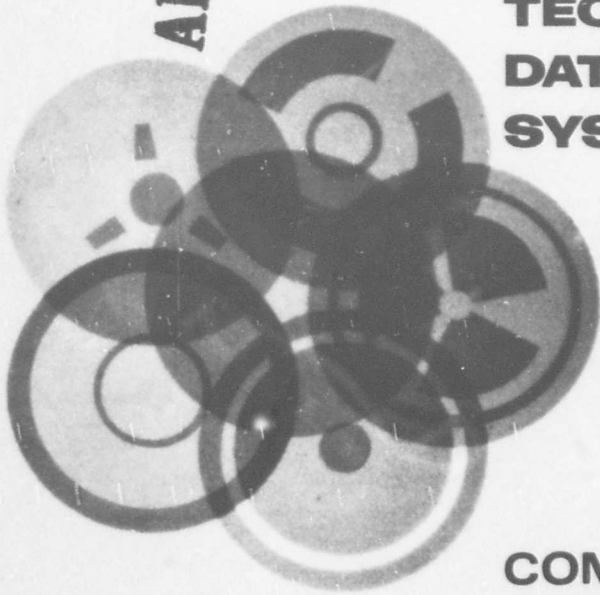


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# INTEGRATED TECHNICAL DATA SYSTEM



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## COMPUTER SUBSYSTEM:

## PERIPHERAL PROGRAMS, GENERAL DESCRIPTION

JUNE 1969

DISTRIBUTION STATEMENT A

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Distribution Unlimited

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

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Springfield, Va. 22151

**TRW**  
SYSTEMS GROUP

WASHINGTON OPERATIONS  
5735 I STREET, N.W. • WASHINGTON, D.C. 20046

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SET I

**INTEGRATED  
TECHNICAL  
DATA  
SYSTEM**



**COMPUTER  
SUBSYSTEM:**

**PERIPHERAL PROGRAMS,  
GENERAL DESCRIPTION**

**JUNE 1969**

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1735 I STREET N.W. • WASHINGTON, D.C. 20006

## FOREWORD

TRW Systems was awarded a contract [Contract Number DA-49-186-AMC-324(X)] by the U.S. Army Materiel Command to develop an Integrated Technical Data System (ITDS). The ITDS is intended to provide assistance to the Army Systems Manager in performing his management and technical tasks by operating on relevant data to produce, summarize, and condense information. This allows the manager and technical support personnel to a) determine status and monitor technical progress, b) identify and predict system technical/management problems and their impact, c) comprehend and evaluate proposed system changes, and d) assign and maintain awareness of responsibility for action.

The ITDS is composed of personnel, procedures, equipment and computer programs. The organization of these elements provides a capability for the processing of systems program data, including the following functions:

- data receipt and indexing,
- validation and verification for authenticity,
- storage,
- manipulation,
- retrieval,
- display and dissemination.

The organization is divided into three major subsystems: the Functional Disciplines Subsystem, the Data Operations Subsystem, and the Computer Subsystem. ITDS user documentation, of which this manual is a part, is oriented to the above subsystems, with the exception of an overall System User's Guide and a Configuration Management Plan.

Following is a tabulation of ITDS user documentation (title of this volume is heavily underscored):

### ITDS - Overall:

- System User's Guide
- Configuration Management Plan

### Functional Disciplines Subsystem:

- Administrative Manual
- Operations Manual

- Personnel Position Descriptions

Data Operations Subsystem:

- Administrative Manual
- Operations Manual
- Equipment Description
- Personnel Position Descriptions

Computer Subsystem:

These 12 manuals, in general, cover administration of the subsystem, operation and maintenance instructions for the programs, computing equipment descriptions, and personnel position descriptions.

- Administrative Manual
- Generalized Processing Program, General Description
- Applications Programs, General Description
- Peripheral Programs, General Description
- Computer Programs Maintenance Manual
- Computer Programs Operations Manual
- Data Processing Center Operation's Manual
- Equipment Description
- Personnel Position Descriptions
- Generalized Processing Program, Programming Documentation
- Applications Programs, Programming Documentation
- Peripheral Programs, Programming Documentation

This manual provides general descriptions of the ITDS peripheral programs. These programs perform separate and distinct functions from the ITDS Generalized Processing Program. Each peripheral program has a unique data base from which certain associated recurring and non-recurring reports may be generated. This manual is written to advise the users of the products of the ITDS peripheral programs of their capabilities and the nature of the output reports. You will be referred to other manuals in the ITDS documentation structure for specific details about some of the subjects covered herein.

## CONTENTS

	<u>Page</u>
1. INTRODUCTION . . . . .	1
1.1 Purpose . . . . .	1
1.2 Scope . . . . .	1
1.3 Relationship of Peripheral Programs to the ITDS . . . . .	1
2. DESCRIPTION OF ITDS PERIPHERAL PROGRAMS . . . . .	3
2.1 Management Peripheral Programs . . . . .	3
2.2 System Engineering Peripheral Programs . . . . .	43
2.3 Engineering Design . . . . .	46
2.4 Quality Assurance Peripheral Programs . . . . .	46
2.5 Operational Engineering . . . . .	47
2.6 Production Engineering . . . . .	47
2.7 Test . . . . .	47
2.8 Logistics . . . . .	47
2.9 Production and Procurement . . . . .	47
 <b>APPENDICES</b>	
A Fact Sheet . . . . .	53
B Problem Analysis . . . . .	59

