

FINDING AID FOR THE RICHARD BURGHDUFF PAPERS, 1968-2005 (#2017-0003)

Contact Information

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Descriptive Summary

Repository (049): University Archives

Collection # (099): 2017-0003

Title (245): Richard Burghduff Papers

Creator (100/110): Burghduff, Richard

Inclusive Dates: 1968-2005

Extent (300): 2 linear feet (4 boxes)

Language (546): English

Administrative Information

Restrictions on Access (506): None

Restrictions on Use (540): None

Acquisition Information (541): Donated by Richard Burghduff in September 2015

Processed by (583): Greg Blackburn

Preferred Citation (524): Richard Burghduff Papers (#2017-0003), University of Houston-Clear Lake Archives.

Biographical/Historical Note (545)

Richard (Dick) Burghduff studied electrical engineering at the University of Wisconsin and in January 1957 was drafted with one year remaining to complete his degree. After being discharged from the US Army in January 1959, he attended Marquette University night school while working days to support his wife and 2 children, graduating in January 1962. After completing his degree, he went to work within the "Project Fire" group at the NASA at Langley Aeronautical Laboratory. As part of its function, this group launched two Atlas rockets and then fired a rocket to send its payload back to the Earth at very high speeds to test heat shields for the Apollo Spacecraft.

On October 31, 1964, Mr. Burghduff moved to Houston to join the Guidance, Navigation, and Control Division (GNC) at the NASA Manned Spacecraft Center which would later be renamed the Lyndon B. Johnson Space Center. When the Apollo program was beginning, he was assigned as assistant GNC Subsystem Manager and helped manage the design and implementation of this Subsystem into the Apollo Command Module. After the first few flights of the Apollo, the concept of a Space Shuttle was envisioned and he was assigned to be the manager of the Shuttle Cockpit Displays and Controls subsystem (D&C). This required him to spend a lot of time at the Rockwell facility in Downey, California, where the contractor design work was being done. When the Canadian-provided Remote Manipulator System (RMS) was being developed to augment operations in the Shuttle Payload Bay, he spent time in Canada reviewing cockpit designs required for the crew to operate the RMS.

After several Shuttle flights (mid 1980s) the Space Shuttle Program decided to upgrade the cockpit Display and Control system to a more modern system with multifunction displays to replace dedicated D&C hardware for specific functions. This new upgrade was called the Multifunction Electronic Display Subsystem (MEDS). He led a small team of engineers and astronauts around the United States to visit companies that were supplying displays to modern commercial and military aircraft. At this time, typical new cockpit displays were electronic and were called "glass cockpits" given they used CRTs (Cathode Ray Tubes) being driven by onboard computers. As part of a NASA procurement activity, Honeywell was the contractor chosen to lead the development of this system and Kaiser Electronics was chosen as the hardware vendor. This required Mr. Burghduff to travel to San Jose, California, every couple of weeks to manage the progress of the contractor team.

Mr. Burghduff was then recruited away from the MEDS development project which resulted in being transferred to a higher position in the Space Shuttle Program office as Deputy to the Avionics Project Office and soon became manager of that office. After the Shuttle program became more operational, he was then promoted to be the JSC Chief Engineer for the Space Shuttle where he retired in May of 1997.

Of note, the first flight of the MEDS cockpit on an Orbiter was on STS-101 (May, 2000).

Scope and Content (520)

This collection represents material Mr. Richard (Dick) Burghduff gathered from his personal work files while employed by the US Government at the NASA Johnson Space Center. The focus of this collection includes general NASA information along with information related to his work in the development and management of the Space Shuttle crew cockpit subsystems.

Arrangement (351) Organized in three boxes and arranged in seven series with each of those sorted chronologically.

Index Terms (6xx):

Personal Names

- Richard Burghduff
- Joseph Loftus
- Warren Brasher

Corporate Names

- National Aeronautics and Space Administration (NASA)
- Johnson Space Center (JSC)
- Rockwell International

Subjects

- Apollo Program
- Space Shuttle Program

Orbiter
 Displays and Controls (D&C)
 Astronauts
 Glass Cockpit
 Space Shuttle Mission 51-L
 Challenger

Document Types

Photographs
 Newspaper clippings
 Publications
 Personal Papers

Places

Houston, TX

Items Separated

Two (2) items (NASA Alumni League News letter dated Summer 1998 and Alumni Directory dated 1998) moved to the NASA Alumni League Collection (#2017-0002)

Related Material (544)

