

CENTER SERIES

PAUL H. VAVRA PAPERS

Paul Vavra began work for the NACA at the Langley Aeronautical Laboratory in August of 1947 as a research scientist and project engineer in the development of radar instrumentation and data collection systems used at the Wallops Station. He continued this work, and later supervised groups responsible for the design and development of complicated digital data recording and data gathering systems for wind tunnel research work. In July 1959, he was made Assistant Head, Tracking and Ground Instrumentation Unit (TAGIU) in the Project Mercury Team. During 1959 and 1960, the unit successfully planned, specified, and technically directed over \$80 million of effort which produced the world-wide Mercury Project Tracking and Data Acquisition Network including the first NASA real-time communications and computing center and operations control center for manned flight. In June 1961, he transferred to the Goddard Space Flight Center as Associate Chief, Manned Space Flight Support Division, which was responsible for the Mercury network operation. Mr. Vavra transferred to the Manned Spacecraft Center (now JSC) in November 1962, and assumed a position as Manager, Ground Systems Project Office, responsible for the development of the major Integrated Mission Control Center (MCC) at Houston, and integrating it with the Ground Operations Support System (GOSS) which was being developed to support the Gemini, Apollo, and advanced manned programs with respect to command / control, tracking, lunar orbiting and landing operations, return, and reentry. In this capacity Mr. Vavra was responsible for development of the technical management plan, specifications, contract negotiations, and direction of a \$100 million program for the design, development, and construction of the MCC. (Note FOD interface material in the collection). With these two systems (MCC and GOSS) becoming operational, the Information Systems Division was established in February 1964 to assure engineering studies and new systems developments to keep these systems continuously updated in terms of advancing requirements for tracking, command and control. Mr. Vavra was appointed Chief of this new division in February of 1965 with responsibility for directing a 100 man staff in planning, analysis and engineering of spacecraft / ground telecommunications systems for support of manned space flight, automated spacecraft test and checkout systems, and development of data acquisition and specialized processing and display equipment for support of manned spacecraft center laboratories. Mr. Vavra was assigned direct responsibility by NASA Headquarters for coordinating NASA Center work with the Apollo spacecraft designers and contractors, and the JPL and Goddard Space Flight Center ground station designers to assure Apollo spacecraft communications compatibility with ground networks. In August 1969, the Information Systems Division and the Space electronic Systems Division were reorganized, with all spacecraft data management and instrumentation responsibilities being combined in the Information Systems Division. Mr. Vavra remained Chief of the Division, responsible for planning, directing, and coordinating the work of five branches in the planning, analyzing, and engineering of overall design, development, qualification, and testing of onboard data management systems, ground-based and onboard checkout systems, component testing, instrumentation, control and displays, power distribution and sequencing, standards and calibration; design, development, and implementation of selected electronic and optical experiments and earth resources sensor systems. Mr. Vavra's Space Shuttle Program responsibilities centered around ISD efforts in the area of electronics development and avionics integration. Mr. Vavra retired from NASA in January of 1973. The papers in the subseries consist of correspondence, memos, reports, meeting minutes, handwritten notes, and photographs. A small quantity of memorabilia is also filed in the collection. However, NASA PAO fact sheets and give-aways were not retained as they are available in other History Office collections. The materials are grouped chronologically under several sub-headings corresponding to the major projects in which Mr. Vavra participated or oversaw. Most of the material is dated from 1957 through 1972. The subseries is strongest in documentation related to the Mercury Network, making it a rare find and an extremely valuable addition to the overall history collection. See also our MCC / RTCC subseries and the general Mercury series for additional information. An interview transcript with Mr. Vavra is also available.

