

AD-A257 777



STRUCTURED ANALYSIS

LSA SUBTASKS 301.2.1 & 301.2.2  
System Functional Requirements Identification  
Task Report

APJ 966-203

APJ



AMERICAN POWER JET CO. RIDGEFIELD N.J.

92 11 03 036

92-28781



## REPORT DOCUMENTATION PAGE

Form Approved  
OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED			1b. RESTRICTIVE MARKINGS		
2a. SECURITY CLASSIFICATION AUTHORITY			3. DISTRIBUTION / AVAILABILITY OF REPORT UNLIMITED		
2b. DECLASSIFICATION / DOWNGRADING SCHEDULE			4. PERFORMING ORGANIZATION REPORT NUMBER(S)		
6a. NAME OF PERFORMING ORGANIZATION AMCCOM, Army			6b. OFFICE SYMBOL (If applicable) AMSMC-MAE-EA		
6c. ADDRESS (City, State, and ZIP Code) Rock Island Arsenal Rock Island, IL 61299-6000			7a. NAME OF MONITORING ORGANIZATION		
8a. NAME OF FUNDING / SPONSORING ORGANIZATION			8b. OFFICE SYMBOL (If applicable)		
8c. ADDRESS (City, State, and ZIP Code)			9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER		
11. TITLE (Include Security Classification) Structured Analysis of the Logistic Support Analysis (LSA) Task, Subtask 301.2.1, "Operational and Support Functional Requirements Identification Task Report"; and Subtask 301.2.2, "Unique over			10. SOURCE OF FUNDING NUMBERS		
12. PERSONAL AUTHOR(S) DUCLOS, RONALD SHEPHERD, NED kmk			13a. TYPE OF REPORT FINAL		
13b. TIME COVERED FROM _____ TO _____			14. DATE OF REPORT (Year, Month, Day) Dec 1987		
15. PAGE COUNT 50			16. SUPPLEMENTARY NOTATION		
17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)		
FIELD	GROUP	SUB-GROUP	STRUCTURED ANALYSIS, LOGISTIC SUPPORT ANALYSIS, LSA, PROCESSES, DATA FLOWS, DATA STORES, EXTERNAL ENTITIES, PROCESS FLOWS, INTEGRATED LOGISTIC over		
19. ABSTRACT (Continue on reverse if necessary and identify by block number) This report is one of a series presenting the Structured Analysis for the Logistic Support Analysis (LSA) Task and the Integrated Logistic Support (ILS) Element. Included are the System Analysis for the LSA Subtask 301.2.1, "Operational and Support Functional Requirements Identification Task Report", and Subtask 301.2.2, "Unique Functional Requirements", with the corresponding description of the processes, data flows, data stores, external entities involved on each. An overview of the Structured Analysis and its place in the overall systems development process, is also presented.					
20. DISTRIBUTION / AVAILABILITY OF ABSTRACT <input checked="" type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS			21. ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED		
22a. NAME OF RESPONSIBLE INDIVIDUAL NED SHEPHERD			22b. TELEPHONE (Include Area Code) (309) 782-2479		22c. OFFICE SYMBOL AMSMC-MAE-EA

11. TITLE - continued:  
Functional Requirements", (APJ 966-203).

18. SUBJECT TERMS - continued:  
SUPPORT, OVERALL SYSTEMS DEVELOPMENT PROCESS, OPERATIONAL AND  
SUPPORT FUNCTIONAL REQUIREMENTS IDENTIFICATION, UNIQUE FUNCTIONAL  
REQUIREMENTS.

Accession For	
NTIS GRA&I	<input checked="checked" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	

DTIC QUALITY INSPECTED 4

**APJ 966-203**

**STRUCTURED ANALYSIS**

**LSA SUBTASKS 301.2.1 & 301.2.2**  
**System Functional Requirements Identification**  
**Task Report**

**under**

**CONTRACT DAAA21-86-D-0025**

**for**

**HQ AMCCOM**  
**INTEGRATED LOGISTIC SUPPORT OFFICE**  
**AMSMC-LSP**  
**ROCK ISLAND, IL**

**AMERICAN POWER JET COMPANY**

**Ridgefield, NJ**

**Fallston, MD**

**Falls Church, VA**

**DECEMBER 1987**

## FOREWORD

APJ, under contract to HQs, AMCCOM, has initiated the automation of the LSA Tasks (MIL-STD-1388-1) and the assessment of the ILS elements (AR 700-127). The major goal of this program is to unify the approach to performance of ILS and LSA by military and contract logisticians.

Detailed to meet all requirements of the LSA and ILS, the automated process will continue to provide the flexibility of selecting tasks/elements to be addressed at each life cycle stage. A major advantage is that the application of a task element is consistent with prescribed Army policies and procedures.

This report is one of a series presenting the Structured Analysis of each LSA Task and ILS Element. Structured Analysis comprises a description of the process being automated in terms which facilitate system design and subsequent programming. It is increasingly the preferred approach in both industry and Government.

This Technical Note reports on the System Analysis of LSA Subtasks 301.2.1, "Operational and Support Functional Requirements" and 301.2.2, "Unique Functional Requirements". It provides definitions of the processes, data flows, data stores, and external entities involved.

To view this work in context, this report also presents a brief overview of Structured Analysis and its place in the overall systems development process. The overview and certain portions of the overall text are repeated verbatim in each report in this series to allow each report to stand alone.

The numerical identification assigned corresponds to the task/subtask/element identified in MIL-STD-1388-1 or AR 700-127 in effect as of the APJ contract start date (October 1986). Both publications are currently being updated, which may alter the numbering of the respective elements. The latest updated guides will, however, be used in the Structured Analysis Program. Comments are welcomed.

## TABLE OF CONTENTS

<u>TITLE</u>	<u>PAGE</u>
Background.....	1
Purpose.....	1
Scope.....	1
LSA Subtask 301.2.1 Description.	2
LSA Subtask 301.2.2 Description.	3
Approach.....	3
Structured Analysis and Design.....	4
Tasks 301.2.1 and 302.2.2	
Data Flow Diagrams.....	6
APPENDIX A:	
LSA Subtasks 301.2.1 - Operational and Support Functional Requirements & 301.2.2 - Unique Functional Requirements.....	A-1
APPENDIX B:	
Subtasks 301.2.1/301.2.2 Data Flow Diagrams and Data Dictionary.....	B-1
GLOSSARY.....	G-1

## LIST OF FIGURES

<u>FIGURE NO.</u>	<u>TITLE</u>	<u>PAGE</u>
1	Structured Analysis and Structured Systems Design Organization.....	7
2	Standard DFD Symbol Definitions.....	9

## BACKGROUND

The Department of the Army has a requirement for management control over contractor and Government agency response to the requirements of AR 700-127, "Integrated Logistic Support", and MIL-STD-1388-1, "Logistic Support Analysis". HQs AMCCOM has initiated action to structure each of the tasks, the form of the results, and the detailed processes to insure consistency with the current Army policies, procedures, and techniques.

This approach (undertaken by AMCCOM and APJ) will insure uniformity in efforts and products, reproducibility of analyses, and a well defined structure which can be coordinated among all participants in the logistic process to arrive at common understanding and procedures.

## PURPOSE

The purpose of this report series is to present the results of the APJ efforts under Contract DAAA21-86-D-0025 for coordination with the AMCCOM Program Manager prior to in-depth structured design of ILS/LSA functions/processes. Subtasks 301.2.1 and 301.2.2 of LSA Task 301 are addressed in this report.

## SCOPE

LSA Subtask 301 concerns the identification of the operational and functional requirements of the developmental

item/equipment. Additional subtasks are concerned with failure mode analyses, reliability centered maintenance, and risk analyses. These will be treated in future reports in this series.

This report summarizes the results of the structured analysis of LSA Subtasks 301.2.1 and 301.2.2, and presents the associated Data Flow Diagrams (DFDs) developed from the structured analysis. The portions of the data dictionary relating to labels, names, and descriptions are included in their present degree of completeness. (The Data Dictionary is a "living document" that evolves through the analysis/design process).

To place this work in context, this report presents a brief overview of structured analysis and its place in the overall systems design process to assist the reader who may not be fully briefed on the symbols and conventions used.

#### LSA Subtask 301.2.1 Description

LSA Subtask 301.2.1 concerns the definition of the operations and support functions that must be performed for each system/equipment alternative under consideration. It identifies the tasks that must be performed to operate and maintain the new system/equipment in its intended environment. These functions are identified to a level commensurate with design and operational scenario development, and shall include both peacetime and wartime functions (from MIL-STD 1388-1A).



### LSA Subtask 301.2.2 Description

LSA Subtask 301.2.2 is a companion task which identifies from the full set of functional requirements those which are unique to the new system/equipment due to new design, technology or operational concepts, or which are supportability, cost, or readiness drivers.

This task is required during the concept exploration phase, and provides the major source of input to Task 401 (Task Analysis) and Task 302 (Support System Alternatives). Furthermore, it constitutes a major consideration in assessment of the ILS Element "Design Influence".

A copy of the task definitions from MIL-STD 1388-1A is included as Annex A.

### APPROACH

The APJ approach to structured design of the LSA is:

1. Scope the process defined in MIL-STD-1388-1A in the context of the other LSA tasks.
2. Review the guidance provided in AMC PAM 700-11, "Logistics Support Analysis Review Team Guide".
3. Review the applicable Data Item Descriptions (DIDs) from the Acquisition Management Systems and Data Requirements Control List (AMSDL) published by the Department of Defense.
4. Review all source documents referenced in the AMSDL as applicable to the referenced DIDs of interest.
5. Apply staff experience in logistics support analysis to assure that the intent of the task has been addressed.
6. Validate results in discussions with Army activities/personnel directly involved in the applicable or related LSA tasks.

The Structured Analysis and preparation of Data Flow Diagrams (DFDs) was further assisted by the application of structured analysis software. Licensed by Index Technology Corporation, Excelerator provides for automated tracking of names, labels, descriptions, multiple levels of detail in the data flow diagrams, and industry standards in symbols and diagramming practices.

Following completion of the draft DFDs, the diagrams were made available to working Army logisticians currently (or recently) directly involved in the application of the same LSA tasks in current Army development programs. Comments were solicited relative to the logic of the processes described, the scope and details of the indicated approaches, and the outputs implied by the LSA task requirements.

The draft products were well received by the external reviewers, and requests have been received for copies of the DFDs for in-house use in organizing ILS/LSA efforts. Comment was also made that the DFDs will be a useful training tool for apprentice logisticians, since they provide an overall picture of the total task and a uniform approach to its fulfillment.