## ILLUSTRATIONS

<u>Figure</u>		<u>Page</u>
1-1	Relationship of Peripheral Programs to ITDS Operation . . . . .	2
2-1	Sample Report - Action Items by Primary Action Officer . . . . .	5
2-2	Sample Report - Delinquent Actions by Primary Action Officer . . . . .	7
2-3	Sample Report - Action Items by Number . . . . .	8
2-4	Sample Activity Time Status Report . . . . .	10
2-5	Sample IBM PERT Cost Report . . . . .	12
2-6	Program Funding Status Summary Report . . . . .	14
2-7	Sample Cheyenne Program Funding Status Report Summary . . . . .	16
2-8	Program Funding Status Negative Variances Report . . . . .	17
2-9	Sample Cheyenne Program Funding Status Negative Variances Report . . . . .	19
2-10	Program Funding Status Unfunded Requirements/ Reprogramming Possibilities Report . . . . .	20
2-11	Sample Unfunded Requirements and Reprogramming Possibilities . . . . .	22
2-12	Program Funding Status CCS No. Report . . . . .	23
2-13	Sample SCIOLIST Cost Collection Structural Number Report . . . . .	25
2-14	Program Funding Status Fiscal Year Report . . . . .	26
2-15	Sample SCIOLIST Fiscal Year Report . . . . .	28
2-16	Program Funding Status Command Report . . . . .	29
2-17	Sample SCIOLIST Command Report . . . . .	31
2-18	Program Funding Status Program Summary Report . . . . .	32
2-19	Sample SCIOLIST Program Summary Report . . . . .	34
2-20	MAST, Production Delivery Status Report . . . . .	35
2-21	Sample MAST Production Delivery Status Report . . . . .	38
2-22	MAST Production Delivery Forecast Report . . . . .	39
2-23	Sample MAST Production Delivery Forecast Report . . . . .	43
2-24	Support Equipment Summary and Analysis . . . . .	49
2-25	Spares and Repair Parts Summary and Analysis . . . . .	50

ILLUSTRATIONS (Continued)

<u>Figure</u>		<u>Page</u>
2-26	Personnel and Training Summary and Analysis . . . . .	51
2-27	Technical Data and Information Summary . . . . .	52

TABLE

2-1	Typical SCIOLIST Cost Collection Structure . . . . .	13
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**COMPUTER SUBSYSTEM:  
PERIPHERAL PROGRAMS, GENERAL DESCRIPTION**

**1. INTRODUCTION**

**1.1 PURPOSE**

This manual provides a general description of the uses and capabilities of the ITDS peripheral programs. It is intended as a quick source of general information about the peripheral programs for practicing engineers and managers who use ITDS as a management tool.

**1.2 SCOPE**

The programs covered by this manual are termed "peripheral" in that they do not use the Generalized Processing System. These programs have their own unique data bases which are not convenient to integrate with the ITDS centralized data base.

**1.3 RELATIONSHIP OF PERIPHERAL PROGRAMS TO THE ITDS**

The peripheral programs, as shown in overall context with ITDS operation in Figure 1-1, support (by analysis and manipulation of data, and report generation) the functional disciplines of ITDS as user-oriented tools.

The allocation of peripheral programs within the ITDS is as follows:

