

DEPARTMENT OF THE NAVY AUTOMATED DATA SYSTEMS DOCUMENTATION STANDARDS





DEPARTMENT OF THE NAVY
OFFICE OF THE SECRETARY
WASHINGTON, D. C. 20350

SECNAVINST 5233.1B
NAVDAC-33

25 January 1979

SECNAV INSTRUCTION 5233.1B

From: Secretary of the Navy

Subj: Department of the Navy Automated Data Systems Documentation Standards

Ref: (a) SECNAVINST 5200.28
(b) SECNAVINST 3560.1

(A)

Encl: (1) Document Preparation Standards
(2) DOD Instruction 7935.1 of 13 September 1977
(3) DOD Standard 7935.1-S of 13 September 1977

(A)

(R)

(R)

1. Purpose. To implement enclosures (1), (2) and (3) and to provide necessary instructions and policy guidance for the preparation of automated data system (ADS) documents applicable to the Department of the Navy.

2. Cancellation. SECNAVINST 5233.1A.

3. Definition. The term "automated data system" as used in this instruction is defined as an assembly of procedures, processes, methods, routines, or techniques (including, but not limited to, computer programs) united by some form of regulated interaction to form an organized whole, specifically designed to make use of automatic data processing equipment. (DODI 5100.40 cited at enclosure (3), page 2-1, para 1.1a.)

(A)

4. Applicability and Scope

a. This instruction applies to all components of the Department of the Navy, including Navy contractors. The Department of the Navy Information Processing Standards for Computers (IPSC) program, discussed in reference (a), provides the framework under which instructions of this nature are issued. Included within the scope of the IPSC program are the development and sponsorship of standards for systems documentation and software.

b. For computer programs that have been developed exclusively for internal use at the local level, such as those programs developed as part of a study or research activity which will be used, for example, on a one-time basis or for no longer than three months duration and which

JAN 25 1979

R) have no readily identifiable substantial use elsewhere in the government, the commanding officer providing the resources or funds may establish appropriate minimum documentation requirements that conform to the minimum documentation discussed in enclosure (3), i.e., a Users Manual and annotated program listing.

c. Unique documentation requirements for tactical data systems, weapons systems, and combat systems digital processors are covered by reference (b).

A) 5. Delegation. The responsibility and authority for implementation of this instruction, including the processing of requests for waivers and recommending appropriate revisions to the standard pursuant to paragraph E2 of enclosure (2), is delegated as follows:

a. Marine Corps documentation -- Commandant of the Marine Corps.

b. Office of Naval Research documentation -- Chief of Naval Research.

c. All other Navy activities -- Commander, Naval Data Automation Command (COMNAVDAC) under the command of the Chief of Naval Operations.

6. Implementation

R) a. This instruction shall be implemented as soon as practicable but shall not be cause for the redocumenting of any system for which documentation that conforms to the canceled instruction is completed or in an advanced stage of development. Major revisions to existing systems and new systems must be documented in accordance with this instruction. Part 2 of enclosure (3) discusses the options that are available in determining the extent to which this instruction shall be applied.

A) b. Copies of this instruction have been provided to the Defense Audit Service and to Navy auditors and will be used during the review of any data processing systems covered by this instruction to ensure compliance with this instruction.

R) 7. Inquiries. Inquiries concerning policy matters and technical questions regarding the application and interpretation of this instruction should be addressed, as appropriate, to COMNAVDAC (Code 30) or to the Commandant of the

JAN 25 1979

Marine Corps (Code CC) for Marine Corps activities or to the Chief of Naval Research for Office of Naval Research activities (copy to COMNAVDAC (Code 30)).

8. Reporting of Implementation Problems. In order that this instruction may be improved, a report of implementation problems at each occurrence will be submitted, as appropriate, to COMNAVDAC (Code 30) or to the Commandant of the Marine Corps (Code CC) for Marine Corps activities or to the Chief of Naval Research for Office of Naval Research activities (copy to COMNAVDAC (Code 30)). Included must be:

(R)

a. Specific examples depicting problems encountered in the attempt to use the enclosed standards.

b. Cost comparisons which indicate economic justification for the deviation from the instruction.

c. Specific recommendations for necessary changes to this instruction for fulfillment of the documentation requirements.

9. Waiver Requests

(A)

a. When application of enclosure (3) will result in unacceptable degradation of performance or substantial increase in costs, a waiver of the provisions of the instruction may be requested on an individual ADS or project basis (see section F1 of enclosure (2)).

b. A request for a waiver shall be forwarded to COMNAVDAC (Code 30) or to the Commandant of the Marine Corps (Code CC) for Marine Corps activities or to the Chief of Naval Research for Office of Naval Research activities (copy to COMNAVDAC (Code 30)) for compliance with sections E and F of enclosure (2).

c. The justification for such a waiver shall be based on a life cycle cost and demonstrate an unfavorable cost-benefit impact if the instruction is used. Included with the waiver request must be:

(1) Identification of the ADS or project involved and the originator (command, code, name, phone number) along with an indication of the extent of the waiver request.

(2) Specific examples depicting problems encountered in the attempt to use the enclosed standards.

SECNAVINST 5233.1B

JAN 25 1979

(3) Comprehensive discussion of the alternative proposed for use in place of the enclosed standards.

(4) Cost-benefit impact analysis demonstrating the savings to be gained by not using the enclosed standards along with a statement concerning any assumption on which the cost-benefit analysis is based.

(5) Specific recommendations for necessary changes to the enclosed standards in order to satisfy the deficiencies noted.

10. Change Procedures. Changes recommended for incorporation into the enclosed standards should be submitted, as appropriate, directly to COMNAVDAC (Code 30) or to the Commandant of the Marine Corps (Code CC) for Marine Corps activities or to the Chief of Naval Research for Office of Naval Research activities (copy to COMNAVDAC (Code 30)) and include:

- a. Originator (command, code, name, phone number).
- b. A discussion of the specific recommendation for change (identify the document type and paragraph number).
- c. Universality of requirement for the change, if known.
- d. Specific recommendation for the necessary change in the text.

11. Report. The reporting requirement contained in this instruction has been assigned Symbol SECNAV 5233-1. This reporting requirement has been approved for two years from the date of this instruction.

A)



G. A. PEAPPLES
Assistant Secretary of the Navy
(Financial Management)

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(See page 5)

JAN 25 1979

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JAN 25 1979

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NAVAL DATA AUTOMATION
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Document Preparation Standards

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TN-01

Prepared for
SECNAV

Enclosure (1)

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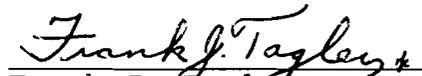
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TABLE OF CONTENTS

	<u>Page</u>
SECTION 1.	INTRODUCTION 1
1.1	Description of Contents 1
1.1.1	Scope 1
1.1.2	Document Components 1
1.1.3	Document Typography 1
1.1.4	Document Production 1
1.1.5	Document Security Identification 1
1.1.6	Document Numbering 1
1.1.7	Document Changes 1
1.1.8	Flowchart Symbols and Guidelines 1
1.1.9	Chart Types 1
1.2	Applicable Documents 1
1.3	Requirements 2
1.3.1	Computer Programming Documentation 2
1.3.2	Other Technical Documentation 2
SECTION 2.	DOCUMENT COMPONENTS 3
2.1	Purpose 3
2.2	General Requirements 3
2.3	Detailed Requirements 3
2.3.1	Front Cover 3
2.3.2	Title Page 6
2.3.3	Special Notices 6
2.3.4	Abstract 6
2.3.5	Table of Contents 9
2.3.6	List of Figures 9
2.3.7	Record of Changes 9
2.3.8	List of Effective Pages 9
2.3.9	Text 9
2.3.10	Appendixes 9
2.3.10.1	Terms and Abbreviations 9 (R)
2.3.10.2	References 12
2.3.10.3	Bibliography 12
2.3.10.4	Other Appendixes 12
2.3.11	Index 12
2.3.12	Distribution List 12
2.3.13	Back Cover 12
SECTION 3.	DOCUMENT TYPOGRAPHY 13
3.1	Purpose 13
3.2	Preparation 13
3.3	Titling of Components 13
3.3.1	Titled Components 13
3.3.2	Titling of Appendixes 13
3.4	Narrative Division 13
3.4.1	Sections 15
3.4.2	Paragraphs 15

TABLE OF CONTENTS (Continued)

		<u>Page</u>
3.4.3	Itemization	15
3.4.4	Appendixes	16
3.5	Figures	16
3.5.1	Numbering and Titling	16
3.5.1.1	Orientation	16
3.5.1.2	Continuation	16
3.5.2	Placement	16
3.6	Equations	19
3.7	Page Numbering	20
3.7.1	Pre-text	20
3.7.2	Text	20
3.7.3	Appendixes	20
3.7.4	Index	20
3.7.5	Distribution List	20
3.8	Footnotes	20
3.8.1	Text and Appendix Footnotes	20
3.8.1.1	Symbols	20
3.8.1.2	Format	21
3.8.2	Figure Footnotes	21
3.8.3	Reference Footnotes	21
3.8.3.1	Types of Reference Footnotes	21
3.8.3.2	Previously Cited References	22
3.8.3.3	Footnotes to Refer to References in an Appendix	22
SECTION 4.	DOCUMENT PRODUCTION	23
4.1	Purpose	23
4.2	Paper Stock	23
4.2.1	Cover	23
4.2.2	Contents	23
4.3	Printing	23
4.3.1	Single-face	23
4.3.2	Double-face	23
4.4	Binding	24
4.5	Non-standard Production	24
SECTION 5.	DOCUMENT SECURITY IDENTIFICATION	25
5.1	Purpose	25
5.2	Classification Responsibility	25
5.2.1	Document Classification	25
5.2.2	Copy and Reproduction Classification	26
5.2.3	Document Component Classification	26
5.2.4	Page Classification	26
A) 5.2.5	List of Effective Pages	26
5.2.6	Section and Paragraph Classification	27

TABLE OF CONTENTS (Continued)

		<u>Page</u>
5.2.7	ADP Listing Classification	27
5.2.8	National Security Notation	27
5.2.9	Automatic Downgrading	27
5.3	Document Distribution Statements	28
SECTION 6.	DOCUMENT NUMBERING	31
6.1	Purpose	31
6.2	Document Numbering	31
6.2.1	Project Number	31
6.2.2	Control Number	31
SECTION 7.	DOCUMENT CHANGES	35
7.1	Purpose	35
7.2	Components	35
7.3	Types of Changes	35
7.3.1	Page Changes	35
7.3.2	Pen Changes	35
7.3.3	Repetitive Minor Changes	37
7.4	Format of Change Transmittal Notice	37
7.4.1	Change Transmittal Notice Number	37
7.4.2	Designation Line	37
7.4.3	Change Transmittal Notice Subject	37
7.4.4	Change Transmittal Purpose	37
7.4.5	Change Transmittal Notice Action	39
7.4.5.1	Pen Changes	39
7.4.5.2	Page Changes	39
7.5	Format of Transmitted Text	39 (D)
7.5.1	Page Numbering	39
7.5.1.1	Additional Pages	39
7.5.1.2	Replacement Pages	39
7.5.2	Change Number and Date	39
7.5.2.1	Single-face Printing	39
7.5.2.2	Double-face Printing	39
7.5.3	Other Markings	40
7.5.3.1	Enclosure Labeling	40
7.5.3.2	Identifying Changed Paragraphs/ Lines	40
7.6	Classification Considerations	40
7.6.1	General	40
7.6.2	Classified Transmittal to Unclassified Document	40
7.6.3	Transmittal of Lower Classification than Classified Document	40

TABLE OF CONTENTS (Continued)

		<u>Page</u>
SECTION 8.	FLOWCHART SYMBOLS AND GUIDELINES	41
8.1	Purpose	41
8.2	Specific Flowchart Symbols	41
8.3	Graphic Symbols	41
8.4	General Format Requirements	41
8.4.1	Physical Dimensions and Layout	41
8.4.2	Plate Label	41
8.5	Automated Flowcharts	43
SECTION 9.	CHART TYPES	45
9.1	Purpose	45
9.2	Chart Types	45
9.2.1	System Organization Chart	45
9.2.2	System Information Flowchart	45
9.2.3	Integrated ADP Flowchart	45
R) 9.2.4	Higher-level Flowchart	48
9.2.5	Micro Flowchart	48
SECTION 10.	DATA DESCRIPTION LANGUAGES (DDL)	53
10.1	Purpose	53
10.2	Background	53
10.3	Application to this Instruction	53
10.4	Implementation of DDL	54
10.5	Ordering CODASYL DDL Document	54
APPENDIX A.	FOOTNOTES	A-1

LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
2-01	Layout of Front Cover	4
2-02	Example of Front Cover	5
2-03	Layout of Title Page	7
2-04	Example of Title Page	8
2-05	Layout of Record of Changes Page	10
2-06	Layout of List of Effective Pages	11
3-01	Layout of Typing Page	14
3-02	Example of Narrative Division	16
3-03	Example of a Figure	18
5-01	Automatic Downgrading Notices	29
5-02	Distribution Statements	30
6-01	Document Types	32
7-01	Example of Lists of Effective Pages	36
7-02	Example of Change Transmittal Notice	38
8-01	Graphic Symbols	42
9-01	Example of System Organization Chart	46
9-02	Example of System Information Flowchart	47
9-03	Example of Integrated ADP Flowchart	49
9-04	Example of Higher-level Flowchart	50
9-05	Example of Micro Flowchart	51

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SECTION 1. INTRODUCTION

1.1 Description of Contents.

1.1.1 Scope. This standard specifies the physical appearance, structure, and components of technical computer program and system documentation that is produced during the life cycle development of such computer programs and systems. Specifically included for such documents are standards on the subjects discussed in paragraphs 1.1.2 through 1.1.9. The text of footnotes appearing herein is contained in Appendix A. (R) (A)

1.1.2 Document Components. Section 2 specifies the sequence of mandatory and optional components in each such document. (R)

1.1.3 Document Typography. Section 3 establishes the conventions for the arrangement, style, and appearance of such documents, including titling, narrative divisions, figures, equations, page numbering, and footnoting.

