February

THE MITRE CORPORATION
Bedford, Massachusetts

Subject: BIBLIOGRAPHY OF XD-1 DOCUMENTATION (U)
(Project 220)

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ABSTRACT

A reasonably complete and accurate bibliographical
listing of XD-1 documentation has been compiled by
the XD-1 Facility Office. This bibliography has
been arranged both by subject and by document number.
A subject listing and a numerical listing is
included in this document. A third listing, con-
taining abstracts of each document, has been com-
piled and is also included in the document.

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1.0 INTRODUCTION

Experienced personnel as well as persons new to MITRE have experienced difficulty in trying to gather information pertaining to a specific XD-1 related subject. The purpose of this document is to eliminate at least part of the problem-difficulties in obtaining information about existing XD-1 documentation.

A reasonably complete and accurate bibliographical listing of XD-1 documentation has been compiled by the XD-1 Facility Office. This bibliographical listing has been arranged both by subject and document number. A subject listing and a numerical listing are both included in this document. A third listing (arranged by document number),containing abstracts of each document,has been compiled and is also included.

It is suggested that users of the XD-1 Documentation listings first examine the Subject Listing (Section 2.0) for titles of interest. Reference should then be made, using the document numbers, to the Descriptive Listing (Section 4.0) for information concerning the documents.

Any omissions or errors in these listings, which are discovered by the reader, should be reported to the XD-1 Facility Office (Room 1D-229, Phone 4762).

2.0 SUBJECT LISTING OF XD-1 DOCUMENTATION

2.1 FACILITY OFFICE INFORMATION

XD-1:025	XD-1 Facility Office Functions	12 Dec 62

2.2 OPERATIONAL PROCEDURES

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XD-1:007	Procedure for Requesting Program Assemblies Using COSEAL	5 Nov 62
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XD-1:035	Procedures for Use of 1401 Computer Located at Building F.	7 Jan 63

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2.4 PROGRAMMING INFORMATION

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TM-426(SDC)	Principles, Practices and Concepts of Q-7 Programming for Non-Programmers	28 Oct 59
FN-1382	Introduction to Programming	5 Feb 59
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FN-1567	A Guide to AN/FSQ-7 Instructions	------59
FN-1567,S1	A Table of Contents and Corrections to "A Guide to AN/FSQ-7 Instructions"	31 Jul 59
TM-15 #1 (M)	Basic XD-1 Information: Introduction to SAGE and XD-1	5 Mar 59
TM-15 #2 (M)	Basic XD-1 Information: Introduction to the Binary and Octal Numbering System	27 Apr 59
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2.5 EQUIPMENT CHECKOUT PROGRAM SYSTEMS

TM-3138 (M)	Integrated Equipment Checkout (ECO) Programmed System	2 Aug 61
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TM-3138,S3 (M)	Integrated Equipment Checkout (ECO) Programmed System	31 Jan 63

2.6   FACILITY PROGRAM SYSTEMS

    FN-5422   SATIN D+ Facility System/A Users   14 Apr 61
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    FN-5422/000/00A Supplement to SATIN D+ Users Manual 19 Oct 61

2.7   UTILITY PROGRAM SYSTEMS

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        FN-40   Brief Description of Utility   25 Nov 57
                       System
        FN-671   Utility Tests   1 May 58

    2.7.2   COMPASS

        6D-2750   Preparation and Use of COMPOOL   12 Nov 58
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        6D-2764   Notes on the COMPASS Program   19 Nov 58
                       Translator
        6D-2765   COMPASS Library Tape   20 Nov 58
        FN-654-1   Users Manual for COMPASS/Assem. 31 Oct 58
                       for the Q-7
        FN-654-1,S1   Modifications to the COMPASS   28 Jan 59
                       Utility System Model 6 Operation.
        FN-654-1,S2   Modifications to the COMPASS   24 Mar 59
                       Utility System Model 6 Operation
        FN-654-1,S3   Modifications to the COMPASS   13 Apr 59
                       Utility System Model 6 Operation
        FN-654-1,S5   Modifications to the COMPASS   15 Jun 59
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        FN-654-1,S6   Modifications to the COMPASS   28 Aug 59
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FN-6179C	COSEAL Utility System for the Q-7	15 Aug 62
FN-6179D	COSEAL Utility System for the Q-7	5 Sep 62
W-5294	The COSEAL Compool	5 Sep 62
W-5374	Program, Item and Table Layout, Project 910 Compool 11C	1 Oct 62
W-5559	Interpretation of Communication Tags	19 Nov 62
W-5644-1	Introduction to the COSEAL Utility System	22 Jan 63
W-5771	COSEAL Master Tape-Version B1	28 Jan 63

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TM-555/002/01	JOVIAL Manual Part 2, Rev. 1	9 Jun 61
TM-555/002/01A	JOVIAL Manual Part 2, Rev. 1	10 Aug 61
TM-629 (SDC)	A Programmer's Introduction to Basic JOVIAL	7 Aug 61
FN-4456	A Description of the "Intermediate Language" as a Programming Language	20 Oct 60
FN-5066	The Intermediate Language (IL) Table	9 Feb 61
FN-6212/001/01	Q-7 JOVIAL Utility System-Programming Manual	21 Sep 62
FN-6212/003/01	Q-7 JOVIAL Utility System-Support System and Compool Generation and Usage Manual	30 Oct 62
FN-6212/005/00	Q-7 JOVIAL Utility System-Support System Reformatter Users Manual	23 Oct 62
FN-6212/006/00	Q-7 JOVIAL Utility System-Library Users Manual	5 Mar 62
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FN-6212/008/00	Q-7 JOVIAL Utility System-Translator Maintenance Manual	31 May 62
FN-6212/008/00A	Q-7 JOVIAL Utility System-Translator Maintenance Manual	22 Jun 62
FN-6212/009/00	Q-7 JOVIAL Utility System-Checker Maintenance Manual	26 Feb 62

FN-6212/020/00	Q-7 JOVIAL Utility System- COMPASS Library Preprocessor User's Manual	8 Aug 62
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2.7.5   <u>MISCELLANEOUS UTILITY SYSTEM INFORMATION</u>

FN-9	Program for Loading New DCA Master and Library Tapes	15 Nov 57
FN-57	Q-7 General Input-Users Manual	5 Dec 57
FN-72-1	Prepare/Position Tape Program- Single Card	19 Jun 58
FN-76,S1	SUDOR	14 Feb 58
FN-89	Q-7 General Output-Users Manual	18 Dec 57
FN-240	Model Comparison Manual	21 Jan 58
FN-242	Q-7 3-Card Octal Load	------- 58
FN-844	Compare Tape - General	24 Jul 58
FN-845	Rewind Tapes Two and Four	24 Jul 58
FN-868	Clear Drums - A One Card Prog.	8 Aug 58
FN-869	Core Read-In	8 Aug 58
FN-965-1	Q-7 Trap and Print User's Manual	8 Jan 59
FN-974-1	PDG Utility Programs	3 Oct 58
FN-1005	A Special Purpose SAGE Compiler	8 Oct 58
FN-1070,S1	Q-7 3-Card Octal Load User's Manual	10 Nov 58
FN-1070,S2	Tape Read-In	11 Nov 58
FN-1070,S3	Q-7 Universal Card Read-In Program	11 Nov 58
FN-1070,S4	Punch 24-Word-Card Program	10 Nov 58
FN-1086	TAREF Program User's Manual	4 Nov 58
FN-1088	ESIM Load - 2 Cards	11 Nov 58
FN-1089-1	Drum Read-In - Single Card	------- 58
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FN-1091	Storage Dump - Single Card	10 Nov 58
FN-1128	COMAND	18 Nov 58
FN-2242	AUTOMAD - Automatic Adaptation System Data Calculation Sub- System Subroutines	15 Sep 59
TM-15 #5 (M)	Basic XD-1 Information: Debugging Package	4 Mar 59
TM-15 #7 (M)	Basic XD-1 Information: SAGE 1401 Log Program (LOCOT)	20 Jun 62
W-2639	PASS Manual	17 Nov 59
W-3483	Punch SAGE Tape Off-line Program	2 Dec 60
W-3488	Punch Hollerith Tape Direct	13 Dec 60
W-5432	FIND Macro	18 Oct 62

2.8   DATA RECORDING AND PROCESSING SYSTEMS

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FN-707	A New Assembly Test Processing Method	14 May 58
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2.8.2   GIANT

FN-741	GIANT-A General Assembler Test Processor	27 May 58
FN-2057	GIANT Operators Manual	21 Aug 59
FN-5159	An Operation Guide to GIANT Processor	17 Feb 61
FN-5663	SATIN D+ GIANT System Users Manual	27 Jun 61

2.8.3   MORT

FN-3166	SAGE Model 8 Operational Specifications--DCA Recording (MORT)	29 Apr 60

2.8.4   MISCELLANEOUS RECORDING AND PROCESSING INFORMATION

FN-5506	TPY (A TPYØ Processor) User's Manual	10 May 60
W-3152	SAMIT Radar Data Recording Program for XD-1	8 Feb 60
W-3541-1	Package C+ Recording and Data Reduction	9 May 61