#### STRUCTURED ANALYSIS AND DESIGN

Structured analysis and structured systems design evolved from the need to define and demonstrate the underlying logical functions and requirements of large systems. The

concept of structured analysis involves building a logical (non-physical) model of a system, using graphical techniques which enable users, analysts, and designers to get a clear and common picture of the system and how its parts fit together to meet the user's needs. It is followed by structured design, and then by programming and test/validation.

The Structured Analysis/Structured Systems Design process, sometimes referred to as "Structured Design", is well documented and widely utilized in Government and industry. As stated in "The Practical Guide to Structured Systems Design" (Meilir Page-Jones, Prentice-Hall, Englewood Cliffs, NJ, 1980),

..."Structured Design is disciplined approach to computer system design, an activity that in the past has been notoriously haphazard and fraught with problems. Structured Design is a response to the failings of the past. It has five aspects:

"1. Structured Design allows the form of the problem to guide the form of the solution.

"2. Structured Design seeks to conquer the complexity of large systems by means of partitioning the system into "black boxes," and by organizing the black boxes into hierarchies suitable for computer implementation.

"3. Structured Design uses tools, especially graphic ones, to render systems readily understandable.

"4. Structured Design offers a set of strategies for developing a design solution from a well defined statement of a problem.

"5. Structured Design offers a set of criteria for evaluating the quality of a given design solution with respect to the problem to be solved.

"Structured Design produces systems that are easy to understand, reliable, flexible, long lasting, smoothly developed, and efficient to operate - and that WORK...."

The organization of Structured Analysis and its relationship to Structured System Design is shown on Figure 1.

#### TASKS 301.2.1 and 302.2.2 DATA FLOW DIAGRAMS

The Data Flow Diagram is a tool that shows flow of data, i.e., data flows from sources and is processed by activities to produce intermediate or final products.

The DFD provides a useful and meaningful partitioning of a system from the viewpoint of identification and separation of all functions, actions, or processes so that each can be introduced, changed, added, or deleted with minimal disruption of the overall program, i.e., it emphasizes the underlying concept of modularity and identifiable transformations of data into actionable products.

A series of five (5) DFDs have been developed to structure these LSA subtasks:

- |                 |   |
|-----------------|---|
| 1. 301.2.1      | Overview (or Top Level)                         |
| 2. 301.2.1.2A   | Develop Functional and Schematic Block Diagrams |
| 3. 301.2.1.2A1B | Develop Work Breakdown Structure                |
| 4. 301.2.1.3A   | Identify Applicable Environmental Elements      |
| 5. 301.2.2      | Identify Unique Functional Requirements         |

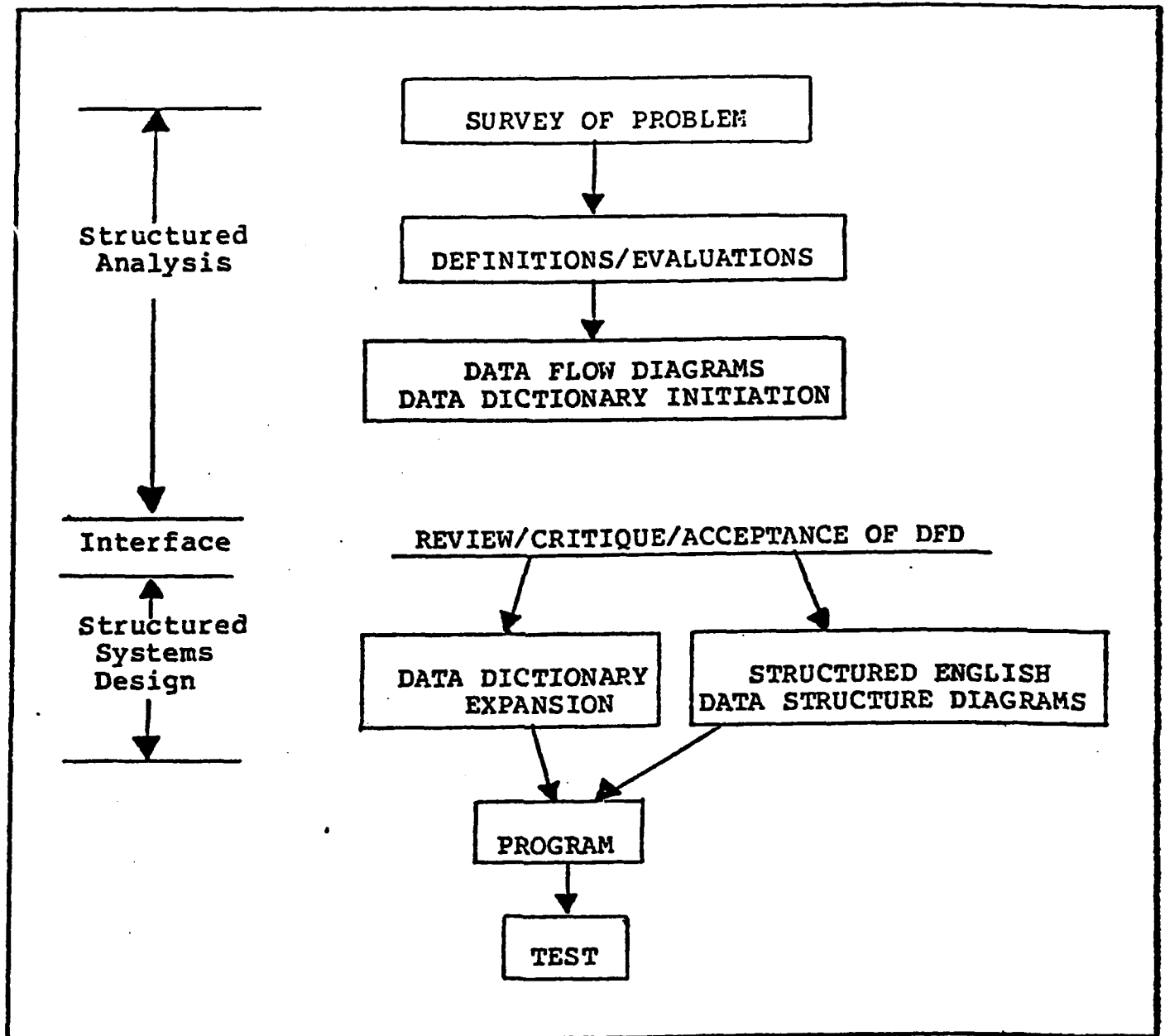


Figure 1. Structured Analysis and Structured Systems Design Organization

Each DFD is keyed to the specific (LSA in this case) task through the identification number assigned in the lower right hand box. The alpha codes indicate the level of indenture or explosion below the top level, i.e.,:

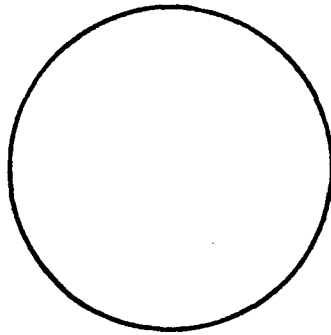
Top Level.....LSA DFD 301.2.1

First Indenture.....LSA DFD 301.2.1.2A

Second Indenture.....LSA DFD 301.2.1.2A1B

Each DFD makes reference to the basic LSA task it addresses, as well as the level of indenture (explosion) of the DFD. For example, the first or top level DFD is named "301.2.1", referring to the paragraph of MIL-STD 1388-1A which describes the task. One of the processes (bubbles) on the top level diagram (301.2.1.2, "Identify Functional Requirements") is expanded and identified as "301.2.1.2A", i.e., it is a second level of 301.2.1.2 (the Alpha "A" indicating second level). In turn, DFD 301.2.1.2A has a process (bubble) 301.2.1.2A1, "Develop Work breakdown Structure", which is further exploded on DFD 301.2.1.2A1B, a third level explosion of the basic DFD 301.2.1 (the Alpha "B" indicating the third level explosion).

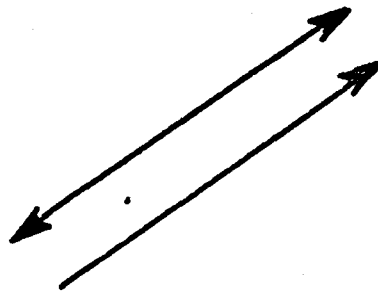
Four standard symbols are used in the drawing of a DFD (see Figure 2).



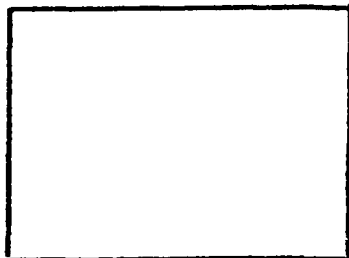
REPRESENTS A PROCESS, FUNCTION,  
OR ACTION



REPRESENTS A DATA STORE OR A  
DATA FILE - OFTEN IDENTIFIED AS  
REPOSITORY OF INFORMATION OF A  
SPECIFIC TYPE



REPRESENTS A DATA ELEMENT FLOW  
INDICATING OUTPUT FROM ONE  
PROCESS AND INPUT TO ANOTHER  
PROCESS



REPRESENTS AN EXTERNAL ENTITY -  
AN ACTIVITY NOT A PART OF THE  
SYSTEM/PROCESS BEING MODELED.

Figure 2. STANDARD DFD SYMBOL DEFINITIONS

A copy of each DFD is presented in Annex B, accompanied by the data dictionary process elements. Each entry made in the DFDs has a corresponding entry in the Data Dictionary. This Technical Note presents only those data dictionary entries necessary for the coordination of the overall concept and details of the processes. These definitions immediately follow each of the DFDs. To facilitate review of the diagrams, data flow identifications, process descriptions, and data stores descriptions are provided. As noted above, they will continue to evolve and be elaborated in the System Design phase.

As the DFDs progress through structured system design, the data dictionary will continue to be expanded and completed. Since these are working documents rather than final submissions, no effort has been devoted to editorial niceties, e.g., spelling, typography, etc.

It is noted that the output structure of Excelerator automatically truncates the number of letters and lines displayed as a function of image size. Thus, in the format size of this report, the full identifying entry is forcibly shortened, introducing the possibility of a misunderstanding. Therefore, in all cases, identifications are fully presented in the text accompanying the diagrams.



APPENDIX A

LSA SUBTASK 301.2.1  
OPERATIONAL AND SUPPORT FUNCTIONAL REQUIREMENTS  
and  
LSA SUBTASK 301.2.2  
UNIQUE FUNCTIONAL REQUIREMENTS

## TASK 301

## FUNCTIONAL REQUIREMENTS IDENTIFICATION

301.1 PURPOSE. To identify the operations and support functions that must be performed for each system/equipment alternative under consideration and then identify the tasks that must be performed in order to operate and maintain the new system/equipment in its intended environment.