1.1.4 Document Production. Section 4 details the standards for paper stock, printing, and binding.

1.1.5 Document Security Identification. Section 5 summarizes the security identification notations and other classification requirements.

1.1.6 Document Numbering. Section 6 provides for a standard numbering scheme.

1.1.7 Document Changes. Section 7 establishes the standards for revising or updating such documentation.

1.1.8 Flowchart Symbols and Guidelines. Section 8 describes the use of the symbols to represent data processing operations on flowcharts.

1.1.9 Chart Types. Section 9 provides a set of chart types for use in programming documentation and provides samples of each.

1.2 Applicable Documents. Portions of the following documents¹ have been used in preparing these standards:

- a. United States Government Printing Office Style Manual, January 1973
- b. Military Standard Specification Practices (MIL-STD-490 of 30 Oct 1968)
- c. Military Specification, General Requirements for Preparation of Technical Manuals (MIL-M-38784 of 1 Jan 1968) (A)

¹ The text of footnotes appears in Appendix A.

- A) d. Military Specification, General Requirements for Manuscripts of Technical Manuals (MIL-M-63000B(TM) of 1 Jul 1968)
- e. SECNAVINST 5215.1C of 14 Apr 1970, The Navy Directives System
- f. DOD 5200.1-R of July 1972, Information Security Program Regulation
- R) g. OPNAVINST 5510.1E of 24 June 1974, Department of the Navy Information Security Program Regulation
- h. NAVSO P-3097, Department of the Navy ADP Glossary
- i. NAVMATINST 5200.29, Distribution Statements on Technical Documents
- R) j. FIPS Pub. 24 (American National Standard X3.5-1970, Flowchart Symbols and Their Usage in Information Processing (available from the American National Standards Institute, Inc., 1430 Broadway, New York, N.Y. 10018))

1.3 Requirements. These standards apply to the preparation of the documents specified in paragraphs 1.3.1 and 1.3.2.

1.3.1 Computer Programming Documentation. These standards apply to the following types of computer programming documents:

- a. Functional Descriptions
- b. Data Requirements Documents
- c. System/Subsystem Specifications
- d. Program Specifications
- e. Data Base Specifications
- f. Project Manuals
- g. Users Manuals
- h. Computer Operation Manuals
- i. Program Maintenance Manuals
- R) j. Test Plans
- k. Test Analysis Reports

1.3.2 Other Technical Documentation. Other documents that shall be prepared in accordance with these standards, when applicable, A) include Technical Reports and Technical Notes. A Technical Report is a document that reports the results of a completed project, basic research, or developmental studies. A Technical Note is a document that provides procedures, lists of data or other information that does not logically belong in other document types.

SECTION 2. DOCUMENT COMPONENTS

2.1 Purpose. This section establishes the components that are required and those that are optional within each document produced in accordance with these documentation standards. (R)

2.2 General Requirements. Each document shall be structured from the following components in the sequence listed:

- | | | |
|----------------------------|---|-------------------|
| a. Front Cover | (Mandatory) | |
| b. Title Page | (Mandatory) | |
| c. Special Notices | (As required) | |
| d. Abstract | (Mandatory in FD, UM, PM, and TR ²) | |
| e. Table of Contents | (Mandatory) | |
| f. List of Figures | (As required) | |
| g. Record of Changes | (As required) | |
| h. List of Effective Pages | (Mandatory in classified documents) | (R) |
| i. Text | (Mandatory) | |
| j. Appendixes | (As required) | |
| | (1) Terms and Abbreviations | (As required) (R) |
| | (2) References | (As required) |
| | (3) Bibliography | (As required) |
| | (4) Other Appendixes | (As required) |
| k. Index | (Optional) | |
| l. Distribution List | (Mandatory) | |
| m. Back Cover | (Mandatory) | |

2.3 Detailed Requirements.

2.3.1 Front Cover. The front cover of each document shall display the following information, as shown in the layout in Figure 2-01 and the example in Figure 2-02.

- | | | |
|---|--|-----|
| a. Document title and subtitle (may include superseding statement). | | |
| b. Activity short name. | | (A) |
| c. Document number (see Section 6). | | |
| d. Document type (see Section 6). | | |
| e. Activity name. | | |
| f. Activity seal. | | |
| g. Security identification (including classification of the document, downgrading notice, distribution notice, and national security notation), if classified. (See Section 5.) | | |

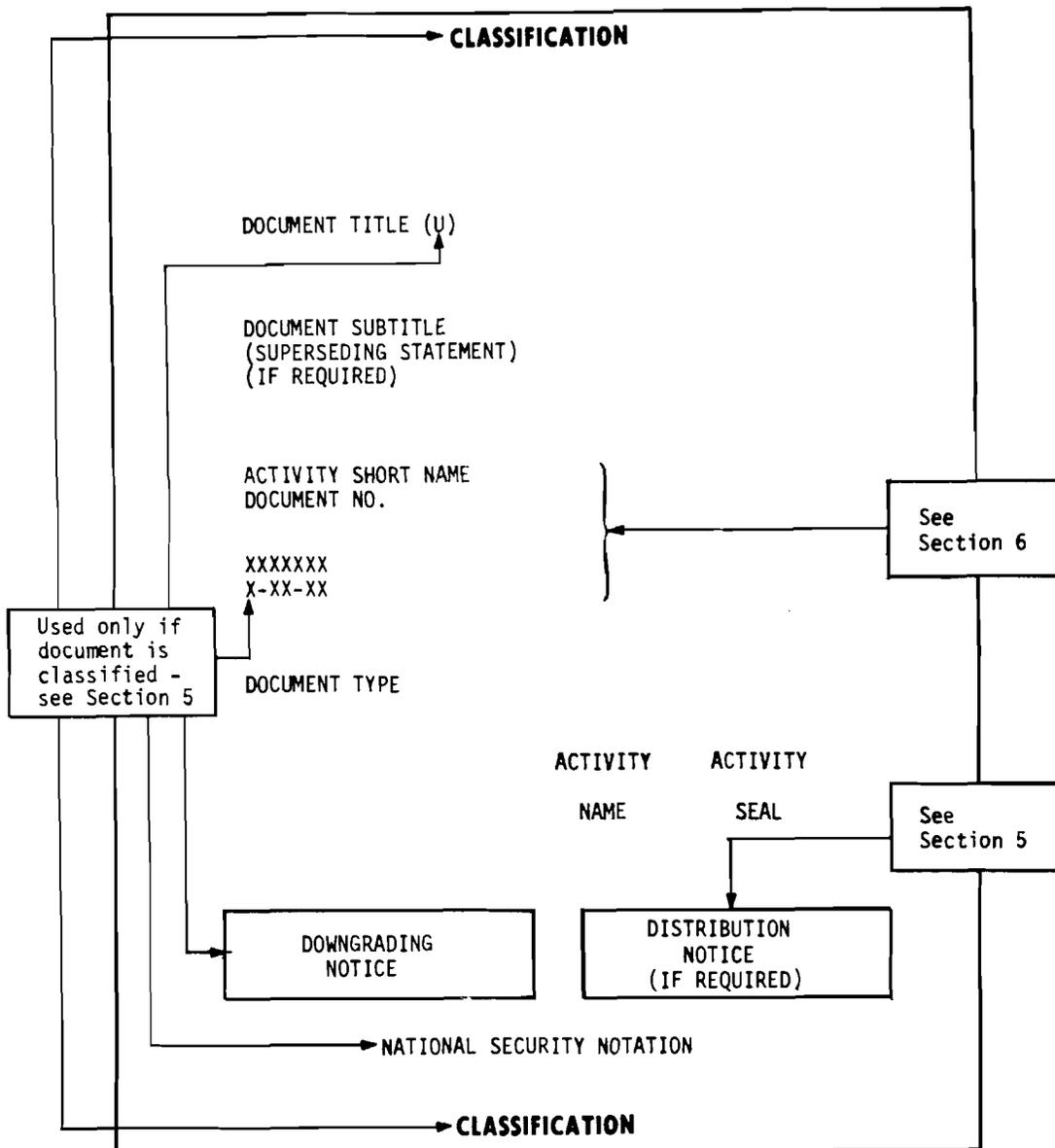


FIGURE 2-01. Layout of Front Cover

CONFIDENTIAL

**PROGRAMMING DOCUMENTATION
STANDARDS AND SPECIFICATIONS (U)**

SPACE FOR SUBTITLE

**NARDAC, WASH. D. C.
DOCUMENT NO.**

**98T1003
C-PS-04A**

SAMPLE

PROGRAM SPECIFICATION

**NAVY
REGIONAL
DATA
AUTOMATION
CENTER,
WASHINGTON, D.C.**



CLASSIFIED BY CAPT A. B. SEA (OP-98A)
SUBJECT TO GENERAL DECLASSIFICA-
TION SCHEDULE OF EXECUTIVE ORDER
11652 AUTOMATICALLY DOWNGRADED
AT TWO YEAR INTERVALS DECLASSI-
FIED ON DECEMBER 31, 1982.

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AGENCIES ONLY; TEST AND EVALUATION
10 JAN 1978. OTHER REQUESTS FOR THIS
DOCUMENT MUST BE REFERRED TO CNO
(OP-942).

**NATIONAL SECURITY INFORMATION
UNAUTHORIZED DISCLOSURE SUBJECT TO CRIMINAL SANCTIONS**

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FIGURE 2-02. Example of Front Cover

2.3.2 Title Page. The title page shall contain only the following information:

- a. Activity name.
- b. Document title and subtitle (may include superseding statement).
- c. Document type (see Section 5).
- d. Date.
- A) e. Activity short name.
- f. Document number (see Section 6).
- g. User designator, if the document is prepared for a specific user.
- h. Contractor and contract number designation, if the document has been prepared by a contractor under the guidance of the approving activity.
- i. Security identification (including classification of the document, downgrading notice, distribution notice, and national security notation), if classified. (See Section 5).
- j. Copy number, if required.

A sample layout of a title page is shown in Figure 2-03 and an example appears as Figure 2-04. The actual layout of the above items may be varied when circumstances require the use of a "window" front cover which displays a portion of the title page as part of the front cover.

- 2.3.3 Special Notices. Special notices may contain information concerning the status of a document, instructions for its handling, letters of promulgation, the status of the contents of the document, the date the provisions of the document become effective, credit to an individual or organization for the preparation of the document, or such other information as may be pertinent. The titles of such special notice pages shall generally reflect the subject matter of the information provided.
- A)

2.3.4 Abstract. The abstract is a brief summary (not to exceed 250 words), preferably unclassified, of the function, purpose, scope, and content of the computer program/system or study described in the document. Included in the abstract of computer programs/systems must be information concerning inputs, processing, and outputs. An abstract of a study must summarize essential facts, findings, conclusions, and recommendations. The purpose of the abstract is to assist potential users in determining the usefulness of the subject matter to their particular environment and to summarize the most significant material in the document clearly and concisely. The abstract should be in narrative form and include no special characters.