**ITDS Data  
Operations  
Subsystem**

**Sub-  
Element**

**Peripheral  
Programs**

Internal  
Control  
Routine

- Action Item System

**ITDS Functional  
Disciplines  
Subsystem**

**Sub-  
Element**

**Peripheral  
Programs**

Management

Project Control

- PERT Time
- PERT Cost
- SCIOLIST
- MAST

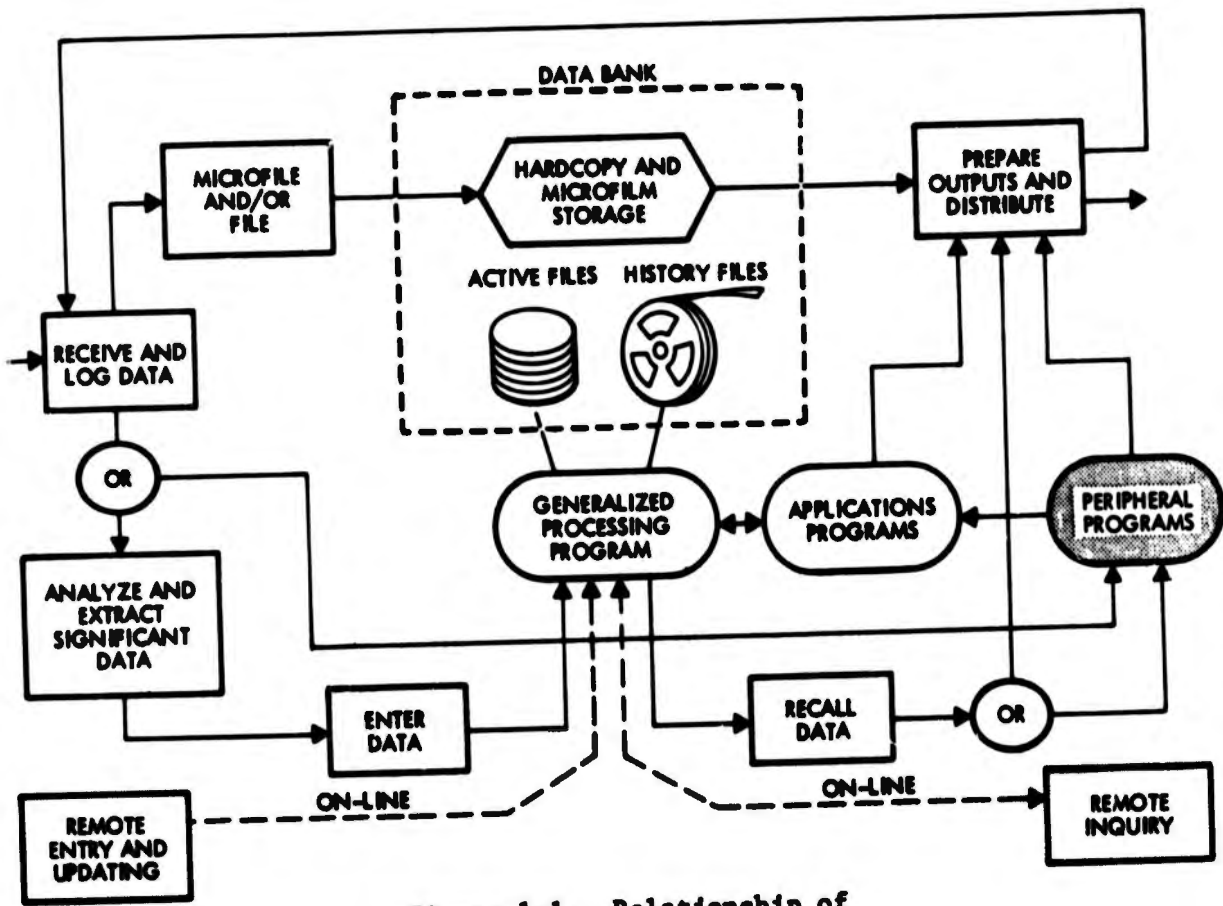


Figure 1-1. Relationship of Peripheral Programs to ITDS Operation

<u>ITDS Functional Disciplines Subsystem</u>	<u>Sub-Element</u>	<u>Peripheral Programs</u>
System Engineering		<ul style="list-style-type: none"> <li>• Engineering Fact Sheets</li> <li>• Engineering Problem Narratives</li> </ul>
Engineering Design		None
Quality Assurance		<ul style="list-style-type: none"> <li>• MEADS (Maintenance Engineering Analysis Data System)</li> </ul>
Operational Engineering		None
Production Engineering		None
Test		None
Logistics		None
Production and Procurement		None

## 2. DESCRIPTION OF ITDS PERIPHERAL PROGRAMS

### 2.1 MANAGEMENT PERIPHERAL PROGRAMS

The functional composition of this discipline is (a) planning and control, (b) data management and control, (c) procurement and contracts data control, and (d) configuration management. Peripheral programs are utilized within this discipline only for the purpose of ITDS internal control (paragraph 2.1.1) and by the planning and control element of the functional discipline. Programs for the latter are described under paragraph 2.1.2.

#### 2.1.1 Internal Control Routines

##### 2.1.1.1 Action Item System

The Action Item System is a project-oriented management tool designed to assist the manager in controlling schedule, cost, and technical implementation of a project. The Action Item System, through automated utilization of an integrated technical data base, provides an accelerated means of defining, prescribing, assigning, and tracking those actions which are essential for successful prosecution of the project. The Action Item System employs a high-speed computer and necessary peripheral equipment to record, store, correlate, and display the status of actions on assigned tasks within the system project.

The objectives of the Action Item System are to:

- a) Ensure the systematic initiation, definition, and recording of task assignments within the project office.
- b) Standardize and accelerate the establishment and recording of priorities, progress milestones, and suspense dates for critical tasks.
- c) Provide procedures and information for the rapid evaluation, approval, and dissemination of constructive changes in task descriptions, assignments, priorities, and schedules.
- d) Provide for systematic reporting, recording, and display of task accomplishments.
- e) Provide history and status information for the resolution of deficiencies that may be identified in operations of the project office.

The Action Item System provides an official record of information concerning task assignments, task schedules, and task accomplishments for all personnel assigned to the project. It is used primarily for project office internal management and as an aid for monitoring project support tasks which are responsibilities of other AMC organizations. It is not directive in nature to other staff elements of HQ AMC, to AMC major subordinate commands, or to civilian contractor organizations. The only exception to (b), (1), is that the Action Item System may be used to schedule and track tasks to be performed by contracting officers in support of the system project.

Action items will normally be assigned to the individual whose job description makes him responsible for performance of the task identified in the action item. Normally, this individual will personally accomplish the assigned task.

Recurring action item reports are formatted and printed by automated equipment. Flexibility of contents and layout is limited only by the information entered into the computer files and the ingenuity of the report programmer-analyst.

Common sense must of course be exercised in judging report value versus printing and distribution costs. The correctness of the judgments must be confirmed by the Data Management Officer (DMO) in follow-up evaluations. Deficiencies can be uncovered and readily corrected to produce, at minimum cost, a set of reports tailored to the user's needs.

A description of four basic types of action item reports follows, together with sample illustrations taken from reports generated in support of the Cheyenne (AH-56A) Project while ITDS was under development.

#### 2.1.1.1.1 Item Report by Primary Action Officer

All of the actions assigned to one individual are reported in the alphabetic sequence of the tasks's designation. (See sample in Figure 2-1.) Each item contains chronologically sequential paragraphs giving a full history of progress through the last entry. As paragraphs age and lose significance they can be manually identified for suppression by the computer and will not occur in subsequent reports unless expressly

WEEKLY PMO ACTION ITEM REPORT BY PRIMARY ACTION OFFICER  
 (UPDATED, CLOSED, REOPENED & DELINQUENT ITEMS)  
 13 DEC 68

ACTION ITEM NO	DAI NUMBER	ACTION OFFICER	SUB-ITEM	PARA-GRAPH	ITEM DESCRIPTION	SUSPENSE DATE	CLOSE DATE
FHAA001		AF KOLN	A	AA	09 OCT 68 - START DATE CONTRACT DAAE11-66-C-3667(H) AH-56A HANDBOOK VERIFICATION PROGRAM. ORIGINAL SUSPENSE	18 NOV 68	14 NOV 68
	21302			AB	09 OCT 68 - LTR/SP 793082 TO AMSAV-P/03 OCT 68. REF: CONTRACT APPENDIX B, PERT MILESTONE 4980 SYSTEM SPECIFICATION S50001. IAW THE ABOVE REFERENCES THE CONTRACTOR WILL CONDUCT A VERIFICATION PROGRAM OF APPLICABLE PORTIONS OF THE AH-56A MAINTENANCE MANUALS.	18 NOV 68	
				AC	X-REF PMM 4980		
	21998			AD	24 OCT 68 - ITDS/VAN NUYS MSG NO. 997 (LAC SP/793119) TO AMSAV-A-P/18 OCT 68. REF AB ABOVE. REQUEST ARMY PERSONNEL FOR VECOM CHANGE ARRIVAL AT LAC'S VAN NUYS FACILITY TO THE FIFTH WEEK OF VERIFICATION PROGRAM RATHER THAN SECOND WEEK AS SCHEDULED IN REFERENCE.		
	23111			AG	14 NOV 68 - LTR/AMSAV-A-P TO AMCPM-AFS-AF 3729-1409, 12 OCT 68. TRANSMITS MINUTES OF MAINTENANCE MANUAL VERIFICATION EXERCISE. NO OUTSTANDING PROBLEMS. CLOSE ACTION ITEM.		

