

U.S. Marine Corps



USERS MANUAL



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Subj: INFORMATION RESOURCES MANAGEMENT (IRM) USERS MANUAL

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(b) MCO P5231.1B
(c) MCO 5271.1

Encl: (1) IRM-5231-07A

1. PURPOSE. To provide guidance and instructions on the development of a Users Manual as required by references (a) and (b).
2. CANCELLATION. IRM-5231-07.
3. SUMMARY OF REVISION. This revision adds a discussion of the methodology for designing, developing and maintaining a Users Manual as well as a revised explanation of its contents.
4. AUTHORITY. This publication is published under the auspices of reference (c).
5. APPLICABILITY. The guidance contained in this publication is applicable to all contractors and Marine Corps personnel responsible for the preparation of a Users Manual.
6. DISTRIBUTION. This technical publication will be distributed as indicated.
7. SCOPE
 - a. Compliance. Compliance with the provisions of this publication is required unless a specific waiver is authorized.
 - b. Waivers. Waivers to the provisions of this publication will be authorized only by the appropriate approval authority, as defined by reference (b), on a case by case basis.
8. RECOMMENDATIONS. Recommendations concerning the contents of this technical publication should be forwarded to CMC (CCI) via the appropriate chain of command. All recommended changes will be reviewed upon receipt and implemented if appropriate.

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USERS MANUAL
IRM-5231-07A

Encl (1)

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RECORD OF CHANGES

Log completed change action as indicated.

Change Number	Date of Change	Date Received	Date Entered	Signature of Person Entering Change

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Chapter 1

GENERAL

1.1. INTRODUCTION

1.1.1. Objectives. The objectives of this standard are to provide a framework for the development and control of User's Manuals (UMs) and to define the format and content of those documents. Adhering to this standard ensures that all UMs will be uniform in structure, content, and quality. This standard presents a structured approach to the development of documents which are modular, readable, usable, and maintainable.

1.1.2. Purpose. The purpose of a User's Manual is to provide functional and technical users with knowledge of the system and its components. In providing operating instructions and serving as a basis for training, a well written User's Manual bolsters faith in the quality of the system, and can dramatically reduce the impact of personnel turnover. To accomplish this, a UM serves in several capacities, including:

a. System Introduction. The UM can and should be used as the basis for general and specific training on the system. Familiarization and use of the manual should be covered at the onset of training.

b. Reference. In the absence of key personnel or when non-routine events occur, the UM provides functional documentation.

c. Control and Review. The UM provides for management control and command auditing by providing a means for confirming the correct procedures.

d. Communication. The UM provides an effective means of communicating information about the system between development and user organizations by establishing terminology and graphically depicting the operation of the system. If the UM is developed concurrently with the system, it facilitates communication during system design as well as after implementation.

1.2. SCOPE. This User's Manual standard describes the approach to the development of UMs, and defines the elements which should be contained in them. Appendix A contains a comprehensive table of contents for UMs and Appendix B provides a description of each table entry. Those areas applicable to most UMs are noted in Appendix A as fundamental elements. Other topics which may or may not apply to a particular AIS are presented for consideration by the author. This publication also addresses the manner of presenting the operational features and their usage to functional and technical users of the system.

1.3. APPROACH. This section provides the general methodology to be used in developing a UM.

1.3.1. Definition. A UM is a manual of procedures that explains all operational aspects of the system in enough detail for personnel with access to the system to effectively interface with it. A UM is not a textbook, an exposition on a subject, or a computer program.

1.3.2. Development Process. Whether during initial development or as part of system maintenance and enhancement projects, the development and maintenance of the UM should parallel the system life cycle process. It is recommended that the analysis step of the UM begin during the detail design portion of the Design Phase in the system life cycle. At this time, the user interfaces are being considered. The interaction generated as a result of developing the UM may provide benefits to the system development process. In effect, the UM acts as a prototype of the user-machine interface. The development of a UM should be organized into four stages as follows:

a. Analysis. An analysis of subjects and users is included to define the organization and content of the UM. Figure 1-01 shows this process.

b. Design. This includes preparing outlines, defining topic modules, writing specifications for each module, assembling the module specifications into a complete specification, and reviewing and approving the specification.

c. Development. This includes writing and reviewing the language and technical content, testing drafts with users, producing final drafts, and supervising the production and distribution of the UM.

d. Maintenance. This includes maintaining files of changes, developing methods for updating the UM, and establishing methods for release and feedback of information.

1.3.3. Style. Regardless of how accurately and completely the UM provides information, the true value of the manual is in the amount of information the user can access and understand. Keeping in mind that users of the manual will range widely in familiarity with the system, the following ideas will help guide the novice, without hindering the expert:

a. Provide detailed instructions on how to use the manual.

b. Cite a page reference to the first use of each term defined in the glossary.

c. Consider page layout carefully. The size of margins, amount of whitespace, typeset and font, and use of appropriate

graphics may well mean the difference between a UM used continuously as a reference, and one used only when absolutely necessary.

d. Use tabs (with titles rather than numbers) to help divide material within volumes.

e. Provide a detailed description followed by an expert synopsis for each command or task. If possible, provide a ready reference chart which can be extracted from the manual. Keep in mind that these charts, if good, will be reproduced locally and plan their size and layout accordingly.

f. Don't make the user think of the one "magic phrase" to locate an entry via the index. Consider the various terms one might use in trying to locate information and provide entries for all of them. For example, "File", "Save", "Store", and "Backup" could all be index entries referring to a single page with instructions for saving data.

g. Keep the reading level appropriate to the user group.

h. Beyond the technical publication format requirements, keep the "look and feel" consistent within the UM and among UMs for related systems. This gives the user a degree of familiarity and comfort. It is especially important when using multiple writers in developing the manual.

i. Provide a list of common errors that are most likely to occur during use of the system. This should include a brief explanation of the error as well as the corrective action necessary to eliminate the error. Where appropriate, common errors should be categorized in groups of operational areas within the system.

j. Provide detailed file descriptions to include information such as data element names, definitions, format, and sample data entries.

