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FUNCTIONAL DESIGN SPECIFICATION
FOR
STOWAGE LIST AND HARDWARE TRACKING SYSTEM
(SLAHTS)

Job Order 88-079

Prepared By
Lockheed Electronics Company, Inc.
Aerospace Systems Division
Houston, Texas
Under Contract NAS 9-12200

For
INSTITUTIONAL DATA SYSTEMS DIVISION



National Aeronautics and Space Administration
LYNDON B. JOHNSON SPACE CENTER

Houston, Texas
April 1975

LEC-5748

FUNCTIONAL DESIGN SPECIFICATION
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Job Order 88-079

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FOREWORD

In response to job order 88-079, this functional design specification defines the total systems approach to meeting the requirements stated in the Detailed Requirements Document for Stowage List and Hardware Tracking System, LEC-5362, JSC-09405 dated February 1975. The Stowage List and Hardware Tracking System is identified at the system and subsystem level with each subsystem defined as a function of the total system.

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ABBREVIATIONS AND ACRONYMS

ASCII	American Standard Code for Information Interchange
CDC	Control Data Corporation
DRD	Detailed Requirements Document
E&D	Engineering and Development Directorate
FOD	Flight Operations Directorate
ID	Integration Division of POO
IDS/D	Institutional Data System Division
JSC	Lyndon B. Johnson Space Center
LEC/ASD	Lockheed Electronics Co., Inc., Aerospace Systems Division
MOPS	Mission Operations Planning System Terminal - Hazeltine 4000G
NASA	National Aeronautics and Space Administration
PDR	Preliminary Design Review
PLI	System 2000 Procedure Language Interface
POO	Program Operations Office
QAD	Quality Assurance Division of SREQA
S2KRW	System 2000 Report Writer
SLAHTS	Stowage List and Hardware Tracking System
SLCN	Stowage List Change Notice
SPIMS	Shuttle Program Information Management System
SREQA	Safety, Reliability, and Quality Assurance Directorate

APPLICABLE DOCUMENTS

Task Description for the Stowage List and Hardware Tracking System, Job Order 88-079, Data Systems Development Branch, Institutional Data Systems Division, September, 1974.

Detailed Requirements and Functional Design Document for Shuttle Mass Properties Automated System, Job Order 88-069, Data Systems Development Branch, Institutional Data Systems Division, December, 1974.

Detailed Requirements Document for Stowage List and Hardware Tracking System, LEC-5362, JSC-09405, Lockheed Electronics Company, February 1975.

Detailed Requirements Document for Shuttle Program Information Management System, Common Software, LEC-5479, JSC-09380, Lockheed Electronics Company, February 1975.

Systems Requirements Document of Shuttle Program Information Management System, LEC-5488, JSC-09381, Lockheed Electronics Company, Inc.

Proposed Hardware System Program Information Control and Retrieval System, LEC-1325, Lockheed Electronics Company, Inc., December 1973.

Program Information Control and Retrieval System (PICRS) Software Feasibility Study Final Report, Lockheed Electronics Company, Inc. December 1973.

Functional Design Specification for Shuttle Program Information Management System, Common Software, LEC-5774, JSC-09575, Lockheed Electronics Company, Inc.

System 2000 Reference Manual, MRI Systems Corporation, Revision B, September 30, 1974.

Kronos 2.1 Reference Manual, Control Data Corporation, Revision B, June 17, 1974.

1.0 GENERAL

1.1 IDENTIFICATION

This Functional Design Specification (FDS) document has been prepared for the Institutional Data System Division (IDSD) of the Johnson Space Center (JSC) by the Shuttle Information Management Department of Lockheed Electronics Company, Inc. (LEC). The Stowage List and Hardware Tracking System (SLAHTS) is being developed as an element of the Shuttle Program Information Management System (SPIMS), for four direct users:

- Program Operations Office - Integration Division
- Safety, Reliability and Quality Assurance - Quality Assurance Division
- Engineering and Development Directorate - Spacecraft Design Division
- Flight Operations Directorate - Crew Training and Procedures Division

1.2 PURPOSE

The SLAHTS will provide the user organizations with an integrated management and documentation tool to support the following functions:

- Orbiter hardware stowage tracking
- Orbiter stowage design
- Definition and dissemination of procedural nomenclature
- Inventory control of orbiter flight hardware

- Inventory control of all JSC bonded storage hardware
- Inventory control of orbiter training hardware

1.3 BACKGROUND

All four direct SLAHTS users will be actively engaged in Shuttle Orbiter hardware stowage and JSC hardware tracking. In order to provide rapid, and accurate communication it is required that a common integrated data base be available to all users in an on-line mode. Coordination and communication among these four users is essential.

Additional background information may be obtained from the SLAHTS detailed requirements document (reference 3). The remainder of the document defines those functions of the four users which can best be provided through an information processing system.

1.4 DESIGN CONSTRAINTS

The Stowage List and Hardware Tracking System will utilize the following JSC SPIMS computer system. SLAHTS will require shared use of the following hardware.

- CYBER 70 series computer
- CDC 844 disk mass storage
- One 7-track magnetic tape drive
- Magnetic tapes
- Terminal Control System (TCS) Computer
- Nine JSC MOPS (Hazeltine 4000G) terminals
(Hazeltine 2000 terminals may be substituted for

some of these terminals)

- Card Reader
- High Speed Printer

The SLAHTS is required to reside with and operate using the following software:

- KRONOS CYBER operating system
- TCS Terminal Control System
- Common Software SPIMS applications shared routines
- System 2000 Data Base management system

The system requires both on-line interaction and batch processing. The SLAHTS application code will be written primarily in FORTRAN Extended language.

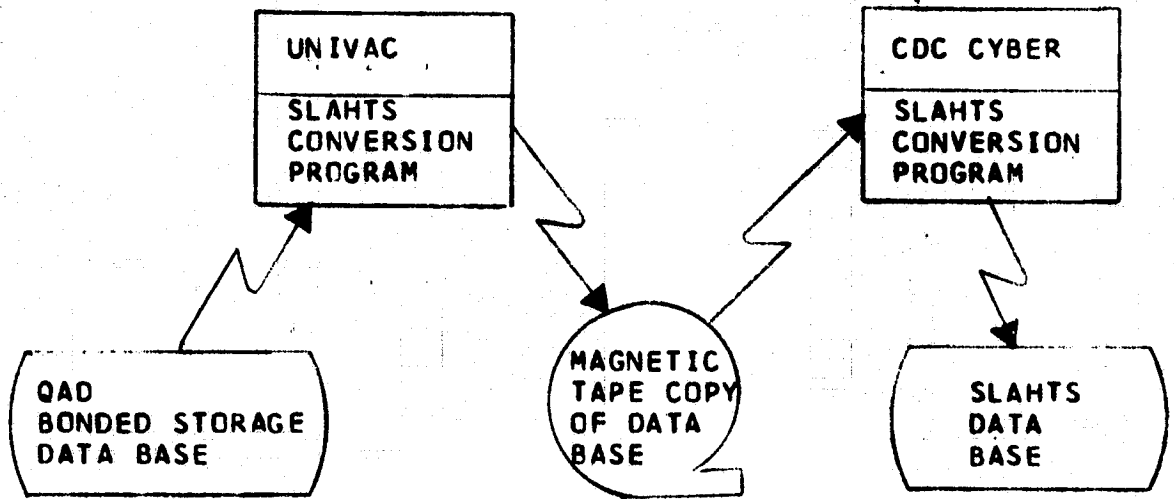
1.5 SYSTEM INTERFACES

1.5.1 Other Systems

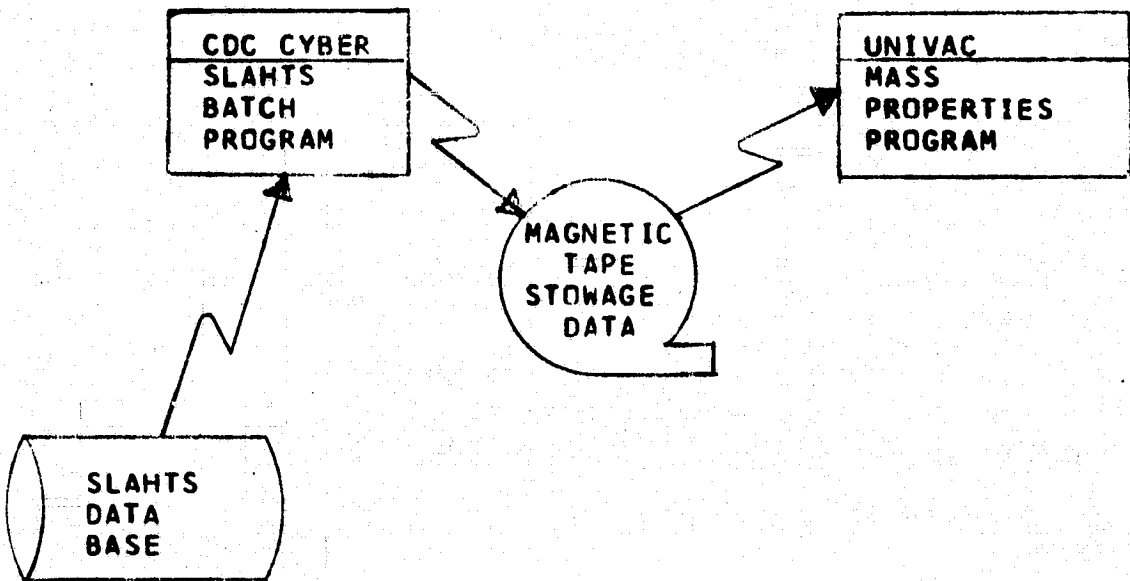
The Stowage List and Hardware Tracking System data base will initially be loaded from the JSC Bonded Storage System currently operating on a JSC Univac 1100 series computer. This interface is described in detail in section 3.1, Data Base Establishment.

During the operational stage of the SLAHTS, an interface with the SPIMS Mass Properties Program via magnetic tape is required. A tape will be output by the SLAHTS. It will contain stowage information relevant to weight distributions and will be input to the Mass Properties program on the Univac 1100 series computer.

System interface is shown in figure 1-1.



DATA BASE LOAD INTERFACE



MASS PROPERTIES PROGRAM INTERFACE

FIGURE 1-1 SLAHTS INTERFACE CHART

1.5.2 Users

The SLAHTS will interface with its users via on-line and batch processing. The on-line operations of the SLAHTS will allow interactive input and interactive query of data in a time sharing environment. Batch processing will provide data base size maintenance and data dissemination to other organizations via batch reporting.

1.6 DEFINITION OF TERMS

Common Software - Term applied to the application software subroutines being developed by LEC to be utilized by SPIMS applications. It consists of a library of subroutines which can be called by the application software to perform specific functions.

KRONOS - A time-sharing system oriented toward interactive terminal operations. Also supports local batch processing concurrent with terminal users.

TELEX - A KRONOS subsystem providing support for interactive processing from remote terminals.

ICE - Interface Control Executive - a communications processor for the Cyber 70/TCS interface. Supports all the TCS protocol required to accomplish the two-way communications between terminals and the Cyber 70.

TCS - Terminal Control System comprised of a Univac 494 Computer and all of the communications and associated equipment required to accomplish terminal input and output.

System 2000 (S2K) - Data Base Management System developed by MRI Systems Corporation.

MOPS Terminals (Hazeltine 4000G) - Video display terminals with two video intensities for foreground/background form processing. The terminal screen size is 53 lines with 74 characters per line.

Hazeltine 2000 - Video display terminal with two video intensities for foreground/background form processing. The terminal screen size is 27 lines with 74 characters per line.

Subtask - A collection of logical or arithmetic operations required to perform a specifically defined activity. The subtask's content is determined by such factors as:

- (1) Core storage available
- (2) An "optimum" size
- (3) Complexity of the activity

Task - One or more subtasks logically chained to perform a predetermined action.