Figure 2-1. Sample Report - Action Items by Primary Action Officer

requested. The report is designed to assist the action item officer, his supervisors in echelon, and lateral agencies having responsibilities related to the action item.

#### 2.1.1.1.2 Item Report by Secondary Action Officer

This report is similar to the primary action officer report and can be considered as a second-level breakdown of complex primary actions.

#### 2.1.1.1.3 Delinquent Action Item Summary Report

All action items that remain open after a prescribed time before their suspense dates are listed in the alphabetic order of their task designators. (See sample in Figure 2-2.) Supplementary information such as subjects, suspense dates, and responsible officers is included. A typical practice is to list all open items that are actually overdue plus those whose suspense date is within two weeks after the report preparation date. The report serves as a warning system for supervisors and senior managers.

#### 2.1.1.1.4 Action Item Summary Reports by Item Designator

An index is made of all action items to include subject, action officer, suspense date, and closed date if it has occurred. (See sample in Figure 2-3.) The index is used by action item analysts and other researchers as a guide to related problems, source documents, and project actions.

### 2.1.2 Project Control Routines

The four programs in this category are used for planning and controlling resources pertaining to the system project.

#### 2.1.2.1 PERT Time

PERT Time is an analytical method for overseeing execution of plans and schedules and the measurement of current progress. It determines tradeoffs between time and resources for branching and overlapping tasks. Proper amalgamation of this knowledge with automatic data processing helps provide management insight on the completion time of major tasks where untimely completion will cause slippage in major task completion dates. The PERT Time program ensures that all reports to management are accurate

DELINQUENT PHO ACTION ITEM SUMMARY -A- PARAGRAPHS ONLY  
 BY PRIMARY ACTION OFFICER W/IN OFFICE  
 13 DEC 68

ACTION ITEM NO	DAI NUMBER	ACTION OFFICER	SUB- ITEM	PARA- GRAPH	ITEM DESCRIPTION	SUSPENSE DATE	CLOSE DATE
DDLH001		AF ROBBINS	A	AA	10 OCT 68 - START DATE CONTRACT DAAE11-66-C-3667(H) ARMAMENT GSE, TOOL HANDLING AMMO LOADING FSN 4933-757-9973	18 NOV 68	
GCLA001		AF ROBBINS	A	AA	ORIGINAL SUSPENSE 03 APR 68 - START DATE ADDITIONAL REQUIREMENTS FOR GSE SECONDARY ACTION - AFS-TI COORDINATION - AFS-CM ORIGINAL SUSPENSE SUSPENSE DATE CHANGE SUSPENSE DATE CHANGE SUSPENSE DATE CHANGE SUSPENSE DATE CHANGE SUSPENSE DATE CHANGE	18 NOV 68 9 DEC 68 1 MAY 68 17 MAY 68 31 MAY 68 10 JUN 68 8 JUL 68 1 SEP 68 OCT 68	
CAMA008		AF WILLS	A	AA	SUSPENSE DATE CHANGE 20 NOV 68 - START DATE NOTICE OF INTENT TO PROCURE SPECIAL TEST EQUIPMENT ORIGINAL SUSPENSE	17 DEC 68 16 DEC 68	
FHAA001		AF KORIN	A	AA	09 OCT 68 - START DATE CONTRACT DAAE11-66-C-3667(H) AH-56A HANDBOOK VERIFICATION PROGRAM.	16 DEC 68 18 NOV 68	

Figure 2-2. Sample Report - Delinquent Actions by Primary Action Officer

PMO ACTION ITEM SUMMARY BY ACTION ITEM NUMBER  
29 NOV 68

ACTION ITEM NO	DAI NUMBER	ACTION OFFICER	SUB-ITEM	PARA-GRAPH	ITEM DESCRIPTION	SUSPENSE DATE	CLOSE DATE
AADH002		KO DORN	A	AA	30 APR 68 - START DATE 2.75 INCH FPAR BALLISTICS	12 AUG 68	2 AUG 68
AADN001		SA PAUL	A	AA	03 JUN 68 - START DATE FIRING PINS FOR XM-196 7.62MM GUNS	12 AUG 68	
AAFA001		TI GRANT	A	AA	16 APR 68 - START DATE MAP PLOTTER RETROFIT	C/A	
AAFE001		KO DUNN	A	AA	18 MAY 67 - START DATE SOFTWARE MODULE MOTHERBOARDS - CCC	8 NOV 68	
		CM MITCHEL	A	AA	12 APR 68 - START DATE MANAGEMENT (42-010)	29 APR 68	7 MAY 68
AFDJ001			A	AA	24 JUN 67 - START DATE INSTALLATION OF MODIFIED XM-		
AFDJ003		CM MISKEY	A	AA	12 AUG 68 - START DATE AH-56A, GFM DATA, XM-134 WEAPON	(A)	
AFDK001		CM MITCHEL	A	AA	ECP NO 4 / XM-140	C/A	
AFDK002		CM MOORE	A	AA	06 JUN 68 - START DATE XM-140 WEAPON MODIFICATION	16 DEC 68	
AFDM001		CM MOORE	A	AA	24 APR 68 - START DATE SUBSTITUTION OF XM-157B & XM-159C LAUNCHERS	C/A	
AFFE001	ECP 34	CM MISKEY	A	AA	24 JUN 67 - START DATE	C/A	16 APR 68

Figure 2-3. Sample Report - Action Items by Number

and current. It also presents the information in such a way that management is better able to select from available alternatives and initiate remedial action.

A discussion and a description of these topics will be found in the following IBM Publications:

Project Management System/360      H20-0344-2  
(360A-CP-04X) Version 2  
Program Description and Operations Manual

This document applies only to those PERT Time networks that are operating under PMS/360 control.

The following document applies to those PERT Time networks that are operating under PERT II control:

IBM PERT COST II  
(320-6701-1)  
Reference Manual

Figure 2-4 is an illustration of this report generated in support of the Cheyenne (AH-56A) Project while ITDS itself was under development.