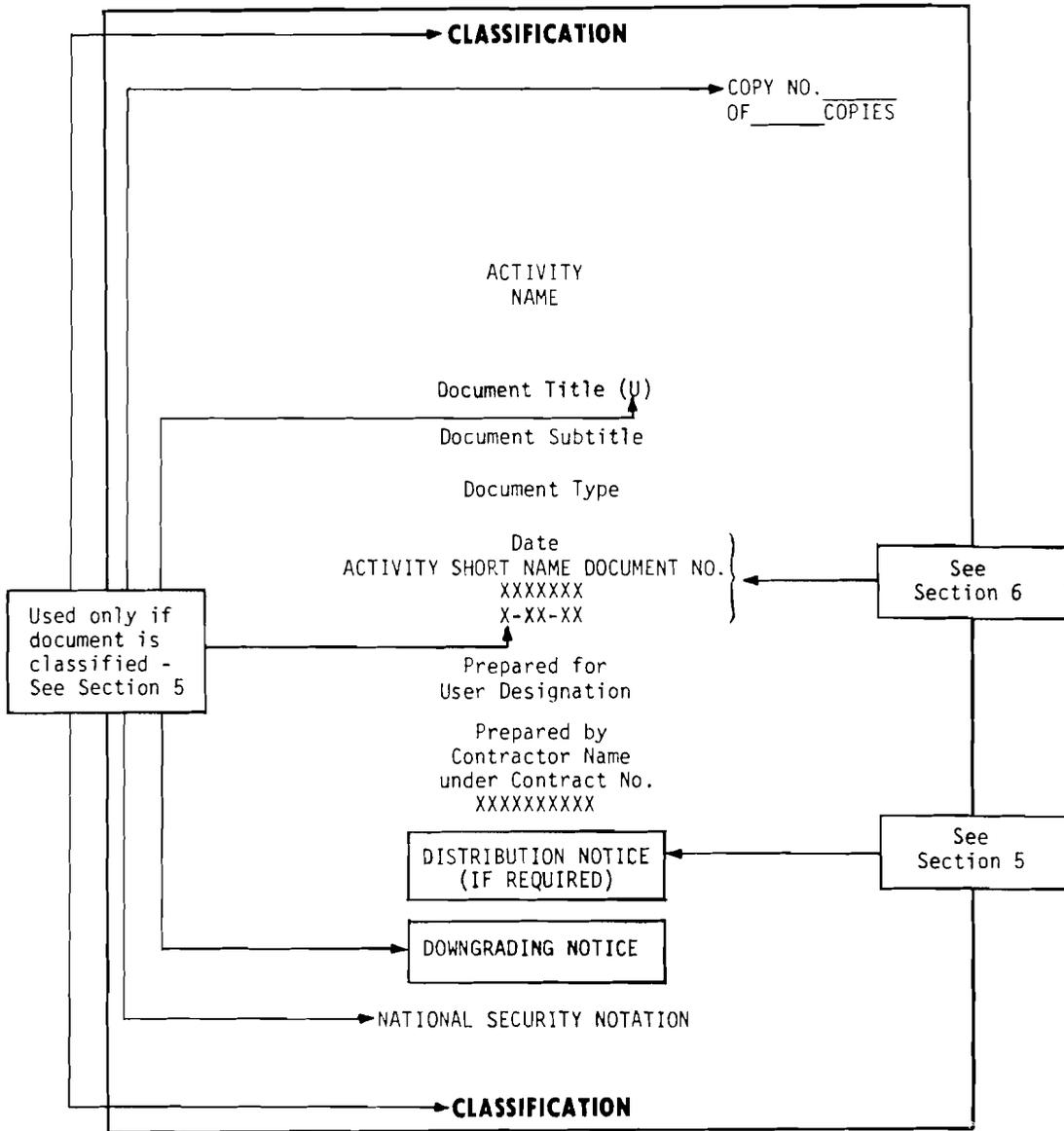


FIGURE 2-03. Layout of Title Page

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Copy No. 1
of 250 Copies

NAVY REGIONAL DATA
AUTOMATION CENTER,
WASHINGTON, D.C.

Programming Documentation
Standards and Specifications (U)

Program Specification

SAMPLE

December 1977
NARDACWASHDC DOCUMENT NO.
98T1003
C-PS-04A

Prepared for
Chief of Naval Operations (Op-942)

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CLASSIFIED BY CAPT A. B. SEA (OP-99A)
SUBJECT TO GENERAL DECLASSIFICA-
TION SCHEDULE OF EXECUTIVE ORDER
11652 AUTOMATICALLY DOWNGRADED
AT TWO YEAR INTERVALS DECLASSI-
FIED ON DECEMBER 31, 1982.

NATIONAL SECURITY INFORMATION
UNAUTHORIZED DISCLOSURE SUBJECT TO CRIMINAL SANCTIONS

CONFIDENTIAL

FIGURE 2-04. Example of Title Page

2.3.5 Table of Contents. The table of contents shall list the identification number or code, title, and page number of each section and numbered paragraph in the text as well as each appendix and numbered paragraph in the appendix, if the appendix (R) contains such paragraphs.

Tabulation shall ordinarily be at least to the third organizational level; e.g., 3.11.1.

2.3.6 List of Figures. The list of figures shall account for each figure included in the text and appendixes of a document. For each figure shall be shown the figure number, title, and a beginning page number.

2.3.7 Record of Changes. A record of changes page to be used to record changes made to a document shall be included when frequent changes to the document are expected. This page shall be arranged in columnar form and provide spaces for the change number, the date of the change, the date the change was entered, and the signature of the individual making the change. Use of this page is discussed in Section 7 and an example is shown in Figure 2-05.

2.3.8 List of Effective Pages. This list shall be provided when frequent changes to the document are expected or when strict page accountability is desired. Each page of the document and its change number shall be listed. Use of this page is discussed in Section 7 and an example is shown in Figure 2-06.

2.3.9 Text. The text shall conform to the prescribed content for the document type being prepared. Figures may be used to clarify or illustrate the technical content.

2.3.10 Appendixes. Appendixes shall contain material which supports, but is not readily incorporated into, the text. Included within appendixes may be narrative material or illustrations. Appendixes shall generally be sequentially (R) referenced in the text and listed in the same order in the Table of Contents. When classified or bulky, appendixes may be bound separately.

2.3.10.1 Terms and Abbreviations. This appendix shall provide (R) definitions of acronyms and abbreviations used within the document. Also defined shall be terms and phrases that carry connotations significant to the subject being documented. These definitions shall be concise and unambiguous. Terms and phrases defined in dictionaries or accepted data processing vocabularies, such as NAVSO P-3097, need not be defined.

Explanations of terms unique to specific computer programs

may be provided but shall be separated from the above definitions. Item names, location tags, short program names, etc., may be included. For each, a cross reference to the full name of the computer program that uses them should be provided.

R) 2.3.10.2 References. This appendix shall be provided if more than ten sources are cited in the text. All references listed must be referred to in the text and shall generally be presented in the same order as they are referenced in the text. Each source listed in the appendix must be identified by an Arabic numeral. The identifying information for each reference shall be presented in the order shown in paragraph 3.8.3.1.

2.3.10.3 Bibliography. This appendix shall provide a list of indirect references which are worthy of note by the reader. The sources listed in the bibliography shall have no identifying number, but must be listed in alphabetical order of the last names of the authors. References credited to no specific author shall be listed first. The identifying information for each reference shall be presented in the order shown in paragraph 3.8.3.1. A short summary, usually not to exceed four lines, may be provided.

2.3.10.4 Other Appendixes. Other appendixes may be provided as required.

2.3.11 Index. The index shall contain an alphabetical list of names, subjects, etc., together with their paragraph numbers.

2.3.12 Distribution List. This list shall be composed of the names and codes of commands, activities, and offices (external to the originating organization) which are to receive copies of the document. When wide distribution will be made, Standard Navy Distribution List (SNDL) codes should be used.

2.3.13 Back Cover. The back cover shall be blank, except for security classification if the document is classified.

SECTION 3. DOCUMENT TYPOGRAPHY

3.1 Purpose. This section establishes conventions for the arrangement, style, and appearance of documents.

3.2 Preparation. Documents shall be prepared in final form by typing on appropriate master stock using a standard type face. The typing area shall be 6-1/2 inches by 8-1/2 inches located on an 8 inch by 10-1/2 inch final sheet size as shown in Figure 3-01. The text shall extend across the entire page between the margins; i.e., no text columns shall be used. Foldouts shall be 10-1/2 inches in height and of sufficient width to include the contents.

3.3 Titling of Components. Specific identification of certain components of a document must precede the material included within that component.

3.3.1 Titled Components. Those components of a document that shall be specifically identified by their respective titles in capital letters centered at the top of the first page of that component are:

- a. Abstract
- b. Table of Contents
- c. List of Figures
- d. Record of Changes
- e. List of Effective Pages
- f. Index
- g. Distribution List

3.3.2 Titling of Appendixes. The appendixes of a document shall be designated by the term "APPENDIX" in capital letters. The term "APPENDIX" shall be followed by a capital alphabetic character with "A" for the first appendix, "B" for the second, and so on. Each appendix shall have a capitalized descriptive title following the appendix designation, such as:

APPENDIX B
REFERENCES

This identification may appear either at the top of the first page of the appendix or on the preceding sheet.

3.4 Narrative Division. The text of a document shall usually be divided into sections and paragraphs. Each division shall be numbered and identified by a section or paragraph title. Numbering should not exceed the fourth organizational level, e.g., 3.2.11.1. The content of all numbered paragraphs at a given level should relate to the next higher division. Paragraph

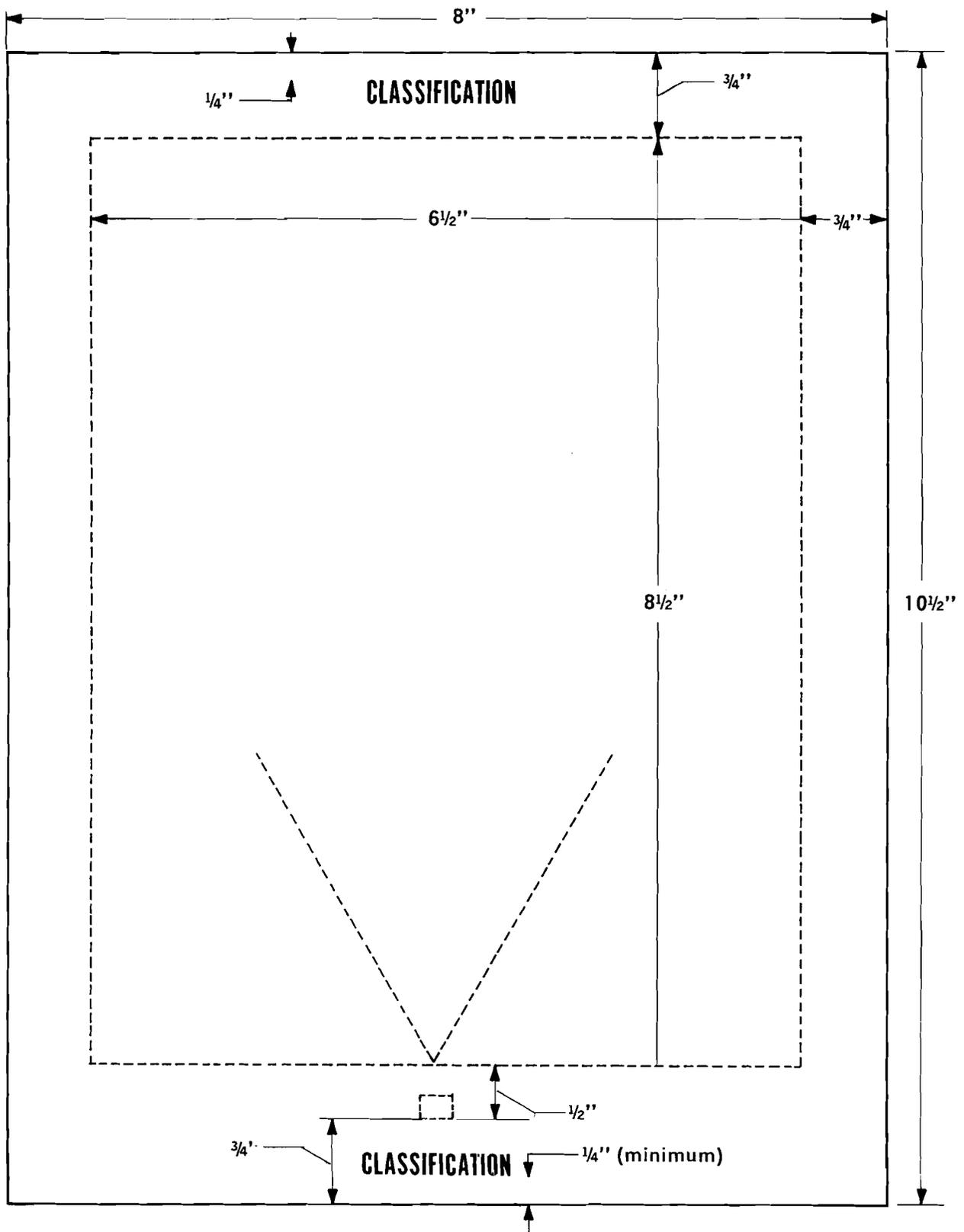


FIGURE 3-01. Layout of Typing Page

subdivisions at a given level shall not be used unless two or more are logically required. An example of this narrative division is shown as Figure 3-02.