Inventory

SubHeading:	Box Number: 01	
MERCURY CONTROL CENTER AND NETWORK	Technical Evaluation Subcommittee, Project Mercury Tracking and Ground Instrumentation Systems Specifications, Evaluation Team Reports	July 1959 - 1960
MERCURY CONTROL CENTER AND NETWORK	Remote Site Survey Schedule for Mercury Network	August 3, 1959
MERCURY CONTROL CENTER AND NETWORK	NASA Space Task Group, Project Mercury Discussion (presentation charts)	November 24, 1959
MERCURY CONTROL CENTER AND NETWORK	NASA Report for the Cisler Committee on Tracking and Ground Instrumentation Systems for the Project Mercury (description)	November 25, 1959

MERCURY CONTROL CENTER AND NETWORK	Mercury Network Communications, Notes on Contractors (Collins, RCA, ITT, ATT, GE)	1959
MERCURY CONTROL CENTER AND NETWORK	Mercury Network - Early Headquarters Plans (including handwritten notes)	1959
MERCURY CONTROL CENTER AND NETWORK	Mercury Network, NASA - Atlantic Missile Range Discussions	1959 - 1960
MERCURY CONTROL CENTER AND NETWORK	Notes on AMR Management Policies (conflicts between NASA and DoD)	1959 - 1961
MERCURY CONTROL CENTER AND NETWORK	Proposed Space Control Center for Coordination and Control of "Man-in-Space" Programs, Presentation Material	April 29, 1959
MERCURY CONTROL CENTER AND NETWORK	NASA - LRC Specification No. S-45B Tracking and Ground Instrumentation Systems for Project Mercury	May - October 1959
MERCURY CONTROL CENTER AND NETWORK	Mercury Tracking Network Discussion - Initial Design, Configuration and Requirements	June 1959 - 1960.
MERCURY CONTROL CENTER AND NETWORK	Mercury Tracking and Communications Briefing, World Coverage Charts, Procedures, etc.	June 1, 1959
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MERCURY CONTROL CENTER AND NETWORK	Mercury Program Advertisements	1959 - 1961
MERCURY CONTROL CENTER AND NETWORK	Mercury Network Remote Sites, Project Engineer Responsibilities	January 11, 1960
MERCURY CONTROL CENTER AND NETWORK	Project Mercury Computing and Data Flow Planning	January 25, 1960
MERCURY CONTROL CENTER AND NETWORK	Mathews, Charles W. "Review of the Operational Plans for Mercury Orbital Mission"	January 25, 1960
MERCURY CONTROL CENTER AND NETWORK	NASA - GSFC, Proposed Communications Center for the Goddard Space Flight Center (MCC)	January 1960
MERCURY CONTROL CENTER AND NETWORK	Summary of Charges for Proposed NASA Communications Requirements in Connection with Project Mercury	March 23, 1960
MERCURY CONTROL CENTER AND NETWORK	Project Mercury NASA / DoD Operations Meeting, Part II	April 5 - 6, 1960
MERCURY CONTROL CENTER AND NETWORK	Bendix Corporation, Project Mercury Indoctrination Manual (Network)	April 1960
MERCURY CONTROL CENTER AND NETWORK	Project Mercury Space Parts Procedures	May 12, 1960
MERCURY CONTROL CENTER AND NETWORK	National Bureau of Standards Report 6707, Final Engineering Report on Project Mercury High Frequency Ground Instrumentation System, Part I and II	June 13, 1960
MERCURY CONTROL CENTER AND NETWORK	NASA - DoD Meeting on Mercury Network Status and Schedules	June 15, 1960
SubHeading:	Box Number: 03	
MERCURY CONTROL CENTER AND NETWORK	NASA - Space Task Group Project Mercury Discussions	June 20, 1960
MERCURY CONTROL CENTER AND NETWORK	NASA - Space Task Group Project Mercury Discussion, Presentation on Mercury Network (technical requirements and operating descriptions attached)	October 31, 1960
MERCURY CONTROL CENTER AND NETWORK	Briefing to Captain Howard Silberstein, Staff Consultant to the Committee on Science and Astronautics re: Langley Support of Project Mercury Tracking and Ground Instrumentation	October 1960