#### 2.1.2.2 PERT Cost

PERT Cost is a management information system that can tie a plan of work to its cost and present integrated work management and cost incurred reports to management. The PERT Cost System improves cost and schedule control by establishing the cost and time status of the program and identifying any potential cost overruns and schedule slippages. Concurrent estimates of the cost and time needed to complete work not yet performed are also obtained in order to predict future schedule slippages and cost overruns and to identify difficulties in the performance of critical work packages early enough to take management action.

A description of these topics will be found in the following IBM publications:

Project Management System/360      H20-0344-2  
(360A-CP-04X) Version 2  
Program Description and Operations Manual.

This document applies only to those PERT Cost systems operating under PMS/360 control.

ACTIVITY TIME STATUS REPORT

PROGRAM PROJECT	LEVEL	DETAIL	SUCC. EVENT	CYCLE CODE	ACTIVITY DESCRIPTION	TIME ESTIMATES			SLACK	COMPLETION DATES	SCHM. DATE	DEPT.
						A	M	B				
	1170		1205	LK	CONSTRAINT	00.00	11.2	11.2	03FEB69	22APR69	LOCKHE	
	1175		1205	LK	CLEAN UP	02.00	27.6	27.6	04OCT68	22APR69	LOCKHE	
	1180		1210	LK	CLEAN UP	02.00	9.2	9.2	17FEB69	22APR69	LOCKHE	
	1185		1215	LK	TIA MOD	05.00	11.2	11.2	10MAR69	27MAY69	LOCKHE	
	1190		1305	LK	PERFORM AIR FIRING TESTS	26.00	24.2	24.2	06AUG69	28JUN70	LOCKHE	
	1195		1220	LK	DE-IN T+A MOD	05.00	16.2	16.2	10MAR69	02JUL69	LOCKHE	
	1200		1205	LK	CONSTRAINT	00.00	10.2	10.2	10FEB69	22APR69	LOCKHE	
	1205		1225	LK	BAILMENT	05.00	15.2	15.2	17MAR69	02JUL69	LOCKHE	
	1205	2040	2040	LK	CONSTRAINT	00.00	10.2	10.2	10FEB69	22APR69	LOCKHE	
	1210	2040	2040	LK	CONSTRAINT	00.00	9.2	9.2	17FEB69	22APR69	LOCKHE	
	1215	1235	1235	LK	PRE FLIGHT + FLIGHT	04.00	11.2	11.2	07APR69	25JUN69	LOCKHE	
	1220	1315	1315	LK	TERR FOLLOW STATN KEP AFCS T	26.00	16.2	16.2	11SEP68	07JAN70	LOCKHE	
	1225	1230	1230	LK	DELIVERY	03.00	15.2	15.2	07APR69	24JUL69	LOCKHE	
	1230	1370	1370	LK	AIR VEHICLE DEVELOP BAILMENT	73.00	15.2	15.2	11SEP70	30DEC70	LOCKHE	
	1235	2050	2050	LK	CONSTRAINT	00.00	11.2	11.2	07APR69	25JUN69	LOCKHE	
	1240	1270	1270	LK	TIA MODIFICATION	06.00	16.2	16.2	10JUN69	03OCT69	LOCKHE	
	1245	1275	1275	LK	MOD PILOT TRAINING + DELIVERY	08.00	9.2	9.2	16JUL69	19SEP69	LOCKHE	
	1250	1280	1280	LK	MOD PILOT TRAINING + DELIVERY	08.00	9.2	9.2	16JUL69	19SEP69	LOCKHE	
	1255	1285	1285	LK	MOD PILOT TRAINING + DELIVERY	08.00	9.2	9.2	16JUL69	19SEP69	LOCKHE	
	1260	1290	1290	LK	PROPOSED SPECIAL TESTING	09.00	49.2	49.2	24JUN69	11JUN70	LOCKHE	
	1265	1295	1295	LK	MOD-PILOT TRAINING + DELIVERY	09.00	4.2	4.2	09OCT69	07NOV69	LOCKHE	
	1270	1310	1310	LK	PERF ANTENNA PATTERNS TESTS	07.00	16.2	16.2	30JUL69	21NOV69	LOCKHE	
	1275	2090	2090	LK	CONSTRAINT	00.00	9.2	9.2	16JUL69	19SEP69	LOCKHE	
	1280	2090	2090	LK	CONSTRAINT	00.00	9.2	9.2	16JUL69	19SEP69	LOCKHE	
	1285	2090	2090	LK	CONSTRAINT	00.00	9.2	9.2	16JUL69	19SEP69	LOCKHE	
	1290	1300	1300	LK	DELIVERY	01.00	49.2	49.2	01JUL69	18JUN70	LOCKHE	
	1295	5450	5450	LK	CONSTRAINT	00.00	4.2	4.2	09OCT69	07NOV69	LOCKHE	
	1300	1350	1350	LK	PROP LAC DEVELOP TSTS-BAILMT	27.00	49.2	49.2	13JAN70	30DEC70	LOCKHE	
	1305	1320	1320	LK	CLEANUP + DELIVERY	04.00	24.2	24.2	04SEP69	25FEB70	LOCKHE	
	1310	1330	1330	LK	TOW TESTS	10.00	16.2	16.2	09OCT69	04FEB70	LOCKHE	
	1315	2215	2215	LK	CONSTRAINT	00.00	16.2	16.2	11SEP69	07JAN70	LOCKHE	
	1315	2220	2220	LK	CONSTRAINT	00.00	22.2	22.2	11SEP69	18FEB70	LOCKHE	
	1315	2225	2225	LK	CONSTRAINT	00.00	27.2	27.2	11SEP69	25MAY70	LOCKHE	
	1320	1335	1335	LK	PERFORM MOD + INSTRUMENTATION	13.00	24.2	24.2	05DEC69	27MAY70	LOCKHE	
	1325	1345	1345	LK	TOW INSTAL + INSTR-AIR FIRE	16.00	27.2	27.2	03FEB70	14AUG70	LOCKHE	
	1330	1340	1340	LK	MODIFY + DELIVER	05.00	16.2	16.2	13NOV69	11MAR70	LOCKHE	
	1335	1355	1355	LK	ERWIRON TEST AT EGLH AFB	17.00	24.2	24.2	07APR70	28SEP70	LOCKHE	
	1340	2270	2270	LK	CONSTRAINT	00.00	16.2	16.2	13NOV69	11MAR70	LOCKHE	
	1345	1360	1360	LK	CONDUCT AFCS TESTING	19.00	27.2	27.2	17JUN70	30DEC70	LOCKHE	
	1350	6000	6000	LK	CONSTRAINT	00.00	49.2	49.2	13JAN70	30DEC70	LOCKHE	
	1355	1365	1365	LK	INERTIAL GUIDANCE TESTS	13.00	24.2	24.2	09JUL70	30DEC70	LOCKHE	
	1360	6000	6000	LK	CONSTRAINT	00.00	27.2	27.2	17JUN70	30DEC70	LOCKHE	
	1365	6000	6000	LK	CONSTRAINT	00.00	24.2	24.2	09JUL70	30DEC70	LOCKHE	
	1370	6000	6000	LK	CONSTRAINT	00.00	15.2	15.2	11SEP70	30DEC70	LOCKHE	
	2000	2005	2005	LK	CONSTRAINT	00.00	27.2	27.2	03SEP68	18MAR69	TECOM-	
	2030	2085	2085	LK	PERF RANGE INSTRUMENTATION	39.00	14.2	14.2	10JUN69	19SEP69	TFCOM-	

