CONGRATULATIONS. Your name is being entered into the Apollo/Saturn V Roll of Honor.

Done through the same great pioneering efforts — Marco Polo's journey to the Orient, Columbus' discovery of America, Colonization of the New World — have been subjects of painstaking study by historians, both professional and amateur. Such an event that will capture the imagination of future historians is happening now: in the pioneering of space and you have been a part of this effort.

The Apollo/Saturn V Roll of Honor is a unique volume dedicated to the purpose of recording for all time the names of individuals who, with diligence, over the years, put forth their energies and skills to make possible mankind's greatest ex- ploitation: that of sending three men to the moon and returning them to earth safely. Throughout the ages, individual contributions have all too often been forgotten. But here, your name and your deed will be preserved for our generation, and for those who follow.

One copy of this volume will be placed in the Library of Congress, Washington, D.C., a second in the Smithsonian Institution, Washington, D.C., and a third within an appropriate monument. The emplacement of these volumes will occur shortly after the return of the astronauts from the moon.

To commemorate the occasion of having your name entered into the Apollo/Saturn V Roll of Honor, you are being presented with this token, which will serve as evidence to your family, friends, and acquaintances of your distinguished participation in man's greatest ventures.

J. B. Barge
Apollo TEE Program Manager

In July 1968 John Rankin assumed the technical responsibility for an avionics topological computer program. The objective was to find certain sneak paths in the Apollo spacecraft's display- ing parallel logic. Rankin devised a new approach and guided its progress through programming. Trou- bles were encountered upon attempting a system run Nov. 21. Between Nov. 21 and Dec. 9 Rankin and his key programmers worked day and three nights to get a stable system. In Dec. 9 a successful pilot output was obtained. This program is the largest network analysis so far attempted in the U.S.
Guide to the Collection of
John P. Rankin

Compiled by:
John P. Rankin, Donor
&
David Hanning, Archivist Assistant

M. Louis Salmon Library,
University of Alabama in Huntsville,
Huntsville, AL 35899
2011
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Guide to the Collection of John P. Rankin

Contact Information:

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Telephone: 256 824 6523

Email: Library Archivist -- see Library Staff Listing
URL: http://www.uah.edu/library/about/department.archives.htm

Descriptive Summary

Title: Collection of John P. Rankin

Collection Number: Special Collections

Creator: John P. Rankin

Extent: 10 Linear ft.


Administrative Information

Access Restrictions: None

Publication Rights: Property rights reside with the repository.

Provenance: Gift of John P. Rankin, 2011

Preferred Citation: [Identification of item] Collection of John P. Rankin, Dept. of Archives/Special Collections, M. Louis Salmon Library, University of Alabama in Huntsville, Huntsville, AL.

Scope and Content

The John P. Rankin Collection (electrical engineering) includes approximately 250 documents contained within 183 folders in 8 categories. Subjects covered within the collection include a wide range of aerospace technologies, such as topological sneak circuit analysis and the closely-related Common Cause Failure Analysis that utilizes sneak circuit analysis core elements to determine susceptibilities of complex systems to experience critical unplanned events. Actual project final reports are made a part of the collection, in order to illustrate details of results of applications of the technologies.
Background to the birth of a New Technology to find Sneak Circuits in Designs.

In 1967 Scott Simpkinson, the Flight Safety Officer for NASA on the Apollo program, had concerns that possibly an unintentional sneak (“surprise”) circuit had caused the fire within the Command Module during the ground test of Apollo 1 that killed astronauts Gus Grissom, Ed White, and Roger Chaffee. As a part of the contract NASA had with The Boeing Company for Technical Integration & Evaluation, Scott initiated a manual analysis effort by electrical system expert engineers to see whether such surprise circuits could be found in Apollo circuits before unintentional activation. This early analysis approach was to have the experienced engineering “trouble-shooters” of electrical problems to examine each system schematic and its associated detail drawings used for manufacturing activity. They were told to look for anything unusual and for any previously unknown operational capabilities, but no specifics of what would indicate such things of concern were given as guidance.

Because of the extreme risk to astronauts and the overall program, the schematics and drawings were examined and signed off by a minimum of three different independent analysts working sequentially. By NASA's initial definition, sneak circuits were not to include such factors as component failures as initiating events. (That stipulation was later relaxed to an extent due to the significance of previously unrecognized potential problems that were observed during analysis after the more comprehensive topological approach was developed.) The concept of sneak circuits was that they would escape detection during testing phases of the program and lie dormant during initial and normal operations. The “sneaky circuits” would activate only during unusual circumstances and/or multiple failures of components and crew actions. When activated, sneak current would flow through unintended paths to produce unexpected operations or inhibits of desired functions. The cause and effect relationships of the sneak events would normally be mysterious. Such had been the experiences of highly complex and massive electrical control systems in many enterprises, not just in space endeavors.

The initial results of the Boeing-Apollo manual analysis efforts were sparse and led to very little increased confidence that all dangerous sneak circuits were identified. In April of 1968 John Rankin was transferred from Seattle to Houston to evaluate and assist the effort. The first aspect of Rankin's work was to evaluate the effectiveness of an on-going effort to construct a computerized method called the Cable Loop Identification Program (CLIP). The engineers had theorized that sneaks resulted from unplanned loops in the wiring. However, within a few weeks it was shown that such an approach would be unproductive and highly costly, while resulting in an enormous amount of computer output that would be highly redundant and distracting rather than indicative of any sneak potentials.

In May of 1968 Rankin began to research historical sneak incidents from many industries and then develop a new system to address the root causes of oversights of the problems. Gradually the answer seemed to be related to the need for clearer depiction of end-to-end circuitry from primary power sources to actuator loads. The solution was actually a return to the common post-accident investigators' technique of resolving manufacturing detail back to the topographical sketches similar to diagrams used in teaching electrical engineering students – a type of “reverse engineering” to assure that the final depiction faithfully represents what was actually manufactured. With such topological depictions (called node sets or network trees) it was found that there are a definite set of “clues” to sneak potential that can be associated with the topological patterns at each node. At first empirical clues were extracted from the historical incidents that Rankin had collected. Later, theoretical clues were developed to extend the set for each pattern to cover all known types of electrical circuit elements of the time. These theoretical clues later were proven to apply to other projects as use of the analysis technique spread across all industries and around the world.
Notes to Researcher of This Collection.

This collection describes and illustrates with actual examples the birth of a new topological electrical engineering technology from 1968 on the NASA Apollo program. The collection then provides examples of resultant applications and adaptations of the technology after NASA's Apollo project into Air Force, Navy - Marine, Army, Coast Guard, atomic energy & weapons systems, and a wide variety of commercial projects as the requirements for it became formalized by government agencies.

Only selected representative examples of the project reports of topological sneak circuit analyses done under the direct management or guidance and advice of John Rankin are contained herein. However, no classified or proprietary details are included, even though much of Rankin's work entailed activity in those areas for over 20 years after the conclusion of the Apollo project. Some of the project reports contain results of associated work, such as the extensions of the topological approach into procedures analysis, digital logic flow analysis, software sneak analysis, fluid flow analysis, and related companion activities performed with the more standard assurance technologies, such as system safety engineering, reliability, maintainability, and quality assurance engineering.

The widespread acceptance and utilization of the new topological approach to sneak circuit analysis (which enables discovery and prevention of mysterious adverse unplanned activations or inhibits) can be seen in the variety of project reports included in this collection. Many government agencies have now published detailed requirements for topological sneak circuit analysis of electrical systems designs and software programs. The collection ends with an appendix of biographical data about John Rankin. The appendix includes two DVDs of some of his post-retirement technical presentations to professional societies, specifically covering the “how to do it” of topological sneak circuit analysis technology and notable results, followed by a similar presentation of Rankin's development and highly significant application results of Common Cause Failure Analysis based upon the topological sneak circuit analysis technique.

