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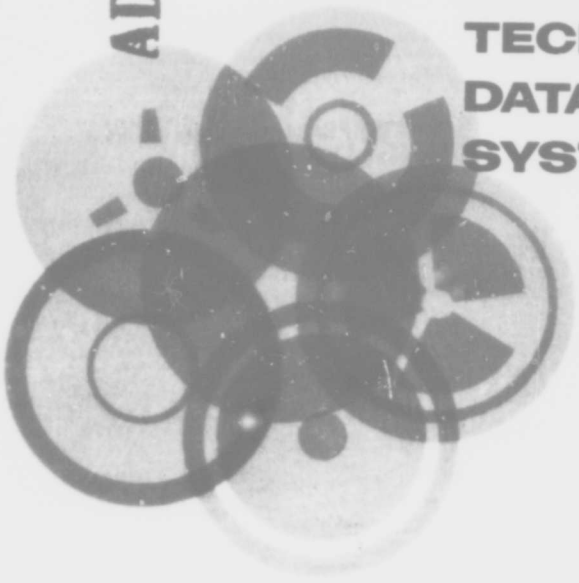
(1)

INTEGRATED TECHNICAL DATA SYSTEM



SYSTEM DESCRIPTION

PART II: PRODUCT DESCRIPTION

APRIL 1969

PREPARED FOR
U.S. ARMY MATERIEL COMMAND
CONTRACT NO. DA-49-186-AMC-324 (X)

TRW SYSTEMS GROUP
WASHINGTON OPERATIONS
1735 I STREET N.W. • WASHINGTON, D.C. 20006

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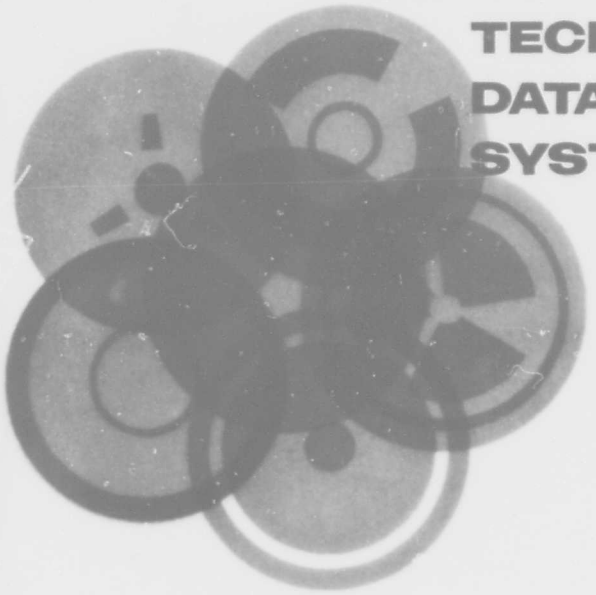
SET I

06349-W510-R0-01

INTEGRATED TECHNICAL DATA SYSTEM



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LIST OF ILLUSTRATIONS

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ITDS SYSTEM DESCRIPTION, PART II

The purpose of this system description is to describe the Integrated Technical Data System (ITDS) developed for the U.S. Army Materiel Command, and to relate how the design fulfills the requirements delineated in Part I. This description specifies the system product configuration composed of personnel, equipment, software and documentation, and test and demonstration requirements. The system configuration elements are organized into three operating subsystems to perform its functions. These are (i) the functional disciplines (user applications) subsystem, made up of technical and management personnel, and supporting documentation; (ii) the data operations subsystem, comprised of personnel, equipment and manuals; and (iii) the computer subsystem, consisting of personnel, hardware and software including programming, operating, maintenance and user manuals.

1. SCOPE

This description establishes the requirements for complete identification and acceptance of the Integrated Technical Data System (ITDS) to be formally accepted by the U.S. Army Materiel Command, subsequent to establishment of the product configuration baseline. The system product configuration baseline shall be established upon completion and approval of the ITDS test and demonstration review. Post baseline changes shall be processed in accordance with the "ITDS Configuration Management Plan." This description encompasses the functional disciplines (user applications) subsystem, the data operations subsystem, and the computer subsystem. Each subsystem composition, in terms of its operational functions, personnel, equipment, and supporting documentation, is described. Functional and procedural interfaces between subsystems are defined and illustrated in paragraphs 3.2 through 3.4.

The ITDS shall be designed to serve as a system management tool capable of supporting the Project Management Officer of a complex Army Materiel Command hardware project.

2. APPLICABLE DOCUMENTS

The documents listed below form a part of this description to the extent specified herein. The requirements contained in Sections 3, 4, 5, and 10 of this description shall take precedence in the event of any conflict with requirements specified in applicable documents. These include:

Design Criteria:

Specifications

MIL-M-38761	Microfilming and Photographing of Engineering/Technical Data and Related Documents:

	PCAM Card Preparation, Engineering Data Micro-Reproduction System, General Requirements for, Preparation of
MIL-M-9868C	Microfilming of Engineering Documents, 35mm Requirement for

Standards

MIL-STD-804B	Formats and Coding of Aperture, Copy, and Tabulating Cards for Engineering Data Micro-Reproduction System

Manuals

DOD 5220.22M	Industrial Security Manual for Safeguarding Classified Information

Regulations

AR1-1251	Army Data Processing Systems Program

Miscellaneous

06349-W497-RO-01	System Description, Part I, for the Integrated Technical Data System, dated April 1969

Criteria for Data Evaluation:

Manuals

DOD 5220.22M	Industrial Security Manual for Safeguarding Classified Information (1 July 1966)
TM 38-750	The Army Equipment Records System (TAERS)

Regulations

AMCR 11-16	Total Decision-Making Process for Project Management
AMCR 11-26	Army Programs Configuration Management
AMCR 11-27	Army Programs AMC Milestones
AMCR 70-10	Research and Development, Test and Evaluation Plans and Reports

AR 380-5	Safeguarding Defense Information
AR 700-51	Improved Management and Determination of Requirements for the Procurement of Technical Data and Information (August 1966)
AR 705-5	R&D of Materiel, Army R&D
USATECOM 70-4	R&D Confirmatory Testing (Type 11)
USATECOM 705-1	Materiel Testing Management Collateral Relationships
USATECOM 705-2	Distribution of Test Plans and Test Reports, Change 1 (26 July 1966)
USATECOM 705-5	Test, Evaluation, Analysis, and Management Systems (TEAMS)
USATECOM 705-7	Test Report Format (19 August 1966)
USATECOM 705-8	Materiel Testing Management, Test Responsibility
USATECOM 705-16	Format of USATECOM Plans of Test (2 February 1966)

3. REQUIREMENTS

This section specifies the detailed technical description of the ITDS structure and functions, in terms of the personnel, software, equipment and supporting documentation that comprise the system. The ITDS shall provide data processing system capabilities for (i) receiving data from a variety of sources in a variety of forms, (ii) storing data in hard-copy, microform and digital form, (iii) correlating and summarizing data to derive organized information for specific end uses, (iv) retrieving data and information in standard and special output formats, and reproducing and disseminating data and information promptly. The ITDS shall provide a standard system for handling and managing the technical data that support project management functional disciplines/organizations. It shall

serve as a primary tool for an AMC project manager, providing him with responsive operational and decision-making information.

3.1 CHARACTERISTICS - OVERALL SYSTEM STRUCTURE AND FUNCTIONS

The ITDS shall be composed of an integrated structure of personnel, equipment, software and procedures capable of processing all System Project data. The system shall receive, validate, convert, store, update, retrieve, display and disseminate project management and operations data utilizing manual, semiautomated and automated processes.

The system shall be organized into three major functional subsystems (functional disciplines, data operations, and computer) whose characteristics are specified in detail in succeeding paragraphs. The functional disciplines (user applications) subsystem shall be comprised of professional personnel competent in several technical and management disciplines who provide technical analysis and quality assurance of project data during both input and output processing. The functional disciplines shall define the data required for project management and operational support information in the areas of Management, System Engineering, Engineering Design, Quality Assurance, Operational Engineering, Test, Logistics, Production Engineering, and Production and Procurement.

The data operations subsystem shall control the flow of data within the system. The subsystem shall be comprised of data analysis/control personnel, remote terminals, data communications and microform equipment, and supporting operations and maintenance documentation. This subsystem shall serve as the interface between the functional disciplines and the computer subsystem.

The computer subsystem shall be comprised of a third generation computer, a generalized processing program, associated applications programs, and related peripheral programs, programming and operating personnel, and supporting documentation. The computer subsystem operates to reduce, integrate, and summarize the project data for the purpose of producing information which enables the Project Manager and other users to determine status and monitor progress, identify and anticipate problems, assess problem impact, evaluate proposed changes, and assign and maintain surveillance of responsibility for actions.

The system components are illustrated in Figure 1, ITDS Composition. Each block is annotated with the appropriate numbers of the paragraphs which describe the component.

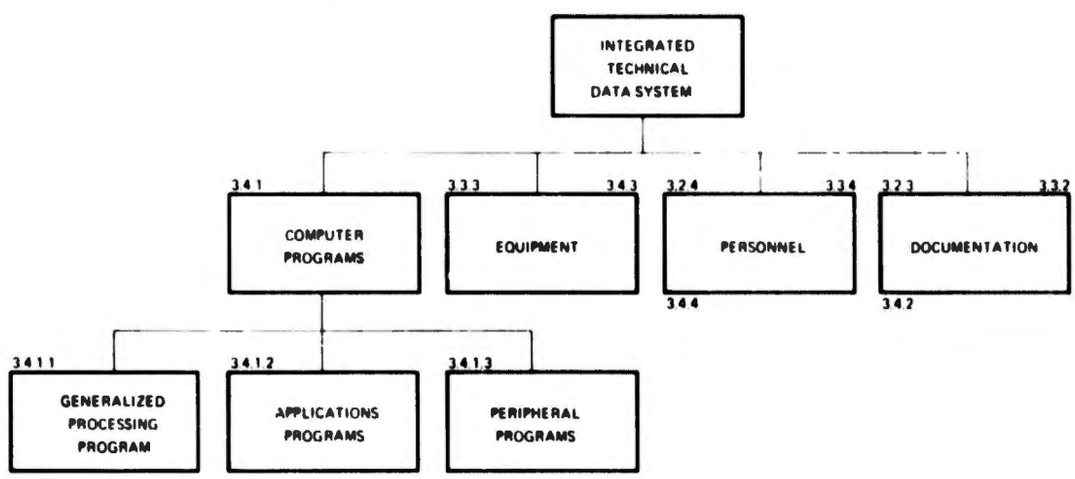

Figure 1. ITDS Composition

The functional organization structure of the system is reflected in Figure 2, ITDS Documentation Tree. The system and subsystem blocks on the tree are annotated with the numbers of the paragraphs of this system description that describe the subsystem operations and documentation.

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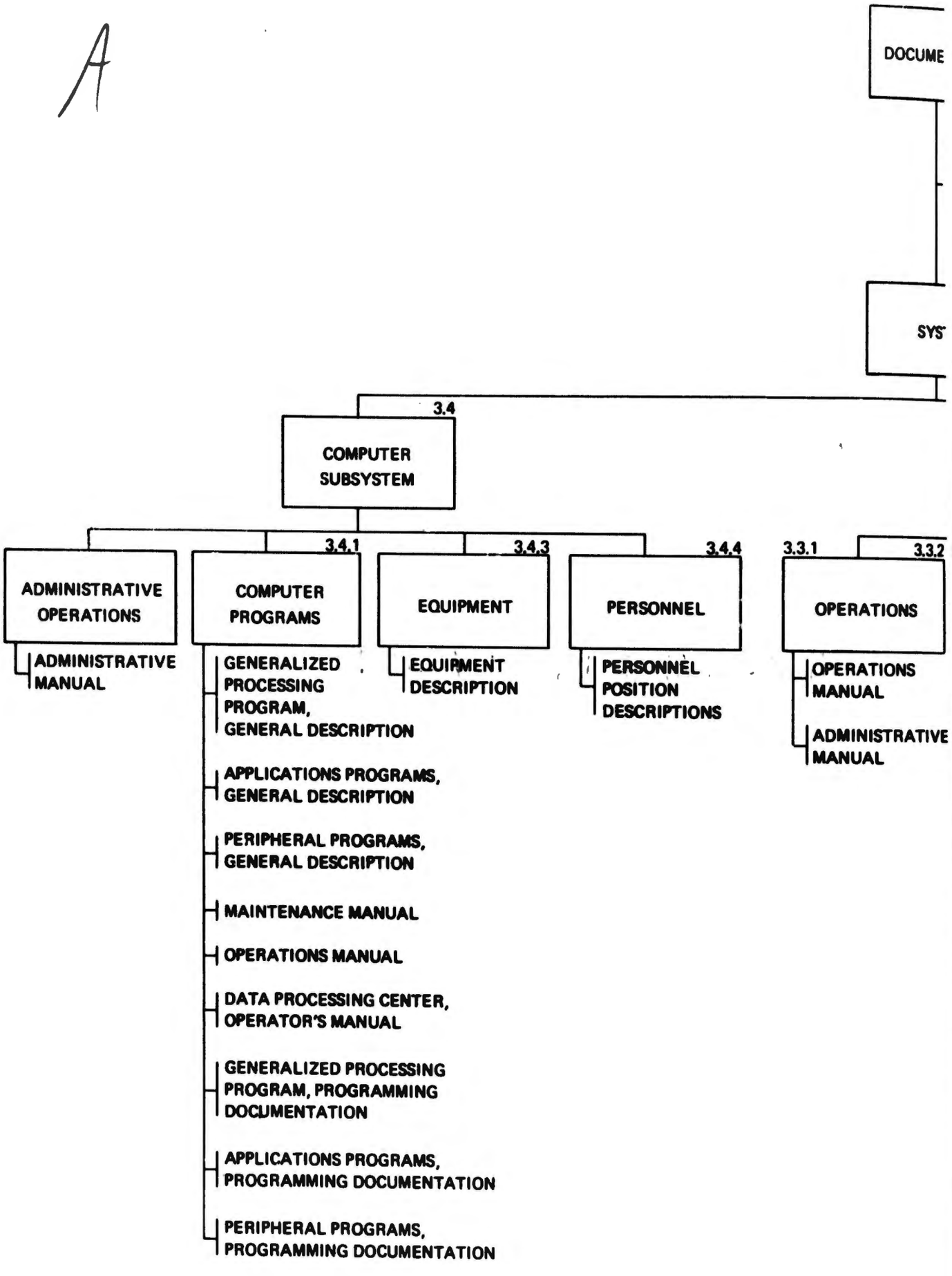
DOCUME
SYS
3.4
COMPUTER SUBSYSTEM
ADMINISTRATIVE OPERATIONS
3.4.1
COMPUTER PROGRAMS
3.4.3
EQUIPMENT
3.4.4
PERSONNEL
3.3.1
3.3.2
OPERATIONS
ADMINISTRATIVE MANUAL
GENERALIZED PROCESSING PROGRAM, GENERAL DESCRIPTION
APPLICATIONS PROGRAMS, GENERAL DESCRIPTION
PERIPHERAL PROGRAMS, GENERAL DESCRIPTION
MAINTENANCE MANUAL
OPERATIONS MANUAL
DATA PROCESSING CENTER, OPERATOR'S MANUAL
GENERALIZED PROCESSING PROGRAM, PROGRAMMING DOCUMENTATION
APPLICATIONS PROGRAMS, PROGRAMMING DOCUMENTATION
PERIPHERAL PROGRAMS, PROGRAMMING DOCUMENTATION
EQUIPMENT DESCRIPTION
PERSONNEL POSITION DESCRIPTIONS
OPERATIONS MANUAL
ADMINISTRATIVE MANUAL

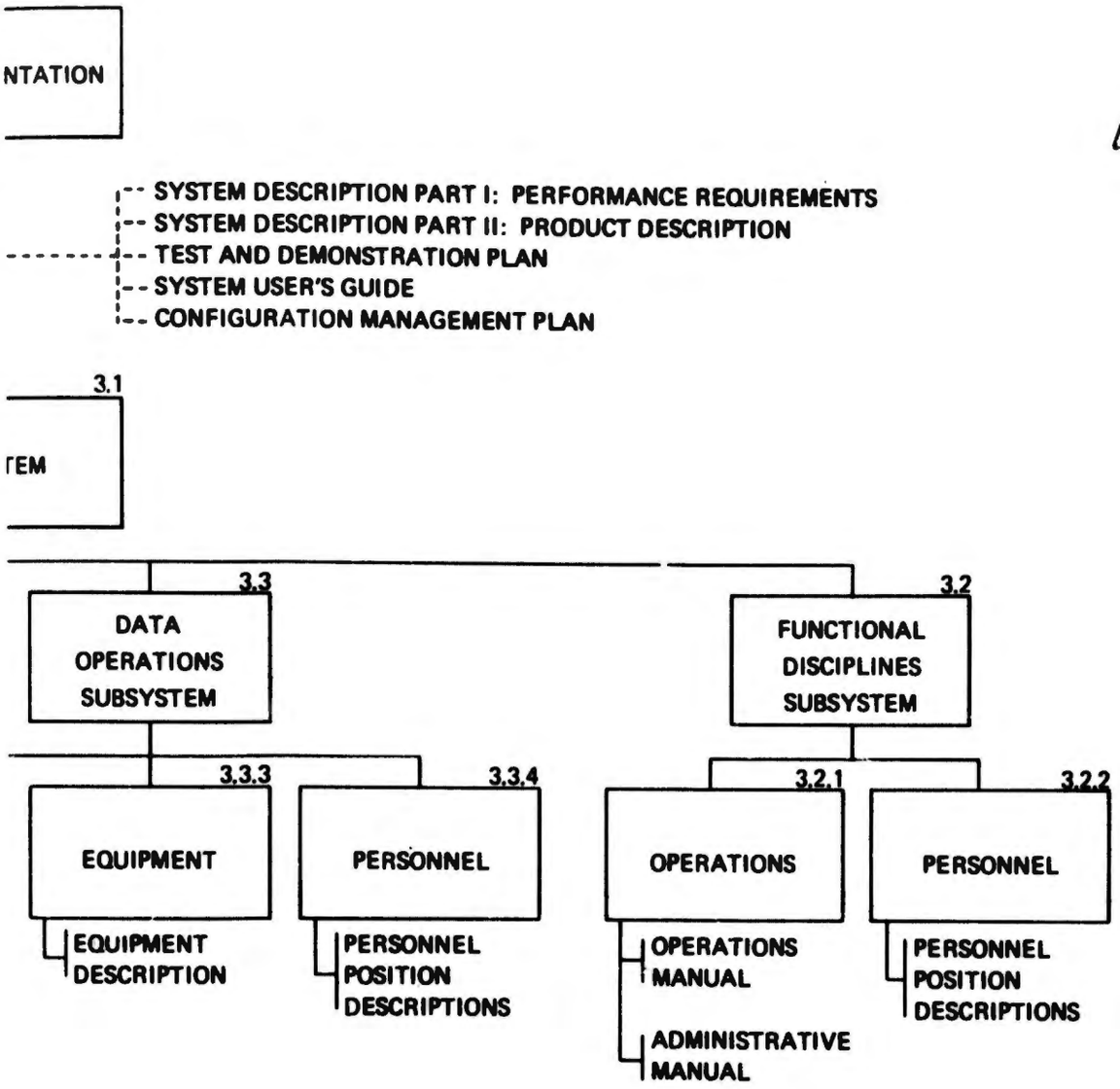

Figure 2. Integrated Technical Data System Documentation Tree

3.1.1 Function Allocations

The system functions shall be allocated to the appropriate subsystems. Although the system shall be essentially a computerized system for receiving, storing, manipulating, and retrieving project data and information, certain functions shall require interaction with the functional disciplines representing user technical and management applications.

The ITDS shall be organized into three major functional groups or subsystems each of which is comprised of personnel, equipment, and supporting documentation. These subsystems shall be (i) functional disciplines (user applications), (ii) data operations, and (iii) computer, as illustrated in Figure 2.