3.4.1 Sections. Sections are the primary text divisions and shall be identified by a fully capitalized subject title. The section designation and title shall be left justified and ordinarily start a new page of a document. A single blank vertical space shall be provided between the section title and the first section paragraph; i.e., the text shall begin on the second line beneath the section heading.

3.4.2 Paragraphs. The paragraph number shall begin flush with the left margin. Two blank horizontal spaces must follow the last digit of the paragraph number and be followed in turn by the paragraph title. Classification indicators, such as "(C)", "(S)", etc., shall be considered part of the paragraph title. The first letter of each major word of the title (but always the first word) shall be a capital. The title itself shall be immediately followed by a period. The number and title may be underlined. The paragraph text shall begin on the same line as the paragraph title, separated from the title "period" by two blank horizontal spaces. All remaining text lines in the paragraph shall begin flush with the left margin. A single blank vertical space shall be provided between individual paragraphs.

If unnumbered paragraphs must be used within a numbered paragraph, the first line shall be indented five horizontal spaces and the remaining lines shall begin flush with the left margin.

3.4.3 Itemization. Itemization of elements within a paragraph may be used in lieu of paragraph numbers following the format shown in Figure 3-02 for titled itemization. Untitled itemization shall normally be restricted to brief items (statements, procedural steps, lists, word groups, etc.) in the following format:

- a. These items shall be identified by lower case letters or by Arabic numerals followed by a period.
- b. The letters or numerals shall begin five horizontal spaces from the left margin of the typing area.
- c. The item itself shall begin two horizontal spaces after the period and continue on the next line. Untitled itemization may be fully left justified or may be in block style, but must be consistent throughout the document. (R)
- d. The first letter of the item shall be a capital.
- e. A single blank vertical space may be used between items.

SECTION 1. TITLE

%
Section text shall begin flush with the left margin, continue to the right margin, and be left justified.

%
*****Unnumbered paragraphs shall be indented five spaces from the left margin; the second and subsequent lines shall be left justified.

%
1.1**Title of Paragraph.**The paragraph text shall begin two spaces from the period following the paragraph title...

%
*****a.**Untitled itemization shall begin two spaces from the period and continue on the next line. Untitled itemization may be fully left justified or may be in block style, but must be consistent throughout the document.

%
*****b.**Item...

%
1.2**Title of Paragraph.**At least two paragraphs at the same organizational level must be provided...

%
1.2.1**Title of Paragraph.**Paragraphs at the same organizational level must be logically related...

%
1.2.1.1**Title of Paragraph.**No paragraph number should exceed the fourth organizational level...

%
1.2.1.2**Title of Paragraph.**The following format for progressive itemization shall be used:

%
*****a.**Item
 b.**Item
 %
 ****(1)**Item
 (2)**Item
 %
 *****a)**Item
 (b)**Item
 %
 *****1.**Item
 2.**Item
 %
 *****a.**Item
 b.**Item

%
1.2.2**Title of Paragraph.**Paragraph numbers and titles may be underlined consistently throughout a document.

%
*****a.**Title of Item.**If items are titled, those titles shall be underlined in order to separate the title from the text.

%
*****b.**Title of Item.**The text of a titled item shall be fully left justified.

* An asterisk (*) indicates a single blank horizontal space.
% A percent sign (%) indicates a single blank vertical space.

FIGURE 3-02. Example of Narrative Division

3.4.4 Appendixes. Narrative material prepared for an appendix of a document shall be divided in the same manner as text narrative, except that immediately preceding the number of each paragraph shall be the alphabetic designation of that appendix; e.g., B2.3 (paragraph 2.3 of Appendix B). Original material such as documents, letters, etc., may be reproduced in their original form for inclusion in an appendix.

3.5 Figures. Figures refer to the use of diagrammatic, geometric, pictorial, or tabular representation of information. To avoid confusion in document preparation and use, information that might normally be presented in tables shall be presented in figures. Typing may be used to annotate the line work in lieu of lettering or other graphic techniques, provided that any photoreduction involved does not exceed 2:1. Flowcharts are not necessarily considered to be figures in the sense of this standard and need not be numbered as specified in paragraph 3.5.1.³ An example of a figure is shown in Figure 3-03.

Small figures and untitled, unnumbered, short "free tables" may be included within a paragraph when they are adequately explained and when they do not interrupt the narrative.

3.5.1 Numbering and Titling. Figures shall be numbered in the format "FIGURE M-NN." where "M" is the Arabic number of the text section or the alphabetic designator of the appendix within which the figure is first referenced and "NN" is the consecutive count of figures within that section or appendix.

The figure identification shall include a title to serve as a brief description of the figure content. The title shall begin two spaces following the period after the figure number. The first letter of the first word and of all other principal words of the title shall be capitals. The figure identification shall be centered under the figure and separated from it by one blank vertical space. In the event the title overruns the margin, the second line of the title shall begin directly beneath the first character of the first line of the title.

3.5.1.1 Orientation. The identification shall be under the figure when the figure is held in a position to be read.

3.5.1.2 Continuation. In the event the figure continues for more than one page, the full identification of the figure followed by "(Page ___ of ___)" shall be provided on each page immediately following the figure title.

3.5.2 Placement. Figures shall be incorporated into the document within two pages following the first reference to them in the text, preferably on the first page following the

SUBPROGRAM TITLE	MEMORY ESTIMATES	MAXIMUM PROCESSING TIME PER SECOND
MODE CONTROL	2,000	128.0 MS
COORDINATE CONVERSION	900	256.0 MS
RADAR CONTROL	5,000	196.0 MS
WEAPON CONTROL	2,100	100.0 MS
TARGET ENGAGABILITY AUTO REQUEST SWC TARGET	1,500 500 <hr/> 2,000	5.0 MS 5.0 MS <hr/> 10.0 MS
EQUIPMENT SCHEDULER RECOMMEND EXECUTE	1,800 1,200 <hr/> 3,000	10.0 MS 5.0 MS <hr/> 15.0 MS
DISPLAY	3,000	30.0 MS
TRACKING	2,000	150.0 MS
EXECUTIVE	1,000	80.0 MS
DATA BASE	2,000	N/A
TOTAL	23,000 WORDS	965.0 MS

FIGURE 3-03. Example of a Figure

reference. When more than ten pages of figures are needed as consecutive pages and their inclusion would significantly interrupt the flow of the text, they may be included at the end of the section provided that a statement as to their location is included in the narrative. Such figures may alternatively be included in an appendix. (A

3.6 Equations. Equations important to the presentation in the text shall be placed on separate lines from the text. A series of equations shall be aligned on the equality signs. A space shall be provided before and after each operational sign (e.g., +, -, =, etc.) connecting two terms of an equation except in subscripts and superscripts.

Each equation shall be numbered for reference as "(M-NN)" where "M" is the designation of the text section or the alphabetic designator of the appendix within which the equation is first shown, and "NN" is the consecutive count of equations within that section or appendix. The number shall be positioned to the right of the last line of the equation and aligned vertically with all other equation numbers which appear on the page.

If an equation must be presented on two or more lines, it shall be broken before operational signs. In the next line of the presentation, the operational sign shall appear to the right of the above equal sign. A single blank line shall be provided between each line of an equation. Definitions of equation symbols shall be centered immediately below the equation. Connecting words of explanation, such as "hence," "therefore," and "similarly," may appear following one equation or on the next line. Examples of equations on a page of a document are shown below...

...the equations:

$$f(x) = \sum_{n=0}^n f(x_i) \quad (3-01)$$

$$u(x) = x + x^7 + x^8 + 3x^9 + 6x^{10} + 15x^{11} + 29x^{12} \quad (3-02)$$

$$A = \begin{bmatrix} a(1,1) & a(1,2) & \dots & \dots & a(1,n) \\ a(2,1) & a(2,2) & \dots & \dots & a(2,n) \\ \dots & \dots & \dots & \dots & \dots \\ a(m,1) & a(m,2) & \dots & \dots & a(m,n) \end{bmatrix} \quad (3-03)$$

provide examples of this arrangement.

3.7 Page Numbering. Page numbers shall be centered 3/4 inch from the bottom of the page when the document is held in the normal reading position.

- When face-to-face printing is used, right-hand pages shall be odd numbered and left-hand pages shall be even numbered. Any blank pages in face-to-face printing shall be assumed to bear a number in determining the next page number. The existence of such blank pages should be included on the preceding page by indicating "(reverse blank)" to the right of the page number preceding the blank page. Statements on the blank page such as "This page intentionally left blank" should not be used.

Numbering of pages for document transmittals is discussed in paragraph 7.5.1.

3.7.1 Pre-text. Pre-text pages shall be numbered consecutively in lower case Roman numerals. The title page shall be assumed to carry the number "i"; the page following the title page shall be numbered "ii"; etc.

3.7.2 Text. Text pages shall be numbered consecutively in Arabic numerals. Pages containing figures shall be numbered as text pages.

- 3.7.3 Appendixes. Pages of appendixes shall be individually numbered with Arabic numerals prefixed by the capital alphabetic designator for the appendix; e.g., B-1, B-2. If the appendix begins with a separate title page, the number of that page shall be assumed to be "a-1" (where "a" represents the alphabetic designator for the appendix) but shall not appear on that page.

3.7.4 Index. An index, if included, shall be page numbered "Index-1," "Index-2," etc.⁴

3.7.5 Distribution List. The distribution list shall not be page numbered.

3.8 Footnotes.

3.8.1 Text and Appendix Footnotes. Footnotes may be used to provide additional information on a subject mentioned in the text or appendix, or to provide identification of source material.

3.8.1.1 Symbols. The symbols used to refer to footnotes shall be consecutive Arabic numerals beginning with "1" for each manual and for each appendix.⁵ The symbol shall be placed 1/2 space above the line of text and shall generally follow the footnoted material. Since confusion may result if the symbol follows a lengthy quotation, a series of items, or other extensively quoted

or referenced material, the symbol may be placed immediately following the last word of the text before the quoted material. If this is done, the end of the quoted material must be made obvious in the text. Special characters, such as asterisks, percent signs, etc., may be used when ambiguity may result from the use of Arabic numerals. However, special characters may not be intermixed with Arabic numerals.

3.8.1.2 Format. The footnote text shall preferably appear at the bottom of the page carrying the symbol and shall be separated from the text by a one and one-half inch horizontal line starting at the left margin. There shall be at least one blank line above and below this line. The footnote shall be composed of the footnote symbol, flush with the left margin; two spaces; and the text of the footnote. The text shall extend to the right margin and the second and subsequent lines shall be in block form. The text of the footnote shall follow the style of the text narrative. Continuation of a footnote from one page to the next should be avoided; if unavoidable, the break should not be made at the end of a paragraph of the footnote. When equipment used to prepare documents does not have the capability to place footnotes in the prescribed position at the bottoms of pages carrying the symbols, footnotes shall be numbered and listed sequentially in an appendix titled "FOOTNOTES". These footnotes shall be formatted as described in paragraph 3.8.1.2. (R) (A)

3.8.2 Figure Footnotes. The symbols for footnotes to figures shall be numbered independently from footnotes to the text. Arabic numerals, beginning with "1" for each figure, shall be used for footnote symbols. If numerals might lead to ambiguity, asterisks, lower case alphabetic characters, special characters, or other contrasting symbols may be used. The symbols within the figure shall be arranged consecutively from left to right and from top to bottom. The symbol and text of the footnote shall appear in the figure beneath a ruled line and above the bottom ruled line of the figure box. The format shall follow the format for text footnotes.

3.8.3 Reference Footnotes. Footnotes may be used to present a complete reference, or to cite a document in the appendix of references. If less than ten documents are referenced in the text, they should be identified in footnotes. (R)

3.8.3.1 Types of Reference Footnotes. The format of footnotes for books and periodicals shall be:

- a. Books - Author's name, name of the book, book identification number (if any), (place of publication, name of the publisher, date of edition), and pages being cited.

- b. Periodicals - Author's name, "title of the article," name of periodical, volume number (if any), date, and pages being cited.

3.8.3.2 Previously Cited References. There are three ways to refer to a previously cited reference, as follows:

a. Ibid. This abbreviation for ibidem, meaning "in the same place," shall be used when two consecutive footnotes refer to the same source. If a different page number is referred to, it must be specified; e.g., "Ibid, pp. 99-102."

b. Op. cit. This abbreviation for opere citato, meaning "in the work cited," shall be used when references to the same source follow in close, but not consecutive, order. To identify the specific reference, the author's name must usually be shown as well as the specific page numbers; e.g., "J.D. Smith, op. cit., pp. 87-91."

c. Loc. cit. This abbreviation for loco citato, meaning "in the place cited," shall be used when a second but non-consecutive reference is made to the exact previously given material, including volume and page numbers. The author's name must be given to identify the specific source; e.g., "J.D. Smith, loc. cit."