2.9   SIMULATION SYSTEMS

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TM-188 (M)	Mathematical Specifications for Passive-Active Data Simulation (PADS)	31 Mar 59
TM-188-C1	Mathematical Specifications for Passive-Active Data Simulation (PADS)-Correction #1	17 Apr 59
TM-2671 (M)	Operational Specifications for Passive-Active Data Simulation (PADS)	20 Apr 60
TM-2671,S1	Operational Specifications for Passive-Active Data Simulation (PADS)-Supplement 1	18 Jul 60

TM-2671,S1,C1	Operational Specifications for Passive-Active Data Simulation (PADS) - Supplement 1, Correction 1	26 Aug 60
TM-2671,S2	Operational Specifications for Passive-Active Data Simulation (PADS)-Supplement 2	20 Jul 60
TM-2671,S2,C1	Operational Specifications for Passive-Active Data Simulation (PADS)-Supp. 2, Corr. 1	7 Oct 60
TM-2671,S3	Operational Specifications for Passive-Active Data Simulation (PADS)-Supplement 3	1 Nov 60

2.9.2 SIMULATOR

| FN-5540 | SATIN Simulator Package D+ | 22 May 61 |

2.9.3 MISCELLANEOUS SIMULATION INFORMATION

| FN-750 | Specifications for Simulation Tape Processor | 4 Jun 58 |
| TM-2786 (M) | TEASE-Tracking Error Analysis of Simulated Exercises (An XD-1 Program) | 23 Jun 60 |

2.10 EQUIPMENT

2.10.1 IBM MANUALS THEORY OF OPERATION (AN/FSQ-7)

Theory of Programming for AN/FSQ-7	1 Apr 59
Theory of Operation-Central Computer System for AN/FSQ-7 (Volume 1 and Volume 2)	1 Feb 59
Theory of Operation-Drum System for AN/FSQ-7	15 Sep 58
Theory of Operation-Display System for AN/FSQ-7 Volume 1 and Volume 2	1 Aug 58
Theory of Operation-Output System for AN/FSQ-7	1 Dec 58
Theory of Operation-Input System for AN/FSQ-7	15 Sep 57
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FN-1232-1,S1	Data Processing Manual	20 Jul 59
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FN-1232-1,S5	Data Processing Manual	26 Jul 60
FN-1232-1,S6	Data Processing Manual	10 Aug 60
FN-4135	Model 9 DCA Instrumentation Complex	28 Jul 60
TM-2770-4	Radar Input Data Formats and Height Request Data Formats (ESS)	23 Aug 62
W-2773	Glossary of Computer Terms	29 Jan 60
W-3782	Operational Manual for SATIN Startover	27 Mar 61
W-5289	Evaluation SAGE Sector (ESS) Maintenance Analysis	30 Aug 62

3.0   NUMERICAL LISTING OF XD-1 DOCUMENTATION

3.1   IBM MANUALS

    Theory of Programming for AN/FSQ-7   1 Apr 59
    Theory of Operation-Central Computer System for   1 Feb 59
      AN/FSQ-7 (Volume 1 and Volume 2)
    Theory of Operation-Drum System for AN/FSQ-7   15 Sep 58
    Theory of Operation-Display System for AN/FSQ-7   1 Aug 58
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    Theory of Operation-Input System for AN/FSQ-7   15 Sep 57
    Tape Drive Type 728 for AN/FSQ-7   15 Apr 59

3.2   LINCOLN LABORATORY DOCUMENTS

6D-2750	Preparation and Use of Compool with COMPASS	12 Nov 58
6D-2764	Notes on the COMPASS Program Translator	19 Nov 58
6D-2765	COMPASS Library Tape	20 Nov 58
6M-4815	Table Document for DCA (2.0)	12 Dec 56
6M-5754	Programming Data Sheets for XD-1 Central Computer	17 Oct 58

3.3   SDC DOCUMENTS

    3.3.1   SDC TECHNICAL MEMORANDA (TM)

TM-426	Principles, Practices and Concepts of Q-7 Programming for Non-Programmers	28 Oct 59
TM-555	JOVIAL Manual Part 1	20 Dec 60
TM-555/002/01	JOVIAL Manual Part 2, Revision 1	9 Jun 61
TM-555/002/01A	JOVIAL Manual Part 2, Revision 1	10 Aug 61
TM-629	A Programmer's Introduction to Basic JOVIAL	7 Aug 61

    3.3.2   SDC FIELD NOTES (FN)

FN-9	Program for Loading New DCA Master and Library Tapes	15 Nov 57
FN-40	Brief Description of Utility System	25 Nov 57
FN-57	Q-7 General Input-Users Manual	5 Dec 57
FN-72-1	Prepare/Position Tape Program-Single Card	19 Jun 58
FN-76,S1	SUDOR	14 Feb 58

FN-89	Q-7 General Output-Users Manual	18 Dec 57
FN-240	Model Comparison Manual	21 Jan 58
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FN-654-1	Users Manual for COMPASS-A Compiler/Assembler for the Q-7	31 Oct 58
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FN-654-1,S6	Modifications to the COMPASS Utility System, Model 8 Operation	28 Aug 59
FN-654-1,S7	Modifications to the COMPASS Utility System, Model 8 Operation	8 Dec 59
FN-671	Utility Tests	1 May 58
FN-707	A New Assembly Test Processing Method	14 May 58
FN-741	GIANT-A General Assembler Test Processor	27 May 58
FN-750	Specifications for Simulation Tape Processor	4 Jun 58
FN-844	Compare Tape- General	24 Jul 58
FN-845	Rewind Tapes Two and Four	24 Jul 58
FN-868	Clear Drums--A One Card Program	8 Aug 58
FN-869	Core Read—In	8 Aug 58
FN-965-1	Q-7 Trap and Print User's Manual	8 Jan 59
FN-974-1	PDG Utility Programs	3 Oct 58
FN-1005	A Special Purpose SAGE Compiler	8 Oct 58
FN-1045	SUDOR-COMPASS	27 Oct 58
FN-1070,S1	Q-7 3-Card Octal Load User's Manual	10 Nov 58
FN-1070,S2	Tape Read-In	11 Nov 58
FN-1070,S3	Q-7 Universal Card Read-In Program	11 Nov 58
FN-1070,S4	Punch 24-Word-Card Program	10 Nov 58
FN-1086	TAREF Program User's Manual	4 Nov 58
FN-1088	ESIM Load - 2 Cards	11 Nov 58
FN-1089-1	Drum Read-In - Single Card	------ 58
FN-1090	Check Sum All - Single Card	10 Nov 58

FN-1091	Storage Dump - Single Card	10 Nov 58
FN-1128	COMAND	18 Nov 58
FN-1188	Corrections to COMPASS Programs	9 Dec 58
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FN-1232-1,S5	Data Processing Manual	26 Jul 60
FN-1232-1,S6	Data Processing Manual	10 Aug 60
FN-1382	Introduction to Programming	5 Feb 59
FN-1382,C1	Introduction to Programming	23 Feb 59
FN-1507	Compool Identification of Binary Decks	9 Mar 59
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FN-1567	A Guide to AN/FSQ-7 Instructions	------- 59
FN-1567,S1	A Table of Contents and Corrections to "A Guide to AN/FSQ-7 Instructions"	31 Jul 59
FN-2056	An ATRS User's Manual	24 Aug 59
FN-2057	GIANT Operators Manual	21 Aug 59
FN-2242	AUTOMAD - Automatic Adaptation System—Data Calculation Sub-System Subroutines	15 Sep 59
FN-3166	SAGE Model 8 Operational Specifications---DCA Recording (MORT)	29 Apr 60
FN-4135	Model 9 DCA Instrumentation Complex	28 Jul 60
FN-4456	A Description of the "Intermediate Language" as a Programming Language	20 Oct 60
FN-5066	The Intermediate Language (IL) Table	9 Feb 61
FN-5159	An Operating Guide to GIANT Processor	17 Feb 61
FN-5422	SATIN D+ Facility System/A Users Manual	14 Apr 61
FN-5422/000/00A	Supplement to SATIN D+ Users Manual	19 Oct 61
FN-5506	TPY (A TPYØ Processor) User's Manual	10 May 61
FN-5540	SATIN Simulator-Package D+	22 May 61
FN-5663	SATIN D+ GIANT System Users Manual	27 Jun 61
FN-6179	COSEAL Utility System for the Q-7	1 Feb 62
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FN-6179D	COSEAL Utility System for the Q-7	5 Sep 62
FN-6212/001/01	Q-7 JOVIAL Utility System- Programming Manual	21 Sep 62
FN-6212/003/01	Q-7 JOVIAL Utility System- Support System and Compool Generation and Usage Manual	30 Oct 62
FN-6212/005/00	Q-7 JOVIAL Utility System- Support System Reformatter Users Manual	23 Oct 62
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FN-6212/008/00	Q-7 JOVIAL Utility System- Translator Maintenance Manual	31 May 62
FN-6212/008/00A	Q-7 JOVIAL Utility System- Translator Maintenance Manual	22 Jun 62
FN-6212/009/00	Q-7 JOVIAL Utility System- Checker Maintenance Manual	26 Feb 62
FN-6212/020/00	Q-7 JOVIAL Utility System- COMPASS Library Preprocessor User's Manual	8 Aug 62
FN-6212/021/00	Q-7 JOVIAL Utility System- User's Manual	9 Oct 62