301.2 TASK DESCRIPTION

- ▷ 301.2.1 Identify and document the functions that must be performed for the new system/equipment to be operated and maintained in its intended operational environment for each alternative under consideration. These functions shall be identified to a level commensurate with design and operational scenario development, and shall include both peacetime and wartime functions.
- ▷ 301.2.2 Identify those functional requirements which are unique to the new system/equipment due to new design technology or operational concepts, or which are supportability, cost, or readiness drivers.
- 301.2.3 Identify any risks involved in satisfying the functional requirements of the new system/equipment.
- 301.2.4 Identify the operations and maintenance tasks for the new system/equipment based on the identified functional requirements. Tasks shall be identified to a level commensurate with design and operational scenario development and shall cover all functions which require logistic support resources. Preventive maintenance, corrective maintenance, and operations and other support tasks such as preparation for operation, operation, post operation, calibration, and transportation shall be identified by the following methods:
- 301.2.4.1 The results of the failure modes, effects, and criticality analysis (FMECA), or equivalent analysis, shall be analyzed to identify and document corrective maintenance task requirements. The FMECA, or equivalent, shall be documented on system/equipment hardware and software and to the indenture level consistent with the design progression and as specified by the requiring authority. The LSAR, or equivalent format approved by the requiring authority, shall be used for the FMECA documentation.
- 301.2.4.2 Preventive maintenance task requirements shall be identified by conducting a reliability centered maintenance (RCM) analysis in accordance with the detailed guidelines provided by the requiring authority. The RCM analysis shall be based on the FMECA data and documented in the LSAR or equivalent format approved by the requiring authority.

301.2.4.3 Operations and other support tasks not identified by the FMECA or RCM analysis shall be identified through analysis of the functional requirements and intended operation of the new system/equipment. The LSAR or equivalent format approved by the requiring authority shall be used to document these tasks.

301.2.5 Participate in formulating design alternatives to correct design deficiencies uncovered during the identification of functional requirements or operations and maintenance task requirements. Design alternatives which reduce or simplify functions requiring logistic support resources shall be analyzed.

301.2.6 Update the functional requirements and operations and maintenance task requirements as the new system/equipment becomes better defined and better data becomes available.

### 301.3 TASK INPUT

301.3.1 Delivery identification of any data item required.\*

301.3.2 Detailed RCM procedures and logic to be used in conducting the RCM analysis.\* (301.2.4)

301.3.3 Identification of system/equipment hardware and software on which this task will be performed and the indenture levels to which this analysis will be carried.\*

301.3.4 Identification of the levels of maintenance which will be analyzed during performance of this task to identify functions and tasks.\*

301.3.5 Any documentation requirements over and above LSAR data such as functional flow diagrams or design recommendation data resulting from the task identification process.\* (301.2.4, 301.2.5)

301.3.6 Requirement for a FMECA in accordance with MIL-STD-1629.\* (301.2.4, 301.2.6)

301.3.7 Description of system/equipment concepts under consideration.

301.3.8 Supportability, cost, and readiness drivers from Task 203. (301.2.2)

301.3.9 FMECA results. (301.2.4, 301.2.6)

301.3.10 Use study results from Task 201.

April 11, 1983

#### 301.4 TASK OUTPUT

301.4.1 Documented functional requirements for new system/equipment alternatives in both peacetime and wartime environments. (301.2.1)

301.4.2 Identification of those functional requirements which are unique to the new system/equipment or which are supportability, cost, or readiness drivers. (301.2.2)

301.4.3 Identification of any risks involved in satisfying the functional requirements of the new system/equipment. (301.2.3)

301.4.4 Completed LSAR data, or equivalent format approved by the requiring authority, identifying operations and maintenance task requirements on system hardware and software and to the indenture levels specified by the requiring authority. (301.2.4)

301.4.5 Identification of design deficiencies requiring redesign as a result of the functional requirements and operations and maintenance task identification process. (301.2.5)

301.4.6 Updates to the identified functional requirements and operations and maintenance task requirements as the new system/equipment becomes better defined and better data becomes available. (301.2.6)

APPENDIX B  
SUBTASKS 301.2.1/301.2.2  
DATA FLOW DIAGRAMS  
and  
DATA DICTIONARY

301.2.1

OPERATIONAL AND SUPPORT FUNCTIONAL REQUIREMENTS



DATE: 4-NOV-87  
TIME: 12:37

PAGE 1  
EXCELERATOR 1.7

Name	Label	Description
301.2.1.1	DETERMINE LEVEL OF DESIGN & OPERATIONL SCENARIOS	THE PROGRAM MANAGEMENT DOCUMENTATION, AND ALL PRELIMINARY DESIGN ANALYSIS I.E. THREAT ANALYSIS, MISSION AREA ANALYSIS, BEST TECHNICAL APPROACH, AND ALL SYSTEM REQUIREMENTS DOCUMENTATION WILL BE REVIEWED TO DETERMINE THE LEVEL OF DESIGN AND OPERATIONAL SCENARIOS. THESE DOCUMENTS WILL PROVIDE THE INFORMATION REQUIRED TO DEVELOP THE FUNCTIONAL REQUIREMENTS FOR THE NEW DESIGN.
301.2.1.2	IDENTIFY FUNCTIONAL REQUIRE- MENTS	THE INFORMATION GATHERED DURING PROCESSE'S 301.2.1.1 AND 301.2.1.3 WILL BE USED TO IDENTIFY AND DOCUMENT THE FUNCTIONS THAT MUST BE PERFORMED FOR THE NEW SYSTEM/EQUIPMENT TO BE OPERATED AND MAINTAINED IN ITS INTENDED ENVIRONMENT.
301.2.1.3	DETERMINE OPERATION ENVIRONMEN T	THE MISSION AREA ANALYSIS, THREAT ANALYSIS, AND SYSTEM REQUIREMENTS DOCUMENTATION WILL PROVIDE THE BACKGROUND INFORMATION REQUIRED TO DEVELOP THE OPERATIONAL ENVIRONMENT FOR THE NEW DESIGN.
301.2.1.4	CATEGORIZE FUNCTIONS WARTIME OR PEACETIME	THIS PROCESS WILL CATEGORIZE THOSE FUNCTIONS DOCUMENTED IN PROCESS 301.2.1.2 AS EITHER PEACETIME, WARTIME OR BOTH.

301.2.1 PRC



DATE: 31-DEC-87  
TIME: 03:01

Data Flows for Graph  
301.2.1

PAGE 1  
EXCELERATOR 1.7

Name	Label	Description
INIT/ACT	INITIATE ACTION	INITIATE ACTION  THIS IS THE DIRECTIVE FROM THE PM/ILSMT TO REVIEW THIS ISSUE
ROC	ROC	
DES/OP/SCENR	DESIGN LEVEL /OPERATIONAL SCENARIOS	
FUN/REQ	OPERATION, MAINTENANCE, FUNCTIONS & TECHNICAL REQUIREMENTS	
OP/CHAR	OPERATIONAL CHARACTRSTCS	
MIL/STD 881	MIL-STD 881 DATA FOR WBS PREPARATION	
WAR/PC/FUN	WARTIME/ PEACETIME FUNCTIONS	
TRD/DOC	TRADE STUDIS DOCUMENTATN	
DES/SPECS	DESIGN SPECIFICATNS	THIS DATA FLOW INCLUDES: 1) DESIGN CHARACTERISTICS 2) DESIGN SPECIFICATIONS 3) ENGINEERING DRAWINGS
BASE/COM/SYS	BASELINE COMPARATIVE SYSTEM	
SCENR	OPERATIONAL ENVIRONMENT LVL OF DSGN OPERATIONAL SCENARIOS	
OP/ENV	OPERATIONS ENVIRONMENT	
O&O/PLAN	O&O PLAN	

DATE: 31-DEC-87  
TIME: 03:01

Data Flows for Graph  
301.2.1

PAGE 2  
EXCELERATOR 1.7

Name	Label	Description
REQ/ALLOC	REQUIREMENTS ALLOCATIONS SHEETS	
DSGN/CHAR	DESIGN CHARACTERIST ICS	
ENG/DRAW	ENGINEERING DRAWINGS	
SYS/DEV/STAT	SYSTEM DEVELOPMENT STATUS	
ALT/DES	ALTERNATIVE DESIGN	

DATE: 30-DEC-87  
TIME: 23:53

Data Store Listing for Graph  
301.2.1

PAGE 1  
EXCELERATOR 1.7

Name	Label	Description
AAAF	ACQUIRING ACTIVITY FILE	CONTAINS THOSE RECORDS, DOCUMENTS, DECISION PAPERS, SCHEDULES THAT WERE PREPARED AS PART OF THE ACQUISITION INITIATION, JUSTIFICATION, AND PLANNING PRIOR TO THE ASSIGNMENT OF A PROGRAM MANAGER. THE ITEMS IN THIS DATA STORE INCLUDE: A. THREAT ANALYSIS DATA B. O&O PLAN C. READINESS OBJECTIVES DATA D. FUNCTIONAL REQUIREMENTS DATA E. PROJECTED SCHEDULE DATA F. LOGISTICS RESOURCES DATA G. DESIRED R & M PARAMETERS H. TOA I. TOD J. COST & OPERATIONAL EFFECTIVENESS ANALYSIS (COEA) DATA K. PROJECTED COST DATA L. JUSTIFICATION OF MAJOR SYSTEM NEW START (JMSNS) DATA M. REQUIRED OPERATIONAL CHARACTERISTICS
ENV	ENVIRONMENTAL FILE	
P/F	POLICY FILES	CONTAINS THOSE MILITARY PUBLICATIONS, DECISION PAPERS, MISSIONS & FUNCTIONS, etc, WHICH ARE NEEDED TO ESTABLISH THE LOGISTICAL SUPPORT AND REVIEW REQUIREMENTS OF THE ITEM/EQUIPMENT DEVELOPMENT PROGRAM. THIS DATA STORE INCLUDES: 1. AR 700-127 ILS 2. MIL-STD 881A (FB) 3. MIL-STD 1388-1 LSA 4. MIL-STD 1388-2 LSAR 5. MIL-STD 152 TECH REVIEW GUIDELINES 6. DA PAM 700-XX ILS REVIEW GUIDELINES 7. MIL-STD 810 ENVIRONMENTAL TEST METHODS 8. MIL-STD 781 RELIABILITY DESIGN GUIDED 9. MIL-STD 2108 CLIMATIC EXTREMES FOR MIL EQUIPMENT 10. AR 70-38 ILS PREPARATION 11. MIL-STD 470, 471 MAINTAINABILITY STANDARDS 12. AMC PAM 700-4 LOGISTICS TECHNIQUES (WITH PALMAN) 13. DA PAM 700-28, "INTEGRATED SUPPORT PROGRAM ASSESSMENT ISSUES AND CRITERIA" 14. MIL-STD-780, CODING SYSTEM 15. MIL-STD-882, 16. MIL-STD-1629, PROCEDURES FOR FMECA 17. MIL-STD-756, RELIABILITY MODELING & PREDICTIONS 18. DI-S-3604, FUNCTIONAL FLOW DIAGRAM 19. MIL-M-24100B, FUNCTIONALLY ORIENTED MAINTENANCE MANUALS (FOMM) 20. MIL-STD-499, ENGINEERING MANAGEMENT 21. DI-A-1004, WORK BREAKDOWN STRUCTURE 22. AR 37-200, SELECTED ACQUISITION INFORMATION & MANAGEMENT SYSTEMS (SAIMS) 23. DODI-5010.20,