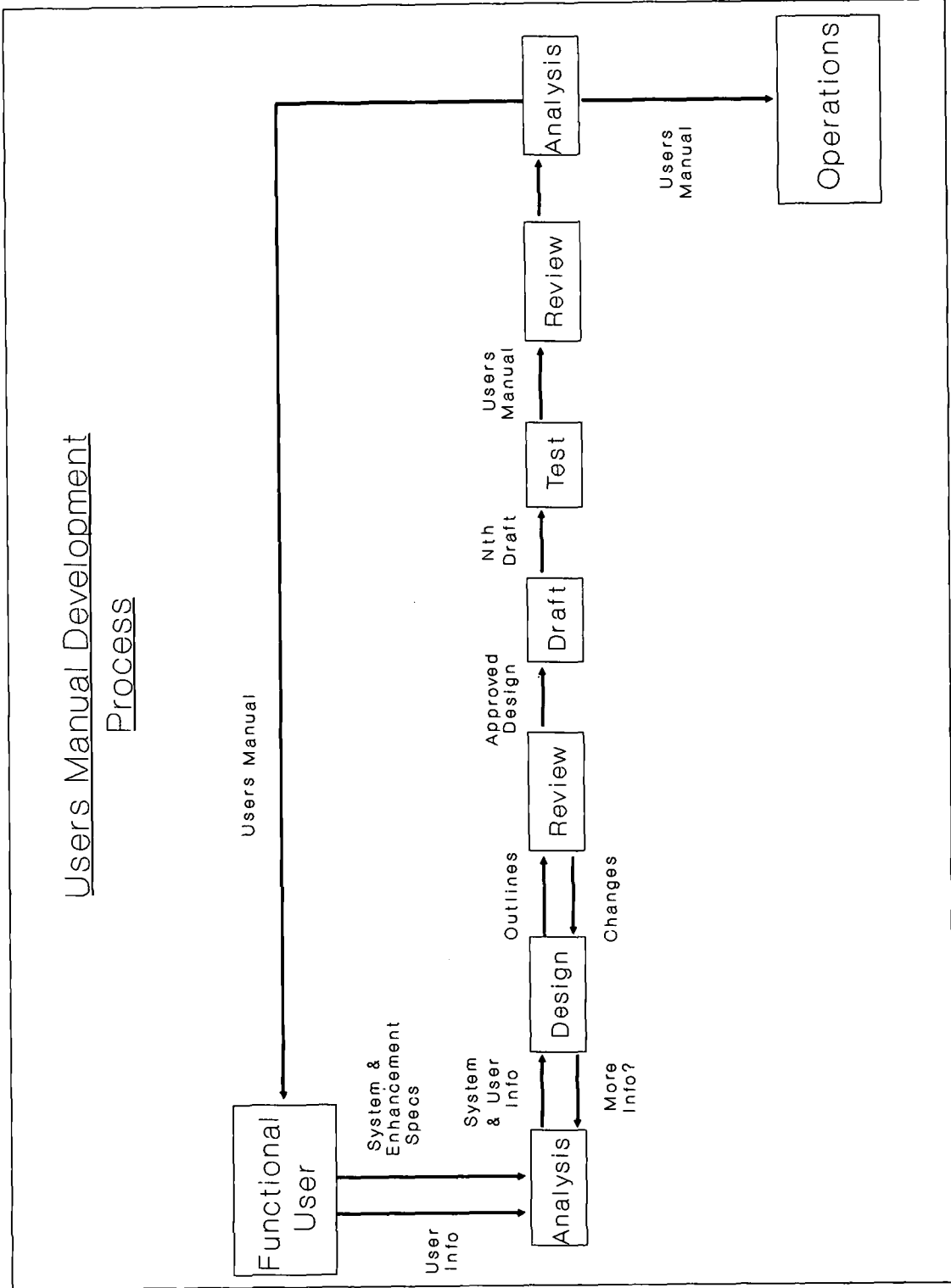


FIGURE 1-01
Users Manual Development Process

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Chapter 2

PROCEDURES

2.1. RESPONSIBILITY. The Project Manager is responsible for reviewing, evaluating, and providing guidance in the development of the UM. The review should ensure that the UM is complete, organized, understandable by the user audience, and in compliance with this standard.

2.2. DOCUMENT ANALYSIS. The following paragraphs outline the components of the analysis process. This process develops information used in defining the scope of the UM subject. It takes into account both the technical characteristics of the system and the characteristics of the groups of users likely to be involved with the system.

2.2.1. Preparation. Begin by preparing a project plan, as for any systems project. One of the first tasks would be to determine some background information about the UM environment. Answers to the following questions will provide guidance as the analysis and development of the UM proceed:

- a. In what LCM phase is the project?
- b. What is the target date for the finished UM?
- c. How much detail is required?
- d. What is the minimum introduction needed?
- e. What is the expected life of the system?
- f. How frequently will the system change?

2.2.2. Topics and Functions. An analysis of topics and functions which the manual will contain is required to determine the manual's overall structure. The UM should contain a section for each logical procedure in the system. Procedures described in the UM may correspond to system processes included in the data flow diagrams of the General Design Specification. More importantly, though, they must correspond to the intended users view of the system. The physical structure of the manual should facilitate use along logical paths as viewed by the user.

2.2.3. User Assessment. Through the UM, the users learn to operate the system and expand their knowledge of system capabilities beyond the basics that may be taught in formal classes. A thorough analysis of the types of users who will be using the system is required in order to tailor the UM to each type of user. A well written, grammatically correct manual, which is written at either too high or too low a reading level or does not use accepted functional terms, will be received poorly.

In addition, it will reflect poorly on the system overall. Answers to the following types of questions will direct the tailoring of the UM to the needs of each user group:

- a. What do the users care and not care about?
- b. What procedures are done most frequently by the users?
- c. What experience does each class of users have with computers? With the process overall?
- d. How frequently will each class of users access the system?
- e. How intelligent is the typical user? How much education will he/she have?
- f. Does the typical user have any programming skills or knowledge of data processing?

2.2.4. Information Gathering. This is the key element in the development of the UM. The information gathered concerning the system and users will determine both the general design and detailed contents of the UM. This activity must be approached openly and aggressively. Research has shown that the amount of information contained in the source document (Final Requirements Definition (FRD)) is seldom more than 50% of the information needed for the final UM, regardless of whether the UM is developed concurrently with the system or as a final activity just prior to implementation. While the FRD and other system documentation provides the basis for the information gathering and general design of the UM, the analysis process is more than transcribing the FRD. The author must be sure to collect all of the content that will go into the manual. The author must also gather enough information about the users to have a good understanding of their needs and potential use of the manual. The latter is used to tailor the presentation of the content to the user audience.