Transaction - The process by which an on-line system directs a programmed function to a predetermined

conclusion. A transaction is initiated by an individual user. A transaction includes the input messages, the computer processing and the sending of any output messages associated with the function. Additional terminal and mass storage I/O, under computer direction, may be required to fulfill the initial users request. The transaction is terminated by the final output messages associated with the initial users request or by user interruptions.

Common Data Pool - The communications block (core storage) and the Mass Storage files used to provide temporary storage of data and parameters.

Task Chain - One or more tasks which are scheduled serially to process a transaction.

Subtask Chain - One or more subtasks which are scheduled serially to process a task.

2.0 SYSTEM DESIGN

2.1 SYSTEM ARCHITECTURE

Data to the SLAHTS are derived from the operations of the four SLAHTS users and will be input by on-line interaction with the user. These data are edited, validated and stored in the integrated SLAHTS data base. Output from the system will be by on-line queries and batch reporting.

2.1.1 System Flow

Input to the system will be by interactive use of five update displays:

- Basic Data - Display 01
- Serial Data - Display 02
- Flight Configuration Definition - Display 03
- Flight Location/Serial Configuration Data - Display 04
- Flight SLCN History - Display 05

In addition to the five displays listed above, which will also be used for on-line reporting, the following displays are exclusively used for on-line reporting.

- Function/System Classification Query - Display 06
- Location Inventory Query - Display 07
- Flight Configuration Change Query - Display 08
- Serial History Query - Display 09

The SLAHTS on-line and batch subsystem flow is illustrated of figure 2-1.

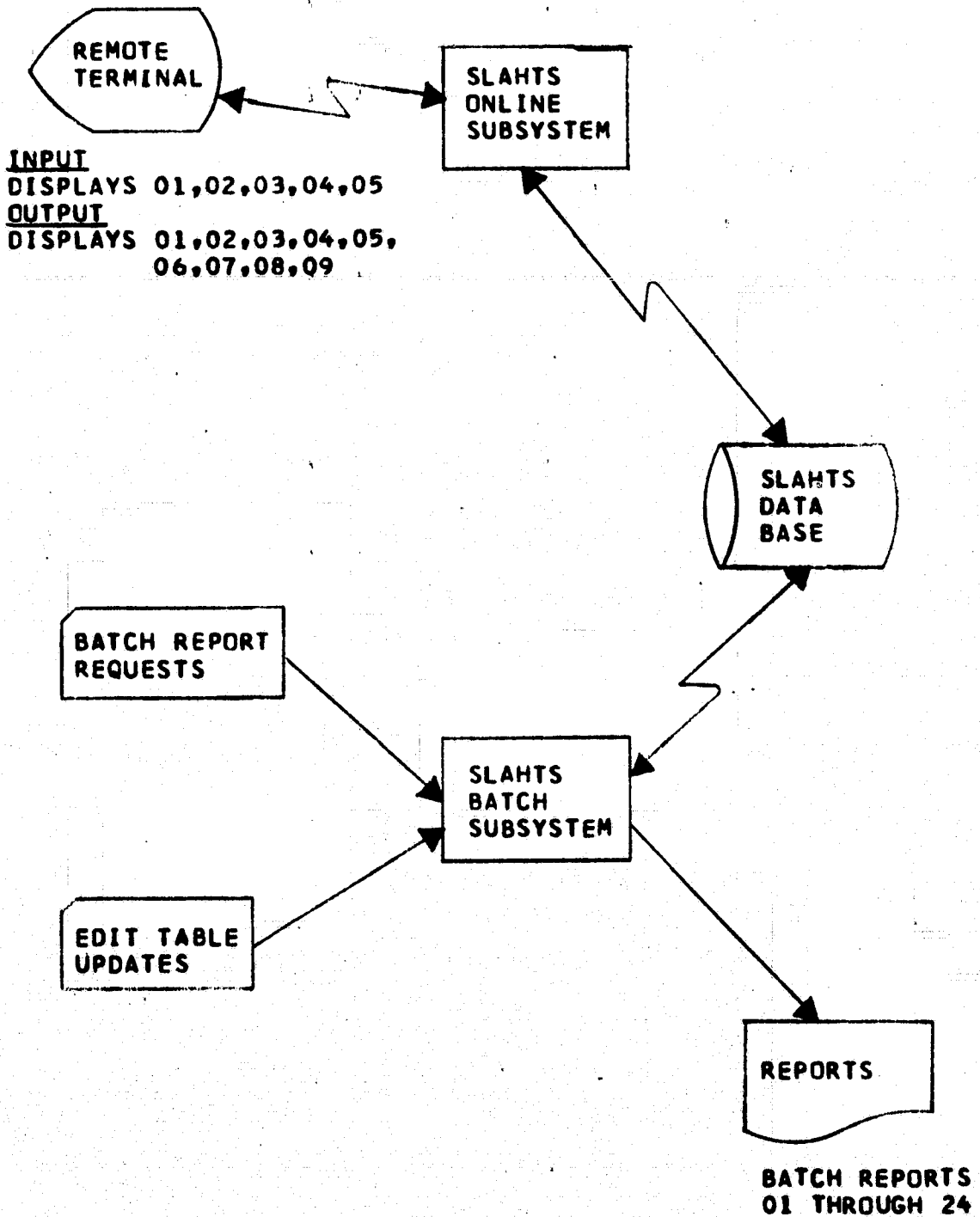
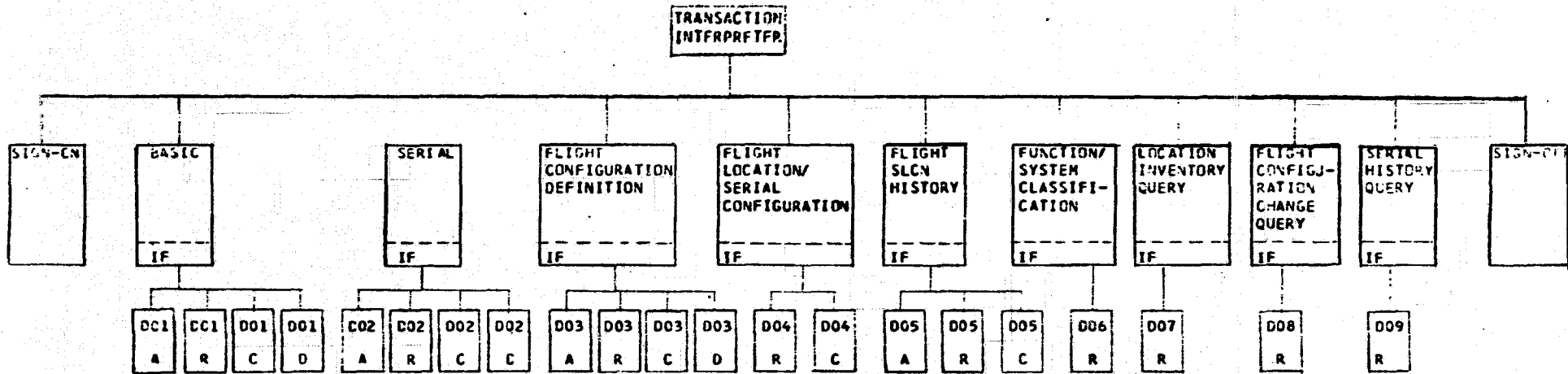


FIGURE 2-1 SLAHTS SYSTEM FLOW



TYPICAL TRANSACTIONS

ADD	RETRIEVE	CHANGE	DELETE	SIGN-ON	SIGN-OFF
IF	IF	IF	IF	IF	RT
RT	RT	RT	RT	RT	IF
SC	AR	AR	SC	AR	WT
DV	PG	PG	AC	SC	
AA	WT	RT	WT	WT	
WT		SC			
		DV			
		PG			
		AC			
		WT			

WHERE

- RT = READ TERMINAL
- IF = INITIALIZE FORM
- SC = SECURITY
- DV = DATA VALIDATION
- WT = WRITE TERMINAL
- PG = PAGING
- AR = DATA BASE ACCESS(READ)
- AA = DATA BASE ACCESS(ADD)
- AC = DATA BASE ACCESS(CHANGE)
- AC = DATA BASE ACCESS(DELETE)
- DC1 = DISPLAY 01
- DC2 = DISPLAY 02
- DC3 = DISPLAY 03
- DC4 = DISPLAY 04
- DC5 = DISPLAY 05
- DC6 = DISPLAY 06
- DC7 = DISPLAY 07
- DC8 = DISPLAY 08
- DC9 = DISPLAY 09

FIGURE 2-1 SLAHTS SYSTEM FLOW
2-2.1

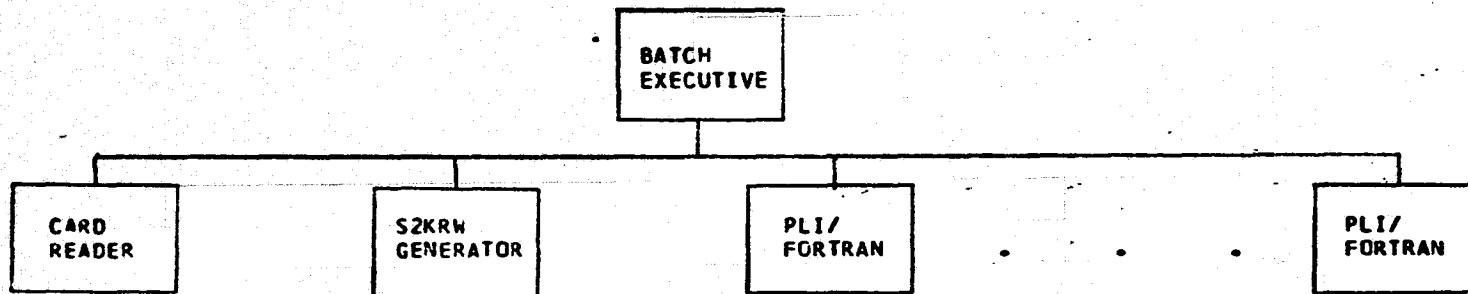


FIGURE 2-1 SLAHTS SYSTEM FLOW
2-2.2

S2KRW REPORTS

- LOGISTICS MANAGEMENT (ITEM LEVEL)
- LOGISTICS MANAGEMENT (SERIAL NUMBER LEVEL)
- MASTER BCNC ROOM STORAGE LIST
- NOMENCLATURE DEFINITION
- RESPONSIBLE ORGANIZATION LIST
- SHELF LIFE EXPIRATION LIST
- ANNUAL INVENTORY LIST
- EQUIPMENT CLASS 3
- TRAINING HARDWARE REQUIREMENTS AND STATUS
- TRAINING HARDWARE MASTER INVENTORY
- SLSPENSE FILE
- DATA ELEMENT EDIT TABLE
- NCTE LIST

PLI/FORTRAN

- STOWAGE LIST
- PREPACK PROCEDURE
- STOWAGE LOCKER
- POST FLIGHT DISPOSITION
- ALPHABETICAL PROCEDURAL NOMENCLATURE
- FLIGHT EQUIPMENT SERIAL NUMBER
- FLIGHT LOCATION/EQUIPMENT
- INFLIGHT TRANSFER LIST
- FLIGHT DATA REPRODUCTION
- FUNCTIONAL/SYSTEM CLASSIFICATION
- STOWAGE LIST CHANGE NOTICE
- FLIGHT DELETION
- MASS PROPERTIES INTERFACE TAPE
- EDIT TABLE MAINTENANCE

2.1.2 Subsystem Description

The SLAHTS will operate as two independent subsystems: the on-line processing subsystem, and the batch processing subsystem. Figure 2-1 illustrates the basic high level system flow.

2.1.2.1 On-line Processing Subsystem. The SLAHTS terminal user will be in communication with the SLAHTS on-line processor. The on-line subsystem will process all terminal input/output, data validation, security requirements and data base updates. Nine on-line displays will be available for SLAHTS users. These display transactions, along with other support transactions, are described in more detail in section 2.3.2 of this document.

The on-line processing subsystem will operate in a transaction processing environment. Section 2.1.3.4 On-line Processing describes the design approach of this subsystem.

Terminal communications are via common software, Extended Core Storage, TELEX/ICE, and TCS as shown in figure 2-2 and described in the "Systems Requirements Document of Shuttle Program Information Management System", reference 5.