R) 3.8.3.3 Footnotes to Refer to References in an Appendix. A list of references shall be provided in an appendix when more than ten sources are listed in the text. The footnotes referring to the list of references shall specify the pages of the source being referred to; e.g., "6 See Appendix B: reference 4, pp. 47-51," where "6" is the number of the footnote, "reference 4" is the fourth reference listed in "Appendix B," and the applicable pages of the source are 47-51.

SECTION 4. DOCUMENT PRODUCTION

4.1 Purpose. This section establishes standards for paper stock, printing, and binding of documents.

4.2 Paper Stock.

4.2.1 Cover. Covers for all documents shall normally be of a heavier weight than the document text page. Stock color will be determined by the classification of the document in accordance with the following table:

<u>Classification</u>	<u>Cover Color</u>
Unclassified	Blue or white
Confidential	Green
Secret	Yellow
Top Secret	Pink

4.2.2 Contents. The pages of a document bound within standard covers will be 50 lb. book offset (or similar stock) in the following sizes:

Individual Sheets	Width-8 inches; Height-10 1/2 inches
Foldouts	Width-as determined by final image size; Height-10 1/2 inches

4.3 Printing.

4.3.1 Single-Face. Single-face printing shall not be used unless formally approved.

4.3.2 Double-Face. Double-face printing shall be the standard method used. Right-hand page faces (and, consequently, odd numbered pages) shall be used for, or at the start of, the following:

- a. Title Page
- b. Special Notices
- c. Table of Contents
- d. List of Figures
- e. Record of Changes
- f. List of Effective Pages
- g. Text Sections (optional)
- h. Appendixes
- i. Index
- j. Distribution List

4.4 Binding. The selection of a binding shall be based upon the number of sheets in the document and its ultimate use. Documents shall generally be staple bound and punched for three-hole binders. Classified documents, however, shall not be punched for insertion into a loose-leaf binder unless required by the size of the document.

The head of a page is the top of the page when held in a position to be read. Those pages not bound with the head of the page to the top of the document shall be bound with the head of the page to the left of the document. In binding double-face printed matter, the right-hand pages shall always be odd numbered and the left-hand pages shall be even numbered.

If the document is to be frequently used or is of sufficient size or complexity, section dividers or colored sheets may be used before key sections or appendixes of the document to facilitate use.

4.5 Non-standard Production. Certain non-standard documentation, such as computer produced listings, may be required in quantity. In this instance, legible copies of the original material may be made and bound between hard cover stock for rigidity. The first sheet of the document shall contain a title page similar in content to the page shown in Section 2. Flowcharts may be bound in this manner.

Any problems in producing multiple copies may be referred to the local Navy Publications and Printing Service Division, Office, or Branch Office.

SECTION 5. DOCUMENT SECURITY IDENTIFICATION

5.1 Purpose. This section summarizes the security identification requirements applicable to the preparation of documents. For security classification assignment, document handling and control procedures, and more detailed information, refer to OPNAVINST 5510.1E, Information Security Program Regulation which incorporates the DOD Information Security Program Regulation, DOD 5200.1-R, neither of which is altered in any way by this standard. See paragraph 7-300 of OPNAVINST 5510.1E for special instructions applicable to the preparation of TOP SECRET documents. For information concerning distribution statements (other than security), refer to NAVMATINST 5200.29. (R)

5.2 Classification Responsibility. The authority for making original classification determinations shall be restricted solely to those officials specifically designated in writing, by the Secretary of the Navy, including those officials who are specifically designated in writing to act during their absence. Authority for derivative classification shall be as specified in writing by the Commanding Officer. Originators of classified documents are responsible for security classification marking or stamping as set forth in the following paragraphs.

5.2.1 Document Classification. The overall classification of a document, which represents the highest classification of information (TOP SECRET, SECRET, or CONFIDENTIAL) appearing in the document, shall be conspicuously marked or stamped at the top and bottom on the outside of the front and back covers and at the top and bottom of the title page, the first page, and the back page. Page classification is described in 5.2.4. The letters of the classification shall be capitals, rendered larger and heavier than the adjacent lettering, and, when practical, shall be red in color. Unclassified documents require no marking unless it is essential to point out that they have been examined specifically with a view to imposing a security classification and have been determined to require none. (R)

Each classified document shall, in addition to other markings, show on its face its overall classification and whether it is subject to or exempt from scheduled downgrading and declassification (see paragraph 5.2.9). It shall also show the office of origin, the identity of the classifier, the date of preparation and classification and, except as provided herein, be marked as to indicate which portions are classified, at what level, and which portions are not classified in order to facilitate excerpting and other use. Other material shall, whenever practicable, show the foregoing information on the material itself or in related or accompanying documentation. (A)

Unclassified titles for classified documents are encouraged. The symbol (U) shall be placed immediately following such a title and shall be considered a part of the title when referenced. If the title cannot consist of unclassified information, the appropriate classification symbol (TS), (S), or (C) shall be used. When appropriate, the symbols (RD), for Restricted Data, and (FRD), for Formerly Restricted Data, shall be added.

5.2.2 Copy and Reproduction Classification. It should be noted that office-type copying equipment does not always clearly reproduce all colors of ink or marginal images. If the process used does not clearly reproduce the security markings appearing on the original copy, such markings shall be stamped on all copies in the same positions and size required for the original.

5.2.3 Document Component Classification. In some complex documents, major components such as appendixes are likely to be used separately. Each such component shall be marked as a separate document.

5.2.4 Page Classification. The classification of a page, which represents the highest classification of information appearing on the page (TOP SECRET, SECRET, CONFIDENTIAL, or, when appropriate, UNCLASSIFIED), shall be positioned at the top and bottom of the page, except that the first and last pages shall indicate overall document classification. The letters of the classification shall be in capitals, rendered larger and heavier than the adjacent lettering, and, when practical, shall be red in color. When a sheet is printed on both sides and the information is classified differently on each, or is unclassified on one side, the higher classification shall appear on both sides. In a classified document, those pages which contain only unclassified material on both sides of the page must be marked UNCLASSIFIED at the top and bottom of both sides.

In special situations, such as when documents consisting of many pages are printed by the Government Printing Office or similar facility, the overall classification assigned to the document may be shown on each page provided that the classified and unclassified parts of that page are clearly identified by paragraph marking or by other means set forth in the document. In such cases, paragraph marking or other means shall take precedence over page marking.

- A) 5.2.5 List of Effective Pages. A List of Effective Pages shall be provided with each classified document and with each change that includes revised pages in order to ensure strict page accountability. Use of this page is discussed in paragraphs 2.3.8 and 7.2.

5.2.6 Section and Paragraph Classification. Each section, paragraph, or subparagraph of a classified document, when its classification is lower than the overall classification of the page on which it commences, shall be marked in accordance with its contents. The symbols (TS), (S), (C), and (U) shall be used.

When different sentences of a paragraph are of different classifications, the highest classification contained within the paragraph shall be applied to the paragraph as a whole.

Each numbered element shall be marked following its numerical designator and immediately to the left of the element title, and each unnumbered element shall be marked immediately to the left of the first (indented) word. When a page is SECRET, for example, a CONFIDENTIAL numbered paragraph shall be indicated as follows:

1.7 (C)Data Base. The data files kept current by the....

and an UNCLASSIFIED illustration on the same page shall be indicated through a caption as follows:

FIGURE 1-01. (U) System Information Flowchart

5.2.7 ADP Listing Classification. Classification markings on pages of listings produced by ADP equipment may be applied by the equipment provided that on the face of the document the markings so applied are made clearly distinguishable from adjacent printed text. The more conspicuous markings prescribed in paragraph 5.2.1 for ordinary documents shall appear, as a minimum, on the first and last page of the listing and on the front and back covers, if covers are provided. Paragraph 5.2.8 on National Security Notation, paragraph 5.2.9 on automatic downgrading, and paragraph 5.3 on document distribution statements apply to ADP listings as well as to ordinary documents. (R)

5.2.8 National Security Notation. Since classified documents are often furnished to contractor or other authorized persons outside the Executive Branch of the U.S. Government, the following notation, in addition to the classification markings, shall be placed on the front cover and title page of all classified documents except those marked RESTRICTED DATA or FORMERLY RESTRICTED DATA: (R)

NATIONAL SECURITY INFORMATION
Unauthorized Disclosure Subject to Criminal Sanctions

5.2.9 Automatic Downgrading. The appropriate downgrading notices of a classified document shall appear on the front cover

- and title page. The groups to be used are given in Figure 5-01.
- R) Paragraph 4-401 of OPNAVINST 5510.1E explains which of the groups is appropriate to a given document.

5.3 Document Distribution Statements. Distribution statements appearing on documents are the responsibility of the document originator and will be assigned in accordance with NAVMATINST 5200.29. Both classified and unclassified documents may occasionally be subject to distribution statements. As stipulated in the cited NAVMATINST, those parts of a document causing the need for a controlling distribution statement should be identified, whenever possible. The standard distribution statements to be used are given in Figure 5-02.

DATE OR EVENT	<p>DOWNGRADE TO:</p> <p>SECRET on (effective date or event)</p> <p>CONFIDENTIAL on (effective date or event)</p> <p>DECLASSIFY on (effective date or event)</p> <p>CLASSIFIED BY.....</p>
GENERAL DECLASSIFICATION SCHEDULE	<p>CLASSIFIED BY.....</p> <p>SUBJECT TO GENERAL DECLASSIFICATION SCHEDULE OF EXECUTIVE ORDER 11652</p> <p>AUTOMATICALLY DOWNGRADED AT TWO YEAR INTERVALS</p> <p>DECLASSIFIED ON 31 DECEMBER (year)</p>
EXEMPT FROM GENERAL DECLASSIFICATION SCHEDULE	<p>CLASSIFIED BY.....</p> <p>EXEMPT FROM GENERAL DECLASSIFICATION SCHEDULE OF EXECUTIVE ORDER 11652</p> <p>EXEMPTION CATEGORY (insert one of four in provisions of para. 3-301, OPNAVINST 5510.1E)</p> <p>DECLASSIFY ON (effective date)</p>

(R)

FIGURE 5-01. Automatic Downgrading Notices

<p align="center">STATEMENT A</p> <p align="center">(FOR USE ONLY WITH UNCLASSIFIED DOCUMENTS)</p> <div data-bbox="235 495 751 608" style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 80%;"> <p align="center">APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED</p> </div>	<p align="center">STATEMENT B</p> <p align="center">(FOR USE WITH EITHER CLASSIFIED OR UNCLASSIFIED DOCUMENTS)</p> <div data-bbox="803 495 1359 625" style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 80%;"> <p align="center">DISTRIBUTION LIMITED TO U. S. GOV'T AGENCIES ONLY; (FILL IN REASON); (DATE STATEMENT AP- PLIED). OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO (INSERT CONTROLLING DOD OFFICE).</p> </div>
<p align="center">REASONS</p> <p align="center">(FOR USE ONLY WITH STATEMENT B)</p>	
<p align="center">FOREIGN INFORMATION</p> <p>INFORMATION FURNISHED BY A FOREIGN GOV- ERNMENT WITH THE UNDERSTANDING THAT IT WILL NOT BE TRANSMITTED OUTSIDE THE U. S. GOVERNMENT.</p>	<p align="center">PROPRIETARY INFORMATION</p> <p>TO PROTECT INFORMATION NOT OWNED BY THE U. S. GOVERNMENT AND NOT PROTECTED BY A CONTRACTOR'S "LIMITED RIGHTS" STATEMENT BUT RECEIVED WITH THE UNDERSTANDING THAT IT WOULD NOT BE TRANSMITTED OUTSIDE OF THE U. S. GOVERNMENT.</p>
<p align="center">TEST AND EVALUATION</p> <p>COVERS THE TEST AND EVALUATION OF COMMERCIAL PRODUCTS OR MILITARY HARDWARE.</p>	<p align="center">CONTRACTOR PERFORMANCE EVALUATION</p> <p>MANAGEMENT REVIEWS, RECORDS OF CONTRACT PER- FORMANCE EVALUATION, OR OTHER ADVISORY DOCU- MENTS EVALUATING PROGRAMS OF CONTRACTORS.</p>

FIGURE 5-02. Distribution Statements

SECTION 6. DOCUMENT NUMBERING

6.1 Purpose. This section discusses the numbering system for documents.

6.2 Document Numbering. The document number shall consist of the project number under which the document is produced, followed (R) by a control number to identify the individual document. On both the cover and title page, the document number appearing beneath the designator of the preparing organization, shall be formatted as in the following example:

NARDACWASHDC DOCUMENT NO.
98T1003
C-PS-04A

6.2.1 Project Number. The alphanumeric project number uniquely (R) identifies the project effort and also may be used for budgeting and funding control. The first and second characters of the project number indicate the requesting organization; the third character specifies the function of the project; the fourth character identifies the organization responsible for development of the project; the fifth, sixth and seventh characters form a serial number for a given requestor, functional area, and organization responsible for development.