The appendix furthermore contains examples some post-retirement solicitations of Rankin's opinions by various agencies, illustrated with an exchange of emails between Rankin and NASA staff. Additionally, the appendix contains the 1996, 1997, 1998, 2000, 2001, 2002, and 2003 Annual Reports of the Aerospace Safety Advisory Panel, a U. S. Congressional body of experienced and widely recognized experts who review, investigate, and oversee NASA projects on a continuous basis. An example of a NASA Tech Brief publication (for March of 1997, Volume 21, No. 3) is likewise included, as such publications were sent to Mr. Rankin even during his retirement to assure knowledgeability of current trends in technologies in view of likely needs for his consultation on program problems. Another area of technology and statistical information collected by Mr. Rankin throughout his career is illustrated by two publications and a DVD to conclude the Appendix:


2) “Designing for Safety” (October, 1974), a brochure that describes some of the key management and technical practices used by Boeing to achieve inherent design safety in the 747 airplane, produced by Ed Pfafman (Director of Engineering) and Ed vonWolfersdorff (Director of Safety). Accompanied by a 747 “Designing for Safety” DVD with two incidents described.
Series 1. Topological Sneak Circuit Analysis – Approach, Development & Initiation

Location 1.1.1 Series 1. Topological Sneak Circuit Analysis Box 1 Folder 1

Title Boeing Invention Disclosure, Topological Sneak Circuit Analysis

Author John P. Rankin Source The Boeing Company, Seattle, Washington under NASA Contract NASW-1650, Apollo Technical Integration & Evaluation

Date Published May 8, 1973 Document No. NTS-69-5 / HOU-5-68

(Date Conceived July 1, 1968)

Location 1.1.2 Series 1. Topological Sneak Circuit Analysis Box 1 Folder 2

Title NASA New Technology Disclosure, COSMIC (University of Georgia) System

Author Robert S. Anderson (memo) & John P. Rankin (disclosure form) Source The Boeing Company, Houston, TX

Date Published July 8, 1976 Document No. (NASA) HQN - 10517

Location 1.1.3 Series 1. Topological Sneak Circuit Analysis Box 1 Folder 3

Title Plan, Apollo Spacecraft Sneak Circuit Analysis

Author The Boeing Company Source NASA Contract NASW-1650

Date Published March 11, 1968 Document No. SB08-P-018

Location 1.1.4 Series 1. Topological Sneak Circuit Analysis Box 1 Folder 4

Title Cable Loop Identification Program (CLIP) {aborted initial approach}

Author T. H. Herring & I. E. George Source The Boeing Company

Date Published March 15, 1968 Document No. D2-118081-1
Location 1.1.5  Series 1. Topological Sneak Circuit Analysis  Box 1  Folder 5

Title Computer-Generated Ground Loops (memo)

Author John P. Rankin  Source The Boeing Company

Date Published May 15, 1968  Document No. 5-2751-Hou-118

Location 1.1.6  Series 1. Topological Sneak Circuit Analysis  Box 1  Folder 6

Title CLIP Logic and Limitations (memo)

Author John P. Rankin  Source The Boeing Company

Date Published May 20, 1968  Document No. 5-2751-Hou-206

Location 1.1.7  Series 1. Topological Sneak Circuit Analysis  Box 1  Folder 7

Title Clip Modifications (memo)

Author John P. Rankin  Source The Boeing Company

Date Published May 22, 1968  Document No. 5-2751-Hou-211

Location 1.1.8  Series 1. Topological Sneak Circuit Analysis  Box 1  Folder 8

Title CLIP Loop Logic Problem (memo)

Author John P. Rankin  Source The Boeing Company

Date Published May 24, 1968  Document No. 5-2751-Hou-215
Location 1.1.9 Series 1. Topological Sneak Circuit Analysis  Box 1  Folder 9

Title Proposed CLIP Loop Logic Modification (memo)

Author John P. Rankin  Source The Boeing Company

Date Published May 27, 1968  Document No. 5-2751-Hou-220

Location 1.1.10 Series 1. Topological Sneak Circuit Analysis  Box 1  Folder 10

Title Minutes of Sneak Circuit Meeting, May 27, 1968 (Memo)

Author T. H. Herring  Source The Boeing Company

Date Published May 28, 1968  Document No. 5-2751-Hou-221

Location 1.1.11 Series 1. Topological Sneak Circuit Analysis  Box 1  Folder 11

Title Researched Collection of 29 Historical Technical Papers on Topological Circuits and Paths

Author Various  Source Various

Date Published Various  Document No. Various

Location 1.1.12 Series 1. Topological Sneak Circuit Analysis  Box 1  Folder 12

Title Key Word Indexed Bibliography on Graph Theory

Author James Turner  Source Stanford Research Institute

Date Published February, 1967  Document No. SRI Project 145591 – W.O. A14
Location 1.1.13 Series 1. Topological Sneak Circuit Analysis Box 1 Folder 13

Title Root Causes of Safety & Sneak Circuit Problems

Author John P. Rankin Source The Boeing Company

Date Published 1969 Document No. (none)

Location 1.1.14 Series 1. Topological Sneak Circuit Analysis Box 1 Folder 14

Title Sneak Circuit Analysis Handbook (submitted with Invention Disclosure)
{Cover page & references only} NASA-MSC Apollo Contract NAS9-10364

Author John P. Rankin Source The Boeing Company

Date Published July 29, 1970 Document No. D2-118341-1

Location 1.1.15 Series 1. Topological Sneak Circuit Analysis Box 1 Folder 15

Title Requirements for the Automated Sneak Program

Author John P. Rankin Source The Boeing Company

Date Published October 15, 1970 Document No. D2-118081-2B

Location 1.1.16 Series 1. Topological Sneak Circuit Analysis Box 1 Folder 16

Title Three system schematics and one detail manufacturing drawing, depicting sneak circuits found in Apollo and Pacific Southwest Airlines 737 aircraft

Author John P. Rankin (saved notes) Source NASA and Boeing

Date Published 1960s Document No. (various)
Location 1.1.17  Series 1. Topological Sneak Circuit Analysis  Box 1  Folder 17

Title Digital Logic SCA (1975 Presentation Charts)

Author John P. Rankin  Source The Boeing Company

Date Published 1975  Document No. (none)

Location 1.1.18  Series 1. Topological Sneak Circuit Analysis  Box 1  Folder 18

Title Sneak Circuit Analysis Project History, Cost Data, Schedules, and Timelines

Author John P. Rankin  Source The Boeing Company

Date Published 1974 – 1981  Document No. (none)

Location 1.1.19  Series 1. Topological Sneak Circuit Analysis  Box 1  Folder 19

Title Sneak Circuit Analysis (conference paper for Cape Kennedy IEEE / EMC group)

Author T. H. Herring  Source The Boeing Company

Date Published March 18, 1969  Document No. (none)

Location 1.1.20  Series 1. Topological Sneak Circuit Analysis  Box 1  Folder 20

Title The Computer as a Tool for Sneak Circuit Analysis (conference paper)

Author John P. Rankin  Source The Boeing Company

Date Published May 22 – 23, 1969  Document No. Proceedings, 1st Annual Houston Conference on Circuits, Systems, and Computers
Location 1.1.21  Series 1. Topological Sneak Circuit Analysis  Box 1  Folder 21

Title Detection of Electrical Sneak Circuits and System Effects (conference paper)

Author William E. Partanen
(formed with Boeing – Houston)

Source Xerox Corporation

Date Published circa 1970

Document No. (none)

Location 1.1.22  Series 1. Topological Sneak Circuit Analysis  Box 1  Folder 22

Title Sneak Circuit Analysis Technology Seminar & Notes (Apollo “Blue Net” Presentation)

Author John P. Rankin, et al.

