteenth International Symposium on Air Breathing Engines," 2001
8. "XLR25 Engine Materials & Other LRE Materials," 2002
9. "Aerojet Photos From The First Liquid Rocket Mass Produced in USA," 2002

10. "NERVA Photos," 2002-2003
11. "NERVA Photos 2003," 2002-2003
12. "Pictures Off Of Desktop FHA JPC Fla. CIT Staff Etc.," 2002, 2004-2008
13. "Big 10 Retirees Photos 12th Annual Meeting PU of Meeting in 2003," 2003
14. Clay Boyle Presentation, "Aerojet Propulsion for Space Systems," [Disc labeled: "Chuck, Apollo 8 SPS Presentations, 7-12-04"], 2004
15. Charles Ehresman Presentation, "In the Life of Theodore von Karman," 2004
16. "Arming the Fleet: Supporting Naval Aviation and Warfighter Requirements Since 1943," 2004
17. "Kiwanis Program on Nuclear Propulsion in Regard to Mars Initiative," 2005
18. "Nuclear Rocket First Presentation Power Point," 2005
19. "Warner Conf. RM Dedication Photos," 2005
20. "Cecil F. Warner Conference Room," 2005
21. "H202 T. Pourpoint, Papers Movies Presentation Dec. 05," 2005
22. "Bell Aircraft Info April 07, From Vince Granato," 2005-2007
23. "From Whetstone Bell Museum, Bell Photos and Articles," 2006
24. "Malta Test Station Paper," 2006
25. "BOMARC Program," 2006
26. "Nuclear Rocket Program Power Point," 2006
27. "7th ISABE Beijing China; the History and Foreseeable Devel. Of Reciprocating Engine for Aircraft," 2007
28. "6th ISABE Paris: The Effect of Humidity on Compressor Performance in Jet Engines," 2007
29. "Cincinnati AIAA Joint Propulsion Conf.," 2007
30. "Goddard Connect at Curtiss-Wright XLR25 on XZ Aircraft ASM of AIAA Jan 2000," 2007
31. "Kellogg's Liquid Rocket Venture 2002 AIAA JPC," 2007
32. "Nuclear Rocket Gunn and Ehresman 2003 AIAA JPC," 2007
33. "Power Point Slides for Bell Paper at JPC 2007," 2007
34. "Bell Paper from JPC 2007 by Ehresman (Word)," 2007
35. "Test Facilities at Zucrow Paper JPC 2007 Cincinnati," 2007
36. "Test Facilities at Zucrow Paper JPC 2007 Cincinnati," 2007
37. "Legacies- Liquid Propulsion Pioneers," 2007; "Legacies – Liquid Propulsion Pioneers #3," 2009
38. "Goddard Connection Curtiss/Wright Paper, Zucrow Portrait & Tie Tack Explanation," 2008
39. "Bob Brodsky's On the Cutting Edge A Memoir 197 Pages," 2008
40. "Purdue West Lafayette Campus Aerial," 2008
41. "Aerobee Paper Given at JPG 2004 AIAA-2004-3337," 2008
42. "BOMARC Boeing Liq Rocket Paper at 42nd Joint Prop. Conf. July 2006 Sacramento, Cal.," 2008
43. "BOMARC Paper AIAA Joint Prop. Conf. 2006 Sacramento, CA," 2008
44. "MURI 2009," 2009
45. "Aerojet History Sea Bee Launch 10 sec.," undated
46. "Shuttle Mission STS61B Talk Given in Ehresman's Propulsion Class," undated

47. "Aerojet NERVA: A Video Documentary History," undated

Box 10 *Zip and Floppy Disks, circa 1998-circa 2000s*

Folder

1. Zip Disk, "B47 ATO Pictures Control Panel, Oxid. Servicing, Oxid. Tank, Ground Firing Test," circa 1998
2. Zip Disk, "Figures for AIAA Paper 2000-3280 25AL1000 Rocket with Titles," 2000
3. Zip Disk, "Figures for AIAA Paper 2000-3280 25AL1000 Rocket Titles and Figure Nos.," 2000
4. Zip Disk, "Figs., Ehresman, Curtiss-Wright XLR25," circa 2000
5. Zip Disk, "AIAA 38th Joint Prop. Conf. 7/02 Ehresman Kellogg Rocket Paper," 2002
6. Floppy Disk, Copy of Paper "The M.W. Kellogg Company's Liquid Propellant Rocket Venture," 2002
7. Floppy Disk, "Aero Colloquium Note for August 29 Presentation," 2002
8. Zip Disk, "Kellogg Photos," circa 2002
9. Zip Disk, "Aerobee: Abstract," 2003
10. Zip Disk, "AIAA Nuclear Rocket Paper for Joint Propulsion Conference in Huntsville, Al.," 2003
11. Zip Disk, "39th Joint Prop. Conf., July 2003, Nuclear Rocket," 2003
12. Floppy Disk, "Abstract for AIAA Joint Propulsion Conference Paper, Title: Space Propulsion Technology Base Established Four Decades Ago for the Thermal Nuclear Rocket is Ready for Current Appl.," 2003
13. Zip Disk, "AIAA Paper 2004-3337 Aerobee & Seabee," 2004
14. Zip Disk, "Seabee Photos from Point Mugo Launches," circa 2004
15. Zip Disk, "Aerobee Pictures," circa 2004
16. Zip Disk, "General Electric Paper Figures Photos," circa 2005
17. Zip Disk, "NERVA Photos," undated (Photos 1-12)
18. Zip Disk, "NERVA Photos," undated (Photos 13-33)
19. Zip Disk, "NERVA Photos," undated (Photos 34-52)
20. Zip Disk, "NERVA Photos," undated (Photos 53-72)
21. Zip Disk, "Pictures from Jean, August AFAMC/HO B29 Solid Rocket JATO, Aerojet 25AL1000 Liquid Rocket, Aerojet 25 ALD 1000 Liq. JATO," undated
22. Zip Disk, "Solid Propellant Rockets" and "Applications Plus," undated
23. Zip Disk, "White Sands V-2 Photos, Rick Ballard," undated
24. Zip Disk, "JPL Archive Photos of AL1000 Rocket for AZOA Airplane No Titles GALCIT," undated
25. Floppy Disk, "Wind Tunnel Tests, Lilenthal Airfoils, Wright Bros. Airfoils," undated
26. Floppy Disk, "GALCIT Rocket and First Aerojet Rocket AL251000 Produced CD Index," undated

Box 11 *VHS Tapes, 1988- circa 2000 (many undated)*

Tape

1. "Aerojet's Titan Stage One – LR-87," 1988
2. "Space Shuttle Flight 61B Narrated by Lt. Col. Jerry Ross," 1990 (copy 1)
3. "Space Shuttle Flight 61B Narrated by Lt. Col. Jerry Ross," 1990 (copy 2)
4. "Space Shuttle Flight 61B Narrated by Lt. Col. Jerry Ross," 1990 (copy 3)
5. "McDonnell Douglas Delta: The 200th Launch," 1990 (copy 1)
6. "McDonnell Douglas Delta: The 200th Launch," 1990 (copy 2)
7. "Aerojet: 50 Years of Innovation," 1992
8. "Martin Marietta: 'Titan Mission Success,'" 1992
9. "The Titan: America's Silent Hero," 1996
10. "A20A Tests at Muroc, Dubbed from JPL Archives," 2000
11. "Go Atlas! Go Centaur! Co EUTELSAT!" 2000
12. "Investigation of Atmospheric Vortices Associated with the Water Spout – 1971 – Sponsored by NASA and NSSL (with titles)," undated
13. "SSME Nozzle Oscillations During Start, OMS Nozzle Accoustic Oscill.," undated
14. "Space Flight Report to the Nation 1962, Evolution of American Liquid Rocket Engines, Part I and Part II, Aerojet and ARS," undated
15. "Able Star Restartable Rocket Used As Second State on Thor First State Became Delta Launch Vehicle...," undated (copy 1)
16. "Able Star Restartable Rocket Used As Second State on Thor First State Became Delta Launch Vehicle...," undated (copy 2)
17. "Water & Hail Injection Effects On A Jet Engine and Combustor Burn Through With Students At End," undated
18. "Aerojet History, Sea Bee Launch," undated
19. "Video Clip of B47 ATO Take-Offs, F84 ATO Take-Off, B51 ATO Take-Off," undated
20. "Delta II with Gem Solid Boosters," undated

Box 12 *Photographs and Images, 1940s-2000s*

Item

1. Binder, "North American Rocketdyne Engines Repstone F-1 Saturn J-2 Saturn RS27 Delta SSME Shuttle F100 Zelmo" (Photographs and Images, 1940s-1990s)
2. Binder, "TSPC Photos Volume I" (Photographs and Images, 1950s-1960s)
3. Binder, "Reaction Motors Photos and Articles" (Photographs, Diagrams, and Articles, 1950s, 1980s, undated)
4. Binder, "Photos of BellX2 And Curtiss Wright XL25 CW-1" (Photographs, 1940s-1950s, undated, with e-mail from 2002; and envelope of photograph negatives, undated)
5. Binder, "TSPC Photos" (containing Slides, 1970s-1980s)
6. Binder, "NERVA Nuclear Rocket Photos" (scanned images with identification)

sheets, undated; with handwritten notes from 2002)

Box 13 *Photographs and Images, circa 2000s (many undated)*

Item

1. Binder, "Art Pickles Photo Collection Snort Sled BOMARC Unknown Pump" (Photographs, undated; with printout of Press Release, 2002)
2. Binder, "25 AL100B Or XLR1-AJ-1 and 25ALD1000" (Performance Results, undated; Photographs, undated; photocopied Articles, undated)
3. Binder, containing Photographs of Rockets, Airplanes, and Engines, undated
4. Binder, containing Scanned Images of Rockets, Etc., undated
5. Binder, "Aerojet Photos Early Rocket Motors," undated

Folder

1. Microfiche, "Development of ATO Rocket Kellogg," sent to Ehresman from Defense Technical Information Center, 2000
2. Photographs and Images, James A. Allison, undated (sent to Ehresman in 1990); Hartzell Propeller Tour, 2007; William Henry Harrison H.S. Band in Parade, 2009; Unidentified Image of Purdue Students [?], 2009
3. Images of Rockets, Etc., undated
4. Scanned Images, Aerial Views of Purdue Campus, undated
5. Photographs, Ehresman and Others, undated
6. Photographs, Images, and Diagrams, unidentified and undated
7. Prints of Various Aircraft, undated

Sub-series 4. Research Materials, 1920s-2000s

(13 cubic feet)

Box 14 *Research Materials, circa 1920s-2000s*

Item

1. Binder, "Air Force History Study No. 110 History of Assisted Take-Off Devices" (containing photocopies of correspondence, memoranda, and other materials from 1920s-1940s, with correspondence, 2000)
2. Book, Ingersoll-Rand Company, *Cameron Hydraulic Data*, 1934
3. Binder, "GALCIT Project No. 1 Progress Report #10 Summerfield [and] Forman; Development of 25AL1000 Report #13 Summerfield [and] Powell [and] Crofut" (photocopied reports from 1941 and 1942)
4. Binder, "Flight Tests on Douglas A20A Airplane with GALCIT 25 AL1000 Liquid Rockets by Malina" (containing photocopy of 1942 report)
5. Binder, "25AL1000 Training Manual for Douglas A20 Airplane May 1943" (Same as contents of folder 1 below, photocopied)
6. Instruction and Parts Catalog, "Type CH-5 Turbosupercharger," 1945
7. Instruction and Parts Catalog, "Type-B Turbosuperchargers," 1945

8. Binder, "XCAL-200, XCALR-2000A" (containing photocopied handbook, "Handbook of Operation, Service and Overhaul with Parts Catalogue for Aerojet Model XCAL-200 Motor," undated; and photocopied handbook, "Handbook of Instructions for Aerojet Model XCALR-2000A-1," 1945

Folder

- 1.
2. Handbook, GM Allison Pilots Handbook for Allison V-1710-E4 Engines, 1941
3. Bound Document, "Lecture Notes, Examinations and Other Material Pertinent to the Aerojet Training Program Conducted May 3, 1943 to May 13, 1943"
4. Allison Division of General Motors Corporation, "Bulletin No. ALD 5E2 Operation and Maintenance for Allison V-1710 'E' Type Engines," 1945

Box 15 *Research Materials, 1940s-2000s*

Item

1. Binder Containing the Paper "The Problem of Escape from the Earth by Rocket," 1946
2. Binder, "Aerojet Brochure Rocket Power Plants 1948" (photocopied)
3. Binder, "White Sands Proving Grounds Info on GE Launches," (photocopies of materials from 1940s-1950s, with E-Mails, 2000s)
4. Binder, "Robert Godard Papers" (containing photocopies of materials from 1940s, 1980s-1990s, undated; with letter from 1991)
5. Book, Milton W. Rosen, *The Viking Rocket Story*, 1955
6. Bound Document, "Large Rocket Engine Weight Study," 1956
7. Book, Fletcher Pratt, *All About Rockets and Jets*, 1958
8. Book, Liquid Propellant Information Agency, *Liquid Propellant Safety Manual*, 1958
9. Booklet, "Very Large Rocket Engines: Experimental Investigation of Thrust Vector Control and Performance of A Cellular-Type Plug Nozzle Thrust Chamber," 1959
10. Book, Philip Gustave Laurson and William Junkin Cox, *Mechanics of Materials*, 1947
11. Book, Max Jakob and George A. Hawkins, *Elements of Heat Transfer and Insulation*, 1948