6.2.2 Control Number. The control number shall consist of the following:

a. Document Classification. Document classification shall be shown by one of the following codes to identify the security classification of the document:

Top Secret	T	Confidential	C
Secret	S	Unclassified	(none)

b. Document Type. The document type shall be represented by a two-letter mnemonic identifier of the name of the document type (see Figure 6-01).

c. Document Type Count. The document type count shall consist of two digits assigned from a consecutive count of the documents of the same type generated on the project. The first document of a type shall be numbered "01". For any project with over 99 documents of one type, a third digit may be added starting with the numeral "100".

d. Identification of Revised Documents. An alphabetic character, following the document type count, shall be used to

DOCUMENT TYPE NAME	MNEMONIC IDENTIFIER
FUNCTIONAL DESCRIPTION	FD
DATA REQUIREMENTS DOCUMENT	RD
SYSTEM/SUBSYSTEM SPECIFICATION	SS
PROGRAM SPECIFICATION	PS
DATA BASE SPECIFICATION	DS
PROJECT MANUAL	PM*
USERS MANUAL	UM
COMPUTER OPERATION MANUAL	OM
PROGRAM MAINTENANCE MANUAL	MM
R) TEST PLAN	PT
TEST ANALYSIS REPORT	RT
TECHNICAL NOTE	TN
TECHNICAL REPORT	TR
<p>* PROJECT MANUAL MNEMONIC ASSIGNMENT OCCURS ONLY WHEN THE USERS, COMPUTER OPERATION, AND PROGRAM MAINTENANCE MANUALS ARE BOUND AS A SINGLE DOCUMENT OF UNDER 200 PAGES FOR SMALL PROJECTS.</p>	

FIGURE 6-01. Document Types

identify a document which has been revised. A new consecutive character shall be used for each reissue or major change starting with "A" for the first revision. When such a character is used, the document with the preceding character is normally cancelled.

Consequently, the example shown in paragraph 6.2 refers to a CONFIDENTIAL Program Specification prepared by NARDACWASHDC for project 98T1003. The document is the fourth Program Specification in the series and has been revised once since the original document was prepared.

SECTION 7. DOCUMENT CHANGES

7.1 Purpose. This section establishes conventions for changing and updating documents similar to those in SECNAVINST 5215.1C.

7.2 Components. The components to effect a change to a document are:

a. Change Transmittal Notice. The change transmittal notice, issued by the authority responsible for the maintenance of the document being changed, shall include a reference to that document; a change transmittal notice number; the date of the change; a list of the actions to be taken to effect the change; a cancellation notice; and, if appropriate, any other information (R necessary to properly effect the change.

b. Revised Text. The revised text of the document shall be either attached to the change transmittal notice as pages to be inserted into the document or specified by a list of pen changes in the body of the notice.

c. Record of Changes. This page, included in each document (or in the first change to a document), shall be used to note the changes that have been made to the document as a result of each change transmittal notice. The format of this page is specified in paragraph 2.3.7. (R

d. List of Effective Pages. When a list of effective pages is required in a document, it must be updated with each change transmittal notice that adds pages to or replaces pages in the document. The revised list should be forwarded with each change transmittal notice unless only pen changes are to be made to the document. Examples of lists of effective pages with sample entries are shown in Figure 7-01.

7.3 Types of Changes. The only permissible types of changes are those specified in the following paragraphs.

7.3.1 Page Changes. Page changes are preferable to pen changes since they are generally more economical; provide neater, more legible copy; decrease the chance of errors; and decrease the time expended by recipients in making changes.

7.3.2 Pen Changes. Although the use of page changes is encouraged, a list of changes to be made by striking out, changing, or adding information to the document by pen may be provided to recipients when the time required for a single addressee to enter all changes on a single sheet (two sides) of paper does not exceed that required to remove a superseded sheet and insert a new one. Directions must state precisely where the

change occurs; i.e., page number, paragraph number, line number, and other pertinent information.

7.3.3 Repetitive Minor Changes. When the same minor change occurs many times throughout a document, a single change sheet may be issued, provided the originating authority determines that it is justified and sufficient. Such a special change sheet is justified when the use of pen changes would require excessive expenditure of personnel time, or the use of page changes would be tantamount to a complete reprinting. The change transmittal notice must state that the change is applicable throughout the document and that it is being issued in lieu of a list of pen changes or reprinted pages. The sheet shall be prepared for insertion by recipients at an appropriate place at the beginning of the document being changed, usually as a special notice. The change shall remain in effect until a revision incorporates all the changes or the basic document is cancelled.

7.4 Format of Change Transmittal Notice. An example of a change transmittal notice is shown in Figure 7-02.

7.4.1 Change Transmittal Notice Number. The change transmittal notice number shall be an Arabic numeral assigned to each change transmittal notice. The numeral "1" shall be assigned to the first change transmittal notice prepared on a particular document, the numeral "2" to the second, and so on.

7.4.2 Designation Line. The designation line, typed in capital letters and underlined, shall appear five lines below the last line of the address in the letterhead if the notice is unclassified, or seven lines if the notice is classified. It shall begin at the left margin and include the following information:

- a. Designation of issuing authority
- b. Document number
- c. Change transmittal notice number

An example of a designation line is:

DON DOCUMENT NUMBER 98T1003 TN-01 CHANGE TRANSMITTAL 1

7.4.3 Change Transmittal Notice Subject. The subject shall consist of the complete title of the document being changed. If this title is classified, the title shall be followed, in parentheses, by the letter(s) necessary to specify that security classification.

7.4.4 Change Transmittal Purpose. The first paragraph shall indicate the purpose of the notice.



NAVY REGIONAL DATA AUTOMATION CENTER, WASHINGTON

WASHINGTON NAVY YARD

WASHINGTON, D. C. 20374

IN REPLY REFER TO:

Code 70

Ser

NARDACWASHDC DOCUMENT NUMBER 98T1003 TN-01 CHANGE TRANSMITTAL 1

From: Commanding Officer, Navy Regional Data Automation Center,
Washington, D.C.

Subj: Documentation Standards

Encl: (1) Revised pages 1, 2, and 3

1. Purpose. To transmit Change 1 to the subject document.

2. Action

a. Pen change. In paragraph 2.2, item d, delete "(Optional)" and insert "(Mandatory)".

b. Page changes. Remove pages 1, 2, and 3 and insert enclosure (1).

s/Commanding Officer

Distribution:
(see next page)

FIGURE 7-02. Example of Change Transmittal Notice

7.4.5 Change Transmittal Notice Action. The action paragraph of the change transmittal notice shall provide specific instructions to recipients about the actions that must be taken to effect the changes.

7.4.5.1 Pen Changes. Pen changes shall generally be listed first in the action paragraph and shall specify the page number, paragraph number, and line to be changed as well as the words to be inserted, deleted, or changed.

7.4.5.2 Page Changes. Page change specifications shall include specific instructions to the recipient about the pages to be removed from or added to the document. These changes shall generally be listed in sequential order using the structure of the original document as the guide.

7.5 Format of Transmitted Text.

7.5.1 Page Numbering.

7.5.1.1 Additional Pages. Pages added to the text sections or to an appendix immediately following the last page of the text section or appendix shall be numbered with the sequential numbers following the last page number. Pages that are to be added between consecutively numbered pages of a document shall be numbered with the number of the preceding page followed by a lower case letter; e.g., iia, l2a, l2b, A-l4a, etc.

7.5.1.2 Replacement Pages. Pages forwarded to replace obsolete pages of a document shall be numbered with the same page number as the page being replaced.

7.5.2 Change Number and Date. The change transmittal notice number shall be indicated in the upper outside corner of each page. The number shall be followed on the second line by the date of the change transmittal notice. For example:

Change 2
28 February 1978

7.5.2.1 Single-face Printing. The change number and date of a change to a document that is printed only on one side (face) of a sheet shall appear in the upper right-hand corner of the page.

7.5.2.2 Double-face Printing. when double-face printing has been used, the change number and date shall appear in the upper right-hand corner of odd numbered pages and the upper left-hand corner of even numbered pages. when a change is being made to only one page (one side of a sheet), the replacement page shall show the change transmittal number and its date only on the page

being changed even though the other face must be reprinted on the replacement page.

7.5.3 Other Markings.

7.5.3.1 Enclosure Labeling. Pages attached to the change transmittal notice must be referenced in the text of the notice as enclosures, but shall not be labeled as enclosures.

7.5.3.2 Identifying Changed Paragraphs/Lines. An indication of the portion of the page that has been changed shall be provided on all replacement pages. A vertical line in the right margin shall be provided. It shall begin with the first line changed and end at the last line, without intersecting any text lines. If the change affects only one line, only that line shall be so marked. Such changes may be indicated in the outer margin by "A" for "addition," "D" for "deletion," and "R" for "revision or change", in accordance with SECNAV Instruction 5215.1C.

In the event full pages are added or changed, the vertical line should not be used.

7.6 Classification Considerations.

7.6.1 General. The classification of the information contained in a change to a classified document shall determine the security classification of the change transmittal.

7.6.2 Classified Transmittal to Unclassified Document. When a change transmittal notice contains or transmits information of a higher classification than that of the basic document, it shall include specific instructions for updating the basic document, including prefixing the appropriate code to the document number. In this case, a new cover, new title page, and a list of effective pages should be provided with the notice. For additional information see Section 5.

7.6.3 Transmittal of Lower Classification than Classified Document. When the change transmittal is unclassified or given a lower classification than the document it modifies, it must include a specific statement calling attention to the higher classification of the basic document and explaining that the transmittal has been given a lower classification because of the nature of its own contents.

SECTION 8. FLOWCHART SYMBOLS AND GUIDELINES

8.1 Purpose. This section establishes those symbols which are to be used to represent processing operations on charts and guidelines regarding their use.

8.2 Specific Flowchart Symbols. The flowchart symbols specified in the current version of the American National Standard (see paragraph 1.2) shall be utilized.

8.3 Graphic Symbols. The graphic symbols shown in Figure 8-01 are recommended for general use when appropriate on flowcharts and in other documentation.

8.4 General Format Requirements.

8.4.1 Physical Dimensions and Layout. Flowcharts shall be drawn on plain white bond or vellum drawing paper (not to exceed 10 1/2 inches by 16 inches) or on computer printer paper. The paper shall be positioned such that the longer dimension is horizontal.

The binding margin shall be 1 inch wide. All other margins shall be 1/2 inch wide.

The area within the margins shall contain all symbols, annotations, remarks, and legends.

8.4.2 Plate Label. Each page of a flowchart rendered by graphic techniques is referred to as a plate. Each plate shall contain a rectangular label in the lower right-hand portion of the area defined above and shall contain information such as the following:

- a. Label - the label or short title which identifies the system or program depicted in the flowchart. This shall generally be the name of the program as it appears in the source code; e.g., SORTIR.
- b. Title - the full name or function of the system or program depicted in the flowchart; e.g., SORT INPUT RECORDS.
- c. Programmer/date - the name of the analyst or programmer who drew the flowchart and the date the flowchart was completed.
- d. Project number - the number of the project for which the flowchart was drawn.
- e. Number - a plate number which identifies a particular

+	plus, add	=	equal to
-	minus, subtract	≠	not equal to
×	multiply ¹	⩾	not greater than
÷	divide ¹	⩽	not less than
±	plus or minus	YES or Y	Yes
>	greater than	NO or N	No
<	less than	TRUE or T	True
≥	greater than or equal to	FALSE or F	False
≤	less than or equal to		

¹ Multiplication and division signs may be similar to those used in the programming language, such as "*" for multiplication and "/" for division.

FIGURE 8-01. Graphic Symbols

flowchart. This number shall be assigned by the project leader and inserted at time of plate preparation or when final assembly of all plates is effected. It may be used to cross reference the plate to the next or to any other plate.

- f. Mod - an alphabetic character indicating successive modifications of the particular flowchart. The original flowchart modification designator may be blank, the first revision of it "A", the second "B", etc.
- g. Page x of n - "x" is the individual page number of the total number of "n" pages within the set describing a particular program or routine.

8.5 Automated Flowcharts. Flowcharts produced by automated flowcharting programs may be used in lieu of those rendered by graphic techniques.

SECTION 9. CHART TYPES

9.1 Purpose. This section presents and describes a set of chart types that may be included, as appropriate, in computer programming documents.

9.2 Chart Types. The five types of charts described in the following paragraphs may be used to graphically present information about one system in several different types of programming documents at the level of detail most suitable to the readers of each document. The chart types range from a general description of system organization in the System Organization Chart to a detailed representation of program operation in the Micro Flowchart. All blocks and symbols used in each chart must be fully labeled and identified.

9.2.1 System Organization Chart.

- a. Purpose: To provide an overall view of the system organization and information flow for the orientation of general management and staff requiring a basic understanding of the system.
- b. Content: A block diagram representation of identified functional areas/commands/organizations/activities related to the system with interconnecting data information flowlines between applicable blocks. An example is shown in Figure 9-01.