Source Boeing-Houston

Date Published 1969-1970

Document No. (none – presentation charts)

Location 1.1.23  Series 1. Topological Sneak Circuit Analysis  Box 1  Folder 23

Title The Automated System Pathfinder: Its Description and Application to Systems Design and Analysis

Author John Rankin

Source Boeing-Houston

Date Published 1970

Document No. (none – tech conference paper)

Location 1.1.24  Series 1. Topological Sneak Circuit Analysis  Box 1  Folder 24

Title Sneak Circuit Analysis (brochure)

Author John P. Rankin

Source The Boeing Company

Date Published 1970 – 1981

Document No. (none)
Location  1.1.25  Series  1. Topological Sneak Circuit Analysis  Box  1  Folder  25

Title  Sneak Circuit Sample Reports  (book)

Author  John P. Rankin  
Source  The Boeing Company

Date Published  October 1973  
Document No.  (none)

Location  1.1.26  Series  1. Topological Sneak Circuit Analysis  Box  1  Folder  26

Title  Apollo Sneak Circuit Analysis Summary

Author  John P. Rankin  
Source  The Boeing Company

Date Published  1971  
Document No.  (none)

Location  1.1.27  Series  1. Topological Sneak Circuit Analysis  Box  1  Folder  27

Title  Sneak Circuit Analysis  (introductory presentation)

Author  John P. Rankin  
Source  The Boeing Company

Date Published  October 1973  
Document No.  (none)

Location  1.1.28  Series  1. Topological Sneak Circuit Analysis  Box  1  Folder  28

Title  Sneak Circuit Analysis  (Nuclear Safety technical magazine article)

Author  John P. Rankin  
Source  Nuclear Safety Magazine

Date Published  October 1973  
Document No.  Vol. 14, No. 5

12
**Title**  Boeing – Uncovering Electrical Problems Before They Cause You a Problem

**Author**  John P. Rankin  
**Source**  The Boeing Company  
**Date Published**  October 1973

**Location**  1.1.30  **Series**  1. Topological Sneak Circuit Analysis  **Box**  1  **Folder**  30

**Title**  Sneak Analysis

**Author**  John P. Rankin  
**Source**  The Boeing Company  
**Date Published**  April 1976

**Location**  1.1.31  **Series**  1. Topological Sneak Circuit Analysis  **Box**  1  **Folder**  31

**Title**  Sneak Analysis

**Author**  John P. Rankin  
**Source**  The Boeing Company  
**Date Published**  1980s

**Location**  1.1.32  **Series**  1. Topological Sneak Circuit Analysis  **Box**  1  **Folder**  32

**Title**  Research Into Equipment Malfunctions

**Author**  Benjamin M. Elson  
**Source**  General Dynamics, Convair Division  
**Date Published**  October 27, 1980

**Document No.**  Aviation Week & Space Technology
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**Title**  
Sneak Circuit Analysis & Common Cause Failure Analysis

**Author**  
John P. Rankin

**Source**  
The Boeing Company

**Date Published**  
1980s

**Document No.**  
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**Title**  
Engineering Systems & Analysis Support  
(brochure)

**Author**  
John P. Rankin

**Source**  
The Boeing Company

**Date Published**  
1980s

**Document No.**  
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**Title**  
Utilization of Sneak Circuit Analysis  
(Technical Paper)

**Author**  
John P. Rankin

**Source**  
The Boeing Company

**Date Published**  
October 26, 1982

**Document No.**  
(Technology Transfer Soc. Conference)

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**Title**  
Sneak Analysis  
(booklet)

**Author**  
John P. Rankin

**Source**  
Boeing Services International, Inc.

**Date Published**  
1981

**Document No.**  
(none)
Sneak Circuits, A Class of Random, Unrepeatable Glitch (Technical Paper)

John P. Rankin

1983 AIChE Loss Prevention Symposium &
Plant / Operations Progress Publication

Proceedings of Symposium &
Vol. 3, No. 3 of Plant/Operations

Sneak Circuit Analysis Automation (Technical Paper)

Frank Ellis Walker

Boeing – Seattle

Proceedings of the Annual
Reliability & Maintainability Symposium

Origins, Applications, and Extensions of Sneak Circuit Analysis on Space Projects

John P. Rankin

The Boeing Company

Proceedings of the 14th
International System Safety Society, Albuquerque, New Mexico

Sneak Circuit Historical Examples from Wallops Island, etc.

Paul Purser (email to J. P. Rankin)

(Wallops Incident Reports)

(Wallops Accident Reports)
Location 1.1.41  Series 1. Topological Sneak Circuit Analysis  Box 1  Folder 41

Title  Sneak Circuit Analysis

Author  P. L. Clemens  Source Sverdrup (Jacobs Engineering)

Date Published  April 2002  Document No. Jacobs Engrg. Training Module

Location 1.1.42  Series 1. Topological Sneak Circuit Analysis  Box 1  Folder 42

Title  Skylab Sneak Circuit Analysis Training File “QC” Test

Author  John P. Rankin  Source The Boeing Company

Date Published  1970 – 1971  Document No. (none – actual network trees from Skylab project, selected to test engineering analysts' proficiency with SCA technique)

Location 1.1.43  Series 1. Topological Sneak Circuit Analysis  Box 1  Folder 43

Title  Sneak Analysis Workshop

Author  Various (incl. J. P. Rankin)  Source Boeing – Houston

Date Published  1980s  Document No. (none; 1-week training course conducted by Boeing engineers in Houston, Texas, for other organizations)
### Series 2  NASA Applications of Sneak Circuit Analysis Technologies

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**Title**  Report, Apollo Spacecraft Sneak Circuit Analysis (CSM-101)

**Author**  Boeing-Houston

**Source**  NASA-MSC (JSC)

**Date Published**  August 5, 1968

**Document No.**  D2-118111-1

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<td>2. NASA Sneak Circuit Analyses</td>
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**Title**  Apollo Sneak Circuit Bulletin (Selected Example), Main Bus Tie

**Author**  John P. Rankin

**Source**  Boeing-Houston TIE Contract

**Date Published**  June 24, 1970

**Document No.**  CSM-110-001

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<td>2. NASA Sneak Circuit Analyses</td>
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**Title**  Apollo Sneak Circuit Bulletin (Selected Example), CSM O₂ Flow Rate C&W

**Author**  D. Buratti

**Source**  Boeing-Houston TIE Contract

**Date Published**  October 2, 1970

**Document No.**  CSM-110-006

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<td>2. NASA Sneak Circuit Analyses</td>
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**Title**  Apollo Sneak Circuit Bulletin (Selected Example), +Pitch RCS Propellant Dump

**Author**  L. Urban

**Source**  Boeing-Houston TIE Contract

**Date Published**  October 19, 1970

**Document No.**  CSM-110-008
Location 2.2.5  Series 2. NASA Sneak Circuit Analyses  Box 2  Folder 5

Title  Apollo Sneak Circuit Bulletin (Selected Example), IU / LV Circuit Shorts During Pad Abort

Author  F. Manning  Source  Boeing-Houston TIE Contract

Date Published  December 11, 1970  Document No.  CSM-110-014

Location 2.2.6  Series 2. NASA Sneak Circuit Analyses  Box 2  Folder 6

Title  Apollo Sneak Circuit Bulletin (Selected Example), Circuit Shorts at CM / SM Separation

Author  F. Manning  Source  Boeing-Houston TIE Contract

Date Published  December 29, 1970  Document No.  PR-CSM-110-020

Location 2.2.7  Series 2. NASA Sneak Circuit Analyses  Box 2  Folder 7

Title  Apollo Lunar Module Sneak Circuit Bulletin (Selected Example), Critical Circuits Dioded to Ground

Author  C. White  Source  Boeing-Houston TIE Contract

Date Published  June 24, 1970  Document No.  LM-8-001

Location 2.2.8  Series 2. NASA Sneak Circuit Analyses  Box 2  Folder 8

Title  Apollo Lunar Module Sneak Circuit Bulletin (Selected Example), Loss of All S-Band Transceivers

Author  D. V. Brown  Source  Boeing-Houston TIE Contract

Date Published  August 24, 1970  Document No.  LM-8-002
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Location 2.2.13  Series 2. NASA Sneak Circuit Analyses  Box 2  Folder 13

Title Report – S-IC Stage Electrical System Sneak Circuit Analysis

Author Boeing-Huntsville  Source NASA-MSFC

Date Published February 11, 1972  Document No. D5-14340

Location 2.2.14  Series 2. NASA Sneak Circuit Analyses  Box 2  Folder 14

Title AS-206 LVGSE Sneak Circuit Analysis and Design Integrity Review

Author General Electric Company – Huntsville  Source NASA-MSFC, NAS8-25155

Date Published September 1, 1972  Document No. 72-HVO-63

Location 2.2.15  Series 2. NASA Sneak Circuit Analyses  Box 2  Folder 15

Title 20' Chamber SMEAT Fire Detection & Supression System (Manual Sneak Analysis)