The operational system characteristics, in terms of performance requirements and functional capabilities, shall be allocated as described in Table A, "Technical Performance Requirements Versus System Functional Capabilities." The table is arranged to reflect each specified performance requirement, the functional capability developed to achieve each one, and the responsible subsystem to which each function is allocated. The table also references the appropriate block number from the "ITDS Summary Function Flow Chart" that identifies each prime function of the system's operation (reference Section 3.1.2 and Figure 3).

3.1.2 Operation of the Integrated Technical Data System

The system operations shall be as depicted in Figure 3. The summary flow is arranged so that there are three major vertical divisions representing the primary stages in information processing: (i) input preparation, (ii) storage, manipulations, and output production, and (iii) output

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Table A. Technical Performance Requirements Versus System Functional Capabilities

3.1.1 Functions Allocations

Performance Requirements	Responsible Subsystem	Functional Capability	Applicable Document	Funct. Block Number
3.1.1 Identification of Data	Functional Disciplines	Analyze/determine project data requirements	Operations Manual	23.0
	Functional Disciplines	Establish identification criteria	Operations Manual	
	Data Operations and Computer	Establish and maintain master files of selected data	Operations Manual	22.0 23.0
3.1.2 Acquisition of Data	Data Operations	Receive all project technical and management data from authorized sources	Operations Manual	1.0
	Data Operations	Accept data in variety of media and forms	Operations Manual	1.0
3.1.3 Control of Data	Data Operations	Control all project documentation from authorized sources	Operations Manual	2.0
	Data Operations	Maintain suspense control and action assignment system	Operations Manual	4.0
	Data Operations	Maintain distribution control	Operations Manual	26.0
	Data Operations	Establish and maintain data quality control	Operations Manual	25.0
3.1.4 Preparation of Input	Data Operations	Review and analyze source data to determine value	Operations Manual	3.0
	Functional Disciplines	Keyword for subject indexing data	Operations Manual	6.0
	Functional Disciplines	Extract significant data; assign priorities	Operations Manual	7.0
	Computer	Enter validated data via load forms, terminal, keypunch, etc.	Operations Manual	7.0
	Computer	Edit input; enter corrections	Operations Manual	8.0
	Functional Disciplines	Prepare input for peripherally processed data	Operations Manual	14.0
	Functional Disciplines	Perform inquiry analysis; processing routine	Operations Manual	16.0
	Functional Disciplines	Identify discrepant source documents	Operations Manual	12.0

Table A. Technical Performance Requirements Versus System Functional Capabilities (Continued)

Performance Requirements	Responsible Subsystem	Functional Capability	Applicable Document	Funct. Block Number
3.1.5 Storage of Data	Computer/Data Operations	Store and maintain in digital, microform or hardcopy files	Operations Manual	22.0
	Computer/Data Operations	Maintain identification and cross-reference indexes	Operations Manual	11.0
	Computer	Implement input reject control	Operations Manual	23.0
3.1.6 Manipulation of Data	Computer	Perform conversions, and mathematical and logical operations on digital data to produce standard and special outputs	Operations Manual	23.0
	Functional Disciplines	Perform manual manipulation of nondigital data	Operations Manual	23.0
	Functional Disciplines and Computer	Convert, reformat noncompatible data received by ITDS	Operations Manual	7.0 23.0
3.1.7 Production and Processing of Output Data	Computer	Produce and verify inquiry responses, exception reports, and periodic reports	Operations Manual	23.0 17.0 18.0
	Functional Disciplines	Perform output validation prior to release and distribution	Operations Manual	24.0
	Functional Disciplines	Index output reports for subsequent retrieval	Operations Manual	24.0
3.1.8 Output Edit and Review	Data Operations	Review (QC) output data for adequacy prior to distribution	Operations Manual	25.0
	Functional Disciplines	Follow up output to determine user satisfaction	Operations Manual	
3.1.9 Dissemination of Output	Data Operations	Disseminate output data and reports in accordance with standard or special distribution lists	Operations Manual	26.0
	Data Operations	Maintain records of completed distribution	Operations Manual	26.0

Table A. Technical Performance Requirements Versus System Functional Capabilities (Continued)

Performance Requirements	Responsible Subsystem	Functional Capability	Applicable Document	Funct. Block Number
3.1.10 Retention and Disposal of Data	Computer	Maintain historical tape records of all computer transactions against active data	Operations Manual	23.0
	Computer	Maintain aging records of data transferred from active to historical files	Operations Manual	23.0
	Computer	Perform selective purging of data by special programs	Maintenance Manual	23.0
	Data Operations	Microfilm and hardcopy data retention and disposal is in accordance with Army regulations	Operations Manual	22.0 21.0
3.1.11 Management of Data Files	Data Operations/ Computer	Perform file maintenance under approved, standard procedures	Operations Manual Maintenance Manual	22.0 23.0
	Data Operations/ Computer	Control all changes to data	Operations Manual Maintenance Manual	
	Data Operations/ Computer	Control access to data	Operations Manual Maintenance Manual	
	Data Operations/ Computer	Maintain backup data	Operations Manual Maintenance Manual	
3.2 Security	Data Operations/ Computer/Functional Disciplines	Provide security features that preclude unauthorized retrieval of data or access to information in accordance with applicable regulations	Administrative Manuals	
3.3 Functional Disciplines (User Applications)	Functional Disciplines	Define data requirements, data elements and elements and outputs to provide essential technical and management information for: --management --systems engineering --engineering design --quality assurance --operational engineering --production engineering --test --logistics --production and procurement	Operations Manual	

Table A. Technical Performance Requirements Versus System Functional Capabilities (Continued)

Performance Requirements	Responsible Subsystem	Functional Capability	Applicable Document	Funct. Block Number
3.4 Reliability	All	Assure accuracy and reliability of data produced by ITDS by: —minimizing manual operations in data handling —using fully tested programs and procedures —exercising continuous quality control of input and output —validating output to assure completeness, accuracy and responsiveness	System Description Part I Part II	
3.5 Useful Life	All	Provide continuous operational data system capability that has universal application to systems programs and therefore an unlimited useful life	System Description Part I Part II	
3.6 Personnel Functional Disciplines Data Operations Computer Support	All	Provide system personnel in minimum numbers and skills consistent with approved system objectives	System Description Part I Part II	
3.7 Documentation	All	Provide complete supporting documentation including system requirements, operating and maintenance, computer programs, and programming documentation	System Description Part I Part II	

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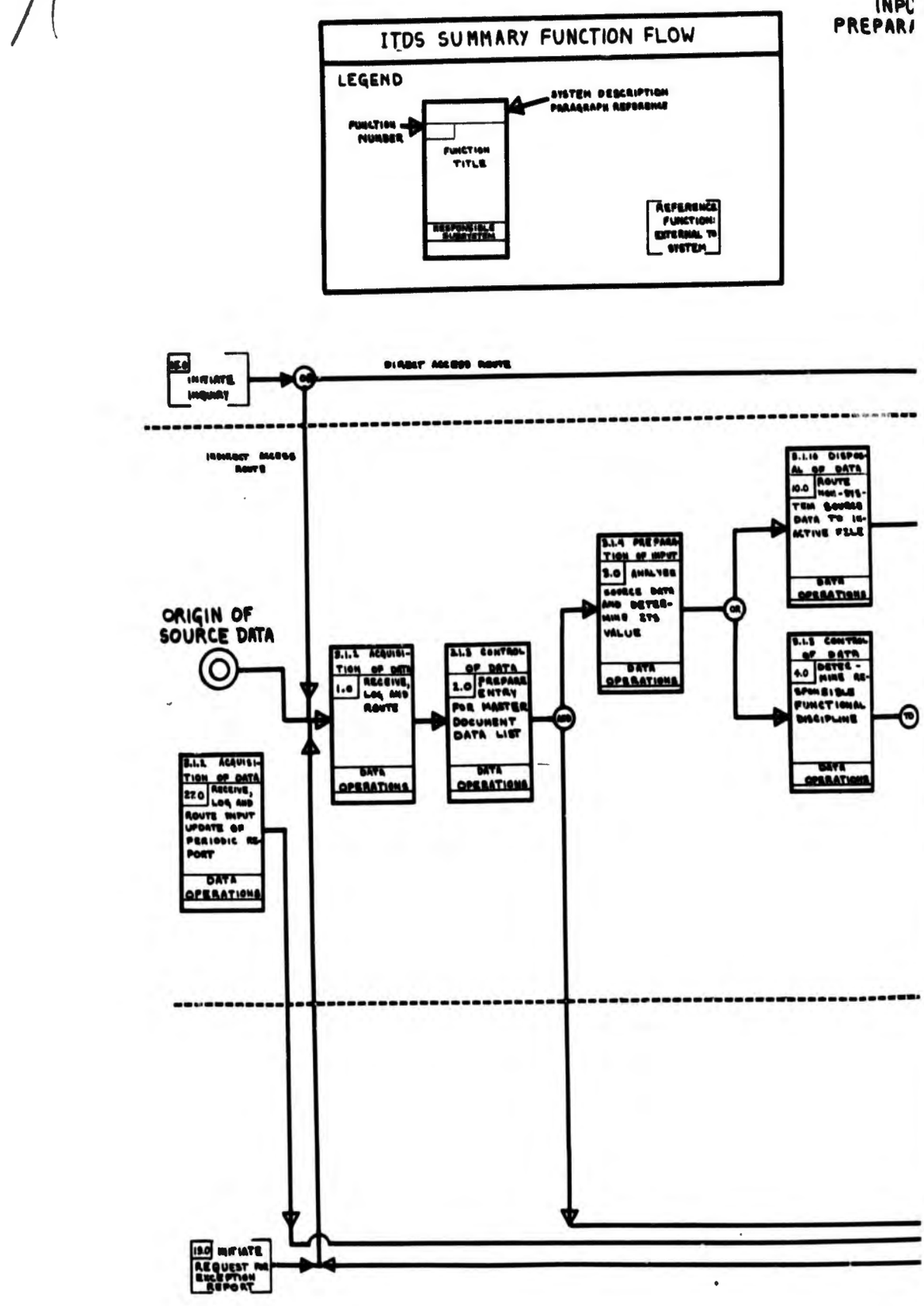
ITDS SUMMARY FUNCTION FLOW
LEGEND
SYSTEM DESCRIPTION PARAGRAPH REFERENCE
FUNCTION NUMBER
FUNCTION TITLE
REFERENCE FUNCTION: EXTERNAL TO SYSTEM
INPU
PREPARA
DIRECT ACCESS ROUTE
INDIRECT ACCESS ROUTE
ORIGIN OF SOURCE DATA
5.1.1 ACQUISITION OF DATA
1.0 RECEIVE, LOG AND ROUTE
DATA OPERATIONS
5.1.2 ACQUISITION OF DATA
2.0 RECEIVE, LOG AND ROUTE INPUT UPDATE OR PERIODIC REPORT
DATA OPERATIONS
5.1.3 CONTROL OF DATA
3.0 PREPARE ENTRY FOR MASTER DOCUMENT DATA LIST
DATA OPERATIONS
5.1.4 PREPARATION OF INPUT
3.0 ANALYSE SOURCE DATA AND DETERMINE ITS VALUE
DATA OPERATIONS
5.1.5 CONTROL OF DATA
4.0 DETERMINE RESPONSIBLE FUNCTIONAL DISCIPLINE
DATA OPERATIONS
5.1.10 DISPOSAL OF DATA
10.0 ROUTE NON-SYSTEM SOURCE DATA TO INACTIVE FILE
DATA OPERATIONS
19.0 INITIATE REQUEST FOR EXCEPTION REPORT

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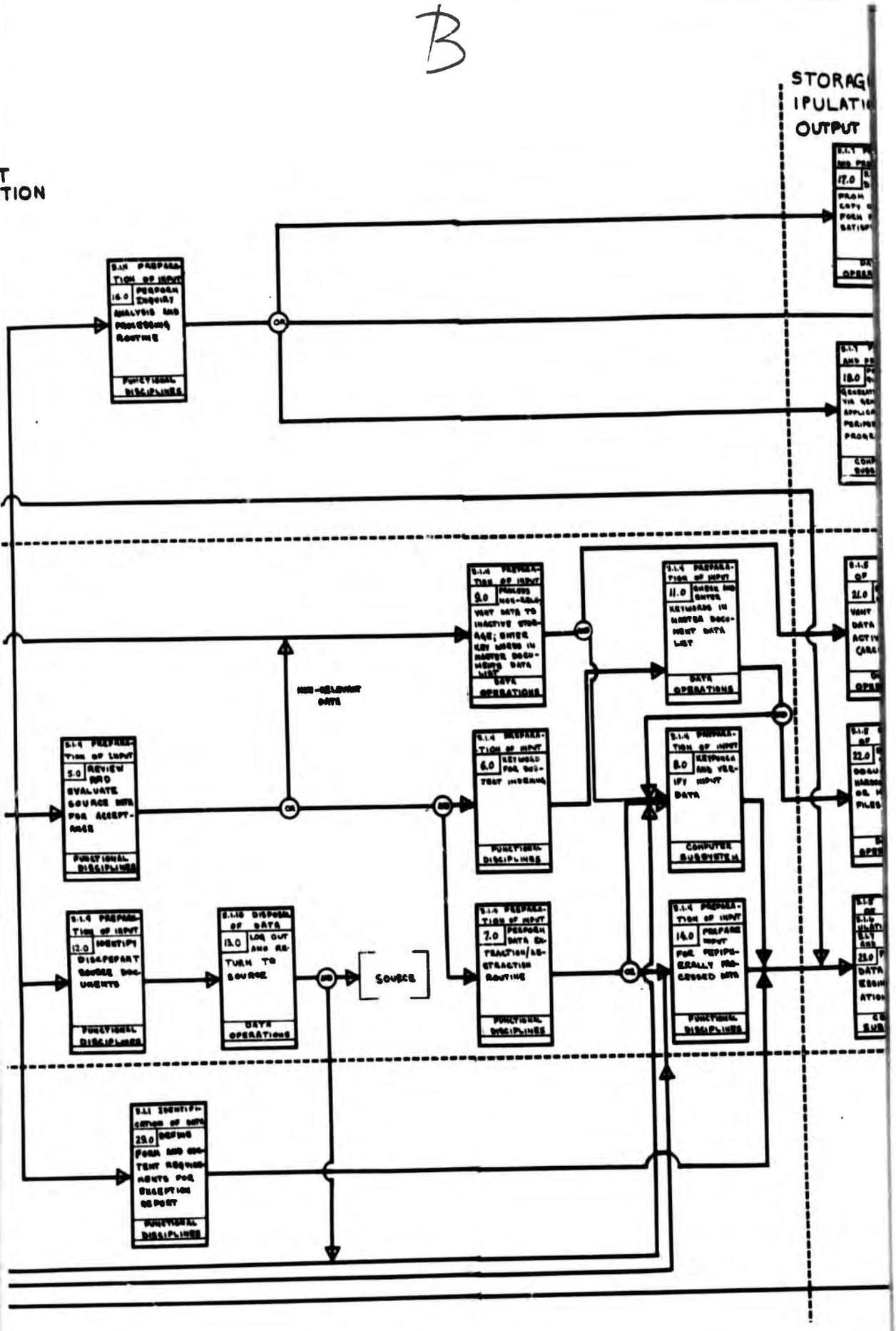
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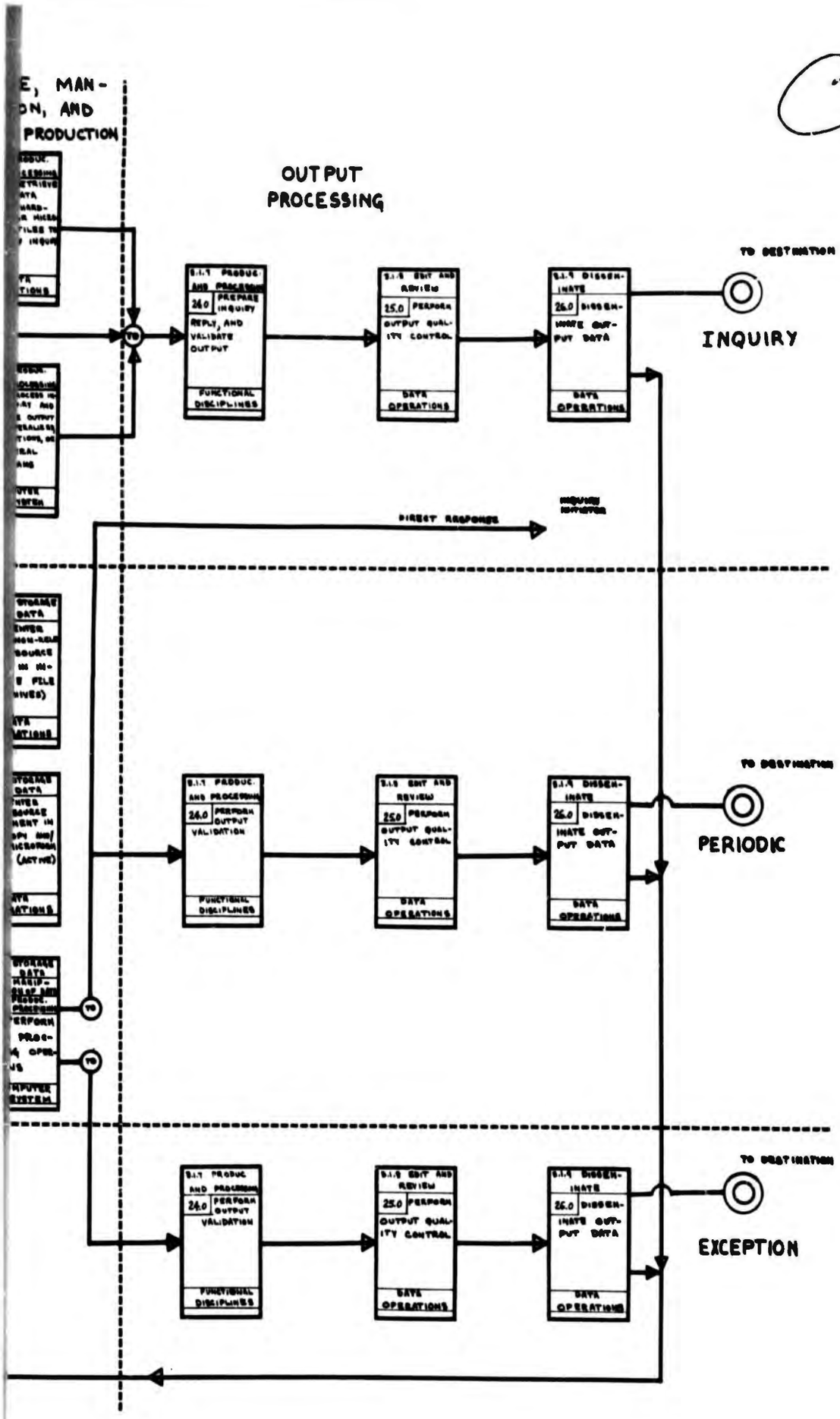
Figure 3.


E, MAN-
ON, AND
PRODUCTION
OUTPUT
PROCESSING
TO DESTINATION
INQUIRY
DIRECT RESPONSE
TO DESTINATION
PERIODIC
TO DESTINATION
EXCEPTION

processing. The ITDS operational modes are depicted by use of horizontal broken lines for demarcation between (i) inquiry processing, (ii) periodic reporting, and (iii) exception reporting.

The summary flow is designed to be self-explanatory, that is, each function block is constructed in a standard format which relates the system function number and title to the specified performance requirement number and title, and to the subsystem assigned the responsibility for performing the function.

Briefly, the operation of the ITDS shall be as follows: subsequent to the receipt, logging and routing of incoming data, the data are screened by the data operations subsystem personnel to determine their value. Non-relevant data are then routed to inactive storage, and the relevant data are forwarded to the responsible functional discipline for review and evaluation. Each appropriate functional discipline performs keywording and data extraction/abstraction of pertinent data for its discipline from the source documents. Extracted/abstracted data are encoded on loadsheets, and keypunched and verified for entry into digital files. Source documents are placed in hardcopy, and, where required, microform files. On either a periodic basis or on a demand basis, data are retrieved from the computer or hardcopy/microfilm storage for distribution to system users. Computer-produced outputs (except for direct inquiry responses) shall be validated by the responsible functional discipline and inspected by data operations quality control prior to dissemination.