Folder

1. Research Memorandum, "Behavior of Commercial Hydrazine in Contact with Various Materials," 1950
2. Booklet, "Final Report, Project Hermes V-2 Missile Program," 1954 (photocopied with handwritten note, 2005)
3. Booklets, Curtiss-Wright "The Engineer's Ramjet Primer," 1956; NASA Memorandum "Propellant Vaporization as a Criterion for Rocket-Engine Design," 1959

4. Research Memorandum, "Effect of Fuel-Orifice Diameter on Performance of Heptane-Oxygen Rocket Engines," 1958 (2 copies)
5. Booklets, "Very Large Rocket Engines: Aerodynamic Analysis of Plug Nozzles," 1958; "Very Large Rocket Engines: Occasional Report No. 2," 1958
6. Booklets, "The Plug Nozzle Story," 1959; "Very Large Rocket Engines: Experimental Investigation of A Cellular Type Plug Nozzle Rocket Motor," 1959; "Plug Nozzle Rocket Engine: Design Information for System Studies," 1959; "Plug Nozzle Program: Quarterly Report No. 2," 1959
7. Subject File, Solid Propellants Information, 1959, 1961, 1964-1965
8. Subject File, Materials sent to Ehresman from Frank H. Winter, Curator, Rocketry Space History Division, National Air and Space Museum, 2008 (photocopies original material and from 1951, 1960, 1966-1967, 1977, 1996, 1998, 2001, undated, and with correspondence and notes, 2005-2008)
9. Articles, Papers, and Book Chapters by Purdue Faculty, 1950s (Loose Material)
10. Articles, Papers, and Book Chapters by Others, 1950s (Loose Material)

Box 16 *Research Materials, 1950s-1980s*

Item

1. Book, R.F. Strauss and R.E. Wiech, Jr., *Fundamentals of Rocket Propulsion*, 1960
2. Booklet, "Proposal for Analytical and Experimental Investigations of Unconventional Nozzle Designs," 1960
3. Booklet, "Summary of Plug Nozzle Investigation," 1960
4. Booklet, "Small ICBM System Engine and Vehicle Design Data," 1960
5. Booklet, "Design Study of a Large Unconventional Liquid Propellant Rocket Engine and Vehicle," 1960
6. Air Force Technical Manual, "General Safety Procedures for Chemical Guided Missile Propellants," 1961
7. Book, Eugene M. Emme, *Aeronautics and Astronautics: An American Chronology of Science and Technology in the Exploration of Space 1915-1960*, 1961
8. Book, Kurt R. Stehling, *Project Vanguard: The Story of Project Vanguard by its Head of Propulsion*, 1961
9. Bound Document, "Aerodynamic Thrust Vector Control for Liquid Propellant Rocket Engines," 1961
10. Bound Document, "Application of Aerodynamic Thrust Vector Control in Liquid Propellant Rocket Engines," 1961
11. Booklet, "Proposal for Plug Segment Research Program," 1961
12. Report, "Analytical and Experimental Investigations of Unconventional Nozzle Designs," 1961

Folder

1. Subject File, Plug Nozzle Material (from envelope marked "Victor Ransom"), Memoranda, Diagrams, Etc., 1959, 1961, 1963, 2008, undated
2. Subject File, Images and Newsletters, Etc., Concerning Rocket Engines, circa 1950s-1970s
3. Booklets, NASA Technical Note "Propellant Vaporization as a Criterion for Rocket-Engine Design," 1960; Technical Report "Propellant Vaporization as a Design Criterion for Rocket-Engine Combustion Chambers," 1960
4. Booklets, "Very Large Rocket Engines: Combustion Instability In A Rocket Chamber With Rectangular Section," 1960; "Small Plug Nozzle Engine: Engine Weights and Parameter Optimizations," 1960; "Plug Nozzle Program: Tasks I and II Final Report," 1960
5. Booklets, "Plug Nozzle Program: Quarterly Report No. 1," 1960; "Plug Nozzle Program: Quarterly Report No. 2," 1960
6. Booklets, "Plug Nozzle Program: Contract NASw40, Supporting Task, Final Report," 1960; "Quarterly Report No. 2: Analytical and Experimental Investigations of Unconventional Nozzle Designs," 1960
7. Booklets, "Report No. LRP 178 Physical Properties of Liquid Propellants," 1960; Report, "Research and Development Capabilities and Interests," 1961
8. Booklets, NASA Proceedings "Conference on Results of the First U.S. Manned Suborbital Space Flight," 1961; Technical Note "Performance of Small (100-LB Thrust) Rocket Motors Using Coaxial Injection of Hydrazine and Nitrogen Tetroxide," 1961
9. Booklet, "Plug Nozzle Segment Testing: Using Liquid Hydrogen-Liquid Oxygen," 1961
10. Magazine, *Astronautics*, Vol. 6, No. 10, October 1961
11. Research Memoranda, Etc., 1961, 1971, 1984, undated (Loose Material)

Box 17 *Research Materials, 1961-1969*

Item

1. Report, "Plug-Nozzle Program," 1961 (copy 1)
2. Report, "Plug-Nozzle Program," 1961 (copy 2)
3. Binder, Bell Aerosystems Company, "Titan II Storable Propellant Handbook," 1962
4. Book, N.I. Melek-Pashayev, *Liquid Propellant Engines*, 1962
5. Book, J. Grey and V. Grey, *American Rocket Society Space Flight Report to the Nation*, 1962
6. Booklet (Report), "Storable Liquid Propellants Nitrogen Tetroxide/Aerozine 50," 1962
7. Book, Paul J. Weber, *The Tape Recorder as an Instrumentation Device*, 3rd Edition, 1963
8. Book, H.B. Knoll, *The Story of Purdue Engineering*, 1963
9. Binder, Containing Photocopied "Rules for Construction of Nuclear Vessels," 1963
10. Booklet (Report), "Selected Terminology and Data Applicable to Nuclear

- Propulsion and Space Travel with Special Reference to the NERVA Program," 1964
11. Binder, Allison Division of General Motors Corporation, "Operation, Maintenance and Overhaul Manual T63-A-5 GAS Turbine Engine," 1964 (with Allison diagram of "Compressor Flow Stability Rig," 1969)

Folder

1. Bell Aerosystems Company Report, "Titan II Storable Propellant Handbook," 1962
2. Booklet, NASA "Launch Vehicles of the National Launch Vehicle Program," 1963
3. Booklets, "Azusa Calibration Program Manual," 1963; "LRO Equipment Qualification Status Sheet," 1964; 260-IN.-DIA Motor Feasibility Demonstration Program, Final Program Report," 1966
4. Subject File, Military Spec. File, 1964
5. Chemical Propulsion Information Agency Booklet, "Static Test Safety Manual," 1965
6. Booklets, Control Data 1700 Computer System Manuals, 1965
7. Military Specification for Fluid Lines and Fittings for Missiles and Related Ground Equipment, 1965

Box 18 *Research Materials, circa 1960s-1990s*

Item

1. Booklet, "Titan-1 System Materiel: Spares for Missile Support Equipment," 1965
2. Booklet, "Titan-1 Excess Weapon System Materiel: Volume 1-B, Aerospace Ground Equipment," 1965
3. Booklet, "Atlas 'F' Excess Weapon System Materiel: Volume II, Communication, Electronics, and Meteorological Equipment," 1965
4. Booklet, "Atlas 'F' Excess Weapon System Materiel: Volume I, Aerospace Ground Equipment," 1965
5. Booklet, "Atlas 'E' Excess Weapon System Materiel: Volume III-B, Real Property Installed Equipment," 1965
6. Booklet, "Atlas 'E' Excess Weapon System Materiel: Volume II, Communication, Electronics, and Meteorological Equipment," 1965
7. Booklet, "Atlas 'F' Excess Weapon System Materiel: Volume III, Real Property Installed Equipment," 1965
8. Booklet, "Titan I Excess Weapon System Materiel: Volume II, Communication, Electronics, and Meteorological Equipment," 1965
9. Booklet, "Atlas 'E' Excess Weapon System Materiel: Volume I, Aerospace Ground Equipment," 1965
10. Booklet, "Titan I Excess Weapon System Materiel: Volume III-A, Real Property Installed Equipment," 1965
11. Booklet, "Titan I Excess Weapon System Materiel: Volume III-B, Real

- Property Installed Equipment," 1965
12. Book, J.B. Kenndrick, *TRW Space Data*, 3rd Edition, 1967 (copy 1)
 13. Book, J.B. Kenndrick, *TRW Space Data*, 3rd Edition, 1967 (copy 2)
 14. Binder, "Ray Stiffs Paper Storable Liquid Rockets," 1967
 15. Book, L. Edson and T. Von Kármán, *The Wind and Beyond: Theodore von Kármán Pioneer in Aviation and Pathfinder in Space*, 1967
 16. Book, E.F. Bruhn, *Analysis and Design of Missile Structures*, 1967
 17. Aeronautical Vest-Pocket Handbook, 1968
 18. Booklet, National Fire Protection Association, "Fire Hazards in Oxygen-Enriched Atmospheres: 1969"
 19. Book, W.A. Donor, Jr., "TRW Space Log: Summer/Fall 1969," 1970
 20. U.S. Army Materiel Command Handbook, "Engineering Design Handbook: Elements of Aircraft and Missile Propulsion," 1969
 21. Binder Containing "Saturn Illustrated Chronology," circa 1960s (Photocopied with attached letter, 1993); Booklet, "Saturn V Flight Manual," 1969
 22. Binder, "Whittle & Hain Jet Engine Hist" (containing photocopied materials from 1960s, 1980s-1990s, undated)

Folder

1. Rocketdyne Booklet, "Engineering Property Data on Rocket Propellants, Second Quarterly Report," 1966
2. NASA Publication, Issue of *NASA Facts*, 1967
3. Booklet, "Report No. 8160-6S Performance and Properties of Liquid Propellants," 1967
4. Bound Collection of NASA Visual Aid Prints and Abstracts used in the Space Storable Specialist Conference, 1969 (folder 1 of 2)
5. Bound Collection of NASA Visual Aid Prints and Abstracts used in the Space Storable Specialist Conference, 1969 (folder 2 of 2)
6. Booklet, "The Greatest Storm on Earth...Hurricane," 1969
7. Articles, Papers, and Book Chapters by Others, 1960s (Loose Material)

Box 19 *Research Materials, 1970-1974*

Item

1. Binder, "Aerojet XE Prime Engine Final Report Vol. II Assembly Test Disassembly Operations," 1970
2. Binder, "XE Prime Aerojet Engine Final Report Vol. III Book 1 Test Data Analysis," 1970
3. Binder, "Aerojet XE Prime Engine Final Report Vol. III Book 2 Test Data Analysis Startup Systems," 1970
4. Box Containing the Book *Aerojet: The Creative Company* and Information Pertaining to the Book," 1971
5. Photocopied Book, *Ignition! An Informal History of Liquid Propellants*, 1973
6. Booklet, "TRW Space Log, 1972," 1973
7. Book, Michael Stoiko, *Pioneers of Rocketry*, 1974

Folder

1. NASA Booklets, Technical Memorandum "Study of Wire-Deploying Devices Designed to Trigger Lightning," 1971; Design Criteria "Solid Rocket Motor Igniters," 1971; Design Criteria "Captive-Fired Testing of Solid Rocket Motors," 1971
2. Booklets, NASA Technical Translation "Satellite Climatology," 1972; NASA Technical Translation "Electricity of Clouds," 1972; NASA Technical Note "Air-Sea Interaction in the Tropical Pacific Ocean," 1972; Naval Research *Reviews*, March 1972
3. NASA Booklets, Technical Report "Droplet Breakup in Accelerating Gas Flows Part I: Primary Atomization," 1973; Technical Report "Droplet Breakup in Accelerating Gas Flows Part II: Secondary Atomization," 1973

Box 20 *Research Materials, circa 1970s-1990s*

Item

1. Book, Jet Propulsion Laboratory of California Institute of Technology, *Should We Have a New Engine? An Automobile Power Systems Evaluation*, 1975
2. Booklet, Edie Scott, "TRW Space Log: 1974," 1975
3. Binder, "Aerojet Liquid Rocket Engines," 1975
4. Binder, NASA Report "Liquid Rocket Engine Nozzles," 1976
5. Book, W. Brown, H. Kahn and L. Martel, *The Next 200 Years: A Scenario for American and World*, 1976
6. Book, Fred Anderson, *Northrop: An Aeronautical History*, 1976
7. Binder, "RCS Training Manual; OMS Training Manual & Design Features," (containing booklet on design features, 1976; and manuals, 1984, 1987)
8. Book, Edie Scott, "TRW Space Log: 1976," 1977
9. Book, S.N.B. Murthy, *Engine-Airframe Integration: Short-Haul Aircraft*, 1977
10. Book, J. Birkeland and C.T. Bowman, *Alternative Hydrocarbon Fuels: Combustion and Chemical Kinetics*, 1978
11. Book, Bill Gunston, *By Jupiter: The Life of Sir Roy Fedden*, 1978 (Photocopied)
12. Binder, NASA Publication "Flight Operations Directorate Preliminary Shuttle Flight Operations Manual Volume 8A-Main Propulsion Systems," 1979 (photocopied)
13. Booklet, Howard Allaway, *The Space Shuttle at Work*, 1979
14. Book, C.R. Westaway and A.W. Loomis, *Cameron Hydraulic Data*, 1979
15. Binder, "Space Shuttle Main Engine Descrip. & Operat.," (containing materials from 1970s-1980s)

Folder

1. NASA Booklet, "Active Suppression of Pogo on the Space Shuttle," 1974
2. McDonnell Aircraft Company Booklets, "An Analysis of Contact Investigation Missions Against Submarines Employing Long Range Anti-Shipping Missiles (ASM)," 1974; "Operational Aspects of a Long Range V/STOL Aircraft in