MERCURY CONTROL CENTER AND NETWORK	DoD Logistic and Administrative Control of Project Mercury Tracking Stations	1960
MERCURY CONTROL CENTER AND NETWORK	Mercury Control Center and Tracking	c. 1960 - 1961

NETWORK	Station Photographs	
MERCURY CONTROL CENTER AND NETWORK	Vavra Presentation to Ad Hoc Mercury Panel of the President's Science Advisory Committee	March 3, 1961
MERCURY CONTROL CENTER AND NETWORK	Project Mercury MA-3 Operations Information Memorandum, Revision A	March 31, 1961
MERCURY CONTROL CENTER AND NETWORK	MIT - Lincoln Laboratories, Recommendations for choice of Data Transmission Systems	June 15, 1961
MERCURY CONTROL CENTER AND NETWORK	Project Mercury Ground System, Review of Project Status as of June 30, 1961 and September 5, 1961	
MERCURY CONTROL CENTER AND NETWORK	MIT - Lincoln Laboratories, Mission Simulators for the Mercury Sites	September 11, 1961
SubHeading:	Box Number: 04	
MERCURY CONTROL CENTER AND NETWORK	Bell Telephone Laboratories, Inc., Project Mercury Report on Observations of the Mercury Ground Network During the MNTV-1 Network Exercises	September 26, 1961
MERCURY CONTROL CENTER AND NETWORK	MA-4 Preliminary Network Performance	September 1961
MERCURY CONTROL CENTER AND NETWORK	Donegan, James J. "Description of the Mercury Real - Time Computing System"	October 26, 1961
MERCURY CONTROL CENTER AND NETWORK	Irvin, H. D. and Cowperthwait, W. L., "Around the World by Simulation" Bell Laboratories article	October 1961
MERCURY CONTROL CENTER AND NETWORK	MA-6 Data Acquisition Plan	December 4, 1961
MERCURY CONTROL CENTER AND NETWORK	Project Mercury Ground Communications Network Description	December 20, 1961
MERCURY CONTROL CENTER AND NETWORK	Manned Space Flight Support Division - GSFC, Organization and Functions	1961
MERCURY CONTROL CENTER AND NETWORK	Bermuda Tracking Station Modifications	1961
MERCURY CONTROL CENTER AND NETWORK	TAGIU Coordination Committee, Mercury Network Transfer from LRC to GSFC	1961
MERCURY CONTROL CENTER AND NETWORK	Mercury Network Procedures Documentation Correspondence	1961
MERCURY CONTROL CENTER AND NETWORK	Memos on DoD Scheduling and Documentation (re: Network)	1961
MERCURY CONTROL CENTER AND NETWORK	Mercury Network Management and Operating Responsibilities	1961
MERCURY CONTROL CENTER AND NETWORK	Mercury Operations and Training Program at Wallops Demonstration Site	1961 - 1962
MERCURY CONTROL CENTER AND NETWORK	Project Mercury Completion, Commendations	1961 - 1963, n.d.
MERCURY CONTROL CENTER AND NETWORK	IBM, Final Report, Project Mercury	March 1, 1962
SubHeading:	Box Number: 05	
MERCURY CONTROL CENTER AND NETWORK	NASA - GSFC Network Performance Analysis for MA-6	March 15, 1962
MERCURY CONTROL CENTER AND NETWORK	Mercury / Atlas Combined Remote Site and Network Countdown (GSFC)	April 1962
MERCURY CONTROL CENTER AND NETWORK	NASA Project Mercury Program Sytem Operation	May 1, 1962
MERCURY CONTROL CENTER AND NETWORK	Mercury - Atlas (MA-7) Network Status Monitor Report to Flight Director	May 24, 1962
MERCURY CONTROL CENTER AND NETWORK	Project Mercury Ground Communications Network Description	October 9, 1962
MERCURY CONTROL CENTER AND NETWORK	Network Budget Estimates FY62 - FY67	1962

MERCURY CONTROL CENTER AND NETWORK	Ground Systems Project Office Establishment	1962 - 1963
MERCURY CONTROL CENTER AND NETWORK	Project Mercury, Mercury Control Center and Mercury Network Presentation	n.d.