Data may be entered or retrieved from the ITDS computer file through direct-access remote terminals. Inquiries may be processed directly (i.e.,

automatically without human intervention), or the inquiry may require human analysis and manipulation prior to being processed by the computer (if the inquiry statement is not specific and in the format required).

Paramount in all ITDS processing operations shall be the capability to verify and validate both the requests for data and the responses by competent specialists both during input and output processing. Historical records of all transactions, both computer and hardcopy/microform shall be maintained. Data shall be protected by security features that preclude unauthorized access and retrieval while they are maintained in the ITDS active and inactive storage. Security functions shall be conducted in accordance with paragraph 3.7, Security.

Detailed descriptions of operational functions are contained in separate paragraphs under the major subsystem headings below:

3.1.3 Data Base Characteristics

3.1.3.1 Data Base Structure

The data base shall consist of a number of data lists or files, each representing a collection of functionally connected data elements. Relationships (linkages) between elements in one data list and elements in another data list shall be specified by the functional disciplines. A data list shall have the following major components (see Figure 4):

- Data List Name. This is the unique name of mnemonic identifying a particular list, for example, CEI, DESCR, WAIVER, ECP, and DØC.
- Item I.D. This is identification assigned to each item within a data list. An item is defined as the collection of data elements that comprise one entry on the data list. Thus, the items in the data lists mentioned above are the configuration end items, descriptions, waivers, engineering change proposals, and documents, and the corresponding Item I.D.'s are the CEI numbers, description numbers, ECP numbers, and document numbers.

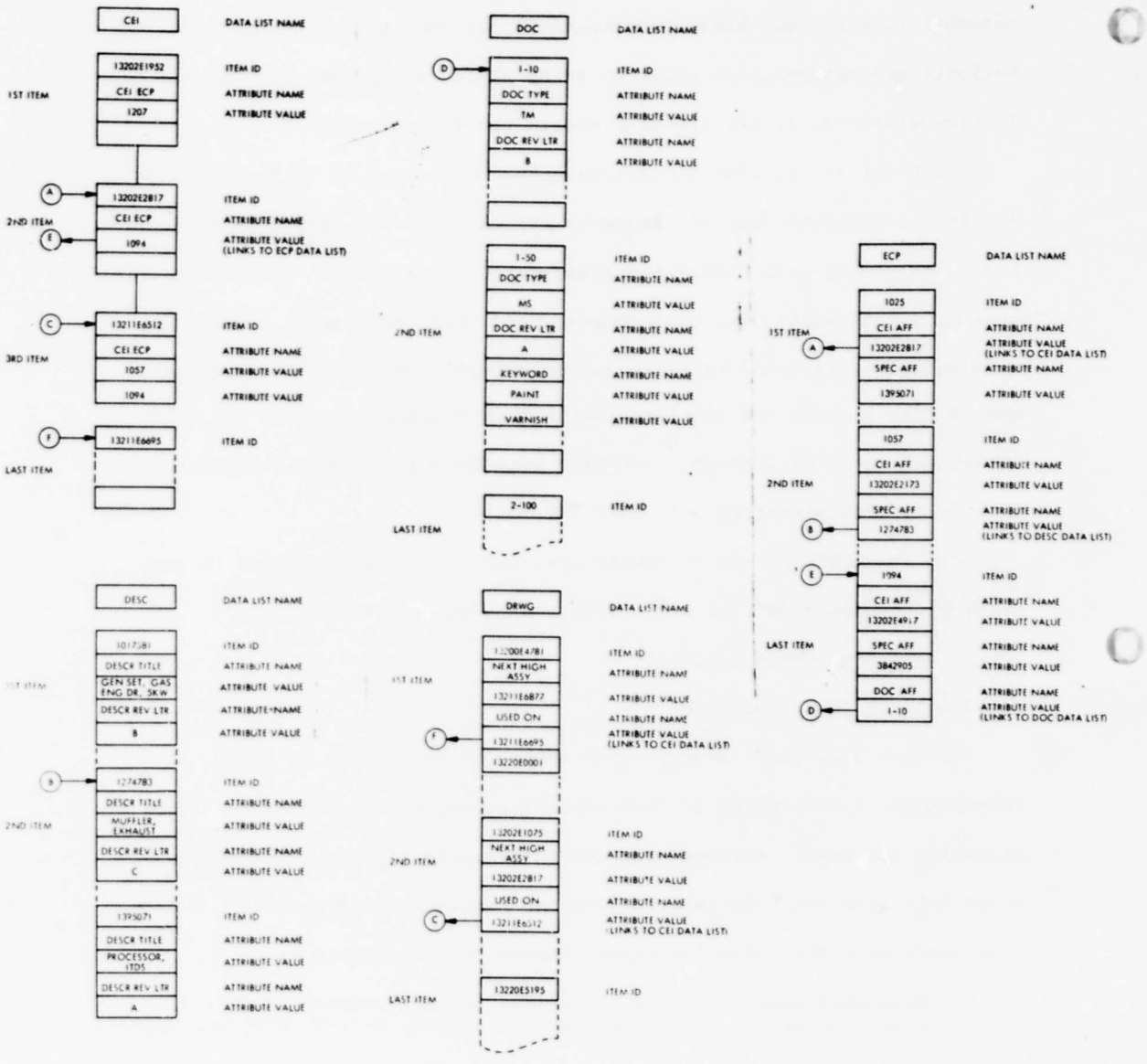


Figure 4. Typical Interrelated Data List

- Attribute Name. This is the mnemonic assigned to each data element. Every item within the same data list contains the same attribute names, and it is these names that make a data list functionally unique. The attribute names are usually contractions of the element description, for example, FSN, Federal Stock Number; NØMEN, nomenclature; ØTHER CEI AFF, other CEI's affected; SRP AFF, spares/repair parts affected; and DESCR REV LTR, description revision letter.

The data base shall be organized so that related information in the same or separate data lists can be easily and automatically retrieved. This occurs in multiple-record situations where an attribute name is also the item name or data list name of another data list, and the attribute value is also the Item I.D. in that data list. Figure 5 illustrates this tree relationship.

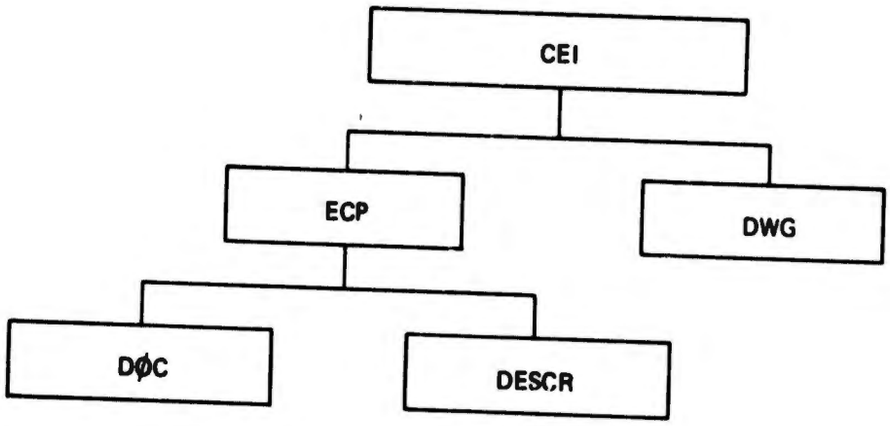


Figure 5. Typical Multiple-Record Data List Relationship

Thus, in a typical ECP data list are the attribute names "SPEC DESCR AFF" and "DRAWING AFF," with associated attribute values that are, in fact, the Item I.D.'s in those lists.

The matrix of Figure 6 shows the structure of a typical data base and how the major data lists might be related.

FROM \ TO	CEI	ECP	MWO	DOC	DRAWING	DESCRIPTION SPEC	PARTS	TDP	WAIVER	CEI-SER-NO	ECP-CEI-SER-NO	MWO-PART-RETROFIT	PARTS-SERIALS	PARTS-CATALOG	COMPONENT PARTS	PROJECT	PHASE SCHEDULE	
CEI	X	X	X	X	X	X	X	X	X	X				X		X	X	
ECP	X	X	X	X	X	X								X				
MWO	X	X	X											X	X			
DOC	X	X		X				X	X									
DRAWING	X	X			X			X										
DESCRIPTION SPEC	X	X				X		X										
PARTS	X						X	X						X	X			
TDP	X			X	X	X	X	X										
WAIVER	X			X					X					X				
CEI-SER-NO	X									X								
ECP-CEI-SER-NO											X							
MWO-PART-RETROFIT												X		X				
PARTS-SERIALS													X					
PARTS-CATALOG	X	X	X				X		X			X		X	X			
COMPONENT PARTS			X				X							X	X			
PROJECT	X															X	X	
PHASE SCHEDULE	X															X	X	

Figure 6. Typical Major Data List Relationships

3.1.3.2 Data Base Establishment

This shall provide the initial base for data that are the nucleus of the data system. As data system operations grow, the data base will be augmented and modified to reflect status changes as well as clerical editing. The initial data base is the starting point for ITDS data operations. When and if the need for additional data base files is identified, appropriate modifications to the data base structure shall be minor and easily made.

Data shall be received, analyzed, extracted and entered on loadsheets, inspected, and keypunched and entered into the computer. The data lists (files) and data elements shall be defined in the Data Element Manual.

After a batch of input cards has been keypunched and verified, it shall be listed on the computer. This permits validation of the contents without interpretation of keypunched cards. In addition to the printout, a list of data format errors shall be produced by the computer to expedite data correction.

When verified, the punched cards shall be sorted for entry into the data base. This shall be accomplished by a data base structuring program which stores the data in the disk files and provides exception reports of any detected errors. When all the data have been stored, a complete listing shall be produced for visual inspection and subsequent functional or editorial error correction. When all errors have been corrected, the initial data base shall be declared established.

3.1.3.3 Editorial Correction

Once the data base has been established and the ITDS operations are under way, it shall be updated by introducing new data, deleting old data, or modifying existing data. Two types of modifications are editorial changes and functional changes.

Editorial changes are those correcting simple errors such as misspelling, omission of data, typographical errors, or format errors, and may be made in an "uncontrolled" manner, using the remote terminals. The computer software handling the editorial changes shall deal only with the specific data elements affected by the change, disregarding the possible effects on the whole data base. To protect the integrity of the data base structure design, appropriate "lock-outs" shall be used to prevent unauthorized changes to the data base dictionaries, and as defined by the responsible functional disciplines, such "lock-outs" may be added to other attributes in specified data lists. Editorial changes shall take the form of "add," "delete," or "change" operations at the terminal, and shall be reflected in the data base by new or changed data together with a recorded date of the last editorial change.

Functional changes are described below under subparagraphs 3.1.3.4 and 3.1.3.5.

3.1.3.4 Data Update

This function shall permit the introduction of new data and the modification or deletion of old data in the data base. It is considered a "bulk" operation in that it assumes large volumes of card data accumulated

over a period of time are subsequently processed in one computer run. Bulk processing operations via remote terminals (due to the slowness of the communication lines and the limited line capacity) shall be prohibited. Low volume data update operations involving critical items whose status needs to be kept very current can be handled via remote terminal.

The update function (see Figure 7) shall provide a facility for purging data that are no longer of current interest, transferring them to magnetic tape for historical storage. Complete historical records of the transactions associated with given data items shall be maintained.

3.1.3.5 Reporting Formats

The facility for reporting data in fixed, preestablished report format shall be considered a "bulk" operation, in that the printing is accomplished by the high-speed printer. These reports shall normally be required by a specific regulation and in a specified format. Another facility of the reporting function shall allow a general format, where the data are presented in a horizontal fashion instead of a fixed-field columnar form. Reports in this general format shall be considered the rule and the fixed-field format the exception.

The ITDS shall provide the capability to minimize the volume of printout material by utilizing the remote terminal mode of operation for inquiry selection of the specific data desired by the requester.

3.2 FUNCTIONAL DISCIPLINES (USER APPLICATIONS) SUBSYSTEM

This subsystem shall be comprised of personnel from several technical and management disciplines who represent the major user application areas served by the ITDS. These specialists shall provide an integral capability for technical analysis, subjective evaluation and quality audit of

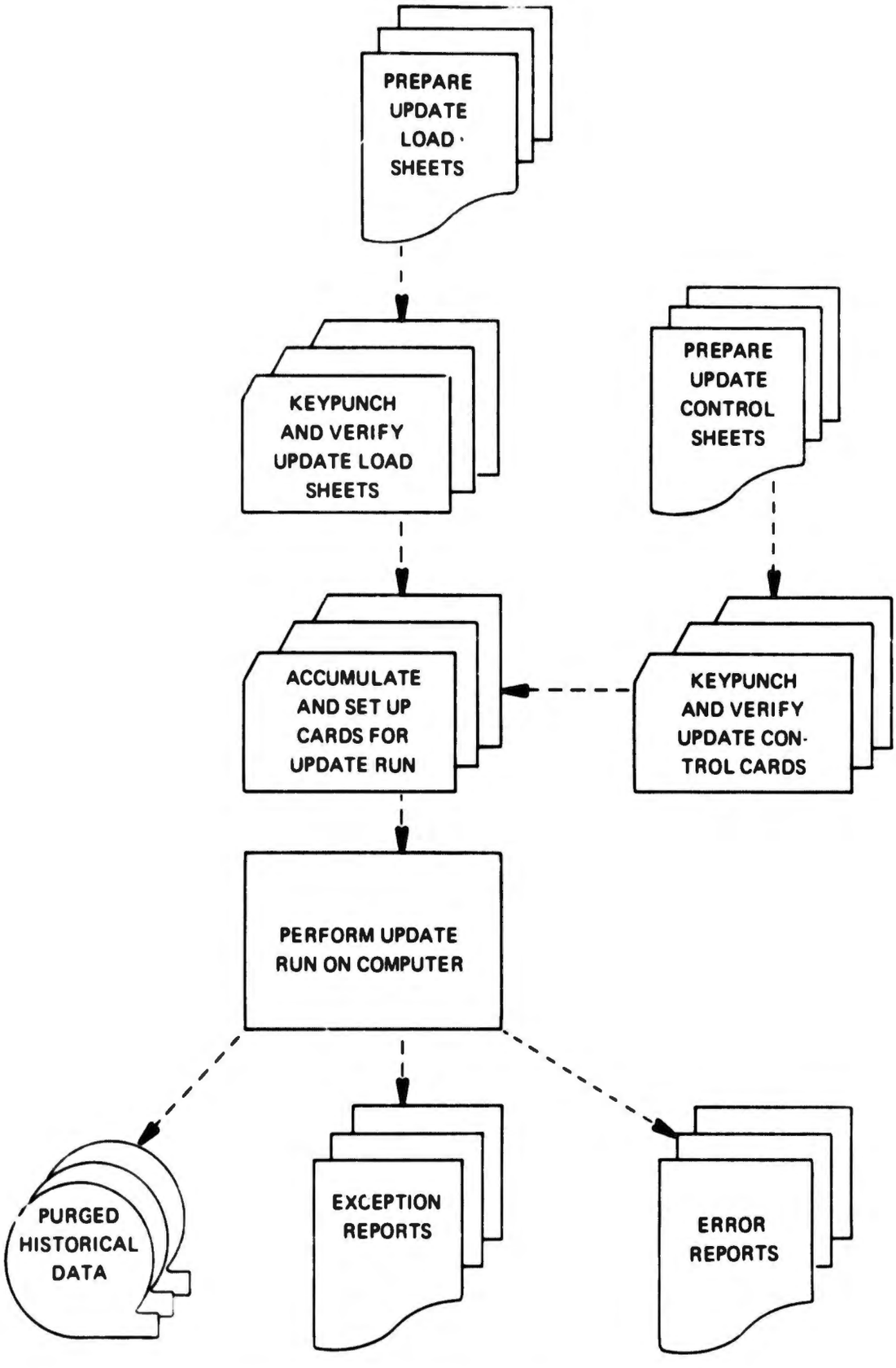


Figure 7. Data Update Operation

all data entering and exiting the ITDS. The major functions that shall be performed by this subsystem, as well as the minimum representative disciplines, are identified and described in succeeding paragraphs.

3.2.1 Functional Disciplines Subsystem Operations

The minimum functions and tasks of which each discipline shall be capable are specified in individual subparagraphs as follows.

3.2.1.1 Technical Analysis

Each discipline shall perform technical analysis of source data, inquiries and requests for exception reports (received for ITDS processing) to determine data relevance and instructions for processing actions.

3.2.1.2 Definition of Output Requirements

Each discipline shall define system output requirements in terms of inquiry responses, periodic reports, and exception reports.

3.2.1.3 Definition of Data Storage Requirements

Each discipline shall define its minimum storage requirements for digital storage capacity in terms of disk and tape media, specifying percentage of active and historical storage required. In addition, hardcopy and microform storage media and capacity shall be specified.

3.2.1.4 Identification of Authorized Data Sources

Each discipline shall identify and designate authorized sources for its data to be processed by ITDS.

3.2.1.5 Designation of Keywords for Subject Indexing

Each discipline shall designate keywords to identify source data for the purpose of subject indexing.

3.2.1.6 Extraction/Abstraction of Source Data

Each discipline shall, subsequent to source data review and evaluation, extract or abstract significant data for input to the system; and validate input data loadsheets (or other input media) prior to release for computer processing.

3.2.1.7 Input Data Scheduling

Each discipline shall define and coordinate schedules with the computer subsystem for submittal of validated input data.

3.2.1.8 Output Data Quality Assurance

Each discipline shall review and validate system outputs to assure their accuracy and responsiveness.

3.2.1.9 ITDS Effectiveness Evaluation

Each discipline shall perform continuous evaluation of ITDS effectiveness in terms of responsiveness and user satisfaction.

3.2.1.10 Introduction of New Data Requirements

Each discipline shall review and evaluate new data requirements (pertaining to that discipline) to determine the impact on subsystem functional capabilities.

3.2.1.11 Evaluation of Proposed System Changes

Each discipline shall review and evaluate proposed system changes to ascertain the potential impact on subsystem functional capabilities.

3.2.2 Identification and Description of ITDS Functional Disciplines

The disciplines which shall be represented within the subsystem capability include, but shall not be limited to, the functional areas described in succeeding subparagraphs and Figure 8. The functional groupings illustrated and described herein should not be considered as mandatory requirements; rather, they should be viewed as "typical" functional groups to be found in large weapon system projects.

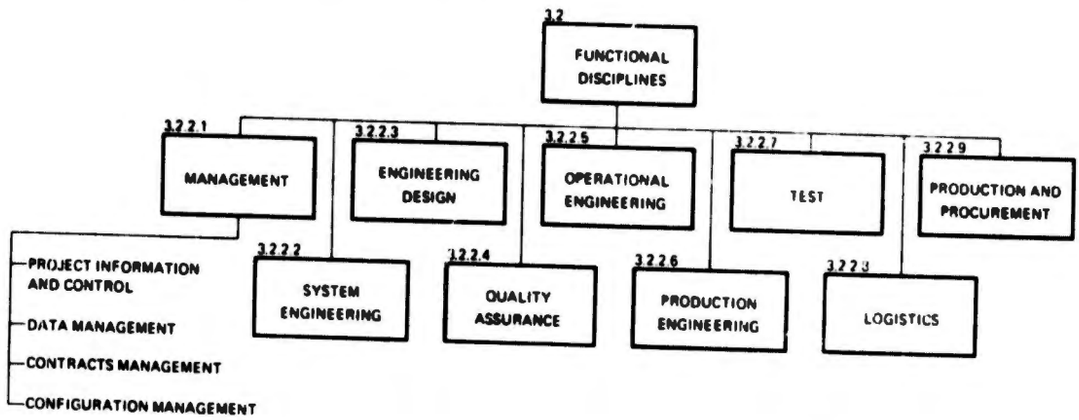


Figure 8. ITDS Functional Disciplines Composition

3.2.2.1 Management

This functional area shall include several disciplines: (i) planning and control, (ii) data management and control, (iii) procurement and contracts data control, and (iv) configuration management. Each of these disciplines is described below.

a) Project Information and Control. Project information and control data shall provide information on costs and schedules to identify the nature and level of detailed project activity and the interrelationships of and constraints upon these activities. The elements and the relationships established among them will permit

recognition of time and cost factors bearing upon early identification of potential problem areas, analysis of these problems, simulation of problem decisions, and preparation of alternatives for project management. The activities and products derived from these data in support of the general objectives of the ITDS shall include:

- Development of a model of project (summary)-level work breakdown structure depicting cost information, actual and projected, etc. This capability is constrained by the availability of cost data.