- Various Military Missions," 1975
- 3. NASA Booklet, Monograph *Space Shuttle*, 1975
- 4. Booklet, "Space Shuttle Orbital Maneuvering Subsystem Rocket Engine, Design Features," 1976
- 5. NASA Booklet, Technical Memorandum "Space Shuttle Pogo Active Controller Design Using Frequency Domain Optimization," 1976
- 6. Brochure, "The Allison Model 250-C30 Powers...the Sikorsky S-76," 1977
- 7. Subject File, Articles about Rudi Beichel, 1977, 1980, 1999 (photocopied); Copy of Beichel's Resume, circa 1990s (Loose Material)
- 8. NASA Booklet, Technical Paper "Space Shuttle Active-Pogo-Suppressor Control Design Using Linear Quadratic Regulator Techniques," 1979
- 9. Articles, Papers, and Book Chapters by Purdue Faculty, 1970s (Loose Material)
- 10. Articles, Papers, and Book Chapters by Others, 1970s (Loose Material)

Box 21 *Research Materials, circa 1970s-1990s*

Item

- 1. Binder, "TDRSS-Space Station; NERVA-Nuclear; Titan II, 34D, IV; ATLAS I, II, IIA, IIAS; Delta II 6925, II 7925 Castor and Gem Strap-ons; Ariane 5 Vulcain HM/60 1st State L7 2nd State; Japanese H-I, H-2 LD 5 Engine 2nd State LE 7 Engine 1st State" (containing materials published circa 1970s-1990s)
- 2. Binder, "Space Shuttle System Summary" (containing materials published circa 1970s-1990s)
- 3. Book, E.H. Heinemann and R. Rausa, R., *Ed Heinemann: Combat Aircraft Designer*, 1980
- 4. Binder, "RL 10" (containing RL10A-3-3A Rocket Engine fact sheets, 1986; United Technologies Pratt & Whitney Aircraft memo and RL10A-3-3A data, 1984; photocopied report, "Orbit Transfer Vehicle Engine Study," 1980)
- 5. Rockwell International Manual, "SSME Training Data for Course No. OE432-RIR Engine and GSE Organizational Maintenance," 1980
- 6. Rockwell International Manual, "SSME Training Data Engine Orientation Supports Course No. OE-110 RIR," 1980
- 7. Book, Aerospace Corporation, *Energy Technologies and the Environment: Environmental Information Handbook*, 1981
- 8. Booklet, "Titan II Propulsion Subsystem," 1981
- 9. Booklet, "Titan II Propulsion Subsystem," 1981 (copy 2)

Folder

- 1. Booklet, "Life at Aerojet-General University: A Memoir," 1981 (1994 reprint)
- 2. Booklet, "Air Force Rocket Propulsion Laboratory," 1982

Box 22 *Research Materials, circa 1980s-1990s*

Item

1. Bound Space Transportation System Technical Manuals, 1982, 1987 (with handwritten note, undated)
2. Book, Paul F. Deisler, Jr., *Reducing the Carcinogenic Risk in Industry*, 1984 (with attached handwritten message, 1985)
3. NASA Publication, "Orbiter Systems Training Manual OMS 2102," 1984 (photocopied)
4. Booklet (Report), "Design Selection Methodology For The Main Chamber Assembly of LO2/LH2 Staged Combustion Engines," 1986
5. Book, James J. St. Peter, *History of the Aircraft Gas Turbine Engine in the United States: Bibliography*, 1988
6. Booklet, "Titan III Propulsion Systems," 1988 (copy 1)
7. Booklet, "Titan III Propulsion Systems," 1988 (copy 2)
8. Booklet, Department of Defense, *Soviet Military Power: An Assessment of the Threat 1988*, 1988
9. Binder, "Titan III," 1988 (photocopy of items #6 and 7 above)
10. Booklet, Department of Defense, *Soviet Military Power: Prospects for Change 1989*, 1989
11. Booklet, "Titan IV Propulsion Engineering," 1989
12. Binder, "Titan IV Propulsion Engineering 1/89," 1989 (photocopy of item #6)
13. McDonnell Douglas Binder, "Commercial Delta II Payload Planners Guide," 1989
14. Bound Material, Curtiss-Wright "Control Components Data," circa 1980s

Folder

1. Articles and Notes about Rocketry and Robert C. Traux, 1983, 1985, 1994, 1996
2. Guide with Memorandum, "Design Guide for Liquid Propellant Rocket Combustor Resonator," 1984 (with attached memo)
3. NASA Booklet, Contractor Report "Free-Jet Acoustic Investigation of High-Radius-Ratio Coannular Plug Nozzles," 1984 (photocopied)
4. Martin Marietta Booklet, "A Nice Flying Machine," 1985
5. Hercules Aerospace Company Booklet, "Hercules Tactical Propulsion," 1989
6. Brochure, "Pegasus Air-Launch Space Booster: An Affordable and Flexible Space Launch System," 1989
7. Articles, Papers, and Book Chapters by Purdue Faculty, 1980s (Loose Material)
8. Articles, Papers, and Book Chapters by Others, 1980s (Loose Material)

Box 23 *Research Materials, circa 1980s-2000s*

Item

1. Binder, "Space Shuttle Orbiter Main Engine Interface Control Document"

- (containing "Space Shuttle Interface Control Document," circa 1980s
- 2. Bound Material, Curtiss-Wright "Control Components Data," circa 1980s (photocopied, copy 2, part 1 of 2)
- 3. Bound Material, Curtiss-Wright "Control Components Data," circa 1980s (photocopied, copy 2, part 2 of 2)
- 4. Booklet, Department of Defense, *Soviet Military Power 1990*, 1990
- 5. Book, Harry Wulforst, *The Rocketmakers: The Dreamers Who Made Space Flight a Reality*, 1990
- 6. Binder, "Russian Launchers: Vostok Proton Zenit Energia; Russian Engines: RD120 RD701, RD170; Chinese Launchers: CZ1, CZ2, CZ3, CZ4 Aerospike Japan" (containing various papers, etc., published 1991-1994, 1997, 2000)
- 7. McDonnell Douglas Binder, "Delta II Payload Planners Guide," 1993

Folder

- 1. NASA Booklet, *Spinoff Monograph*, 1990
- 2. Subject File, Traux Engineering, circa 1990
- 3. Subject File, Plug Nozzle Aerospike Materials, 1990, 2001, 2004
- 4. Rockwell International Packet, "Expendable Launch Vehicle Engines," 1991
- 5. Report, Sverdrup Corporation, "Overview of Rover Engine Tests," 1991 (photocopied, with note from Rick Ballard, 2002)
- 6. Booklet, "Achievements of Aerojet: The First 50 Years," 1992
- 7. Bound Presentation, "Highlights of 50 Years of Aerojet, A Pioneering American Rocket Company, 1942-1992," 1993

Box 24 *Research Materials, 1990s-2000s*

Item

- 1. Book, A.F. Grandt, Jr., W.A. Gustafson, and L.T. Cargino, *One Small Step: The History of Aerospace Engineering at Purdue University*, 1996
- 2. Binder, "Aerojet A Creative Comp. Mailing List," 1997
- 3. Book, Norman R. Augustine, *Augustine's Laws*, 6th Edition, 1997
- 4. Book, Philippe Jung, *History of Rocketry and Astronautics*, 1998
- 5. Binder, "Inside Delta Newsletter" (containing Boeing Company newsletters published between 1998 and 2001)
- 6. Book, John Carter, *Sex and Rockets: The Occult World of Jack Parsons*, 1999
- 7. Binder, "Indian Congreve Hale Rockets" (containing materials circa 1990s, undated)
- 8. Binder, "Walter 109-509 Rocket Info; A4 or V2 Info" (containing papers and fax transmissions, circa 1990s)
- 9. Binder "AFM91-201 AF Explosive Safety Standard" (containing Air Force Manual 91-201 Explosives Safety Standards, 2000)

Folder

- 1. Catalog and Ordering List, Proctor Enterprises, 1994

2. Booklet, "Air Force Supersonic Research Airplane XS-1," 1997 (reprint of 1948 report)
3. Aerojet Book Mailing List (same as item #2 above)
4. NASA Publication, Photocopied Article on Propellant Feed System Leak Detection, 1999
5. Boeing Rocket Propulsion Systems Booklet, 1999 (with photocopied article on Sam Iacobellis, 2007; and Pratt & Whitney Rocketdyne Information, 2005, 2007)
6. Subject File, John W. Parsons and Dan Fry Information, Etc., 2000, undated
7. Subject File, Compressor Oil Investigation Materials, 2000
8. Articles, Papers, and Book Chapters by Purdue Faculty, 1990s (Loose Material)
9. Articles, Papers, and Book Chapters by Others, 1990s (Loose Material)

Box 25 *Research Materials, 2001-2009*

Item

1. Book, Margaret Conner, *Hans von Ohain: Elegance in Flight*, 2001
2. Book, F.I. Ordway, III., and M.R. Sharpe, *The Rocket Team*, 2003
3. Book, Theodore Von Kármán, *Aerodynamics Selected in the Light of their Historical Development*, 2004
4. Book, George Pendle, *Strange Angel: The Otherworldly Life of Rocket Scientist John Whiteside Parsons*, 2005
5. Binder, *History of Liquid Propellant Rocket Engines* Manuscript (containing manuscript, e-mails and Ehresman notes and comments), 2005
6. Book, Premier Turbines, *The First Fifty Years in Space Town USA*, 2006
7. Book, Robert S. Kraemer, *Rocketdyne: Powering Humans into Space*, 2006 (copy 1)
8. Book, Robert S. Kraemer, *Rocketdyne: Powering Humans into Space*, 2006 (copy 2)
9. Printout of Webpage, "Truax Engineering Multimedia Archive," 2008
10. Magazines, *American Scientist* (2 issues), 2008-2009

Folder

1. Letters and articles Concerning Pancho Barnes, 2002-2003
2. Subject File, Research on Aerobee Rockets, 2004 (containing correspondence and e-mails, 2003-2004; internet search results, 2003; fax cover sheets, 2004; work orders, 2002, 2004)
3. Subject File, Research on Aerobee Rockets, 2004 (containing article and e-mails, 2008, undated)
4. Subject File, Research on Aerobee Rockets, 2004 (containing photocopied articles and papers, undated)
5. Subject File, Research on Aerobee Rockets, 2004 (containing notes and diagrams, undated)
6. Subject File, Research on Aerobee Rockets, 2004 (photocopied

- publications, circa 1940s-2000s
7. Subject File, X-33 Aerospike Engine Information, 2009

Box 26 *Research Materials, 2000s (many undated)*

Item

1. Binder, "GE Liquid Rocket Experience At Malta, NY," undated
2. Binder, "On the Cutting Edge: A Memoir About Cold War Engineering and Space Exploration," undated
3. Binder, "Report 1135: Equations, Tables, and Charts for Compressible Flow," undated
4. Binder containing Abstract and Paper on Martin Summerfield and the Princeton University Propulsion and Combustion Laboratory," 2011 (with correspondence, 2010-2011)

Folder

1. Articles, Papers, and Book Chapters by Purdue Faculty, 2000s (Loose Material)
2. Articles, Papers, and Book Chapters by Others, 2000s (Loose Material)
3. Technical and Service Bulletins, undated
4. Lecture, "The Liquid Propellant Power Plant," undated
5. L.C. Smith & Company Manual, "Operation Manual for Switchbox Control Model DI-ABA-SB-SM," undated
6. LTV Aerospace Corporation Booklets, "Scout Launch Vehicle," undated
7. Subject File, Literature on Saturn Rocket Chronology, undated
8. Subject File, Titan Launch Vehicle and Rocket Information Transparencies, undated
9. Allison Booklets, Etc., undated
10. W.E. Campbell Presentation on Aerojet, undated
11. Information on Rocket Engines, undated
12. Booklets, "Data Acquisition and Analysis Center," undated; "Vibration and Shock Laboratory," undated; "Rocket Propulsion Test Laboratories," undated; "Test Laboratories and Facilities," undated; "Support Systems Management in Technical Services," undated
13. Booklet, "Minuteman SM-80 Second-Stage Engine Ordnance Safety," undated
14. Booklets, "Liquid Bi-Propellant Rocket Propulsion Experience and Capabilities," undated (2 copies); "The Plug Nozzle Rocket Engine...Evolution in Rocket Engine Design," undated
15. Articles, Papers, and Book Chapters by Purdue Faculty, undated (Loose Material)
16. Articles, Papers, and Book Chapters by Others, undated or incomplete (Loose Material)

Series 2. Thermal Sciences and Propulsion Center (Zucrow Labs) Administration, 1940s-2000s

(8.5 cubic feet)

Sub-series 1. History and Legacy, 1940s-2000s

(2.2 cubic feet)

Box 27 *Subject Files, 1946-2004*

Folder

1. Photocopied Maurice Zucrow Correspondence from 1946; Zucrow Biographical Information, undated
2. George R. Schneider Lab Alum Correspondence, Conference Information, Etc., 1994-1996
3. Newsletter, Newspaper, and Magazine Articles Concerning Zucrow Labs, 1995, 2003-2004
4. Alumni Directory, 1996 (with Attached Obituary, undated) (Loose Material)
5. Invoices, Correspondence, Address Lists Concerning History of Alumni Photo CD, 1996-1997
6. Photos Returned File (Address List, Correspondence, Etc.), 1996-1997
7. TSPC Video Outline, Notes, Drafts, Photograph Lists, Etc., 1996-1997
8. Proposed TSPC Video Draft Outlines, circa 1996-1997
9. Zucrow Memorial Lab Rename Address Lists, Fax Cover Sheets, Memoranda, Correspondence, Etc., 1996-1998
10. TSPC Vision and Operations Meetings, Materials, and 50th Anniversary Committee Notes, 1996-1998