3.4   MITRE CORPORATION DOCUMENTS

3.4.1   MITRE TECHNICAL MEMORANDA (TM)

TM-15 #1	Basic XD-1 Information: Introduction to SAGE and XD-1	5 Mar 59
TM-15 #2	Basic XD-1 Information: Introduction to the Binary and Octal Numbering System	27 Apr 59
TM-15 #3	Basic XD-1 Information: COMPASS	26 Feb 59
TM-15 #4	Basic XD-1 Information: COMPASS Utility Programs	3 Mar 59
TM-15 #5	Basic XD-1 Information: Debugging Package	4 Mar 59
TM-15 #6	Basic XD-1 Information: Scaling for the Fixed Point Computer	15 Apr 59
TM-15 #7	Basic XD-1 Information: SAGE 1401 Log Program (LOCOT)	20 Jun 62
TM-124	COMPASS Library Tape	16 Jan 58
TM-188	Mathematical Specifications for Passive-Active Data Simulation (PADS)	31 Mar 59

TM-188-C1	Mathematical Specifications for Passive-Active Data Simulation (PADS) - Correction #1	17 Apr 59
TM-2671	Operational Specifications for Passive-Active Data Simulation (PADS)	20 Apr 60
TM-2671,S1	Operational Specifications for Passive-Active Data Simulation (PADS)-Supp. 1	18 Jul 60
TM-2671,S1,C1	Operational Specifications for Passive Active Data Simulation (PADS) - Supplement 1, Correction 1	26 Aug 60
TM-2671,S2	Operational Specifications for Passive-Active Data Simulation (PADS) Supplement 2	20 Jul 60
TM-2671,S2,C1	Operational Specifications for Passive-Active Data Simulation (PADS)-Supp.2, Corr.1	7 Oct 60
TM-2671,S3	Operational Specifications for Passive-Active Data Simulation (PADS)-Supplement 3	1 Nov 60
TM-2770-4	Radar Input Data Formats and Height Request Data Formats (ESS)	23 Aug 62
TM-2786	TEASE-Tracking Error Analysis of Simulated Exercises (An XD-1 Program)	23 Jun 60
TM-3138	Integrated Equipment Checkout (ECO) Programmed System	2 Aug 61
TM-3138,S1	Integrated Equipment Checkout (ECO) Programmed System	17 Aug 62
TM-3138,S2	Appendix A - Operating Instructions December 1962	7 Dec 62
TM-3138,S3	Integrated Equipment Checkout (ECO) Programmed System	31 Jan 63
TM-3222	XD-1 Variable Display Equipment Specifications	1 Sep 62
TM-3222-1	XD-1 Variable Display Equipment Specifications	1 Nov 62
TM-3222-2	XD-1 Variable Display Equipment Specifications	1 Dec 62
TM-3222-3	XD-1 Variable Display Equipment Specifications	1 Jan 62

3.4.2   MITRE WORKING PAPERS

W-306	New COMPASS Master	15 Jun 59
W-2639	PASS Manual	17 Nov 59
W-2773	Glossary of Computer Terms	29 Jan 60
W-3152	SAMIT Radar Data Recording Program for XD-1	8 Feb 60
W-3483	Punch SAGE Tape Offline Program	2 Dec 60

W-3488	Punch Hollerith Tape Direct	13 Dec 60
W-3541-1	Package C+ Recording and Data Reduction	9 May 61
W-3782	Operational Manual for SATIN Startover	27 Mar 61
W-5116	A Description of the Tape Converter (ESS)	16 Jul 62
W-5289	Evaluation SAGE Sector (ESS) Maintenance Analysis	30 Aug 62
W-5294	The COSEAL Compool	5 Sep 62
W-5374	Program, Item and Table Layout, Project 910 Compool 11C	1 Oct 62
W-5432	FIND Macro	18 Oct 62
W-5559	Interpretation of Communication Tags	19 Nov 62
W-5644-1	Introduction to the COSEAL Utility System	22 Jan 63
W-5762	The XD-1 Computer Time Accounting System	14 Jan 63
W-5771	COSEAL Master Tape-Version B1	28 Jan 63

3.4.3 XD-1 FACILITY OFFICE MEMORANDA

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XD-1:007	Procedure for Requesting Program Assemblies Using COSEAL	5 Nov 62
XD-1:007-C1	Change to Memo No. XD-1:007	27 Nov 62
XD-1:025	XD-1 Facility Office Functions	12 Dec 62
XD-1:035	Procedures for Use of 1401 Computer Located at Building F	7 Jan 63

4.0   DESCRIPTIVE LISTING OF XD-1 DOCUMENTATION

   4.1   IBM MANUALS

   THEORY OF PROGRAMMING FOR AN/FSQ-7   1 Apr 59

      This manual explains the program instructions used in the
      AN/FSQ-7 and AN/FSQ-8. Although the manual is designed to be
      used primarily in the training of IBM field engineers, it
      also serves as a reference manual for Q-7 programmers.

   THEORY OF OPERATION-CENTRAL COMPUTER SYSTEM FOR   1 Feb 59
   AN/FSQ-7 (VOLUME 1 AND VOLUME 2)

      This manual is intended primarily as an aid in training field
      engineers in the detailed theory of operation of the Central
      Computer, Magnetic Tape, and Warning Light Systems of the
      AN/FSQ-7 Combat Direction Central and AN/FSQ-8 Combat Control
      Central equipment. Its secondary purpose is to furnish a
      reference source for field engineers in the maintenance of
      these systems.

   THEORY OF OPERATION-DRUM SYSTEM FOR AN/FSQ-7   15 Sep 58

      The primary purpose of this manual is to explain Drum System
      circuit operation to system, display, and IO IBM field
      engineers. The manual also serves as a reference source for
      IBM field engineers and other personnel assigned to technical
      duties at Air Defense Sites.

   THEORY OF OPERATION-DISPLAY SYSTEM FOR AN/FSQ-7   1 Aug 58
   (VOLUME 1 AND VOLUME 2)

      This manual provides a theory of operation for the Display
      System in the AN/FSQ-7 Combat Direction Central and AN/FSQ-8
      Combat Control Central.

   THEORY OF OPERATION-OUTPUT SYSTEM FOR AN/FSQ-7   1 Dec 58

      This manual describes the output system of the AN/FSQ-7
      and AN/FSQ-8 Computers.

   THEORY OF OPERATION-INPUT SYSTEM FOR AN/FSQ-7   15 Sep 57

      This manual discusses data-processing systems and computer
      input systems, in general, and the Input System of AN/FSQ-7
      Combat Control Central in particular. Sources of input data,
      telephone transmission facilities, and information flow are
      discussed.

TAPE DRIVE TYPE 728 FOR AN/FSQ-7   15 Apr 59

This manual has been prepared for instruction in the Tape
Drive Type 728. This manual may also be used for reference
purposes, but the information is subject to change as
engineering changes may affect logic and machine functions.

4.2   LINCOLN LABORATORY DOCUMENTS

6D-2750   PREPARATION AND USE OF COMPOOL WITH   12 Nov 58
                 COMPASS
                          (J. A. Levenson, D. J. Thomas)

Updates COMPASS Assemble Compool as referred to in FN-654 by
providing for the use of 65K Memory Addresses. (Historical
value only.)

6D-2764   NOTES ON THE COMPASS PROGRAM   19 Nov 58
                 TRANSLATOR
                          (J. A. Levenson, D. J. Thomas)

Title is self-explanatory. (Historical value only.)

6D-2765   COMPASS LIBRARY TAPE   20 Nov 58

                          (M. K. Yntema, J. J. Craddock)

This document describes a group of subroutines available
on a COMPASS Library Tape. (Historical value only.)

6M-4815   TABLE DOCUMENT FOR DCA (2.0)   12 Dec 56

                          (W. M. Mineart)

A reference is made to this document on page 156, FN-6179. This
document contains the values used by the SUDOR subroutine,
SU228 accumulated to cells--track #. All decimal values were
changed to octal values.

6M-5754   PROGRAMMING DATA SHEETS FOR XD-1   17 Oct 58
                 CENTRAL COMPUTER

                          (P. R. Bagley)

This is a useful reference handbook of programming data on the
XD-1 central computer. It is intended for use by programmers
who are familiar with the functions of the computer equipment.
Information includes descriptions of all instructions, word
layouts, rules for XD-1 programming and a summary of equipment
characteristics.