2.1.2.2 Batch Processing Subsystem. The batch processing subsystem of the SLAHTS will provide 24 batch reports for the user. In conjunction with two of these reports, additional batch data base maintenance processing

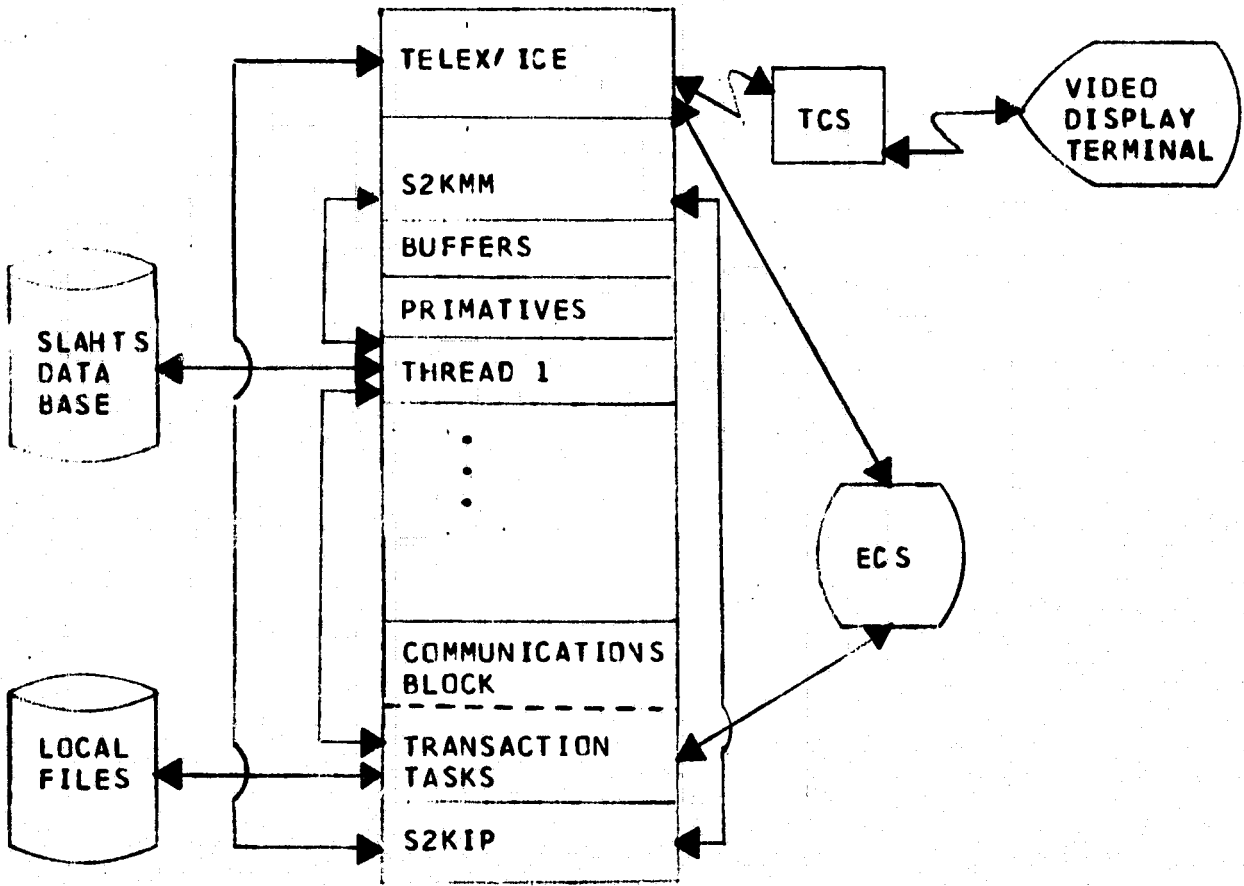


FIGURE 2-2 SLAHTS ON-LINE SUBSYSTEM

will be accomplished. Edit table updates and interface with the SPIMS Mass Properties program will also be provided via the batch processing subsystem. Section 2.3.3 of this document provides a more detailed description of these modules.

2.1.3 Design Approach

The SLAHTS is designed to operate on the JSC CDC CYBER 70 series computer. It will provide an integrated computer system consisting of on-line interaction, batch reporting and batch processing.

Terminal input/output will be via one of two video display terminals, the Hazeltine 2000 or the Hazeltine 4000G (MOPS) terminals. These two terminals provide form mode interface between user and system. Section 2.1.3.1 of this document describes the user/terminal/computer interface designed in SLAHTS and contains an explanation of form mode processing.

The System 2000 data base management software to be used by the SLAHTS was selected by the PICRS study (see reference 7). System 2000 is a software product of the MRI corporation and provides a sophisticated data management tool for information storage and retrieval. The use of the System 2000 will be transparent to the SLAHTS user in that there will be no direct user interface to System 2000. Section 2.1.3.3 of this document describes the features of System 2000 which will be utilized by the SLAHTS.

The SLAHTS design approach is specified in the following four sections of this document.

2.1.3.1 Terminal Interface. The SLAHTS has been designed to provide the user and terminal operator an easy to use method of on-line communication. The method of terminal/user interface will be a form mode operation utilizing the capabilities of the Hazeltine 2000 and Hazeltine 4000G terminals.

The SLAHTS forms will consist of headings, titles, and other labeling and tutorial data, and of parameter areas into which the user enters those data needed to describe his query or data base update. The format of the nine displays used in the SLAHTS are described in the Detailed Requirement Document (DRD) (reference 3). Figure 2-3 is a duplicate of the Basic Data Display, as defined in the DRD and is included here as an example of a SLAHTS form.

The foreground/background intensity capabilities of the two terminals will enhance the usability of form mode input/output. The tutorial data will be displayed in background intensity. Parameters which are input by the user, or those which may be updated by the user will be displayed in foreground intensity. The remainder of the parameter data from a query action will be displayed in background intensity. This use of foreground/background will prevent inadvertent attempts to update or add data elements to which the user does not have update authority. This tutorial process, supplemented with the data base security described in section 2.3.1.3 provides an easy to use, effective security system.

01 A/C * *
PN *
TNGPN *

SLAHTS BASIC DATA
IN *

PAGE OF
DATE

ENGR NOMEN *

PNOM1 *

PNOM2 *

RESPONSIBLE ORG * LENGTH * SHELF LIFE * *

MIN BLDG 36 REQ * * WIDTH * * OP TIME LIFE * *

REP LEAD TIME * * HEIGHT * * CYCLE LIFE * *

REFURB TIME * * CURRENT WT * * UNIT OF ISSUE * *

PROGRAM CODE * * SPEC WT * * FIT CK REQ * *

MIN REQ FCODE A * * F/S CLASS * *

MIN REQ FCODE B * * F/S CLASS * *

MIN REQ FCODE C * * F/S CLASS * *

MIN REQ FCODE D * * F/S CLASS * *

MIN REQ FCODE E * *

SLCN NO. * * SLCN DATE * * SLCN FLIGHT * *

DES. *

NOTE NO. * * NOTE AC * *

NOTE *

NOTE NO. * * NOTE AC * *

NOTE *

NOTE NO. * * NOTE AC * *

NOTE *

NOTE NO. * * NOTE AC * *

NOTE *

NOTE NO. * * NOTE AC * *

NOTE *

FIGURE 2-3 BASIC DATA DISPLAY FORM

Under the foreground/background configuration, the TAB key on the terminal keyboard can be used to position the cursor directly to the beginning of the next foreground parameter field on the form, thus eliminating the necessity of manually moving the cursor character by character to the desired parameter field.

When a query results in multiple pages of output or when using a Hazeltine 2000, paging will be provided by SLAHTS. The user will be allowed to page forward, backward, and skip to the desired page.

2.1.3.2 Common Software. The SPIMS Common Software was conceived as a method for minimizing development and maintenance cost of the SPIMS applications while reducing the time-frame of their development. The SLAHTS will make use of the SPIMS common software routines as described in the Common Software Detailed Requirement Document and Functional Design Specification (references 4 and 8).

Since common software will be provided as a series of subroutines callable from SLAHTS tasks, the user will communicate with a completely integrated package. The use of common software will therefore be transparent to the user.

Common software will provide the following routines:

- Terminal Interface routines
- Limited Data Element Editing routines
- Utility routines

The Terminal Interface routines will provide the data paths and interfaces to communicate with the user terminals. These data paths are illustrated in figure 2-2 and are fully defined in the Common Software DRD (reference 4).

The Data Element Validation routines provided by common software will be supplemented by additional SLAHTS routines and used for data element validation.

The utility routines provided by common software will include String Packages, and File Input/Output routines. The SLAHTS, in order to conserve core, will utilize the common software File Input/Output routines instead of standard FORTRAN I/O to access SLAHTS mass storage files. Section 3.4 of the Common Software DRD (reference 4) gives additional descriptions of the Utility routines to be used.

2.1.3.3 System_2000. System 2000 is the general purpose data base management system to be used by SLAHTS. Following is a list of several System 2000 features SLAHTS will utilize.

SLAHTS will use the Basic Natural Language feature to define the data base. Natural Language will also be employed by the data base administrator to provide data base backup and security.

FORTTRAN language subroutines will utilize the Procedural Language (PLI) feature to manipulate data in the System 2000 data base. This feature will be utilized in both the on-line processing subsystem and the Batch processing subsystem.

The Report Writer feature will be used by the SLAHTS in generating thirteen of the SLAHTS batch reports (see section 2.3.2).

System 2000 multi-user, multi-thread features will allow concurrent access to the data base. This feature allows all SLAHTS users update access to the data base at the same time. SLAHTS will protect against concurrent modifications to the same logical entry. The single copy version of System 2000 will be used by the Batch processing subsystem.

Reference 9 provides a detailed description of System 2000.

2.1.3.4 On-Line Processing. User initiated queries and updates will be processed using transaction processing techniques. The SLAHTS on-line transactions are listed below and are explained in further detail in section 2.3.2 of this document.

- Sign On Transaction
- Basic Data Transactions
- Serial Data Transactions
- Flight Configuration Definition Transactions
- Flight Location/Serial Configuration Transactions

- Flight SLCN History Transaction
- Function/System Classification Transaction
- Location Inventory Transaction
- Flight Configuration Transaction
- Serial History Transaction
- Sign Off Transaction

A transaction will be processed by the serial execution of a chain of tasks. A task is a logical subset of a transaction and frequently will be used to process more than one type of transaction. The task types which will be provided are:

Transaction Interpreter

Initialize FORM

Security

Data Editing and Validation

Read Terminal

Write Terminal

Paging

Data Base Access

These tasks are described in further detail in paragraph 2.3.1 of this document. Figure 2.4 illustrates an example transaction.

2.1.3.5 Batch Processing. The SLAHTS Batch Processing Subsystem is designed to fulfill the batch processing and report requirements specified in the SLAHTS DRD (reference 3).

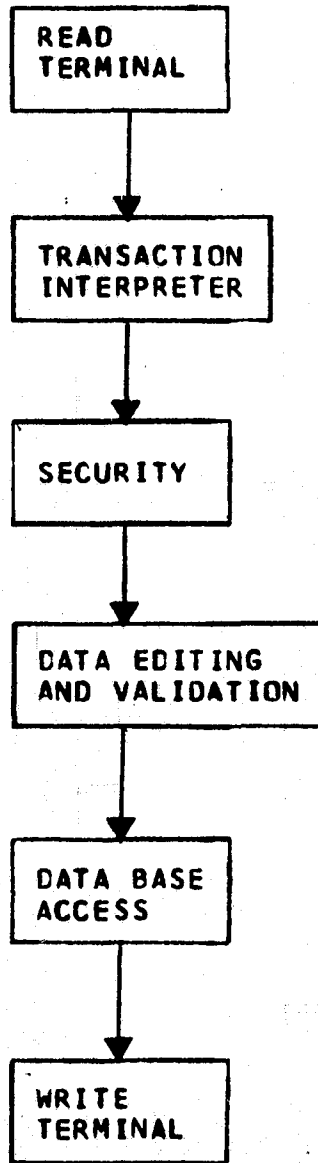


FIGURE 2-4 BASIC DATA ADD, ON-LINE TRANSACTION

From one to twenty-seven batch runs may be executed from a single computer job by supplying the corresponding input cards. Stand-alone programs will be provided for history processing and data base loading. The input card formats are described in Appendix A of this document.