WESTERN ELECTRIC CO. - MERCURY CONTROL CENTER AND NETWORK	Western Electric Co. Project Mercury Organization Chart	August 26, 1959
WESTERN ELECTRIC CO. - MERCURY CONTROL CENTER AND NETWORK	Engineering Steering Committee Meeting at Western Electric Co. Inc.	September 15 - 16, 1959
WESTERN ELECTRIC CO. - MERCURY CONTROL CENTER AND NETWORK	Western Electric Co. Conference Notes on Mercury Antenna Configuration Meeting	October 1, 1959
WESTERN ELECTRIC CO. - MERCURY CONTROL CENTER AND NETWORK	Western Electric Co. Commercial Overseas Transportation Schedule for Project Mercury Remote Sites	October 6, 1959
WESTERN ELECTRIC CO. - MERCURY CONTROL CENTER AND NETWORK	Western Electric Co. Project Mercury, Volume II Proposal (Mercury Control Center and Communications)	c. 1959
WESTERN ELECTRIC CO. - MERCURY CONTROL CENTER AND NETWORK	Western Electric, Co. Plan for the Project Mercury Tracking and Ground Instrumentation System at Atlantic Missile Range (NAS1-430)	January 7, 1960
SubHeading:	Box Number: 06	
WESTERN ELECTRIC CO. - MERCURY CONTROL CENTER AND NETWORK	Western Electric Co. (NAS1-430) Project Mercury Ground Systems Analysis	January 1960
WESTERN ELECTRIC CO. - MERCURY CONTROL CENTER AND NETWORK	Western Electric, Co. Project Mercury Presentation to Wright Air Development Division	May 19, 1960
WESTERN ELECTRIC CO. - MERCURY CONTROL CENTER AND NETWORK	Western Electric Co. Introduction to Project Mercury and Site Handbook	September 1960
WESTERN ELECTRIC CO. - MERCURY CONTROL CENTER AND NETWORK	Western Electric, Co. Maintenance and Operation of the Mercury Tracking and Ground Instrumentation System (including SOW and spares policy)	1960 - 1961
WESTERN ELECTRIC CO. - MERCURY CONTROL CENTER AND NETWORK	Project Mercury Control Status Charts	1960 - 1961
WESTERN ELECTRIC CO. - MERCURY CONTROL CENTER AND NETWORK	Western Electric, Co. Final Progress Report to NASA, Project Mercury	June 1961
WESTERN ELECTRIC CO. - MERCURY CONTROL CENTER AND NETWORK	Western Electric, Co. Contract NAS1-430 Project Status and Phasedown, Project Mercury Ground System	1961
SubHeading:	Box Number: 07	
INTEGRATED MISSION CONTROL CENTER	WDL-TP941, Philco Ford Corporation, Mission Control Center Implementation, Operation, and Ground Operational Support Systems Integration	December 10, 1962
INTEGRATED MISSION CONTROL CENTER	IBM Letter Contract (NAS9-996) for Real - Time Computer Complex Development and Operation	1962
INTEGRATED MISSION CONTROL CENTER	Statement of Work (GSPO) for RTCC and LTDS (Launch Trajectory Data System)	March 29, 1963
INTEGRATED MISSION CONTROL CENTER	GOSS - IMCC Status Presentation to HQ - Holmes by Vavra	April 11, 1963
INTEGRATED MISSION CONTROL CENTER	Missiles and Rockets article, "New Houston Control Facility May Direct Gemini Sooner than Planned"	July 8, 1963
INTEGRATED MISSION CONTROL CENTER	Updated Status of IMCC Subcontracts	October 30, 1963
INTEGRATED MISSION CONTROL CENTER	IBM RTCC Contract Related Correspondence	1963

INTEGRATED MISSION CONTROL CENTER	IMCC Display and Control Related Correspondence	1963
INTEGRATED MISSION CONTROL CENTER	IMCC Displays and Controls Description and Review	1963
INTEGRATED MISSION CONTROL CENTER	IMCC Budget and Funding	1963
INTEGRATED MISSION CONTROL CENTER	GSPO / FOD Correspondence (re: IMCC Requirements)	1963 - 1964
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INTEGRATED MISSION CONTROL CENTER	IMCC and Southwestern Bell Telephone Interface Negotiations	1963 - 1964
INTEGRATED MISSION CONTROL CENTER	Miscellaneous MCC and RTCC Correspondence	1963 - 1964
INTEGRATED MISSION CONTROL CENTER	Philco Ford, Integrated Mission Control Center Implementation Monthly Progress Report for January 1 - 31, 1964 (Contract NAS9-1261)	February 10, 1964
INTEGRATED MISSION CONTROL CENTER	IMCC Program Office / Flight Support Division Meeting Schedules	1964
INTEGRATED MISSION CONTROL CENTER	Information Systems Division Support to IMCC Program Office (Correspondence)	1964 - 1965
INTEGRATED MISSION CONTROL CENTER	Mission Control Center, Compatibility Laboratory, Data Systems Development Laboratory Related Correspondence	1964 - 1965
INTEGRATED MISSION CONTROL CENTER	Real - Time Computer Complex Requirements	n.d.