Figure 2-4. Sample Activity Time Status Report

The following document applies to those PERT Cost networks that are operating under PERT II control.

IBM PERT Cost II  
(320-6701-1)  
Reference Manual

Figure 2-5 is an illustration of this report containing typical cost data.

#### 2.1.2.3 SCIOLIST

SCIOLIST is an acronym for Summary Cost Input/Output List. This is a program designed to assist government personnel in monitoring the status of a project's funds. It is a vehicle for implementing cost management, planning, and report for a project.

The Cost Collection Structure may be a project-oriented family tree, composed of subelements, which results from project management during the development, production, and follow-on of a project, and which completely encompasses the project.

The Cost Collection Structure may be a division of total project effort into subelements as shown in Table 2-1. The Cost Collection Structure is adopted to the needs of the project.

The project using SCIOLIST defines and maintains its unique Cost Collection Structure. The report discussed in the following sections reflect the current cost status for the program in several useful formats. This status is based on updated cost information provided as inputs to the SCIOLIST Program.

##### 2.1.2.3.1 SCIOLIST Summary Report

The SCIOLIST Summary Report (Figure 2-6) shows the program status (RTD&E, PEMA) for all fiscal years within the project.

The first line of each report shows the prior years funding status within the RDT&E portion of the project. Subsequent lines show the remaining fiscal years within the RDT&E portion. A summary of all years complete this section.

Since there are other funding areas such as PEMA and O&MA within the project, the report will show these in the same manner as the RDT&E section.

The report is completed with a summary total program status, which included all funding areas.

IBM PERT COST  
PROGRAM/PROJECT STATUS REPORT  
PROGRAM -- BUILD A HOUSING DEVELOPMENT (M.D.)

CONTRACT DESCRIPTION		REPORTING ORGH.	CONTRACT NO.		REPORT DATES							
THE BUILDING OF A HOUSING DEVELOPMENT		THE BUILDERS	CONTRACT 1101		TERM (SPAN) -							
LEVEL/SUMMARY ITEM - 1/THE BUILDING OF A HOUSING DEVELOPMENT					CUT OFF DATE - 26APR63							
					RELEASE DATE - 26APR63							
IDENTIFICATION							COST OF WORK \$ (000)					
CHARGE OR SUMMARY NUMBER	L E V E L	FIRST EVENT NO.	LAST EVENT NO.	SCHED OR ACT (A) COMPL. DATE	E + L COMPL. DATE	MOST CRIT. SLACK (WKS)	WORK PERFORMED TO DATE			TOTALS AT COMPLETION		
							VALUE	ACTUAL COST	(OVERRUN) UNDERRUN	PLANNED COST	LATEST REVISED CST	PROJECTED (OVERRUN) UNDERRUN
THE BUILDING OF A HOUSING DEVELOPMENT												
TOTAL DEVELOPMENT	1	PREP0001	HSE200037		06SEP63 12SEP63	- .8 HSE200037	54	54		101	101	
WORK OF BUILDING HOUSE ONE												
	1	2	HSE100004	HSE100037	06AUG63 12AUG63	- .8 HSE100037				23	23	
1STDCK	1X	3	HSE100010	HSE100013	03JUN63 07JUN63	- .8 HSE100013				2	2	
1STDCK	11	4	HSE100010	HSE100012	21MAY63 27MAY63	- .8 HSE100012						
1STDCK	12	4	HSE100012	HSE100013	03JUN63 07JUN63	- .8 HSE100013				1	1	
BASRT	1X	3	HSE100005	HSE100011	19JUL63 20MAY63	- .8 HSE100010				3	3	
BASRT	11	4	HSE100005	HSE100006	30APR63 06MAY63	- .8 HSE100006				1	1	
BASRT	12	4	HSE100006	HSE100007	07MAY63 13MAY63	- .8 HSE100007				1	1	
BASRT	13	4	HSE100006	HSE100008	07MAY63 13MAY63	- .8 HSE100008						
BASRT	14	4	HSE100007	HSE100009	13MAY63 17MAY63	- .8 HSE100009						

(.17)  
(1)

Figure 2-5. Sample IBM PERT Cost Report

Table 2-1. Typical SCIOLIST Cost Collection Structure

<u>Cost Collection Identification No.</u>	<u>Description</u>
1 0 0 0 0 0	Total Program
1 1 0 0 0 0	RDT & E Program
1 1 1 0 0 0	Prime Contract
1 1 1 1 0 0	Basic Prime Contract
1 1 1 1 0 1	Basic Prime Contract
1 1 1 2 0 0	ECP Category
0 1 etc.	Specific ECP's
1 1 1 3 0 0	Other Change Category
0 1 etc.	Specific other changes
1 1 2 0 0 0	Government Furnished Material (GFM) Category
1 1 2 1 0 0	GFM Subcategory
0 1 etc.	GFM Items
1 1 2 2 0 0	(Next GFM Subcategory)
0 1 etc.	
1 1 3 0 0 0	Government Test Category
1 1 3 1 0 0	Government Test Subcategory
0 1 etc.	Specific Government Tests
1 1 3 2 0 0	(Next Government Test Subcategory)

The project using SCIOLIST defines and maintains its unique Cost Collection Structure. The reports discussed in the following sections reflect the current cost status for the program in several useful formats. This status is based on updated cost information provided as inputs to the SCIOLIST Program.