The batch processing subsystem is designed to fully utilize the report generation capabilities of System 2000, supplemented with FORTRAN coding for those reports which cannot be generated via standard System 2000 output. Figure 2-5 illustrates the SLAHTS batch subsystem.

Two methods of report generation will be utilized by the SLAHTS. The two types of processing are listed below and each report module is listed as a member of one of these types.

I PLI/FORTRAN Application Code

Stowage List Report

Prepack Procedure Report

Stowage Locker Report

Post Flight Disposition Report

Alphabetical Procedural Nomenclature Report

Flight Equipment Serial Number Report

Flight Location/Equipment Report

Inflight Transfer List Report

Flight Data Reproduction

Functional/System Classification

Stowage List Change Notice Report

Flight Deletion

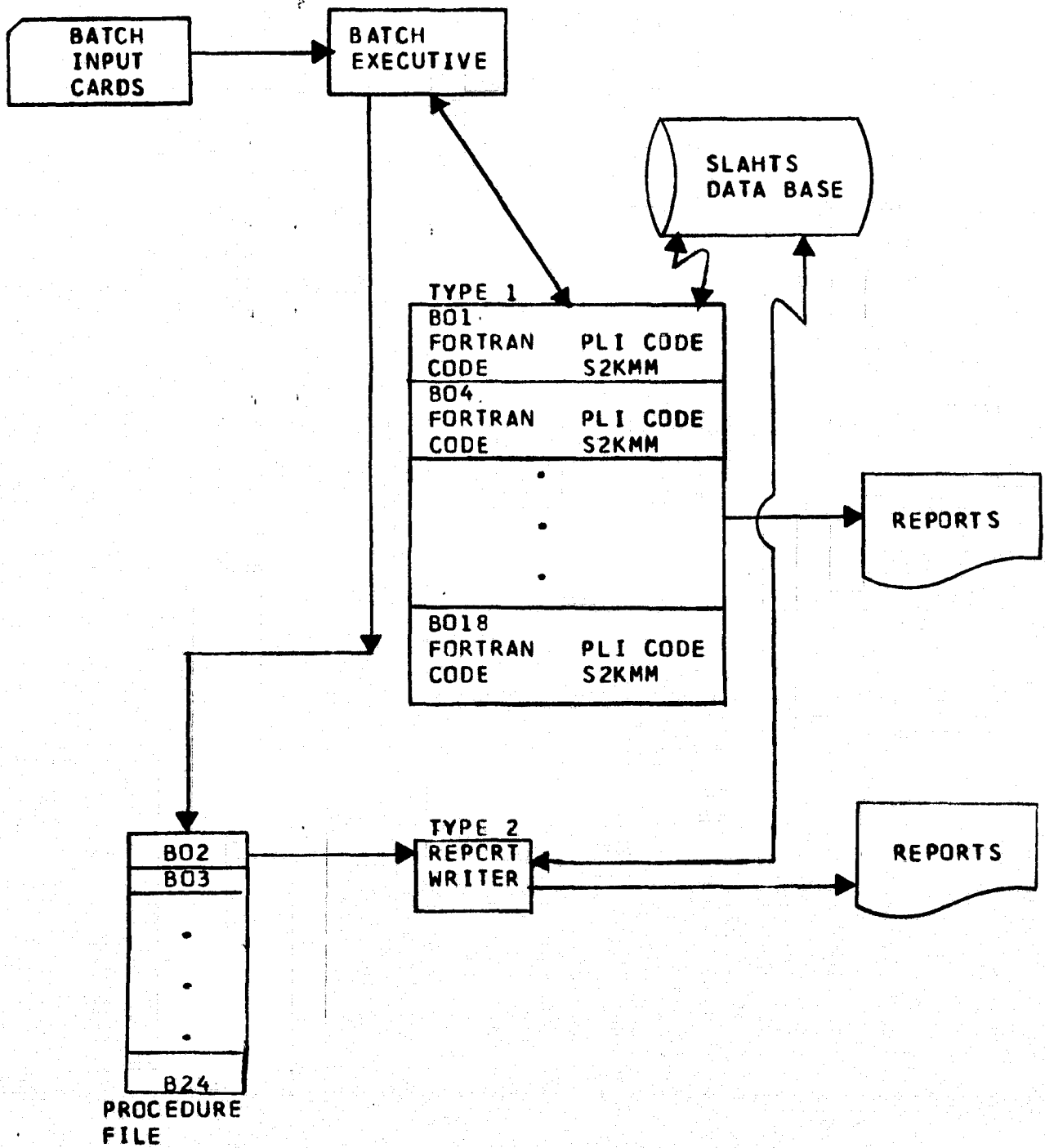


FIGURE 2-5 SLAHTS BATCH SUBSYSTEM

II System 2000 Report Writer

- Logistics Management Report (Item Level)
- Logistics Management Report (Serial Number Level)
- Master Bond Room Storage List
- Nomenclature Definition Report
- Responsible Organization List
- Shelf Life Expiration List
- Annual Inventory List
- Equipment Class 3 Report
- Training Hardware Requirements and Status
- Training Hardware Master Inventory Report
- Suspense File Report
- Data Element Edit Table Report
- Note List

Type I (PLI/FTN) reports are generally of a complex nature. They require FORTRAN application code processing and decision making during report generation. Normally, complex data retrievals are required to fulfill the report requirements.

Type II (S2KRW) reports are generated via the System 2000 Report Writer.

The method of determining which type of report generation is to be used is a function of several variables. First, since the cost of development of a S2KRW report is minor compared to that of a PLI/FTN report, each report was considered as a S2KRW candidate. Those reports in which disjoint data sets are required (a limitation of S2KRW) were categorized as PLI/FTN after a determination of the cost of

redundant data elements. Some reports which have complex report formats could only be generated using PLI/FTN.

In addition to batch reports, the Batch processing subsystem will provide the following:

- Data Base Maintenance of the History Files
- QAD data base loading
- Mass Properties Interface Tape
- Edit Table Maintenance
- Flight Configuration Data Reproduction

The batch modules and programs are defined in section 2.3.3 of this document.

2.2 FILE DEFINITION

The following files will be utilized or generated by the SLAHT system:

- System 2000 Data Base - a set of six associated direct access files, with an associated update file. Appendix B contains the data base format definitions and a data base map.
- Local files - created during execution for temporary storage of data. These files are released upon completion of the run.
- Mass Properties Input Tape - created by the Batch Subsystem. The tape format is specified in the

Detailed Requirements Document for SLAHTS
(reference 3).

2.3 SUBSYSTEM SPECIFICATIONS

2.3.1 On-Line Processing Subsystem - Tasks

2.3.1.1 Transaction Interpreter. The SLAHTS transaction interpreter will control the logic flow of the On-Line Subsystem through a transaction processing sequence. This will be accomplished by first determining, from user inputs, the transaction to be processed. This determination will result in a list of tasks being linked which when executed in sequence will process the transaction request and provide any resulting transaction output. Execution of this list will be initiated by the interpreter using the transaction task loader. Each task in the list will be loaded and executed in the order it appears in the list. The following table of tasks will be used to create the task list required to process user transactions:

1. Initialize form
2. Security
3. Data editing and validation
4. Read terminal
5. Write terminal
6. Paging
7. Data base access

Output from the interpreter will consist of the transaction processing task list and any other required task inputs.

2.3.1.2 Initialize Form. This task establishes the currently active blank form to be displayed. A form for each of the transactions will be available.

The form will be defined as a string of characters containing the coded commands to the terminals necessary to construct a FORM on the screen. Each terminal type will require a unique FORM descriptor. Common Software routines will be used in this task.

2.3.1.3 Security. The SLAHTS is designed to provide several different users with an unrestricted read capability and a diverse update capability. To handle these functions, a number of security tasks will be created, each of which is designed to validate a certain update request. Data base security will be provided by several subtasks, each of which will be created corresponding to the update transaction. The Sign-on security task will be required to insure that the user attempting sign on is using one of the following access codes:

<u>Type</u>	<u>User</u>
1 Universal Read	Ability to read all data in the data base but unable to perform updates of any kind.
2 ID	Password used by the Integration Division.
3 QAD	Password used by Safety Reliability and Quality Assurance.
4 FOD	Password used by the Flight Operations Directorate.
5 E&D	Password used by the Engineering and Development Division.
6 Batch Report	Password used to request batch reports.

- 7 **Omnipotent** Password which probably only the Operations Chief will have. This password will allow the user to alter the coded value of any password. It will also allow all capabilities specified for passwords 1 through 6.
- 8 **Universal Update** Password allowing all capabilities and access of passwords 1 through 4 and 6.

If none of the above listed access codes has been input, an appropriate error message will be displayed on the CRT and the user will not be permitted access to the data base.

The Basic Data security task will be more complex. One two dimensional element security matrix will hold all information necessary to determine which data elements a password has the authority to modify within the basic data set. Once it is determined that an element is being modified, the security task is referenced to match the associated password array index against the SLAHTS Sign-on password for validation. If agreement is found, processing will continue. However, if the passwords are invalid the data base will not be updated and the user will be notified of his error through a message to the terminal.

The Serial Data security task is quite straight forward. Only the universal update password, the omnipotent password, and the QAD password have blanket update authority on all serial numbered elements with the exception of Serial Fidelity Code and all Class Code 3B items under Groups I and IV. In these cases, E&D has sole update authority. SLAHTS security requirements are defined in section 5.1, Data Base Security of the DRD (reference 3).

The Flight Configuration security task allows for updates only by ID, Universal Update and Omnipotent passwords.

2.3.1.4 Data Editing and Validation. This task is required to perform error detection on the input elements for each of the displays. The requirements will appear in subtasks and are as follows:

- Key Data Validation - determines if all key data has been input for the requested display.
- Table Validation - determines if an input value for an element matches a value in a specific table.
- Integer Validation - determines if a value contains only numeric characters.
- Date Validation - determines if a date is an allowable date in the MMDDYY format. It must have a one or two digit month not greater than twelve, a one or two digit day of magnitude determined by the month, and a two digit year.

- **Form Validation** - determines if a value contains correct special characters (such as the period).

In addition, special data element edits described in the DRD will be performed.

2.3.1.5 Read Terminal. This task when loaded will be used to read the transaction input data transmitted by the user. This task will employ the Input Processor task being developed as part of the Common Software package.

2.3.1.6 Write Terminal. This task will be used to display normal transaction output for any transaction which results in user output. This task will employ the Output Processor task being developed as part of the Common Software package.

2.3.1.7 Paging. This task displays a page on the terminal as specified by the user. The paging instruction may be blank indicating first page is requested, or a specific page number, or (+) indicating next page or (-) indicating previous page. This task will employ the terminal interface support routines being developed as part of the Common Software package (reference 8).

2.3.1.8 Data Base Access. As mentioned previously, SLANTS will afford the user with a wide range of query and update transaction capabilities. To handle these transactions, four classes of tasks have been designed:

1. RETRIEVE - This task will do all data base retrievals from the component level on up to the repeating group level.
2. CHANGE - This task will perform modifications to the data base at the component level. This includes additions, deletions, and changes.
3. ADD - This task will add new repeating groups and tree structures to the data base.
4. DELETE - This task will remove repeating groups and tree structures from the data base.

Each transaction may use one or more tasks. Section 2.3.2 describes in greater detail each task as a function of the transaction in which it appears.

2.3.2 On-Line Processing Subsystem - Transactions

2.3.2.1 Sign-On Transaction. The Sign-On Transaction will handle the bulk of the SLAHTS's initialization and administrative processing. This transaction will have the responsibility of validating the user password and assigning the data base. In addition, all SLAHTS data base related tables will be loaded from disc storage. All necessary operations for interfacing the data base management system with the assigned data base will be affected. Finally, the Sign-On Transaction will either advise the user of any data base related anomalies or instruct the user to enter the first display code.