- Development of a machine sensible model summarizing schedules for total project, existing and significant planned effort in the project definition, design and development, acquisition, and operational phases of the project life cycle.

- Preparation of summary and operating project models reflecting project activities and the relation of such activities to project cost in areas of prime contractor and other agency effort.

- Provide capability for simulation to permit analysis of problems to determine decision possibilities and alternatives and the effect of such decisions on aspects of program effort.

- Provide capability for identification and tracking of critical items with regard to action responsibility and status of analysis, review, and decision.

b) Data Management and Control. Data management data shall provide information on the status of prime contractor and GFM data requirements, and on performance.

c) Contracts Management. Contracts management data shall provide information on the requirements and status of cost, schedule, performance and interpretation data for the project contracting effort. The data entered into the ITDS are utilized to load and maintain the data base and historical reference requirements files.

d) Configuration Management. Configuration management data shall be identified in accordance with the requirements of AMCR 11-26, shall be handled in accordance with appropriate project-unique implementation directives, and shall be indexed by applicable documentation, changes, part numbers, and federal stock numbers (FSN's) for each configured end item (CEI).

In support of the general objectives of the ITDS, the data shall be used to:

a) Identify the descriptions/specifications applicable to a project and provide a record of all changes and their effectivities and of revisions to each description/specification.

b) Identify the engineering drawings and provide a record of all changes and their effectivities.

c) Identify all engineering change proposals (ECP's) and the related hardware and documentation affected, and establish the resulting contractually authorized hardware and data configuration.

d) Identify all interface control actions assigned by the ICWG and monitor the status of each interface control action.

e) Monitor the processing of engineering changes and waivers as required by AMCR 11-26.

f) Identify the technical publications (technical manuals, training manuals, operators' handbooks, and so forth) applicable to a system and provide a record of all changes and revisions to each technical publication.

g) Indenture drawings (top down) to support ECP evaluation and in-process design review.

3.2.2.2 System Engineering

System Engineering Data shall provide information pertaining to several individual work packages within this discipline. These include the following:

a) System engineering plans.

b) System mission definition and profile descriptions.

c) System performance requirements definitions in the form of requirements allocations.

d) System/subsystem analysis reports.

e) System specification.

f) System function analysis data including first through third level functional flow diagrams.

g) System effectiveness analysis reports containing statistical data required for the decision process.

h) System manpower requirements plans and QQPRI's.

3.2.2.3 Engineering

Engineering data shall provide information to:

a) Compare requirements of both Qualitative Materiel Requirement (QMR) performance and selected parameters common to many end items of the system with analytical and experimental values.

b) Produce a bibliography of documents describing technical problems in any of several categories with end items.

c) Support participation in design reviews (that is, applicable specifications/descriptions, drawings, ECP's, analytical and test results, problems, interfacing equipment and interface types, open technical actions).

d) Technically evaluate ECP's.

e) Track responsibility for and status of technical actions assigned at design reviews and technical interface meetings.

3.2.2.4 Quality Assurance

Quality assurance data shall include contractor data, selected maintenance engineering analysis data, and the Army field test results, handled in accordance with the Functional Disciplines Subsystem Operations Manual and TM 38-750. These data shall be used to evaluate equipment at the line replaceable unit (LRU) level, and to:

a) Identify LRU's having the greatest discrepancy between predicted and actual maintenance time at all levels (total maintenance).

b) Identify items with the largest adverse deviations between predicted and measured time on the bases of total products, of task frequency, and of maintenance time.

c) Identify the highest ranked reliability problems on the basis of comparison between predicted (or allocated) and measured mean time between failure (MTBF).

d) Identify the items which have, within the time period considered, most frequently failed and required corrective action.

3.2.2.5 Operational Engineering

Operational engineering information shall be derived from source data relevant to the following subdiscipline areas:

a) Operations plans.

b) Operational requirements analysis reports.

c) System/subsystem support requirements analysis reports and plans.

d) Updated documentation in the areas of maintenance requirements standards, maintainability, reliability, safety, and human factors engineering.

3.2.2.6 Production Engineering

Production engineering data shall provide the means for compiling information to support project management production program surveillance. These data include:

a) Advanced production engineering plans and test reports.

b) Production tooling descriptions.

c) Production plans and schedules.

d) Production control plans and procedures.

e) Quality control and inspection and acceptance requirements and procedures.

f) Delivery schedules and status reports.

g) Production progress reports - technical aspects of processes, finishes, and so forth.

3.2.2.7 Test

Test data shall provide information on the status of the test programs, particularly whether performance objectives are being achieved and whether they are being achieved within the scheduled time frame. In support of the general objectives of the ITDS, the data shall be used to:

a) Identify all elements of the project test program (that is, objectives to be achieved, significant performance parameters, schedules, detail test plans, test article configuration, test support equipment); correlate the test objectives, by test phase, to the applicable test plan (reference USATECOM 705-16), test article, test conduct date (reference USATECOM 705-1 and 705-8), and test report (reference MIL-STD-831 and USATECOM 705-7) covering test objectives provided for in test planning documentation prepared by contractor, Test and Evaluation Command (TECOM), and other commodity commands (reference USATECOM 705-2).

b) Compare the planned and actual delivery status for test articles and support equipment, and estimate the impact of delays on the test program schedules.

c) Compare required and actual performance and estimate the impact; compare test objectives, sorted by CEI number or test article number, that have not yet been accomplished with scheduled or estimated completion dates.

d) Estimate the effect of critical parameter/test result discrepancies on subsequent project testing; define the configuration of each air vehicle for each test increment it supports; indicate the planned and actual configuration classification (that is, prototype, operation, and so forth); and estimate the effect of deviations from planned configuration on test result validity.

e) Review and comment on test planning documents and indicate their processing and approval status; estimate dates of completion as appropriate.

f) Respond to requests for specific performance data.

g) List, cumulatively, test planning discrepancies and actions taken (or planned) on each discrepancy.

h) List, cumulatively, anomalies experienced during all phases of testing.

3.2.2.8 Logistics

Logistics data, including selected maintenance engineering analysis data, shall provide information to:

- Track deliveries of government-furnished material (GFM) as listed on the approved government-furnished equipment schedule.

- Identify delinquent or potentially delinquent shipments of GFM that require management action to avoid slippage of equipment delivery.

- Identify support equipment (SE) by description and functions and the time frame for procurement to assure availability prior to prime equipment delivery.

- Base initial provisioning actions.

- Identify maintenance skills and the level required to effectively maintain the system and its subsystems.

3.2.2.9 Production and Procurement

Production and procurement data shall provide the pertinent factors which must be considered in defining a purchase and selecting a source. Factors to be considered are:

a) Approved production and configuration.

b) Supplementary requirements, including manuals, technical services, facility/equipment, and so forth.

c) Schedule and delivery requirements.

d) Competitive or sole-source procurement considerations for the items in question.

e) Quality assurance requirements.

f) Performance requirements and constraints.

g) Proprietary considerations.

h) Critical material implications.

i) Test requirements.

j) Spare parts and data requirements.

k) Reprocurement data requirements.

3.2.3 Functional Disciplines Manuals

This subsystem shall be supported in the performance of its allocated functions by administrative and operations manuals containing instructions

and procedures for processing data through the system. There shall be two manuals constructed so as to describe functions and operations common to the disciplines identified in paragraph 3.2.2 above; and to identify any that may be unique to one or another of the disciplines. These manuals shall be maintained current and shall be subjected to formal system change control procedures.

3.2.3.1 Administrative Manual

This manual shall describe the administrative practices necessary to support the primary operations of the subsystem. It shall describe such clerical functions as:

a) Logging in or registering source data, inquiries, and requests for exception.

b) Logging in or registering output data and inquiry responses.

c) Maintaining correspondence and message file.

d) Maintaining security procedures to protect data while in custody of the subsystem.

3.2.3.2 Operations Manual

This manual shall describe the functions and operations performed by the subsystem, including descriptions of the personnel who perform the functions. It shall incorporate the detailed functional flow and narrative function descriptions.

This manual shall cover all operations relative to input processing and output processing, as well as subsystem responsibilities and functions pertaining to maintenance of the data base.

3.2.4 Functional Disciplines Personnel Position Descriptions

This subsystem shall be staffed with personnel who possess skills and experience as described in the position descriptions that follow this report (see Appendix A and Figure 9). Each description has been assigned an individual paragraph number as listed below. Each description has been allocated a separate page.

3.2.4.1 Management Personnel

3.2.4.1.1 Management Systems Analyst

3.2.4.1.2 Program Analyst

3.2.4.1.3 Data Management, Contracts Management Analysts

3.2.4.1.4 Configuration Management Engineer

3.2.4.2 Systems Engineering Personnel

3.2.4.2.1 Systems Engineer, Systems Analyst

3.2.4.3 Engineering Personnel

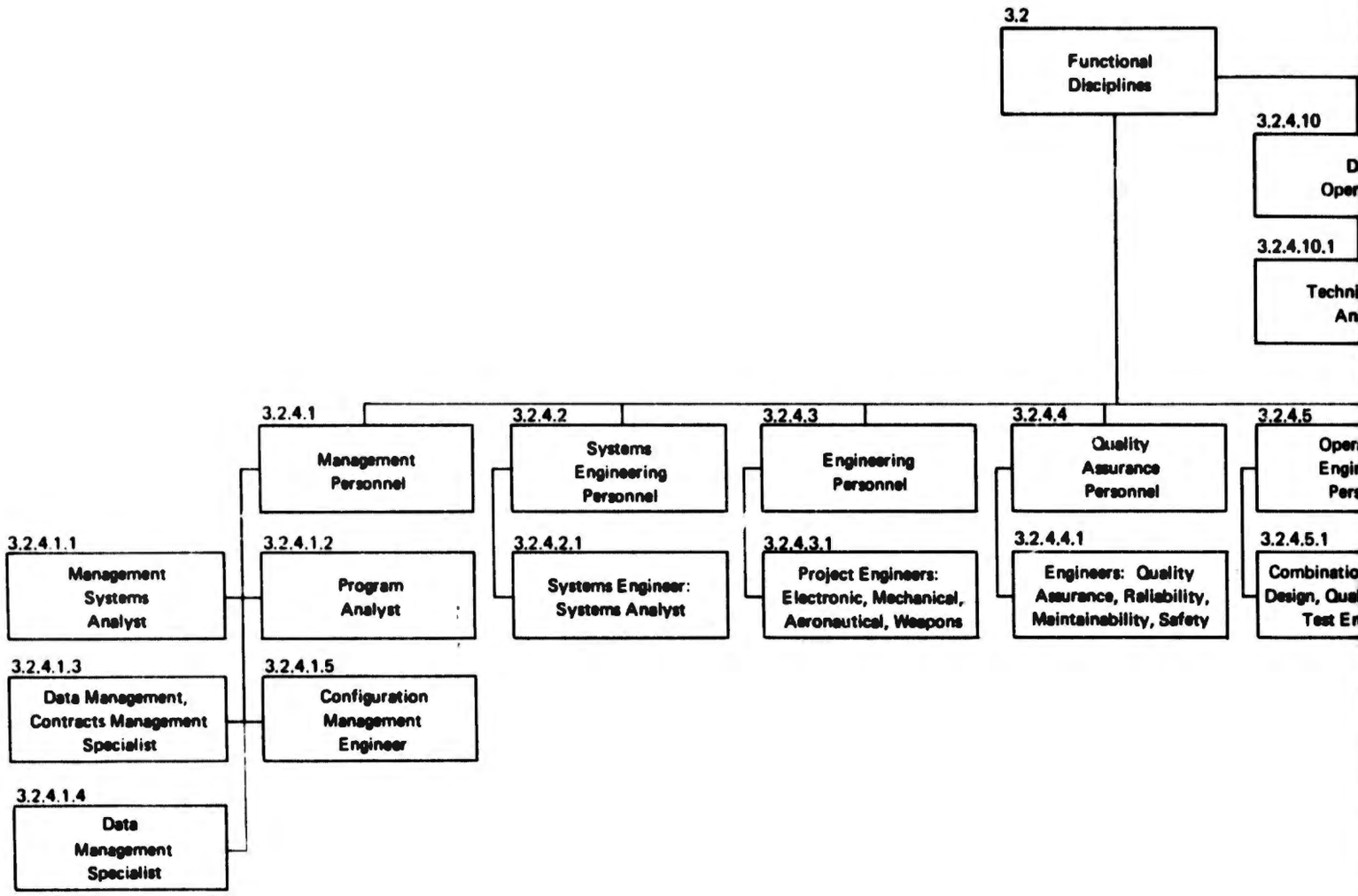
3.2.4.3.1 Project Engineers; Electronics, Mechanical, Aeronautical and Weapons

3.2.4.4 Quality Assurance Personnel

3.2.4.4.1 Engineers; Quality Assurance, Reliability, Maintainability and Safety

3.2.4.5 Operational Engineering Personnel

Operational Engineering personnel shall be a combination of types from Systems Engineering, Engineering Design, Quality Assurance and Test.


3.2
Functional Disciplines
3.2.4.10
3.2.4.10.1
3.2.4.1
Management Personnel
3.2.4.2
Systems Engineering Personnel
3.2.4.3
Engineering Personnel
3.2.4.4
Quality Assurance Personnel
3.2.4.5
3.2.4.1.1
Management Systems Analyst
3.2.4.1.2
Program Analyst
3.2.4.2.1
Systems Engineer: Systems Analyst
3.2.4.3.1
Project Engineers: Electronic, Mechanical, Aeronautical, Weapons
3.2.4.4.1
Engineers: Quality Assurance, Reliability, Maintainability, Safety
3.2.4.5.1
3.2.4.1.3
Data Management, Contracts Management Specialist
3.2.4.1.5
Configuration Management Engineer
3.2.4.1.4
Data Management Specialist

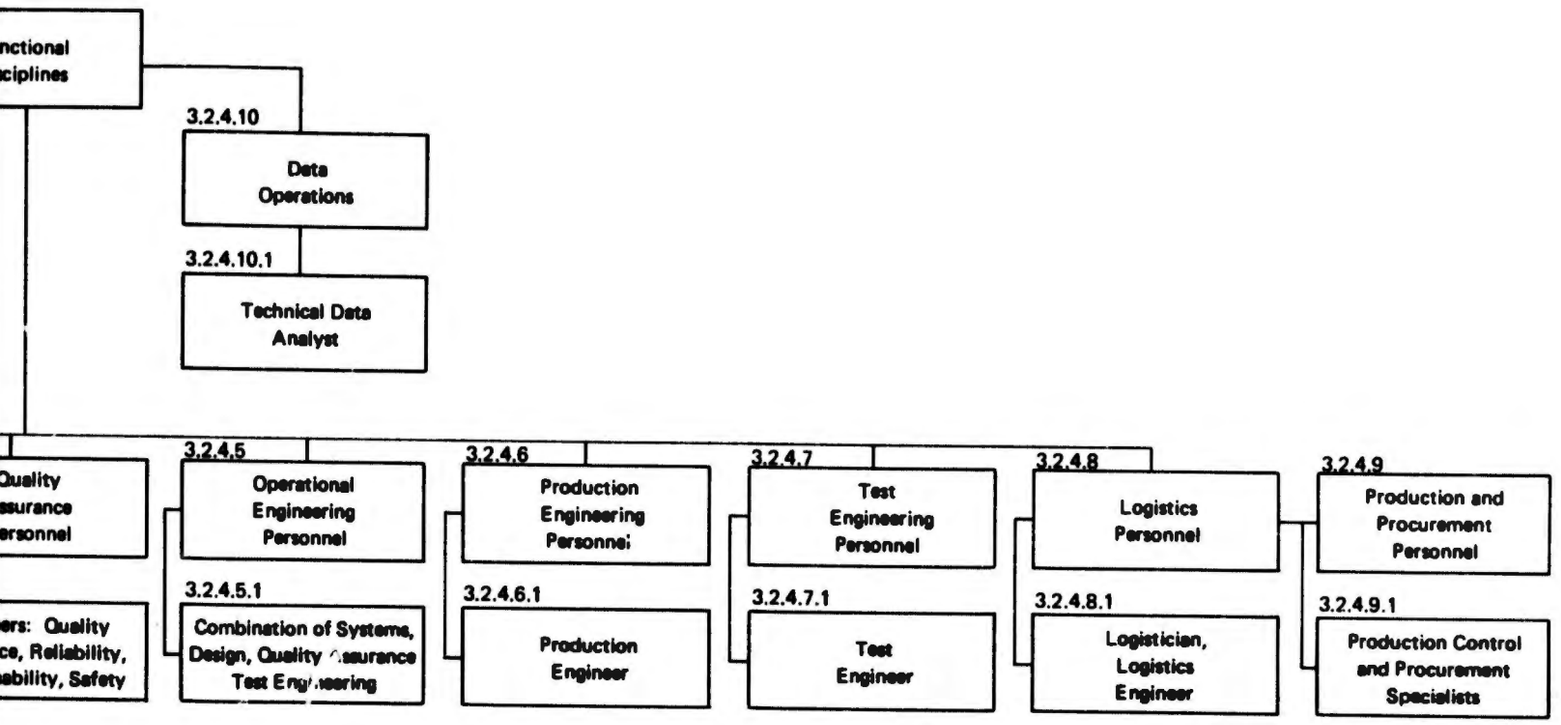


Figure 9. ITDS Functional Disciplines Personnel

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3.2.4.6 Production Engineering Personnel

3.2.4.6.1 Production Engineer

3.2.4.7 Test Engineering Personnel

3.2.4.7.1 Test Engineer

3.2.4.8 Logistics Personnel

3.2.4.8.1 Logistician, Logistics Engineer

3.2.4.9 Production and Procurement Personnel

3.2.4.9.1 Production Control and Procurement Specialist

3.2.4.10 Data Analysis Personnel

Data analysis personnel shall be assigned to each of the disciplines identified above.

3.2.4.10.1 Technical Data Analyst

3.3 DATA OPERATIONS SUBSYSTEM

This subsystem shall be comprised of personnel, equipment and supporting operating and maintenance documentation that are required to control the flow of data into and out of the ITDS, as well as within the system. This subsystem shall perform data management, analysis, and processing functions. It shall provide the interface between the computer support subsystem and functional disciplines (user applications) subsystem.

3.3.1 Data Operations Functional Composition

The functional composition of the data operations subsystem shall be organized into the following four sections:

a) Input Processing

b) Output Processing

c) Data Base Management

d) Direct Inquiry Processing

Each of the above four organizational areas (displayed on Figure 10) will be described separately in the following paragraphs.

3.3.1.1 Input Processing--Identification of Data

The initial step in data operations input processing shall be the establishment and maintenance of both hardcopy and microform master files of selected data.

3.3.1.2 Input Processing--Acquisition of Data

The data operations subsystem shall receive all technical and management data from authorized sources. The data acquistion function shall be capable of accepting data in a variety of media and forms.

3.3.1.3 Input Processing--Control of Data

The data operations subsystem shall control and log in all project documentation from authorized sources. Maintenance of suspense control and operation of an action item system shall also be performed. The subsystem shall maintain distribution control and shall establish and maintain a system for input data quality control.

3.3.1.4 Input Processing--Preparation of Input Data

The data operations subsystem shall perform the following data preparation functions.

a) Review and analyze input source data to determine their value.

b) Enter validated input data via loadsheets or remote terminal.

c) Edit input data and enter corrections.

3.3.1.5 Input Processing--Storage of Data

The data operations subsystem shall store and maintain all non-digital data in hardcopy and/or microform files. Additionally, identification and cross reference indices shall be maintained.

