

SHUTTLE SERIES**MARK K. CRAIG PAPERS SHUTTLE SOLID ROCKET BOOSTER (SRB) SEPARATION (SEP) SYSTEM**

The collection originally arrived in five boxes. These boxes had numbers on the side and on the top flap indicating that there should have been ten boxes altogether (ex., 3/10, 6/10). Whether the other five boxes were lost or are in storage could not be determined; as such, according to the numbering on the boxes, only the contents of boxes 1-3 and 5-6 are contained in this subseries. Mr. Craig's papers were very well-organized, related materials having been placed in labeled folders and subject sections marked by labeled green subdividers. The order of the received boxes was maintained, as were the folder titles and their contents. If the folders contained a number of different media (photos, schematics, reports, etc.), this is indicated in parentheses. The dates given indicate the range of the material in the folder. Certain subject areas, marked by green subdividers, will be indicated in the inventory with the number of folders involved. The resulting arrangement is: 1) SRB Separation material, 2) subject areas related to SRB Sep system and plume impingement, 3) BSM materials and post-mission evaluation reports for STS 1-6, and 4) plume impingement tests. Mr. Craig was well-organized as much with the contents of the folders as with the folders themselves. Large reports are often labeled with black marker on their spines for easy access and are divided with yellow stickies or tabbed inserts to mark important sections. Many of the folders contain numerous handwritten notes, all easy to read and extensive in their content. The many schematics and charts, often done by hand also, are clear and clean and sometimes incorporate more than three colors in their construction. Related documentation to consult in the Shuttle Series is the External Tank documentation (Michoud).

Inventory

SubHeading:	Box Number: 1	
	PCIN 22200-Max SRB Thrust	January 23, 1983
	SRB Sep Launch Support (SRB Pc Failure Implications, Critical Indicator Summaries, STS-1 Support Personnel, STS-1 SRM Tailoff Performance Prediction)	July 21, 1980
	STS-1 SRB Separation System Preflight (Photographs-44)	n/d
	Space Shuttle Solid Rocket Booster (SRB) Separation (NASA TM X-64967) and subsequent written criticism	November 1975
	K.C. Elchert's SRB Sep paper	n/d
	Design, Verification Post Flight Summary, SRB Sep System	April 22, 1982
	SRB Design Certification Review (DCR)	March 20, 1979
	Biographical Data-Mark K. Craig	August 1991
	STC Staging Analysis	July 1969
	Comparison of Titan 3-C and Space Shuttle SRB Separation Capability	March 26, 1976
	D-6 SRM Staging Anomaly	n/d
	Photographs (5)-Titan Staging	n/d
	Titan IIIC Program-Interface Specification Solid Rocket Motors to LVS Structural and Dynamic Loading Interfaces	February 24, 1971
	Blueprints-Solid Rocket Motor to LVS-Envelope Interfaces	July 30, 1969
	NASA SP-8056 Flight Separation Mechanisms	October 1970
	Stage Separation of Parallel-Staged Shuttle Vehicles: A Capability Assessment (Article)	October 1972
	NASA TM X-58098 The Staging Dynamics of a Proposed Space Shuttle Configuration (Thesis)	October 1972
	SRB and ET Separation System Manager Responsibility Closeout	June 16, 1983