SubHeading:	Box Number: 09	
GROUND SYSTEMS PROJECT OFFICE / INFORMATION SYSTEMS DIVISION MANPOWER, ORGANIZATION, AND FUNCTIONS	NASA - GSFC General Identification of Tasks and Assignments for Direct Data Operations Division	September 5, 1961
GROUND SYSTEMS PROJECT OFFICE / INFORMATION SYSTEMS DIVISION MANPOWER, ORGANIZATION, AND FUNCTIONS	Ground Systems Project Office Organization and Meeting Schedules	1962 - 1963
GROUND SYSTEMS PROJECT OFFICE / INFORMATION SYSTEMS DIVISION MANPOWER, ORGANIZATION, AND FUNCTIONS	Information Systems Division Organization and Functions (including GSPO)	1963 - 1969
GROUND SYSTEMS PROJECT OFFICE / INFORMATION SYSTEMS DIVISION MANPOWER, ORGANIZATION, AND FUNCTIONS	Information Systems Division Interface with GSFC	1964 - 1965
GROUND SYSTEMS PROJECT OFFICE / INFORMATION SYSTEMS DIVISION MANPOWER, ORGANIZATION, AND FUNCTIONS	Information Systems Division FOD Interface	1964 - 1969
GROUND SYSTEMS PROJECT OFFICE / INFORMATION SYSTEMS DIVISION MANPOWER, ORGANIZATION, AND FUNCTIONS	Information Systems Division Personnel and Manpower Issues	1964 - 1969
GROUND SYSTEMS PROJECT OFFICE / INFORMATION SYSTEMS DIVISION MANPOWER, ORGANIZATION, AND FUNCTIONS	Information Systems Division Status Review of Apollo Subsystem Management	October 26, 1965
GROUND SYSTEMS PROJECT OFFICE / INFORMATION SYSTEMS DIVISION MANPOWER, ORGANIZATION, AND FUNCTIONS	Information Systems Division Facilities	April 1966
GROUND SYSTEMS PROJECT OFFICE / INFORMATION SYSTEMS DIVISION MANPOWER, ORGANIZATION, AND FUNCTIONS	Narratives to Support the Hardware / Software 5 - Year Supporting Development Plan	June 29, 1967
GROUND SYSTEMS PROJECT OFFICE / INFORMATION SYSTEMS DIVISION MANPOWER, ORGANIZATION, AND FUNCTIONS	Information Systems Division Presentation	1967

GROUND SYSTEMS PROJECT OFFICE / INFORMATION SYSTEMS DIVISION MANPOWER, ORGANIZATION, AND FUNCTIONS	Information Systems Division Manpower Utilization Survey, Report of Findings and Recommendations	c. 1968
GROUND SYSTEMS PROJECT OFFICE / INFORMATION SYSTEMS DIVISION MANPOWER, ORGANIZATION, AND FUNCTIONS	Information Systems Division Major Areas of Responsibility Presentation	c. 1969
GROUND SYSTEMS PROJECT OFFICE / INFORMATION SYSTEMS DIVISION MANPOWER, ORGANIZATION, AND FUNCTIONS	Information Systems Division 5 - Year Technology Plan (including C of F Requests)	November 1970
GROUND SYSTEMS PROJECT OFFICE / INFORMATION SYSTEMS DIVISION MANPOWER, ORGANIZATION, AND FUNCTIONS	ISD Activities in Support of Shuttle (list)	May 17, 1971
GROUND SYSTEMS PROJECT OFFICE / INFORMATION SYSTEMS DIVISION MANPOWER, ORGANIZATION, AND FUNCTIONS	E & D Organization Chart with Corrections	March 6, 1972
GROUND SYSTEMS PROJECT OFFICE / INFORMATION SYSTEMS DIVISION MANPOWER, ORGANIZATION, AND FUNCTIONS	Orbiter Project Task Agreement Between Orbiter Manager and E & D Directorate	October 1972
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APOLLO COMMUNICATIONS (UNIFIED S-BAND)	Apollo Spacecraft GOSS Interface Coordination and Control Procedure Between NAA and MSC	October 3, 1963
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	Early Apollo Communications Related Correspondence	1963 - 1964
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	GSFC Correspondence re: Apollo Unified S-Band Systems Requirements, Performance and Interface Specifications	1963 - 1966
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	Apollo Unified S-Band System, Vavra Presentation to Graves and Mueller	February 1964
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	Apollo Operating Procedures	April 10, 1964
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	Charter for the Mission Planning and Analysis Division Management of the Apollo Mission Analysis and Trajectory Support Effort	April 13, 1964
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	Apollo S-Band System Presentation to Dr. Shea	July 13, 1964
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	Apollo Unified S-Band System Responsibilities	1964
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	Apollo Unified S-Band System Presentation	1964 - 1965
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	Apollo Communications Compatibility, Interface and Performance	1964 - 1966
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	Apollo Program Status Review, Unified S-Band System	February 19, 1965
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	Minutes of the Apollo S-Band Acquisition Techniques Working Group Meeting	June 10, 1965