Author F. Manning / A. Williams (Boeing-Houston)  Source NASA-MSC (JSC)

Date Published May 1972  Document No. (none)

Location 2.2.16  Series 2. NASA Sneak Circuit Analyses  Box 2  Folder 16

Title Apollo Soyuz Test Project Sneak Circuit Analysis

Author Boeing-Houston  Source NASA-MSC (JSC)

Date Published 1973 year-end report  Document No. D2-118477-1
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Location 2.2.21  Series 2. NASA Sneak Circuit Analyses  Box 2  Folder 21

Title  High Voltage Connections for Flight Vehicles (Tech Paper)

Author W. G. Dunbar  Source Boeing-Houston for NASA-GSFC

Date Published August 30, 1974  Document No. (none – presented to IECEC)

Location 2.2.22  Series 2. NASA Sneak Circuit Analyses  Box 2  Folder 22

Title  Applications Technology Satellite (ATS-F/6) Electrical Potential Single Point Failure Analysis of the Actuator Control Electronics (ACE) System

Author Boeing-Houston  Source NASA-GSFC contract NAS5-21815

Date Published May 21, 1974  Document No. D2-118541-1

Location 2.2.23  Series 2. NASA Sneak Circuit Analyses  Box 2  Folder 23

Title  Sneak Circuit Analysis of Portions of 737 Research Support Flight System

Author Boeing-Houston  Source NASA-LaRC (contract NAS1-12122 via Boeing-Seattle IDWA B53600)

Date Published May 1974  Document No. D2-118563-1

Location 2.2.24  Series 2. NASA Sneak Circuit Analyses  Box 2  Folder 24

Title  Sneak Circuit Analysis of the Viking Lander PCDA and DAPU

Author Boeing-Houston  Source NASA-LaRC contract NAS1-13033

Date Published May 1974  Document No. 5-2933-7-Hou-8
Location 2.2.25  Series 2. NASA Sneak Circuit Analyses  Box 2  Folder 25

Title Sneak Circuit Analysis of the TIROS-N / 5D2 Satellite, Final Report

Author Boeing-Houston  Source NASA-GSFC contract NAS5-23652

Date Published July 29, 1977  Document No. D2-118628-1

Location 2.2.26  Series 2. NASA Sneak Circuit Analyses  Box 2  Folder 26

Title Engineering Analysis of the Multi-Mission Modular Spacecraft Signal Conditioning and Control Unit

Author Boeing-Houston  Source NASA-GSFC

Date Published February 15, 1979  Document No. D2-118654-1

Location 2.2.27  Series 2. NASA Sneak Circuit Analyses  Box 2  Folder 27

Title Engineering Analysis of the Rotor System Research Aircraft Electronic Flight Control System

Author Boeing-Houston  Source NASA-Ames Research Center (contract NAS2-10361)

Date Published December 15, 1980  Document No. (none)

Location  3.3.1  Series 3. USAF Sneak Circuit Analysis     Box 3   Folder 1

Title    Sneak Circuit Analysis of the Compass Cope Air Vehicle and Command Module

Author  Boeing-Houston     Source  Boeing-Seattle, IDWA 250054 & 250055

Date Published  June 1973     Document No.  D2-118466-11

Location  3.3.2  Series 3. USAF Sneak Circuit Analysis     Box 3   Folder 2

Title    Delta Launch Vehicle  (Selected SCA report Vu-Foils)

Author  John P. Rankin (et al.)     Source  Boeing-Houston

Date Published  1974     Document No.  (none)

Location  3.3.3  Series 3. USAF Sneak Circuit Analysis     Box 3   Folder 3

Title    Manual Sneak Circuit Analysis of the B-1B Ejection Warning System  (script memo)

Author  J. Rankin / B. Campbell     Source  Boeing-Houston

Date Published  May 16, 1974     Document No.  (none)

Location  3.3.4  Series 3. USAF Sneak Circuit Analysis     Box 3   Folder 4

Title    Sneak Circuit Analysis of the AWACS Electrical Power System

Author  Boeing-Houston     Source  Boeing-Seattle IDWA 250066

Date Published  October 1974     Document No.  D2-118547-1
Location  3.3.5  Series 3. USAF Sneak Circuit Analysis  
Box 3  Folder 5

Title  Sneak Circuit Analysis of AWACS Flight Engineer's Panel

Author  Boeing-Houston  
Source  IDWA 250098 from Boeing-Seattle

Date Published  February 7, 1980  
Document No.  5-2920-Hou-264

Location  3.3.6  Series 3. USAF Sneak Circuit Analysis  
Box 3  Folder 6

Title  Sneak Circuit Analysis of the Digitac 1 Multi-Mode Flight Control System of the A-7D Test Aircraft

Author  Boeing-Houston  
Source  Air Force Systems Command, ASD, 
         Wright-Patterson Air Force Base

Date Published  December 1977  
Document No.  D2-118633-1

Location  3.3.7  Series 3. USAF Sneak Circuit Analysis  
Box 3  Folder 7

Title  Sneak Circuit Analysis of the AV-8C (Harrier Jet) Stability Augmentation & Attitude Hold Set

Author  Boeing-Houston  
Source  Sperry Flight Systems, Phoenix, AZ

Date Published  April 30, 1981  
Document No.  D2-118691-1

Location  3.3.8  Series 3. USAF Sneak Circuit Analysis  
Box 3  Folder 8

Title  Sneak Circuit Analysis of F-4C Flight Control System

Author  Boeing-Houston  
Source  AFSC, ASD, Wright-Patterson AFB

Date Published  September 1974  
Document No.  D2-118545-1
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Location  3.3.13  Series 3.  USAF Sneak Circuit Analysis  Box 3  Folder 13

**Title**  Power and Load Analysis, Report of the F-16 Weapon Control Mechanization System

*contract F33657-79-C-0147*

**Author**  Boeing-Houston  

**Source**  AFSC ASD Wright-Patterson AFB  

**Date Published**  February 1980  

**Document No.**  D2-118680-1

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Location  3.3.14  Series 3.  USAF Sneak Circuit Analysis  Box 3  Folder 14

**Title**  Sneak Circuit Analysis of the F-16 Flight Control and Electrical Power Systems

*contract F33657-77-A-0007-0003*

**Author**  Boeing-Houston  

**Source**  AFSC ASD Wright-Patterson AFB  

**Date Published**  October 1978  

**Document No.**  D2-118647-1

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Location  3.3.15  Series 3.  USAF Sneak Circuit Analysis  Box 3  Folder 15

**Title**  Sneak Circuit Analysis of the F-16 Radar

*contract F33657-77-A-0007-0001*

**Author**  Boeing-Houston  

**Source**  AFSC ASD Wright-Patterson AFB  

**Date Published**  January 15, 1978  

**Document No.**  D2-118553-1

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Location  3.3.16  Series 3.  USAF Sneak Circuit Analysis  Box 3  Folder 16

**Title**  Sneak Circuit Analysis of the F-18 Flight Control Electronics Subsystem

*Purchase Order Z90033L*

**Author**  Boeing-Houston  

**Source**  McDonnell Aircraft Company  

**Date Published**  January 1980  

**Document No.**  D2-118676-1

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**Location** 3.3.17  **Series 3.** USAF Sneak Circuit Analysis  **Box** 3  **Folder** 17

**Title** Sneak Circuit Analysis of the F-18 Electrical Power Generation and Distribution System  
*Purchase Order Z90033L*

**Author** Boeing-Houston  
**Source** McDonnell Aircraft Company

**Date Published** January 1980  
**Document No.** D2-118672-1

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**Location** 3.3.18  **Series 3.** USAF Sneak Circuit Analysis  **Box** 3  **Folder** 18

**Title** Sneak Circuit Analysis of the AQM-34M Electrical System

**Author** Boeing-Houston  
**Source** AFSC ASD, Wright-Patterson AFB

**Date Published** March 1975  
**Document No.** D2-118551-1

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**Location** 3.3.19  **Series 3.** USAF Sneak Circuit Analysis  **Box** 3  **Folder** 19