	SRB Separation System-Design Concerns	September 15, 1977
	Establishment of a Space Shuttle Flight Performance Technical Management Area (SSPM Directive No. 23, 23A, 23B)	July 16, 1974
	RI/SSG Manpower History SRB Separation Analysis	July 1980-May 1981
	CR 14771 (Impulse-Torque)	February 4, 1981
	CR 14769 (SRM Null)	February 4, 1981
	OFT Waivers	1978-1981
	Shuttle Managers	1978-1979
SubHeading:	Box Number: 10	
RELEASE SYSTEM (7 folders)	STS81-0558 OFT Aerodynamics Data Analysis, v. 2	April 1982
RELEASE SYSTEM (7 folders)	STS82-0690 STS-1 SRB Separation Post-Flight Evaluation Report	September 27, 1982
RELEASE SYSTEM (7 folders)	STS82-0694 STS-2 SRB Separation Post-Flight Evaluation Report	September 27, 1982
RELEASE SYSTEM (7 folders)	SRB-027 STS-3 Post-Flight Evaluation, SRB Separation Report	May 17, 1982
RELEASE SYSTEM (7 folders)	STS82-0702 STS-4 SRB Separation Post-Flight Evaluation Report	September 27, 1982
RELEASE SYSTEM (7 folders)	STS83-0278 STS-5 SRB Separation Post-Flight Evaluation Report	March 1983
RELEASE SYSTEM (7 folders)	STS83-0418 STS-6 SRB Separation Post-Flight Evaluation Report	June 1983
SubHeading:	Box Number: 11	
RELEASE SYSTEM (7 folders)	Current Quick-Look STS-7 SRB Separation	June 20, 1983
RELEASE SYSTEM (7 folders)	Charts (BSM Plume Wake Flow Properties, SMB Definitions, BSM System Test)	1977-1978
RELEASE SYSTEM (7 folders)	BSM Aging Surveillance	January 8, 1976
RELEASE SYSTEM (7 folders)	BSM Alignment/Location (charts, reports, memos)	1975-1979
RELEASE SYSTEM (7 folders)	BSM System (papers, studies, memos)	1975-1978
RELEASE SYSTEM (7 folders)	BSM Specs	1976
RELEASE SYSTEM (7 folders)	Booster Separation Motor (BSM) Design Studies	n/d
RELEASE SYSTEM (7 folders)	BSM Qualification Certification Review	April 9, 1979
RELEASE SYSTEM (7 folders)	BSM Critical Design Review	June 16, 1977
RELEASE SYSTEM (7 folders)	BSM Design and Development Plan	December 12, 1975
RELEASE SYSTEM (7 folders)	BSM Development Motor Test Report	May 23, 1977
RELEASE SYSTEM (7 folders)	BSM Profiles (tabbed sections)	1973-1979
SubHeading:	Box Number: 12	
RELEASE SYSTEM (7 folders)	BSM Blueprints	May 1977
RELEASE SYSTEM (7 folders)	Test Plan, Qualification of BSM	May 20, 1977
RELEASE SYSTEM (7 folders)	BSM Certification Report, v.1	April 30, 1979
RELEASE SYSTEM (7 folders)	BSM Certification Report, v.2	April 30, 1979
SubHeading:	Box Number: 13	
RELEASE SYSTEM (7 folders)	BSM Certification Report, v.2 (continued)	April 30, 1979
BSM COVERS (4 folders)	BSM Aeroheat Shield Cover Structural Analysis	January 17, 1979
BSM COVERS (4 folders)	Blueprints (BSM Cover)	1977-1978
BSM COVERS (4 folders)	CDR-BSM Aeroheat Shield Cover and	January 24-25, 1978

	Aft Heat Seal	
BSM COVERS (4 folders)	Requirements for BSM Cover	June-October 1976
PLUME IMPINGEMENT (16 folders)	NASA TM X-64975 The Effects of Solid Rocket Motor Effluents on Selected Surfaces and Solid Particle Size, Distribution, and Composition for Simulated Shuttle Booster Separation Motors	January 12, 1976
PLUME IMPINGEMENT (16 folders)	Photographs (30) of AEDC Test R4IN-07 Erosion and Weight Loss Data	July-October 11, 1974
SubHeading:	Box Number: 14	
PLUME IMPINGEMENT (16 folders)	S.M. Motors (tabbed sections, charts)	n/d
PLUME IMPINGEMENT (16 folders)	Test Plan-Small Motor Plume/Material Impingement Test/Results	April-November 1974
PLUME IMPINGEMENT (16 folders)	Test Requirements-Large Motor Plume/Material Impingement Test (tabbed sections)	May-November 1974
PLUME IMPINGEMENT (16 folders)	Particles in Plumes (2 papers, 1 report)	1977-1978
PLUME IMPINGEMENT (16 folders)	Particle Impact Tests (Impingement Damage)	May 1978
SubHeading:	Box Number: 15	
PLUME IMPINGEMENT (16 folders)	AEDC-ETR-75-2 NASA Space Shuttle Solid Rocket BSM Plume Impingement Tests	May 1975
PLUME IMPINGEMENT (16 folders)	Test Plan for Large Motor Plume/Material Impingement Test in AEDC J-4 High Altitude Test Facility	June 24, 1974
PLUME IMPINGEMENT (16 folders)	MCR 4560 Plume Impingement	1977-1978
PLUME IMPINGEMENT (16 folders)	MCR 517 (telecon, report)	September-October 1974
PLUME IMPINGEMENT (16 folders)	S-II Ullage Motor Test (11/73) (reports, memos, 5 photographs)	1973-1974
PLUME IMPINGEMENT (16 folders)	S-II Ullage Motor (27 photographs)	November 1973
PLUME IMPINGEMENT (16 folders)	BSM Bidder Presentation	November 4-19, 1974
PLUME IMPINGEMENT (16 folders)	Damaged Tile Performance	1979-1981
PLUME IMPINGEMENT (16 folders)	Particle Definition (reports, 5 photographs, Handbook of Geophysics (chapter 19), Analysis of the Measured Effects of the Principal Exhaust Effluents from Solid Rocket Motors (NASA CR-3136))	1977-1980
SubHeading:	Box Number: 2	
	SRB Critical Design Review (CDR) Separation/Pyrotechnics	October 1976
	Yardley presentation	May 1977
	Frosch presentation	July 1977
	Lovelace presentation	February 1977
	Critical Functions Assessment-Actions	September 5, 1978
	OFT-1 Critical Functions Assessment by Mission Phase	September 15, 1977
	Williams Committee (Separation Systems Committee)-Various memos, assessments, documents	1979-1981
	1st SRB Separation System Integration Panel Meeting	November 17-18, 1977
	2nd SRB SRB Separation Panel Meeting	March 8-10, 1978
SubHeading:	Box Number: 3	
	3rd SRB Separation System Panel Meeting	September 12-13, 1978
	4th SRB Separation System Panel Meeting	May 15-16, 1979