Box 28 *Subject Files, 1996-2008*

Folder

1. Responses from Letter Regarding Lab's 50th Anniversary, 1996-1997
2. "Outstanding Mechanical Engineers" List, 1997 (Loose Material)
3. TSPC Video Volume I The Zucrow Years Outline Drafts, circa 1997
4. 50th Anniversary Banquet and Video Correspondence, Alumni Directories, Notes, Etc., 1998-1999
5. TSPC 50th Anniversary Labels, 1999 (Loose Material)
6. Printed Labels, 50th Anniversary Celebration, 1999-2000
7. Lab History Webpage Printouts, 2001-2002, 2005
8. E-Mails Concerning Maurice Zucrow for Zucrow Lab History Web Page, 2002
9. Drafts of Text for Zucrow Lab History Webpage, 2002; Notes and Scanned Images, undated
10. Lab Alumni Correspondence, Etc., 2002-2003
11. Johns Hopkins University Newsletter Concerning Article about Propulsion Programs and Facilities at Purdue, 2005 (Loose Material)

12. Printouts of Lab History Webpage, 2008 (Loose Material)
13. Lab History Webpage, Publications Concerning Maurice Zucrow and Zucrow Laboratories, undated
14. Negatives of TSPC Alumni Photos and Identification List, undated
15. Identification Notes for TSPC Photo CD, undated
16. Photocopied Articles Concerning Zucrow Lab Alumni, undated
17. Printout from Partial Presentation about TSPC, undated (Loose Material)
18. TSPC Alumni Lists, undated (Loose Material)
19. Identification List for TSPC Photograph, undated (Loose Material)

Box 29 *Photographs and Images, circa 1940s-1998 (many undated)*

Item

1. Photograph Album (with photo description list), 1940s-1950s
2. Binder, "TSPC Photos Volume II (Containing Photographs, circa 1960s-2000s; Press Releases and Newspaper Articles, 1956, 1965-1966, 1976, 1979; Undergraduate Thesis on "Four Quadlet Injector Design," 1971; Biographical Data on John L. Sloop, 1964; Paper, "Thermal Sciences and Propulsion Center Purdue University West Lafayette, Indiana, by Professor Cecil F. Warner

Folder

1. Photographs and Negatives, Zucrow Lab 50th Anniversary Banquet and Video, 1998
2. Image, "High Pressure Lab 10,000LB Thrust Rocket On Stand Ran at 4500PSI Chamber Pressure," undated (2 copies)
3. Image, "High Pressure Lab Oscillograph Record of a Rocket Motor Run," undated (2 copies)
4. Image, "High Pressure Lab Mezzanine Fuel Tank Room," undated (2 copies)
5. Image, "High Pressure Lab Mezzanine Oxidizer Tank Room," undated (2 copies)
6. Image, "High Pressure Lab Purge and Actuation N2 Supply," undated (2 copies)
7. Image, "High Pressure Lab Grayloc Fittings for High Pressure Propellant and Pressurization Lines," undated (2 copies)
8. Image, "High Pressure Lab Propellant and Coolant Flow System Showing Piping Routing and Tank Locations," undated (2 copies)
9. Image, "High Pressure Lab Oxidizer Tank Room," undated (2 copies)
10. Image, "High Pressure Lab Oxidizer Service Room," undated (2 copies)
11. Image, "High Pressure Lab Oxidizer Service Room," undated, cont. (2 copies)
12. Image, "High Pressure Lab Oxidizer Service Panel to Permit Transfer of Oxidizer From Shipping Container to Ready Storage Tank," undated (2 copies)
13. Image, "High Pressure Lab Facility and Rocket Firing Control Panel,"

- undated (2 copies)
14. Image, "High Pressure Lab Facility Control for Deluge High Rate Fan and Master Pane Power, undated" (2 copies)
 15. Image, "High Pressure Lab Facility Propellant and Pressure N2 Control Panel," undated (2 copies)
 16. Image, "High Pressure Lab Facility and Rocket Control Panels," undated (2 copies)
 17. Image, "High Pressure Lab Rocket Firing Sequence Controller and Dry Run Simulator," undated (2 copies)
 18. Image, "High Pressure Lab Data and Control Block Diagram," undated (2 copies)
 19. Image, "High Pressure Lab System Schematic," undated (2 copies)
 20. Image, "High Pressure Lab Control Room (Instrumentation and Control Panels)," undated (2 copies)
 21. Image, "High Pressure Lab Instrumentation and Control Panel Service Area," undated (2 copies)
 22. Image, "High Pressure Lab Aerial Photo," undated (2 copies)
 23. Image, "High Pressure Lab Exterior View Looking East," undated (2 copies)
 24. Image, "High Pressure Lab 2200PSI Air Supply Tanks from Atlas Sites Near Cheyenne Wyoming," undated (2 copies)
 25. Image, "High Pressure Lab High Pressure N2 Storage Tank Farm," undated (2 copies)
 26. Image, "High Pressure Lab Shown on a Lab Site Drawing," undated (2 copies)
 27. Image, "High Pressure Lab Site Layout," undated (2 copies)
 28. Image, "High Pressure Lab Building Plan," undated (2 copies)

Box 30 *Multimedia, circa 1940s-2000s (many undated)*

Item

1. Compact Disk, "Alumni Photos," 1998
2. VHS Tape, "TSPC 50th Anniversary Celebration," 1999 (Copy 1)
3. VHS Tape, "TSPC 50th Anniversary Celebration," 1999 (Copy 2)
4. VHS Tape, "TSPC 50th Anniversary Celebration," 1999 (Copy 3)
5. Zip Disk, "TSPC 50th Anniversary Photos from Alumni, Zucrow Poster Photos, for Zucrow Lab Website History, Lab Aerial Photo," circa 1999
6. Compact Disk, "Zucrow Lab Historical Photos," 2007
7. Compact Disk, "Propulsion Alum PhD Photos From Hall Displays," 2007
8. Compact Disk, "Von Braun Visit to Zucrow Labs (PCC) 5/7/53," 2007
9. VHS Tape, "Thermal Sciences and Propulsion Center, Volume 1: 'The Zucrow Years,'" undated (Copy 1, digital copy available, 2016)
10. VHS Tape, "Thermal Sciences and Propulsion Center, Volume 1: 'The Zucrow Years,'" undated (Copy 2, digital copy available, 2016)
11. VHS Tape, "Thermal Sciences and Propulsion Center, Volume 1: 'The Zucrow Years,'" undated (Copy 3, digital copy available, 2016)

12. VHS Tape, "Unedited Film Clips from Jet Propulsion Center Starting 1948 To 1965," undated
13. VHS Tape, "Ehresman Original" (unidentified with undated note attached), undated
14. Floppy Disk, "Zucrow," undated
15. Floppy Disk, "Photos of Goodyear Blimp at Zucrow Lab," undated

Sub-series 2. Lab Operations, 1950s-2000s

(5.6 cubic feet)

Box 31 *Subject Files, circa 1950s-1970s*

Item

1. Bound Material, Operating & Service Instructions, Jet Propulsion Center – High Pressure Research Facility, 1965
2. Bound Material, "Test Engineer's Handbook" (containing various documents dated 1950s-1970s)

Folder

1. Aerojet, Completed Inspection Forms, Etc., 1956, 1960, 1965, 1968
2. Smithsonian Walther Engine Donation, Correspondence, Etc., 1957, 1966-1968
3. Aerojet, Completed Inspection Forms, 1957-1958, 1965, 1968
4. Aerojet, Completed Inspection Forms, 1957-1958, 1965, 1968
5. Aerojet, Completed Inspection Forms, 1957-1958, 1965, 1968
6. Gas Supply Quotations, Technical Reports, 1959, 1962; Technical Proposal, 1962
7. Publicity Materials, circa 1950s-1970s
8. Pressurization Gas Supply Quotations, Miscellaneous Materials, 1960-1964
9. C. Propellant Supply System, Correspondence, Assembly Requirements Outline, Etc., 1960, 1964-1965
10. Publicity Materials, Newspaper Articles and Press Release, 1961
11. Oscillograph Catalogs, Etc., 1961-1965
12. Chemical Scrubber Diagram and Description, 1963-1964
13. Scrubber Quotes, Correspondence, Catalogs, Notes, Etc., 1963-1965
14. Strip Chart Recorders, Catalogs, Correspondence, Etc., 1963, 1965
15. G. Noise Attenuation System, Correspondence, Summary, and Graphs, 1964
16. Pressurization System, Materials, 1964
17. Pivan Engineering, Cover Letter and Catalog, 1964
18. Pressurization Gas Supply Quotations, Correspondence, 1964-1965
19. Pressurization Gas Supply Quotations, Technical Reports, 1964-1965
20. Test Cell Diagrams, Notes, Correspondence, Etc., 1964-1965
21. Data Acquisition Systems Promotional Material, Correspondence, 1964-1965 (folder 1 of 3)

22. Data Acquisition Systems Promotional Material, Correspondence, 1964-1965 (folder 2 of 3)
23. Data Acquisition Systems Promotional Material, Correspondence, 1964-1965 (folder 3 of 3)
24. Television Camera Promotional Materials, Etc., 1964-1965
25. High Combustion Research Facility Meeting Notes, Etc., 1964-1965
26. High Pressure Combustion Research Facility Project Schedule, Correspondence, Memoranda, Etc., 1964-1966
27. Propellant and Coolant Run Tanks Correspondence and Notes, 1964, 1966
28. High Pressure Research Facility Trip Reports, 1964-1967
29. High Pressure Research Facility Cost and Budget Materials, 1964-1966, 1968-1969
30. High Pressure Research Facility Meeting Reports, 1964-1965, 1971
31. Control and Instrumentation System Quotations, 1965
32. Pressurization System Quotations Letter, 1965
33. Purge System Quotations Letter, 1965

Box 32 *Subject Files, 1965-1974*

Item

1. Bound Material, System Check Out Lists and Forms, circa 1965-1966
2. Bound Material, System Check Out Lists and Forms, 1967
3. Bound Material, System Check Out Lists and Forms, circa 1967
4. Bound Material, Combustion Laboratory Firing Schedule, 1967-1974

Folder

1. High Pressure Dedication Diagram, Draft of Announcement Letter, Name Lists, Correspondence, Etc., 1965
2. Data Acquisition Quotations, 1965
3. Control and Instrumentation System Quotations, 1965
4. Preston Technical Specification Memorandum, 1965
5. Document, "Design Consideration for a High Pressure Combustion Research Facility," 1965
6. Venders and Suppliers Quotations and Bids, 1965 (Loose Material)
7. Equipment Requests, circa 1965
8. Copy of Drawing, Planned Combustion Research Facility, circa 1965 (Loose Material)
9. Piping File, 1965-1966
10. System and Equipment Diagrams, 1965-1966
11. Kistler Instrument Corporation Manuals, Etc., 1965-1967
12. Correspondence and Memoranda pertaining to JPC, 1965-1967 (Loose Material)
13. Memoranda, 1965, 1967
14. Staff Meeting Notes, 1965-1968
15. Requests for Requisitions, 1965-1969, 1971

16. Dedication of JPC Library and Office Building and Combustion Research Laboratory Flyer, 1966
17. Propellant File, 1966-1971
18. Aerojet, Completed Inspection Forms, 1966, 1968
19. Aerojet, Completed Inspection Forms, 1966, 1968, cont.
20. Invoices, Vouchers, Etc., 1966, 1968
21. Surplus Equipment Inventories, 1966, 1969
22. Midwest Piping Shipping Inventory, 1967 (Loose Material)
23. Facility Checkout Procedures, 1967
24. Expenditures, Notes, Etc., 1967
25. Liquid Nitrogen, Expense Information, Etc., 1967, 1969-1970, 1974
26. Requisition and Invoice Forms, 1968
27. Liquid Nitrogen Cylinder Status Materials, 1968
28. Publicity Materials, Newsletter, Photographs, Etc., 1968
29. Aerojet Property Invoices, Inventories, Correspondence, Etc., 1968-1969
30. Liquid Consumption Log, 1968-1972
31. Aerojet FTA Processor Materials, 1968-1969, 1972
32. Purchasing Committee Correspondence, Memoranda, Notes, 1969-1970, 1972
33. Rocket Valves and Air Systems Notes, Diagrams, and Correspondence, 1960s (Loose Material)
34. Checkout Sheets, circa 1960s (Loose Material)
35. Equipment Charts, circa 1960s
36. Valve Specifications, circa 1960s
37. Information on Jet Propulsion Center and Zucrow Engineering Research Center, circa 1960s (Loose Material)
38. Publicity Materials, Photographs, Etc., circa 1960s
39. G. Trenker Air Augmentation Outlines, circa 1960s
40. Completed Cost Forms and Notes, circa 1960s

Box 33 *Subject Files, circa 1960s-2000s*

Item

1. Bound Material, Notes on the Data Acquisition System, circa 1960s (copy 1)
2. Bound Material, Notes on the Data Acquisition System, circa 1960s (copy 2)
3. Information Booklet, "Propulsion and Power Systems, Thermal Sciences and Propulsion Center, undated
4. Binder containing an introduction to the Thermal Sciences and Propulsion Center, Listing of Faculty and Staff, and Résumés, 1980s

Folder

1. Current Checklists, circa 1960s
2. Facility Information, circa 1960s
3. Memorandum on Responsibilities of JPC Staff, circa 1960s
4. System Checklists, circa 1960s