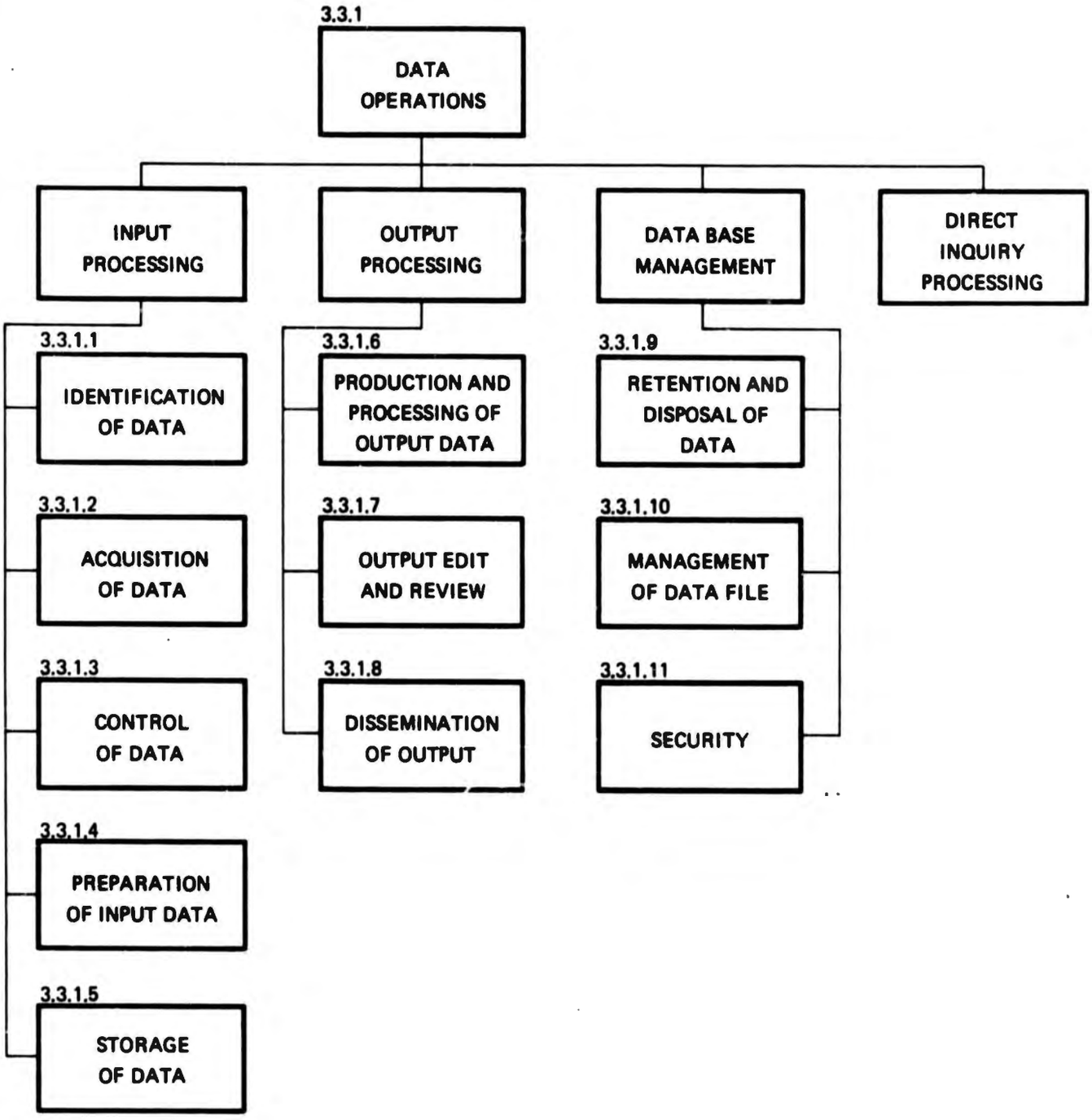


Figure 10. Data Operations Functional Composition

3.3.1.6 Output Processing--Production and Processing of Output Data

The data operations subsystem shall perform an output quality control operation and shall index all output reports for subsequent retrieval.

3.3.1.7 Output Processing--Output Edit and Review

The data operations subsystem shall review all outputs for editorial adequacy prior to distribution, and follow up outputs to determine user satisfaction.

3.3.1.8 Output Processing--Dissemination of Output

The data operations subsystem shall distribute output data and reports in accordance with the applicable distribution list and shall maintain records of completed distribution.

3.3.1.9 Data Base Management--Retention and Disposal of Data

The data operations subsystem shall perform the following functions.

a) Maintain historical records of all transactions against active microform and hardcopy files.

b) Maintain aging records of data transferred from active to historical files.

c) Perform selective purging of data by special programs.

d) Microfilm and hardcopy data retention and disposal in accordance with Army regulations.

3.3.1.10 Data Base Management--Management of Data Files

The data operations subsystem shall perform file maintenance under approved standard procedures and control access to data in hardcopy and microfilm files.

3.3.1.11 Data Base Management--Security

The data operations subsystem shall provide security features that preclude unauthorized retrieval of data or access to information in accordance with applicable regulations.

3.3.1.12 Direct Inquiry Processing

This function shall permit the user of the ITDS to query the data bank directly via the terminals and receive appropriate responses from the computer. Inquiries shall consist of three main features:

- Selection of data, specifying the data elements to be considered, together with how they are to be treated. (Data selection seeks to isolate those elements or a logical combination thereof that meet certain selection criteria.)
- Listing of data, specifying the data elements to be displayed on the terminal.
- Counting of data, specifying the items of data to be counted rather than listed.

The mode of inquiry shall be by a short and concise typewritten statement at the terminal in pseudo-English. The answers to the query shall be similarly short and concise, and return to the user in a matter of seconds. The detailed format of queries shall be described in Data Operations Subsystem Operating Manual.

3.3.2 Data Operations Subsystem Documentation

This subsystem shall be supported in the performance of its allocated functions by administrative and operations manuals containing instructions and procedures for processing data through the system.

3.3.2.1 Data Operations Subsystem--
Administrative Manual

This document shall describe the administrative practices and procedures inherent to the operation of the data operations subsystem. Major operations that shall be covered include (i) logging or registering source

data, inquiries, requests and output reports; (ii) correspondence control; and (iii) security requirements and procedures.

3.3.2.2 Data Operations Subsystem--Operations Manual

This document shall deacribe the procedures necessary to operate the four functional subsections contained within the data operations organization (the four subsections are listed above). Major operations that shall be covered include input processing, output processing, data base management, and direct inquiry processing.

3.3.2.3 Data Operations Subsystem--Equipment Descriptions

This document shall describe the equipment necessary for the operation of the data operations subsystem. The three types of equipment necessary are telecommunications equipment, microform and aperture card handling equipment, and photo-reproduction equipment.

3.3.2.4 Data Operations Subsystem--Personnel Position Descriptions

This document shall describe the responsibilities, functions, and background qualifications of personnel required for effective operation of the data operations subsystem.

3.3.3 Data Operations Equipment Descriptions

3.3.3.1 Inquiry Terminals

The inquiry terminals shall be capable of operating in two modes:

a) The inquiry terminal transmitting mode transmits information entered into the terminal keyboard which is then transformed by the inquiry control unit and electrically transmitted to the central processing unit.

b) The inquiry terminal receiving mode receives information electrically transmitted from the central processor, via the control unit, and then displays it upon the terminal receiving area.

3.3.3.2 Microfilm, Aperture Card, Reproduction Equipment

There are five types of microfilm and reproduction equipment that shall be provided for efficient data operations subsystem operation.

a) The microfilm reader-printer shall be capable of displaying microfilm aperture cards on a viewing screen and shall provide the user with the capability of having a hardcopy print made of the microfilm card.

b) The aperture card storage facility shall be capable of providing storage capacity to contain Hollerith size cards containing microfilm reproductions.

c) The microfilm viewer shall be capable of accepting and displaying upon a viewing screen microfilm reproductions in roll form.

d) The microfilm storage facility shall be capable of storing rolls of microfilm reproductions.

e) The photo-reproduction machine shall be capable of photo-reproducing limited numbers of copies of hardcopy technical data.

3.3.4 Data Operations Subsystem Personnel Position Descriptions

This subsystem shall be staffed with personnel who possess skills and experience as described in the position descriptions that follow. Each description has been allocated an individual paragraph and page number in Appendix B. The personnel shall be functionally organized as illustrated in Figure 11.

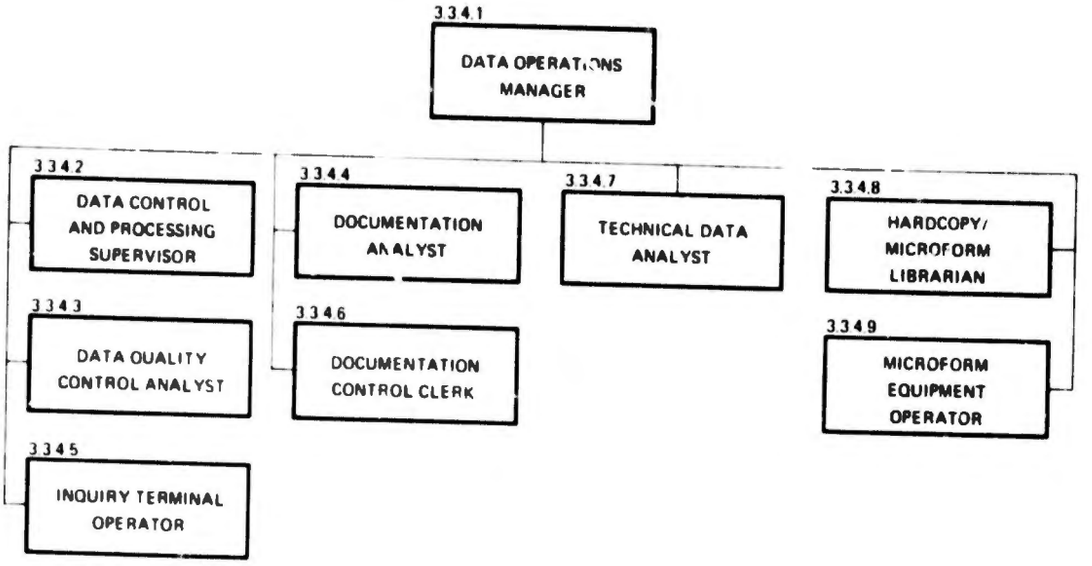


Figure 11. Data Operations Subsystem Personnel

3.4 COMPUTER SUBSYSTEM

The computer subsystem shall be composed of four subsections. The four subsections are listed below and are shown in the organization diagram in Figure 12.

a) **Computer Subsystem Programs**

b) **Computer Subsystem Personnel Organization**

c) **Computer Subsystem Equipment**

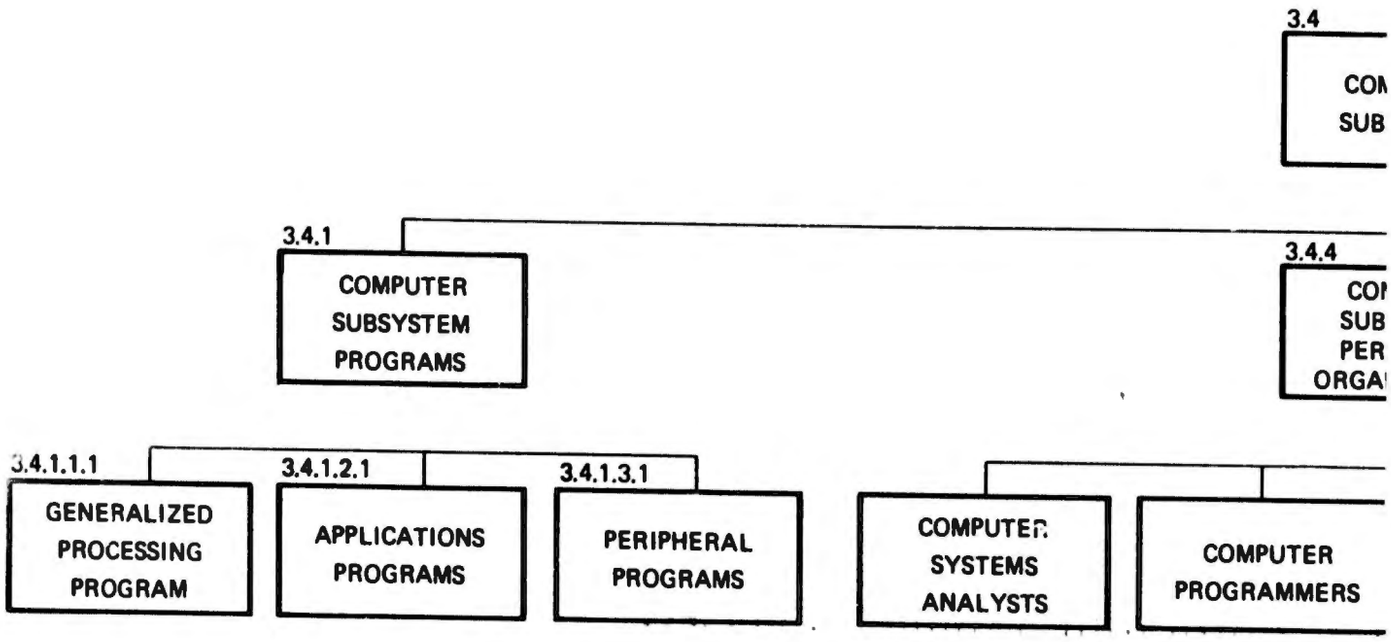
d) **Computer Subsystem Documentation**

3.4.1 Computer Subsystem Programs

The computer subsystem programs can be divided into three separate and distinct functions. Each of the three functions is described in the following paragraphs.

3.4.1.1 Generalized Processing Program Associated Documentation

A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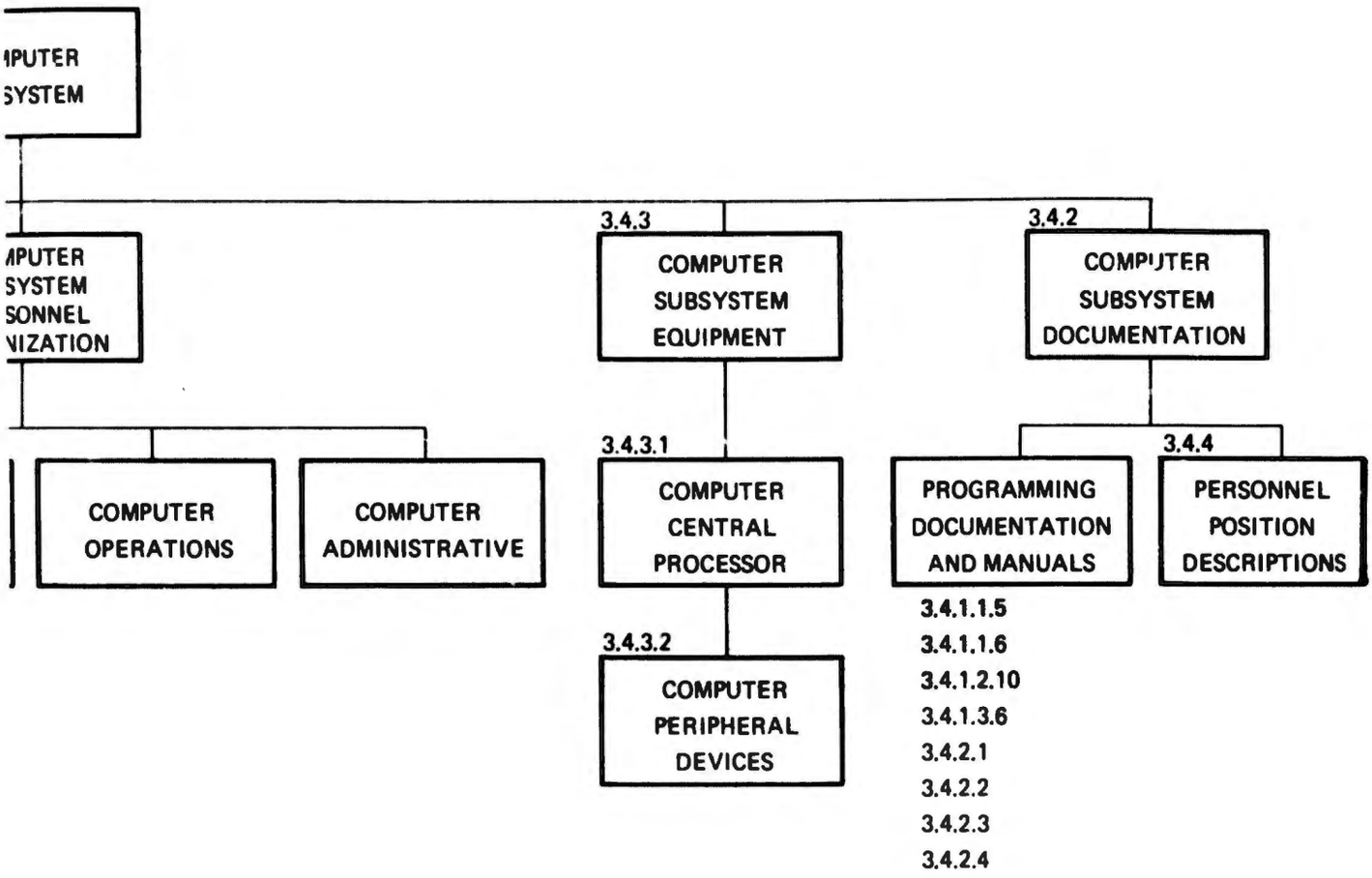

Figure 12. ITDS Computer Subsystem Composition

3.4.1.1.1 Generalized Processing Program. The generalized processing program shall provide the system with three primary capabilities. The three capabilities are:

a) Computerized data base management.

b) Processing of input.

c) Production of output.

3.4.1.1.2 Computerized Data Base Management. The capabilities of the generalized processing program for dynamic data base management shall be twofold. First, the program shall enable the user to create an integrated data base from the raw hardcopy source documents and second, the ability to continually update and modify the existing data base so that it will always be up to date. Data base dictionaries shall be produced at the time of data base creation and each time the data base is changed a modification to the system dictionary shall be produced also.

3.4.1.1.3 Processing of Input. Two functions shall be performed in the processing of input data. The first capability of the generalized processing program shall be to accept input data either from a remote terminal or on punched cards, magnetic tapes, or disks in bulk form. The second capability shall consist of the input of the verified data to the computer for a proofing run using the preprocessor portion of the program. The results of this run shall consist of a computer-generated listing that is similar to the original loadsheet and a magnetic tape that may subsequently be used in a data base maintenance run.

3.4.1.1.4 Production of Output. The primary output mode shall be responsive to inquiries either for information pertinent to a specific data element which identifies a specific document or which has a specific value, quantity, and so forth, or concerning a general project management question directed toward a specific area or aspect of the project. The utilization of cross-referenced listings and keyword search shall be used for response to inquiries for identification of specific documents. The generalized processing program shall respond to inquiries by generating output in two forms, columnar or horizontal, at the remote terminal or on-line high-speed printer. The form of the output shall be determined by the character count per line. The output device shall be determined by the communications terminal user, except when large volume demands automatic routing to the high-speed printer.

3.4.1.1.4.1 Columnar. This form of query output shall be columnar, in that the output data shall be presented in columns under titles identifying each column. This form shall be used when the character count of the number of columns required does not exceed the width of a print sheet.

3.4.1.1.4.2 Horizontal. This form of query output shall be horizontal, in that the output data shall be presented across the page, with titles identifying the data shown on the extreme left of the page. This form shall be used when the space required by a line of output exceeds the width of a print sheet.

3.4.1.1.5 Generalized Processing Program, General Description. This manual shall describe the functions of the generalized processing programs,

delineate the relationship to a project-peculiar data base structure, and provide a detailed discussion of the operations of the generalized software.

3.4.1.1.6 Generalized Processing Program, Programming Documentation. The programming documentation manual shall contain the detailed program documentation and cover the following items:

a) Statement of program requirements and operations.

b) Program master flow charts (chart shows only inputs required and outputs produced).

c) Detail level program flow chart showing the elementary logical construction of each distinct program module.

d) A listing of each distinct program module.

e) Error messages, and input/output formats.