4.3   SDC DOCUMENTS

4.3.1   SDC TECHNICAL MEMORANDA (TM)

| TM-426 | PRINCIPLES, PRACTICES AND CONCEPTS OF Q-7 PROGRAMMING FOR NON-PROGRAMMERS | 28 Oct 59 |

(S. F. Tower)

This document is excellent in its presentation of principles for non-programmers. The section on instructions is not as detailed as 6M-5754 or MITRE TM-15 #1.

| TM-555 | JOVIAL MANUAL PART 1 | 20 Dec 60 |

(C. J. Shaw)

An excellent document for programmers and non-programmers who desire historical background on JOVIAL.

| TM-555/002/01 | JOVIAL MANUAL PART 2, REV. 1 | 9 Jun 61 |

(C. J. Shaw)

A complete, concise, technical description of the JOVIAL language. This document also has a JOVIAL Primer.

| TM-555/002/01A | JOVIAL MANUAL PART 2, REV. 1 | 10 Aug 61 |

(C. J. Shaw)

Change of pages for TM-555/002/01.

| TM-629 | A PROGRAMMER'S INTRODUCTION TO BASIC JOVIAL | 7 Aug 61 |

(C. J. Shaw)

This paper describes the basic elements of JOVIAL, a procedure-oriented and largely computer-independent programming language designed by the System Development Corporation for computer-based command/control systems. JOVIAL is derived from ALGOL 58, with the addition of an input-output notation, a more elaborate data-description capability, and the ability to manipulate symbolic and other non-numeric values.

4.3.2   SDC FIELD NOTES (FN)

FN-9   PROGRAM FOR LOADING NEW DCA   15 Nov 57
                       MASTER AND LIBRARY TAPES

(H. Newhall, S. R. Shapiro)

The Program for Loading New DCA Master and Library
Tapes will load a new DCA Library Tape from binary
card decks and/or and old DCA Library Tape. These
Programs will also be converted to absolute and stored
on the appropriate drum fields. By the use of sense
switch 2 and appropriate control cards, the Utility
and Library Tapes of an old Master Tape may or may not
be duplicated and a set of special programs, including,
CSL and FTL which write a new DCA Tape, may or may not
be operated. (Historical value only.)

FN-40   BRIEF DESCRIPTION OF UTILITY   25 Nov 57
                       SYSTEM

(J. Thompson, N. Folley)

A brief description of a utility system used on the Q-7
Computer in 1957. (Historical value only.)

FN-57   Q-7 GENERAL INPUT-USERS MANUAL   5 Dec 57

(B. Hildebrandt)

General Input is a closed subroutine allowing the
programmer to specify, by means of calling sequences,
various input operations and conversions. It will
read cards or Hollerith tape records, and convert any
field from octal or decimal to binary. It will read,
as one operation, one card or up to 20 words from
tape. (Superceded by FN-654-1) (Historical value only.)

FN-72-1   PREPARE/POSITION TAPE PROGRAM- 19 Jun 58
                       SINGLE CARD

(H. Newhall)

The Prepare/Position Tape Program prepares a tape on
drive 4 or positions it to the beginning or end of
any file. The program provides for setting the tape
prepared, backspacing a record, rewinding the tape,
or writing an end of file.

FN-76,S1   SUDOR   14 Feb 58

(H. Newhall)

SUDOR is a group of closed subroutines for the FSQ-7
which has been assembled to expedite coding and check-
out of a class of programs employed in data organiza-
tion and reduction. The generalized nature of these
routines, however, suits them to any type of programming
which involves input, interstorage communication, table
manipulation, or output of unit records. (Superceded
by FN-1045) (Historical value only.)

FN-89   Q-7 GENERAL OUTPUT-USERS   18 Dec 57
                      MANUAL
                           (A. A. Haggerty)

General Output is a closed subroutine enabling the
programmer to produce the equivalent of a 120-character
print line in any format desired. The program, under
the direction of the programmer, will convert binary
information to Hollerith characters and store them in
a 24 word "tape image". It will write the record on
tape, convert and print the 24 words as one line on
the printer, or convert and punch the first 64 characters
on a card. (Superceded by FN-654-1) (Historical
value only.)

FN-240   MODEL COMPARISON MANUAL   21 Jan 58

(F. Milillo)

The Model Comparison Program is designed to compare
two different versions of a program and indicate any
changes, insertions or deletions which may have occurred.
The versions which are to be compared must be "prestored"
on two different tapes. These tapes may contain more
than one program but the program sequence must be
identical on the two tapes. One tape should contain
all the older versions and the other all the newer
versions.

FN-242   Q-7 3-CARD OCTAL LOAD   ------ 58

(C. Mosmann)

3-Card Octal Load is a Q-7 program designed to simplify
the storage of information into core or drum memory.
(Superceded by FN-654-1) (Historical value only.)

FN-654-1   USERS MANUAL FOR COMPASS-A   31 Oct 58
                      COMPILER/ASSEMBLER FOR THE Q-7

                           (M. Bolsky)

COMPASS is a group of utility programs written for
the AN/FSQ-7, designed to: a) translate symbolic
information into binary information; b) manipulate
information stored on tape; c) process tapes. This
manual describes, from the programmer's and the computer
operator's standpoints, how to use the COMPASS Programs.

FN-654-1,S1   MODIFICATIONS TO THE COMPASS   28 Jan 59
                      UTILITY SYSTEM, MODEL 6
                      OPERATION
                           (A. Drutz)

Changes to Program Translator, Sequence Parameters,
Environment Simulation, Assemble Compool, Assemble
Geography, Tape File Maintenance, and COMPASS Control.

FN-654-1,S2   MODIFICATIONS TO THE COMPASS   24 Mar 59
                      UTILITY SYSTEM, MODEL 6
                      OPERATION
                           (A. Drutz, P. McCree)

Modifications to the Compool design. Updates Translator,
Sequence Parameters, and card formats.

FN-654-1,S3   MODIFICATIONS TO THE COMPASS   13 Apr 59
                      UTILITY SYSTEM, MODEL 6
                      OPERATION
                           (W. C. Dennis)

Updates Tape File Maintenance program.

FN-654-1,S5   MODIFICATIONS TO THE COMPASS   15 Jun 59
                      UTILITY SYSTEM, MODEL 6
                      OPERATION
                           (L. Levine)

Updates programs: TAREF, Sequence Parameters, Tape
File Maintenance, and Translator.

FN-654-1,S6   MODIFICATIONS TO THE COMPASS   28 Aug 59
                      UTILITY SYSTEM, MODEL 8
                      OPERATION
                           (L. Levine)

Updates the programs: COMAND, Sequence Parameters,
Assemble Geography, Tape File Maintenance, COMPASS
Control, Translator, and Load DCA.

FN-654-1,S7   MODIFICATIONS TO THE COMPASS   8 Dec 59
                   UTILITY SYSTEM, MODEL 8
                   OPERATION
                       (L. Levine)

Updates the programs: TAREF, Adapt, Sequence Parameters,
Tape File Maintenance, COMPASS Control, Translator,
and Memory Print.

FN-671   UTILITY TESTS   1 May 58

                     (T. Willette, F. Casillas,
                      W. Shasberger)

This document describes in detail a set of tests
designed to check the operation of programs in the
Lincoln Utility System. (Historical value only.)

FN-707   A NEW ASSEMBLY TEST PROCESSING 14 May 58
                   METHOD
                     (J. I. Schwartz)

This document discusses a proposed assembly test
processing system for use with 65K memory. (Historical
value only.)

FN-741   GIANT-A GENERAL ASSEMBLER   27 May 58
                   TEST PROCESSOR
                     (H. M. Isbitz)

This document presents a detailed description of the
general processor specified in FN-707. (Historical
value only.)

FN-750   SPECIFICATIONS FOR SIMULATION 4 Jun 58
                   TAPE PROCESSOR
                     (J. H. Childer)

This document describes a simulation tape processor
which converts a binary simulation tape utilizing four
input peripheral table format subroutines into an
easily read format for either the direct or delayed
printers. (Historical value only.)

FN-844   COMPARE TAPE - GENERAL   24 Jul 58

                     (L. Jones, H. Newhall)

The Compare Tape Program provides a means of comparing
two tapes (Prestored or binary).

FN-845   REWIND TAPES TWO AND FOUR   24 Jul 58

(L. Jones, H. Newhall)

This program rewinds tapes two and four, sets them
prepared, reads in the following card, and then
branches to register $\emptyset$ as soon as tapes two and four
are rewound.

FN-868   CLEAR DRUMS--A ONE CARD PROGRAM 8 Aug 58

(R. Newhall, L Jones)

The Clear Drums Program provides a simple, efficient
routine for clearing the most commonly used data drums
on the AN/FSQ-7.