5. Zerc. Policies, 1970, 1972-1973
6. Lab Reorganization Memoranda, Proposal Drafts, Etc., 1971-1972
7. Liquid Consumption Log, 1972-1973 (Loose Material)
8. Ingersoll-Rand Compressor Letter, 1998
9. Building and Room Identification Packet, 1999
10. Lab Director Change Meeting, e-mails and Outlines, 1999
11. Labs Space, Floor Plans, Room Inventories, Notes, Etc., circa 1999-2000
12. New Rocket Test Facility and Hydrogen Peroxide Safety Briefing, E-Mails, Information, Etc., 2000-2001 (Loose Material)
13. New Rocket Test Facility and Hydrogen Peroxide Safety Briefing, E-Mails, Information, Etc., 2000-2001 (Loose Material), cont.
14. Pulsed Detonation Rig Operating Checklist, 2002
15. Lab Briefing for ASME Visit, Overheads, Lab Information, Etc., circa 2002
16. Professor Cecil Warner Recognition Miscellaneous Materials, circa 2003, 2005
17. Professor Cecil Warner Recognition Correspondence, 2004, undated; E-Mails, 2004-2005; Faxed Material, 2004
18. Faculty Team Recommendation Drafts, E-Mails, Etc., 2004-2005
19. Faculty, Staff and Graduate Student Directory, 2005
20. Rock Drilling Information and E-Mails, 2006
21. Chaffee Visit Correspondence, Images, E-mails, Lab Information, 2007
22. Chaffee Hall Information Sheet, 2008; Roster of Faculty, Staff and Personnel, undated (Loose Material)
23. Safety Checklist for Experimental Installations, 2009
24. Faculty Meeting Agenda, 2009
25. Water Separation in Annulus Diagrams and Notes, undated
26. Unidentified Diagram, undated (Loose Material)
27. Unidentified Notes, undated (Loose Material)
28. Trip Report on EECO Digital Recording System Memorandum, undated (Loose Material)
29. Document on Water Concentration Measurement, undated (Loose Material)
30. Document, "Functional Description of the Control, Monitoring, and Data Acquisition System," undated
31. Experience Record for Dr. Alfred R. Graham, undated

Box 34 *Photographs and Negatives, circa 1960s-1990s*

Folder

1. Photographs and Negatives, High Pressure Rocket Laboratory, circa 1966
2. Photographs and Negatives, Hail Study Rig, circa 1960s
3. Photographs and Negatives, Hail Study Rig, 1996
4. Photographs, Thermal Sciences and Propulsion Center Buildings, 1998
5. Photographs, Hail Study Rig, circa 1990s
6. Negatives, Hail Study Rig, circa 1990s
7. Photographs, Hail Study Rig, circa 1990s

8. Photographs and Negatives, Hail Study Rig, circa 1990s
9. Photographs, Hail Study, circa 1990s
10. Photographs, Hail Study Rig, circa 1990s
11. Photographs, Hail Study Rig, circa 1990s
12. Negatives, Hail Study Rig, circa 1990s
13. Photograph, Aerial View of Thermal Sciences and Propulsion Center, undated

Box 35 *Photograph Negatives, 1952-1974 (many undated)*

Sleeve

1. "Equipment," 1952
2. "2 Charts, Copies from ASME Handbook," 1952
3. "Equipment on South Wall of Rocket Lab. Ofc.," 1952
4. "Film Cooled Test Section," 1952
5. "Equipment," 1952
6. "M.E. ASME Group," 1952
7. "Rocket Lab. Central Panel, with Grad. Student, Clair Beighley," 1952
8. "Equipment at Rocket Lab.," 1952
9. "Fire Damaged Quonset Hut at Airport," 1953
10. "Burned Out Rocket Motor Nozzle," 1953
11. "Rocket Motor Head," 1953
12. "Rocket Assembly, at Rocket Lab," 1953
13. "Rocket Nozzle," 1953
14. "1 Chart, for Pos. Trans.," 1953
15. "Rocket Motor Head," 1953
16. "Gas Turbine Stress Analysis Apparatus," 1953
17. "Group at Rocket Society Banq.," 1953
18. "New Building at Rocket Lab," 1954
19. "Rocket Motor Parts," 1954
20. "Dr. Zucrow & Dr. Porter by Rocket Motor," 1955
21. "M.E. Rocket Lab, Equip. with Man PRF784," 1956
22. "Rocket Lab, Feature Story – Indianapolis Time," 1957
23. "Rocket Lab," 1957
24. "Rocket Society Banquet Speaker Etc.," 1958
25. "Rocket Lab, Casting & Rocket Motor," 1958
26. "M.E. Rocket Lab, Etc., , Zuckrow," 1958
27. "Rocket Lab – High Intensity Arc Machine," 1958
28. "Rocket Lab Zuckrow w/Emmons," 1959
29. "Rocket Lab Equipment," 1959
30. "Rocket Lab, Counter Timer," 1959
31. "Rocket Lab Motor Parts," 1960
32. "New Electrical Setup," 1960
33. "M.E. Rocket Lab, Rocket Parts," 1960
34. "M.E. Rocket Equip.," 1960

35. "M.E. Rocket Lab," 1961
36. "M.E. Jet Prop. Lab, Film Cooling," 1961
37. "M.E., JPL," 1961
38. "M.E. Rocket Lab, Color Negs. Of Series," 1962
39. "M.E. Rocket Lab, Color Lab Interiors," 1962
40. "M.E. Dr. Osborn @ JPL," 1962
41. "M.E., Prof. J.B. Jones Equip.," 1963
42. "M.E., "J.B. Jones w/Anemometer," 1963
43. "M.E., Exteriors of Rocket Lab," 1963
44. "M.E., Rocket Sled, Ron Huffman," 1963
45. "M.E., Rocket Sled, Detail Photos for Thesis, Ronald Huffman," 1963
46. "M.E., Gessner-Jones Exp.," 1963
47. "M.E., McFadden Equipment Color Neg.," 1963
48. "M.E., Gessner-Jones Exp.," 1963
49. "M.E., McCoy Experiment," 1963
50. "M.E., Equip. Photo of Warner," 1963
51. "M.E., Cohen & McFadden Experiments," 1963
52. "M.E. JPC," 1963
53. "M.E. Serie S/Background Classes, Sled, etc.," 1963
54. "Jet Propulsion Lab, Crabtree-Gators Rocket Engine Setups," 1964
55. "Jet Propulsion Center, Apparatus, per Hassel," 1964
56. "Jet Propulsion Center, "Type of Jet Flow Pattern," 1964
57. "M.E., JPC Apparatus, Schneider," 1964
58. "Jet Propulsion, Jet Pro. Center Groundbreaking for High Press. Lab," 1965
59. "M.E., Jet Prop. Center, Office Bldg, Test Cell Bldg.," 1965
60. "Jet Prop. Center, New NASA Setup," 1965
61. "Jet Prop. Center, Dallas Talk, Prof. Zucrow," 1965
62. "Jet Prop. Center, Staff Picture, 1965
63. "M.E., J.P.C., Zuckrow Retirement," 1965
64. "M.E., Jet Prop. Center," 1965
65. "M.E., Jet Prop. Center, Equipment," 1965
66. "M.E., Jet Prop. Center, Solid Fuel Engine," 1965
67. "Jet Prop. Center, Hassell," 1965
68. "J.P.L., NASA Building Interiors, Panels," 1966
69. "J.P.C., Rocket Engine for New Pamphlet," 1966
70. "J.P.L., NASA Building, Controls, Color," 1966
71. "J.P.L., Office, New Addition to Old Building," 1966
72. "J.P.L., NASA Building, Controls, Color," 1966
73. "Mech. Eng., J.P.C, J.P.C. Ded.," 1966
74. "J.P.L., Honeywell Negs," 1966
75. "J.P.C., Rocket Parts," 1966
76. "Jet Prop., Control Panel," 1966
77. "J.P.L.," 1966
78. "Mech. Eng., J.P.L., Burich (After Burn)," 1966
79. "M.E., J.P.L., Kershner," 1966
80. "Jet Prop. Lab, Fuel System Piping," 1966

81. "Jet Center, Burich, Burned Out Engine," 1966
82. "Jet Center, Spin Rig," 1966
83. "Mech. Engr., Jet Prop. Cntr.," 1967
84. "Jet Prop Center, 15yr Pin Award," 1967
85. "Mech. Eng., Rocket Lab, Lab Equipment, Netzer," 1967
86. "M.E. J.P.C., Apparatus for Ron Dunn," 1967
87. "Jet Prop., Misc. Rocket Parts," 1967
88. "Misc. Rocket Engine Parts, Netzer, Jet Prop. Center," 1967
89. "Jet Prop, Misc. Rocket Engine," 1967
90. "Jet Prop, Jet Engine Parts, Strictler," 1967
91. "Jet Prop. Mech. Engr., Equipment in High Pressure Lab, NASA Bldg.," 1967
92. "Jet Prop., High Pressure Lab, Hardware," 1967
93. "Mech. Eng. – Strictler, Jet Prop, Rocket Engine, NASA Bldg.," 1967
94. "Jet Prop, Mech. Eng., Carpenter, NASA – High Pressure Lab," 1967
95. "Jet Prop. Center," 1967
96. "Mech. Eng. Jet Prop, Misc. Lab Equip.," 1967
97. "Jet Prop Center, Rocket Engine Parts, Farquar," 1967
98. "Jet Prop Center, Burrich," 1967
99. "M.E. Jet Propulsion Lab, Close-up Combustion Head of Jet Motor," 1967
100. "Jet Prop., Blown Engine, Carpenter," 1968
101. "Jet Prop., Carpenter, Rocket Parts," 1968
102. "Jet Prop., Rocket Engine Parts, Carpenter," 1968
103. "Pulsee, J.P.C., Equipment Shot," 1968
104. "Veldman, Jet. Prop., Copy Neg.," 1968
105. "Jet Prop. Copy Work, Nitzer," 1968
106. "Hoffman, Jet Prop., Blown Rocket," 1968
107. "M.E., Lab Equipment Plasma Jet," 1968
108. "Frenker, J.P.C., Rocket Engine," 1968
109. "Jet Prop, Rocket Engine, Bryce," 1968
110. "Pulsen, Jet Prop, Rocket Engine Parts," 1968
111. "J.P.L., Fine Face," 1968
112. "J.P.C., Rocket Engine Parts, Bryce," 1968
113. "Jet Prop, Fig. 27 Thesis," 1968
114. "Jet Prop, Rocket Part, Slitcher," 1968
115. "Carpenter, Jet Prop., Engine Parts, Washington Rept.," 1968
116. "Jensen, Renaldo, ME-Jet Propulsion Lab," 1969
117. "Jet Prop, Test Cell," 1969
118. "Jet Prop, Rocket Engine Parts," 1969
119. "Jet Prop Center, Rocket Engine Parts," 1969
120. "Jet Prop, Rocket Engine," 1969
121. "Ewing Thesis, Jet Prop, Lab Equipment," 1969
122. "Jensen, Jet Prop, Color Slides Copies, 16mm Movie," 1969
123. "Warner, Jet Prop, Rocket Engine Part," 1970
124. "Jet Prop, Paper Negs," 1970
125. "J.P.C. – Kushner, Lab Equip.," 1970

126. "NASA Bldg., Jet Prop, Lab Shots," 1970
127. "Jet Prop, Jet Engine," 1971
128. "Jet Prop, Slide Negs," 1971
129. "Jet Prop," 1971
130. "Jet Prop, Rocket Engine," 1972
131. "Warner, Jet Prop, Lab Equip., NASA Bldg.," 1972
132. "M.E. Rocket Lab, Rocket Motor Research," 1972
133. "Jet Prop., Rocket Eng.," 1972
134. "Jet Prop, Rocket Parts," 1972
135. "Jet Prop, M.E., Rocket Eng." 1972
136. "J.P. Lab, Waterspout Studies," 1973
137. "Jet Prop, Lab Equip," 1973
138. "Jet Prop, Lab Equip," 1974
139. "Jet Prop Center, Equipment in Old Bldg., Spin Rig," undated
140. "Jet Prop Center, Sarah, High Speed Camera Study," undated
141. "Jet Prop, Polo Slide," undated
142. "Erisman," undated
143. "Jet Prop., NASA," undated
144. "Jet Prop, Gas Dist. System," undated
145. Unidentified, undated (appears to be a German World War II aircraft)
146. "Jet Center, Hoffman, Spin Rig," undated
147. Unidentified, undated (appears to be a German World War II aircraft) – Glass Plate Negative
148. Unidentified, undated (color negative of a jet aircraft)

Box 36 *Film Reels, 1950-1989*

Reel

1. "300 PSI Runs," 1950
2. "300 PSI Runs from 1950"
3. "Ross/Spring 61-B Presentation Clip," circa 1970s
4. "Excellent Photos of Film Cooled Nose Cone," undated
5. "Open Pan Ignition Delay Tests WFNA-OCP," undated
6. "Instrument Panel Film," undated
7. Unidentified film reel, undated
- 8-10. "C. Ehresman JPC-TSPC 18 vols F.2," undated; "Motor Firings No Titles, undated; Unidentified film reel, undated
- 11-16. "Run 210-1800#Pc," undated; "Unknown Old Liquid Rocket Firing," undated; "Elliott Motor Firings – No Titles," undated; "Motor Firings No Titles," undated (film 1); ; "Motor Firings No Titles," undated (film 2); ; "Motor Firings No Titles," undated (film 3)

Folder

1. Note, concerning above films from "Steve" to "Prof Ehresman," undated; Work Order and Invoice, 1989 (both items found with film reels)