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	Information Systems Division Status Review of Apollo Subsystem Management	October 26, 1965
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	Apollo Communications System (lunar configuration)	October 1965
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APOLLO COMMUNICATIONS (UNIFIED S-BAND)	Mercury, Gemini and Apollo Communications Presentation	1965
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	Memorandum of Understanding for GAEC LEM - MSC Informations Systems Division Interface Coordination and Control Procedures (NAS9-1100)	1965

APOLLO COMMUNICATIONS (UNIFIED S-BAND)	Apollo Unified S-Band System Review	1965
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	Deep Space Network Facility Descriptions (Goldstone, Ascension Island, Robledo)	1965 - 1966
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	A Performance Analysis of the Apollo Unified S-Band Communications System for a Typical Lunar Mission	May 1, 1967
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	Apollo - MSFN Design Review Meetings	May - June 1967
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	LM-1 S-Band Antenna Performance	July 16, 1968
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	MSC Internal Note No. EB-R-68-15, Apollo Communication Systems Performance and Coverage Analysis for Mission Apollo_8	December 10, 1968
SubHeading:	Box Number: 12	
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	Apollo 6 S-Band Communication System Performance	1968
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	Action / Recommendations Resulting from January 17, 1969 Meeting of Review Board, Apollo 9 (D Mission) Communications System	
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	Communications System Review Presentation Materials	c. April 1969
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	LM and CSM S-Band Antenna Tracking Studies Task E-53C-2 Technical Report (Progress Report for Fiscal Year Ending June 30, 1969)	June 27, 1969
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	MSC Internal Note No. EB-R-69-7, Communications System Performance and Coverage Analysis for Apollo 11, Vols. I, III, IV and V	June - July 1969
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APOLLO COMMUNICATIONS (UNIFIED S-BAND)	AS-506 MCC / MSFN Mission Configuration and System Description	June 1969
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	Apollo Mission Communications Review (voice and TV)	1969
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	Apollo System Coverage Listing (subsystem responsibility)	n.d.
APOLLO COMMUNICATIONS (UNIFIED S-BAND)	NASA Procurement Plan for the Testing of Apollo Unified S-Band Equipment	n.d.
SPACECRAFT CHECKOUT SYSTEMS (ACE & UTE)	Acceptance Checkout System (ACE - S/C) Function, Organization and Relocation Related	1964 - 1965, n.d.
SPACECRAFT CHECKOUT SYSTEMS (ACE & UTE)	Bradford, William C. and Brett, William V. "Design of an Onboard Checkout System"	October 1966
SPACECRAFT CHECKOUT SYSTEMS (ACE & UTE)	MSC Internal Note MSC-EB-R-67-5, Survey of Satellite Reliability, Test and Checkout Programs	June 1, 1967
SPACECRAFT CHECKOUT SYSTEMS (ACE & UTE)	Parks Observatory Apollo 11 Checkout Detailed Procedures	1969
SPACECRAFT CHECKOUT SYSTEMS (ACE & UTE)	Minutes of Data and Control Management, Checkout, Instrumentation, Caution and Warning Subgroup; MSC - NR Team Technical Interchange Meeting	July 8 - 9, 1970
SPACECRAFT CHECKOUT SYSTEMS (ACE & UTE)	MSC-04743, Space Shuttle Vehicle Unified Test Equipment (UTE) Concepts and Requirements for Ground Test and Checkout	March 1, 1971
SPACECRAFT CHECKOUT SYSTEMS (ACE & UTE)	ISD Checkout Techniques Test Bed Presentation	1971
SPACECRAFT CHECKOUT SYSTEMS (ACE & UTE)	Statement of Work for Checkout Techniques, Test Bed Command	January 26, 1972

	Decoder, Display and Keyboard, and Maintenance / Loop Recorders	
SPACECRAFT CHECKOUT SYSTEMS (ACE & UTE)	A Description of ISD Checkout Techniques Test Bed Elements Implemented in the ASIL System	August 1972
SPACECRAFT CHECKOUT SYSTEMS (ACE & UTE)	MSC-07398, Unified Test Equipment (UTE) for Shuttle Program Test Operations	September 8, 1972
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SPACECRAFT CHECKOUT SYSTEMS (ACE & UTE)	Checkout Techniques Test Bed / Shuttle Avionics Laboratory Project Plan (preliminary)	1972
SPACECRAFT CHECKOUT SYSTEMS (ACE & UTE)	Chambers, T. V. "Systems Performance Monitoring for Advanced Manned Spacecraft"	1972
SPACECRAFT CHECKOUT SYSTEMS (ACE & UTE)	Apollo Cape Checkout Plan	n.d.