2.3. DOCUMENT DESIGN. This section covers the process of organizing the subject matter of the UM into outline format and creating and assembling module specifications. Even though the UM contents are specified in the appendices to this manual, the developer of the UM has a great deal of latitude in the overall design of the document. The overall objectives are to develop a complete and easy to use manual. With that in mind, several organizational variations of the UM organization may be possible depending on the characteristics of the system and users, the flexibility of the system, and the anticipated need for referencing. The UM may be designed to facilitate use by function (Pay or Personnel; Active vs. Reserve Accessions) or processing position (sub-unit or unit; RASC or MCCDPA). The

UM design, within the categories above, may also favor a topic (adding an item to inventory) or a command (add/change/delete) approach.

2.3.1. General. The principles of structured design of systems apply equally well to the design of a UM. The following are particularly important considerations:

- a. Use modules to facilitate development and updates.
- b. Limit each module to one idea or concept (high cohesion).
- c. Whenever possible, use graphics rather than lengthy explanations to convey meaning.
- d. Keep sections, paragraphs, sentences, and words simple.
- e. Include adequate (even extraordinary) indexing and referencing.
- f. Increase redundancy to avoid constant referencing, especially in frequently used material.

2.3.2. Separation Decisions. The following paragraphs discuss several options in the UM design intended to facilitate user ease of learning and reference. These decisions are diagrammed in Figure 2-01. Figure 2-02 provides examples of UMs using the various organizational options.

a. Organizational Separation

(1) Functional Separation. Separating the UM into volumes/procedures by functions (Pay/Personnel; Active/Reserve) ensures that all information about that function, regardless of the supervisory or authority level to which it pertains, is included in one place. Commonly called vertical integration, this method enables the user to see what happens to information as it is entered and proceeds through the system. The danger is that too much detail, needed at various processing levels, will make the manual unwieldy or confusing.

(2) Positional Separation. Separating the procedures by user level (rank or processing level) provides a good picture of all of the activities occurring at one level (horizontal integration). However, this approach may make it difficult to determine the ultimate use of information being provided and may not provide clarification in unusual situations.

b. Referential Separation

(1) Task/Subject Separation. Separating by task or subject provides a menu or checklist approach to processing. Using this approach, the UM details the sequence of steps necessary to complete an entire task. This approach is commonly

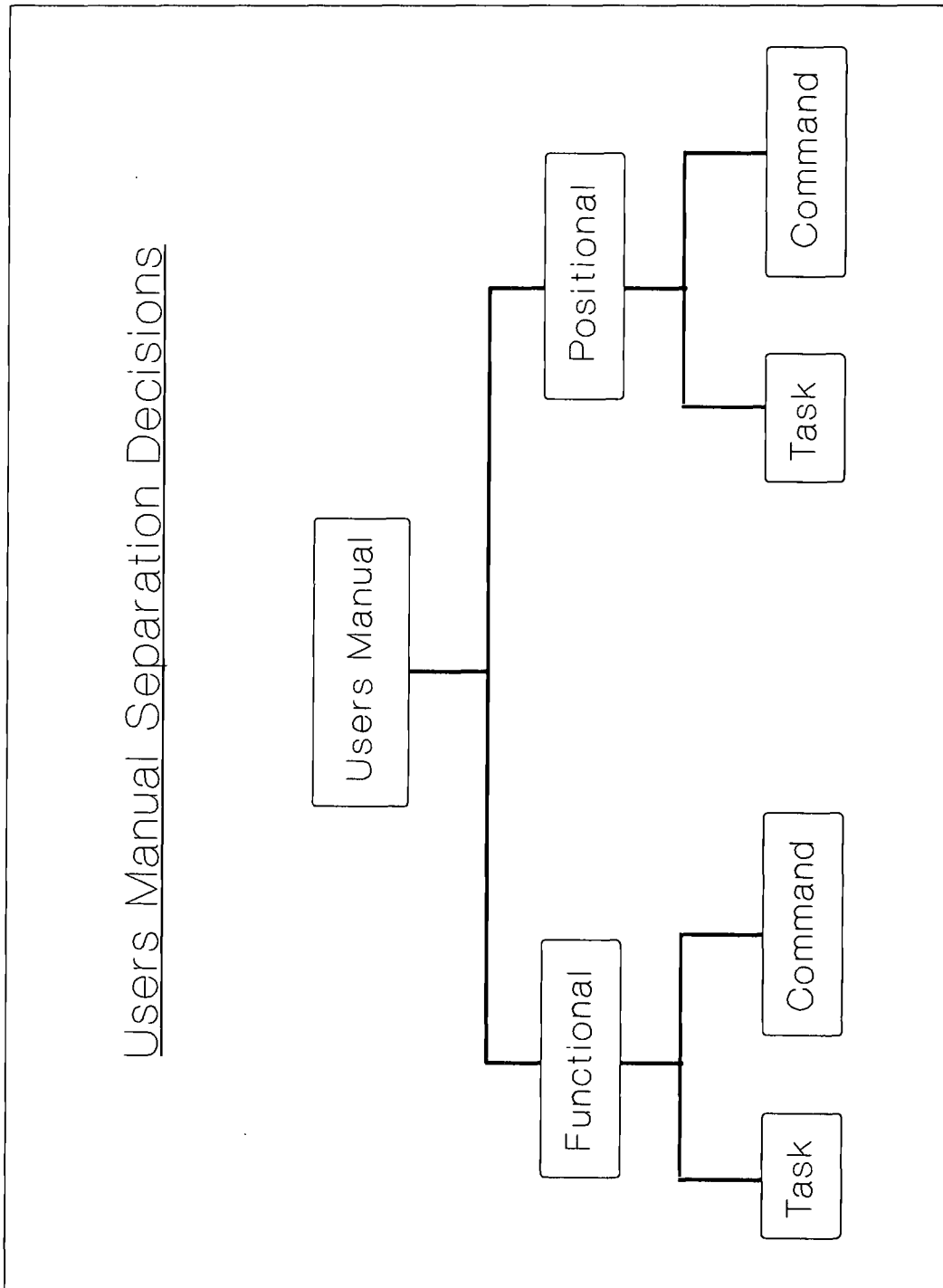


FIGURE 2-01
Users Manual Separation Decisions

ORGANIZATIONAL SEPARATION

Functional Separation:

Chapter 1: Active Duty Personnel

Paragraph 1: Accessions
Paragraph 2: Promotions
Paragraph 3: etc

Chapter 2: Reserve Personnel

Paragraph 1: Accessions
Paragraph 2: Promotions
Paragraph 3: etc

Positional Separation:

Chapter 1: Headquarters Process

Paragraph 1: Request Nominations
Paragraph 2: Process Submissions
Paragraph 3: Issues Orders

Chapter 2: Field Process

Paragraph 1: Conduct Screening Board
Paragraph 2: Submit Nominations

REFERENTIAL SEPARATION

Subject Separation:

Chapter 1: Adding Items to Inventory

Chapter 2: Changing Stock Quantities

Command Separation:

Chapter 1: Copy Command

Chapter 2: Delete Command

Paragraph 3: Move command

FIGURE 2-02
Organizational/Referential Separation

used in fixed format, repetitive situations, and consists of the string of commands needed to complete the entire task.

(2) Command Separation. Separating by individual program commands (move, delete) allows a free-form approach, but does not lend itself well to describing a set procedure. This is the approach used in documenting many commercially available end user software packages. There is no set sequence of entries for all documents, so the actions necessary to execute a particular command are described in sufficient detail to allow the user to employ that command at will.

2.3.3. Basic Outline. The first step in UM design is the development of a basic outline. A basic outline is defined as a hierarchy of subjects and topics, where levels of the hierarchy are determined by the separation decisions made in the previous section. The outline entries consist of nouns and associated modifiers. The basic outline should be evaluated in terms of direction and basic content prior to continuing development of the UM.

2.3.4. Developed Outline. The developed outline should communicate themes, assertions, instructions, functions, and topics. This outline should contain decomposed headings for each module. A module in this discussion is defined as text and exhibits pertaining to a single topic or function. A well defined module will have a single theme and be oriented toward a single audience. The result is a UM comprised of functionally independent modules. A UM structured in this manner will give the user a stand-alone reference that provides all information needed to perform a given task. While a modular structure may increase redundancy, this may be both necessary and desirable to provide documentation that is useful and accessible to the user.

2.3.5. Module Specifications. A module specification should be written for each module identified in the developed outline. The fact that the module addresses a single function and a single audience should be apparent in the module specification. The specification should contain:

- a. Headings corresponding to the developed outline
- b. A summary paragraph of essential points written in clear concise terms
- c. Other notes, comments, or sketches as appropriate

2.3.6. Specification Assembly. As module specifications are completed, they should be assembled into a package in the order they will appear in the UM. The assembled modules represent a model or prototype of the manual.

2.3.7. Review and Revision. In order to prepare reliable, usable, and maintainable manuals, model specifications must be

reviewed and revised in an iterative process as required. Walk-throughs should be held with representatives from both the development and user communities. As a result of the walk-throughs, modifications to the UM and/or the system may be required. Once the modifications have been made, the UM should be presented for final review and approval. A thorough review at this stage in the development process will preclude extensive revisions later (such as having chosen an organizational-command separation, when a functional task is desired). Also, the review should ensure that each module specification represents one and only one complete topic which is as independent as possible from any other module. This will minimize conflicting narratives and diagrams and will minimize the impact of future changes.

2.4. DOCUMENT DEVELOPMENT

2.4.1. Drafts. A first draft of a module may begin as soon as the module specifications for that topic are approved. Having adhered to structured design principles and developed the overall structure of the UM in a top down, modular fashion, the drafting of the manual may take place in random order without fear of incompatibility or inconsistency.

2.4.2. Testing. The user is an integral part of this process, and users who will actually work with the system and UM should participate in the testing and review of the UM. The test group should be sufficiently large to provide an adequate test base without being unmanageable. Ensure that testing conditions are as similar to operational conditions as possible.

2.4.3. Review. Before approval of the final draft, the project manager should review the UM for the following:

a. Applicability and Accuracy. Does the manual describe the system accurately?

b. Objectives. Does the final product agree with current objectives?

c. Consistency. Is the UM consistent with existing policy? Does the UM follow the UM Standard in content and composition?

2.4.4. Production. The UM should be ready for issue with the system release. If preproduction training on the system is planned, the UM should be available to support that training.

2.5. DOCUMENT MAINTENANCE. Changes and updates to the UM should be anticipated throughout the life of the system.

2.5.1. Types of Changes. Changes to the UM fall into the following categories:

a. Immediate changes to be made whenever there is a modification to the system that requires altering the procedures

set forth in the UM. Without this immediate change, the users will not be able to operate the system properly. These changes will most commonly occur when there is a program change to the automated information system. The corresponding change to the UM should accompany the program change, ensuring that the UM contains current information required to properly operate the system.

b. Documentation changes that are not critical to the operation of the system. Requirements for these changes should be filed, and a group of changes to the UM should be distributed periodically. Examples of non-critical changes are corrections of typographical, spelling, or grammatical errors that do not distort the intended meaning.

2.5.2. Editions. A revised edition of a particular volume of the UM should be released whenever a significant portion of its original content has changed. This would normally coincide with a systems release, usually associated with system enhancements. The Functional Manager should also review the UM periodically for currency and accuracy, as well as plan for necessary revisions.

2.5.3. Change Submission. Currency and accuracy of the information published in the UM are essential. Users at all levels should be encouraged to forward comments and/or requests for revision to the attention of the Functional Manager. This may be accomplished through the letter of promulgation, as shown in paragraph 6 of the letter promulgating this manual. All recommendations received should be reviewed and incorporated if at all appropriate. Return communication to the submitter is recommended, especially if the recommendation will not be acted upon. In that case, the requestor may be signalling a widespread misunderstanding concerning the system. The prevalence of that misunderstanding among other users should be investigated.

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Chapter 3

CONTENT AND FORMAT

3.1. DOCUMENTATION STANDARDS. The UM should conform to the standards described in this manual and IRM 5230-02, Project Deliverable Style Manual. Paragraphs contained within each section may be expanded as required to provide the proper level of detail. Sections may be added as necessary.