**Title** Sneak Circuit Analysis of the Air Launched Cruise Missile (FTM-1)

**Author** Boeing-Houston  
**Source** Boeing IDWA 250073 (2-6075 org.)

**Date Published** February 1976  
**Document No.** D2-118581-1

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**Location** 3.3.20  **Series 3.** USAF Sneak Circuit Analysis  **Box** 3  **Folder** 20

**Title** Electrical Analysis of the LGM-30G Missile Monitor, Control and Ordnance Circuitry, Utilizing the Sneak Circuit Analysis Technique  
*contract F296011-76-C-0103*

**Author** Boeing-Houston  
**Source** AFWL / NSC, Kirtland AFB

**Date Published** September 1976  
**Document No.** D2-118599-1
**Title**  Sneak Circuit Analysis of the AGM-88A High Speed Anti-Radiation Missile (HARM)

**Author**  Boeing-Houston

**Source**  P. O. 60-1101819, Texas Instruments

**Date Published**  July 1979

**Document No.**  D2-118667-1

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**Title**  Final Report, Sneak Circuit Analysis of the MPAL / MACS, Phase II (Minuteman RSLP)

**Author**  Boeing-Houston

**Source**  P.O. 326228, AVCO Systems Division

**Date Published**  December 15, 1981

**Document No.**  D2-118705-1

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**Title**  Sneak Circuit Analysis of the Navigation Technology Satellite, NTS-2

**Author**  Boeing-Houston

**Source**  USAF Space and Missile Systems Org.

**Date Published**  July 28, 1976

**Document No.**  D2-118590-1

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**Title**  Sneak Circuit Analysis of the Prototype Miniature Air-Launched Segment Upper Stage / Dispenser / Miniature Vehicle, Final Report  (PMALS)

**Author**  Boeing-Houston

**Source**  P-248504, Vought Corporation, Dallas

**Date Published**  June 1981

**Document No.**  D2-118695-1
Location 3.3.25 Series 3. USAF Sneak Circuit Analysis Box 3 Folder 25

Title Sneak Analysis, GBU-15 Modular Guided Weapon System Shop Maintenance Test Set

Contract F08635-78-C-0262

Author Boeing-Houston

Source Eglin Air Force Base

Date Published May 1979

Document No. D2-118660-1

Location 3.3.26 Series 3. USAF Sneak Circuit Analysis Box 3 Folder 26

Title Sneak Circuit Analysis of the GBU-15 Modular Guided Weapon System, Weapon Control Unit

contract F33657-76-A-0054-RH02

Author Boeing-Houston

Source Eglin Air Force Base

Date Published September 1977

Document No. D2-118629-1

Location 3.3.27 Series 3. USAF Sneak Circuit Analysis Box 3 Folder 27

Title Sneak Circuit Analysis of the FMU-112 / B Fuze and Electrical Generation System

contract F08635-75-R-0135

Author Boeing-Houston

Source Eglin Air Force Base

Date Published September 1975

Document No. D2-118573-1

Location 3.3.28 Series 3. USAF Sneak Circuit Analysis Box 3 Folder 28

Title Sneak Circuit Analysis of Selected Portions of ALQ-99 Electronic Countermeasure System

contract F33657-75-A-0020

Author Boeing-Houston

Source AFSC ASD, Wright-Patterson AFB

Date Published June 1976

Document No. D2-118579-1
Location 3.3.29 Series 3. USAF Sneak Circuit Analysis Box 3 Folder 29

Title Sneak Circuit Analysis of the Digital Electronic Engine Controller (DEEC) P.O. 140373

Author Boeing-Houston

Source Pratt & Whitney Aircraft / UTC

Date Published 1978 & 1980

Document No. D2-118651-1

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Location 3.3.30 Series 3. USAF Sneak Circuit Analysis Box 3 Folder 30

Title Sneak Circuit Analysis of the AN / ARC – 164 UHF Radio contract F33657-76-A-0054-0002

Author Boeing-Houston

Source PRAM Program Office, ASD, Wright-Patterson AFB

Date Published 1977

Document No. D2-118614-1

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Location 3.3.31 Series 3. USAF Sneak Circuit Analysis Box 3 Folder 31

Title Sneak Circuit Analysis of the ACES-II Recovery Sequencer (Jettison & Escape)

Author Boeing-Houston

Source AFSC ASD, Wright-Patterson AFB

Date Published October 31, 1979

Document No. D2-118671-1 (2 volumes)
SERIES 4. U. S. Army Applications of Sneak Circuit Analysis Technologies

Location 4.4.1 Series 4. Army Sneak Circuit Analysis  Box 4  Folder 1

Title Pershing Missile System Sneak Circuit Analysis, Final Report

Author Boeing-Huntsville (J. E. Wallace)  Source U.S. Army, Redstone Arsenal

Date Published December 13, 1973  Document No. D256-10004-1

Location 4.4.2 Series 4. Army Sneak Circuit Analysis  Box 4  Folder 2

Title Pershing 1a Block VII Missile System Sneak Circuit Analysis, Final Report

Author Boeing-Huntsville (J. E. Wallace)  Source U. S. Army, Redstone Arsenal

Date Published June 13, 1974  Document No. D256-10023-1

Location 4.4.3 Series 4. Army Sneak Circuit Analysis  Box 4  Folder 3

Title Sneak Circuit Analysis of XM-130 Chaff / Flare Dispenser System

Author Boeing-Houston  Source U.S. Army Aviation Systems Command, St. Louis, MO

Date Published July 13, 1977  Document No. D2-118627-1

Location 4.4.4 Series 4. Army Sneak Circuit Analysis  Box 4  Folder 4

Title Sneak Circuit Analysis of the AN/TPQ-37 Transmitter Control Unit

Author Boeing-Houston  Source Hughes Aircraft Company, Ground Systems Division, Fullerton, California

Date Published May 1978  Document No. D2-118640-1
Location 4.4.5  Series 4. Army Sneak Circuit Analysis  Box 4  Folder 5

Title  Sneak Circuit Analysis of the Hellfire Telemetry Missile  
       (Contract DAAK40-78-C-0008  Priced Order 0001)  
Author Boeing-Houston  Source U.S. Army Missile Research and Development Command, Redstone Arsenal  
Date Published March 12, 1979  Document No.  D2-118656-1

Location 4.4.6  Series 4. Army Sneak Circuit Analysis  Box 4  Folder 6

Title  Sneak Circuit Analysis of the Hellfire Electronic Command Signals Programmer  
       (Contract DAAK40-78-C-0008  Priced Order 0003)  
Author Boeing-Houston  Source U.S. Army Missile Command, Redstone Arsenal  
Date Published December 21, 1979  Document No.  D2-118675-1

Location 4.4.7  Series 4. Army Sneak Circuit Analysis  Box 4  Folder 7

Title  Sneak Circuit Analysis of the Hellfire Tactical Prototype Autopilot Electronics  
       (Contract DAAK40-78-C-0008  Priced Order 0005)  
Author Boeing-Houston  Source U.S. Army Missile Command, Redstone Arsenal  
Date Published December 22, 1980  Document No.  D2-118690-1
Series 5.  Navy / Coast Guard / Falcon Jet / FAA Sneak Circuit Analysis

Location  5.5.1  Series  5.  Navy, etc., Sneak Circuit Analysis  Box  5  Folder  1

Title  Sneak Circuit Analysis and Failure Mode & Effects Analysis of the Underwater Firing Device  
       Contract NOO 174-78-M-8030

Author  Boeing-Houston  Source  Naval Explosive Ordnance Disposal Facility, 
       Indian Head, Maryland  

Date Published  April 1978  Document No.  D2-118639-1

Location  5.5.2  Series  5.  Navy, etc., Sneak Circuit Analysis  Box  5  Folder  2

Title  Sneak Circuit Analysis of the Light Airborne Multi-Purpose (LAMPS) Mark III Avionics System  
       Contract 431679-1

Author  Boeing-Houston  Source  IBM Federal Systems Division, Owego, New York  

Date Published  May 1979  Document No.  D2-118662-1

Location  5.5.3  Series  5.  Navy, etc., Sneak Circuit Analysis  Box  5  Folder  3