3.4.1.2 Applications Programs and Associated Documentation

3.4.1.2.1 Applications Programs--General. Applications-oriented programs shall perform three basic functions. The first applications system capability shall be the production of bulk reports that are either periodic (recurring) reports or nonrecurring reports. A description of each bulk report is presented individually below. The second applications system capability shall be the extraction and the loading of data into the ITDS that have been produced by the peripheral programs. Each individual extract and load program is described below. Last, there shall be the capability to produce exception reports once they have been defined. Definition and production of an exception report shall follow the same pattern as the periodic reports.

3.4.1.2.2 Applications Programs--System Flow Charts. Figures 13 and 14 are examples of the applications programs system flows that shall be used to produce the required output. Figure 13 depicts the necessary operations to produce the periodic and exception reports, while Figure 14 shows the method which shall be used to create the input data file for loading into the ITDS that has been extracted from the peripheral programs output tapes.

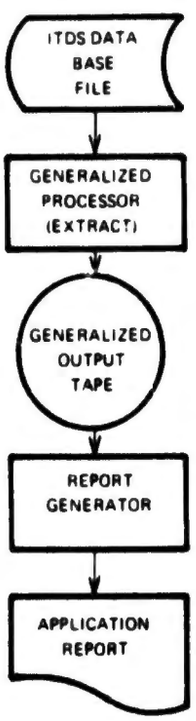

Figure 13. Periodic/Exception Reports Generation System Flow Chart (Applications Programs)

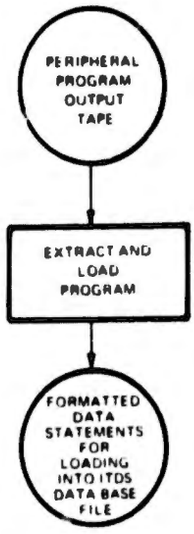

Figure 14. Extract/Loading System Flow Chart (Applications Programs)

3.4.1.2.3 Applications Programs--Configuration Management and Control. There are eight periodic reports in the Configuration Management and Control group, and these reports, accompanied by a brief description, are listed below.

Report #1--CEI Configuration Index. This report shall identify all Configuration End Items (CEI's) comprising a system and provide an index to the applicable documentation, changes, part number(s) and Federal Stock Number(s) for each CEI. This report serves primarily as a key to other reports.

Report #2--Description and Specification Index/Status. This report shall identify the descriptions/specifications which are applicable to a project and provide a record of all changes, their effectivities and revisions to each description/specification. This report is used as an official source for the current issue and changes to each description/specification.

Report #3--Drawing Index/Status. This report shall identify the engineering drawings which are applicable to a project and provide a record of all changes, their effectiveness, and revisions to each drawing. This report is used as an official source for the current issue and changes to each drawing.

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Report #4--ICD Index/Status. This report shall identify the ICD's applicable to a project and provide a record of all changes and revisions to each. This report is used as an official source for the current issue and changes to each ICD.

Report #5--ECP Index/Status. This report shall identify all proposed engineering change proposals and the related hardware and documentation affected by each. This report is used in conjunction with reports CM-1 through 4 and 6 through 8 to establish the contractually authorized hardware and data configuration resulting from each ECP.

Report #6--ICWG Action Status. This report shall identify all ICWG actions established by the ICWG and monitor the status of their completion. Exception reports may be generated whenever completion of an action is delinquent.

Report #7--ECP/Waiver Processing Audit. This report shall provide a capability to monitor the processing of engineering changes and waivers as required by AMCR 11-26. The report provides the status and the number of days required for processing each engineering change and waiver. Exception reports may be generated to identify any items for which processing is delinquent.

Report #8--Technical Publications Index/Status. This report shall identify the technical publications (technical manuals, training manuals, operators' handbooks, and so forth), which are applicable to a project/system and provide a record of all changes and revisions to each publication. This report is used as an official source for the current issue and changes to each technical publication. Exception reports may be generated when changes to the publications are not released on schedule.

Report #9--Master Drawing List by Work Breakdown Structure (WBS). This shall be a periodic computer-produced printout of all engineering documents in the data bank which have been microfilmed. The list shall be ordered by WBS sequence, by number within WBS, by source.

3.4.1.2.4 Applications Programs--Test. The four applications programs in the Test group shall be organized as parts of the Test Requirements Status Report and shall be described in the following way.

- Test Requirements Status Report--This report, comprised of four parts, shall provide visibility over the progress of the test program, particularly whether performance guarantees are being achieved within the scheduled time frame. Parts 1 and 4 are issued monthly and parts 2 and 3 are issued quarterly.

- Part 1--Test Requirements - DTP Status. This part shall provide the current status of testing (by detail test plan). Included are scheduled test start dates, actual test start-complete dates and results of testing conducted during the period.

- Part 2--Requirements for Contractor Test - Status Report. These two parts shall provide a cross-reference of all pertinent test documents in the system program. Appropriate test status information and remarks are entered against contract requirements.

- Part 3--Specifications/Descriptions - Test Status Report. This part shall provide a cross-reference of end item and major component specifications/descriptions (section 4, Test and Evaluation Requirements) to the tests conducted in satisfaction of each requirement.

- Part 4--Development Test - Status Report. This part shall provide a chronology of all equipment end item and major component tests conducted, including time (by item/component serial number), installed item and component time (by serial number) and pertinent remarks concerning each test.

3.4.1.2.5 Application Programs--Logistics. The six reports which shall be produced for the logistics group are described below.

Report #1--Maintainability Problem Reports - Hi 25 (2 sorts). These reports shall identify the high maintenance man-hour users and the high variances in maintenance man-hours to predicted. Management can then decide whether change action is required, desired, or not desired.

Report #2--Reliability Problem Reports - Hi/Lo 25 (2 sorts). These reports shall identify the low reliability units and the high variances in actual reliability to predicted reliability. Management can then decide whether change is required, desired, or not desired.

Report #3--Maintenance Man-Hour per Usage Unit per MOS. This report shall identify the time required for each MOS to perform each maintenance task expressed in relation to "usage units." Management can evaluate the TO&E manning levels required for various usage programs, to provide the proper mix of skills. The "usage units" shall be defined, but will vary with the type of system involved (e.g., for Aircraft systems, the usage units will be Flying Hours).

Report #4--Part 1 - GFM Function and Status. This report shall identify each item of GFM required by the prime contractor, the required, revised, and actual delivery dates and quantities. Management may use this report to assure adequate and timely

deliveries of equipment and remedial action necessary in the event of late deliveries to minimize cost impact.

--Part 2 - SE Function and Status. This report shall identify each item of SE (CFM or GFM) required for delivery to specified sites and actual deliveries. Management may use this report to determine the status, timeliness and adequacy of equipment delivery and remedial action necessary in the event of delayed delivery to minimize mission impact.

3.4.1.2.6 Application Programs--Project Information and Control. The four reports that shall make up Project Information and Control group are described below.

Report #1--Master Detail Milestones. This report shall contain the planned schedule and current status for all project Detail Milestones as of the last day of each month. Processing of project PERT output milestones update information reported on PMM Action Items and coordination meetings between ITDS and PMO personnel shall provide the necessary data for the report.

Report #2--Time Status Report. This report, produced upon inquiry request, shall provide detailed PERT information as backup for the monthly Master Detail Milestone Report.

Report #3--Cost Status Report. This report, produced upon inquiry request, shall provide contractor-reported PERT/Cost data.

Report #4--Funding Status Report. This report, produced upon inquiry request, shall provide formatted SCIOLIST report information.

3.4.1.2.7 Applications Programs--Data Operations. The Data Operations groups applications programs shall consist of two reports and a manual which are described below.

Report #1--Keyword-DAI Cross-Reference Index. This shall be a formatted computer-produced report which lists alphabetically all keywords together with the numbers of the documents (DAI numbers), the contents of which the keywords have been used (assigned) to describe.

Report #2--Document List. This shall be a formatted computer-produced report which lists sequentially by DAI number all documents processed to the ITDS from the PMO. The list also shows the document title and other pertinent information.

Report #3--Master Microfilm Listing. This shall be a periodic computer-produced printout which lists, by source in number sequence, all engineering documents in the data bank which have been microfilmed.

Report #4--Keyword Thesaurus. This shall be a computer-produced project-oriented listing of authorized words, terms, abbreviations and acronyms, called keywords, which shall be used to describe the contents of documents also.

Manual #1--Data Element Manual. This Data Element Manual shall consist of user dictionary entries which reflect the characteristics of each item ID and atribute. The definition of each item ID and attribute shall be incorporated as attribute 16 of the user dictionary.

3.4.1.2.8 Applications Programs--Data Management and Control. There shall be two reports in the Applications Programs Data Management and Control group as described below.

Report #1--Contractor Data Requirements List (CDRL). This periodic report shall be designed to serve two primary purposes: (i) it provides an updated list of data items to be furnished by a contractor under the terms of his contract, as reflected on DD Forms 1423 and as modified by contract amendment. It shall contain data item identification, submittal schedule and distribution requirements; and (ii) it shall provide a record of the contractor's data item submittals via shipping document (DD Forms 250) and/or data item transmittal letter inputs. The CDRL shall provide a comparison between the data item schedule and the delivery status of each data item, thus providing measurement visibility of the contractor's performance.

Report #2--Government Data Requirements List--Contractor Required Data (GDRL). This periodic report shall be designed to serve two primary purposes: (i) it shall list the agreed upon list of data items to be furnished by the government to the contractor in support of Government-Furnished Material (GFM) hardware items, and shall contain data requirement identification related to the nomenclature and FSN identification of the GFM items as well as need date and scheduled delivery dates; (ii) it shall provide the means of identifying data furnished to satisfy the contractor's data item requirements and status of data item deliveries to the contractor, thus, it provides measurement visibility of the government's performance, the contractor's conformance to agreements, and potential areas of contract cost, schedule or performance impacts.

3.4.1.2.9 Applications Programs--Data Extraction and Loading. There shall be seven extract and load programs in applications programs as follows:

a) Generalized Input

b) PERT/Time Extract/Load

c) PERT/Cost Extract/Load

d) SCIOLIST Extract/Load

e) MAST Extract/Load

f) Action Item System Extract/Load

g) MEADS Extract/Load

The last six programs above shall receive the outputs of six peripheral processing systems and extract the required data and produce an input in the form required for loading into ITDS. The appropriate system flow is described in Figure 14, above.

3.4.1.2.10 Applications Programs--Documentation. There shall be three types of documentation for the applications programs. Each is described individually below.

#1--General Description Manual. The general description of the applications programs shall be prepared as an introduction to the applications programs. It shall discuss the general capabilities and concepts used in writing each of the applications programs in broad terms. A brief discussion of the programming languages and techniques employed shall also be presented.

#2--Programming Documentation Manual. The programming documentation manual shall contain the detailed individual program documentation and include the following items for each program:

1) Statement of program requirements and operations.

2) Program Master Flow Chart (chart shows only input required and outputs produced).

3) Detail level program flow chart showing the elementary logical construction of each program.

4) A listing of each program.

5) Any miscellaneous elements necessary to describe the program's logical construction (not operator's instruction) to include, for example, possible error messages, special maintenance procedures, list of logical switches, and so forth.

#3--Operating and Maintenance Instructions. Operating and maintenance instructions and a systems chart shall be included in the Computer Subsystem: Data Processing Center Operator's Manual.

3.4.1.3 Peripheral Programs and Associated Documentation

3.4.1.3.1 Peripheral Programs--General. The peripheral programs perform separate and distinct functions from the ITDS generalized processing program. The four organizational elements listed below describe the capabilities of each of the peripheral programs.

3.4.1.3.2 Peripheral Programs--Logistics. The Maintenance Engineering Analysis Data System (MEADS) shall be a centralized technical documentation and analysis system that provides integrated maintenance engineering support. Additionally, MEADS shall have the capability to control and analyze information pertinent to the maintenance and logistical support of each system, subsystem, and component of the system project.

3.4.1.3.3 Peripheral Programs--Engineering. There shall be two peripheral outputs for the engineering discipline as listed below.

#1--Engineering Fact Sheet. The engineering fact sheet shall provide a concise description of a particular aspect of the system, state the required system performance, and show the status of demonstration programs.

#2--Engineering Problem Narratives. The engineering problem narratives shall contain a summary of the results of the analysis and evaluation of data pertaining to an engineering problem. These summaries are intended for use by the PMO engineering staff.

3.4.1.3.4 Peripheral Programs--Project Information and Control. Project Information and Control shall be composed of four peripheral programs.

#1--PERT/Time. PERT/Time shall be an analytical method for overseeing execution of plans and schedules and the measurement of current progress. It shall determine trade-offs between time and resources for branching and overlapping tasks.

#2--PERT/Cost. PERT/Cost shall be a management information system that interrelates a plan of work to the program's cost and produces integrated reports of work accomplished and costs incurred.

#3--MAST. Materiel Acquisition Status Technique (MAST) shall track delivery status and related projections of identified requirements. The tracking shall be accomplished by processing the actual or expected deliveries and schedule changes received over a specific time period from the organizations supplying materiel. This enables the PMO to monitor the ability of the supplying organizations to meet delivery schedules and point up possible delays on a near real-time basis.

#4--SCIOLIST. Summary Cost Input/Output List is a computer program designed to provide a vehicle for implementing cost (funding) management, planning and reporting aspects of a program. It is a system by which cost categories (requirements, funding, distributions, obligations) and their variances are formatted into several reports by which the program can be efficiently managed.

3.4.1.3.5 Peripheral Programs--Data Operations. The data operations peripheral programs shall be composed of four outputs.

#1--Action Item System. A project management tool in which periodic computer-produced reports shall record and control the assignment, priority and status of work resulting from both internally and externally generated project documentation.

#2--Master Microfilm Listing. This shall be a periodic computer-produced printout which lists, by source in number sequence, all engineering documents in the data bank which have been microfilmed.

#3--Master Drawing List by Work Breakdown Structure (WBS). This shall be a periodic computer-produced printout of all engineering documents in the data bank which have been microfilmed. The list shall be ordered by WBS sequence, by number within WBS, by source.

#4--Keyword Thesaurus. This shall be a computer-produced project-oriented listing of authorized words, terms, abbreviations and acronyms, called keywords, which shall be used to describe the contents of documents also.

3.4.1.3.6 Peripheral Programs--Documentation. There shall be three types of documentation for the peripheral programs. Each is described individually below.

#1--General Description Manual. The general description of the peripheral programs has been prepared as an introduction to the peripheral programs. It discusses the general capabilities and concepts used in writing each of the peripheral programs in broad terms. A brief discussion of the programming languages and technique employed shall also be presented.

#2--Programming Documentation Manual. The programming documentation manual shall contain the detailed individual program documentation and include the following items for each program:

1) Statement of program requirements and operations.

2) Program Master Flow Chart (chart shows only input required and outputs produced).

3) Detail level program flow chart showing the elementary logical construction of each program.

4) A listing of each program.

5) Any miscellaneous elements necessary to describe the program's logical construction (not operator's instruction) to include, for example, possible error messages, special maintenance procedures, list of logical switches, and so forth.

#3--Operating and Maintenance Instructions. Operating and maintenance instructions and a system chart shall be included in the Computer Subsystem: Data Processing Center Operator's Manual.

3.4.2 Computer Programs Administrative, Operations and Maintenance Manuals

3.4.2.1 Computer Subsystem, Administrative Manual

This manual shall contain a description of the following computer subsystem administrative functions:

a) Data processing library management.

b) Scheduling and traffic control of computer operations.

c) Machine time accounting.

d) Security of data.

3.4.2.2 Computer Subsystem, Computer Programs Maintenance Manual

This manual shall describe the necessary procedures to maintain, update, and incorporate changes to the generalized, applications, and peripheral programs.

3.4.2.3 Computer Subsystem, Computer Programs Operations Manual

This manual shall describe the general operational procedures necessary for the generalized, applications, and peripheral programs.

3.4.2.4 Computer Subsystem, Data Processing Center Operator's Manual

This manual shall contain the console operator's instructions for the execution of the generalized, applications, and peripheral programs. It will also contain procedures for checkpointing, restarting, and dumping of subsystem programs.

3.4.3 Computer Subsystem Equipment Characteristics

The following paragraphs and Figure 15 describe the computer subsystem equipment organization.

3.4.3.1 Central Processing Unit

The central processor shall be composed of main and control memory units, logical and arithmetic control units, and an interface for transmitting and receiving information from the computer's input and output peripheral devices. These units shall then enable the computer's central processor to execute an internally stored program that has been loaded into the central processor from one of the computer's input devices.

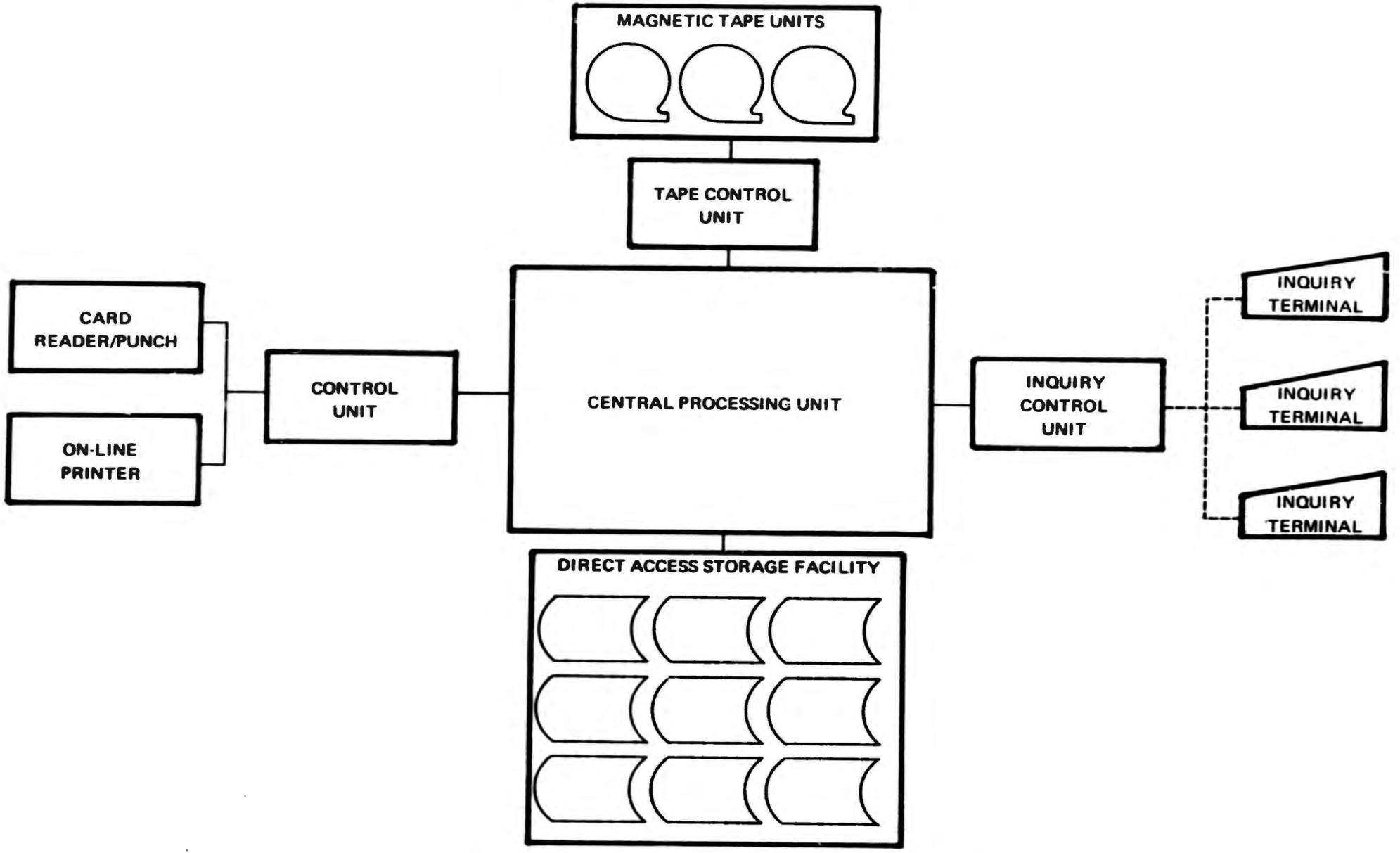

Figure 15. Computer Subsystem Equipment Organization

3.4.3.2 Card Reader/Punch: On-Line Printer and Control Unit

The Card Reader/Punch unit shall perform two functions.

a) The reader portion accepts cards, previously punched in correct format, and through its accompanying control unit interprets the information on the cards into the form required by the computer's central processing unit.

b) The punch portion accepts electrically transmitted information, through the accompanying control unit, from the central processing unit and punches the information onto cards in the required punch character set.