SPACECRAFT CHECKOUT SYSTEMS (ACE & UTE)	Bradford, W.C. "Lecture Notes - Acceptance Checkout Equipment for Spacecraft ACE-S/C"	n.d.
SPACECRAFT CHECKOUT SYSTEMS (ACE & UTE)	ACE-S/C Computer Programming System	n.d.
SPACECRAFT CHECKOUT SYSTEMS (ACE & UTE)	Osgood, Donald R.; Burtzloff, Irvin J.; Patterson, Oscar "Advanced Ground Support Checkout Systems"	n.d.
LUNAR RECEIVING LABORATORY VAVRA COMMITTEE PARTICIPATION	Operational Readiness Inspection of Lunar Receiving Laboratory - Vavra Committee participation	1967 - 1969
LUNAR RECEIVING LABORATORY VAVRA COMMITTEE PARTICIPATION	Lunar Receiving Laboratory, MSC Building 37 Facility Description	September 1968
LUNAR RECEIVING LABORATORY VAVRA COMMITTEE PARTICIPATION	Lunar Receiving Laboratory Operation Plan (preliminary)	n.d.
SPACE SHUTTLE AVIONICS AND COMPUTERS	MSC-01282 Space Shuttle Orbiter Data System Display and Control Design Guidelines	December 12, 1969
SPACE SHUTTLE AVIONICS AND COMPUTERS	Shuttle Onboard Autonomy Panel Phase I Report	1969
SPACE SHUTTLE AVIONICS AND COMPUTERS	MIT Report No.E-2529 STS Data Management System Design (Task 2)	June 1970
SPACE SHUTTLE AVIONICS AND COMPUTERS	Jacowitz, Dr. L. A. and Poupard, R. E. "Onboard Data Management for Space Shuttle"	October 22, 1970
SPACE SHUTTLE AVIONICS AND COMPUTERS	ISD Listings of Shuttle Off-the-Shelf Hardware	1970 - 1971
SubHeading:	Box Number: 15	
SPACE SHUTTLE AVIONICS AND COMPUTERS	Shuttle Electronics, Controls, and Displays Presentations	1970 - 1972, n.d.
SPACE SHUTTLE AVIONICS AND COMPUTERS	Shuttle Avionics Correspondence	1970 - 1972
SPACE SHUTTLE AVIONICS AND COMPUTERS	ISD Space Shuttle Development Plan (Shuttle Management Review Board)	March 30, 1971
SPACE SHUTTLE AVIONICS AND COMPUTERS	General Electric, Summary Report for the Universal Control and Display Console	July 1971
SPACE SHUTTLE AVIONICS AND COMPUTERS	ISD Space Shuttle Development Plan	September 1971
SPACE SHUTTLE AVIONICS AND COMPUTERS	Presentation on Computer Survey and Computer Interface (Space Shuttle)	February 10, 1972
SPACE SHUTTLE AVIONICS AND COMPUTERS	MSC-06756 Advanced Redundant Electrical Power Systems Concepts	February 23, 1972
SPACE SHUTTLE AVIONICS AND COMPUTERS	MSC-01657 Final Report of the ISD Configuration I Avionics Breadboard	March 1972
SPACE SHUTTLE AVIONICS AND COMPUTERS	MSC-07270, Project Space Shuttle Redundant Flight Control System Breadboard Design Report	May 1972
SPACE SHUTTLE AVIONICS AND	MSC-07090 Digital Processor Control	June 23, 1972

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SPACE SHUTTLE AVIONICS AND COMPUTERS	Avionics Systems Integration Laboratory Maintenance / Loop Recorder System Operational Philosophy	October 1972
SPACE SHUTTLE AVIONICS AND COMPUTERS	IBM Shuttle Avionics Presentation	c. October 1972
SPACE SHUTTLE AVIONICS AND COMPUTERS	MSC-07597 Requirements on the Shuttle Avionics Computer Hardware Facilitating Avionics Software Development and Reliability	November 20, 1972
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SPACE SHUTTLE AVIONICS AND COMPUTERS	RCA COS / MOS LSI for Space Shuttle Presentation	November 1972
SPACE SHUTTLE AVIONICS AND COMPUTERS	Main Engine Computer Interfaces Study, North American Rockwell Presentation	December 13, 1972
SPACE SHUTTLE AVIONICS AND COMPUTERS	Off-the-Shelf Aerospace Computer System (including SOW)	1972