Title  Engineering Analysis of the Falcon Jet HU-25A (Coast Guard Surveillance Aircraft)  
       P. O.  21310 MRS (FAA recommended & approved)

Author  Boeing-Houston  Source  Falcon Jet Corporation, Little Rock, Arkansas  

Date Published  May 24, 1979  Document No.  D2-118661-1

Location  5.5.4  Series  5.  Navy, etc., Sneak Circuit Analysis  Box  5  Folder  4

Title  Sneak Circuit Analysis of the Submarine Launched Mobile Mine, Ex 67 Mod 2  
       Contract N60921-79-C-0070

Author  Boeing-Houston  Source  Naval Surface Weapons Center, White Oak, Silver Spring, Maryland  

Date Published  June 1979  Document No.  D2-118663-1
Title  Sneak Circuit Analysis of the AIM / RIM – 7M Missile Guidance and Control Set  
 author  Boeing-Houston  
 source  Raytheon Company, Bedford, Massachusetts  
 date published  September 1979  
 document no.  D2-118665-1

Title  Sneak Circuit Analysis of the Vertical Launch System  
 author  Boeing-Houston  
 source  Martin Marietta Corporation  
 date published  February 1981  
 document no.  D2-118688-1

Title  Safety Limitations of Reliability Approaches  
 author  John P. Rankin  
 source  Meeting in FAA Offices, Washington, D.C.  
 date published  April 1982  
 document no.  (none)

Location 6.6.1 Series 6. AEC, etc., Sneak Circuit Analysis Box 6 Folder 1
Title Sneak Circuit Analysis of N Reactor, Final Report (with technical paper by Mayhue Bell & J. T. Beard of ERDA inserted)
Author Boeing-Houston Source AEC, Operations Office, Richland, Washington
Date Published July 31, 1974 Document No. D2-118542-1

Location 6.6.2 Series 6. AEC, etc., Sneak Circuit Analysis Box 6 Folder 2
Title Fast Flux Test Facility Reliability Analysis Report
Author Boeing-Houston Source Westinghouse Electric Corporation, Advanced Reactors Division
Date Published July 10, 1974 Document No. (none)

Location 6.6.3 Series 6. AEC, etc., Sneak Circuit Analysis Box 6 Folder 3
Title Load Switching Study & Sneak Circuit Analysis of the Fast Flux Test Facility
Author Boeing-Houston Source Westinghouse Hanford Company, Richland, WN
Date Published July 1980 Document No. D2-118686-1

Location 6.6.4 Series 6. AEC, etc., Sneak Circuit Analysis Box 6 Folder 4
Title Sneak Circuit Analysis of the M-2 Containment Console
Author Boeing-Houston Source AEC / DuPont, Savannah River Plant, Aiken, SC
**Date Published**  November 15, 1974  **Document No.**  D2-118481-1

**Location**  6.6.5  **Series**  6. AEC, etc., Sneak Circuit Analysis  **Box**  6  **Folder**  5

**Title**  Final Report for Sneak Circuit Analysis of the Component Preparation Laboratory  
*P.O. 87K-47944V via Boeing-Seattle (BOECON)*

**Author**  Boeing-Houston  **Source**  Union Carbide Corp., Nuclear Division, Gaseous Diffusion Plant, Oak Ridge, TN

**Date Published**  October 29, 1976  **Document No.**  D2-118601-1

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**Location**  6.6.6  **Series**  6. AEC, etc., Sneak Circuit Analysis  **Box**  6  **Folder**  6

**Title**  Sneak Circuit Analysis of Selected Portions of the Component Test Facility  
*P.O. 87K-07222V via Boeing-Seattle (BOECON)*

**Author**  Boeing-Houston  **Source**  Union Carbide Corp., Nuclear Division, Gaseous Diffusion Plant, Oak Ridge, TN

**Date Published**  November 8, 1976  **Document No.**  D2-118600-1

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**Location**  6.6.7  **Series**  6. AEC, etc., Sneak Circuit Analysis  **Box**  6  **Folder**  7

**Title**  Failure Mode Effects Analysis & Criticality Analysis of the Component Test Facility  
*P.O. 87K-07223V via Boeing-Seattle (BOECON)*

**Author**  Boeing-Houston  **Source**  Union Carbide Corp., Nuclear Division, Gaseous Diffusion Plant, Oak Ridge, TN

**Date Published**  November 8, 1976  **Document No.**  D2-118602-1

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**Location**  6.6.8  **Series**  6. AEC, etc., Sneak Circuit Analysis  **Box**  6  **Folder**  8

**Title**  Sneak Circuit Analysis of the P, K, & C Reactor Safety Circuits (Savannah River Plant)  
*P.O. AX-428098R*

**Author**  Boeing-Houston  **Source**  BOECON from DuPont, Savannah River Plant, Aiken, South Carolina

**Date Published**  July 29, 1977  **Document No.**  D2-118623-1A
Location 6.6.9  Series 6. AEC, etc., Sneak Circuit Analysis  Box 6  Folder 9

Title  Final Report, FMEA of the Portsmouth Add-On Gaseous Diffusion Plant

Author BOECON & Boeing-Houston  Source Union Carbide, Nuclear Division

Date Published  April 18, 1977  Document No. D180-20580-1

Location 6.6.10  Series 6. AEC, etc., Sneak Circuit Analysis  Box 6  Folder 10

Title  Preliminary Hazard Analysis of the Advanced Equipment Test Facility

Author Boeing-Houston  Source Union Carbide Nuclear Div., Oak Ridge, TN

Date Published  1977  Document No. D2-118622-1

Location 6.6.11  Series 6. AEC, etc., Sneak Circuit Analysis  Box 6  Folder 11

Title  Final Report, Advanced Equipment Test Facility System Assurance Analysis, Vol. 1 & 2
       Contract 85B-31008C, Letter Releases 85Y-01, 03, 04

Author BOECON / Boeing-Houston  Source Union Carbide Nuclear Div., Oak Ridge, TN

Date Published  November 1977  Document No. D180-228009-1

Location 6.6.12  Series 6. AEC, etc., Sneak Circuit Analysis  Box 6  Folder 12

Title  Final Report, Software Sneak Analysis of the Reactor Protection System
       Contract 63B-13824C

Author Boeing-Houston  Source Union Carbide Nuclear Div., Oak Ridge, TN

Date Published  January 30, 1981  Document No. D2-118692-1
Title  Sneak Circuit Analysis of the Engineered Safety Features Loading Sequence Control Panel of the Virgil C. Summer Nuclear Station, Docket No. 50 / 395

Author  Boeing-Houston  
Source  South Carolina Electric & Gas Company

Date Published  December 1, 1981  
Document No.  D2-118698-1

Title  NASA-KSC / NRC / Duke Power Safety Study

Author  Various, incl. J. P. Rankin  
Source  NASA-KSC & Electric Power Research Institute

Date Published  June 1, 1983  
Document No.  (none – collection)
### Series 7. DOT / Commercial / Industrial / Medical Sneak Circuit Analyses

**Title**  Sneak Circuit Analysis of the Bay Area Rapid Transit (BART) Door Control System  
*Contract 6G3082*

**Author**  Boeing-Houston  
**Source**  San Francisco Bay Area Rapid Transit District  
**Date Published**  March 1977  
**Document No.**  D2-118611-1  
(Includes insert of a technical paper written by A. C. Guida of BART & R. F. Sidley of Boeing-Houston.)