	Meeting	
	5th SRB Separation System Panel Meeting	July 23-25, 1980
SubHeading:	Box Number: 4	
	6th SRB Separation System Panel Meeting	February 10-11, 1981
	7th SRB Separation System Panel Meeting	November 30-December 1, 1981
SYSTEM IMPROVEMENTS (4 folders)	BSM deletion	February 17, 1982
SYSTEM IMPROVEMENTS (4 folders)	External SRB TVC POD	June 24, 1982
SYSTEM IMPROVEMENTS (4 folders)	SRB Separation with LBM	December 21, 1980
SYSTEM IMPROVEMENTS (4 folders)	Filament Wound Case Sep-FWC SRB Separation Systems PRR, etc.	1982
SOLID ROCKET BOOSTER (8 folders)	TVC System	November 1974
SOLID ROCKET BOOSTER (8 folders)	End Item Specification, SRB, Part 1, Separation	January 7, 1977
SOLID ROCKET BOOSTER (8 folders)	Integrated System Schematic-SRB	n/d
SubHeading:	Box Number: 5	
SOLID ROCKET BOOSTER (8 folders)	JSC 08060 Rev. C Space Shuttle System Pyrotechnic Specification	May 9, 1980
SOLID ROCKET BOOSTER (8 folders)	Shuttle Element Interface Functional Analysis for the Solid Rocket Booster/External Tank-Orbiter	July 1976
SOLID ROCKET BOOSTER (8 folders)	SRB CG Envelope	March 25, 1975
SOLID ROCKET BOOSTER (8 folders)	Dynamic Thrust Vector	June 1980
SOLID ROCKET BOOSTER (8 folders)	Inboard Profile-Right SRB Equipment	March 1975
SEQUENCING HW/SW (11 folders)	SRB Sep. Sequence (schematics, memos, etc.)	1975-1980
SEQUENCING HW/SW (11 folders)	Sep. Sequence Coding	October 1978
SEQUENCING HW/SW (11 folders)	TRW Reviews of Sep S/W Technical reports	1978-1981
SEQUENCING HW/SW (11 folders)	Sep Switch Logic	October 19, 1982
SEQUENCING HW/SW (11 folders)	Stray Signal Analysis - EME Analysis for Lightning and RF Energy Excitation of Shuttle SRB Sep Devices	August 1979
SEQUENCING HW/SW (11 folders)	Pyrotechnic Timing (various memos, schematics)	1975-1977
SEQUENCING HW/SW (11 folders)	Pc Transducer (various memos, reports)	1977-1981
SEQUENCING HW/SW (11 folders)	Pc Transducer Calibration (schematics, charts, memos)	1976-1981
SEQUENCING HW/SW (11 folders)	SDL Test Results	August-October 1979
SEQUENCING HW/SW (11 folders)	S/W CR's (tabbed, well organized)	1977-1980
SubHeading:	Box Number: 6	
SEQUENCING HW/SW (11 folders)	Charts	May 6, 1977
I-LOADS (3 folders)	I-Loads Effecting SRB Sep	December 2, 1981
I-LOADS (3 folders)	Effects of Delayed Sep	March-May 1978
I-LOADS (3 folders)	Sequence Time Delay I-Loads (various memos, charts)	1976-1983
SEPARATION DAP (4 folders)	First Stage FCS Design (schematics, memos, presentations)	1974-1980
SEPARATION DAP (4 folders)	Separation DAP Trade Studies (presentations, charts, studies)	1977-1982
SEPARATION DAP (4 folders)	Premature BSM Ignition Effects	July 10, 1978