2.3.2.2 Basic Data Transaction. Basic data can be displayed and, with proper authority, added, changed or deleted using this transaction. By transmitting an 01 from the display code field, the Basic Data form will be displayed on the terminal in background intensity. At this point, the user enters in the specified fields an Item Number, Part Number or Training Part Number as a key data element and an authorized action code and affects a full or partial screen transmit from the terminal.

The SLAHTS will first examine the action code field for either the retrieval code or the delete code. If either is found, the command lines will be scanned for the key data elements. When all key elements have been identified the following action is initiated:

1. An action code of R will retrieve and display existing Basic Data including Notes and Note Text for the specified key element.
2. An action code of D will cause the key element and its associated data structures to be removed from the data base. In addition, each time a key element is deleted an entry is made in the History Data set for each serial data set deleted.

If neither action code R nor D was encountered, the SLAHTS will check for the add or the change action code with the following action being taken for a find:

3. An action code of A will add the key element or elements and all Basic Data which has been entered on the display to the data base.
4. An action code of C will allow any of the Basic Data elements to be changed, added or deleted, provided the user has a valid password. SLAHTS will examine each field of the display for modified entries. When a change is encountered, update authority is validated and the corresponding field in the Basic Data set in the data base is then updated.

In addition to the above outlined capabilities of action code C, the user will have the option to modify Note Numbers and Note Text associated with each Basic Data set. For this capability, one of the following note action codes must be entered in the specified field of the note command line.

1. An action code of AN will attach an existing Note to the key element. The user will input the Note Number only.
2. An action code of NN will add a new Note Number and its associated text to the data base.
3. DN will delete the Note Number reference from the key element. If this is the last reference to the Note, it will be deleted from the Note Table.

4. Action code CN will allow the Note Number Text to be changed.

2.3.2.3 Serial Data Transaction. Serial data can be displayed and, with proper authority, added, deleted or changed using this transaction. The Serial Data form may be displayed by transmitting an 02 from the display code field. Next, a Serial Number plus either an Item Number, Part Number or Training Part Number and one of the authorized action codes may be entered in the corresponding fields. Finally, the user may affect the full or partial screen transmission from the terminal.

SLAHTS will immediately examine the action code field for either the retrieval or delete action code. If either is found, the command lines will be scanned for key data elements. When all have been found, the following action is initiated:

1. An action code of R will retrieve and display existing Serial Data for the specified key element.
2. An action code of D will cause the key element and its associated Serial Data to be deleted and a Serial History data set will be generated.

If neither action code R nor D was encountered, the SLAHTS will check for an add or change request with the following action being taken for a match.

3. An action code of A will add the Serial Number and any other Serial Data on the display to the data

base. The Item Number, or Part Number, or Training Part Number must already exist in the data base.

4. An action code of C will allow any of the Serial Data set elements to be changed, added, or deleted. Each field of the display will be examined for modified entries from what was transmitted to the terminal. When a change is encountered, the corresponding data element in the data base is then updated after security is checked.

In addition to the above functions of action code C, the action code field of the Shipping-Receiving data area is examined for an entry. If blank, processing is complete. However, any one of the following supplementary action codes may be used when adding new hardware to the system, shipping or receiving hardware or querying the Suspense Data set:

- a. An action code of MH (move hardware) will cause the specified Building Location Quantity and Cabinet Location Quantity to be decremented by the amount specified under the shipping data. Also, the Issue Date, Destination and Quantity specified under Shipping Data will be moved respectively to Last Issue Date, Building Location and Quantity of the Serial Data set. Finally, a Suspense Data set will be created containing all pertinent shipping data. This data set will be used as a data base shipping invoice which must agree with the follow up RH

(receive hardware) transaction at the destination location. The authority document must be entered for lot-numbered data.

- b. The RH action code is also used in conjunction with action code C of the command lines. If the Building Location and Quantity specified under Receiving Data matches the Suspense Data set for the particular Serial Data, then the Cabinet, Quantity and transfer date specified under Receiving Data are moved into the analogous data values of the particular Serial Data set. For lot-numbered items, the Shipping Authority Document will be used to differentiate between Suspense Data set entries and must therefore be entered.

The final action taken will be for the Suspense Data set to be removed and a History Data set entry generated.

- c. An action code of AH (add hardware) can be used with both command line action codes A and C.

When used with the code A, the add hardware transaction will create the initial history entry.

When used with the action code C, an additional history entry will be made to reflect the addition of new lot numbered items.

- d. The action code CT (cancel tracking) may be used with command line action code C to create a final history entry indicating the particular serial numbered item is to no longer be tracked by the SLAHTS.

If lot-numbered items are being processed, the specified Building Location Quantity will be decremented by the indicated amount. However, if the remaining lot-numbered quantity is zero, the element will no longer be tracked by the SLAHTS and will be deleted from the data base.

- e. The action code RS (retrieve suspense file entry) can only be used with the command line action code R. In this case, the user must also input the Authority Document. This command will cause the Suspense Data entry for the specified Serial Data set to be removed. In addition, the Building Location and related Cabinet Quantity values will all be incremented by the amount specified on the Suspense Data set entry to cancel the effects of this particular move (MH). Finally, the Suspense Data set entry for that transaction will be deleted.

2.3.2.4 Flight Configuration Definition Transaction.

The Flight Configuration Definition for some particular Item Number or Part Number within some specified Flight Number can be displayed and, with proper authority, changed or deleted by means of this transaction. To retrieve the

Flight Configuration Definition form, an 03 must be transmitted from the display code field. At this point, the user enters the action code, the Flight Number plus either the Item Number or Part Number as key data elements. A full or partial screen may then be transmitted.

The SLAHTS will first examine the action code field for either the retrieval, element deletion or flight deletion codes. If either of the three is found, the command lines will be scanned for the key data elements. When all have been recognized, the following action is initiated:

1. An action code of R will retrieve and display the existing flight configuration for the specified key elements.
2. An action code of D will remove the Item Number attachment from the Flight Number. Also, all Flight Configuration Data for this item will be purged from the data base.

If neither the R, nor D action code was specified, the SLAHTS will check for the add or change action code with the following action to be taken for a match:

3. An action code of A can be used to add some specified Item Number to an existing Flight. However, if the Flight Number does not exist, a new Flight Configuration Definition will be created. Also, if the user specifies a Part Number as one of the key data elements, the program will retrieve

the Basic Data set associated with the Part Number and extract the Item Number to use while assigning a Flight Number to the key data element.

4. An action code of C will allow any of the configuration data to be changed, added or deleted.

Initially the first 8 lines of item level related data will be examined for updates. If encountered, the changes to the data set will be made as specified.

Furthermore, Launch, Orbit and Return columns will also be examined for updates. If modifications are encountered, the update will be made to the related data sets. If the Location, Quantity data columns have new entries, the associated data set will be updated to reflect the changes.

Finally, the program will scan the SLCN data fields for input. If found, the data will be extracted from the display and entered in the SLCN data sets associated with the specified Flight Number.

2.3.2.5 Flight Location/Serial Configuration Data Transaction. Using this transaction, serial numbered data can be displayed by Launch Location and Quantity within the Flight Number. The display form may be retrieved by transmitting an 04 from the display code field. The user may now enter the Flight Number and Item Number or Part Number as key data elements. Depending on the action code,

either a full or partial screen transmission may be affected.

The SLAHTS will initially examine the action code field for the retrieval code. If found, the command lines will be scanned for the key data elements. When recognized, the following action is taken.

1. Action code R will retrieve and display all Serial Numbers having the specified Part Number or Item Number for the specified Flight Number. Serial Numbers will be tracked for only the launch phase locations.

If SLAHTS has not found the R action code, a check will be made for the C action code. If found the following path will be taken.

2. An action code of C will allow input of SLCN data and any of the serial numbers to be changed, added or deleted provided the user has the necessary authority. SLAHTS will examine the Serial Numbered fields residing under the Location/Qty fields which were for display only. If new information is encountered, the Serial Numbered data will be assigned to the specified Launch Location.

2.3.2.6 Flight SLCN History Display Transaction.

Stowage List Change Notices for any Item Number within some specified Flight Number may be displayed and, provided the user has proper authority, changed or added. To retrieve the form, an 05 must be transmitted from the display code

field. Once the form is displayed, the user may input the Flight Number and Item Number as key data elements and one of the authorized action codes. Either a partial or full screen may now be transmitted.

SLAHTS will first check the action code field for the retrieval action code. If present, both command lines will be scanned for the key data. If all necessary key data is present, the SLAHTS will perform the following:

1. Action code R will display, sequenced by date, all SLCN data associated with the two key data elements.

If an R is not found, the SLAHTS will check for either the add or change action code with the following action being taken for a match:

2. Action code A will first verify that no previous SLCN's have been input for the specified key elements. If verification is positive, the new SLCN data will be entered as a new data set.
3. If an action code of C has been input, SLAHTS will scan the display for new additions, deletions, or changes to the current SLCN History Data set. Any changes encountered will be made to the data base.

2.3.2.7 Function/System Classification Query Transaction. All items having the specified Function/System classification for the particular Flight Number may be displayed, alphabetically sequenced by Procedural

Nomenclature One. The display form itself may be retrieved by transmitting an 06 from the display code field. Next, the Flight Number and Function/System Classification code will be input as key elements with an action code of C being assumed. Upon transmission of the command lines, SLAHTS will begin scanning for key data elements. If the necessary key elements are present, SLAHTS will retrieve and display all system hardware having the Function/System class code specified.

2.3.2.8 Location Inventory Query Transaction. The complete inventory for some particular on board Stowage Location on any specified Flight can be displayed using this transaction. By transmitting the 07 from the provided display code field, the Location Inventory Query form may be retrieved for input. The user will enter Flight Number, Phase and Location with an action code of R being assumed.

Upon transmission of the screen, SLAHTS will scan the command lines for the key data elements and when found will display all on board hardware residing in the specified stowage location.

2.3.2.9 Flight Configuration Change Query Transaction. All Flight Configuration Changes which have been applied to the data base within some specified time frame can be displayed using this transaction. By transmitting the 08 from the provided display code field, the Flight Configuration Change Query form may be retrieved. The user must enter Flight Number and Delimiting Dates as key data elements. No action code is necessary.

After transmission of the screen, SLAHTS will examine the first two command lines for the key data. Next, for the specified Flight Number, a table will be built for all SLCN's falling within the given time period. This table cannot exceed 500 SLCN numbers. In the event this number is exceeded, the user will be requested to supply more restrictive dates.

When the table is completed, it will be output to the terminal one page at a time. It will be sequenced by Item Number and subsequenced by SLCN Number.

2.3.2.10 Serial History Query Transaction. Using this transaction, all history data entries which are stored in the data base for the specified Serial Number and Item Number or Part Number or Training Part Number may be displayed. By transmitting an 09 from the display code field, the Serial History Query form may be retrieved. At this point the user may enter the Serial Number and an Item Number, a Part Number or a Training Part Number as key data elements. No action code entry is needed.

After the screen is transmitted, SLAHTS will scan the first two command lines for key data. Using this key data, the data base can be queried with Basic Data elements, Serial Data elements and the History Data set for the key element being returned for display in order of Hardware transfer date.

2.3.2.11 Sign-Off Transaction. The SLAHTS Sign-Off transaction will be charged with closing the data base and ending the data base management system. Also, the necessary

KRONOS control command will be issued to log the user off the operating system.

2.3.3 Batch Processing Subsystem

This subsystem will consist of three stand-alone programs as listed below:

- Batch Processing and Report Program
- QA Data Base Load Program
- History Processing Program

The following sections will describe the modules stating the method employed, the input required, the processing performed, and the output generated. All sections except the final two, are part of the Batch Processing and Report Program. The definition of Type I and II reports are given in section 2.1.3.5, Batch Processing. Reports are generated either by System 2000 Procedure Language Interface with FORTRAN application code (PLI/PTN) or by System 2000 Report Writer (S2KRW).