9.2.2 System Information Flowchart.

- a. Purpose: To provide a comprehensive presentation of the flow and handling of information within the overall system for management and staff personnel.
- b. Content: A block and symbolic representation of input, operation, and output information in the various functional areas of the organization with interconnecting flowlines. The System Information Flowchart is a more detailed breakdown of the information flow through the system than is provided by the System Organization Chart, and it may include pictorial representations of equipments for additional clarification of flow and handling of system information. An example is shown in Figure 9-02.

9.2.3 Integrated ADP Flowchart.

- a. Purpose: To present all significant aspects of data flow for use as a means of communication of system

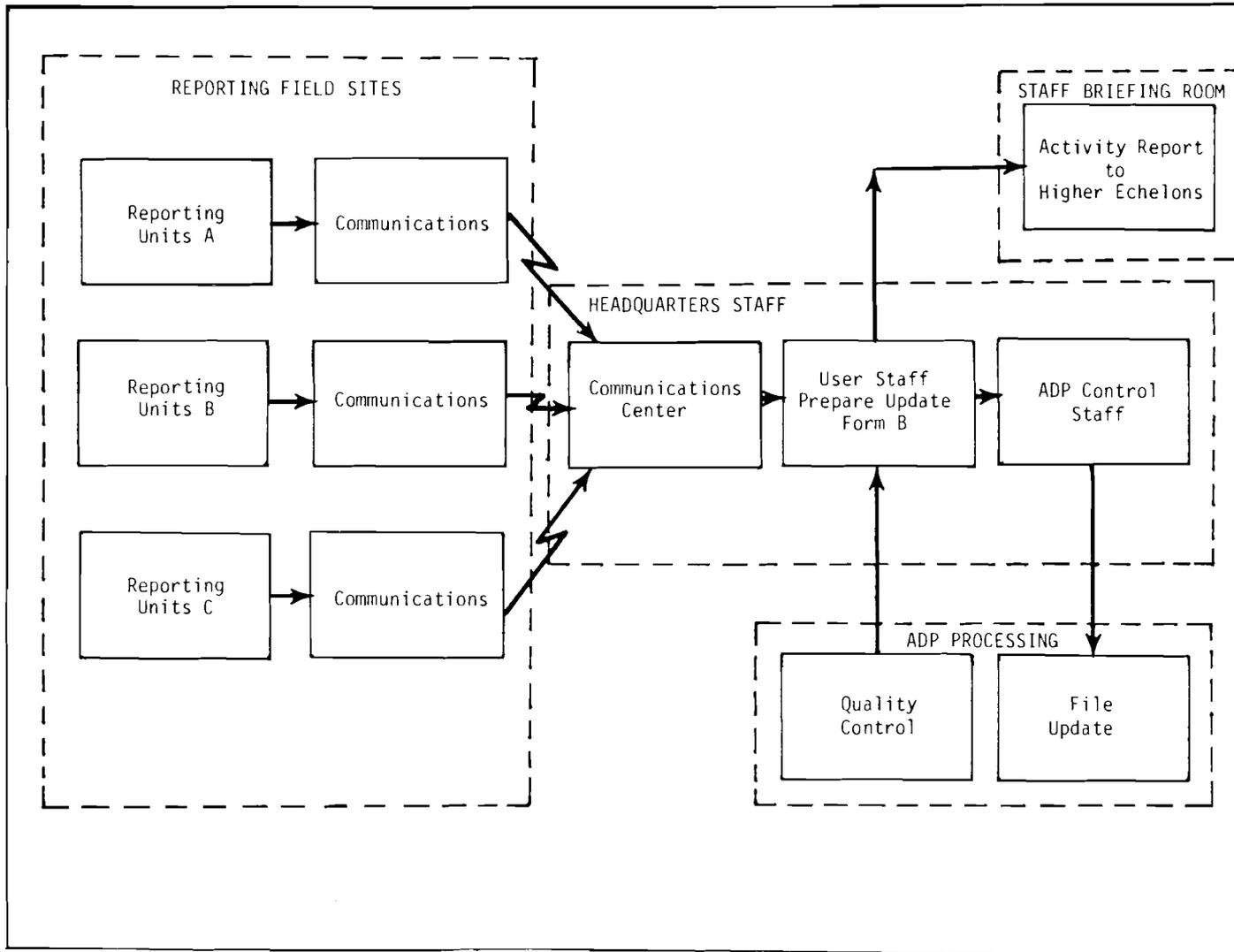


FIGURE 9-01. Example of System Organization Chart

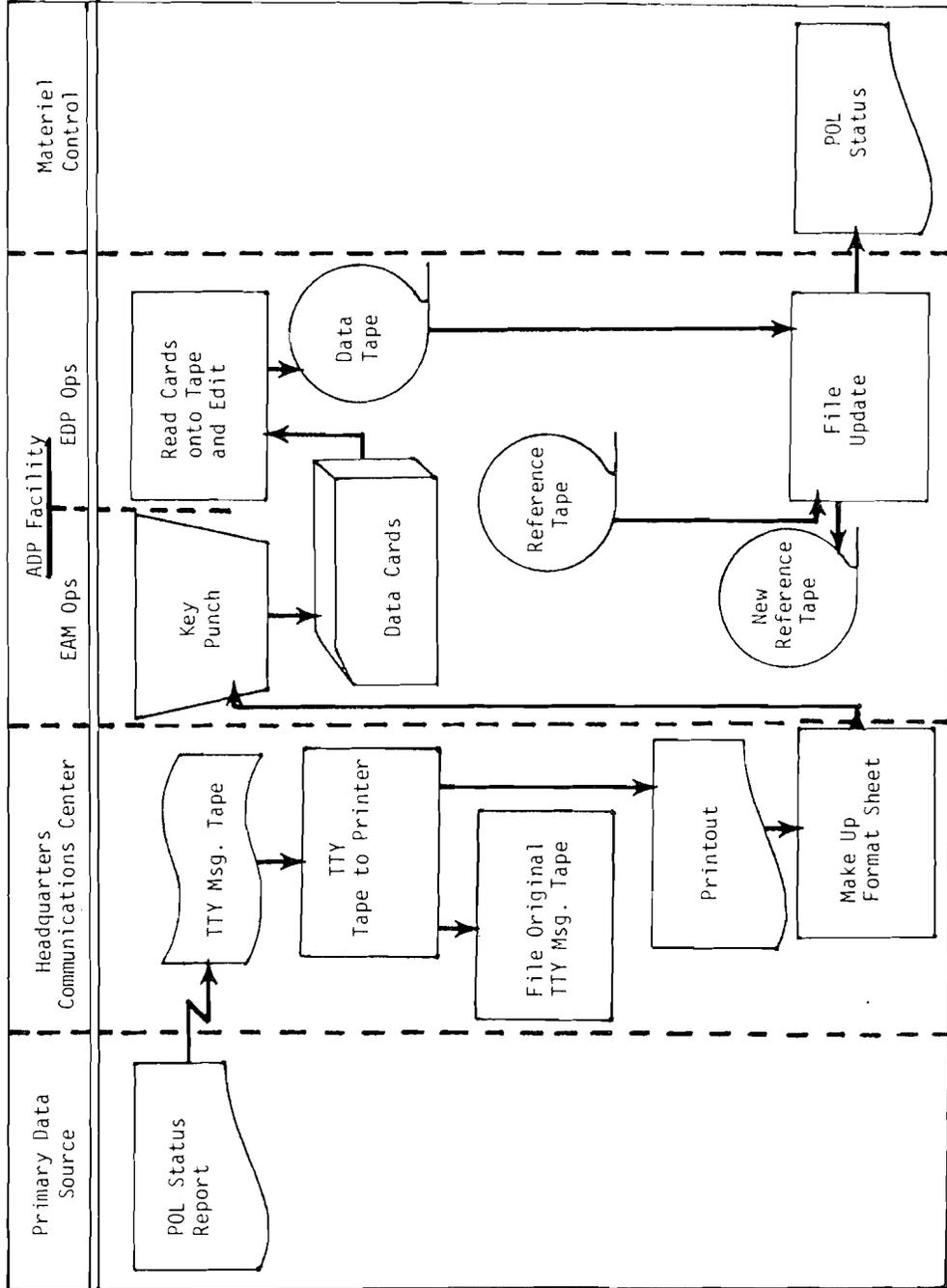


FIGURE 9-02. Example of System Information Flowchart

design between user and system analyst, to provide a basis for development of detailed system design, and to provide operating personnel with an integrated picture of system data processing operations.

- b. Content: A comprehensive portrayal of data flow including data processing operations and interrelationships throughout the system depicted with standard flowchart symbols. An Integrated ADP Flowchart is a more detailed breakdown of data flow and data processing operations than is presented in a System Information Flowchart. An example is shown in Figure 9-03.

R) 9.2.4 Higher-level Flowchart.

- a. Purpose: To provide a means of communicating detailed system operation and program interrelationships.
- b. Content: The sequence of processing events in ADP symbology to be performed by the computer. See Figure 9-04 for an example.

9.2.5 Micro Flowchart.

- a. Purpose: To provide a detailed definition of the organization and logic of each program or subroutine in the system for design, debug, and test purposes.
 - b. Content: The sequence of logic processes for a program described in computer level language. Figure 9-05 is an example of a flowchart of a subroutine "PRNT" which is one block on the Higher-level Flowchart in Figure 9-04. For most systems two levels of flowcharts (Higher-level and Micro) are sufficient. Micro flowcharts of varying levels of detail may be produced, however, only if a system requires flowcharts at more than two levels of detail.
- R)
- R)