3.1.1. Table of Contents. Appendix A illustrates the recommended elements to include in the UM. Fundamental elements (i.e., those found in most UMs) are marked with an '*'. If a section does not apply to the UM being developed, the title of the section and a brief explanation as to its inappropriateness may be included in an early draft of the manual. With later drafts, however, leave the section out entirely.

3.1.2. Description of Contents. For each entry in Appendix A, provide text according to the definitions in Appendix B. All information described should be addressed when applicable. Additional material may be presented for completeness or clarity as appropriate.

3.2. EVALUATION CRITERIA. In evaluating the UM for completeness and accuracy, ensure that:

a. All fundamental paragraphs shown in Appendix A are included (Any fundamental paragraph not included must contain a statement justifying its exclusion).

b. The "Purpose of the User's Manual" shown in Appendix A paragraph 1.1 is consistent with objectives of the Implementation Plan, Functional Requirements Definition, and the General and Detail design specifications.

c. The document is satisfactory in terms of applicability, accuracy, consistency, and objectives as previously described in Paragraph 2.4.3.

3.3. CHANGE REQUIREMENTS. Since the SDM is an integrated methodology, issues may arise during development of the UM which will require changes to preceding documents. Conversely, if the UM is developed concurrently with the system throughout the SDM, changes may be required to earlier UM documents. These changes must be documented and approved in accordance with the quality assurance and configuration management procedures. Project overruns should not be used as an excuse to avoid, defer, or eliminate the UM. Likewise, the need for changes to the UM should be a consideration when evaluating the impact of a project change request.

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Appendix A

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*2.3.	Contingencies and Alternate Modes of Operation
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*3.3.1.	Output Formats
3.3.2.	Sample Outputs
3.3.3.	Output Vocabulary
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*3.5.	Recovery and Error Correction Procedures
3.6.	Communications Diagnostics

* Fundamental Elements: Elements found in most users manuals

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- 5.2. Conventions
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- 5.5. Data Backup
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SECTION 7. USER TERMINAL PROCESSING PROCEDURES

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- 7.3. Display, Updates, and Retrieval Procedures
- 7.4. Recovery and Error Correction Procedures
- 7.5. Termination Procedures

Appendix A. ERROR MESSAGES

Appendix B. FILE DESCRIPTIONS

* Fundamental Elements: Elements found in most users manuals

Appendix B

USERS MANUAL CONTENT DESCRIPTION

SECTION 1. GENERAL

1.1. PURPOSE OF THE USERS MANUAL. Describe the purpose of the Users Manual (UM) in the following words, modified where appropriate.

The objective of this Users Manual for (System Name) (System Number) is to provide the user with the information necessary to use the system effectively, including operation of (identification of terminal or personal computer) equipment.

1.2. PURPOSE OF THE SYSTEM. State the purpose of the system, the benefits expected from its use, and the major functions of the system to which the UM applies.

1.3. REFERENCES. Identify other documents which the end user may need in accomplishing tasks and procedures described in the UM. The following documents shall be specified by author or source, reference number, title, date, and classification:

- a. Project Request.
- b. Hardware documentation such as that addressing setup, powerup and powerdown, packing for relocation, activation, operation, or maintenance.
- c. Software documentation of an operating system, utility software, or documents oriented to an end user for related systems.
- d. Previously published documentation on the project if needed for accomplishing the end users tasks.

1.4. TERMS AND ABBREVIATIONS. Provide a list or include in an appendix a list of any terms, definitions, or acronyms unique to this UM or subject to interpretation by the user of the document.

1.5. SECURITY. Present an overview and discussion of the security considerations associated with the system. The end user should be especially cautioned to comply with privacy requirements. A warning should be included regarding making unauthorized copies of data, documents, or software, if applicable.

SECTION 2. SYSTEM SUMMARY

Provide a general overview of the system written in nontechnical terms. The summary should outline the uses of the AIS in supporting the activities of the user and staff. Detailed technical information should be presented in other sections.

2.1. OVERVIEW. Explain, in general terms, the purpose for which the AIS is intended. Capabilities, operating improvements, and benefits expected from its use should be described. The description should include major functions performed by the system; such as generation of output, maintenance of data, and display of information. This description, part of which may be displayed graphically, might show:

- a. Logical parts of the system from the point of view of the user.
- b. Communications paths and techniques.
- c. Interfaces and relationships to other systems.
- d. The organizations that provide input to the system or receive output from it.

2.1.1. System Operation. Show the relationships of the functions performed by the system with the organizations that are sources of input to the system and those that are recipients of output from it. Include charts and a brief narrative description including the who, what, where, and why concerning the inputs and outputs shown on the chart.

2.1.2. System Performance. Describe the overall system performance capabilities which can be expected by the user. Constraints, such as capacity limitations or time needed to accomplish major functions, should be included. Performance measures and information of interest are represented by the following examples:

- a. Input - types, volumes, and rate of inputs accepted.
- b. Output - types, volumes, accuracy, and rate of outputs that the system can produce.
- c. Response time - include qualifications, where necessary, that affect response time in processing operational reports, such as listing a file. Type and volume of input and equipment configuration are examples of items that may influence run time and, consequently, response time.
- d. Limitations - describe constraints such as maximum size per unit of input, format constraints, restrictions on what data may be queried and from what location, and language constraints.

e. Error rate - describe capabilities for detecting various legal and logical errors and the means provided for error correction.

f. Processing time - show typical processing times.

g. Flexibility - note provisions allowing extension of the usage of the system.

h. Reliability - note system provisions that support alternate processing or a switch over capability.

2.1.3. Controls. Briefly describe the supervisory controls that exist or can be implemented to manage the system.

2.2. SYSTEM ENVIRONMENT. Briefly describe the equipment, communications, and networks used by the system. Include the type of computer and input and output devices.

2.2.1. Hardware Required. Identify and briefly discuss the hardware which must be present for this system to run. Additional or optional hardware should also be identified.

2.2.2. Software Required. Identify and briefly discuss the capabilities of the software that is necessary to use the system. Include both the software components developed specifically for the AIS and interfaces with the operating system, utilities, and other supporting systems.