SEPARATION DAP (4 folders)	FCS Simulation for SRB Sep (Reports, charts, schematics)	1977-1978
STAGING CONDITIONS (6 folders)	NASA Technical Paper 1988 Sensitivity Analysis of the Space Shuttle to Ascent Wind Profiles	March 1982
STAGING CONDITIONS (6 folders)	BFS Engage Evaluation	December 17, 1980
STAGING CONDITIONS (6 folders)	Rate Inhibit IC's	February 29, 1980
STAGING CONDITIONS (6 folders)	STS-1 Cycle 3 Monte Carlo (charts, reports)	August-December 1980
STAGING CONDITIONS (6 folders)	STS-1 Staging Conditions (numerous charts, reports, etc.)	1977-1980
STAGING CONDITIONS (6 folders)	Design IC's	May 26, 1982
AERODYNAMICS (23 folders)	IA 193 Justification (charts, reports, tests, etc.)	1980-1982
AERODYNAMICS (23 folders)	Trajectory Studies for IA 193	1976-1982
SubHeading:	Box Number: 7	
AERODYNAMICS (23 folders)	IA 193 Jet and Tunnel Conditions	n/d
AERODYNAMICS (23 folders)	IA 193 Data	June 10, 1982
AERODYNAMICS (23 folders)	IA 193 Summary	January-February 1983
AERODYNAMICS (23 folders)	IA 193 Aero Uncertainties	February-May 1982
AERODYNAMICS (23 folders)	AEDC-TR-83-40 Captive Trajectory System Test Planning Information for AEDC Supersonic Wind Tunnel (A) and Hypersonic Wind Tunnels (B) and (C)	December 1983
AERODYNAMICS (23 folders)	SSME Plume Impingement Model (reports, charts, memos, blueprints)	1975-1980
AERODYNAMICS (23 folders)	Thrust "Aero" Coefficients	1977-1979
AERODYNAMICS (23 folders)	Sail Proximity Data	March-June 1978
AERODYNAMICS (23 folders)	LBM Impingement on SRB (charts)	n/d
AERODYNAMICS (23 folders)	Freestream Data (numerous charts)	1979-1982
AERODYNAMICS (23 folders)	AEDC-TR-71-195 External Flow-Field Effects on the Plume Impingement Pressure and Heat-Transfer- Rate Distributions on a Flat Plate	September 1971
AERODYNAMICS (23 folders)	Dynamic Interference	September 1972
AERODYNAMICS (23 folders)	AEDC CTS Study	1979-1980
AERODYNAMICS (23 folders)	CTS Limits and Model Interference	1976-1981
AERODYNAMICS (23 folders)	AEDC Tape Read	n/d
AERODYNAMICS (23 folders)	IA 140/142/143 Plume On Data (numerous charts, reports)	1976-1977
SubHeading:	Box Number: 8	
AERODYNAMICS (23 folders)	IA 87/111/143 Plume Off Data	1974-1978
AERODYNAMICS (23 folders)	IA 87 Data and Charts	n/d
AERODYNAMICS (23 folders)	IA 87 thru IA 143 Summaries (tabbed sections)	1974-1977
AERODYNAMICS (23 folders)	NASA CR-141,831 Aerodynamic Results of a Separation Effects Test On A 0.010 Scale Model (52-OTS) of the Integrated SSV in the AEDC/ VKF 40-by-40 Inch Supersonic Wind Tunnel (IA 111), V. 1 of 2	February 1976
AERODYNAMICS (23 folders)	STS-1 Aero Uncertainty (tabbed sections)	1977-1978
SubHeading:	Box Number: 9	
RELEASE SYSTEM (7 folders)	Sep Bolt Qual (2 reports)	1979-1980
RELEASE SYSTEM (7 folders)	Separation Bolts	1976-1979
RELEASE SYSTEM (7 folders)	Attach Mechanism (charts)	September 1976

RELEASE SYSTEM (7 folders)	Strut Gapping	1980-1981
RELEASE SYSTEM (7 folders)	Strut Loads	1980-1981
RELEASE SYSTEM (7 folders)	Electrical Connectors (schematics, reports, memos, cardboard model of shuttle rockets)	March-August 1976
RELEASE SYSTEM (7 folders)	ET/SRB Connector Damage	1980-1981
RELEASE SYSTEM (7 folders)	Misc. Post-Flight Analyses	n/d
RELEASE SYSTEM (7 folders)	JSC 14370 OFT Ascent/Descent Ancillary Data Requirements Document	February 1980
RELEASE SYSTEM (7 folders)	Downlist Time Skews	March-June 1981
RELEASE SYSTEM (7 folders)	Umbilical Separation Cameras (2 photographs, reports, schematics, charts)	1977-1980
RELEASE SYSTEM (7 folders)	Sample Data-Comtype Program Output, Pacific Missile Test Center	n/d
RELEASE SYSTEM (7 folders)	Pt. Mugu Data	1974-1981
RELEASE SYSTEM (7 folders)	STS-1 & 2 BSM Performance	1981-1982
RELEASE SYSTEM (7 folders)	Charts - STS-1	August 31, 1981
RELEASE SYSTEM (7 folders)	STS-3 BSM Performance	April 26, 1982
RELEASE SYSTEM (7 folders)	STS-5 BSM Performance	December 13, 1982
RELEASE SYSTEM (7 folders)	STS-6 BSM Performance	May 3, 1983
RELEASE SYSTEM (7 folders)	BSM Cover Loss	March-June 1982