2.3.3.1 Stowage List Report.

Input: SLAHTS Data Base
Input Card Image

Processing: This module is of Type I (PLI/FTN). Processing rules are given in the Detailed Requirements Document for SLAHTS. If Stowage List date is input, then upon completion of the Stowage List Report, this module will transfer control to the Stowage List Change Notice Report Module for further processing and output of data.

Output: The output format for this report is given in the DRD for SLAHTS. The note data printed at the bottom of the page are those note numbers referenced on that page beginning with A, B, or C and the corresponding note text.

2.3.3.2 Logistics Management Report (Item Level).

Input: SLAHTS Data Base
Input Card Image

Processing: This module is of Type II (S2KRW). Only the Orbiter Flight Hardware will be processed for the report. Additional processing rules are given in the SLAHTS DRD.

Output: The DRD for SLAHTS displays the output format, figure 4.2.2.2.

2.3.3.3 Logistics Management Report (Serial Number Level).

Input: SLAHTS Data Base
Input Card Image

Processing: This module is of Type II (S2KRW), utilizing the Report Writer feature of System 2000. Processing rules are given in the SLAHTS DRD.

Output: Report output generated by this module is given in the DRD for SLAHTS, figure 4.2.2.3 .

2.3.3.4 Prepack Procedure Report.

Input: SLAHTS Data Base
Input Card Image

Processing: This module is Type I (PLI/FTN) and the rules for processing the data are given in the Detailed Requirements Document for SLAHTS.

Output: Format for this report is given in the DRD for the SLAHTS, figure 4.2.2.4.

2.3.3.5 Stowage Locker Report.

Input: SLAHTS Data Base
Input Card Image

Processing: The processing rules for generating the output are given in the DRD for SLAHTS. This module is of Type I (FTN).

Output: The DRD for SLAHTS has a sample of the output format, figure 4.2.2.5.

2.3.3.6 Master Bond Room Storage List.

Input: SLAHTS Data Base
Input Card Image

Processing: The data selected for this report has a Class Code of 1A, 1B, and 2. Additional processing rules are discussed in the DRD. This module is of Type II (S2KRW).

Output: The output will contain page breaks for each building. The DRD for SLAHTS has figure 4.2.2.6 giving the output format.

2.3.3.7 Post Flight Disposition Report.

Input: SLAHTS Data Base
Input Card image

Processing: This is a Type I (PLI/FTN) module. The processing rules are given in the DRD for SLAHTS.

Output: The output format is contained in the Detailed Requirements Document for SLAHTS, figure 4.2.2.7.

2.3.3.8 Nomenclature Definition Report.

Input: SLAHTS Data Base
Input Card Image

Processing: This module is of Type II (S2KRW). The report will include Orbiter Flight Hardware only (Item Number exists). Additional processing rules are given for the DRD for SLAHTS.

Output: This module will result in the Nomenclature Definition Report; format given in the DRD.

2.3.3.9 Alphabetical Procedural Nomenclature Report.

Input: SLAHTS Data Base
Input Card Image

Processing: This module is Type I (PLI/FTN). The rules for special processing are given in the DRD for SLAHTS.

Output: This module generates the Alphabetical Procedural Nomenclature Report, format given in figure 4.2.2.9 of the DRD for SLAHTS.

2.3.3.10 Flight Equipment Serial Number Report.

Input: SLAHTS Data Base
Input Card Image

Processing: This module is Type I (PLI/FTN). Rules for processing are given in the DRD for SLAHTS.

Output: The Flight Equipment Serial Number Report is generated by this module. Format is given in figure 4.2.2.10 of the DRD for SLAHTS.

2.3.3.11 Flight Location/Equipment Report.

Input: SLAHTS Data Base
Input Card Image

Processing: This module is Type I (PLI/FTN). Processing rules are given in the DRD for SLAHTS.

Output: This module generates the Flight Location/Equipment Report; format given in figure 4.2.2.11 of the DRD for SLAHTS.

2.3.3.12 Inflight Transfer List Report.

Input: SLAHTS Data Base
Input Card Image

Processing: This module will use Type I (PLI/FTN).
Processing rules are given in the DRD for SLAHTS.

Output: The Inflight Transfer List Report will be
output from this module. Format is given in figure 4.2.2.12
of the DRD for SLAHTS.

2.3.3.13 Responsible Organization List.

Input: SLAHTS Data Base
Input Card Image

Processing: This module is of Type II (S2KRW). Rules
for processing have been listed in the detailed requirements
document for this system.

Output: This module results in the Responsible
Organization List. Figure 4.2.2.13 for the DRD for SLAHTS
displays the format.

2.3.3.14 Shelf Life Expiration List.

Input: SLAHTS Data Base
Input Card Image

Processing: This module is Type II (S2KRW). Details of the processing rules are available in the DRD for SLAHTS.

Output: Shelf Life Expiration List is output from this module. Format is shown in figure 4.2.2.14 of the DRD for SLAHTS.

2.3.3.15 Flight Data Reproduction.

Input: SLAHTS Data Base
Input Card Image

Processing: This module is Type I (PLI/PTN) and will duplicate an existing Flight Configuration in the data base for every Flight Data Reproduction card read. It will copy an existing flight, changing the flight number. At completion, both flight configurations will be in the data base.

Output: A new flight configuration entry in the data base.

2.3.3.16 Annual Inventory List.

Input: SLAHTS Data Base
Input Card Image

Processing: This module is Type II (S2KRW).
Processing rules are given in the DRD for SLAHTS.

Output: The Annual Inventory List is generated by this module. Report format is given in figure 4.2.2.16 of the DRD for SLAHTS.

2.3.3.17 Function/System Classification/Report.

Input: SLAHTS Data Base
Input Card Image

Processing: The processing rules for this module are detailed in the requirements document for SLAHTS. The module is Type I (PLI/FTN).

Output: Format for the Function/System Classification Report generated by this module is given in figure 4.2.2.17 of the DRD for SLAHTS.

2.3.3.18 Stowage List Change Notice Report.

Input: SLAHTS Data Base
Input Card Image

Processing: This module is Type I (PLI/FTN).
Processing rules are listed in the DRD for SLAHTS.

Output: This module results in the Stowage List Change Notice Report; format given in figure 4.2.2.18 of the DRD for SLAHTS.

2.3.3.19 Equipment Class 3 Processing and Report.

Input: SLAHTS Data Base
Input Card Image

Processing: This module is Type II (S2KRW). Detailed processing rules are given in the DRD for SLAHTS. Only those items placed in Class Code 3A category since the last Equipment Class 3 Report was generated will be output by the module.

Output: The format of the Equipment Class 3 Report is shown in figure 4.2.2.19 of the DRD for SLAHTS.

2.3.3.20 Training Hardware Requirements and Status.

Input: SLAHTS Data Base
Input Card Image

Processing: This module is Type II (S2KRW). All processing rules are described in the DRD for SLAHTS.

Output: This module generates the Training Hardware Requirements and Status Report. Format for the report is given in figure 4.2.2.20 of the DRD for SLAHTS.

2.3.3.21 Training Hardware Master Inventory Report.

Input: SLAHTS Data Base
Input Card image

Processing: This module is Type II (S2KRW). Rules for processing the report are given in the DRD for SLAHTS.

Output: The Report 21 Module generates the Training Hardware Master Inventory Report. The format is given in figure 4.2.2.21 of the DRD for SLAHTS.

2.3.3.22 Suspense File Report.

Input: SLAHTS Data Base
Input Card Image

Processing: This module is Type II (S2KRW). It will consist of two sections: (1) produces the actual Suspense File Report and (2) produces a cross-reference between Item Number and Part Number.

Output: This module generates the Suspense File Report and attaches a cross-reference listing to the end of the report. The format is given in the DRD for SLAHTS.

2.3.3.23 Data Element Edit Table Report.

Input: SLAHTS Data Base
Input Control Card Image

Processing: The module is Type II (S2KRW). All current values in the edit tables will be listed.

Output: Report format is given in the DRD for SLAHTS, figure 4.2.2.23.

2.3.3.24 Note List.

Input: SLAHTS Data Base
Input Control Card Image

Processing: This module is Type II (S2KRW). Processing will be divided into two sections: (1) create the Note List Report and (2) generate a cross-reference list, if required, at the end of the report. Rules regarding processing are given in the DRD for SLAHTS.

Output: Report format is given in the DRD for SLAHTS, figure 4.2.2.24.

2.3.3.25 Batch Processing Executive.

Input: SLAHTS Data Base
Input Cards

Processing: This module is the initialization program for the Batch Processing Subsystem. The executive will process calls to the Type I subsystem modules and will establish a KRONOS procedure file to process module Type II.

Output: (1) Reports generated by calls to Type I modules and (2) a KRONOS procedure file which will vary as a function of the reports or processes requested on input cards.

2.3.3.26 Flight Deletion Module.

Input: SLAHTS Data Base
Input Cards

Processing: This module is Type I (PLI/FTN). Given the Flight Number, the module, will delete the Flight Number and all of its associated configuration data from the data base.

Output: A data base which has been updated to reflect the deleted Flight or Flights.

2.3.3.27 Edit Table Update Module.

Input: SLAHTS Data Base
Edit Table Input Card Image

Processing: This module will process updates to the data base edit tables provided the user has proper authority. It is Type I (PLI/FTN).

Output: Update the Edit Tables in the SLAHTS Data Base.

2.3.3.28 Microfilm Output Module.

Input: Output File

Processing: This module accepts as input an output file generated by other modules. This file will contain all reports requested on microfilm. Using the MPRINT Utility,

this module will generate a tape formatted for producing microfiche from the RTCC COM facility. It is Type I (PLI/FTN).

Output: Tape formatted for producing microfiche.

2.3.3.29 Mass Properties Tape Module.

Input: SLAHTS Data Base
Input Card Image

Processing: This module is Type I (PLI/FTN). Rules for processing have been given in the DRD for SLAHTS.

Output: One seven track, BCD, loose equipment data tape acceptable as input to the Mass Properties Program.

2.3.3.30 History Processing Program.

Input: SLAHTS Data Base
Input Card Image

Processing: This program is Type I (PLI/FTN) and will have these functions: (1) generate an Item History Report, (2) create an Item Number/Part Number cross reference report for those entries having an Item Number, and (3) reduce the history data sets for each Serial/Lot Number to a minimum of ten (reference SLAHTS DRD section 5.2). In generating the history report, a permanent file will be saved to later be purged by the data base administrator upon confirmation that the report was correctly processed.

Processing rules for this report are given in the DRD for SLAHTS.

Output: The output format for the Item History Report is given in figure 4.2.2.15 of the DRD for SLAHTS.

2.3.3.31 QA Data Base Load Program.

Input: SLAHTS Data Base
Converted Bonded Storage Master File With
Editing

Processing: This program, Type I (PLI/FTN) will read an intermediate tape (Section 3.1), place the accepted data values into a value-string format, and create a file reflecting the newly accepted entries from the Bonded Storage Master File. The SLAHTS data base will then be loaded with the values on the file.

The preprocessing required for the data elements in the Bonded Storage Master File is listed in the SLAHTS DRD.

Output: A data base containing data values input from the Bonded Storage Master File.

3.0 IMPLEMENTATION

3.1 DATA BASE ESTABLISHMENT

Data base establishment will require two major efforts; the creation of the data base structure itself and the conversion of the current data format into one which the SLAHTS can manipulate.

The data base structure for the SLAHTS will be System 2000 (see section 2.2). Creation of the data base structure will be accomplished through Define Module concepts now available under the System 2000 data base management system on the CYBER computer.

The data for the SLAHTS data base will consist of the inventory in the master file for the Bonded Storage System. This file is now maintained on tape and is updated via batch processing on a UNIVAC 1100 series computer. As a result, the implementation effort will include the generation and testing of software to convert the present data base into a format that the SLAHTS can manipulate while operating on the CYBER computer.