2.3. CONTINGENCIES AND ALTERNATE MODES OF OPERATION. Explain the general nature of the differences expected in what the end user will be able to do with the system at times of emergency. Describe what the user will be able to do based on modes of operation that differ between peacetime, war, and conditions of alert.

2.4. DATABASE/DATA BANK. Describe the method used to store and maintain the data.

a. For systems using a Database Management System (DBMS), provide information of the particular DBMS used including the types and usage of the data.

b. For systems using a data bank, identify all files which make up the applications system. This list should contain at least the file identification, retention, media, and sensitivity.

c. For systems using both a DBMS and a data bank, provide the information specified in both 2.4.a and 2.4.b above.

2.5. GENERAL DESCRIPTION OF INPUTS, PROCESSING, and OUTPUTS. Describe the inputs, the flow of data through the processing cycle, and the resultant outputs.

a. Inputs. In describing the inputs, consider the following:

(1) Purpose of input - explain why the input is made to the system and note conditions or events requiring its submission.

(2) Content of input - describe what the input contains in the way of operational, control, or reference data.

(3) Associated inputs - describe any other inputs required by the system in addition to the direct input.

(4) Origin of inputs - identify the source or preparer of the input.

(5) Database/data bank - identify where the input is recorded in general or functional terms.

(6) Security - describe procedures and precautions to use in safeguarding input data. Note the general security classification of input data elements, but do not list classified elements.

(7) Other - include additional remarks of general information.

b. Processing. Describe the relationship of the input to the output with a general description of the flow of data through the processing cycle.

c. Outputs. In describing the outputs, consider the following:

(1) Identification of output - list the outputs produced by the system showing their relationship to the inputs.

(2) Purpose of output - explain the reason for the output and note special conditions or events that cause the system to create special output.

(3) Content of output - describe in general terms the information provided by the output.

(4) Associated outputs - reference other system output that complements the information provided by the system.

(5) Distribution of outputs - note the recipients of this output.

(6) Security - describe procedures and precautions to use in safeguarding output data. Note the general security classification of output data elements, but do not list classified elements.

(7) Other - describe additional items of general information.

2.6. ASSISTANCE AND PROBLEM REPORTING. Identify points of contact and procedures whereby the end user may obtain assistance and report problems encountered in using the system.

SECTION 3. FUNCTIONS RELATED TO TECHNICAL OPERATIONS

This section provides the details necessary to prepare input to the system. The information should be arranged logically, enabling functional personnel to prepare required inputs. In addition, this section explains in detail the characteristics and meaning of the information the system produces as outputs. If an on-line system with batch processing capabilities is being described, this paragraph will reference Sections 5 through 7, as applicable, of this UM to describe the terminal operations. The following paragraphs should provide detail on the procedures to be followed for the batch processing runs.

3.1. INITIATION PROCEDURES. Detail the procedures that must be followed to initiate system operation. Include information such as sample job request forms or sample control statements. If these procedures are standard or are detailed in another manual, reference that manual.

3.2. INPUT REQUIREMENTS. Delineate the requirements to observe in preparing entries to the system for each different type or class of input. The following are typical considerations:

a. Reason for input - note the operational conditions that require the submission of the input; e.g., catastrophe, normal status report, need to enter parameters, and need to respond to a particular display.

b. Frequency of input - specify when the input must be prepared; e.g., periodically or randomly as a function of an operational situation.

c. Origin of input - identify the organizational unit or station authorized to generate the input.

d. Medium of input - note the medium used to enter the input.

e. Associated inputs - reference any related inputs that are required to be entered at the same time as this input.

f. Security handling - describe specific procedures and processes associated with the entry of input data, including authorizations, sign offs, etc.

g. Other - note any other applicable information such as: other recipients of the inputs, priority, security handling, variations on the basic input format using code or key indicators, and limitations on what files may be affected by a particular type of input.

3.2.1. Input Formats. Illustrate the layout formats used in the initial preparation of system inputs. Explain the information that may be entered on the various sections and lines. The explanation of each entry provision should be keyed to illustrations of sample formats.

3.2.2. Composition Rules. Describe any rules and conventions that must be observed in order to prepare input that can be accepted by the system. Explain the rules of syntax, usage of punctuation, etc. Consider the following for inclusion:

- a. Input transaction length - e.g., 100 characters maximum.
- b. Format conventions - e.g., all input items must be left-justified.
- c. Labeling - e.g., usage of identifiers to denote major data sets to the system.
- d. Sequencing - e.g., the order and placement of items in the input.
- e. Punctuation - e.g., spacing and use of symbols (slash, asterisk, character combinations, etc.) to denote start and end of input, data groups, and fields.
- f. Restrictions - e.g., rules forbidding use of particular characters or parameter sets in an input.

3.2.3. Input Vocabulary. Explain the legal character combinations or codes that must be used to identify or compose input items. An appendix may be provided containing an ordered listing of item codes that can be entered as input to the system.

3.2.4. Sample Inputs. Illustrate and completely explain each class or type of input acceptable by the system. Information on the following types of inputs may be included in the explanation:

- a. Header - containing entries that denote the input class or type, date and time, origin, instruction codes to the system, etc.
- b. Text - containing the portions of the input representing data for operational files, request parameters for information retrieval, etc.
- c. Trailer - containing control data denoting the end of input and any additional control data.

d. Omission - indicating those classes or types of input that may be omitted at the option of the composer or because of particular circumstances concerning the input.

3.3. OUTPUT REQUIREMENTS. Describe the requirements relevant to each class or type of output. Representative information that may be included for each class of output is:

a. Purpose - the reasons why the output is generated.

b. Frequency - whether the output is produced periodically or as required. If produced periodically, the period should be specified.

c. Options - any modifications or variations of the basic output that are available.

d. Media - physical form of the output, such as printout, display screen, and tape.

e. Location - where the output appears, such as the computer area or remotely at a particular physical area or station.

f. Security handling - describe specific procedures and processes associated with the entry of input data, including authorizations, sign offs, etc.

g. Other - any additional requirements for this output, such as priority, associated outputs that complement the information in this output.