DATE: 30-DEC-87  
TIME: 23:53

Data Store Listing for Graph  
301.2.1

PAGE 2  
EXCELERATOR 1.7

Name	Label	Description
PM/DF	PROGRAM MANAGER DATA FILE	CONTAINS THOSE FILES AND DATA WHICH ARE NORMALLY DEVELOPED BY AND/OR RETAINED BY THE PROGRAM MANAGER FOR PROPER MANAGEMENT OF THE DEVELOPMENT PROGRAM. THESE FILES INCLUDE: 1. ENGINEERING DRAWINGS 2. ENGINEERING CHARACTERISTICS 3. DT/OT RESULTS 4. CONCEPT FORMULATION PACKAGE (CFP) 5. DESIGN CONCEPT PAPER (DCP) 6. TYPE TECHNICAL REVIEWS REQUIRED 7. MILESTONE SCHEDULES 8. FUNDING PROFILES 9. REQUIRED OPERATIONAL CAPABILITIES (ROC) 10. ITEM/EQUIPMENT SPECIFICATIONS 11. ITEM/EQUIPMENT MISSIONS & FUNCTIONS 12. EQUIPMENT, MANPOWER, AND TECHNICAL RISK ASSESSMENTS (FROM LSA TASK 301.2.3

DATE: 30-DEC-87

TIME: 23:55

External Entity Listing for Graph

301.2.1

PAGE 1

EXCELERATOR 1.7

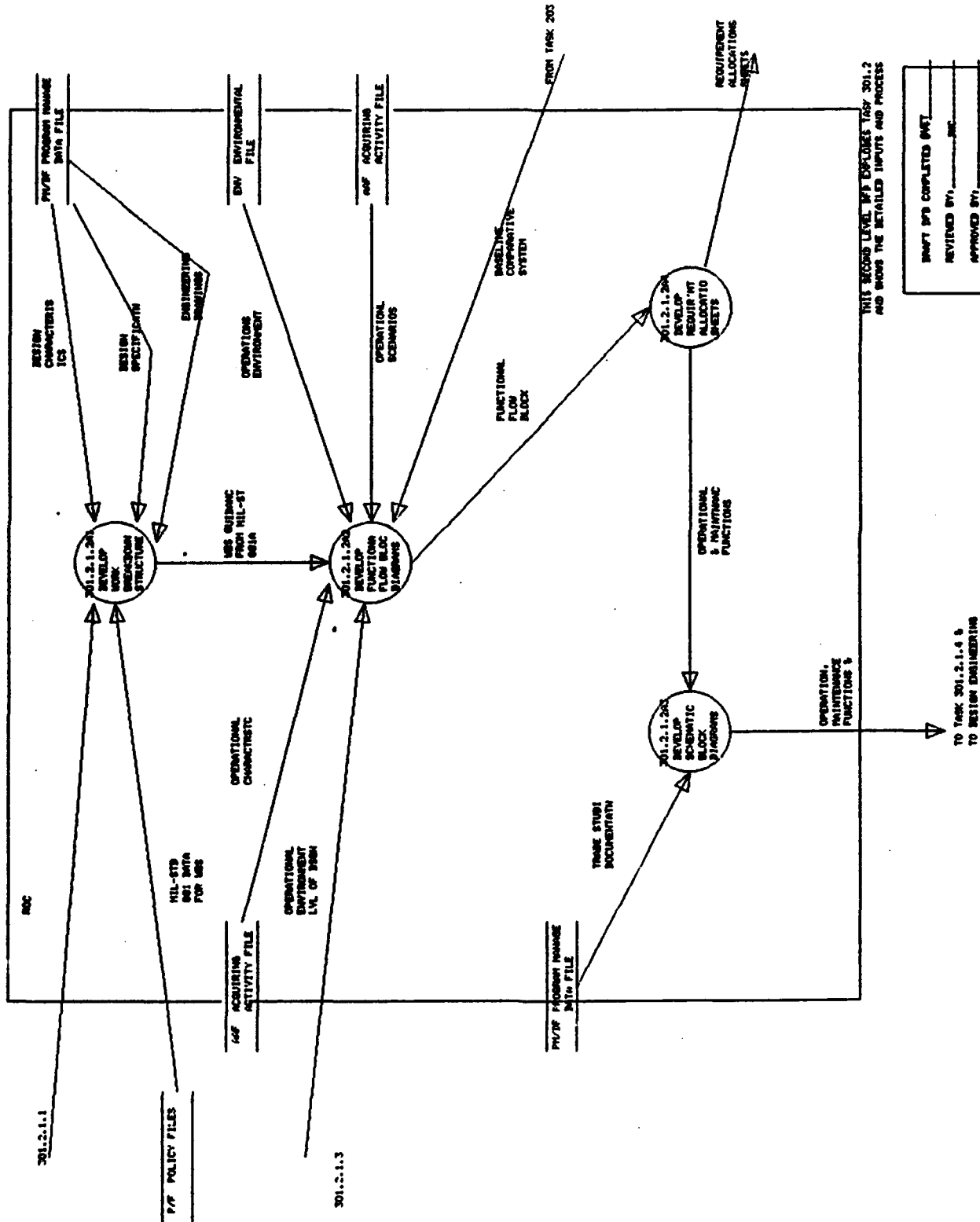
Name	Label	Description
------	-------	-------------

PM/AUTH	PM AUTHRT	
---------	-----------	--

	Y TO INIT	
--	-----------	--

	IAT ANALY	
--	-----------	--

	SIS	
--	-----	--



THIS SECOND LEVEL WBS EXPLODES TASK 301.2 AND SHOWS THE DETAILED INPUTS AND PROCESS

DRAFT WBS COMPLETED DATE  
 REVIEWED BY: JMC  
 APPROVED BY:  
 EXTENSION CHECKED BY:  
 EXPORTED TO WBSXON:

301.2.1.2A  
 Created by: JMC  
 Revised by: JMC  
 Date changed: 08-JUL-87

DATE: 30-DEC-87  
TIME: 23:43

Process Listing for Graph  
301.2.1.2A

PAGE 1  
EXCELERATOR 1.7

Name	Label	Description
301.2.1.2A1	DEVELOP WORK BREAKDOWN STRUCTURE	AN INITIAL STEP IN THE DEVELOPMENT OF FUNCTIONAL REQUIREMENTS IS THE DETERMINATION OF THE TYPES OF ITEMS, SUBASSEMBLIES, ASSEMBLIES, SYSTEMS, ETC THAT CONSTITUTE THE STRUCTURE OF THE DEVELOPMENTAL ITEM/SYSTEM. THIS PROCESS IS INITIATED BY THE DEVELOPMENT OF THE WORK BREAKDOWN STRUCTURE OF THE ITEM/SYSTEM IN ACCORDANCE WITH MIL-STD 881, "WORK BREAKDOWN STRUCTURE GUIDE OF MILITARY EQUIPMENT". OTHER REFERENCE DOCUMENTS INCLUDE DI-A-1004, AR 37-200, AND DODI-5010.20. THIS PROCESS IS EXPLODED IN DFD 301.2.1.2A1B.
301.2.1.2A2	DEVELOP FUNCTIONAL FLOW BLOCK DIAGRAMS	FUNCTIONAL FLOW BLOCK DIAGRAMS ARE SCHEMATIC DRAWINGS THAT PORTRAY THE FUNCTIONS WHICH MUST BE MET TO SATISFY TOTAL SYSTEM NEEDS, AND AS SUCH REPRESENTS THE GENESIS OF SUBSEQUENT DETAIL REQUIREMENTS DETERMINATION. THE FUNCTIONAL FLOW BLOCK DIAGRAMS WILL BE DEVELOPED IN ACCORDANCE WITH DI-S-3604/S-126-1. THIS DID PROVIDES DETAIL INSTRUCTIONS, FORMAT AND PROCEDURES FOR DEVELOPING FFBD'S.
301.2.1.2A3	DEVELOP SCHEMATIC BLOCK DIAGRAMS	SCHEMATIC BLOCK DIAGRAMS ARE USED AS THE BASIS FOR DISPLAYING FUNCTIONAL AND TECHNICAL REQUIREMENTS. THE SCHEMATICS WILL BE PREPARED TO IDENTIFY INTERSYSTEM RELATIONSHIPS, AND INTRASYSTEM RELATIONSHIPS. THE SCHEMATICS WILL BE STRUCTURED IN A MANNER THAT WILL SHOW THE FUNCTIONAL INTERFACE AND APPORTIONMENT OF REQUIREMENTS BETWEEN MAJOR SYSTEMS, WITHIN THE SYSTEM, BETWEEN THE ELEMENTS OF THE SYSTEM (EQUIPMENT, PERSONNEL, FACILITIES), AND BETWEEN ITEMS, AND THE MAINTENANCE OR CHECKOUT ASPECTS OF THE PROPOSED DESIGN. THE AMOUNT OF DETAIL SHOWN IN THE SCHEMATIC DIAGRAM WILL VARY DEPENDING UPON THE POINT IN TIME THAT THE SCHEMATIC IS PREPARED.  THESE SCHEMATIC DIAGRAMS WILL BE PREPARED IN ACCORDANCE WITH DI-S-3607/S-129-1.
301.2.1.2A4	DEVELOP REQUIREMENTS ALLOCATION SHEETS	REQUIREMENTS ALLOCATION SHEETS ARE USED TO TRANSLATE FUNCTIONS INTO DESIGN REQUIREMENTS. THE ANALYSIS OF THE FUNCTIONAL FLOW DIAGRAMS DEVELOPED BY PROCESS 301.2.1.2A2 WILL BE DOCUMENTED ON ALLOCATION SHEETS. THE REQUIREMENTS ALLOCATION SHEETS WILL CONTAIN AN ANALYSIS OF EACH FUNCTION OR GROUP OF FUNCTIONS DEPICTED ON THE FUNCTIONAL FLOW DIAGRAMS AND WILL BE DOCUMENTED IN THE FORMAT AND DATA CONTENT SET FORTH IN DI-S-3605/S-127-1.  WHERE FEASIBLE, DESIGN REQUIREMENTS ARE IN TERMS OF (1) PURPOSE OF THE FUNCTION, (2) PARAMETERS OF DESIGN, (3) DESIGN CONSTRAINTS, (4) REQUIREMENTS FOR RELIABILITY, HUMAN PERFORMANCE, SAFETY, OPERABILITY, MAINTAINABILITY, AND TRANSPORTABILITY.