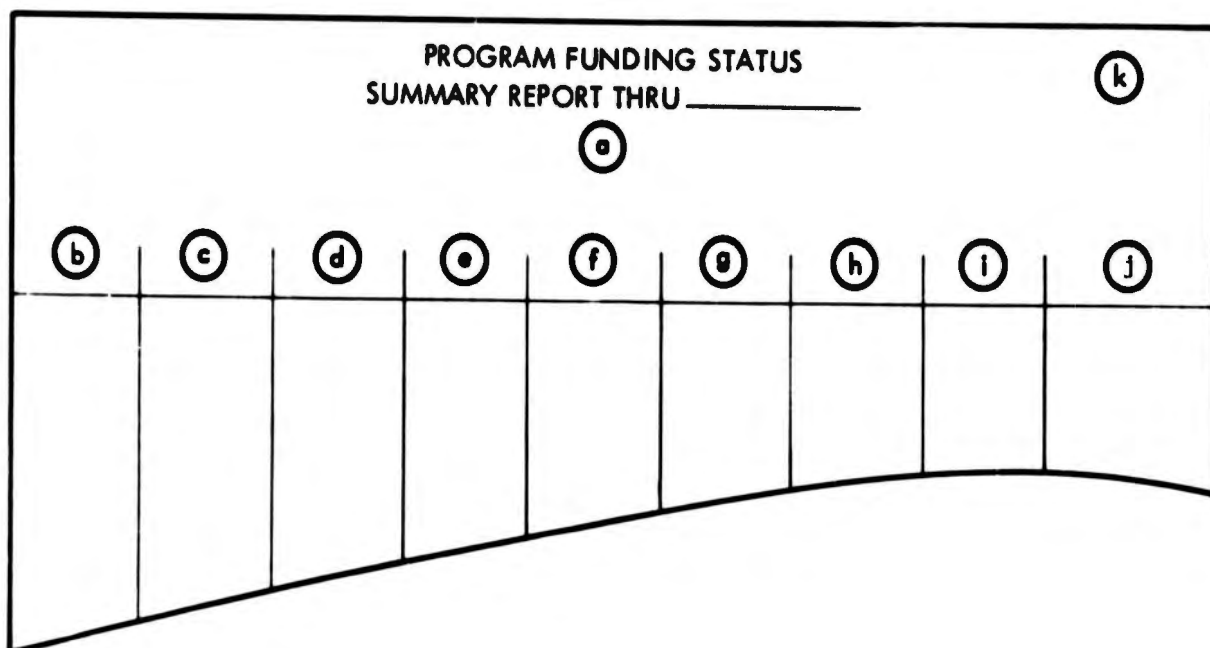


Figure 2-6. Program Funding Status Summary Report

<u>FIELD</u>	<u>DEFINITIONS</u>
Ⓐ Program	The designation of the total program included in the report. The cut-off date is also included in the program heading.
Ⓑ Fiscal Year	The fiscal year of the summary item for which the report is being prepared.
Ⓒ CCS No.	The cost collection structure number is applied to the summary item within the CCS table.
Ⓓ Description	The noun description of each summary item presented in the report.
Ⓔ Total Requirements	The total funding requirements as specified by project management for each summary item presented in the report.

FIELD

DEFINITIONS

(f) Released to Project	The total funding released to the project as approved by AMC.
(g) Distributed to Field	The amount of funding (f) distributed to the various authorities for operation of the program.
(h) Obligated	The amount of dollars obligated by all authorities to various contracting agencies for a specific summary item.
(i) Unobligated Balance	The amount of dollars distributed to date minus the obligations (h) (g)
(j) Undistributed Amount	The amount of dollars released (f) minus the distributions (g) for the same summary item.
(k) Classification	The security classification of the report.

Figure 2-7 is an illustration of this report generated in support of the Cheyenne (AH-56A) Project while ITDS itself was under development.

AH-56A CHEYENNE  
PROGRAM FUNDING STATUS  
SUMMARY REPORT THRU 31 OCT 68

FY	CCS NO.	DESCRIPTION	TOTAL RQMTS	REL TO PROJECT	DISTRIB TO FIELD	OBLIGATED	UNOBLIG BALANCE	UNDISTRIB AMOUNT
67	110000	RDTE PROGRAM	24000000	24000000	23000000	23000000	00	1000000
68	110000	RDTE PROGRAM	67000000	67000000	67000000	64371000	2629000	00
69	110000	RDTE PROGRAM	41000000	41000000	25250000	20197000	5053000	15750000
70	110000	RDTE PROGRAM	110740000	00	00	00	00	110740000
71	110000	RDTE PROGRAM	53271000	00	00	00	00	53271000
	110000	TOTAL RDTE	296011000	132000000	115250000	107568000	7682000	180761000

Figure 2-7. Sample Cheyenne Program Funding Status Report Summary

2.1.2.3.2 SCIOLIST Negative Variances Report

The SCIOLIST Negative Variances Report (Figure 2-8) provides the project manager with visibility over distribution or over obligation of funds for a specific line item of the project.

The report also indicates the fiscal year and authority to which the negative variance has been applied.

PROGRAM FUNDING STATUS NEGATIVE VARIANCES REPORT THRU _____										(k)
(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(a)	

Figure 2-8. Program Funding Status Negative Variances Report

<u>FIELD</u>	<u>DEFINITIONS</u>
(a) Program	The designation of the program to be included in the report. The report cut-off date is also included in the program heading.
(b) Command	The organization responsible for the management of the specific line item of the program.