FN-869   CORE READ-IN   8 Aug 58

(R. Newhall, L. Jones)

The Core Read-In Program reads COMPASS binary decks
assembled for core into core storage.

FN-965-1   Q-7 TRAP AND PRINT USER'S   8 Jan 59
                      MANUAL
                            (D. Stirling)

The Trap and Print Program interrupts the operation of
a program at specified points and prints the contents
of the machine registers and any portion of core
memory. The original program then continues.

FN-974-1   PDG UTILITY PROGRAMS   3 Oct 58

(H. Newhall)

A list of the Utility Programs available for Q-7
operations during the early days of COMPASS.
(Historical value only.)

FN-1005   A SPECIAL PURPOSE SAGE COMPILER 8 Oct 58

(C. Mosmann)

A discussion of a special purpose SAGE compiler, COMAND.

FN-1045   SUDOR-COMPASS   27 Oct 58

(H. Newhall)

This document describes the SUDOR Program as written
for the COMPASS subroutine tape.

FN-1070,S1   Q-7 3-CARD OCTAL LOAD USER'S   10 Nov 58
                  MANUAL
                        (D. P. Stirling)

The 3-Card Octal Load Program is designed to simplify
the storage of information into core or drum memory.
The program version described supercedes the descrip-
tion in Section 18 of FN-654-1.

FN-1070,S2   TAPE READ-IN   11 Nov 58

                        (H. Manelowitz)

Tape Read-in is a four-card "Load from Card Reader"
program which will perform the following functions:

1)   Read into core a binary tape from Tape Unit 3.
2)   Place the contents of Core Storage Record into
     its properly assigned core location.
3)   Place the contents of Drum Storage Record onto
     its properly assigned drum field(s).
4)   Provide an option (Sense Switch 4) for operating
     Core Storage Record .

The program version described in this document super-
cedes the description in Section 16 of FN-654-1.

FN-1070,S3   Q-7 UNIVERSAL CARD READ-IN   11 Nov 58
                  PROGRAM
                        (L. Levine)

The Universal Card Read-In Program (UNCDRD) is a six-
card, self-loading deck. It is designed to accept
COMPASS binary, environment sim and octal correction
cards and store them in their specified core or drum
locations. (Supercedes program description in
Section 17 of FN-654-1.)

FN-1070,S4   PUNCH 24-WORD-CARD PROGRAM   10 Nov 58

                        (D. P. Stirling)

If it is desired to write short, self-loading programs,
the use of this one-card program takes all the drudgery
out of it. (Supercedes program description in Section 15
of FN-654-1.)

FN-1086   TAREF PROGRAM USER'S MANUAL   4 Nov 58

(P. McCree)

TAREF tabulates the references made to each symbolic tag in a program.

FN-1088   ESIM LOAD - 2 CARDS   11 Nov 58

(D. P. Stirling)

The ESIM Load Program stores data from binary cards produced by the Environment Simulation Program into core or drums as specified.

FN-1089-1   DRUM READ-IN - SINGLE CARD   ------ 58

(H. Newhall)

The Drum Read-In Program reads in COMPASS binary cards assembled for drums and stores their contents on drums.

FN-1090   CHECK SUM ALL - SINGLE CARD   10 Nov 58

(D. P. Stirling)

The Check Sum All Program reproduces binary cards with a corrected check sum in word 1 of each card which complements the sum of all the other words.

FN-1091   STORAGE DUMP - SINGLE CARD   10 Nov 58

(D. P. Stirling)

The Storage Dump Program reads in Memory Print from drums and operates it, when the COMPASS Programs are on drums.

FN-1128   COMAND   18 Nov 58

(H. Manelowitz)

COMAND, as its name implies, is a command type compiler or automatic coder. Its preliminary design is intended only as a programming aid. This document describes the functions, operation and limitations of COMAND.

FN-1188   CORRECTIONS TO COMPASS   9 Dec 58
                 PROGRAMS
                      (L. Levine)

Describes corrections made to the following COMPASS
Programs: Tape to Drum, Assemble Compool, Assemble
Sequence Parameters 65K, Environment Simulation, Tape
File Maintenance, COMPASS Control, and Translator.

FN-1232-1,S1   DATA PROCESSING MANUAL   20 Jul 59

                      (K. Radecki)

This document contains instructions required to produce
values to be contained in the adaptation and variability
registers of the master CCA (Combat Center Active)
program, Model 6.

FN-1232-1,S2   DATA PROCESSING MANUAL   7 Aug 59

                      (K. Radecki)

Supplement to FN-1232-1,S1.

FN-1232-1,S3   DATA PROCESSING MANUAL   7 Mar 60

                      (S. Palmer)

Supplement to FN-1232-1 for CC Model 6.1 only.

FN-1232-1,S4   DATA PROCESSING MANUAL   29 Mar 60

                      (K. Radecki)

Supplement to FN-1232-1 and FN-1232-1,S1 for CC
Model 8 only.

FN-1232-1,S5   DATA PROCESSING MANUAL   26 Jul 60

                      (K. Radecki)

Supplement to FN-1232-1 for Model 8.

FN-1232-1,S6   DATA PROCESSING MANUAL   10 Aug 60

                      (F. R. Karzen)

Adds a new document modifying FN-1232-1 and FN-1232-1,S4.

FN-1382   INTRODUCTION TO PROGRAMMING   5 Feb 59

                        (C. J. Shaw)

Although this document is a draft of a chapter
written for 709 training Manual, it covers general
topics which should be of interest to beginner
programmers.

FN-1382,C1   INTRODUCTION TO PROGRAMMING   23 Feb 59

                        (C. J. Shaw)

Changes pages of FN-1382.

FN-1507   COMPOOL IDENTIFICATION OF   9 Mar 59
                 BINARY DECKS (A. Drutz)

The Compool identity, formerly punched in columns 7-9
of COMPASS binary decks during assembly, will be
punched in columns 11-13. This modification was
made to the Model 6, 65K version of COMPASS.

FN-1553   CODING OF 17-BIT ADDRESSES   19 Mar 59
                 IN COMPASS
                        (A. Drutz)

A short explanation of the use of 17-bit addresses
in COMPASS coding.

FN-1567   A GUIDE TO AN/FSQ-7 INSTRUC-   ------ 59
                 TIONS
                        (N. Ward)

A reference manual (500 pages) for the AN/FSQ-7
Computer emphasizing the description and application
of Q-7 instructions.

FN-1567,S1   A TABLE OF CONTENTS AND   31 Jul 59
                 CORRECTIONS TO "A GUIDE
                 TO AN/FSQ-7 INSTRUCTIONS"

                        (N. Ward)

Title is self-explanatory.

FN-2056   AN ATRS USER'S MANUAL   24 Aug 59

(C. Drews)

The Assembly Test Recording System (ATRS) is designed
to allow the recording of any areas of core at any
specified time during a DCA Cycle.

Once recorded, any portion, or all of the recording
tape, may be processed and printed out according to the
type of information recorded. This document describes
the functions, operation and required card formats of
ATRS.

FN-2057   GIANT OPERATORS MANUAL   21 Aug 59

(C. Drews)

This document contains detailed procedures for the
operation of the GIANT System.

FN-2242   AUTOMAD - AUTOMATIC ADAPTA-   15 Sep 59
                       TION SYSTEM-DATA CALCULATION
                       SUB-SYSTEM SUBROUTINES

(C. N. Carter)

This field note describes the subroutines used by the
calculation programs of the Automatic Adaptation
System. It contains (1) Vital Statistics (2) Comments
when warranted (3) Listings and (4) Deck numbers of
the subroutines used.

FN-3166   SAGE MODEL 8 OPERATIONAL   29 Apr 60
                       SPECIFICATIONS-DCA
                       RECORDING (MORT)
                            (T. Muller)

A brief description of DCA recording for Model 8
including discussions of the MORØ table and the
MORT tape.

FN-4135   MODEL 9 DCA INSTRUMENTA-   28 Jul 60
                       TION COMPLEX
                            (A. Espo)

This document attempts to satisfy the need for a user's
manual which the DCA programmers may refer to while
producing a model. Unfortunately this document has not
been updated. (Historical value only.)

FN-4456   A DESCRIPTION OF THE "INTER-   20 Oct 60
                 MEDIATE LANGUAGE" AS A
                 PROGRAMMING LANGUAGE

                 (D. J. Cartmell)

This document describes the "Intermediate Language",
the UNCOL type language output of the JOVIAL Generator,
as a general, symbolic instruction, programming
language.

FN-5066   THE INTERMEDIATE LANGUAGE   9 Feb 61
                 (IL) TABLE
                      (D. J. Cartmell)

The primary outputs of the JOVIAL Generator are two
binary tables. One of the tables, best described as a
dictionary, contains a detailed description (primarily
structural in nature) of all tables, arrays, items,
files, switches, procedures, closes, statement labels
and constants. Entries result in the dictionary from
JOVIAL declarative statements. The second table is
called the "Intermediate Language" table. The entries
of this table represent JOVIAL imperative statements.
This document describes in detail the second of these
tables, the Intermediate Language Table. It includes
both a general discussion of the structure and components
of the entries and a detailed specification of the
table.