DATE: 30-DEC-87  
TIME: 23:48

Data Flows for Graph  
301.2.1.2A

PAGE 1  
EXCELERATOR 1.7

Name	Label	Description
WBS	WBS GUIDANCE FROM MIL-STD 881A (WBS GUIDE)	
OP/CHAR	OPERATIONAL CHARACTERISTICS	
MIL/STD 881	MIL-STD 881 DATA FOR WBS PREPARATION	
OP/ENV	OPERATIONS ENVIRONMENT	
OP/SCEN	OPERATIONAL SCENARIOS	
BASE/COM/SYS	BASIS COMPARATIVE SYSTEM	
FBFD	FUNCTIONAL FLOW BLOCK DIAGRAM	
OP/MAINT/FUN	OPERATIONAL & MAINTENANCE FUNCTIONS	
TRD/DOC	TRADE STUDIES DOCUMENTATION	
FUN/REQ	OPERATION, MAINTENANCE, FUNCTIONS & TECHNICAL REQUIREMENTS	
ROC	ROC	
SCENR	OPERATIONAL ENVIRONMENT LVL OF DSGN OPERATIONAL SCENARIOS	
REQ/ALLOC	REQUIREMENTS ALLOCATIONS SHEETS	



Name	Label	Description
DSGN/CHAR	DESIGN CHARACTERIST ICS	
DES/SPECS	DESIGN SPECIFICATNS	THIS DATA FLOW INCLUDES: 1) DESIGN CHARACTERISTICS 2) DESIGN SPECIFICATIONS 3) ENGINEERING DRAWINGS
ENG/DRAW	ENGINEERING DRAWINGS	

DATE: 23-NOV-87  
TIME: 12:56

DFD 301.2.1.2A DATA STORES

PAGE 1  
EXCELERATOR 1.7

Name	Label	Description
AAF	ACQUIRING ACTIVITY FILE	CONTAINS THOSE RECORDS, DOCUMENTS, DECISION PAPERS, SCHEDULES THAT WERE PREPARED AS PART OF THE ACQUISITION INITIATION, JUSTIFICATION, AND PLANNING PRIOR TO THE ASSIGNMENT OF A PROGRAM MANAGER.  THE ITEMS IN THIS DATA STORE INCLUDE: A. THREAT ANALYSIS DATA B. O&O PLAN C. READINESS OBJECTIVES DATA D. FUNCTIONAL REQUIREMENTS DATA E. PROJECTED SCHEDULE DATA F. LOGISTICS RESOURCES DATA G. DESIRED R & M PARAMETERS H. TOA I. TOD J. COST & OPERATIONAL EFFECTIVENESS ANALYSIS (COEA) DATA K. PROJECTED COST DATA L. JUSTIFICATION OF MAJOR SYSTEM NEW START (JMSNS) DATA M. REQUIRED OPERATIONAL CHARACTERISTICS
ENV	ENVIRONMENTAL FILE	
P/F	POLICY FILES	CONTAINS THOSE MILITARY PUBLICATIONS, DECISION PAPERS, MISSIONS & FUNCTIONS, etc, WHICH ARE NEEDED TO ESTABLISH THE LOGISTICAL SUPPORT AND REVIEW REQUIREMENTS OF THE ITEM/EQUIPMENT DEVELOPMENT PROGRAM.  THIS DATA STORE INCLUDES: 1. AR 700-127 ILS 2. MIL-STD 881A (FB) 3. MIL-STD 1388-1 LSA 4. MIL-STD 1388-2 LSA 5. MIL-STD 152 TECH REVIEW GUIDELINES 6. DA PAM 700-XX ILS REVIEW GUIDELINES 7. MIL-STD 810 ENVIRONMENTAL TEST METHODS 8. MIL-STD 781 RELIABILITY DESIGN GUIDED 9. MIL-STD 2108 CLIMATIC EXTREMES FOR MIL EQUIPMENT 10. AR 70-38 ILS PREPARATION 11. MIL-STD 470, 471 MAINTAINABILITY STANDARDS 12. AMC PAM 700-4 LOGISTICS TECHNIQUES (WITH PALMAN) 13. DA PAM 700-28, "INTEGRATED SUPPORT PROGRAM ASSESSMENT ISSUES AND CRITERIA" 14. MIL-STD-780, CODING SYSTEM 15. MIL-STD-882, 16. MIL-STD-1629, PROCEDURES FOR FMECA 17. MIL-STD-756, RELIABILITY MODELING & PREDICTIONS 18. DI-S-3604, FUNCTIONAL FLOW DIAGRAM 19. MIL-M-24100B, FORM

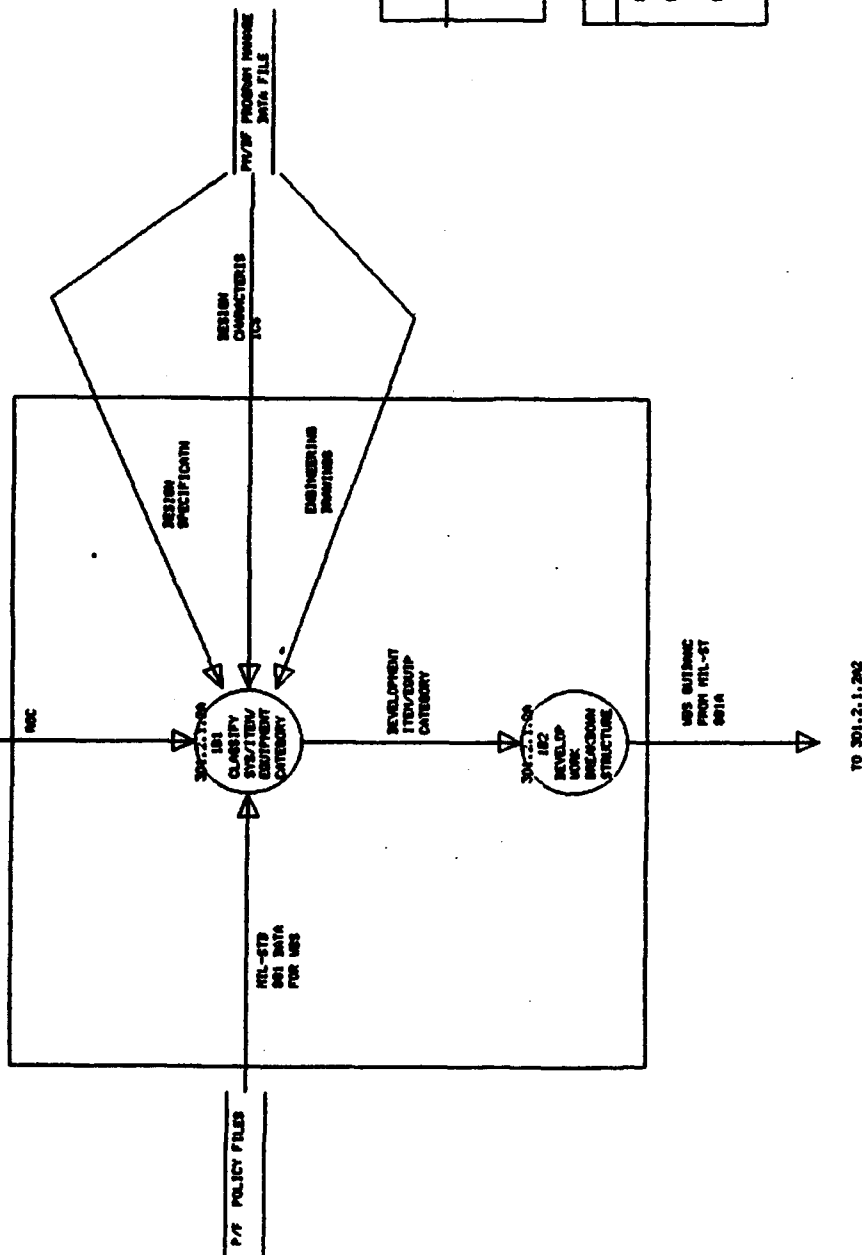
DATE: 23-NOV-87  
TIME: 12:57

DFD 301.2.1.2A DATA STORES

PAGE 2  
EXCELERATOR 1.7

Name	Label	Description
PM/DF	PROGRAM MANAGER DATA FILE	CONTAINS THOSE FILES AND DATA WHICH ARE NORMALLY DEVELOPED BY AND/OR RETAINED BY THE PROGRAM MANAGER FOR PROPER MANAGEMENT OF THE DEVELOPMENT PROGRAM. THESE FILES INCLUDE: 1. ENGINEERING DRAWINGS 2. ENGINEERING CHARACTERISTICS 3. DT/OT RESULTS 4. CONCEPT FORMULATION PACKAGE (CFP) 5. DESIGN CONCEPT PAPER (DCP) 6. TYPE TECHNICAL REVIEWS REQUIRED 7. MILESTONE SCHEDULES 8. FUNDING PROFILES 9. REQUIRED OPERATIONAL CAPABILITIES (ROC) 10. ITEM/EQUIPMENT SPECIFICATIONS 11. ITEM/EQUIPMENT MISSIONS & FUNCTIONS 12. EQUIPMENT, MANPOWER, AND TECHNICAL RISK ASSESSMENTS (FROM LSA TASK 301.2.3

FROM 301.2.1.1



REFUSE MATERIAL ITEM ID CLASSIFICATIONS
1. AIRCRAFT SYSTEMS
2. ELECTRONICS SYSTEMS
3. MISSILE SYSTEMS
4. ORDNANCE SYSTEMS
5. SHIP SYSTEMS
6. SPACE SYSTEMS