3.3.1. Output Formats. Present and explain in detail the layout of each class or type of system output. Explanations should be keyed to particular parts of the format illustrated. Explanations should include the following:

a. Security marking.

b. Header - describe the title, identification, date, and time of day, number of output parts, and similar basic control data that may be contained in the header or control segment of the output.

c. Body - explain the information that may appear in the body or text of the output. Describe the significance of fixed data, such as columnar headings in tabular display types of output. Note the existence of subsets or sections in the output format (e.g., part A, part B). Describe any fixed positions or column locations allocated to specific output information.

d. Trailer - discuss any control or reference information that may be appended to the body of information presented or any

additional characteristics concerning the makeup of outputs. Information such as the meanings of special symbols may be included.

3.3.2. Sample Outputs. Provide illustrations of each type of output the system produces. Explain the function or purpose of each type. Provide detailed descriptions, including such information as:

- a. Definition - the meaning and use of each information variable.
- b. Source - whether the item was extracted from a specific input, from a database/data bank file, calculated by system, etc.
- c. Characteristics - concerning omission of the item under certain conditions of the output generation, range of values, and unit of measure.

3.3.3. Output Vocabulary. Describe any codes or abbreviations that appear in the output in a form different from those used on the input described in paragraph 3.2.2.

3.4. UTILIZATION OF SYSTEM OUTPUTS. Explain the use of the output by the operational area or activity which receives it. For example, a summary report of petroleum, oil, and lubricant stocks may be received by a material control activity and, depending on the information in the report, action might be required to initiate the purchase or transfer of stocks to a particular location.

3.5. RECOVERY AND ERROR CORRECTION PROCEDURES. List the error codes generated by the application software and describe corrective actions for the user to take. Include in this paragraph the procedures to be followed by the user to ensure that any recovery and restart capabilities can be utilized. If necessary, list error codes and correction procedures as an appendix to the UM.

3.6. COMMUNICATIONS DIAGNOSTICS. Describe in detail the diagnostic procedures available to the user of the AIS for validating communications and for identifying and classifying problems.

SECTION 4. ACCESS TO THE SYSTEM

This section is intended to describe detailed step-by-step procedures oriented to the first-time or occasional user. Present enough detail so that the user can reliably access the system, even before learning the details of its functional capabilities.

4.1. FIRST-TIME USE OF THE SYSTEM

4.1.1. Equipment Familiarization. Describe the following, as appropriate:

- a. Procedures for turning on power and making adjustments.
- b. Dimensions and capabilities of the visual display screen.
- c. Appearance of a cursor, how to identify an active cursor if more than one cursor can appear, how to position a cursor, and how to use a cursor.
- d. Keyboard layout and what is accomplished by different types of keys and pointing devices.
- e. Procedures for turning power off if a special sequencing of operations is needed.

4.1.2. Access Control. Present an overview of the access and security features of the system which are visible to the end user. Consider describing the following:

- a. How and from whom to obtain a password.
- b. How to add, delete, or change passwords under user control.
- c. Security and privacy considerations pertaining to the storage and marking of output reports and other media the user generates.

4.1.3. Installation and Setup. Describe any special procedures which the user must perform in order to be identified or authorized to access or install software on the equipment or to enter parameters for AIS operation.

4.2. INITIATING A SESSION. Provide step-by-step procedures about how the user can begin work. Include a checklist for problem determination in case difficulties are encountered.

4.3. STOPPING AND SUSPENDING WORK. Describe how the end user can stop or interrupt use of the system.

SECTION 5. PROCESSING REFERENCE GUIDE

This section provides the user with technical information on processing procedures. If procedures are complicated or extensive, additional sections may be added in the same paragraph structure as this section. The organization of the document will depend on the characteristics of the AIS being documented. For example, if the tasks of users vary depending upon the organization echelon in which they work, Section 5 might be

oriented to headquarters functions and Section 6 to remote site functions. For another AIS, it may be more appropriate to have Section 5 be a guide to menus used in the system, Section 6 be a guide to command language used in the system, and Section 7 be a guide to functions. Present detailed procedures in subparagraphs or paragraph 5.3. Depending on the design of the AIS, the subparagraphs might be organized on a function-by-function basis or on a menu-by-menu basis. For a transaction-oriented system, the organization might be on a screen-by-screen basis.

5.1. CAPABILITIES. Briefly describe the inter-relationships of the transactions, menus, or functions in order to provide an overview of the use of the system.

5.2. CONVENTIONS. Describe any conventions such as the use of colors in displays, the use of audible alarms, the use of abbreviated vocabulary, and the use of rules for assigning names or codes.

5.3. PROCESSING PROCEDURES. Explain the organization of subordinate paragraphs, e.g., by function, by menu, by screen. Describe any set order in which procedures must be accomplished.

5.3.1. Variable Title (Identify). The title of this paragraph identifies the function, menu, transaction, or other process being described. This paragraph describes and gives examples of menus, data entry forms, outputs, diagnostics messages or alarms, and help facilities which can provide on-line descriptive or tutorial information. The format for presenting this information can be adapted to the particular characteristics of the AIS. However, use a consistent style of presentation (i.e., keep the descriptions of menus consistent).

5.3.2. Variable Title (Identify). Describe the second function, menu, or other procedure using the same method as described in paragraph 5.3.1. Additional functions, menus, or procedures should be described in paragraphs 5.3.3 through 5.3.n.

5.4. RELATED PROCESSING. Identify and describe any related batch, off-line, or background processing performed by the AIS that is not invoked directly by the end user and is not described in paragraph 5.3. Specify any user responsibilities to support this processing. This paragraph is especially important if the user has some latitude over the content of the input or if the input values are subject to interpretation. Knowing the intended use of the input in further processing may improve accuracy.

5.5. DATA BACKUP. Describe responsibilities of the end user for making and retaining all recorded data which can be used to replace primary copies of data in the event of errors, defects, malfunctions, or accidents. Describe step-by-step procedures as necessary.

5.6. RECOVERY FROM ERRORS AND MALFUNCTIONS. Present detailed procedures for recovery from errors or malfunctions occurring during processing.

SECTION 6. FILE QUERY PROCEDURES

This section pertains to systems with a file query retrieval capability that does not use terminals. The instructions necessary for recognition, preparation, and processing of a query applicable to the database/data bank should be explained in detail.

6.1. SYSTEM QUERY CAPABILITIES. Illustrate in tabular form the preprogrammed query capabilities provided by the system with a description of, or a cross-reference to, a query code. An example is shown in Figure B-01.