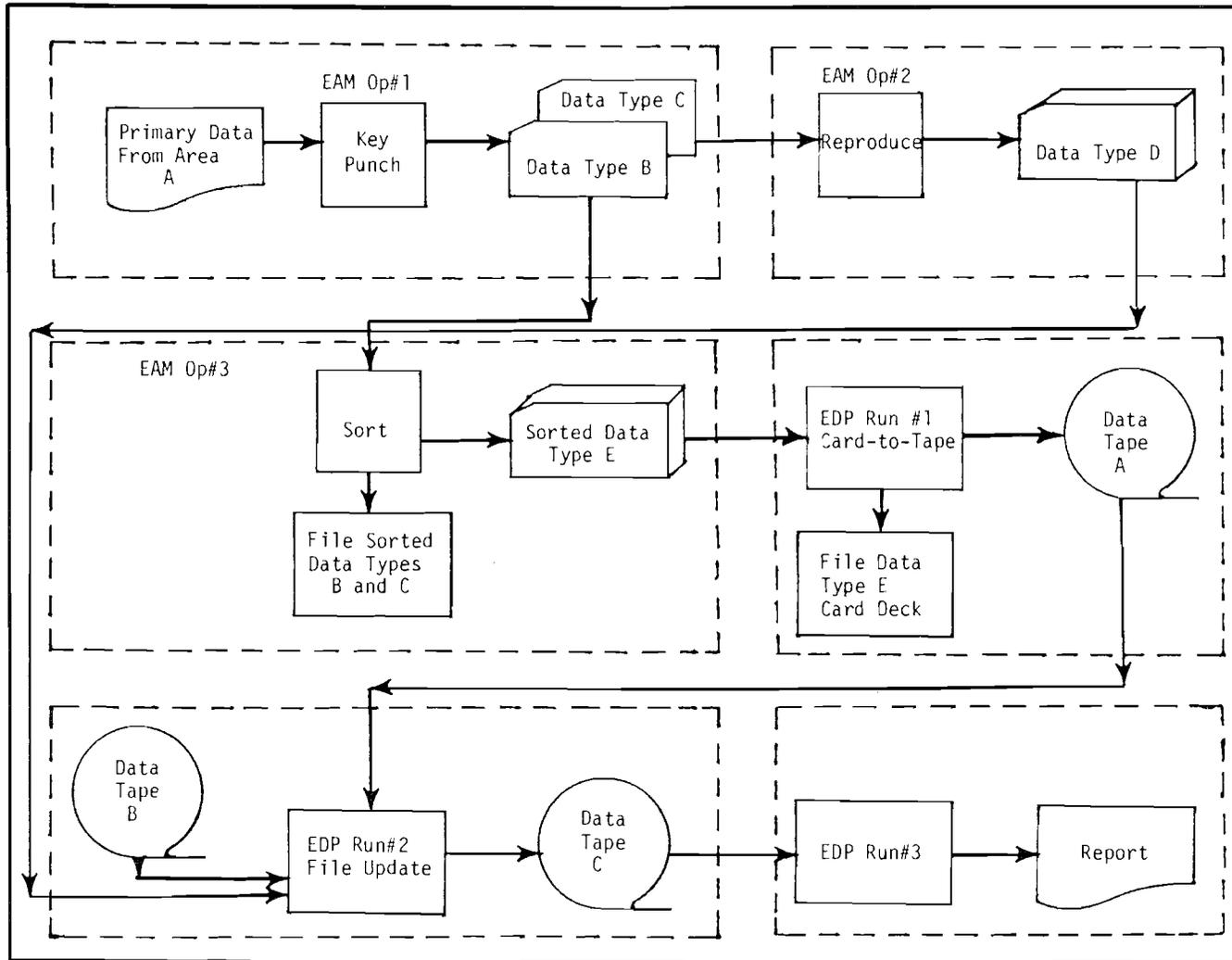
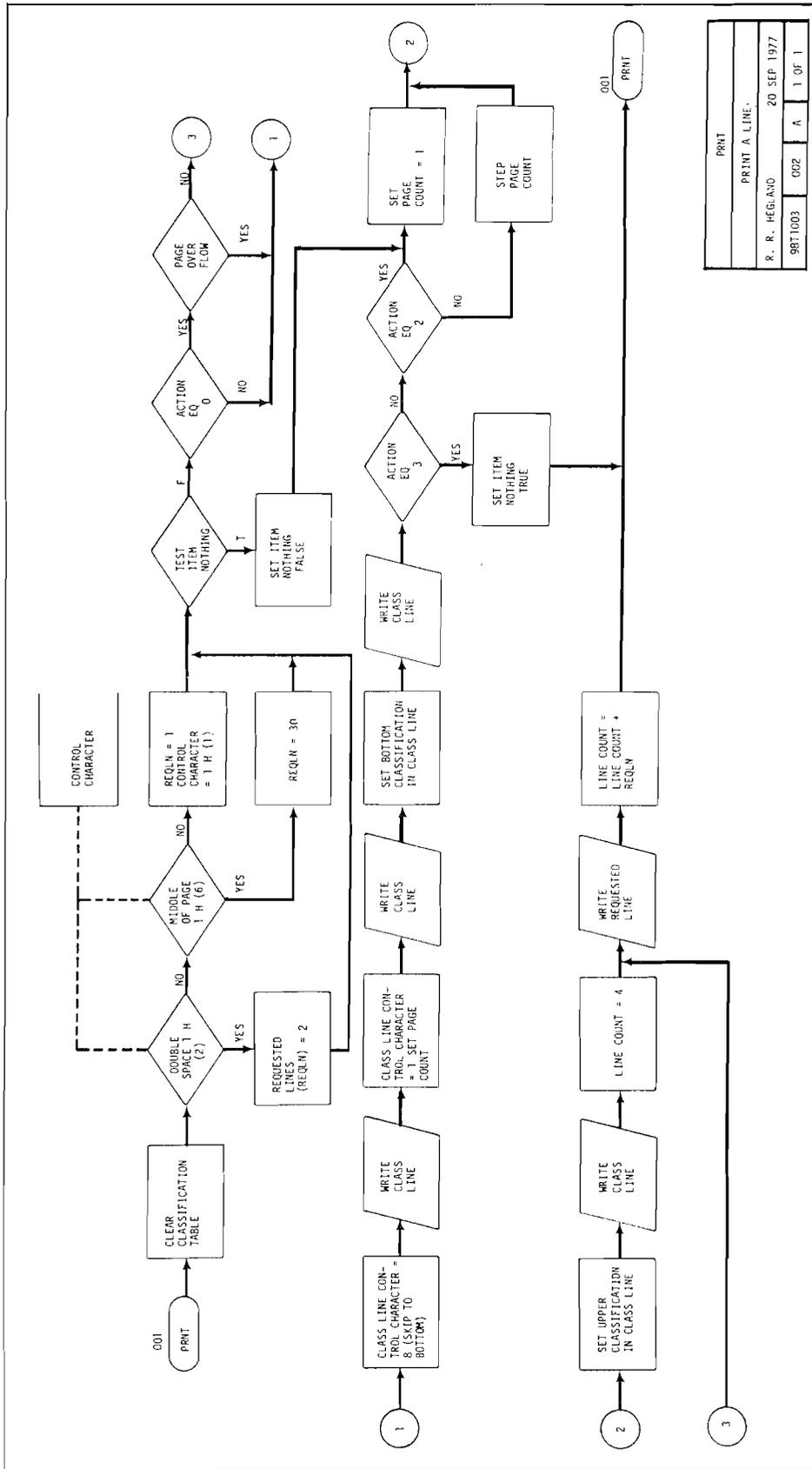


FIGURE 9-03. Example of Integrated ADP Flowchart



PRINT
PRINT A LINE
R. R. HEGLAND
20 SEP 1977
98T1003
002
A
1 OF 1

FIGURE 9-05. Example of Micro Flowchart

SECTION 10. DATA DESCRIPTION LANGUAGES (DDL)

10.1 Purpose. This section prescribes a standard method to describe, format, and document data independent of any programming language.

10.2 Background.

- a. Data has traditionally been processed and stored redundantly, in independent application-oriented files associated with one or more specific programs. As management information systems are formed to function as integrated systems, this independent processing and storage of data becomes unwieldy. This has led to the development of data bases. (R)
- b. A data base can be said to be a collection of interrelated data that is stored independently of programs that use the data, and over which centralized control of data storage, modification, and retrieval is exercised. To support the requirement for centralized control, and also to allow programs written in different programming languages to process the data in the data base, it is useful for the description of the data base to be independent of the computer system or programming languages used in conjunction with that data base. In conjunction with this separate data description, there often exists a separate program, called a data base management system (DBMS), which accepts the data description as input, and which performs all processing of the data base in response to requests from individual programs that use the data base. (R)
- c. The CODASYL Data Description Language Committee Journal of Development 1978 which replaces the 1973 Journal of Development (issued as National Bureau of Standards (NBS) Handbook 113 (NBS-HB-113)), includes specifications for a common data description language (DDL), independent of, but common to, many higher level programming languages. For example, programming language interfaces for accessing data bases described in this DDL have already been defined by CODASYL for the COBOL and FORTRAN languages. The CODASYL DDL provides a common framework within which data for other programming languages also can be documented. (R)

10.3 Application to this Instruction. The Data Requirements Document and Data Base Specification shown in Figures 3-02 and 3-05, respectively, of Part 3 of the Automated Data Systems (R)

- Documentation Standards are directly related to application of
- A) the DDL concept. In many cases, it will be mandatory that a data description be in a form peculiar to a particular system or programming language. For example, if a particular data base management system (DBMS) is in use at an installation, then descriptions of data bases to be maintained under that DBMS must, ultimately, be expressed in the DDL associated with that DBMS. However, data base designs or data requirements analyses are frequently prepared in a number of stages in order to reduce the complexity of these efforts. In such cases, the interim stages of such designs or analyses might benefit from being documented in a form independent of particular DBMS's or programming languages. In fact, often such interim stages take place prior to or during selection of particular DBMS's or programming languages. In these circumstances, use of a DDL independent of particular DBMS's or programming languages is highly desirable.
- R) 10.4 Implementation of DDL. Addressees are encouraged to use the CODASYL DDL for documenting data when it is not mandatory that the data description be in a form peculiar to a particular system or programming language.
- A) 10.5 Ordering CODASYL DDL Document. Copies of the CODASYL Data Description Language Committee Journal of Development 1978 may be obtained for \$6.50 (in Canadian or United States funds) a copy. The remittance should be made payable to "The Receiver General for Canada" and forwarded to: Material Data Management Centre, Department of Supply and Services, 4th Floor, Core B1, 11 Laurier Street, Hull, Quebec, Canada K1A 0S5.

APPENDIX A

(A

FOOTNOTES

- 1 Several of these documents are listed in and available through the Department of Defense Index of Specifications and Standards (DODISS) as documents under "Other Departmental Documents" and Area IPSC (Information Processing Standards for Computers). Pursuant to Section 2-601 of the Defense Standardization Manual (DSM) 4120.3-M of January 1972, distribution is made automatically to activities on automatic distribution for IPSC documents. DSM 4120.3-M, the DODISS, and all items entered in the DODISS are stocked at and available from the DOD Single Stock Point (DODSSP) for Standardization Documents, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120. They may be requested using DD Form DD1425 or by telephone (AUTOVON 442-3321).
- 2 See Section 6 for a definition of these mnemonics.
- 3 Flowcharts are further discussed in Section 8.
- 4 When the Users Manual, Computer Operation Manual, and Program Maintenance Manual are bound together in the Project Manual, the pages shall be numbered as described, but those in the first manual shall be preceded by "1-" and those in the second manual by "2-" (e.g., 2-12, 2-A-1, 2-Index-1), etc.
- 5 When several manuals are bound together into the same document, the footnote symbol "1" shall be used for the first footnote in each manual.



ASD(C)

Department of Defense Instruction

SUBJECT DoD Automated Data Systems Documentation Standards

- References:
- (a) DoD Instruction 4120.17, above subject, December 29, 1972 (hereby canceled)
 - (b) DoD Directive 5100.40, "Responsibility for Administration of the DoD Automatic Data Processing Program," August 19, 1975
 - (c) DoD Directive 4105.55, "Selection and Acquisition of Automatic Data Processing Resources," May 19, 1972
 - (d) DoD Manual 4120.3M, "Standardization Policies, Procedures, and Instruction," January 3, 1972
 - (e) DoD Manual 4120.17M, "Automated Data System Documentation Standards Manual," December 29, 1972 (hereby canceled)

A. REISSUANCE AND PURPOSE

This Instruction reissues reference (a) to implement provisions of DoD Directive 5100.40 (reference (b)), supplement DoD Directive 4105.55 (reference (c)), and authorize the publication of the DoD Automated Data Systems (ADS) Documentation Standards (DoD Standard 7935.1-S). References (a) and (e) are hereby superseded and canceled.

B. APPLICABILITY AND SCOPE

1. The provisions of this Instruction apply to the Office of the Secretary of Defense, the Military Departments, the Organization of the Joint Chiefs of Staff, the Defense Agencies, and the Unified and Specified Commands, referred to hereafter as "DoD Components."

2. Its provisions cover the documentation of all DoD ADS administered under the authority of references (b) and (c), throughout their life cycles, whether owned and operated by DoD or by contractors for DoD. The standards set forth in DoD 7935.1-S will govern to the exclusion of any other issuances, e.g., Federal Information Processing Standards Publication 38, and DoD Component issuances.

C. DEFINITIONS

Terms used in this Instruction are defined in enclosure 1 of DoD Directive 5100.40 (reference (b)) and enclosure 1 to DoD Directive 4105.55 (reference (c)).

Enclosure (2)

D. POLICY

1. DoD Standard 7935.1-S will be used as the basis for documentation of all ADS projects, DoD-wide, that are initiated after the effective date of the Standard. The Standard is designed to facilitate continuing improvement and timely responsiveness to evolving technology. Amendments will be published to accomplish this.

a. Redocumentation of an existing ADS to meet the requirements of DoD Standard 7935.1-S is required when major system changes to the ADS are accomplished and the cost of such redocumentation (1) is a small percentage of the cost of the system change and (2) can reasonably be expected to be recovered during the life cycle of the system, using the Standard.

b. DoD Components may issue only such administrative instructions as are necessary to implement the provisions of this Instruction and distribute the Standard.

2. Approved waivers to the provisions of the Standard will be considered as interim measures and will ultimately be brought into compliance with the Standard.

E. RESPONSIBILITIES

1. The Deputy Assistant Secretary of Defense (Management Systems) shall arrange for publication of the Standard and any approved amendments and shall act as approval authority for request for waivers from provisions of the Standard.

2. The Senior ADP Policy Official of a DoD Component, designated in accordance with DoD Directive 5100.40 (reference (b)), shall ensure the implementation of this Instruction and the Standard within his Component, process requests for waivers from its use, and recommend appropriate revisions to the Standard.

3. The Director for Data Automation, Headquarters, USAF, designated the DoD Assignee Activity for Information Processing Standards for Computers in accordance with DoD Manual 4120.3-M (reference (d)), shall review and coordinate all recommendations for changes to DoD Standard 7935.1-S prior to final approval by the Deputy Assistant Secretary of Defense (Management Systems).

F. WAIVERS

1. When application of DoD Standard 7935.1-S will result in unacceptable degradation of performance or substantial increase in costs, a waiver of the provisions of the Standard may be requested on an individual ADS or project basis.

2. Request for waiver shall be forwarded by the DoD Component Senior ADP Policy Official to the DoD Assignee Activity shown in paragraph E.3. for assessment and recommendation to the Deputy Assistant Secretary of Defense (Management Systems).

3. The justification for such waiver shall be based on a life cycle cost and demonstrate an unfavorable cost-benefit impact. Recommendation for revision to the Standard shall also be proffered to obviate the need for similar future waivers.

F. EFFECTIVE DATE AND IMPLEMENTATION

The provisions of this Instruction are effective immediately. Forward three copies of implementing documents to the Assistant Secretary of Defense (Comptroller) within 90 days.



Assistant Secretary of Defense (Comptroller)