The conversion software will consist of a UNIVAC COBOL program which will copy each 12 word entry descriptor from the Bonded Storage Item Master onto a tape file suitable for use on the CYBER. Each entry will then be edited to conform to the SLAHTS specifications. Finally, the entire file will be reorganized and reformatted into a suitable format which can be loaded into the System 2000 data base by means of a

single PLI program. (See 2.3.3.31 QA Data Base Load Module.)

3.2 OPERATIONAL STAGES

3.2.1 Phase I

The SLAHTS will be developed as a two phase system. Phase I will support two SLAHTS users, SR&QA and E&D. The functional areas developed in Phase I are listed below:

Users: SR&QA, E&D

Functions to be implemented.

- BASIC DATA SET PROCESSING
- SERIAL DATA SET PROCESSING
- HISTORY PROCESS ROUTINES
- SECURITY
- EDIT TABLE USE AND MAINTENANCE
- TERMINAL INTERFACE FOR HAZELTINE 2000 AND 4000G
TERMINALS
- SUSPENSE FILE PROCESSING
- QAD DATA BASE LOADING
- SR&QA AND E&D BATCH REPORTS

The following reports and display modules will be completed in Phase I:

DISPLAYS

- 01 Basic Data
- 02 Serial Data

- 09 Serial History Query

BATCH REPORTS

- 06 Master Bond Room Storage List
- 13 Responsible Organization List
- 14 Shelf Life Expiration List
- 15 History Report
- 16 Annual Inventory List
- 19 Equipment Class 3 Report
- 20 Training Stowage Requirements and Status
- 21 Training Hardware Master Inventory Report
- 22 Suspense File Report
- 23 Data Element Edit Table
- 24 Note List

3.2.2 Phase II

Phase II will fulfill all requirements specified in the SLAHTS DRD. The functional areas developed in Phase II are listed below:

Users: POO, FOD, SR&QA, E&D

Functions to be implemented.

- FLIGHT CONFIGURATION TRACKING
- SLCN TRACKING
- MASS PROPERTIES TAPE INTERFACE
- PROCEDURAL NOMENCLATURE TRACKING
- POO & FOD BATCH REPORTS

The following reports and display modules will be completed in Phase II.

DISPLAYS

- 03 Flight Configuration Definition
- 04 Flight Location/Serial Configuration Data
- 05 Flight SLCN History
- 06 Function/System Classification
- 07 Location Inventory Query
- 08 Flight Configuration Change Query

BATCH REPORTS

- 01 Stowage List Report
- 02 Logistics Management Report (Item Level)
- 03 Logistics Management Report (Serial Number Level)
- 04 Prepack Procedure Report
- 05 Stowage Locker Report
- 07 Post Flight Disposition Report
- 08 Nomenclature Definition Report
- 09 Alphabetical Procedural Nomenclature Report
- 10 Flight Equipment Serial Report
- 11 Flight Location/Equipment Report
- 12 Inflight Transfer List Report
- 17 Functional/System Classification
- 18 Stowage List Change Notice Report

APPENDIX A

**BATCH PROCESSING INPUT CARD
FORMATS**

This appendix describes the input cards necessary to select SLAHTS batch reports or batch processing. Each report requires a particular input card format. The card columns are specified for the input variables. The comments column will state whether the variable is required input or optional. The users guide will describe additional control cards necessary to submit a job.

TITLE: STOWAGE LIST REPORT CARD FORMAT

TYPE: Batch Report 01 Card

<u>Item</u> <u>Number</u>	<u>Name</u>	<u>Card</u> <u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 01.
2	Flight Number	3-7	5	A/N	Required.
3	Sort Option	8	1		Required - may be 0, 1, or 2.
4	Stowage List	9-14	6	N	Optional - may be date or blank.

TITLE: LOGISTICS MANAGEMENT REPORT (ITEM LEVEL) CARD FORMAT

TYPE: Batch Report 02 Card

<u>Item</u> <u>Number</u>	<u>Name</u>	<u>Card</u> <u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 02.

TITLE: LOGISTICS MANAGEMENT REPORT (SERIAL NUMBER LEVEL)
CARD FORMAT

TYPE: Batch Report 03 Card

<u>Item</u> <u>Number</u>	<u>Name</u>	<u>Card</u> <u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 03.

TITLE: PREPACK PROCEDURE REPORT CARD FORMAT

TYPE: Batch Report 04 Card

<u>Item</u> <u>Number</u>	<u>Name</u>	<u>Card</u> <u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 04.
2	Flight Number	3-7	5	AANNN	Required.

TITLE: STOWAGE LOCKER REPORT CARD FORMAT

TYPE: Batch Report 05 Card

<u>Item</u> <u>Number</u>	<u>Name</u>	<u>Card</u> <u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 05.
2	Flight Number	3-7	5	A/N	Required
3	Phase Indicator	8	1	A	Optional - may be L, O, or Blank.

TITLE: MASTER BOND ROOM STORAGE LIST CARD FORMAT

TYPE: Batch Report 06 Card

<u>Item</u> <u>Number</u>	<u>Name</u>	<u>Card</u> <u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - Must be 06.

TITLE: POST FLIGHT DISPOSITION REPORT CARD FORMAT

TYPE: Batch Report 07 Card

<u>Item</u> <u>Number</u>	<u>Name</u>	<u>Card</u> <u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 07.
2	Flight Number	3-7	5	A/N	Required.

TITLE: NOMENCLATURE DEFINITION REPORT CARD FORMAT

TYPE: Batch Report 08 Card

<u>Item</u> <u>Number</u>	<u>Name</u>	<u>Card</u> <u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 08.

TITLE: ALPHABETICAL PROCEDURAL NOMENCLATURE REPORT CARD
FORMAT

TYPE: Batch Report 09 Card

<u>Item</u> <u>Number</u>	<u>Name</u>	<u>Card</u> <u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 09.
2	Flight Number	3-7	5	A/N	Optional.
3	Sort Option	8	1	N	Required - may be 0, 1, or 2.

TITLE: FLIGHT EQUIPMENT SERIAL NUMBER REPORT CARD FORMAT

TYPE: Batch Report 10 Card

<u>Item</u> <u>Number</u>	<u>Name</u>	<u>Card</u> <u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 10.
2	Flight Number	3-7	5	A/N	Optional.

TITLE: FLIGHT LOCATION/EQUIPMENT REPORT CARD FORMAT

TYPE: Batch Report 11 Card

<u>Item</u> <u>Number</u>	<u>Name</u>	<u>Card</u> <u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 11.
2	Flight Number	3-7	5	A/N	Required.
3	Phase Indicator	8	1	A	Optional - may be L, O, R, or Blank.

TITLE: INFLIGHT TRANSFER LIST REPORT CARD FORMAT

TYPE: Batch Report 12 Card

<u>Item</u> <u>Number</u>	<u>Name</u>	<u>Card</u> <u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 12.
2	Flight Number	3-7	5	A/N	Required.

TITLE: RESPONSIBLE ORGANIZATION LIST CARD FORMAT

TYPE: Batch Report 13 Card

<u>Item</u> <u>Number</u>	<u>Name</u>	<u>Card</u> <u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 13.

TITLE: SHELF LIFE EXPIRATION LIST CARD FORMAT

TYPE: Batch Report 14 Card

<u>Item</u> <u>Number</u>	<u>Name</u>	<u>Card</u> <u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 14.

TITLE: FLIGHT LOCATION/EQUIPMENT REPORT CARD FORMAT

TYPE: Batch Report 11 Card

<u>Item</u> <u>Number</u>	<u>Name</u>	<u>Card</u> <u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 11.
2	Flight Number	3-7	5	A/N	Required.
3	Phase Indicator	8	1	A	Optional - may be L, O, R, or Blank.

TITLE: INFLIGHT TRANSFER LIST REPORT CARD FORMAT

TYPE: Batch Report 12 Card

<u>Item</u> <u>Number</u>	<u>Name</u>	<u>Card</u> <u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 12.
2	Flight Number	3-7	5	A/N	Required.

TITLE: RESPONSIBLE ORGANIZATION LIST CARD FORMAT

TYPE: Batch Report 13 Card

<u>Item</u>	<u>Name</u>	<u>Card</u>	<u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 13.	

TITLE: SHELF LIFE EXPIRATION LIST CARD FORMAT

TYPE: Batch Report 14 Card

<u>Item</u>	<u>Name</u>	<u>Card</u>	<u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 14.	

TITLE: FLIGHT DATA REPRODUCTION

TYPE: Flight Data Reproduction Card

<u>Item Number</u>	<u>Name</u>	<u>Card Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Identifier	1-2	2	N	Required - must be 15.
2	Flight	3-7	5	A/N	Required - must be an existing flight in the data base.
3	New Flight	8-12	5	A/N	Required - must not be an existing flight.

TITLE: ANNUAL INVENTORY LIST CARD FORMAT

TYPE: Batch Report 16 Card

<u>Item Number</u>	<u>Name</u>	<u>Card Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 16.

TITLE: FUNCTION/SYSTEM CLASSIFICATION CARD FORMAT

TYPE: Batch Report 17 Card

<u>Item</u> <u>Number</u>	<u>Name</u>	<u>Card</u> <u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 17.
2	Flight Number	3-7	5	A/N	Optional.

TITLE: STOWAGE LIST CHANGE NOTICE REPORT CARD FORMAT

TYPE: Batch Report 18 Card

<u>Item</u> <u>Number</u>	<u>Name</u>	<u>Card</u> <u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 18.
2	Flight Number	3-7	5	A/N	Required.
3	Selection Date	8-15	6	N	Optional.

TITLE: EQUIPMENT CLASS 3 REPORT CARD FORMAT

TYPE: Batch Report 19 Card

<u>Item</u>		<u>Card</u>			
<u>Number</u>	<u>Name</u>	<u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 19.

TITLE: TRAINING HARDWARE REQUIREMENTS AND STATUS CARD FORMAT

TYPE: Batch Report 20

<u>Item</u>		<u>Card</u>			
<u>Number</u>	<u>Name</u>	<u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 20.

TITLE: TRAINING HARDWARE MASTER INVENTORY REPORT CARD FORMAT

TYPE: Batch Report 21 Card

<u>Item</u> <u>Number</u>	<u>Name</u>	<u>Card</u> <u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 21.

TITLE: SUSPENSE FILE REPORT CARD FORMAT

TYPE: Batch Report 22 Card

<u>Item</u> <u>Number</u>	<u>Name</u>	<u>Card</u> <u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 22.
2	Class Code	3	1	N	Required - must be 0 or 1.
3	Sort Option	4	1	N	Required - Must be 0 or 1.

TITLE: DATA ELEMENT EDIT TABLE REPORT CARD FORMAT

TYPE: Batch Report 23 Card

<u>Item</u> <u>Number</u>	<u>Name</u>	<u>Card</u> <u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 23.

TITLE: NOTE LIST CARD FORMAT

TYPE: Batch Report 24 Card

<u>Item</u> <u>Number</u>	<u>Name</u>	<u>Card</u> <u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 24.
2	Range Option	3-4	2	A	Optional
3	Cross-Reference Option	5	1	N	Required - may be 0 or 1.

TITLE: FLIGHT DELETION

TYPE: Flight Deletion Card

<u>Item</u> <u>Number</u>	<u>Name</u>	<u>Card</u> <u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Identifier	1-2	2	N	Required - must be 26.
2	Flight Number	3-7	5	A/N	Required
3	Flight Number	8-12	5	A/N	Optional
.
.
.
16	Flight	73-77	5	A/N	Optional

TITLE: EDIT TABLE UPDATE CARD FORMAT

TYPE: Edit Table Card

<u>Item</u> <u>Number</u>	<u>Name</u>	<u>Card</u> <u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Identifier	1-2	2	N	Required - must be 27.
2	Table Code	3-4	2	N	Required - may be 01, 02, 03, 04, 05, 06, 07, or 08.
3	Update Function	5	1	A	Required - must be A or D.
4	New data	6-21	15	A/N	Required - Data to be deleted or added must be coded beginning in column 6. Depending on Table code contained in columns 3-4, this field will vary.