Box 37 *X-Rays, Etc., Annin & Fluid Dynamics, circa 1960s*

**Materials sent to Walt Russell from Jerry Wachter for Purdue University Grant NgG(f)-21*

Folder

1. Correspondence, X-Ray Test Results, Diagrams, Etc., 1965-1966
2. X-Rays, 1" Mod. 76 Adopt c/s, 1966
3. X-Rays and Test Report, 1" Mod 76 Bodies c/s, 1966
4. X-Rays, Unidentified, undated
5. X-Rays, Unidentified, undated
6. X-Rays, Unidentified, undated
7. X-Rays, Unidentified, undated
8. X-Rays, Unidentified, undated
9. X-Rays, Unidentified, undated

Box 38 *Slides, circa 1960s-1980s*

Tray

1. Sleeve #1: Carousel Slides, JPC, "Rocket Lab Pictures," 1965-1969, 1974, 1978-1981, undated (Sleeve 1 of 4); Sleeve #2: Carousel Slides, JPC, "Rocket Lab Pictures," cont. (Sleeve 2 of 4); Sleeve #3: Carousel Slides, JPC, "Rocket Lab Pictures," cont. (Sleeve 3 of 4); Sleeve #4: Carousel Slides, JPC, "Rocket Lab Pictures," cont. (Sleeve 4 of 4); Sleeve #5: Carousel Slides, "Rocket Lab High Press. Const.," 1965-1969, 1971, undated (Sleeve 1 of 6); Sleeve #6: Carousel Slides, "Rocket Lab High Press. Const.," cont. (Sleeve 2 of 6); Sleeve #7: Carousel Slides, "Rocket Lab High Press. Const.," cont. (Sleeve 3 of 6); Sleeve #8: Carousel Slides, "Rocket Lab High Press. Const.," cont. (Sleeve 4 of 6)
2. Sleeve #1: Carousel Slides, "Rocket Lab High Press. Const.," cont. (Sleeve 5 of 6); Sleeve #2: Carousel Slides, "Rocket Lab High Press. Const.," cont. (Sleeve 6 of 6); Sleeve #3: JPC, Unidentified Slides, 1965 (12 slides), 1966 (18 slides), 1967 (3 slides), 1968 (1 slide), undated (30 film, 8 glass) (Sleeve 1 of 3); Sleeve #4: JPC, Unidentified Slides, cont. (Sleeve 2 of 3); Sleeve #5: JPC, Unidentified Slides, cont. (Sleeve 3 of 3); Sleeve #6: JPC, "BDI E/B II Blown Igniter," 1966 (24 slides); Sleeve #7: JPC, "E/B 15 BOI Good Run," 1966 (27 slides); Sleeve #8: JPC, "Ehresman," 1966 (19 slides), 1967 (2 slides), 1968 (6 slides)
3. Sleeve #1: JPC, "GEN Talk Slides," 1966 (2 slides), 1967 (5 slides), 1968 (4 slides), 1969 (2 slides), 1974 (6 slides), undated (2 film, 2 glass); Sleeve #2: JPC, Unidentified, 1966 (3 slides), 1967 (4 slides), 1971 (1 slide), undated 16 slides, glass) (Sleeve 1 of 2); Sleeve #3: JPC, Unidentified, cont. (Sleeve 2 of 2); Sleeve #4: JPC, "X-tra TJPC Shots," 1966 (1 slide), 1968 (2 slides), 1973 (5 slides), undated (7 slides, glass); Sleeve #5: JPC, Unidentified, 1966 (14 slides), 1969 (1 slide), undated (17 slides) (Sleeve 1 of 2); Sleeve #6: JPC, Unidentified, cont. (Sleeve 2 of 2); Sleeve #7: JPC, Unidentified, 1969

- (41 slides), 1974 (3 slides), undated (1 slide, glass) (Sleeve 1 of 2); Sleeve #8: JPC, Unidentified, cont. (Sleeve 2 of 2)
4. Sleeve #1: JPC, Unidentified, 1969 (1 slide), 1960 (6 slides), undated (1 slide); Sleeve #2: "ME, Color, Prof. Mellor, Gas Turbine Research, Extra Slides," 1971; Sleeve #3: JPC, Unidentified, 1971 (1 slide), 1972 (2 slides), 1973 (20 slides); Sleeve #4: JPC, "Jet Center," 1973 (29 slides); Sleeve #5: JPC, "N.G.," 1973 (1 slide), 1978 (2 slides), 1979 (25 slides), undated (1 slide); Sleeve #6: JPC, Unidentified, 1974 (2 slides), 1978 (16 slides), undated (1 slide); Sleeve #7: JPC, "N.G.," 1978 (21 slides); Sleeve #8: JPC, Unidentified, 1979 (2 slides), 1980 (15 slides), 1981 (2 slides)
 5. Sleeve #1: TSPC, Unidentified, 1980 (1 slide), 1981 (13 slides); Sleeve #2: JPC, "High PC Slides," undated (17 slides)

Sub-series 3. Research Proposals and Reports, 1950s-2000s (1 cubic feet)

Box 39 *Research Proposals and Reports, circa 1950s-1994*

Item

1. Bound Report, "Data Acquisition and Processing For NASA Test Compressor," 1985 (with Handwritten Notes, undated)

Folder

1. PRF 784 Photographs and Diagrams, circa 1950s
2. Research Proposals, 1960-1961, circa 1962 (Loose Material)
3. NASA Facilities Grant Progress Reports, Etc., 1963
4. NASA Research and Facilities Proposal, 1963 (Loose Material)
5. Research Proposals and Reports, 1963-1964 (Loose Material)
6. NASA Proposals, Correspondence, Etc., 1963-1964, 1966-1970
7. NASA Facilities Grant Progress Reports, Etc., 1964
8. Data Acquisition System Proposal, 1965
9. NASA Facilities Grant Progress Reports, Etc., 1965
10. NASA Progress Reports, Etc., 1965-1966
11. Photocon Calibration Graphs, 1966
12. NASA Facilities Grant Progress Reports, Etc., 1966
13. Flox Proposal, 1966
14. Computer Programming for a Digital Data Acquisition System Technical Memorandum , 1966 (Loose Material)
15. Research Proposals, Reports, Etc., 1966-1967 (Loose Material)
16. NASA Facilities Grant Progress Reports, Etc., 1967
17. Ling Tempco Vaught LTV Study Correspondence, Notes, Diagrams, Etc., 1967-1968
18. NASA Progress Reports, Etc., 1967-1968
19. SS Combustion Proposal and Notes, 1968
20. Equipment Proposal, 1968; Continuing Research Proposal, 1971 (Loose

- Material)
21. Draft Proposal on Pulse Gun Experience, circa 1969 (Loose Material)
 22. NASA Progress Reports, Etc., 1969-1970
 23. NASA Progress Reports, Etc., circa 1960s
 24. NASA Progress Reports, Etc., circa 1960s, cont.
 25. Thiokol Chemical Corporation Research Proposals, Correspondence, Etc., 1970-1971
 26. NASA Grant Reports, 1970-1971
 27. Research Proposals, Reports, Etc., 1970-1971 (Loose Material)
 28. NASA Facilities Grant Progress Reports, Etc., 1971
 29. NASA Progress Reports, 1971-1972
 30. Combustion Pressure Proposal, Etc., 1971-1972
 31. NASA Facilities Grant Progress Report, Etc., 1974
 32. Facilities Proposal, U.S. Air Force, Proposal Notes and Drafts, 1986
 33. FAA Grant 92-G-0024 Reports, 1993 (Loose Material)
 34. FAA Grant 92-G-0002 Reports, 1993 (Loose Material)
 35. FAA Grant 92-G-0024 Reports, 1994 (Loose Material)
 36. Miscellaneous Grant Proposals and Charts, undated (Loose Material)

Series 3. Teaching and Advising, 1950s-2000s

(6.8 cubic feet)

Sub-series 1. Emeritus Professor Activities, 2000s

(0.2 cubic feet)

Box 40 *Emeritus Professor Activities, 2006-2009*

Folder

1. Purdue University Retirees Association, Benefits Committee, Letters, 2007, 2009, undated
2. Purdue University Retirees Association, Benefits Committee, E-Mail Correspondence, 2007-2009
3. Purdue University Retirees Association, Benefits Committee, Minutes and Agenda Points, 2006-2008
4. Purdue University Retirees Association, Benefits Committee, Insurance and Healthcare Information, 2007-2008

Sub-series 2. School of Mechanical Engineering Materials, 1960s-1990s

(0.4 cubic feet)

Box 41 *School of Mechanical Engineering Materials, 1960s-1990s*

Item

1. Book, *Purdue Engineering Bulletin*, 1960

Folder

1. Magazine, *Purdue Engineer*, January 1960; Booklet, "General Education Program for Engineering Students," 1964
2. Student Term Papers, Professor Murthy's ME654 Class, 1964-1965 (folder 1 of 2)
3. Student Term Papers, Professor Murthy's ME654 Class, 1964-1965 (folder 2 of 2)
4. Student Academic Information, 1966-1968, 1972
5. Memoranda to Mechanical Engineering Faculty, 1967 (Loose Material)
6. List, "Combined Acquisitions List Selected Engineering Libraries," 1967 (Loose Material)
7. ESC206 Committee Minutes, Etc., 1969
8. Study in Mechanical Engineering Publications, Booklets, 1960s; Information Packet, undated (Loose Material)
9. Circular, "Notes on Mechanical Engineering Curriculum, Purdue University," circa 1960s (Loose Material)
10. Course Outline and Design Material, 1970-1971
11. Brochure, Schools of Engineering Purdue University, "Beyond the Blue...The Challenge of Space," circa 1980s
12. Don Williams Visit, Newspaper Articles, Memoranda, Etc., 1990
13. School of Mechanical Engineering Annual Newsletter, 1995 (Loose Material)
14. Flyer and Brochure, Zucrow Memorial Lecture, 1997
15. ME 5336 Document, "Introduction to the Use of the Laplace Transform," undated (Loose Material)
16. Copy of Notes, "Examples of Root Locus Plotting," undated (Loose Material)
17. Flyers, "A Mechanical Engineering Seminar: 'Application of Laser Doppler Techniques to Turbulent Velocity Measurements,'" undated; Dental Bio-Engineering "Mechanical Engineering Seminar," undated (2 copies) (Loose Material)
18. Report, Pi Tau Sigma, "Graduate Research in the Mechanical Engineering Department," undated

Sub-series 3. Space Camp and 4-H Aerospace Workshop Materials, 1980s-2000s

(0.4 cubic feet)

Box 42 *Space Camp and 4-H Aerospace Workshop Materials, 1980s-2000s*

Folder

1. Purdue Space Camp Materials, 1989-1992, 1996-1997, 1999
2. Rockwell Aerospace Propulsion System and Altitrack Altitude Finder Flyers,

- 1994, undated (Loose Material)
3. 4-H Aerospace Workshop, Rocket Propulsion for Spaceflight Notes, Printout of Presentation, Overheads, circa 2004
4. 4-H Aerospace Workshop, Purdue Space Institute Presentation Flight Calculations, Notes, Launch Checklists, circa 2005
5. Rocket Propulsion for Spaceflight Packets, undated (Loose Material)
6. Ground Test and Launch Checklists, undated (Loose Material)
7. Calculations, undated (Loose Material)
8. Oscillograph Tape, Unidentified, undated (Loose Material)
9. Model Rocket Manuals and Catalogs, undated (Loose Material)

Sub-series 4. Student Files and Work, 1960s-1990s (1.2 cubic feet)

Box 43 *Student Files* (**RESTRICTED**), 1965-1992

Folder

1. Graduate Student File, 1965-1972 (folder 1 of 3)
2. Graduate Student File, 1965-1972 (folder 2 of 3)
3. Graduate Student File, 1965-1972 (folder 3 of 3)
4. Hans DePold File, 1968-1969
5. Mike Moran File, 1969
6. Tom Larsen File, 1969-1972
7. Paul M. Stroich File, 1970-1971
8. Roy L. Gentry File, 1971
9. Lee Kanning File, 1972
10. Verne E. Rezabek File, 1972
11. Bill Ward File, 1973
12. Craig Myers M.S. Committee File, 1973-1974
13. David Schulte File, 1974
14. Kris Overmeyer File, 1974-1975
15. David K. Winstanley File, 1975-1977
16. David L. Milam File, 1975-1976, 1978
17. Cliff Larison File, 1976
18. P. Patel Research Progress and Proposal, 1976
19. Course Roster and Grade Sheet for ME 439, 1992
20. Unreturned Graded Student Work, 1992, undated

Box 44 *Student Papers and Theses, 1979-1986*

Item

1. Senior Project Report on Air Supply system for Water Ingestion, ME 497,

- Tom Mullikin, 1979
- 2. Dissertation, "Aerothermodynamics of Axial-Flow Compressors with Water Ingestion," Toshiaki Tsuchiya, 1982
- 3. Paper, "Software Development for Compressor Data Acquisition," William Downey, 1983 (with "Progress Report on Data Acquisition Software for PDP-11/23 for Compressor Water Ingestion," William A. Downey, 1983)
- 4. Paper, "Water Concentration Measurement System for the Test Compressor," Tim O'Meara, 1983
- 5. Project, "Compressor Water Injection Project: Data Acquisition and Reduction Via Computer Routines," William A. Downey, 1984

Folder

- 1. Papers, Water Concentration Measurement System for the Test Compressor," 1983; "Design of A Water Concentration Measurement Instrument," 1986

Box 45 *Student Papers and Theses, 1988-1995*

Item

- 1. Thesis, "The Effects of Blowing Ratio, Density Ratio, Reynolds Number, and Pitch-to-Diameter Ratio on Film Cooling Effectiveness," Michael Lee Crocken, 1988
- 2. Thesis, "Proposal for a Low-Cost Space Transportation System," Jeffrey Layne Edwards, 1992
- 3. Thesis, "Gas Turbine Combustor Operation with Different Phases of Water in Air Supply," Ramachandra P. Shastri, 1995
- 4. Thesis, "Scalability of Mechanical and Thermal Loads in Underexpanded Jet Impact," James Glenn Love, 1995

Sub-series 5. Teaching Materials, 1980s-1990s

(0.8 cubic feet)

Box 46 *Teaching Materials, 1980s-1990s*

Item

- 1. Photocopied version of *Principles of Measurement Systems* (for ME 385), 1987
- 2. Binder, "ME 375 System Modeling Notes," 1989
- 3. Bound Course Notes "Modeling and Analysis of Physical Systems" (ME 375), 1990

Folder

- 1. Course Syllabi, Etc., 1982-1984, 1986-1987, 1990 (Loose Material)

2. Course Notes, "Notes for Root Locus Plotting, ME 375," 1987
3. Notes for Root Locus Plotting, 1987 (Loose Material)
4. Homework Problems and Solutions, circa 1980s-1990s (Loose Material)
5. Exam Problems and Solutions, 1990, 1992

Box 47 *Teaching Materials, undated material*

Folder

1. Lecture Notes, undated (Loose Material)
2. Figures, Tables, and Graphs, undated (Loose Material)
3. Miscellaneous Notes, undated (Loose Material)
4. Photocopied Chapters, Articles, Etc., undated (Loose Material)
5. Photocopied Chapters, Articles, Etc., undated (Loose Material), cont.
6. Photocopied Chapters, Articles, Etc., undated (Loose Material), cont.