FN-5159   AN OPERATING GUIDE TO GIANT   17 Feb 61
                 PROCESSOR
                      (L. A. Jones)

The GIANT System is designed to process binary informa-
tion generated by the ASSEMBLY TEST RECORDING SYSTEM
during a DCA cycle. The program PRE (PRELUDE) accepts
requests for dumps by setting a table which is used
by PMD (DCA Recording Program) while cycling. GIANT
then processes the recording into a legible report
showing results in a format most applicable to the type
of dumps requested, i.e., CORE, TABLE, ITEM, or
PROGRAM. Output may be obtained directly via the on-line
printer; delayed onto TD#4, 2, or 1; or any combination
of these. GIANT processing is restricted to an ATRS
type recording unless modified to handle MORT records,
or SAGE DATA coming over on the SAFE DATA DRUMS when
running in the DUPLEX mode.

This document was prepared specifically for use by Q-7
computer operators.

FN-5422   SATIN D+ FACILITY SYSTEM/A   14 Apr 61
                 USERS MANUAL
                      (T. Henry)

Descriptions of and methods for using the Facility
Programs written for the D+ version of the SATIN
System.

FN-5422/000/00A SUPPLEMENT TO SATIN D+ USERS   19 Oct 61
                 MANUAL
                      (T. Henry)

Change of pages for FN-5422.

FN-5506   TPY (A TPYØ PROCESSOR)   10 May 61
                 USER'S MANUAL
                      (C. P. Earnest)

The TPYØ processor is designed to process registers in
the TPYØ table and print out the values in either octal
or decimal form. It operates in either of two modes--
under GIANT control or as an independent program -
and processes up to 20 different block of TPYØ. The
input, telling the program how to process each individual
block, is by cards; the output can be either direct or
DLO on any tape drive.

FN-5540   SATIN SIMULATOR-PACKAGE D+   22 May 61

                      (S. R. Jennings)

SIMULATOR is a system of routines for the XD-1 which
can produce controlled simulation of nearly all the
input data normally processed by the SATIN System.
It is controlled by Hollerith-punched cards, direct
or prestored. Its output is a binary tape containing
each type of simulated data in a form acceptable to
the SATIN System. Records from the tape are subsequently
introduced into the SATIN environment. This document
is a user's manual for SIMULATOR.

FN-5663   SATIN D+ GIANT SYSTEM USERS   27 Jun 61
                 MANUAL
                      (W. Worger)

During the developing and testing of the SATIN System
it is necessary to observe the reaction of the
component programs and their environment to the stimuli
provided by the actions and reactions of other programs
in the system. For this reason, a system for recording
the values in any area of core memory at regular
intervals was devised. It has come to be known as the
ATRS or Assembly Test Recording System.

FN-6179   COSEAL UTILITY SYSTEM FOR   1 Feb 62
                           THE Q-7
                                    (L. J. Carey)

The COSEAL (COmpass System Extensively ALtered)
Utility System is designed to ease, speed and facilitate
a programmer's use of the AN/FSQ-7 computer. COSEAL
evolved from the Lincoln and COMPASS Utility Systems
and is the culmination of ideas and efforts over an
extended period of time. COSEAL performs all of the
functions of its predecessor COMPASS, but provides
a more powerful tool for updating, assembling, analyzing,
and manipulating large Q-7 Program Systems.

The most important innovation over Compass is the
creation of a COMBINED (Symbolic and Binary) Tape
output by the COSEAL assembly programs. This tape
makes possible the simultaneous reassembly and
updating of previously assembled programs, at consider-
ably higher speeds than was formerly possible.

FN-6179A   COSEAL UTILITY SYSTEM FOR   23 Apr 62
                           THE Q-7
                                    (L. J. Carey)

Change of pages for FN-6179.

FN-6179B   COSEAL UTILITY SYSTEM FOR   4 Jun 62
                           THE Q-7
                                    (Ann Stunden)

Change of pages for FN-6179.

FN-6179C   COSEAL UTILITY SYSTEM FOR   14 Aug 62
                           THE Q-7
                                    (D. P. Kelley)

Change of pages for FN-6179.

FN-6179D   COSEAL UTILITY SYSTEM FOR   5 Sep 62
                           THE Q-7
                                    (W. A. Hudson)

Change of pages for FN-6179.

FN-6212/001/01   Q-7 JOVIAL UTILITY SYSTEM-   21 Sep 62
                  PROGRAMMING MANUAL
                           (R. O. Sains)

This document contains JOVIAL language specifications
and user's information for the Q-7 version of the
JOVIAL Compiler (M-16). Examples and exercises are
included.

FN-6212/003/01   Q-7 JOVIAL UTILITY SYSTEM -   30 Oct 62
                   SUPPORT SYSTEM AND COMPOOL
                   GENERATION AND USAGE MANUAL

(D. K. Oppenheim)

This document contains information on the use of the
Q-7 JOVIAL Support System. Control cards, operating
procedures and tape assignments are described.

FN-6212/005/00   Q-7 JOVIAL UTILITY SYSTEM-   23 Oct 62
                   SUPPORT SYSTEM REFORMATTER
                   USERS MANUAL
                        (M. P. Olin)

This document describes the use and operation of the
Reformatter. The Reformatter will reformat a Q-7
JOVIAL prestore into outline form and do a limited
amount of syntax checking.

FN-6212/006/00   Q-7 JOVIAL UTILITY SYSTEM-   5 Mar 62
                   LIBRARY USERS MANUAL

(R. O. Davis)

This document contains the information necessary for
both usage and maintenance of the Q-7 JOVIAL Library.
A detailed description of all the library procedures
is given including function, input/output parameters,
restrictions, and examples.

FN-6212/007/00   Q-7 JOVIAL UTILITY SYSTEM-   22 Mar 62
                   COMPILER CONTROL MAINTENANCE
                   MANUAL
                        (W. Cozier, T. Dunbar)

This document contains all the information necessary
to maintain the Q-7 JOVIAL Compiler Control Program.
It contains detailed instructions for updating Q-7
JOVIAL Compiler Masters and descriptions of how to get
additional debugging information useful in debugging
component parts of the compiler.

FN-6212/008/00   Q-7 JOVIAL UTILITY SYSTEM-   31 May 62
                   TRANSLATOR MAINTENANCE MANUAL

(O. W. Johnson)

This document contains all the information necessary
to maintain the Q-7 JOVIAL Translator Program .

FN-6212/008/00A   Q-7 JOVIAL UTILITY SYSTEM-   22 Jun 62
                  TRANSLATOR MAINTENANCE MANUAL

                        (W. Haueipen)

Modifications and changes to FN-6212/008/00.

FN-6212/009/00   Q-7 JOVIAL UTILITY SYSTEM-   26 Feb 62
                  CHECKER MAINTENANCE MANUAL

                      (D. K. Oppenheim)

This document tries to give all the necessary information
for maintaining the Q-7 JOVIAL Checker. Since changes
occur frequently in a program of this type, all the
details of all routines are not specified but rather the
overall picture and logic is given.

FN-6212/020/00   Q-7 JOVIAL UTILITY SYSTEM-   8 Aug 62
                  COMPASS LIBRARY PREPROCESSOR
                  USER'S MANUAL

                      (W. A. Cozier)

This document contains information necessary to use
the COMPASS Library Preprocessor.

FN-6212/021/00   Q-7 JOVIAL UTILITY SYSTEM-   9 Oct 62
                  USER'S MANUAL
                        (R. O. Sains)

This document contains information on the use of the
Q-7 JOVIAL Utility System. Control cards, operating
procedures and tape assignments are described.

4.4   MITRE CORPORATION DOCUMENTS

    4.4.1   MITRE TECHNICAL MEMORANDA (TM)

        TM-15 #1   BASIC XD-1 INFORMATION: 5 Mar 59
                        INTRODUCTION TO SAGE AND XD-1

                        (J. R. Tobey)

        This document describes briefly the SAGE air defense
        system and the operation of the Q-7 Computer. Also
        included are short descriptions of each Q-7 instruction.

        TM-15 #2   BASIC XD-1 INFORMATION: 27 Apr 59
                        INTRODUCTION TO THE BINARY AND
                        OCTAL NUMBERING SYSTEM

                        (J. R. Tobey)

        Title is self-expanatory.

        TM-15 #3   BASIC XD-1 INFORMATION: COMPASS 26 Feb 59

                        (J. R. Tobey)

        COMPASS is a group of utility programs written for the
        AN/FSQ-7, designed to: a) translate symbolic information
        into binary information; b) manipulate information
        stored on tape; c) process tapes. This document describes,
        from the programmer's and the computer operator's
        standpoints, how to use the COMPASS programs.