The On-Line Printer, via the Control Unit, accepts electrically transmitted information from the central processing unit and prints this information on continuous form paper using the required character set.

3.4.3.3 Direct Access Storage Facility

The direct access storage facility shall be a multiunit, mass storage device permitting information to be directly addressed from the central processor.

3.4.3.4 Magnetic Tape Units and Tape Control Unit

The magnetic tape units and the accompanying control unit shall operate in two modes:

a) The magnetic tape read mode transmits information that is recorded on magnetic tape to the central processor via the tape control unit, in the required electronic form.

b) The magnetic tape write mode receives information in electronic form, via the tape control unit, and should record the information in standard form on magnetic tape.

3.4.3.5 Inquiry Terminal Control Unit

The inquiry terminal control unit shall receive remote communications and transmit them to the central processing unit in the required form.

3.4.4 Computer Subsystem Personnel Position Descriptions

The computer subsystem shall be staffed with personnel who possess the skills and background described in the position descriptions contained in individual paragraphs and pages in Appendix C. (See Figure 16.)

3.5 RELIABILITY

The ITDS shall assure the quality and reliability of the data held and processed through the system by incorporation of particular features that provide continuous man/machine checks and balances throughout all system operations. These features shall include but not be limited to:

a) Minimization of manual processing operations during data handling.

b) Utilization of fully tested and certified programs, programming documentation, and operating and maintenance procedures.

c) Operation of continuous quality control function for both data input and output by data operations personnel.

d) Validation of output data for quality and responsiveness by responsible functional disciplines.

e) System effectiveness evaluations to ascertain user satisfaction, and to anticipate new or changed requirements.

f) Utilization of reliable computer and associated equipment.

3.5.1 Computer and Associated Equipment Reliability

The reliability of the computer and associated equipment shall be as specified by the equipment manufacturer(s).

3.6 USEFUL LIFE

The design of the ITDS has universal application to systems programs and therefore has an unlimited useful life. Consequently, all documentation regarding the design and application of the system are similarly unrestricted. The application of the ITDS to a specific program is limited

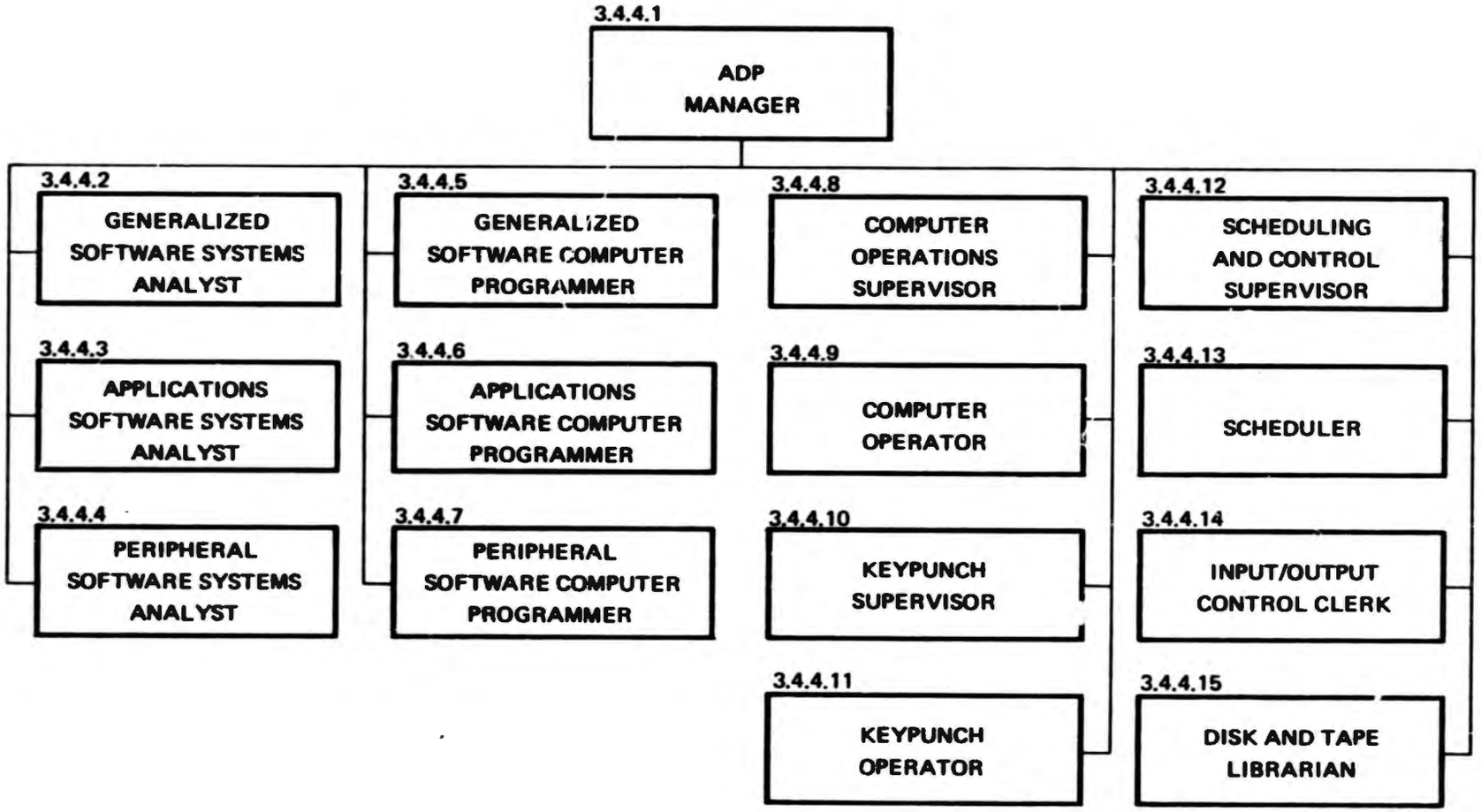

Figure 16. Computer Subsystem Personnel

to the life cycle of such program only by the specific program data and documentation.

3.7 SECURITY CHARACTERISTICS

The unique requirements for implementation of the ITDS on a particular program or project shall be dependent upon governing security regulations. This includes specialized hardware, secured transmission lines and rigorous procedures governing data handling by personnel. The basic system design shall be predicated upon operational security requirements being met by compliance with the Industrial Security Manual for Safeguarding Classified Information.

Inherent in the basic system design shall be features precluding unauthorized retrieval of data and computer-controlled selective dissemination of information on a need-to-know basis, where contained in the computer subsystem. Specific security features inherent in the computer subsystem shall be as follows:

3.7.1 Security Codes

Security codes shall be a characteristic common to all ITDS applications concerning need-to-know and is independent of security classification. The data base information shall be secured so that only authorized personnel with proper codes will have access to the stored data. System capabilities shall permit securing the data base at any one of the following levels:

1) The entire data base,

2) Specific data lists, or

3) Only certain attributes.

3.7.1.1 Security Code Construction

Security codes shall be a six digit code which may be organized in any fashion desired by the user to create his unique code or codes. As many different codes as desired can be established. Assuming eight special characters the possibility of an unauthorized person discovering a legal security code by accident shall not exceed the following:

26 (alphabetic characters)

Plus 10 (numeric characters)

Plus 8 (special characters)

44 to the sixth or 7,256,313,856:10

3.7.1.2 Assignment of Codes

Security codes can be assigned to control retrieval of data base information and updating of data base information. These are designed as two separate attributes within the dictionary attribute definition format, so codes may be assigned to neither, either, or both. System design, therefore, permits these codes to be used for the same purpose, or uniquely, based on whether the same personnel will be allowed access for retrieval and updating.

3.7.2 Computer Facility Security

Computer facility security requirements shall depend upon the applicable requirements for the program or project implementing the ITDS. The basic system design is compatible with operations in a contractor's facility adhering to the Industrial Security Manual for Safeguarding Classified Information in conjunction with DD Form 254-1 (Security Classification

Specification for Contract) within the limitations specified in 3.7 above. The computer facility shall be considered to include the following:

1) Hardcopy libraries
2) Tape/disk libraries
3) Card decks
4) Computer-generated reports
5) Personnel (operational and support)
6) Computer and communication equipment
7) Room facilities, and
8) Computer programs

3.7.3 Access Security

Access shall be afforded by two levels: (1) computer access and (2) data base access. Access to the data base shall be possible at the levels specified in 3.7.1 through 3.7.1.2 above, for update and retrieval.

3.7.3.1 Computer Access

Code numbers may be assigned to users and to data. Therefore, an incorrect user code would prevent a user from computer access.

3.7.4 Security Management

Successful operation of the access security features of the ITDS shall be assured by the careful management of the security codes by the data base manager or equivalent controller.

4. TEST AND DEMONSTRATION

In order to test the parameters of the requirements in Section 3, tests and demonstrations shall be performed during the development and refinement of the ITDS. The complete description of the tests and demonstration shall be contained in the ITDS Test and Demonstration Plan, dated 7 March 1969, which is incorporated herein by reference.

Appendix A

Functional Disciplines Personnel Position Descriptions

Appendix A

Functional Disciplines Personnel Position Descriptions

3.2.4.1.1 POSITION DESCRIPTION

POSITION TITLE:

Management Systems Analyst

PRIMARY RESPONSIBILITY:

To perform analyses of project management data requirements, of source data received for processing; and to perform quality assurance of output data.

FUNCTIONS:

Performs analyses of input data and inquiries; defines computer program applications such as PERT/Cost and line of balance, determines requirements for computer program design of specialized analytical techniques as applied to project planning and control, and develops procedures and methods of incorporating all planning, scheduling and program analysis information into the complete data system.

REQUIRED QUALIFICATIONS/SKILLS:

College degree in business with major in management sciences, systems analysis or data processing preferred.

Minimum three years experience as a systems analyst in medium- to large-scale project management utilizing a data processing system capability. Ability to communicate effectively in both written and oral forms.

3.2.4.1.2 POSITION DESCRIPTION

POSITION TITLE:

Program Analyst

PRIMARY RESPONSIBILITY:

To perform technical analyses of source data, inquiries, and requests for information and exception reports. To evaluate and select significant data from source documents for input to the system. To validate outputs, such as reports, responses to inquiries, for accuracy.

FUNCTIONS:

Defines management data requirements for weapon system acquisition; specifies application of program planning and control techniques such as PERT/Cost and line of balance for integration of planning, analysis of computer output reports, identification of cost and schedule deviations and impact, and the methods for graphic, written, and oral presentation of exception management information. Analyzes for input to the data processing system management data for all phases of complex weapon system planning, scheduling, and control, and project modelling. Maintains conversance with all ITDS attendant disciplines.

REQUIRED QUALIFICATIONS/SKILLS:

College degree in business and/or industrial engineering. Must possess formally acquired background in management sciences, systems analysis, program management and data processing.

Minimum three years experience as a program analyst in medium- to large-scale project management activity utilizing a data processing system.

3.2.4.1.3

POSITION DESCRIPTION

POSITION TITLE:

Data Management: Contracts Management Specialist

PRIMARY RESPONSIBILITY:

Performs as the ITDS counterpart for contract administration and legal matters. Defines, develops and implements ITDS data management functions and procedures pertaining to contract administration data.

FUNCTIONS:

Provides assessment of source documents for keywording and data element extraction for file loading. Processes ITDS inquiries and develops and produces exception reports. Defines and develops procedures and documentation for the thesaurus. Identifies new requirements for thesaurus entries. Verifies file record information and identifies file structure requirements. Provides contract administration and legal counsel upon request.

REQUIRED QUALIFICATIONS/SKILLS:

Bachelor's Degree in business administration or industrial engineering. LLB preferred.

Minimum three years experience in Department of Defense contract administration. Some automatic data processing applications experience desirable.

3.2.4.1.4 **POSITION DESCRIPTION**

POSITION TITLE:

Data Management Specialist

PRIMARY RESPONSIBILITY:

Performs as the ITDS counterpart for the project Data Management Officer (DMO) in the areas of prime contract and government furnished materiel data management. Defines, develops and implements ITDS data management functions and procedures.

FUNCTIONS:

Provides assessment of source documents for keywording and data element extraction for file loading. Processes ITDS inquiries and develops and produces exception and application reports. Defines and develops procedures documentation for the thesaurus. Identifies new requirements for thesaurus entries. Verifies file record information and identifies file structure requirements. Provides prime contractor and government furnished materiel data management support on request.

REQUIRED QUALIFICATIONS/SKILLS:

Bachelor's Degree in business administration or industrial engineering.

Minimum three years experience in conducting data management activities in support of medium to large system projects. Must be thoroughly familiar with DODI 5010.12, DOD Directives 7000.6, 7000.7; AR 700-51, AR 37-200; and AMCR 700-48. Must be familiar with data uses during systems acquisition phase. Some automatic data processing experience -esirable.

3.2.1.4.5 POSITION DESCRIPTION

POSITION TITLE:

Configuration Management Engineer

PRIMARY RESPONSIBILITY:

Performs analyses of source data, inquiries, requests for data and exception reports. Determines significant data to be extracted for input to the system. Performs output data validation to assure quality and responsiveness.

FUNCTIONS:

Reviews, analyzes and evaluates and processes all technical data such as descriptions, drawings, specifications, and associated lists required for the institution, identification, control, and maintenance of the configuration management function on a given program. Assists in the evaluation of program drawing structures, contractor drawing practices, program specification structures, contractor engineering release systems, and acceptance procedures. Determines the requirements of procuring activity regulations, specifications, contracts, etc., as applicable to configuration management records and reporting.

REQUIRED QUALIFICATIONS/SKILLS:

Minimum of Bachelor's Degree in industrial or other project engineering discipline, with post-graduate training in the configuration management discipline.

Minimum three years working experience in conducting configuration management activities on medium to large system projects.

3.2.4.2.1 POSITION DESCRIPTION

POSITION TITLE:
Systems Engineer; Systems Analyst
PRIMARY RESPONSIBILITY:
Performs analyses of source data, inquiries, requests for data and exception reports. Determines significant data to be extracted for input to the system. Performs output data validation to assure quality and responsiveness.
FUNCTIONS:
Systems Engineer: Reviews, analyzes and processes data pertinent to system analysis and integration, in some or all of the following: reliability, maintainability, performance, statistical analysis, cost analysis, and functional analysis. Systems Analyst: Reviews, analyzes and processes data pertinent to design and application of systems effectiveness models to the measurement and interrelation of system availability, reliability, and performance.
REQUIRED QUALIFICATIONS/SKILLS:
Minimum of Bachelor's Degree in engineering with post-graduate background in systems analysis and engineering. Minimum five years experience in systems analysis/engineering in the medium to large system project environment.

3.2.4.3.1 POSITION DESCRIPTION

POSITION TITLE:

Project Engineers;
Electronics, Mechanical, Maintenance, Aeronautical and Weapons

PRIMARY RESPONSIBILITY:

Performs analyses of source data, inquiries, requests for data and exception reports. Determines significant data to be extracted for input to the system. Performs output data validation to assure quality and responsiveness.

FUNCTIONS:

Electronics Engineer: Reviews, analyzes and processes data pertinent to design of communications equipment, radar, computing equipment, control systems, navigations systems and instrumentation.

Mechanical Engineer: Reviews, analyzes and processes data pertinent to turbine propulsion, including ducting for intake and exhaust, gear and gear reduction design, aircraft structure design and analysis, hydraulics and hydraulic system and component design.

Aeronautical Engineer: Skills and experience required in rotary- and fixed-wing aerodynamics and performance, including aircraft dynamics behavior and structural dynamics, propellor and rotor theory, aeroelasticity.

Weapons Engineer: Skills and experience required in design of guns, turrets, fire control systems, range finding and in exterior ballistics. Additional experience is required in design and application of guided and unguided air-to-surface missiles.

REQUIRED QUALIFICATIONS/SKILLS:

Minimum of Bachelor's Degree in respective engineering discipline with post-graduate training in the particular specialties.

Minimum five years experience in applying specialty to functional support of medium to large system project.

3.2.4.4.1 POSITION DESCRIPTION

POSITION TITLE:

Engineers;
Quality Assurance, Reliability, Maintainability, and Safety

PRIMARY RESPONSIBILITY:

Performs analyses of source data, inquiries, requests for data and exception reports. Performs output data validation to assure quality and responsiveness.

FUNCTIONS:

Quality Assurance Engineer: Reviews, analyzes and processes quality assurance, quality control, materiel review board, and acceptance tests of data submitted in accordance with MIL-Q-9858 and MIL-I-45028.

Reliability Engineer: Reviews, analyzes and processes statistical analysis, failure effects and analysis, distribution functions, and statistical data.

Maintainability Engineer: Reviews, analyzes and processes failure data, task analysis, statistical methods, prediction, and demonstration data.

Maintenance Engineer: Reviews, analyzes and processes data pertinent to maintenance activities, level of repair analysis, levels of maintenance, maintenance task analysis, operational reporting systems, and data collection.

Safety Engineer: Reviews, analyzes and processes data pertinent to accident prevention and investigation, both industrial and equipment; equipment characteristics and human error analysis, and human factors and personnel subsystem analysis.

REQUIRED QUALIFICATIONS/SKILLS:

Minimum of Bachelor's Degree in respective engineering discipline.

Minimum of five years experience in the respective engineering discipline obtained in functional support of medium to large system program/project.

3.2.4.6.1 POSITION DESCRIPTION

POSITION TITLE:

Production Engineer

PRIMARY RESPONSIBILITY:

Performs analysis of source data, inquiries, requests for data and exception reports. Determines significant data to be extracted for input to the system. Performs output data validation to assure quality and responsiveness.

FUNCTIONS:

Reviews, analyzes and processes data pertinent to production planning, control, advanced production engineering plans, production status, inspection and acceptance records, delivery schedules, etc.

REQUIRED QUALIFICATIONS/SKILLS:

Minimum of Bachelor's Degree in industrial engineering with majors in production engineering and production control.

Minimum three years working experience in production engineering planning, engineering control environment in support of production on medium- to large-scale system project.

3.2.4.7.1 POSITION DESCRIPTION

POSITION TITLE:

Test Engineer

PRIMARY RESPONSIBILITY:

Performs analyses of source data, inquiries, requests for data and exception reports. Determines significant data to be extracted for input to the system. Performs output data validation to assure quality and responsiveness.

FUNCTIONS:

Reviews, analyzes and processes data pertinent to test system and subsystem engineering, management, planning, scheduling, test documentation, test results review and analysis, test performance, test facilities and support and coordination of test engineering activities among the other disciplines and specialties of the subsystem.

REQUIRED QUALIFICATIONS/SKILLS:

Minimum of Bachelor's Degree in engineering with formal post-graduate training in the field of test engineering.

Minimum five years experience in development test programs on medium- to large-scale system projects.

3.2.4.8.1 POSITION DESCRIPTION

POSITION TITLE:

Logistician or Logistics Engineer

PRIMARY RESPONSIBILITY:

Performs analyses of source data, inquiries, requests for data and exception reports. Determines significant data to be extracted for input to the system. Performs output data validation to assure quality and responsiveness.

FUNCTIONS:

Reviews, analyzes and processes data pertinent to logistics plans, provisioning, procurement of spares, ground-support equipment, inventory control acceptance, transportation and handling, initial issue and basis of issue, government-furnished material, new equipment training, maintenance support plans and technical manuals.

REQUIRED QUALIFICATIONS/SKILLS:

Minimum of Bachelor's Degree in industrial or other engineering discipline with post-graduate training in the field of logistics management and engineering.

Minimum three years experience in performing logistics planning and logistics operations functions in a medium- to large-scale system project environment.