Sub-series 6. Textbooks and Instructor Manuals, 1950s-2000s
(3 cubic feet)

Box 48 *Textbooks and Instructor Manuals 1950s-1970s*

Item

1. Thaler, George J., and Robert G. Brown. *Servomechanism Analysis*. 1953
2. Battin, R. H., Lanning, J. H. *Random Processes in Automatic Control*. 1956
3. Penner, S. S. *Chemistry Problems in Jet Propulsion*. 1957
4. Seifert, Howard. *Space Technology*. 1959
5. Barrère, M., Fraeijs de Veubeke, B., Jaumotte, A., & Vandekerckhove, J. *Rocket Propulsion*. 1960
6. Hall, Allen S., Alfred R. Holowenko, and Herman G. Laughlin. *Schaum's Outline of Theory and Problems of Machine Design*. 1961
7. Young, Hugh D. *Statistical Treatment of Experimental Data*. 1962
8. Shilling, G. David. *Process Dynamics and Control*. 1963
9. Sutton, George P. *Rocket Propulsion Elements: An Introduction to the Engineering of Rockets*. 3rd Ed. 1963
10. Alger, J. R. M., Hays, C. V. *Creative Syntheses in Design*. 1964
11. Stice, J. E., Swanson, B. S. *Electronic Analog Computer Printer*. 1965
12. Dorf, Richard C. *Modern Control Systems*. 1967
13. Murphy, A. T., Richardson, H. H., & Shearer, J. L. *Introduction to System Dynamics: Solutions Manual*. 1969
14. Hill, P.G., Peterson, C. R. *Mechanics and Thermodynamics of Propulsion*. 1970
15. Murphy, A. T., Richardson, H. H., Shearer, J. L. *Introduction to System Dynamics*. 1971
16. Keithley Instruments. *Electrometer Measurements*. 1972
17. Hale, Francis J. *Introduction to Control System Analysis and Design*. 1973

18. Sutton, G. P., Ross, D. M. *Rocket Propulsion Elements: An Introduction to the Engineering of Rockets*. 1976
19. Ogata, Katsuhiko. *System Dynamics: Solutions Manual*. 1978
20. Schenck, Hilbert. *Theories of Engineering Experimentation*. 3rd Edition. 1979
21. Schenck, Hilbert. *Solutions Manual for Theories of Engineering Experimentation*. 3rd Edition. 1979

Box 49 *Textbooks and Instructor Manuals, 1980s*

Folder

1. Cochin, Ira. *Analysis and Design of Dynamic Systems*. 1980
2. Cochin, Ira. *Analysis and Design of Dynamic Systems*. 1981
3. De Witt, D. P., Incropera, F. P. *Fundamentals of Heat Transfer*. 1981
4. Holman, Jack P. *Experimental Methods For Engineers*. 4th Ed. 1984
5. Sutton, George P. *Rocket Propulsion Elements: An Introduction to the Engineering of Rockets*. 5th Ed. 1986
6. Busby, H. R., Rieder, W. G. *Introductory Engineering Modeling: Emphasizing Differential Models and Computer Simulations*. 1986
7. Franklin, Gene F., and J. David Powell. *Feedback Control of Dynamic Systems*. 1986
8. Raven, Francis H. *Automatic Control Engineering*. 4th Ed. 1987
9. Buckius, R. O., Howell, J. R. *Fundamentals of Engineering Thermodynamics: English/SI Version*. 1987
10. Buckius, R. O., Howell, J. R. *Instructor's Manual to Accompany Fundamentals of Engineering Thermodynamics: English/SI Version*. 1987
11. Nikravesh, Parviz E. *Computer-Aided Analysis of Mechanical Systems*. 1988
12. Nikravesh, Parviz E. *Computer-Aided Analysis of Mechanical Systems: Solutions Manual*. 1988
13. Greenwood, Donald T. *Principles of Dynamics: Solutions Manual*. 2nd Edition. 1988

Box 50 *Textbooks and Instructor Manuals, 1990s-2000s*

Folder

1. DiStefano, J. J., Stubberud, A. R., Williams, I. J. *Theory and Problems of Feedback and Control Systems*. 2nd Ed. 1990
2. Physics Curriculum & Instruction. *Physics of Spaceflight Series. A Three-Part Program on Videocassette*. 1991
3. Luo, S., Pai, S. *Theoretical And Computational Dynamics of a Compressible Flow*. 1991
4. Harbor, R. D., Phillips, C. L. *Basic Feedback Control Systems*. Alternate 2nd Edition. 1991
5. Nise, Norman S. *Control Systems Engineering*. 1992
6. Nise, Norman S. *Solutions Manual for Control Systems Engineering*. 1992

7. Treager, Irwin E. (1992). *Aircraft Gas Turbine Engine Technology* 2nd Ed. New York: Macmillan/McGraw-Hill.
8. Anand, Vera B. *Computer Graphics and Geometric Modeling for Engineers*. 1993
9. Treager, Irwin E. *Aircraft Gas Turbine Engine Technology: Instructor's Manual*. Third Edition. Circa 1990s (Item remains unwrapped in its original packaging)
10. Baskharone, Erian A. *Principles of Turbomachinery in Air-Breathing Engines*. 2006

Sub-series 7. Transparencies, undated

0.8 cubic feet)

Box 51 *Transparencies, undated*

Folder

1. Liquid Propellants and Combustion Calcs, undated
2. Basic Nozzle Relations, undated
3. Propellant Pumps, undated
4. Gas Pressurized Propellant Systems, undated
5. Propellant Tank Requirements Slosh, O-G, Geyter, undated
6. Liquid Rocket Systems, undated
7. Liquid Rocket Start and Run Control, undated
8. Dynamics of Combustion, undated
9. Injectors-Types/Sprays, undated
10. Liquid Rocket Ignition Devices, undated
11. Liquid Rocket Facilities, undated

Box 52 *Transparencies, undated*

Folder

1. Combustion Model, undated
2. Liquid Rocket Performance Calcs., undated
3. Liquid Rocket Comb. Calcs. And Nozzles, undated
4. Liquid Rocket Cooling, undated

Series 4. Aerojet Employment and Consultant Work, 1940s-1990s (1.2 cubic feet)

Box 53 *Aerojet Materials, 1943-1964*

Item

1. Bound Material, "Handbook: Thrust Chamber Group" (containing documents

- diagrams, etc., dated 1943, 1952-1953, 1955-1956, 1959-1960)
2. Bound Material, "Proving Grounds Rules Manual," 1950
 3. Bound Material, "1. Aetron Report on Azusa Proving Grounds Test Cell Blast Resisting Capacities; 2. Blast Resistance & Ultimate Strength Memo; 3. Blast-Resistant Construction Report – Str. Engrs. Assoc.; 4. UCLA Blast Resistant Design Course" (containing memoranda, diagrams, reports, design criteria, etc. dated 1958, 1960, 1962, 1964)
 4. Booklet, "The Handling and Storage of Liquid Propellants," 1961

Folder

1. Loose Items Found with Item #1 above (forms, diagrams, articles, memoranda, etc.), 1961, 1963-1964

Box 54 *Aerojet Materials, 1961-1968*

Item

1. Bound Material, "Test Operations Liquid Propellants Manual; Safety Memoranda; Compatibility & Corrosion Recommendations; Chemical Data & Procedures" 1961-1964, 1968
2. Spring Telephone Directory, 1963

Folder

1. Loose Items Found with Item #1 above (technical manual, 1961; safety memo, undated; propellant compatibility charts, undated)

Box 55 *Consultant Work, 1960s-1990s*

Item

1. Report, "Acceleration Measurements on a Solid State Control System for Appliances," Design and Manufacturing Corp., Connersville, Indiana, undated

Folder

1. Consultant Agreement, Diagrams, Etc., Design and Manufacturing Company, Connersville, Indiana, 1968-1970
2. Subject File (Loose Material), Design and Manufacturing Company, Connersville, Indiana (containing Military Specification, 1960; Application Notes , 1967; Military Standard Test Methods, 1967)
3. Subject File (Loose Material), Design and Manufacturing Company, Connersville, Indiana (containing Military Standard Test Methods and Procedures, 1968)
4. Subject File (Loose Material), Design and Manufacturing Company, Connersville, Indiana (containing Military Standard Test Methods and Procedures, 1969)

5. Subject File (Loose Material), Design and Manufacturing Company, Connersville, Indiana (containing Review of Solid-State Digital Controller Project, 1970; Technical Information Bulletin, undated; Draft Test Report Cover, undated; Report, undated)
6. Subject File (Loose Material), Orbital Technologies Corporation (ORBITEC), (containing Correspondence, 1990; Contract, 1990; Fax Transmission Reports, 1990; Magazine Article, 1989)

Series 5. Correspondence and Letters, 1964-2010 (0.8 cubic feet)

Box 56 *Correspondence and Letters, 1964-1974*

Folder

1. Correspondence and Letters, General, 1964
2. Correspondence and Letters, General, 1964, cont.
3. Correspondence and Letters, General, 1965
4. Correspondence and Letters, General, 1965, cont.
5. Correspondence and Letters, General, 1965-1968
6. Correspondence and Letters, General, 1966
7. Correspondence and Letters, General, 1966, cont.
8. Correspondence and Letters, General, 1967
9. Correspondence and Letters, General, 1968-1969
10. Correspondence and Letters, General, 1969
11. Correspondence and Letters, General, 1969-1971
12. Correspondence and Letters, General, 1970
13. Correspondence and Letters, General, 1970-1971
14. Correspondence and Letters, General, 1972
15. Correspondence and Letters, General, 1972-1974
16. Correspondence and Letters, General, 1973

Box 57 *Correspondence and Letters, 1985-2010*

Folder

1. Note with Attached Letter and Articles from Prof. P.E. Liley, 1985 (Loose Material)
2. Letters and E-Mails, 1994, 1996-1999 (Loose Material)
3. Letters to Carson Hawk, 1997-2001
4. Correspondence with George Schneiter, 1998
5. Donald Brink E-Mail, 1998
6. Letters from Howard Marx, 1998
7. Clair M. Beighley, E-Mails and Correspondence, 1998-1999
8. Howard Williams Letter, 1999
9. Letter to Helmut Wolf, 1999

10. Fax Cover Sheets to Phil Umholtz, 2000
11. Correspondence with Jim Young, 2000
12. John Bluth Letter, 2000
13. Letters and E-Mails, 2001-2002, 2004-2005
14. E-Mail Exchanges with Doug Wathen, 2003-2004
15. Correspondence with Frank Winter, National Air and Space Museum, 2003, 2006
16. Letters and E-Mails, Miscellaneous, 2007 (Loose Materials)
17. Letters and E-Mails, Miscellaneous, 2008 (Loose Materials)
18. Letters and E-Mails, Miscellaneous, 2009 (Loose Materials)
19. Letters and E-Mails, Miscellaneous, 2010 (Loose Materials)
20. Miscellaneous Correspondence, 1981, 2000, undated (Loose Materials)

Series 6. Memberships and Associations, 1960s, 1980s-2010s (2.2 cubic feet)

Box 58 *AIAA Deputy Director of Education Materials, Compact, Zip, and Floppy Disks, 2000-2005*

Folder

1. Compact Disk, "Section Officer's Leadership Manual," 2000
2. Compact Disk, "AIAA Region III Student Conference, April 20, 21, 2001, University of Wisconsin Madison, Photos furnished by Lisa Bacon AIAA National CD by 'Chuck' Ehresman Region III Deputy Dir. Education," 2001
3. Compact Disk, "AIAA Region III Student Conference, April 5th and 6th, 2002, Photos by Prof. James Wade, Aimee Munyon, and John Blanton," 2002
4. Compact Disk, "AIAA Region III Student Conference, April 5th and 6th, 2002, Photos by Prof. James Wade, Aimee Munyon, and John Blanton, Master Copy," 2002
5. Zip Disk, "Disc #1, 2002 AIAA Region III, Student Conference, University of Cincinnati," 2002
6. Zip Disk, "Disc #2, 2002 AIAA Region III, Student Conference, University of Cincinnati," 2002
7. Zip Disk, "AIAA Region III Student Conference 2003, U of K Paducah," 2003
8. Compact Disk, "Purdue AIAA, Photos, April 2004," 2004
9. Zip Disk, "AIAA Student Conf. at Purdue 2004," 2004
10. Compact Disk, "Region III AIAA Student Conference Photos Master Onv. Atr. 22-23," 2005
11. Compact Disk, "Ohio Northern University, AIAA Region III Student Conference and Paper Competition, April 22-23 2005," 2005
12. Compact Disk, "2005 AIAA Region III Student Conference Pictures," 2005