        TM-15 #4   BASIC XD-1 INFORMATION: 3 Mar 59
                        COMPASS UTILITY PROGRAMS

                        (J. R. Tobey)

        This memo contains brief descriptions of seven (7)
        programs designed to aid in the operation of post-
        assemblies of COMPASS Programs. In the case of two
        one-card programs, Core Read-In, and Drum Read-In, a
        program listing is supplied. All programs, however,
        do have operating descriptions as well as program
        descriptions included in this memo.

TM-15 #5   BASIC XD-1 INFORMATION: 4 Mar 59
                        DEBUGGING PACKAGE

                        (J. R. Tobey)

This memo contains the workings of four programs designed
as a diagnostic aid in program checkout:

1) Memory Print program to print out selected portions
    of core memory, direct or delayed.
2) Storage Dump program to read-in Memory Print from
    drums and operate it when the COMPASS Programs are
    on drums.
3) Q-7 Trap and Print to interrupt the operation of a
    program at specified points and print the contents
    of the machine registers and any portion of core
    memory.
4) Loop Trace program design to aid in unpredictable
    problem areas of program checkout.

TM-15 #6   BASIC XD-1 INFORMATION: 15 Apr 59
                        SCALING FOR THE FIXED POINT
                        COMPUTER
                            (J. R. Tobey)

Automatic digital computers, in general, keep no record
of the units associated with the numbers they process,
and the record of this information is,therefore, the
responsibility of the programmer. The technique used
by the programmer to record this information, called
scaling, is described in this document.

TM-15 #7   BASIC XD-1 INFORMATION: 20 Jun 62
                        SAGE 1401 LOG PROGRAM (LOCOT)

                        (T. Connors, J. J. Robinson)

The 1401 Program LOCOT essentially duplicates the LOG
function of COSEAL. It is useful because logging tapes
on the relatively inexpensive 1401 can save relatively
expensive XD-1 time. This document describes the func-
tion and operation of LOCOT.

TM-124   COMPASS LIBRARY TAPE   16 Jan 58

                        (M. J. Craddock, M. K. Yntema)

A group of subroutines simulating the EDITORS is
available on a COMPASS Library Tape. This document
describes each subroutine available. (Historical
value only).

TM-188   MATHEMATICAL SPECIFICATIONS   31 Mar 59
                      FOR PASSIVE-ACTIVE DATA
                      SIMULATION (PADS)
                              (L. S. Hager, W. H. Mead)

The PADS program produces a tape (either 704 or SAGE
mode) which contains data association records, maneuver
records, and one-second radar records. This document
describes the mathematical specifications used in the
development of the PADS program.

TM-188-C1   MATHEMATICAL SPECIFICATIONS   17 Apr 59
                      FOR PASSIVE-ACTIVE DATA
                      SIMULATION (PADS) - CORRECTION #1

                      (L. S. Hager, W. H. Mead)

This document contains a corrected model for line-of-
sight determination of active and passive aircraft.

TM-2671   OPERATIONAL SPECIFICATIONS   20 Apr 60
                      FOR PASSIVE-ACTIVE DATA
                      SIMULATION (PADS)
                              (L. S. Hager, W. H. Mead, Jr.)

The Passive and Active Data Simulation Program (PADS)
is a 704 radar data simulation program. It generates,
in non-real time, the radar data produced by SAGE long
range radars when confronted with an air situation
of jamming and/or non-jamming aircraft. This radar
data, plus information concerning true track position,
velocity, and maneuvers, is stored on a SARD format
magnetic tape in XD-1 or 704 mode for use as an input
to TAPRE or to other programs with a requirement for
active and/or passive radar data.

This document defines the character of the simulation,
the procedures to be followed in operating the program,
and the interpretation of the output.

TM-2671,S1   OPERATIONAL SPECIFICATIONS FOR 18 Jul 60
                      PASSIVE-ACTIVE DATA SIMULATION
                      (PADS)
                              (W. H. Mead, Jr.)

This document describes modifications to the PADS
Program to provide an output compatiable to the Model 8
DCA program.

TM-2671, S1, C1   OPERATIONAL SPECIFICATIONS   26 Aug 60
                   FOR PASSIVE-ACTIVE DATA
                   SIMULATION (PADS) - SUPPLEMENT 1
                   CORRECTION 1
                            (W. H. Mead Jr.)

This document is a correction to TM-2671,S1, describing
the generation of TLQ-8 returns.

TM-2671, S2   OPERATIONAL SPECIFICATIONS   20 Jul 60
                   FOR PASSIVE-ACTIVE DATA
                   SIMULATION (PADS) SUPPLEMENT 2

                        (W. H. Mead, Jr.)

This document describes the modifications to PADS
necessary to generate Mark X and Mark XII data in
live format.

TM-2671,S2,C1   OPERATIONAL SPECIFICATIONS   7 Oct 60
                   FOR PASSIVE-ACTIVE DATA
                   SIMULATION (PADS) S2,C1

                        (W. H. Mead, Jr.)

Correction to TM-2671,S2.

TM-2671,S3   OPERATIONAL SPECIFICATIONS   1 Nov 60
                   FOR PASSIVE-ACTIVE DATA
                   SIMULATION (PADS) S3

                        (W. H. Mead, Jr.)

This document describes the completed modifications to
PADS for SATIN testing plus other new PADS features.

TM-2770-4   RADAR INPUT DATA FORMATS AND   23 Aug 62
                   HEIGHT REQUEST DATA FORMATS (ESS)

                        (J. P. Hanks, E. K. Lindsay)

This document contains diagrams and tables describing
input word formats for radar data and height request
messages.

TM-2786   TEASE-TRACKING ERROR ANALYSIS 23 Jun 60
                     OF SIMULATED EXERCISES (AN
                     XD-1 PROGRAM)
                              (Alice Schafer)

TEASE analyzes and prints tracking errors and correla-
tion histories using the aircraft, track and radar
data information recorded on magnetic tape by a track-
ing simulation system called TRAKSIM. TEASE processing
produces any combination of four different outputs, two
of which are subframe by subframe summaries of all
tracks, and the other two of which are detailed printouts
of each track in the exercise.

The memo gives the formats of the inputs to TEASE,
including all parameter options, and gives examples of
the TEASE outputs.

TM-3138   INTEGRATED EQUIPMENT CHECKOUT   2 Aug 61
                     (ECO) PROGRAMMED SYSTEM

                          (F. Cataldo, W. Cinsavich, K. Erat,
                          J. Kilkane)

The memorandum describes a new programming system designed
to allow simultaneous hardware checkout of several ESS
subsystems. The contents were written for two groups of
people; (1) D-12 equipment people who will be the prime
users and (2) D-19 programmers who will implement
changes and future additions.

TM-3138,S1   INTEGRATED EQUIPMENT CHECKOUT   17 Aug 62
                     (ECO) PROGRAMMED SYSTEM
                          (W. Cinsavich)

This memorandum describes additions to the new programming
system designed to allow simultaneous hardware checkout
of several ESS subsystems.

TM-3138,S2   APPENDIX A - OPERATING INSTRUC- 7 Dec 62
                     TIONS DECEMBER 1962
                          (J. P. Hanks, A. P. Truesdale)

This document contains the updated operating instructions
for use of INECOS, starting with Tape SMC #11. This
supplement supercedes Appendix A of TM-3138, dated
2 August 61, as corrected in TM-3138,S1.

TM-3138,S3   INTEGRATED EQUIPMENT CHECKOUT   31 Jan 63
                    (ECO) PROGRAMMED SYSTEM

                    (M. J. Meagher, J. P. Hanks)

This supplement describes the Teletype to LDRI Loop
Subsystem Program (LDP) which has been added to INECOS.

TM-3222   XD-1 VARIABLE DISPLAY EQUIPMENT 1 Sept 62
                    SPECIFICATIONS

                    (D. B. Vass)

Superceded by TM-3222-1.

TM-3222-1   XD-1 VARIABLE DISPLAY EQUIPMENT 1 Nov 62
                    SPECIFICATIONS
                            (D. B. Vass)

This revision includes requirements for, (1) BUIC
Phase I; (2) Project 910 Model 200; (3) ECR 413 Phase II;
(4) Northern Tier (NOTIP); (5) Corrections where errors
existed in TM-3222, dated 1 September 1962.

TM-3222-2   XD-1 VARIABLE DISPLAY EQUIPMENT 1 Dec 62
                    SPECIFICATIONS
                            (D. B. Vass)

This document is the second revision of the "Variable
Display Equipment Specifications for the AN/FSQ-7
(XD-1)," TM-3222, dated 1 September 1962.

TM-3222-3   XD-1 VARIABLE DISPLAY EQUIPMENT 1 Jan 62
                    SPECIFICATIONS

This document is the third revision of the "Variable
Display Equipment Specifications for the AN/FSQ-7
(XD-1)", TM-3222, dated 1 September 1962.

4.4.2   MITRE WORKING PAPERS

W-306   NEW COMPASS MASTER   15 Jun 59

                        (D. J. Thomas)

This document describes the changes to COMPASS for
Model 6.