3.2.4.9.1 **POSITION DESCRIPTION**

POSITION TITLE: **Production Control and Procurement Specialist**
PRIMARY RESPONSIBILITY:
FUNCTIONS:
REQUIRED QUALIFICATIONS/SKILLS:

3.2.4.10.1 POSITION DESCRIPTION

POSITION TITLE:

Technical Data Analyst

PRIMARY RESPONSIBILITY:

Abstraction and extraction of data elements and keywords for entry into data base and establishment of data base dictionaries.

FUNCTIONS:

Assists in the selection, extraction, and keywording of data to be entered into the data base. Assists in the acquisition and validation of input source data. Establishes and initially loads system dictionaries. Prepares load sheets and performs data loading operation. Receives and analyzes diagnostic error messages. Structures and maintains records of all data inquiries. Assists in the formatting and processing of periodic and exception reports. Coordinates the processing of changes to the system dictionaries and data base formats.

REQUIRED QUALIFICATIONS/SKILLS:

College degree or equivalent preferred.

Minimum three years experience as a data analyst with experience in interacting within a data processing environment. Ability to communicate effectively in both written and oral form.

Appendix B

Data Operations Personnel Position Descriptions

3.3.4.1 POSITION DESCRIPTION

POSITION TITLE:

Data Operations Manager

PRIMARY RESPONSIBILITY:

Assist applications subsystem personnel in the determination of data requirements, plan for the timely and economical acquisition of data, and insure the adequacy of the acquired data for its intended use.

FUNCTIONS:

Perform overall management, operation, and maintenance of the data base. Provide for continuous data base systems analysis, data system error analysis and validation program, and evaluate all recommended changes for the data base and insure that proper change control procedures are followed. Provide for administrative control for all data being transferred from point to point through the system. Supervise and insure that required procedures for data storage and retrieval of hardcopy and microform documents are being taken. Supervise the maintenance of the documentation files. Provide liaison between the applications subsystem and the computer subsystem.

REQUIRED QUALIFICATIONS/SKILLS:

College degree required, master's degree in business administration preferred.

Minimum five years experience in operation of data management system plus at least three years supervisory experience. At least two years experience in working with data processing personnel.

3.3.4.2 POSITION DESCRIPTION

POSITION TITLE:

Data Control and Processing Supervisor

PRIMARY RESPONSIBILITY:

Supervise the control and operation of the data retrieval operation and the operation of the data inquiry terminal.

FUNCTIONS:

Supervise the receipt and sorting of data from internal and external sources. Supervise the assignment of DAI forms to system data and insure that documents are reproduced as required. Maintain system of distribution accountability and control and establish and maintain permanent hardcopy files. Supervise and carry out the approved system of purging of the hardcopy files. Provide retrieval service for hardcopy files.

REQUIRED QUALIFICATIONS/SKILLS:

High school education required; college degree or equivalent preferred.

Minimum three years experience as a data analyst. This experience should include previous knowledge of data processing terminology and functions.

3.3.4.3 POSITION DESCRIPTION

POSITION TITLE:

Data Quality Control Analyst

PRIMARY RESPONSIBILITY:

Assure that system integrity is maintained with optimum cost effectiveness.

FUNCTIONS:

Responsible for system integrity and interact with system users to insure that the data base is designed and organized to function within optimum cost effectiveness guidelines. Integrate user requirements to insure that data base elements are not duplicated or that user data requirements do not needlessly overlap one another. Analyze data requirements in conjunction with computer equipment capacities.

REQUIRED QUALIFICATIONS/SKILLS:

College degree or equivalent preferred; high school education required.

Minimum one and one-half years experience as a data analyst, part of which must include experience in interfacing with a computer department.

3.3.4.4 **POSITION DESCRIPTION**

POSITION TITLE:

Documentation Analyst

PRIMARY RESPONSIBILITY:

Review all project data received; determine and perform required input processing.

FUNCTIONS:

Provide for the review of all project data received and insure that all log-in and control requirements are satisfied. Determine the necessary and/or required input processing of data into the system and make decisions as to the necessary distribution within the project organization and supporting activities.

REQUIRED QUALIFICATIONS/SKILLS:

High school education required; some college level experience desired.

Minimum one and one-half years experience as a documentation analyst, part of which must include experience in interfacing with a computer department.

3.3.4.5 POSITION DESCRIPTION

POSITION TITLE:
Inquiry Terminal Operator
PRIMARY RESPONSIBILITY:
Operate the input/output remote on-line terminal of the random access data system.
FUNCTIONS:
Operate printing card punch for input of variable data recorded. Operate card reader to input punch card via remote on-line stations into computer random access memory. Operate keyboard printer to make direct inquiry to computer data files and receive response on printer. Operate data phone, requiring correct usage of restricted codes necessary to maintain integrity of system. Perform miscellaneous duties such as punching cards, filing, keeping records, and coordinating with related working groups.
REQUIRED QUALIFICATIONS/SKILLS:
High school education with one year of experience and/or technical trade school or equivalent on-the-job training and experience.

3.3.4.6 **POSITION DESCRIPTION**

POSITION TITLE:

Documentation Control Clerk

PRIMARY RESPONSIBILITY:

Receive and control all system documents.

FUNCTIONS:

Log in all documentation received and distribute for necessary action. File and retrieve documents as directed.

REQUIRED QUALIFICATIONS/SKILLS:

High school education required.

Minimum one year experience in data handling procedures required.

3.3.4.7 POSITION DESCRIPTION

POSITION TITLE:

Technical Data Analyst

PRIMARY RESPONSIBILITY:

Abstraction and extraction of data elements and keywords for entry into data base and establishment of data base dictionaries.

FUNCTIONS:

Assist in the selection, extraction, and keywording of data to be entered into the data base. Assist in the acquisition and validation of input source data. Establish and intially load system dictionaries. Prepare load sheets and perform data loading operation. Receive and analyze diagnostic error messages. Structure and maintain records of all data inquiries. Assist in the formatting and processing of periodic and exception reports. Coordinate the processing of changes to the system dictionaries and data base formats.

REQUIRED QUALIFICATIONS/SKILLS:

College degree or equivalent preferred.

Minimum three years experience as a data analyst with experience in interacting within a data processing environment. Ability to communicate effectively, in both written and oral form.

3.3.4.8 POSITION DESCRIPTION

POSITION TITLE:

Hardcopy/Microform Librarian

PRIMARY RESPONSIBILITY:

Analyze hardcopy documents and which data require microfilming, and maintain hardcopy and microfilm storage.

FUNCTIONS:

Examine technical documents and, following prescribed standards and other directives, indicate which documents are to be microfilmed and which are to go into the hardcopy files. Supervise file maintenance activities and insure that purging is done only when those persons whose activities are responsible for the data agree to those which are to be purged.

REQUIRED QUALIFICATIONS/SKILLS:

High school education required; some college level experience is preferable.

Minimum three years experience in data management and related data processing experience. One year supervisory experience necessary.

3.3.4.9 POSITION DESCRIPTION

POSITION TITLE:

Microform Equipment Operator

PRIMARY RESPONSIBILITY:

Operate microfilm camera and aperture card equipment.

FUNCTIONS:

Take microfilm or microfiche reproductions of system documents and make aperture cards as directed.

REQUIRED QUALIFICATIONS/SKILLS:

High school education required.

Minimum of one to two years experience in the operation and use of microfilm, microfiche, and aperture card equipment.

Appendix C

Computer Personnel Position Descriptions

3.4.4.1 POSITION DESCRIPTION

POSITION TITLE:

Data Processing Manager

PRIMARY RESPONSIBILITY:

Establish and manage a medium-sized, multifunction data processing installation.

FUNCTIONS:

Analyze hardware requirements. Prepare specifications for hardware and software. Select machine configuration most suitable to departmental requirements. Prepare justification for proposed hardware and personnel budget. Prepare a physical plan for the computer installation to include:

a. Physical layout.
b. Preparation of site.
c. Delivery schedule for the hardware.

Carry out the function of liaison between other computer organizations that are to interface with the computer facility.

Carry out liaison with all of the computer manufacturing industries.

Study new developments within the computer industry.

Keep abreast of new hardware and software configurations.

Recruit new personnel.

REQUIRED QUALIFICATIONS/SKILLS:

College degree or its equivalent in industrial engineering, electronics or mechanical engineering, mathematics, economics, statistics or business administration, plus 3 to 5 years as an ADP manager and 4 to 6 years as a programmer/analyst, with direct programming and/or systems analyst experience.

3.4.4.2 POSITION DESCRIPTION

POSITION TITLE:

Generalized Software Systems Analyst

PRIMARY RESPONSIBILITY:

Perform systems analysis for the purpose of establishing and identifying generalized software requirements.

FUNCTIONS:

Perform overall systems analysis and establish generalized software requirements. Write detailed system level specifications fulfilling each of the previously defined system requirements. Establish criteria for a program acceptance test and performance evaluation and construct program installation procedures.

Participate in major conferences and meetings to resolve systems and program problems. Interface with the customer and the computer programmer in resolving generalized software systems problems.

REQUIRED QUALIFICATIONS/SKILLS:

College degree or its equivalent, plus three years of experience as a computer system analyst and three years of experience with direct programming.

3.4.4.3 POSITION DESCRIPTION

POSITION TITLE:

Applications Software Systems Analyst

PRIMARY RESPONSIBILITY:

Perform systems analysis for the purpose of establishing and identifying applications software requirements.

FUNCTIONS:

Perform overall systems analysis and establish applications software requirements. Write detailed system level specifications fulfilling each of the previously defined systems requirements. Establish criteria for program acceptance test and performance evaluation, and construct program installation procedures.

Participate in major conferences and meetings to resolve systems and program problems. Interface with the customer and the computer programmer in resolving applications software systems problems.

REQUIRED QUALIFICATIONS/SKILLS:

College degree or its equivalent, plus three years of experience as a computer system analyst and three years of experience with direct programming.

3.4.4.4 POSITION DESCRIPTION

POSITION TITLE:

Peripheral Software Systems Analyst

PRIMARY RESPONSIBILITY:

Perform systems analysis for the purpose of establishing and identifying peripheral software requirements.

FUNCTIONS:

Perform overall systems analysis and establish peripheral software requirements. Write detailed system level specifications fulfilling each of the previously defined systems requirements. Establish criteria for program acceptance testing and performance evaluation, and construct program installation procedures.

Participate in major conferences and meetings to resolve systems and program problems. Interface with the customer and the computer programmer in resolving peripheral software systems problems.

REQUIRED QUALIFICATIONS/SKILLS:

College degree or its equivalent, plus three years of experience as a computer system analyst and three years of experience with direct programming.

3.4.4.5 POSITION DESCRIPTION

POSITION TITLE:

Generalized Software Computer Programmer

PRIMARY RESPONSIBILITY:

Assist in determining generalized software requirements and preparing generalized computer programs for EDP equipment. Prepare flow charts, develop and test program routines, and check validity of results.

FUNCTIONS:

Prepare general and/or detailed flow charts as necessary to determine generalized program requirements based upon data requirements established by the system analyst.

Code program from previously prepared flow charts.

Review programming routines for errors, perform computer tests, debug routines and check results to ensure all requirements have been met. Prepare test data for testing programs from record layout and information compiled by programmers.

Prepare program documentation. Assemble proper documents for program run books. Prepare systems charts.

Make logic changes to existing program, and test and debug as required.

Perform related duties as assigned.

REQUIRED QUALIFICATIONS/SKILLS:

College degree or its equivalent is preferred.

Five years experience as a computer programmer and thoroughly familiar with agency data processing equipment. Must be able to exercise ingenuity and originality in developing detailed program flow charts and translating application requirements into machine language instructions. Must be able to think logically and document work in a clear and concise manner.

3.4.4.6 POSITION DESCRIPTION

POSITION TITLE:

Applications Software Computer Programmer

PRIMARY RESPONSIBILITY:

Assist in determining applications software requirements and preparing applications computer programs for EDP equipment. Prepare flow charts, develop and test program routines, and check validity of results.

FUNCTIONS:

Prepare general and/or detaile/ flow charts as necessary to determine applications program requirements based upon data requirements established by the system analyst.

Code program for previously prepared flow charts.

Review programming routines for errors, perform computer tests, debug routines and check results to ensure all requirements have been met. Prepare test data for testing programs from record layout and information compiled by programmers.

Prepare program documentation. Assemble proper documents for program run books. Prepare systems charts.

Make logic changes to existing program, and test and debug as required.

Perform related duties as assigned.

REQUIRED QUALIFICATIONS/SKILLS:

College degree or its equivalent is preferred.

Five years experience as a computer programmer and thoroughly familiar with agency data processing equipment. Must be able to exercise ingenuity and originality in developing detailed program flow charts and translating application requirements into machine language instructions. Must be able to think logically and document work in a clear and concise manner.

3.4.4.7 POSITION DESCRIPTION

POSITION TITLE:

Peripheral Software Computer Programmer

PRIMARY RESPONSIBILITY:

Assist in determining peripheral software requirements and preparing peripheral computer programs for EAM and EDP equipment. Prepare flow charts, develop and test program routines, and check validity of results.

FUNCTIONS:

Prepare general and/or detailed flow charts as necessary to determine peripheral program requirements based upon data requirements established by the system analyst.

Code program from previously prepared flow charts.

Review programming routines for errors, perform computer tests, debug routines and check results to ensure all requirements have been met. Prepare test data for testing programs from record layout and information compiled by programmers.

Prepare program documentation. Assemble proper documents for program run books. Prepare systems charts.

Make logic changes to existing program, and test and debug as required.

Perform related duties as assigned.

REQUIRED QUALIFICATIONS/SKILLS:

College degree or its equivalent is preferred.

Five years experience as a computer programmer and thoroughly familiar with agency data processing equipment. Must be able to exercise ingenuity and originality in developing detailed program flow charts and translating application requirements into machine language instructions. Must be able to think logically and document work in a clear and concise manner.

3.4.4.8 POSITION DESCRIPTION

POSITION TITLE:

Computer Operations Supervisor

PRIMARY RESPONSIBILITY:

Organize the operations of the data processing computer center and supervise computer center and keypunch personnel.

FUNCTIONS:

Instruct senior console operators and other subordinates on operating practices, habits and hours of work, and adherence to controls and checks.

Ensure that data can be most efficiently processed with minimum usage of staff and computer time by adequate documentation of all work performed.

Organize the activities of and supervise personnel in the center.

Plan, schedule, and direct production and issuance of timely reports to meet requirements of groups within the agency.

Act as technical consultant to clients in input and output substance by suggesting formats, and to systems and procedures analysts by facilitating issuance of adequate reports.

REQUIRED QUALIFICATIONS/SKILLS:

High school education required; college degree preferred.

Extensive experience in computer and tabulating operations, sufficient to yield practical knowledge of sound operational techniques and data processing standards and practices. Must also possess sound knowledge of computer procedures, flow charts, and machine instructions. Ability to organize, motivate, and supervise to obtain the most efficient utilization of personnel and mechanical resources.

3.4.4.9 POSITION DESCRIPTION

POSITION TITLE:

Computer Operator

PRIMARY RESPONSIBILITY:

Monitor and control an electronic computer to automatically process data.

FUNCTIONS:

Operate an electronic computer and associated peripheral equipment under general supervision.

Determine proper equipment setup from operating instructions.

Maintain machine performance and production records.

Maintain operating supplies, deliver completed jobs, and perform other tasks necessary to support machine processing activities.

REQUIRED QUALIFICATIONS/SKILLS:

High school education required; some college training preferred.

Three years experience as a computer operator. Competent in most phases to work unsupervised. Requires only general direction for the other phases.

3.4.4.10 POSITION DESCRIPTION

POSITION TITLE:

Keypunch Supervisor

PRIMARY RESPONSIBILITY:

Supervise the keypunching and verifying of work and operate keypunch machine for recording of data.

FUNCTIONS:

Prepare production schedules for keypunching.

Maintain keypunching schedules by assigning personnel and designating machine loading to maximize productivity.

Initiate requests for changes in personnel complement, classification, or rates in keypunching.

Conduct operations from written procedural instructions. Keypunch or verify approximately 75% of time qualification.

REQUIRED QUALIFICATIONS/SKILLS:

High school education. Four years experience in keypunching with some supervisory experience preferred.

3.4.4.11 POSITION DESCRIPTION

POSITION TITLE:

Keypunch Operator

PRIMARY RESPONSIBILITY:

Operate keypunch and verify machine for recording data.

FUNCTIONS:

Keypunch and verify data processing cards under general supervision.

Determine proper program card setup from an analysis of keypunch instructions.

Perform related clerical tasks.

REQUIRED QUALIFICATIONS/SKILLS:

High school education. One year experience as a keypunch operator or successful completion of a keypunch training course with six months experience.

3.4.4.12 POSITION DESCRIPTION

POSITION TITLE:

Scheduling and Control Supervisor

PRIMARY RESPONSIBILITY:

Supervise the scheduling, control, library personnel for the computer subsystem.

FUNCTIONS:

Set up and interpret scheduling requirements for a data processing department. Supervise and instruct scheduler, data control, and library personnel in their assigned duties. Prepare and submit data processing production reports and input/output control reports to management. Analyze storage requirements for the disk and tape library and insure that proper security precautions are being taken to safeguard master and temporary data files.

REQUIRED QUALIFICATIONS/SKILLS:

High school education required; college degree preferred.

Supervisory experience and three to five years with data processing scheduling, data control, and tape library operations.

3.4.4.13

POSITION DESCRIPTION

POSITION TITLE:

Scheduler

PRIMARY RESPONSIBILITY:

Schedule recurring and nonrecurring processing of data for the computer subsystem.

FUNCTIONS:

Analyze recurring and nonrecurring data processing requirements and establish schedule for data processing operations. Prepare production capabilities analysis for supervisor to present to management, and production reports on a periodic basis.

Coordinate with disk and tape librarian and input/output control clerk to insure that the proper master files and inputs are released to data processing operations for processing.

REQUIRED QUALIFICATIONS/SKILLS:

High school education required; college degree preferred.

Minimum one to three years scheduling experience and familiarity with data processing operations.

3.4.4.14 **POSITION DESCRIPTION**

POSITION TITLE:

Input/Output Control Clerk

PRIMARY RESPONSIBILITY:

Under supervision of immediate supervisor, implement and coordinate processing of diverse kinds of data in order that informational and control reports may be prepared.

FUNCTIONS:

Receive and review status changes, memoranda, and other system inputs. Verify accuracy of inputs by communication with various administrative personnel in line and staff groups.

Assume responsibility for distribution of all reports and other inputs and outputs from the data processing office.

Recommend design and implementation of special report formats and procedures.

REQUIRED QUALIFICATIONS/SKILLS:

High school education. Familiar with data processing concepts and procedures and problems and requirements of report users. Ability to coordinate and to successfully interact with administrative organizations.

3.4.4.15 POSITION DESCRIPTION

POSITION TITLE: **Disk and Tape Librarian**
PRIMARY RESPONSIBILITY: **Maintain a disk and magnetic tape library.**
FUNCTIONS: **Check in, assign classified log number, prepare receipts, and file magnetic tape and disks.** **File data and maintain records to provide ready access. Log test data provided to users. Process notices to be sent to overdue tape or disk holders. Prepare notification lists and process telephone requests. Prepare and forward outdated tape, disks, and material to records retention center.** **Establish procedures to preserve classified nature of data.**
REQUIRED QUALIFICATIONS/SKILLS: **High school education with the ability to type, and familiarity with data filing system and data reduction terminology.**

3.4.4.15 POSITION DESCRIPTION

POSITION TITLE:	Disk and Tape Librarian

PRIMARY RESPONSIBILITY:

Maintain a disk and magnetic tape library.

FUNCTIONS:

Check in, assign classified log number, prepare receipts, and file magnetic tape and disks.

File data and maintain records to provide ready access. Log test data provided to users. Process notices to be sent to overdue tape or disk holders. Prepare notification lists and process telephone requests. Prepare and forward outdated tape, disks, and material to records retention center.

Establish procedures to preserve classified nature of data.

REQUIRED QUALIFICATIONS/SKILLS:

High school education with the ability to type, and familiarity with data filing system and data reduction terminology.