Box 59 *AIAA Deputy Director of Education Materials, Subject Files, 1985-1986, 2000s-2010s (RESTRICTED)*

Item

1. Booklet, "AIAA Student Branch Resumé Catalog, 1985-1986"

Folder

1. Region III Telecon Minutes, 2006
2. Region III Telecon Minutes, 2007
3. Associate Fellows Announcement, 2007 (Loose Material)
4. E-Mails, Scholarship Information, Agenda, Forms, Etc., 2007-2010 (Loose Material)
5. Region III Telecon Minutes, 2008
6. Student Activities Committee Summer Webcom Minutes, 2008
7. Completed Award Nomination Form, 2008 (Loose Material)
8. Completed Scholarship Packets, 2009 (Loose Material)
9. Completed Scholarship Packets, 2009 (Loose Material), cont.
10. Meeting Minutes, 2009
11. Completed Scholarship Packets, 2010 (Loose Material)

Box 60 *AIAA Historic Site Committee Materials, Subject Files, 1943-2010*

Binder

1. "AIAA Historic Aerospace Site Brochures," 2000-2001 (containing printouts of Historic Aerospace Site brochures)
2. "Aerojet Historic Site Photo Printout of CD with Current I.D.," 2000-2002 (containing correspondence, 2001-2002; invitations for site dedication, 2000; and printout of CD material, undated)
3. "China Lake Application for AIAA Historical Site Designation," 2004 (containing webpage printouts, nomination form, and site information)

Folder

1. Aerojet First Plant Site Correspondence, Nomination Forms, E-Mails, Fax Cover Sheets, 1999-2001
2. EAFTC Site Invitations, Images, Completed Nomination Forms, Site Information, Etc., 1999-2002
3. Aerojet First Plant Site Miscellaneous Materials, circa 1999-2006
4. Historic Aerospace Site Booklet, circa 2000 (Loose Material)
5. Historic Aerospace Site Nomination Form Packet, 2001
6. Historic Site Committee Memoranda, Completed Nomination Forms, 2001-2002 (Loose Material)
7. Historic Site Committee Memoranda, Completed Nomination Forms, 2001-2002 (Loose Material), cont.
8. Aerojet Information, 2001-2003
9. Aerojet Site Correspondence, E-Mails, and Information (concerning Seabee launchers), 2003-2004
10. Aerobee and Seabee Figures and Scanned Images, circa 2004

11. Purdue Airport Historic Site Recognition Information, Etc., 2005
12. Historic Site Committee E-Mails and Meeting Minutes, 2006
13. Historic Site Committee E-Mails, Nomination Forms, Etc., 2006-2007
14. Aerojet Historic Site Brochure Materials, circa 2000s
15. Completed Nomination Forms and Packets, 2007, circa 2000s
16. Invitation and E-Mail, 2008, 2010
17. Scanned Photograph and Identification Sheet for 1943 JPL Staff Photograph, undated
18. Historic Aerospace Site Presentation Images and Prints of Photographs taken in 1943, undated
19. Scanned Images of Aerojet Materials (from circa 1950s-1960s), undated
20. Aerojet Site Recognition Brochure Material, undated
21. Information on the Aerojet Engineering Corporation, undated
22. Booklet, "Malta Test Station," undated; Brochure, Malta Test Station, undated (Loose Material)
23. Photograph Negatives, Aerojet Employees May 1943 used in Historic Site Presentation, undated (Loose Material)

Box 61 *AIAA Historic Site Committee Materials, Zip and Compact Disks, 2001*

Folder

1. Zip Disk, "Formation of Aerojet Engineering Corporation by Charles Ehresman, Brochure with Figures," 2000
2. Compact Disk, "Aerojet Employees May 1943, Segmented Panorama, Original by Cig Cracks, from Carson Hawks Original, Show in Segments," 2000
3. Compact Disk, "All Aerojet 1943 Pictures, All JPL 25AL1000 Pictures; All JPL 25AL1000 Flight Test; All Aerojet XLR1-AJ-1 Rocket Pictures Including Plant on Colorado St. Pasadena, Ca.; All Air Mat'l. Comm. Library Photos," 2000
4. Zip Disk, "Aerojet Historic Aerospace Site Brochure Draft," circa 2000
5. Zip Disk, "Aerojet 2 Col. Format Brochure" (Brochure for Aerojet Aerospace Site Recognition), circa 2000
6. Zip Disk, "AIAA Historic Aerospace Site: Aerojet Engineering Corp. First Plant in Pasadena, Ca. Photo from Recognition Ceremony," 2001
7. Zip Disk, "Photos Taken By Aerojet at Bistro Luncheon Before the Site Recognition and at 1st Plant Site Pasadena, Power Point Word File, JPEG Individual," 2001
8. Compact Disk, "Aerojet Recognition Ceremony Master Disk," 2001
9. Compact Disk, "AIAA Recognition Ceremony Aerojet Site & Reception Plaque, Nov. 6, 2001," 2001
10. Zip Disk, "Misc." (Aerojet Employees May 1943 Used in Historic Aerospace Site Presentation), circa 2001
11. Zip Disk, "Aerojet Founders By Douglas A20 Muizog 1942 with 25AL1000 Rockets on A20 (Good) Photo," undated

12. Zip Disk, "Aerojet and Azoa at Muroc Ca. Portrait of Matt Sniffin and Family, Historic Site Photos," undated
13. Zip Disk, "Panorama Picture of Aerojet Employees May 1943," undated
14. Zip Disk, "1943 Aerojet Photo All Employees Scratches Removed," undated
15. Zip Disk, "Aerojet Pictures May 1943 with I.D. on Segment Photos Taken at First Plant on Colorado Blvd. Pasadena GALCIT Group Mar. 1943," undated
16. Zip Disk, "Caltech Photo March 1943 M-21 Neg. No. from JPL Archives John Bluth Curator," undated
17. Zip Disk, "Aerojet Group Pic May 1943 Pasadena Aerojet," undated

Box 62 *American Institute of Aeronautics and Astronautics, and Miscellaneous Materials, circa 1967-2009*

Folder

1. AIAA Brochures, Pamphlets, and Flyers, 1984, 1987-1988
2. AIAA Aerospace Design Engineers Guide, 1987
3. AIAA Guide to Space Launch Systems, 1991
4. AIAA Report on Long-Term Utilization of Space Station Freedom, 1991 (with memorandum, 1992)
5. AIAA Author Kit (Folder), circa 1994-1995 (Loose Material)
6. AIAA Professional Membership Demographics Presentation, 2007 (with handwritten notes, undated)
7. AIAA Membership Information and Letters of Recognition, 2008-2009 (Loose Material)
8. AIAA Brochures, Pamphlets, and Flyers, 2008-2009 (Loose Material)
9. Kiwanis Club Committee on Vocational Guidance Memorandum (with attached Committee Information), circa 1967
10. Sigma Xi Dues Notices, 2008

Series 7. Maurice J. Zucrow Materials, 1890s-1970s, 1990s-2000s
(0.8 cubic feet)

Box 63 *Glass Lantern Slides, circa 1960s, undated (Originally in a slide box labeled "M.J. Zucrow")*

Folder

1. Table of Research in Progress at Jet Propulsion Center, 1965 (Film Slide)
2. Plan for Test Cell Building, undated
3. Plan for High Pressure Combustion Research Facility Flow Schematic, undated
4. Plan for Control Building, undated
5. Plan of Jet Propulsion Center facility, undated
6. "Liquid Film, Gas Velocity 600ft/sec, Liquid Injection Velocity 17ft/sec.,"

- undated
7. Chart, "Stability of Liquid Film," undated
 8. "Pulse Generating Cathode Follower Circuit," undated
 9. "Schematic Diagram of Apparatus," undated
 10. "Reaction Motors Inc. Model 6000C4," undated
 11. "Pictorial Drawing of Test Rocket Motor Assembly," undated
 12. Navy A3D, undated
 13. Unidentified Building under Construction, undated
 14. Unidentified Building under Construction, undated
 15. Unidentified Building under Construction, undated
 16. Unidentified Building, undated
 17. Unidentified Building, undated
 18. Unidentified Building, undated
 19. Unidentified Building, undated
 20. Unidentified Instruments, undated
 21. Unidentified Building, undated
 22. Unidentified Building, undated
 23. Unidentified Building, undated
 24. Unidentified Building, undated
 25. Unidentified Building, undated
 26. Unidentified Aircraft, undated
 27. Unidentified Equipment, undated
 28. Unidentified Equipment, undated
 29. Unidentified Equipment, undated
 30. Unidentified Rocket Engine, undated
 31. Aerojet-General Aerobee-Hi Research Rocket, undated
 32. Unidentified Rocket Launch, undated
 33. Unidentified Equipment, undated

Box 64 *Letters Concerning Zucrow, 1965-1999*

Folder

1. Letters concerning Zucrow's Retirement, 1965
2. Lillian Zucrow Letters, 1998-1999
3. Mark Cohen (Zucrow's Grandson) Letters, 1999

Box 65 *Miscellaneous Materials, 1890s-1970s, 1990s-2000s*

Folder

1. Information concerning Zucrow's Legacy (photocopied material from 1897 and 1991)
2. "Fluctuations in a Spray Formed by Two Impinging Jets," 1951
3. Ehresman File on Zucrow, 1963, 1975, 1995, undated
4. E-Mails concerning Lillian Zucrow, 1994; and Zucrow Memorial Lecture

- Memoranda, 1994
5. Information concerning Zucrow's Legacy, 1995, 1999, 2002-2004
 6. E-Mails and other Materials concerning Zucrow's PhD Hood and Portrait, 2001-2002
 7. Photographs, "Zucrow's PhD Hood and Portrait," 2002 (with Business Card, 2002)
 8. Photographs, "Zucrow's PhD Hood and Portrait," 2002
 9. Negatives, "Zucrow's PhD Hood and Portrait," 2002
 10. Concerning Gold-Plated Balls in Zucrow Portrait, Images and Information, undated

Series 8. Ehresman Miscellaneous, 1920s-2010s
(0.6 cubic feet)

Box 66 *Artifacts 1947-circa 2000s*

Folder

1. Flange Size Selector, Nooter Boiler Works, 1947
2. Pocket Data Book, Bell Aircraft Corporation, 1954
3. Pocket Data Book, General Electric, 1957
4. Desk Calendar, 1965
5. Information Book, Liquid Rocket Engines, Aerojet Liquid Rocket Company, 1975
6. Pocket Data Book, Space Flight Technical Data, Aerojet-General Corporation, undated
7. Magnet, Purdue University Preventive Injury Program, circa 2000s
8. Valve Slide Rules (2), Worthington Controls, undated

Box 67 *Miscellaneous Papers, 1964-2010 (many undated)*

Folder

1. Associated Steel Company Stock List, 1964
2. Report Notice, 1967; Announcements (2), undated
3. Brochure, Edu Calc, circa 1979
4. Photographs, Ehresman and Jaguar Automobile, 1996
5. Webpage Printout, "Memorial Letters from Those who Loved You" (concerning Prof. Clark Hawk), 2008
6. Completed Newspaper Crossword Puzzles, 2008-2009
7. Issues of "Inside Purdue," June 24, 2008; and "Purdue Exponent," July 20, 2009
8. Purdue University Academic Calendar, 2009-2010
9. Printer Test Page, 2010
10. Web Article (concerning CEMC Chairman Eric Newell), 2010
11. Diagrams, unidentified, undated

12. Notes, Diagrams, Etc., unidentified, incomplete, and undated
13. Handwritten Notes, undated
14. Graphed Test Results and Equipment Diagrams, unidentified, undated
15. Diagram, Thrust Stand, undated
16. Booklet, Hewlett Packard Advanced Calculator Logic, undated
17. Photographs, Etc., Water Flow Visualization and Robert W. Graham, undated
18. Photographs, Diagrams, and Notes, undated
19. Class Notes, "J.R."s Notes on "Free Flight of a Ballistic Vehicle," undated
20. Unidentified Materials, undated

Box 68 *Miscellaneous Reference books, 1927-2001*

1. Cast Iron Pipe Research Association, *Handbook of Cast Iron Pipe*. 1922.
2. Hayt, William H. Jr, *Engineering Electromagnetics*. 1958
3. The Rocketdyne Training Department, *An Introduction to Rocket Missile Propulsion*. 1958
4. Tuve, G.L., *Mechanical Engineering Experimentation*. 1961
5. Norton, Donald J. *Larry: A Biography of Lawrence D. Bell, Aviation pioneer and founder of Bell Aircraft Corporation*. 1981
6. American Institute of Aeronautics and Astronautics, *AIAA Aerospace Design Engineers Guide*. 1983
7. Kennedy, Gregory P., *Vengeance Weapon 2*. 1983
Sonnenburg, Paul and Schonenberger, W. *Allison: Power fo Excellence*. 1990
8. Dawson, Virginia P., *Engines and Innovation*. 1991
9. Huzel, Dieter K. and Huang, D., *Modern Engineering for Design of Liquid-Propellant Rocket Engines*. 1992
10. Sutton, George P., *Rocket Propulsion Elements; An Introduction to the Engineering of Rockets*. 1992
11. Mulready, Dick, *Advanced Engine Development at Pratt & Whitney*. 2001