None

Inventory

Box	Folder	Title	Date
Series I: Technical Papers			
1	1	Personal note to UHCL and Resume	Undated
1	2	Astronaut Training Material - GNC HW 1101/GNC Hardware C	September 1978
1	3	Space Shuttle Description Book (Displays and Controls)	December 20, 1978
1	3	Displays and Controls	March 28, 1979
1	4	Memo: The Space Shuttle Program: From Challenge to Achievement	March 28, 1983
1	4	Man-Machine Interface and Control of the Shuttle Digital Flight System (paper)	Undated
1	4	Man-Machine Interface and Control of the Shuttle Digital Flight System (presentation)	Undated
1	5	White Papers for Cohen on D&C Development	May 10, 1989
1	6	Historical Review of NASA Spacecraft Crew Systems	Undated
Series II: KSC Logistics Hardware Flow Process			
1	7	Logistics/Orbiter Discrepant Hardware Processing Flow Assessment	August 11, 1992
1	7	An Assessment of the Logistics/Orbiter Discrepant Hardware Process Flow	March 2, 1993
Series III: 51L Accident			
1	8	STS 51L Accident Investigation Team 72 Hour Report (Rockwell/Gendreau)	January 31, 1986
1	9	Memo: STS 51-L Accident Investigation; Orbiter Team Meeting, 1-29-86	January 29, 1986
1	10	Various 51L Accident interoffice memos	January, 1986 - February, 1986
1	11	51-L Recovered Debris List	May 6, 1986

Series IV: NASA Publications

1	12	Apollo 8 Man Around the Moon (NASA EP-66)	1968
1	13	NASA JSC Memorandum to Apollo Team / Apollo 11 Mission Report (NASA SP-238)	April 24, 1973 / 1971
1	14	The Space Shuttle at Work (NASA SP-432/NASA EP-156)	June 1979
1	15	NASA Pocket Statistics	January 1984
1	16	STS-26: Flight of Discovery (PAM 515)	August 1988
1	17	America's Return to Space Flight STS-26 Press Kit	September, 1988
1	18	Space Shuttle Avionics System (NASA SP-504)	1989
1	19	NASA Activities Special Space Shuttle Issue	November/December 1990
1	20	Various Space News Roundups	October 30, 1986 to July 16, 1999
1	21	STS Flight Schedule Cards	November 1981 – April 1997
2	1	The Space Shuttle Return to Flight: Mission STS-114 Press Kit (United Space Alliance)	July 2005
2	2	Space Shuttle EVA Opportunities (JSC-11391)	Undated
2	3	NASA Fact Sheets	Undated
2	4	Various Posters	Undated
2	5	The Lyndon B. Johnson Space Center Gateway to the Next Frontier	Undated

Series V: Publications

2	6	National Geographic First Explorers on the Moon	December, 1969
2	7	U.S. News & World Report Comeback in Space	February 23, 1981
2	8	National Geographic When the Space Shuttle Finally Flies	March 1981
2	9	The Space Shuttle Operators Manual (Joels/Kennedy)	1982
2	10	National Geographic Satellites That Serve Us and Spacelab 1	September, 1983
2	11	Houston Chronicle News Clippings after Challenger Tragedy	February 1, 1986 to February 20, 1986
2	12	Rockwell News Apollo 11 - 20 Years Beyond the First Lunar Footprint	July 12, 1989

Series VI: Photographs

2	13	Astronaut Candidate Classes (1978 – 1984)	January 1978; January 1980; August 1984
2	14	Shuttle Crew Photos (STS-1 – STS-117)	Undated
2	15	Shuttle Astronaut Photos (A. Allen – D. Williams)	Undated
2	16	Shuttle Vehicle Photos (NASA/Rockwell)	Undated
2	17	Pre-Shuttle Astronaut Photos (E. Gibson – A. Worden)	Undated

Series VII: Reference Material

3	1	National Space Transportation System Reference, Volume 1 Systems and Facilities	
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Series VIII: Oversized Publications

4	1	NASA Space Shuttle Poster	November 1978
4	2	Houston Chronical Special Report: Shuttle Tragedy	January 29, 1986
4	3	Houston Chronical Article: The Shuttle Tragedy: A Day to Mourn	February 1, 1986
4	4	Houston Chronical Excerpts	February 2, 1986
4	5	Bayside News Excerpts	February 5, 1986
4	6	Houston Chronicle Excerpts	February 10, 1986
4	7	Texas Houston Chronicle Magazine Special Issue on Apollo	July 15, 1979

4	8	Citizen Supplement: Lunar Landing 20 th Anniversary	July 19, 1989
4	9	Houston Chronicle Article: "The Eagle has Landed" 20 Years after Apollo 11	July 16, 1989
4	10	Houston Post Article: Mr. & Mrs. Astronaut	April 11, 1990
4	11	Titan Missile Launch Poster	Undated