WPS LEVEL IDENTIFICATIONS
LEVEL 1-MAJOR WEAPON SYSTEMS (WPS)
LEVEL 2-MAJOR ELEMENTS OF WPS
LEVEL 3-MAJOR ELEMENTS OF WPS
LEVEL 4-MAJOR ELEMENTS OF WPS
LEVEL 5-MAJOR ELEMENTS OF WPS
LEVEL 6-MAJOR ELEMENTS OF WPS
LEVEL 7-MAJOR ELEMENTS OF WPS
LEVEL 8-MAJOR ELEMENTS OF WPS
LEVEL 9-MAJOR ELEMENTS OF WPS
LEVEL 10-MAJOR ELEMENTS OF WPS
LEVEL 11-MAJOR ELEMENTS OF WPS
LEVEL 12-MAJOR ELEMENTS OF WPS
LEVEL 13-MAJOR ELEMENTS OF WPS
LEVEL 14-MAJOR ELEMENTS OF WPS
LEVEL 15-MAJOR ELEMENTS OF WPS
LEVEL 16-MAJOR ELEMENTS OF WPS
LEVEL 17-MAJOR ELEMENTS OF WPS
LEVEL 18-MAJOR ELEMENTS OF WPS
LEVEL 19-MAJOR ELEMENTS OF WPS
LEVEL 20-MAJOR ELEMENTS OF WPS
LEVEL 21-MAJOR ELEMENTS OF WPS
LEVEL 22-MAJOR ELEMENTS OF WPS
LEVEL 23-MAJOR ELEMENTS OF WPS
LEVEL 24-MAJOR ELEMENTS OF WPS
LEVEL 25-MAJOR ELEMENTS OF WPS
LEVEL 26-MAJOR ELEMENTS OF WPS
LEVEL 27-MAJOR ELEMENTS OF WPS
LEVEL 28-MAJOR ELEMENTS OF WPS
LEVEL 29-MAJOR ELEMENTS OF WPS
LEVEL 30-MAJOR ELEMENTS OF WPS
LEVEL 31-MAJOR ELEMENTS OF WPS
LEVEL 32-MAJOR ELEMENTS OF WPS
LEVEL 33-MAJOR ELEMENTS OF WPS
LEVEL 34-MAJOR ELEMENTS OF WPS
LEVEL 35-MAJOR ELEMENTS OF WPS
LEVEL 36-MAJOR ELEMENTS OF WPS
LEVEL 37-MAJOR ELEMENTS OF WPS
LEVEL 38-MAJOR ELEMENTS OF WPS
LEVEL 39-MAJOR ELEMENTS OF WPS
LEVEL 40-MAJOR ELEMENTS OF WPS
LEVEL 41-MAJOR ELEMENTS OF WPS
LEVEL 42-MAJOR ELEMENTS OF WPS
LEVEL 43-MAJOR ELEMENTS OF WPS
LEVEL 44-MAJOR ELEMENTS OF WPS
LEVEL 45-MAJOR ELEMENTS OF WPS
LEVEL 46-MAJOR ELEMENTS OF WPS
LEVEL 47-MAJOR ELEMENTS OF WPS
LEVEL 48-MAJOR ELEMENTS OF WPS
LEVEL 49-MAJOR ELEMENTS OF WPS
LEVEL 50-MAJOR ELEMENTS OF WPS
LEVEL 51-MAJOR ELEMENTS OF WPS
LEVEL 52-MAJOR ELEMENTS OF WPS
LEVEL 53-MAJOR ELEMENTS OF WPS
LEVEL 54-MAJOR ELEMENTS OF WPS
LEVEL 55-MAJOR ELEMENTS OF WPS
LEVEL 56-MAJOR ELEMENTS OF WPS
LEVEL 57-MAJOR ELEMENTS OF WPS
LEVEL 58-MAJOR ELEMENTS OF WPS
LEVEL 59-MAJOR ELEMENTS OF WPS
LEVEL 60-MAJOR ELEMENTS OF WPS
LEVEL 61-MAJOR ELEMENTS OF WPS
LEVEL 62-MAJOR ELEMENTS OF WPS
LEVEL 63-MAJOR ELEMENTS OF WPS
LEVEL 64-MAJOR ELEMENTS OF WPS
LEVEL 65-MAJOR ELEMENTS OF WPS
LEVEL 66-MAJOR ELEMENTS OF WPS
LEVEL 67-MAJOR ELEMENTS OF WPS
LEVEL 68-MAJOR ELEMENTS OF WPS
LEVEL 69-MAJOR ELEMENTS OF WPS
LEVEL 70-MAJOR ELEMENTS OF WPS
LEVEL 71-MAJOR ELEMENTS OF WPS
LEVEL 72-MAJOR ELEMENTS OF WPS
LEVEL 73-MAJOR ELEMENTS OF WPS
LEVEL 74-MAJOR ELEMENTS OF WPS
LEVEL 75-MAJOR ELEMENTS OF WPS
LEVEL 76-MAJOR ELEMENTS OF WPS
LEVEL 77-MAJOR ELEMENTS OF WPS
LEVEL 78-MAJOR ELEMENTS OF WPS
LEVEL 79-MAJOR ELEMENTS OF WPS
LEVEL 80-MAJOR ELEMENTS OF WPS
LEVEL 81-MAJOR ELEMENTS OF WPS
LEVEL 82-MAJOR ELEMENTS OF WPS
LEVEL 83-MAJOR ELEMENTS OF WPS
LEVEL 84-MAJOR ELEMENTS OF WPS
LEVEL 85-MAJOR ELEMENTS OF WPS
LEVEL 86-MAJOR ELEMENTS OF WPS
LEVEL 87-MAJOR ELEMENTS OF WPS
LEVEL 88-MAJOR ELEMENTS OF WPS
LEVEL 89-MAJOR ELEMENTS OF WPS
LEVEL 90-MAJOR ELEMENTS OF WPS
LEVEL 91-MAJOR ELEMENTS OF WPS
LEVEL 92-MAJOR ELEMENTS OF WPS
LEVEL 93-MAJOR ELEMENTS OF WPS
LEVEL 94-MAJOR ELEMENTS OF WPS
LEVEL 95-MAJOR ELEMENTS OF WPS
LEVEL 96-MAJOR ELEMENTS OF WPS
LEVEL 97-MAJOR ELEMENTS OF WPS
LEVEL 98-MAJOR ELEMENTS OF WPS
LEVEL 99-MAJOR ELEMENTS OF WPS
LEVEL 100-MAJOR ELEMENTS OF WPS

WPS COMPLETED BY:	_____
REVIEWED BY:	_____
APPROVED BY:	_____
EXTERNAL CHECKED BY:	_____
EXPORTED TO ANCOM:	_____

301.2.1.2A1B  
Created by JAC  
Revised by JAC  
Data changed 30-DEC-97

DATE: 30-DEC-87  
TIME: 23:42

Process Listing for Graph  
301.2.1.2A1B

PAGE 1  
EXCELERATOR 1.7

Name	Label	Description
301.2.1.2A1B1	CLASSIFY SYS/ITEM/ EQUIPMENT CATEGORY	<p>THE FIRST STEP IN PREPARATION OF THE WORK BREAKDOWN STRUCTURE FOR A DEVELOPMENT ITEM/EQUIPMENT IS TO CLASSIFY THE ITEM/EQUIPMENT INTO THE PROPER MILITARY CATEGORY OF DEFENSE MATERIEL ITEMS:</p> <ol style="list-style-type: none"><li>1. AIRCRAFT SYSTEMS</li><li>2. ELECTRONICS SYSTEMS</li><li>3. MISSILE SYSTEMS</li><li>4. ORDNANCE SYSTEMS</li><li>5. SHIP SYSTEMS</li><li>6. SPACE SYSTEMS</li><li>7. SURFACE VEHICLE SYSTEMS</li></ol> <p>MIL-STD 881, "WORK BREAKDOWN STRUCTURES FOR DEFENSE MATERIEL ITEMS", PROVIDES A SEPARATE APPENDIX FOR THE SUMMARY WORK BREAKDOWN STRUCTURE AND DEFINITIONS FOR EACH OF THESE SEVEN (7) MAJOR CLASSIFICATIONS OF DEFENSE MATERIEL ITEMS. MIL-STD 881 ALSO PROVIDES THE WBS TO THREE LEVELS FOR EACH OF THESE ITEM CLASSIFICATIONS.</p>
301.2.1.2A1B2	DEVELOP WORK BREAKDOWN STRUCTURE	<p>WBS TO BE DEVELOPED TO MINIMUM OF THREE LEVELS FOR MAJOR ITEMS:</p> <ol style="list-style-type: none"><li>1. LEVEL 1 - MAJOR WEAPON SYSTEMS OF A DEFENSE MATERIAL ITEM (DMI) i.e., Ordnance system</li><li>2. LEVEL 2 - MAJOR ELEMENTS OF DMI i.e., Tracked Vehicle or Complete Round</li><li>3. LEVEL 3 - SUBORDINATE ELEMENT TO MAJOR ELEMENT i.e., Power Package/Drive Train or Data Item (TM)</li></ol> <p>MIL-STD 881A PROVIDES A GUIDE TO THE THREE LEVELS OF WBS FOR EACH OF THE SEVEN (7) CLASSIFICATIONS OF MILITARY MATERIAL. REFERENCE IS MADE TO DI-A-1004, "WORK BREAKDOWN STRUCTURE", AR 37-200, "SAIMS", AND DODI-5010.20.</p>