TITLE: MASS PROPERTIES TAPE CARD FORMAT

TYPE: Mass Properties Card

<u>Item</u> <u>Number</u>	<u>Name</u>	<u>Card</u> <u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Identifier	1-2	1	N	Required - must be 28.
2	Flight	3-7	5	A/N	Required.

TITLE: HISTORY PROCESSING AND REPORT PROGRAM

TYPE: History Processing Card

<u>Item</u> <u>Number</u>	<u>Name</u>	<u>Card</u> <u>Columns</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
1	Report Number	1-2	2	N	Required - must be 29.
2	Selection Option	3		N	Required - must be 0 or 1.

TITLE: QA DATA BASE LOAD PROGRAM CARD FORMAT

TYPE: Data Base Load Card

<u>Item</u>	<u>Name</u>	<u>Card</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
<u>Number</u>		<u>Columns</u>			
1	Identifier	1-2	2	N	Required - must be 30.

APPENDIX B
REPEATING GROUP SPECIFICATIONS
FOR THE
SLAHTS DATA BASE

Entry Descriptors

The component description for an element within a repeating group in the SLAHTS data base will contain five common ingredients. They are:

1. Component Number - This number is completely transparent to the user and, due to increased efficiency, will be used within the SLAHTS to reference data.
2. Name - The data element associated with the above mentioned Component Number.
3. Size - The maximum number of allowable characters which can be specified for any data name.
4. Type - The data element type is crucial for storing values within the data base. There are five allowable specifications, each of which is discussed below:
 - (a) NAME - Any alphanumeric data with all leading, trailing, and extraneous (more than one) embedded blanks discarded when the data is stored. A single embedded blank is retained between syntactic units, e.g., an input value of JOHN SMITH is stored as JOHN SMITH.
 - (b) TEXT - Any alphanumeric data with all blanks being retained in the data. Text is the element type selected when storing reports or

graphics where control of blank storage is imperative to maintain the original appearance of the material.

- (c) **DATE** - A fixed format statement of MMDDYY standing for month, day, and year. For calculations involving DATE type values, each date in the data base is considered to be the number of days elapsed since 10/15/1582 (day zero).
 - (d) **INTEGER NUMBER** - A string of numerals (0-9), plus the sign, restricted by the size designation.
5. **KEY, NON-KEY** - All elements which are specified as **KEY** may be used within the **SLAHTS** for **WHERE** clause qualification. This of course, provides great flexibility in retrieval and updating activities within the data base.

In the Data Set descriptions which follow, all elements are **NON-KEY** unless otherwise specified in the **COMMENTS** column.

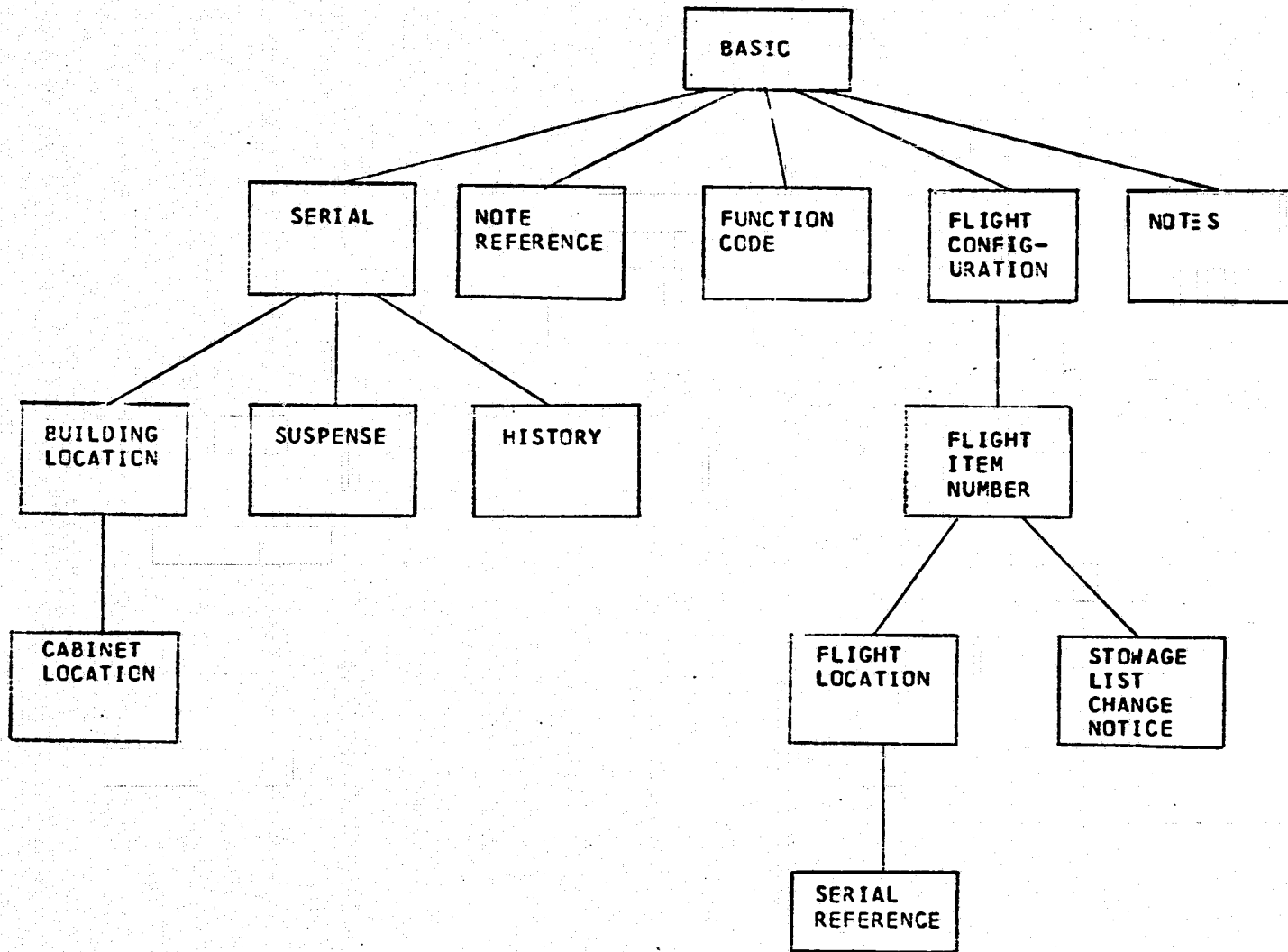


FIGURE B-1 SLAHTS DATA BASE MAP

TITLE: BASIC DATA SET 5

TYPE: Repeating Group 7

LEVEL: 0 9

<u>Component Number</u>	<u>Name</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>	
1	Item Number	12	Name	All three elements are <u>KEY</u> and at least one must be specified.	14
2	Part Number	20	Name		15
3	Training Part Number	20	Name		17
4	Responsible Organization	4	Name		19
5	Engineering Nomenclature 1	20	Name		21
6	Engineering Nomenclature 2	20	Name		22
7	Procedural Nomenclature 1A	20	Name		23
8	Procedural Nomenclature 1B	20	Name		24
9	Procedural Nomenclature 2A	20	Name		25
10	Procedural Nomenclature 2B	20	Name		26
11	Current Weight Specification	7	Name		27
12	Weight	6	Name		28
13	Length	5	Name		29

14	Width	6	Name	37
15	Height	5	Name	38
16	Program Code	2	Name	39
17	Building 36			40
	Requirement	3	Number	41
18	Current Building			42
	36 Requirement	4	Number	43
19	Current Other			44
	Inventory	4	Number	45
20	Building 36			46
	Accountability	4	Number	47
21	Replacement Lead			48
	Time	2	Number	49
22	Refurbishment Time	2	Number	50
23	Shelf Life	2	Number	51
24	Operating Life	4	Name	52
25	Cycle Life	5	Number	53
26	Fit Check Require-			54
	ment Flag	1	Name	55
27	Unit of Issue	4	Number	56
				57

TITLE: NOTE REFERENCE DATA SET 59
TYPE: Repeating Group 61
LEVEL: 1 63
COMPONENT: 28 65

Component					
<u>Number</u>	<u>Name</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>	
29	Reference Note				70
	Number	4	Name		71
					72

TITLE: SERIAL DATA SET 94

TYPE: Serial Repeating Group 96

LEVEL: 1 98

COMPONENT: 34 100

<u>Component Number</u>	<u>Name</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>	
35	Serial Number	14	Name	KEY - Must be specified.	104 105
36	Class Code	2	Name	KEY	106
37	Authority Document	12	Name		107
38	Work Order Number	6	Name		108
39	Contract Number	8	Name		109
40	Issue Date	8	Date	MM/DD/YY	110
41	Unit Serial				111
	Number Weight	6	Name		112
42	Fit Check Complete				113
	Flag	1	Name		114
43	Operating Life				115
	Remaining	4	Name		116
44	Cycle Life				117
	Remaining	5	Name		118
45	Shelf Life				119
	Expiration Date	8	Date	MM/DD/YY	120
46	Expected Delivery				121
	Date to Bldg 36	8	Date	MM/DD/YY	122
47	Serial Fidelity				123
	Code	14	Name		124
<hr/>					125

TITLE: BUILDING LOCATION DATA SET 127
TYPE: Repeating Group 129
LEVEL: 2 131
COMPONENT: 48 133

Component					136
<u>Number</u>	<u>Name</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>	137
49	Hardware Transfer				138
	Date	8	Date		139
50	Building Location	11	Name		140
51	Building Quantity	2	Number		141
					142

TITLE: CABINET LOCATION DATA SET 144
TYPE: Repeating Group 146
LEVEL: 3 148
COMPONENT: 52 150

Component					153
<u>Number</u>	<u>Name</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>	154
53	Cabinet Quantity	2	Number		155
54	Cabinet I.D.	6	Name		156
					157

TITLE: HISTORY DATA SET 183

TYPE: Repeating Group 185

LEVEL: 2 187

COMPONENT: 66 189

<u>Component</u>					
<u>Number</u>	<u>Name</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>	
67	Old Building				192
	Location	12	Name		194
68	Authority Document	12	Name		195
69	Transfer Date	8	Date		196
70	Historical Progress				197
	Code	2	Name		198
-----					199
					200

TITLE: FLIGHT ITEM NUMBER DATA SET

TYPE: Repeating Group

LEVEL: 2

COMPONENT: 74

Component

<u>Number</u>	<u>Name</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
75	Reference Item Number	12	Name	<u>KEY</u>
76	Reference Engineer- ing Nomenclature 1	20	Name	
77	Reference Engineer- ing Nomenclature 2	20	Name	
78	Reference Procedu- ral Nomenclature 2A	20	Name	
79	Reference Procedu- ral Nomenclature 2B	20	Name	
80	Total Operational Quantity	2	Number	
81	Total Payload Quantity	2	Number	
82	Landing Site Disposition	4	Name	
83	Post Flight Disposition	15	Name	

TITLE: FLIGHT LOCATION DATA SET

TYPE: Repeating Group

LEVEL: 3

COMPONENT: 84

Component

<u>Number</u>	<u>Name</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
85	Flight Phase	1	Name	
86	Phase Location	6	Name	KEY
87	Phase Location Quantity	2	Number	

TITLE: SERIAL REFERENCE DATA SET

TYPE: Repeating Group

LEVEL: 4

COMPONENT: 88

Component

<u>Number</u>	<u>Name</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
89	Serial Reference Number	14	Name	

TITLE: STOWAGE LIST CHANGE NOTICE DATA SET

TYPE: Repeating Group

LEVEL: 3

COMPONENT: 90

Component

<u>Number</u>	<u>Name</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
91	S.L.C.N.Date	8	Date	<u>KEY</u>
92	S.L.C.N. Number	4	Number	
93	S.L.C.N. Description	120	Text	

TITLE: NOTES DATA SET

TYPE: Repeating Group

LEVEL: 1

COMPONENT: 94

Component

<u>Number</u>	<u>Name</u>	<u>Size</u>	<u>Type</u>	<u>Comments</u>
95	Note Number	4	Name	<u>KEY</u>
96	Note Text	120	Text	

END

DATE

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