W-2639   PASS MANUAL   17 Nov 59

                        (A. W. Slawson)

PASS, a new assembly program for the XD-1 computer,
provides a convenient symbolic language for ordinary
one-statement-per-machine-instruction programming,
PASS also provides for the modification of its own
input language, the definition of multiple-instruction
pseudo-codes, the conditional insertion of coding, the
use of a symbolic tape-stored pool of definitions for
program intercommunication, and the symbolic handling
of packed data. Although designed especially for SAGE
System programming, the bootstrap capability of PASS
makes it a useful tool for programming reasearch.

This document specifies the language and the mechanics
of programming in PASS.

W-2773   GLOSSARY OF COMPUTER TERMS   29 Jan 60

                        (M. G. Vacherot)

This document contains a compilation of computer terms.
The compilation has been restricted to terms common to
the industry in general and no special effort has been
made to define terms which might be peculiar to any
particular computer, compiling or assembly routines.
The list has been prepared with the hope that it will be
of some value in familiarizing persons with computer
terminology.

W-3152   SAMIT RADAR DATA RECORDING   8 Feb 60
                 PROGRAM FOR XD-1
                        (J. L. Bachelder)

SAMIT, an XD-1 program, records in a fashion suitable
for further processing on the IBM 704 computer, all
radar data entering the XD-1, either from live radar
sites or from AMPEX recordings.

W-3483   PUNCH SAGE TAPE OFFLINE   2 Dec 60
                PROGRAM
                     (D. L. Thomas)

Punch SAGE Tape Off-line is a 704 program that converts
SAGE Hollerith tapes to commercial BCD for off-line
punching. Although it has been written to replace the
XD-1 tape-to-card equipment, its output is slightly
different; punching is offset sixteen columns to the
right, so that programs prestored for COMPASS assembly
can be converted to cards in the COMPASS format.
Characters 1-64 of each SAGE tape record will thus be
punched in columns 17-80 of the card. (Historical
value only.)

W-3488   PUNCH HOLLERITH TAPE DIRECT   13 Dec 60

                     (J. I. McGovern)

An XD-1 Program PUDD will punch out directly card
columns 18 through 80 as read from character positions
2-64 of a prestored Hollerith tape. A "File Suppression
of Punching" has been included to enable the user to
skip over programs or files that are not wanted.
(Historical value only.)

W-3541-1   PACKAGE C+ RECORDING AND DATA   9 May 61
                REDUCTION
                     (J. A. Varela)

The XD-1 recording facilities and the programs available
for reduction of recorded data are described from the
point of view of their usefulness and limitations.

Although this document was written specifically for the
SATIN project, the material included should be of
general interest to XD-1 users.

W-3782   OPERATIONAL MANUAL FOR SATIN   27 Mar 61
                STARTOVER
                     (J. S. Held)

This manual gives a complete description of startup and
startover procedures for the SATIN System. Although
this manual was written specifically for the SATIN
project, the material included should be of general
interest to XD-1 users.

W-5116   A DESCRIPTION OF THE TAPE   16 Jul 62
                CONVERTER (ESS)
                     (H. O. Cottle)

The tape converter is a data processor designed to
record low speed phone line data on an IBM 729 IV high
density magnetic tape in a format suitable for efficient
and economical data reduction by a high speed general
purpose digital computer.

This memo describes the design and operation of the
tape converter. It is intended as a maintenance manual
and operators and users guide.

(NOTE: This document is included in the bibliography
for informational purposes. A proposal is currently
under investigation which calls for the modification
of the tape converter for direct use with the XD-1.)

W-5289   EVALUATION SAGE SECTOR (ESS)   30 Aug 62
                MAINTENANCE ANALYSIS
                     (J. J. Murphy, Jr.)

This document describes a 7090 (META) programmed system
which (1) processes daily measurement reports, MCF-771
reports, equipment operating time reports, site mainten-
ance man-hour reports, ESS test schedules, and preventive
maintenance schedules received from the radar sites at
Bath, Maine and South Truro, Massachusetts, Building F,
and the Maintenance Co-ordinator situated in Building F;
(2) produces, periodically, graphs and listings for
record-keeping and report-generating, as required by
D-12, to improve ESS maintenance.

W-5294   THE COSEAL COMPOOL   5 Sep 62

                     (S. Gross)

The COSEAL Compool is a kind of directory, composed of
tables, which contains information pertaining to the
communication tags used in programs written for the
AN/FSQ-7 computer. This information is used by the
COSEAL Utility System and the XD-1 Facility System in
the assembly and testing of Q-7 program systems.

This document describes the functions, structure and
generation of the Compool and illustrates the use of
the Compool in XD-1 programming.

W-5374   PROGRAM, ITEM AND TABLE   1 Oct 62
                LAYOUT, PROJECT 910 COMPOOL 11C

                      (T. Connors)

The contents of the major sections of this document
were produced by the COSEAL LAYOUT Program, described
in FN-6179A "COSEAL UTILITY SYSTEM FOR THE Q-7 COMPUTER,"
System Development Corporation. They describe the
memory allocations of tables, items, and programs in
the ATC Model 111 program system as established by
Compool 11C.

This document is of general interest for its illustration
of the various outputs which may be produced by the
COSEAL Program, LAYOUT.

W-5432   FIND MACRO   18 Oct 62

                   (T. Connors, R. Fish)

The FIND macro is a COSEAL macro for a type of table
search coding. FIND was written in order to simplify
table lookup procedures used in XD-1 programs assembled
with COSEAL.

This document defines the FIND macro and illustrates
its use.

W-5559   INTERPRETATION OF COMMUNICATION 19 Nov 62
                TAGS
                      (Pauline Zazulak)

In the COSEAL Manual the section on Translator (the
basic assembly program) describes the operations, card
arrangement and restrictions applicable to it. It
does not explain the actual interpretation of symbolic
information. This paper presents a table of Translator's
interpretation of communication tags.

W-5644-1   INTRODUCTION TO THE COSEAL   22 Jan 63
                UTILITY SYSTEM
                      (XD-1 Facility Office)

The COSEAL Utility System is a set of utility programs
and subroutines written in support of ANFSQ-7 and XD-1
operational program systems. Components of the COSEAL
Utility System are the COSEAL Master Tape, the Subroutine
Library Tape and the COSEAL Compool.

Brief descriptions of the components of the COSEAL
Utility System and functional descriptions of the COSEAL
programs are contained in this document.

W-5762   THE XD-1 COMPUTER TIME   14 Jan 63
                    ACCOUNTING SYSTEM

                        (L. D. Vass)

The XD-1 Computer Time Accounting System is a new
method of accounting for XD-1 Computer time designed
to provide more detailed and more accurate information
for XD-1 users.

Information contained in the Computer Log kept at the
XD-1 Maintenance Console is used as source data for
this accounting system. This information is punched
on IBM cards which are then processed by four 1401
programs, EXACT, CHECKER, SORT, and REPORT. Final
outputs of the XD-1 Accounting System are accounting
reports which include information for all time, both
productive and non-productive, used on the XD-1 during
the reporting period.

W-5771   COSEAL MASTER TAPE-VERSION B1   28 Jan 63

                    (XD-1 Facility Office)

This document contains: (1) complete descriptions of the
COSEAL Programs to which major alterations and/or
corrections have been made; (2) complete descriptions of
new programs which have been added; (3) descriptions
of minor changes to program functions, and (4) recommended
procedures for operating the COSEAL System.

4.4.3 <u>XD-1 FACILITY OFFICE MEMORANDA</u>

    <u>XD-1:002</u>   <u>PROCEDURE FOR ERASURE OF XD-1 TAPES</u>   <u>31 Oct 62</u>

                              (XD-1 Facility Office)

    The memo describes the current procedure for erasure of XD-1
    tapes.

    <u>XD-1:007</u>   <u>PROCEDURE FOR REQUESTING PROGRAM</u>   <u>5 Nov 62</u>
                   <u>ASSEMBLIES USING COSEAL</u>
                          (XD-1 Facility Office)

    This memorandum describes the current procedure for requesting
    program assemblies using COSEAL.

    <u>XD-1:007-C1</u>   <u>CHANGE TO MEMO NO. XD-1:007</u>   <u>27 Nov 62</u>

                               (S. Gross)

    Title is self-explanatory.

    <u>XD-1:025</u>   <u>XD-1 FACILITY OFFICE FUNCTIONS</u>   <u>12 Dec 62</u>
                          (S. Gross)
    This memo describes the functions of the XD-1 Facility Office.

    <u>XD-1:035</u>   <u>PROCEDURES FOR USE OF 1401 COMPUTER</u>   <u>7 Jan 63</u>
                   <u>LOCATED AT BUILDING F</u>

                          (XD-1 Facility Office)

    This memo describes the current procedures for use of 1401
    computer located at Building F.

/mg

DISTRIBUTION LIST

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