DATE: 30-DEC-87  
TIME: 23:49

Data Flows for Graph  
301.2.1.2A1B

PAGE 1  
EXCELERATOR 1.7

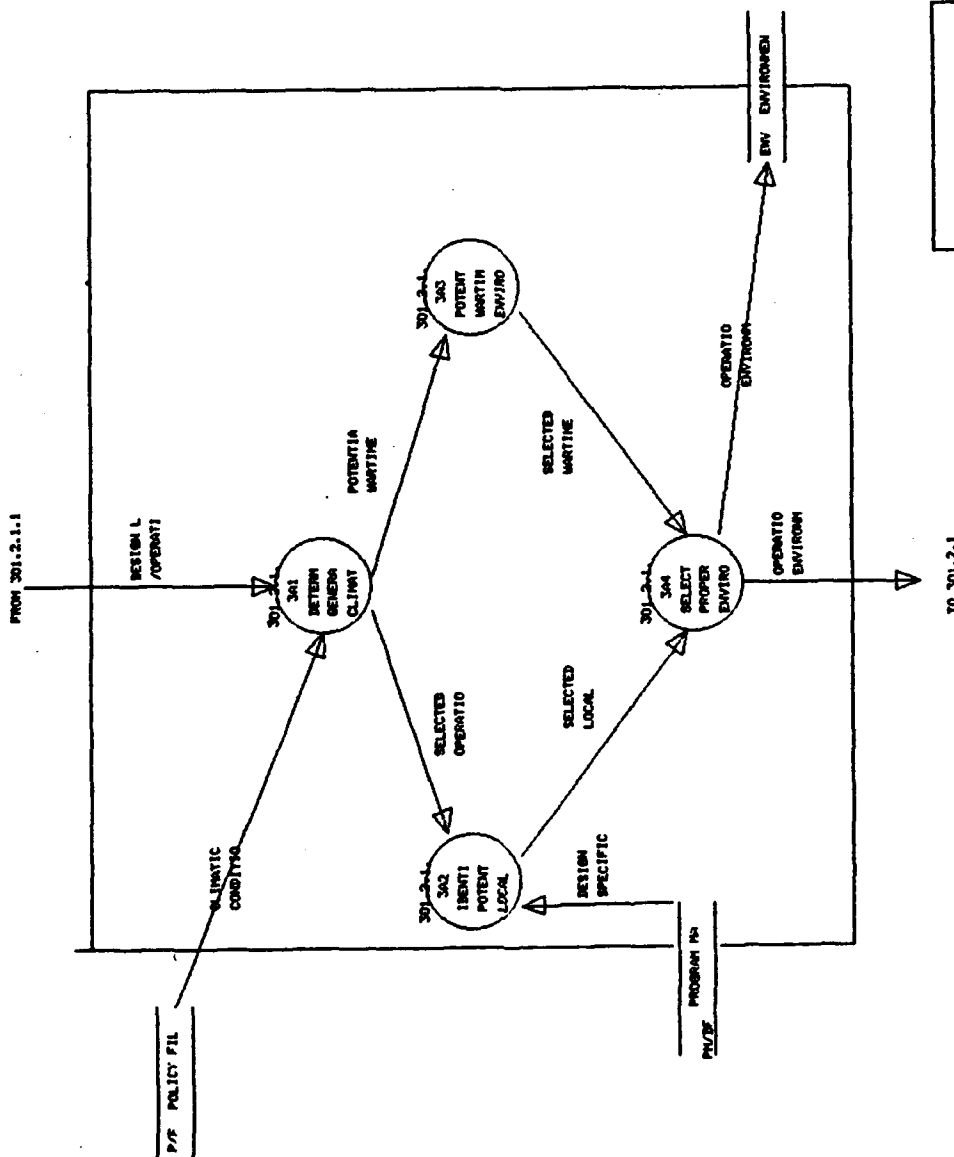
Name	Label	Description
EQUIP/ITEM/CATGRY	DEVELOPMENT ITEM/EQUIP CATEGORY	CLASSIFICATION/CATEGORIZATION OF DEVELOPMENT ITEM/EQUIPMENT IN ACCORDANCE WITH THE CLASIFICATIONS SET FORTH IN MIL-STD 881A: 1. AIRCRAFT SYSTEMS 2. ELECTRONICS SYSTEMS 3. MISSILE SYSTEMS 4. ORDNANCE SYSTEMS 5. SHIP SYSTEMS 6. SPACE SYSTEMS 7. SURFACE SYSTEMS
WBS	WBS GUIDANCE FROM MIL-STD 881A (WBS GUIDE)	
ROC	ROC	
DSGN/CHAR	DESIGN CHARACTERIST ICS	
DES/SPECS	DESIGN SPECIFICATNS	THIS DATA FLOW INCLUDES: 1) DESIGN CHARACTERISTICS 2) DESIGN SPECIFICATIONS 3) ENGINEERING DRAWINGS
ENG/DRAW	ENGINEERING DRAWINGS	
MIL/STD 881	MIL-STD 881 DATA FOR WBS PREPARATION	

DATE: 23-NOV-87  
TIME: 12:58

DFD 301.2.1.2A1B DATA STORES

PAGE 1-  
EXCELERATOR 1.7

Name	Label	Description
P/F	POLICY FILES	<p>CONTAINS THOSE MILITARY PUBLICATIONS, DECISION PAPERS, MISSIONS &amp; FUNCTIONS, etc, WHICH ARE NEEDED TO ESTABLISH THE LOGISTICAL SUPPORT AND REVIEW REQUIREMENTS OF THE ITEM/EQUIPMENT DEVELOPMENT PROGRAM.</p> <p>THIS DATA STORE INCLUDES:</p> <ol style="list-style-type: none"><li>1. AR 700-127 ILS</li><li>2. MIL-STD 881A (FB)</li><li>3. MIL-STD 1388-1 LSA</li><li>4. MIL-STD 1388-2 LSAR</li><li>5. MIL-STD 152 TECH REVIEW GUIDELINES</li><li>6. DA FAM 700-XX ILS REVIEW GUIDELINES</li><li>7. MIL-STD 810 ENVIRONMENTAL TEST METHODS</li><li>8. MIL-STD 781 RELIABILITY DESIGN GUIDED</li><li>9. MIL-STD 2108 CLIMATIC EXTREMES FOR MIL EQUIPMENT</li><li>10. AR 70-38 ILS PREPARATION</li><li>11. MIL-STD 470, 471 MAINTAINABILITY STANDARDS</li><li>12. AMC FAM 700-4 LOGISTICS TECHNIQUES (WITH PALMAN)</li><li>13. DA FAM 700-28, "INTEGRATED SUPPORT PROGRAM ASSESSMENT ISSUES AND CRITERIA"</li><li>14. MIL-STD-780, CODING SYSTEM</li><li>15. MIL-STD-882,</li><li>16. MIL-STD-1629, PROCEDURES FOR FMECA</li><li>17. MIL-STD-756, RELIABILITY MODELING &amp; PREDICTIONS</li><li>18. DI-8-3604, FUNCTIONAL FLOW DIAGRAM</li><li>19. MIL-M-24100B, FORM</li></ol>
PM/DF	PROGRAM MANAGER DATA FILE	<p>PROGRAM MANAGER CONTAINS THOSE FILES AND DATA WHICH ARE NORMALLY DEVELOPED BY AND/OR RETAINED BY THE PROGRAM MANAGER FOR PROPER MANAGEMENT OF THE DEVELOPMENT PROGRAM. THESE FILES INCLUDE:</p> <ol style="list-style-type: none"><li>1. ENGINEERING DRAWINGS</li><li>2. ENGINEERING CHARACTERISTICS</li><li>3. DT/OT RESULTS</li><li>4. CONCEPT FORMULATION PACKAGE (CFP)</li><li>5. DESIGN CONCEPT PAPER (DCP)</li><li>6. TYPE TECHNICAL REVIEWS REQUIRED</li><li>7. MILESTONE SCHEDULES</li><li>8. FUNDING PROFILES</li><li>9. REQUIRED OPERATIONAL CAPABILITIES (ROC)</li><li>10. ITEM/EQUIPMENT SPECIFICATIONS</li><li>11. ITEM/EQUIPMENT MISSIONS &amp; FUNCTIONS</li><li>12. EQUIPMENT, MANPOWER, AND TECHNICAL RISK ASSESSMENTS (FROM LSA TASK 301.2.3</li></ol>



301.2.1.3A
Created by: JMC
Revised by: JMC
Date changed: 30-DEC-87
301.2.1.3A
REVIEWED BY: JMC
APPROVED BY: JMC
EXTERNAL CHECKED BY: JMC
EXPORTED TO ACCORD

301.2.1.3A - DFD



Name	Label	Description
301.2.1.3A1	DETERMINE GENERAL CLIMATIC CONDITIONS	FOR EACH DEVELOPMENT ITEM/EQUIPMENT, DETERMINE THE GEOGRAPHIC AREAS IN WHICH THE ITEM/EQUIPMENT MAY OPERATE AND THE SPECIFIC LOCAL ENVIRONMENTS WHICH ARE PECULIAR TO THE OPERATIONS OF THE ITEM/EQUIPMENT SUCH AS AIRBORNE OPERATIONS, MISSILE FOR AIR TO AIR OR AIR TO GROUND, SPACE SHIP OPERATIONS, SHIPBOARD OPS, ETC. SOURCE OF BASIC ENVIRONMENTAL CONDITIONS ARE MIL-STD-810, MIL-STD-210 AND AR 70-38.
301.2.1.3A2	IDENTIFY POTENTIAL LOCAL OPER ENVIRON'TS	IDENTIFY AND SELECT THOSE SPECIFIC ENVIRONMENTS WHICH MAY AFFECT THE FUNCTIONAL REQUIREMENTS OF THE ITEM/EQUIPMENT, SUCH AS SHOCK, VIBRATION, TEMPERATURE SHOCK, BLOWING SNOW, ICING, ETC.
301.2.1.3A3	POTENTIAL WARTIME ENVIRON'NT	SELECTION OF THE SPECIFIC WARTIME ENVIRONMENT WHICH MAY AFFECT THE ITEM OR EQUIPMENT. THUS, IS THE ITEM/EQUIPMENT IS TO OPERATE IN THE MIDDLE EAST, IT MUST BE ABLE TO COPE WITH SAND AND DUST WHICH IS PECULIAR TO THAT GEOGRAPHIC AREA. TWO PROBABLE ENVIRONMENTS ARE BEING CONSIDERED AT THIS TIME: EUROPEAN AND MIDDLE EAST.
301.2.1.3A4	SELECT PROPER ENVIRONM'T ELEMENTS	FROM THE LOCAL OPERATIONAL (CLIMATIC AND LOCAL CONDITIONS) AND SELECTED WARTIME ENVIRONMENTS, SELECT THOSE ENVIRONMENTS WHICH ARE TO BE USED IN DEFINITION OF THE FUNCTIONAL REQUIREMENTS WHICH MAY BE PECULIAR BECAUSE OF THE THE ENVIRONMENTS, SUCH AS SPECIAL PROTECTION FOR SAND AND DUST, PROTECTION FROM BLOWING SNOW, ICING CONDITIONS, ETC. SOURCE DOCUMENTS INCLUDE MIL-STD-810, MIL-STD-210, AND AR 70-38.

DATE: 30-DEC-87  
TIME: 23:50

Data Flows for Graph  
301.2.1.3A

PAGE 1  
EXCELERATOR 1.7

Name	Label	Description
SEL/OPS/ENVRN	SELECTED OPERATIONAL ENVIRONMENTS	
POT/WAR/OPS	POTENTIAL WARTIME AREAS OF OPERATIONS	SELECT THOSE GEOGRAPHIC AREAS WHICH PRESENT POTENTIAL WARTIME AREAS OF OPERATIONS. AT PRESENT, THE PRIME CANDIDATES ARE EUROPE AND THE MIDDLE EAST. THOSE LOCAL ENVIRONMENTS PECULIAR TO THOSE AREAS ARE OF PRIME INTEREST IN SELECTION OF THE FUNCTIONS NECESSARY TO SURVIVE IN THESE CONDITIONS
SEL/ENVN/ELEM	SELECTED LOCAL OPERATIONS ELEMENTS	
SEL/WAR/ELEM	SELECTED WARTIME ELEMENTS OR ENVIRONMENTS	
CLIMT/COND	CLIMATIC CONDITIONS DATA	CLIMATIC CONDITIONS DATA SHOULD INCLUDE THOSE DATA PRESENTED IN: 1. MIL-STD 810, "ENVIRONMENTAL TEST METHODS & ENGINEERING GUIDELINES" 2. MIL-STD 210, "CLIMATIC EXTREMES FOR MILITARY EQUIPMENT" 3. AR 70-38, "R&D & ACQUISITION - RESEARCH, DEVELOPMENT, TEST & EVALUATION OF MATERIEL FOR EXTREME CLIMATIC CONDITIONS"
DES/SPECS	DESIGN SPECIFICATNS	THIS DATA FLOW INCLUDES: 1) DESIGN CHARACTERISTICS 2) DESIGN SPECIFICATIONS 3) ENGINEERING DRAWINGS
OP/ENV	OPERATIONS ENVIRONMENT	
DES/OP/SCENR	DESIGN LEVEL /OPERATIONAL SCENARIOS	
OP/ENV/DSN/SCN	OPERATIONAL ENVIRONMENT LVL OF DSGN SCENARIOS	