### Location 7.7.2

**Title**  Recommended Modifications & Safety Analyses of the BART Door Control System  
*Contract 6G3107*

**Author**  Boeing-Houston  
**Source**  San Francisco BART District  
**Date Published**  April 1978  
**Document No.**  D2-118638-1

### Location 7.7.3

**Title**  Safety Analysis of the BART Manual Cab Signalling Equipment  
*Contract 41GF-350*

**Author**  Boeing-Houston  
**Source**  San Francisco BART District  
**Date Published**  March 1980  
**Document No.**  D2-118679-1

### Location 7.7.4

**Title**  Grounding Analysis of the Bay Area Rapid Transit (BART) Train  
*Contract 6G3082 Change Order #2*

**Author**  Boeing-Houston  
**Source**  San Francisco BART District  
**Date Published**  March 1977  
**Document No.**  D2-118616-1
Title Will County Unit 4 Boiler Interlocks and Auxiliary Controls
Author Boeing-Houston
Source Commonwealth Edison Power Co., Chicago
Date Published April 16, 1973
Document No. 5-2935-HSV-603

Title Sneak Circuit Analysis of Morgantown PRT Engineering Station and Vehicle via Boeing-Seattle IDWA 250056
Author Boeing-Houston
Source Morgantown West Virginia Personal Rapid Transit (PRT) System
Date Published July 1973
Document No. D2-118467-1

Title 747 Landing Control and Logic Unit Sneak Circuit Analysis
Author Boeing-Houston
Source Boeing-Seattle IDWA 653600
Date Published November 1976
Document No. D2-118473-1

Title Sneak Circuit Analysis of Morgantown Phase IB Vehicle Control & Communication System and Engineering Station
Author Boeing-Houston
Source Boeing-Seattle IDWA 250 067, Rev. B
Date Published July 1974
Document No. D2-118543-1
**Title**: Sneak Circuit Analysis of Thistle Field “A” Platform (offshore oil well drilling platform)

**Author**: Boeing-Houston

**Source**: BOECON IDWA K50001 (1975)

**Date Published**: March 22, 1976

**Document No.**: D2-118583-1

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**Title**: Sneak Circuit Analysis of the T-90 Generation System

**Author**: Boeing-Houston

**Source**: Beech Aircraft Corp., Wichita, Kansas

**Date Published**: May 1978

**Document No.**: D2-118641-1

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**Title**: Sneak Analysis of the Travenol Laboratories Volumetric Infusion Pump

**Author**: Boeing-Houston

**Source**: Travenol Laboratories, Division of American Instrument Company

**Date Published**: February 10, 1981

**Document No.**: 5-2510-Hou-2-3970

---

**Title**: Sneak Circuit Analysis and FMEA of the Abbott Laboratory 5100 Bedside Monitor Power Supply

**Author**: Boeing-Houston

**Source**: Abbott Labs, Houston, TX

**Date Published**: December 1981

**Document No.**: D2-118703-1
Title    Engineering Analysis of the Exxon – Woodward Governor System
Author    Boeing-Houston
Source    Exxon Chemicals Americas
Date Published    February 25, 1982
Document No.    (none)
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<td><strong>Title</strong></td>
<td>Procedures Review for ATS-F / 6 <em>(using Topological Network Trees from SCA effort)</em></td>
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<td>Development of Skylab Procedures Analysis <em>(using Topological Network Trees from SCA effort)</em></td>
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<td><strong>Title</strong></td>
<td>Application of Software Sneak Analysis to the Terminal Configured Vehicle System <em>(Contract NAS1-13267, Part II, Task C)</em></td>
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<td><strong>Author</strong></td>
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<td><strong>Source</strong></td>
<td>NASA-LaRC, Hampton, Virginia</td>
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<td>Application of Software Sneak Analysis to Incipient Failure Detection Software System</td>
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<td><strong>Source</strong></td>
<td>NASA-MSC/JSC &amp; Boeing-Houston</td>
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Location  8.8.5  Series  8.  SCA-Associated Spin-Offs  Box  8  Folder  5

Title  Software Sneak Analysis of the QMD Datalink Controller Subsystem

Author  Boeing-Houston  Source  Union Carbide Corp., Nuclear Division,
        Oak Ridge, Tennessee

Date Published  March 19, 1980  Document No.  D2-118684-1

Location  8.8.6  Series  8.  SCA-Associated Spin-Offs  Box  8  Folder  6

Title  Software Sneak Analysis on Selected Programs (GOAL) in the Launch Processing System

Author  Boeing-Houston  Source  NASA-KSC  (contract NAS10-9200)

Date Published  1980  Document No.  D2-118694-1

Location  8.8.7  Series  8.  SCA-Associated Spin-Offs  Box  8  Folder  7

Title  Software Sneak Analysis on Selected Programs (Microcode) in the Launch Processing System

Author  Boeing-Houston  Source  NASA-KSC  (contract NAS10-9200)

Date Published  1981  Document No.  D2-118694-1

Location  8.8.8  Series  8.  SCA-Associated Spin-Offs  Box  8  Folder  8

Title  Software Sneak Analysis on Selected Programs (Assembly) in the Launch Processing System

Author  Boeing-Houston  Source  NASA-KSC  (contract NAS10-9200)

Date Published  1981  Document No.  D2-118694-1
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**Title**: Software Sneak Analysis *(5 items, brochures and technical papers)*

**Author**: Boeing-Houston  
**Source**: Boeing-Houston & Huntsville

**Date Published**: 1977-1994  
**Document No.**: (none, 5-item collection)

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**Title**: Skylab and Space Shuttle Electrical Grounding Analysis  
*Contract GC1-128002*

**Author**: Boeing-Houston  
**Source**: NASA-MSFC via Martin-Marietta

**Date Published**: 1971  
**Document No.**: (none – memo’s, notes, presentations, etc.)

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**Title**: Space Shuttle Electrical Grounding Analysis  
*P.O. M4W3XMS-483029*

**Author**: Boeing-Houston  
**Source**: NASA-JSC via Rockwell International, Downey, CA

**Date Published**: 1975-1976  
**Document No.**: (none – memo’s, notes, presentations, etc.)

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**Title**: Wiring Practice for Electromagnetic Interference Control *(Handbook)*  
*Contract NAS8-5608, Task 4.3.2*

**Author**: Don Jacobs *(Boeing-Huntsville)*  
**Source**: NASA-MSFC *(Saturn V Launch Vehicle)*

**Date Published**: January 3, 1967  
**Document No.**: D5-15683
Location  8.8.13 Series  8. SCA-Associated Spin-Offs     Box 8 Folder 13

Title      Final Report, Electromagnetic Compatibility of Saturn Launch Vehicles, Saturn 1B
            Control and Test Plans

Author     Boeing-Huntsville          Source     NASA-MSFC

Date Published     March 1, 1965     Document No.    D5-13088-2 & -3

Location  8.8.14 Series  8. SCA-Associated Spin-Offs     Box 8 Folder 14

Title      Common Cause Failure Analysis (CCFA) Development, Boeing & DAEC

Author     J. Rankin & DAEC          Source     Visit of Danish Atomic Energy Commission (DAEC)
            personnel to Rankin in Houston, Texas, 1973, research results comparisons.

Date Published     1973-81     Document No.     (none – correspondence, notes, tech papers)

Location  8.8.15 Series  8. SCA-Associated Spin-Offs     Box 8 Folder 15

Title      Nuclear Safety Analysis Computer Program (NSACP)
            Contract F29601-78-C-0081

Author     Boeing-Houston          Source     USAF Kirtland AFB, Albuquerque, NM

Date Published     February 21, 1979     Document No.     D2-118655-1 (insert of presentation
            “General Overview Discussion of NSACP” included)

Location  8.8.16 Series  8. SCA-Associated Spin-Offs     Box 8 Folder 16

Title      The Condensed Hazard Analysis Handbook

Author     J. P. Rankin          Source     Boeing-Huntsville

Date Published     1990     Document No.     (none – training material for ISSP, PG-3)
Location  8.8.17  Series  8. SCA-Associated Spin-Offs  Box  8  Folder  17

Title  A Compendium of Hazard Identification & Evaluation Techniques

Author  P. L. Clemens  Source  Sverdrup Technology, Inc., AEDC Group Safety Office

Date Published  November 1981  Document No.  Handbook 6000-4

Location  8.8.18  Series  8. SCA-Associated Spin-Offs  Box  8  Folder  18

Title  NASA-ARC Project Manager Development Course

Author  Sam White – NASA & John Rankin – Boeing  Source  NASA-Ames Research Center & John Rankin's materials

Date Published  1982  Document No.  (none – course material, notes, & presentations)

Location  8.8.19  Series  8. SCA-Associated Spin-Offs  Box  8  Folder  19

Title  An Informal Perspective  (Sam White's Memoirs of managing the Rotor Systems Research Aircraft)

Author  Sam White – NASA & John Rankin – Boeing  Source  NASA-ARC & Boeing-Houston

Date Published  1981  Document No.  (none – draft only)

Location  8.8.20  Series  8. SCA-Associated Spin-Offs  Box  8  Folder  20

Title  Management Tips for Project Safety Assurance  Contract NAS2-10361

Author  John P. Rankin  Source  NASA Headquarters, Washington, D. C.