TECHNICAL PAPERS AND ISD INTERNAL NOTES	TND-1348 Ludwig, George H. "Spacecraft Information Systems"	1961
TECHNICAL PAPERS AND ISD INTERNAL NOTES	Raines, Gary K. "Data Link Final Report"	August 30, 1967
TECHNICAL PAPERS AND ISD INTERNAL NOTES	MSC Internal Note MSC-EB-E-68-4023-U MSC Category B Computer Systems	August 8, 1968
TECHNICAL PAPERS AND ISD INTERNAL NOTES	Internal Note MSC-EB-68-4019-U Data Systems Development Branch Laboratory Description	December 5, 1968
TECHNICAL PAPERS AND ISD INTERNAL NOTES	Ledet, James P. and Warnick, Curtis D. "A Data Management System for a Space Base"	June 1969
TECHNICAL PAPERS AND ISD INTERNAL NOTES	Mueller, Dr. George E. "Application of Computers to Manned Space Flight"	September 1969
TECHNICAL PAPERS AND ISD INTERNAL NOTES	Selby, J. D. and Miller, S. G. "Reliability Planning and Management"	September 26, 1970
TECHNICAL PAPERS AND ISD INTERNAL NOTES	MSC-05144 A Description of the Data Bus System for Integrated Breadboards, Revision A	January 12, 1971
TECHNICAL PAPERS AND ISD INTERNAL NOTES	MSC-04742 ISD Instrument Calibration and Measurement Standards	April 1, 1971
TECHNICAL PAPERS AND ISD INTERNAL NOTES	General Discussion of Spacecraft Timing Equipment	July 1971
TECHNICAL PAPERS AND ISD INTERNAL NOTES	Mallory, William E. "Information Management System Breadboard Data Acquisition and Control System"	June 1972
TECHNICAL PAPERS AND ISD INTERNAL NOTES	Jeffcoat, Thomas D. and Eastman, Forrest E. "Advanced Aerospace Power Distribution and Control Techniques"	July 1972
TECHNICAL PAPERS AND ISD INTERNAL NOTES	Graves, G. Barry "Advanced Avionic Systems"	n.d.
TECHNICAL PAPERS AND ISD INTERNAL NOTES	Lee, Eva A. "Use of Microprogramming in Flight - Computer Validations and Software"	n.d.
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SUBJECT FILES	NASA Apollo Achievement Award Certificate to Paul H. Vavra	1969
SUBJECT FILES	Apollo Spacecraft Event Logic Study (telemetry system)	May 6, 1964
SUBJECT FILES	Cape Kennedy AFS Air Force Eastern Test Range	September 1969
SUBJECT FILES	Electronic Systems Test Program Presentation	May 11, 1967
SUBJECT FILES	Fault Tolerant Computer (presentation)	1971 - 1972

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SUBJECT FILES	Guidance Software Control Panel Charter	May 25, 1965
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SUBJECT FILES	Instrumentation Test Facility Related Correspondence	1963 - 1964
SUBJECT FILES	ISD / E & D Project Lists	1965 - 1966
SUBJECT FILES	ISD / TCSD Interface Agreement for ERAP	October 8, 1969
SUBJECT FILES	NASA - MSC Minutes of Information and Control Systems Meeting	January - February 1963
SUBJECT FILES	Mission Planning and Analysis Division (MPAD), Method for Implementing and Operating the Apollo Support Group	1964
SUBJECT FILES	Mobile Recovery Control System (landing and recovery operations)	1963
SUBJECT FILES	Network Support Requirements for Gemini and Apollo (MSC / GSFC interface)	1963 - 1964
SUBJECT FILES	Operations and Instrumentation Budget Estimates for Network Support of Gemini and Apollo FY63 - FY67	June 18, 1962
SUBJECT FILES	Pico Projector, Dr. Humberto Fernandez - Moran	1968 - 1969
SUBJECT FILES	Space Clocks	1969 - 1971
SUBJECT FILES	Subsystem / Technical Management Plan for Communications and Tracking	1964, 1966
SUBJECT FILES	World Map of the Gemini Parking Orbits (Agena) (with remote site coverage)	March 1962