301.2.1.3A - DAF

DATE: 23-NOV-87  
TIME: 12:59

DFD 301.2.1.3A DATA STORES

PAGE 1  
EXCELERATOR 1.7

Name	Label	Description
ENV	ENVIRONMENTAL FILE	
P/F	POLICY FILES	<p>CONTAINS THOSE MILITARY PUBLICATIONS, DECISION PAPERS, MISSIONS &amp; FUNCTIONS, etc, WHICH ARE NEEDED TO ESTABLISH THE LOGISTICAL SUPPORT AND REVIEW REQUIREMENTS OF THE ITEM/EQUIPMENT DEVELOPMENT PROGRAM.</p> <p>THIS DATA STORE INCLUDES:</p> <ol style="list-style-type: none"><li>1. AR 700-127 ILS</li><li>2. MIL-STD 881A (FB)</li><li>3. MIL-STD 1388-1 LSA</li><li>4. MIL-STD 1388-2 LSAR</li><li>5. MIL-STD 152 TECH REVIEW GUIDELINES</li><li>6. DA PAM 700-XX ILS REVIEW GUIDELINES</li><li>7. MIL-STD 810 ENVIRONMENTAL TEST METHODS</li><li>8. MIL-STD 781 RELIABILITY DESIGN GUIDED</li><li>9. MIL-STD 2108 CLIMATIC EXTREMES FOR MIL EQUIPMENT</li><li>10. AR 70-38 ILS PREPARATION</li><li>11. MIL-STD 470, 471 MAINTAINABILITY STANDARDS</li><li>12. AMC PAM 700-4 LOGISTICS TECHNIQUES (WITH PALMAN)</li><li>13. DA PAM 700-28, "INTEGRATED SUPPORT PROGRAM ASSESSMENT ISSUES AND CRITERIA"</li><li>14. MIL-STD-780, CODING SYSTEM</li><li>15. MIL-STD-882,</li><li>16. MIL-STD-1629, PROCEDURES FOR FMECA</li><li>17. MIL-STD-756, RELIABILITY MODELING &amp; PREDICTIONS</li><li>18. DI-S-3604, FUNCTIONAL FLOW DIAGRAM</li><li>19. MIL-M-24100B, FORM</li></ol>

DATE: 23-NOV-87  
TIME: 12:59

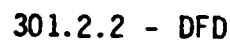
DFD 301.2.1.3A DATA STORES

PAGE 1  
EXCELERATOR 1.7

Name	Label	Description
PM/DF	PROGRAM MANAGER DATA FILE	CONTAINS THOSE FILES AND DATA WHICH ARE NORMALLY DEVELOPED BY AND/OR RETAINED BY THE PROGRAM MANAGER FOR PROPER MANAGEMENT OF THE DEVELOPMENT PROGRAM. THESE FILES INCLUDE: 1. ENGINEERING DRAWINGS 2. ENGINEERING CHARACTERISTICS 3. DT/OT RESULTS 4. CONCEPT FORMULATION PACKAGE (CFP) 5. DESIGN CONCEPT PAPER (DCP) 6. TYPE TECHNICAL REVIEWS REQUIRED 7. MILESTONE SCHEDULES 8. FUNDING PROFILES 9. REQUIRED OPERATIONAL CAPABILITIES (ROC) 10. ITEM/EQUIPMENT SPECIFICATIONS 11. ITEM/EQUIPMENT MISSIONS & FUNCTIONS 12. EQUIPMENT, MANPOWER, AND TECHNICAL RISK ASSESSMENTS (FROM LSA TASK 301.2.3

301.2.2

UNIQUE FUNCTIONAL REQUIREMENTS



DATE: 30-DEC-87  
TIME: 23:35

Process Listing for Graph  
301.2.2

PAGE 1  
EXCELERATOR 1.7

Name	Label	Description
301.2.2.1	IDENTIFY	THIS PROCESS WILL IDENTIFY THOSE FUNCTIONS THAT ARE UNIQUE TO THE UNIQUE NEW DESIGN. THIS WILL REQUIRE AN ANALYSIS OF THE FUNCTIONAL FUNCTIONS REQUIREMENTS IDENTIFIED DURING TASK 301.2.1, THE BASELINE COMPARATIVE FOR THE SYSTEM, AND THE STATE-OF-THE-ART AND NEW DESIGN TECHNOLOGY. THE BASIS NEW DESIGN FOR THIS ANALYSIS WILL BE THOSE UNIQUE FUNCTIONS DUE TO NEW DESIGN TECHONOLGY, OPERATIONAL CONCEPTS, OR WHICH ARE SUPPORTABILITY, COST, OR READINESS DRIVERS.
301.2.2.2	DEVELOP	THIS PROCESS WILL DEVELOP THE NEW DESIGN BASELINE SYSTEM FUNCTIONAL NEW DESIGN REQUIREMENTS. THIS WILL BE ACCOMPLISHED BY USING THE BASELINE BASELINE COMPARISON SYSTEM DEVELOPED DURING TASK 203 (STATE-OF-THE-ART SYSTEM/ TECHNOLOGY) AND ADDING THE NEW DESIGN TECHNOLOGY IDENTIFIED DURING TASK FUN/REQMNT 204. THIS BASELINE SYSTEM WILL BE UTILIZED TO IDENTIFY THE BASELINE FUNCTIONAL REQUIREMENTS.
301.2.2.3	IDENTIFY	THIS PROCESS CONSISTS OF AN ANALYSIS OF THE NEW TECHNOLOGY, OPERATIONAL CAUSAL CONCEPT, SUPPORT CONCEPT, UNIQUE FUNCTIONS AND FUNCTIONAL REQUIREMENTS FACTORS- TO IDENTIFY THE UNIQUE FUNCTIONS CAUSAL FACTORS. BASICALLY THIS PROCESS UNIQUE WILL CATEGORIZE THE UNIQUE FUNCTIONS AS TO WHETHER THEY ARE DUE TO FUNCTIONS DESIGN TECHNOLOGY, OPERATIONAL CONCEPTS, SUPPORTABILITY, COST, OR READINESS DRIVERS.
301.2.2.4	IDENTIFY	THIS PROCESS WILL UTILIZE THE BASELINE FUNCTIONAL REQUIREMENTS COST READI IDENTIFIED IN PROCESS 301.2.2.2 AND THE UNIQUE FUNCTIONS IDENTIFIED IN NESS OR PROCESS 301.2.2.1 TO IDENTIFY THE COST, READINESS, OR SUPPORTABILITY SUPPORTBLTY DRIVERS. DRIVERS

DATE: 30-DEC-87  
TIME: 23:51

Data Flows for Graph  
301.2.2

PAGE 1  
EXCELERATOR 1.7

Name	Label	Description
UNQ/FUN	UNIQUE FUNCTIONS	
BSLM/FUN/REQ	BASELINE FUNCTIONAL REQUIREMENTS	
UNIQ/FUN/CAUS/FACTRS	UNIQUE FUNCTIONS CAUSAL FACTORS	
HIST/FUN/DTA	HISTORICAL FUNCTIONAL DATA	
NEW/TECH	NEW TECHNOLOGY	
SUP/CNCPT	SUPPORT CONCEPT DEVELOPED IN LSA TASK 302	
USE/FACTS	USE FACTORS DEVELOPED FROM LSA TASK 201	
BCS	BASELINE COMPARISON SYSTEM	
OPRTN/CNCPT	OPERATIONAL CONCEPT	
COST/READ/SUP/DRVRS	COST READINESS SUPPORTABIL- ITY DRIVERS	



DATE: 30-DEC-87  
TIME: 23:54

Data Store Listing for Graph  
301.2.2

PAGE 1  
EXCELERATOR 1.7

Name	Label	Description
AAF	ACQUIRING ACTIVITY FILE	CONTAINS THOSE RECORDS, DOCUMENTS, DECISION PAPERS, SCHEDULES THAT WERE PREPARED AS PART OF THE ACQUISITION INITIATION, JUSTIFICATION, AND PLANNING PRIOR TO THE ASSIGNMENT OF A PROGRAM MANAGER. THE ITEMS IN THIS DATA STORE INCLUDE: A. THREAT ANALYSIS DATA B. O&O PLAN C. READINESS OBJECTIVES DATA D. FUNCTIONAL REQUIREMENTS DATA E. PROJECTED SCHEDULE DATA F. LOGISTICS RESOURCES DATA G. DESIRED R & M PARAMETERS H. TOA I. TOD J. COST & OPERATIONAL EFFECTIVENESS ANALYSIS (COEA) DATA K. PROJECTED COST DATA L. JUSTIFICATION OF MAJOR SYSTEM NEW START (JMSNS) DATA M. REQUIRED OPERATIONAL CHARACTERISTICS
HIS/FUNC	HISTORICAL FILE OF FUNCTIONS	THIS FILE CONTAINS AN HISTORICAL RECORD OF OPERATIONAL, MAINTENANCE AND SUPPORT FUNCTIONS OF ITEMS/EQUIPMENT THAT CAN BE USED AS A BASELINE TO FORECAST OR PREDICT THE FUNCTIONAL REQUIREMENTS AND/OR CHARACTERISTICS OF THE DEVELOPMENTAL ITEM/EQUIPMENT

DATE: 30-DEC-87  
TIME: 23:56

External Entity Listing for Graph  
301.2.2

PAGE 1  
EXCELERATOR 1.7

Name	Label	Description
TO/T&K/301.2.4	TO TASK 301.2.4 & DESIGN ENGINEERING	
TO/T&K/301.2.3	TO TASK 301.2.3 & DESIGN ENGINEERING	

## GLOSSARY - TEXT

### ABBREVIATION

### DESCRIPTION

AMSDL	Acquisition Management Systems & Data Requirements Control List
APJ	American Power Jet Company
AR	Army Regulation
DFD	Data Flow Diagram
DI	Data Item
DMI	Defense Material Item
FFBD	Functional Flow Block Diagram
FMECA	Failure Modes, Effects, and Criticality Analysis
ILS	Integrated Logistic Support
LSA	Logistics Support Analysis
LSAR	Logistics Support Analysis Record
MIL-STD	Military Standard
REM	Reliability Centered Maintenance
TM	Technical Manual
WBS	Work Breakdown Structure