PREPROGRAMMED QUERY CAPABILITIES	
<u>DESCRIPTION</u>	<u>QUERY CODE</u>
Number of employees within an organization	A
Number of employees in a specific pay grade	B
Total gross pay for employees within an organization	C
State tax year-to-date for specific state	D
FICA tax year-to-date for a specific employee	E
Total deductions for a specific employee	F
Net pay for a specific employee	G

FIGURE B-01
Example of Preprogrammed Query Capability

6.2. QUERY PREPARATION. Provide instructions for the preparation of any necessary query parameters. Figure B-02 shows an example of this format. Repeat, in the form of positive instructions, the details of query input preparation in the context of each specific database/databank and system retrieved. In cases where the retrieval capability is part of a support system and query input formats are not needed, list the specific query statement required, as shown in Figure B-03. The formats provided will be used to transcribe queries into the technical phrasing of the retrieval system. Paragraphs 6.3.1 through 6.3.n should be used to describe different types of queries.

Format of Query A			
NUMBER OF EMPLOYEES WITHIN AN ORGANIZATION			
<u>QUERY ITEM</u> <u>TITLE</u>	<u>CHARACTER</u> <u>POSITION</u>		<u>CONTENT/</u> <u>COMMENT</u>
Query Designator	1	Q	Constant
File Number	2-3	01	Constant
Query Number	4-5		Insert 01-99
Security Classification	10	U	Unclassified
Query Code	12	A	
Organization	14-19		Insert ORG-ID as requested by query. Refer to data format for applicable code.

FIGURE B-02
Example of Query Format

Query Statement	
Request - No. of employees within an organization (Office of the Secretary of Defense)	
Query Statement - "IF ORG-ID EQ OSD THEN LIST NUMBER OF EMPLOYEES"	

FIGURE B-03
Example of Query Statement

6.3. CONTROL INSTRUCTIONS. Provide instructions for the control of the sequencing of runs and of the software necessary to extract the response to the query request from the database/data bank. These instructions should include the requirements for, and the preparation of, control statements which may be required by the system or application software. If extensive information concerning control statement preparation is contained in support system documentation, reference the support documentation rather than repeating the information. This has the dual benefits of organizational integrity for reference and lack of redundancy for information storage and update.

SECTION 7. USER TERMINAL PROCESSING PROCEDURES

This section provides the user with technical information on the use of terminals to accomplish processing. If procedures are complicated or extensive, additional Sections 8 through n may be

added in the same paragraph structure as this section. The organization of the document will depend on the characteristics of the AIS being documented. For example, if the tasks of users vary depending upon the organizational echelon in which they work, Section 8 might be oriented to headquarters functions and Section 9 to remote site functions. For another AIS, it may be more appropriate to have Section 8 be a guide to menus used in the system, Section 9 a guide to command language used in the system, and Section 10 a guide to functions. Detailed procedures are intended to be presented in paragraphs 7.2 through 7.5. Depending on the design of the AIS, the subparagraphs might be organized on a function-by-function basis or on a menu-by-menu basis. For a transaction-oriented, system the organization might be on a screen-by-screen basis.

7.1. AVAILABLE CAPABILITIES. Describe in general terms capabilities for retrieval, display, and update of data through terminal operations. Include estimates of the frequency of these operations and identify the events that caused their initiation.

7.2. ACCESS PROCEDURES. Present the sequence of steps required to initiate system operation and to access the database/data bank. Include such information as the name of the system or subsystem being called and other control information such as:

- a. The offices or personnel authorized to retrieve or update.
- b. Time periods when such access is allowed.
- c. Information for ensuring that only authorized access is allowed.

7.3. DISPLAY, UPDATES, AND RETRIEVAL PROCEDURES. Paragraphs 7.3.1 through 7.3.n describe the step-by-step procedures necessary to produce the various displays, updates, and retrievals that are available through the use of a terminal. For each procedure, include information such as the name of the operation, input formats, and sample responses.

7.4. RECOVERY AND ERROR CORRECTION PROCEDURES. Provide error codes and messages and indicate their meanings and any corrective actions to take. Include any user-initiated recovery procedures and validity checks.

7.5. TERMINATION PROCEDURES. Present the sequence of steps necessary to terminate the processing.

APPENDIX A. ERROR MESSAGES

List all error, diagnostic, and information messages which can occur while accomplishing any of the users functions described in paragraphs 5.3 through 5.6. In addition to defining each error

message, identify and describe the normal corrective action that should be taken after each message. Error messages should be discussed in section 5 in reference to this appendix. Depending on the application, error messages may be listed within Section 5.

APPENDIX B. FILE DESCRIPTIONS

Illustrate the database/data bank format and content. An example is shown in Figure B-04. List the following for each data element:

- a. Data element name.
- b. Synonyms.
- c. Definition.
- d. Format.
- e. Range and enumeration of values.
- f. Unit of measurement.
- g. Data item names, abbreviations, and codes.

When the information is published in a data element dictionary, refer to an entry in the dictionary rather than including an extract from that dictionary. Any variations in either the inputs or outputs from the format or data items as used in the database/data bank must be specifically identified.

Format of Data Record			
ITEM NAME	FORMAT	RANGE OF VALUES	UNIT OF MEASUREMENT
ORG-NAME	30 A/N	0-9,A-Z	
ORG-ID	6 A/N	0-9,A-Z	
SOC-SEC-NO	9 A/N	0-9	
NAME	20 A/N	--	
PAY-GRADE	4 A/N	--	
GROSS-PAY	6 SN	0-9	DOLLARS
GROSS-PAY-YTD	8 SN	0-9	DOLLARS
FED-TAX	6 SN	0-9	DOLLARS
FED-TAX-YTD	8 SN	0-9	DOLLARS
FICA	6 SN	0-9	DOLLARS
FICA-YTD	8 SN	0-9	DOLLARS
STATE-TAX	6 SN	0-9	DOLLARS
STATE-TAX-YTD	8 SN	0-9	DOLLARS
STATE-TAX-CODE	3 A/N	S00-M99	
ALLOTMENTS	6 SN	0-9	DOLLARS
NET-PAY	6 SN	0-9	DOLLARS

A/N = Alphanumeric
 SN = Signed Numeric

FIGURE B-04
Example of Data Record Format

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