Date Published  1983  Document No.  (none – unpublished draft)

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**Location** 8.8.21  
**Series** 8. SCA-Associated Spin-Offs  
**Box** 8  
**Folder** 21

**Title** A System Safety Model for Developmental Aircraft Programs  
**Author** E. J. Amberboy & R. L. Stokeld  
**Source** NASA-ARC/HQ  
**Date Published** March 1981  
**Document No.** (none – supplied to NASA-HQ for their number assignment)

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**Location** 8.8.22  
**Series** 8. SCA-Associated Spin-Offs  
**Box** 8  
**Folder** 22

**Author** System Safety Society (with material from John Rankin)  
**Source** International System Safety Society  
**Date Published** July 1993  
**Document No.** (none)

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**Location** 8.8.23  
**Series** 8. SCA-Associated Spin-Offs  
**Box** 8  
**Folder** 23

**Title** Vibration Detection of Component Health and Operability (for Space Shuttle Orbiter)  
**Author** Bruce Baird of Boeing-Houston  
**(includes 1986 tech paper insert)**  
**Source** NASA-JSC  
**Date Published** December 22, 1975  
**Document No.** (none)

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**Location** 8.8.24  
**Series** 8. SCA-Associated Spin-Offs  
**Box** 8  
**Folder** 24

**Title** Volume III, Parts 1 & 2, Long-Life Assurance Study for Manned Spacecraft Hardware  
**Author** Martin-Marietta Corporation Denver, Colorado  
**Source** NASA-MSC/JSC  
**(Contract NAS9-12359)**  
**Date Published** September 1972  
**Document No.** MCR-72-169
**Location**  8.8.25  **Series**  8. SCA-Associated Spin-Offs  **Box**  8  **Folder**  25

**Title**  Digital Logic & Software Sneak Circuit Analysis Extensions

**Author**  Boeing-Houston  **Source**  Boeing-Houston

**Date Published**  1980s  **Document No.**  (none – workshop / tutorial materials)

---

**Location**  8.8.26  **Series**  8. SCA-Associated Spin-Offs  **Box**  8  **Folder**  26

**Title**  Proposed / Contemplated Extensions of Sneak Circuit Analysis  (*Topological Approaches*)

**Author**  J. P. Rankin  **Source**  Personal Collection of J. P. Rankin

**Date Published**  1970 – 1985  **Document No.**  (none – collected materials, presentation)

---

**Location**  8.8.27  **Series**  8. SCA-Associated Spin-Offs  **Box**  8  **Folder**  27

**Title**  A. M. F. Tuboscope Alyeska Pipeline PIG Reliability Study

**Author**  Boeing-Houston, Bruce Baird  **Source**  A.M.F. Tuboscope, Inc., Houston, TX

**Date Published**  March 3, 1978  **Document No.**  (none)

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**Location**  8.8.28  **Series**  8. SCA-Associated Spin-Offs  **Box**  8  **Folder**  28

**Title**  Preliminary Analysis of the Drillship “DISCOVERER SEVEN SEAS”  

**Author**  Boeing-Houston  **Source**  Offshore International, S.A., Getty Oil

**Date Published**  1978  **Document No.**  D2-118644-1
**Location** 8.8.29  **Series** 8. SCA-Associated Spin-Offs  **Box** 8  **Folder** 29

**Title**  Cognac Sneak Circuit Analysis & Lowering System Instrumentation Report

**Author**  Boeing-Houston  **Source**  Shell Oil Company, New Orleans, Louisiana

**Date Published** 1977  **Document No.** 5-2930-Hou-170

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**Location** 8.8.30  **Series** 8. SCA-Associated Spin-Offs  **Box** 8  **Folder** 30

**Title**  Koomey MultiPlex System, Sub-Sea Oil Well-Head Blow-Out Preventer  
P.O. 60-43857 & 60-4404 Supplement 1

**Author**  Boeing-Houston  **Source**  C. Jim Stewart & Stevenson Company

**Date Published** 1974-5  **Document No.** D2-118549-1

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**Location** 8.8.31  **Series** 8. SCA-Associated Spin-Offs  **Box** 8  **Folder** 31

**Title**  Reliability Analysis, Interface Between Esso Resources CO₂ Plant and Syncrude H₂ Plant

**Author**  Boeing-Houston  **Source**  InterDivisionalWorkAuthorization (IDWA) from Boeing Engineering & Construction Company, International

**Date Published** 1983  **Document No.** D2-118674-1

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**Location** 8.8.32  **Series** 8. SCA-Associated Spin-Offs  **Box** 8  **Folder** 32

**Title**  Development of North Cormorant Offshore Oil Field

**Author**  North Cormorant Project Team  **Source**  (unnamed client)

**(including Boeing-Houston)**

**Date Published** 1980  **Document No.**  (none, 3-ring binder report)
Title  (Three) Final Report(s), Mobil Beryl 'B' Subsystems, Tasks 2, 3, & 4

Author  Boeing Engineering & Construction  Source  Mobil Oil Co., North Sea, Ltd.

Date Published  1980  Document No.  K-8715-RBC-1017,
                   K-8715-SGB-019,
                   &  K-8715-WLH-023
APPENDIX. Biographical and Related Personal Data of John P. Rankin

Item 1. Single Page Career Summary as of 1985

Item 2. Multi-Page Career Summary as of 1985


Item 4. Article, “Sneak Circuit Analysis Tutorial, Introduction” published in the Proceedings of the 27th International System Safety Society's International Conference held in Huntsville, Alabama, August 3 – 7, 2009. The printed article consists of pages 0 – 13. Page 13 has additional biographical data. The folder also contains three DVDs. One DVD contains video with audio of John Rankin's 4-hour tutorial presentation on Sneak Circuit Analysis at the 27th International System Safety Society's International Conference held in Huntsville, Alabama, August 3 – 7, 2009. The first half hour of this DVD has introductory comments about how and why Topological Sneak Circuit Analysis technology was invented, related to John P. Rankin's background. Of course, it likewise presents detailed methodology and real examples of the proven analysis technique. Another DVD has a similar recording of the Common Cause Failure Analysis tutorial of the technique developed and presented by Rankin after studying the nature of Common Mode Failure problems described by representatives of the Danish Atomic Energy Commission in the 1970s. This technology was successfully employed to uncover numerous design susceptibilities that could lead to very serious unplanned events under postulated but unforeseen circumstances of operations in a wide variety of system applications. The third DVD in this folder has video files describing the Boeing 747 developmental program, including two unplanned incidents that proved the value of some unique safety features incorporated into the aircraft.

Item 5. “Microwave Power” 1964 Seminar Paper by Rankin at Mississippi State University.

Item 6. Email exchanges between John P. Rankin and NASA staff (engineering managers) for International Space Station project regarding Rankin's “farewell” message of taking medical retirement.
**Item 7.** Email exchanges regarding post-retirement opinions sought by NASA personnel from John P. Rankin with respect to Safety Engineering organizational philosophy.

**Item 8.** DVD of photos of personal Career Awards and Keepsakes of John P. Rankin


**Item 10.** *NASA Tech Briefs*, Vol. 21, No. 3, March, 1997. (Sent to John Rankin by NASA Headquarters in WDC to keep abreast of programs and activities, even after retirement on medical disability in 1996.)


**Item 12.** *Designing for Safety* – This publication is a 1974 brochure describing some key management and engineering practices used by Boeing to achieve inherent design safety in the 747 airplane development program. A developmental landing incident and the first in-service accident involving a 747 are included in the 20-minute video file contained on an associated DVD that is stored in the Manila folder of Item 4 of the Appendix box.