FIELD

DEFINITIONS

(c) Fiscal Year	The fiscal year in which the negative variance appears for a specific line item of the program.
(d) Description	The noun description of each individual line item presented in the report.
(e) Total Requirements	The total funding requirements as specified by project management for each individual line item presented in the report.
(f) Released to Project	The total funding releases to the project for the individual line items of the report. The amount is in accordance with guidance established between the project manager and AMC.
(g) Distributed to Field	The amount of funding (g) distributed to the various commands for operation of the program.
(h) Obligated	The amount of dollars obligated by the specific command for the line item.
(i) Unobligated Balance	The amount of dollars distributed to date minus the obligations (i) (h) for an individual line item. A negative figure indicating an over obligation by the identified command (b) .
(j) Undistributed Amount	The amount of dollars released (g) minus the distribution (h) for (g) an individual line item. A negative figure indicates an over distribution to a command by the project manager.
(k) Classification	The security classification of the report.

Figure 2-9 is an illustration of this report generated in support of the Cheyenne (AH-56A) Project while ITDS itself was under development.

AH-56A CHEYENNE  
PROGRAM FUNDING STATUS  
NEGATIVE VARIANCES REPORT THRU 31 OCT 68

	FY	CCS NO	DESCRIPTION	TOTAL PQMTS	REL TO PROJECT	DISTRIB TO FIELD	OBLIGATED	UNOBLIG BALANCE	UNDISTRIB AMOUNT
ECOM	67	112301	IHAS	3478000	3478000	3478000	3478000	19000	00
AVSCOM	68	111211	REMOTE MODULES- RMR/THR	200000	200000	200140	200140	00	-140
AVSCOM	68	111302	RPEL AND GFM REPAIR	114000	114000	114271	114271	00	-271
AVSCOM	68	111311	DAMAGE - A/C 1002	647000	647000	647329	647329	00	-329
PX-AI	68	113102	XM-157	2200	2200	2253	2253	00	- 53
PX-AI	69	113102	XM-157	5600	5600	5781	5781	00	-181

Figure 2-9. Sample Cheyenne Program Funding Status Negative Variances Report

2.1.2.3.3 SCIOLIST Unfunded Requirements and Reprogramming Possibilities Report

The SCIOLIST Unfunded Requirements and Reprogramming Possibilities Report (Figure 2-10) provides the project manager with visibility regarding unfunded requirements for a particular line item, as well as the line items with reprogramming possibilities.

The report contains a section for each year included in the report.

PROGRAM FUNDING STATUS UNFUNDED REQUIREMENTS/REPROGRAMMING POSSIBILITIES REPORT THRU _____ (i)										
(a)										
(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	

Figure 2-10. Program Funding Status  
Unfunded Requirements/Reprogramming Possibilities Report

<u>FIELD</u>	<u>DEFINITIONS</u>
(a) Program	The designation of the program to be included in the report. The report cut-off date is also included in the program heading.
(b) Command	The organization responsible for the management of the specific line item of the program.
(c) Fiscal Year	The fiscal year in which the unfunded requirements and/or reprogramming possibilities appear.

FIELD

DEFINITIONS

(d) CCS No.	The cost collection structure number as applied to the individual line item within the program.
(e) Description	The noun description of each individual line item within the report.
(f) Total Requirements	The total funding requirements as specified by project management for each line item within the report.
(g) Released to Project	The total funding released to the project for each line item in the report. The amount is in accordance with guidance established between the project manager and AMC.
(h) Unfunded Requirements	The total requirements (f) as specified by project management minus the total funding released to the project (g) for each line item in the report.
(i) Undistributed Amount	The dollars that have been released to the project (g) that have not been forwarded to a command for operation of the program.
(j) Unobligated Balance	The dollars that the commands have received and not obligated to date.
(k) Available for Reprogramming	The sum of the undistributed amount (i) and the unobligated balance (j) for the individual line item in the report.
(l) Classification	The security classification of the report.

Figure 2-11 is an illustration of this report generated in support of the Cheyenne (AH-56A) project while ITDS itself was under development.

AM-56A CHEYENNE  
PROGRAM FUNDING STATUS  
UNFUNDED REQUIREMENTS AND REPROGRAMMING POSSIBILITIES REPORT THRU 31 OCT 68

FY	CCS NO	DESCRIPTION	TOTAL RQMTS	REL TO PROJECT	UNFUNDED RQMTS	UNDISTRIB AMOUNT	UNCBLIG BALANCE	AVAIL RE- PROGRAM
AVSCOM	67	111306	CHANGES TO CDRL	15000	00	00	407	407
OTHER	67	112302	LOMAP	58000	00	58000	00	58000
OTHER	67	112303	OTHER AVIONICS	9780	00	780	460	1240
ECON	67	114401	IHAS DEVELOPMENT	221000	00	54000	2860	56860
ECOM	68	114201	TECHNICAL SUPPORT	470000	00	83261	6570	89831
MICOM	68	114201	TECHNICAL SUPPORT	87000	00	3120	00	3120
VECOM	68	114201	TECHNICAL SUPPORT	797000	00	68470	12500	80970
OTHER	69	111201	MISCELLANEOUS	122000	00	100000	22000	122000
AVSCOM	69	111205	XM-129	491000	00	93000	00	93000
AVSCOM	69	111206	XM-140	576000	00	00	476000	476000
OTHER	70	111201	MISCELLANEOUS	3000000	00	3000000	00	00
OTHER	70	112211	TOW MISSILES	280000	00	280000	00	00
OTHER	70	113403	30MM SPOTTING	1276000	00	1276000	00	00
OTHER	70	113501	CONDUCT OF TESTS	431000	00	431000	00	00

Figure 2-11. Sample Unfunded Requirements and Reprogramming Possibilities

2.1.2.3.4 SCIOLIST CCS No. Report

The Cost Collection Structure Number Report (Figure 2-12) is designed to give Project Management total funding status for each item included in the Cost Collection Structure.

Each line item includes the funding for all fiscal years of the project.

PROGRAM FUNDING STATUS UNFUNDED REQUIREMENTS/REPROGRAMMING POSSIBILITIES REPORT THRU _____ (l)										
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)

Figure 2-12. Program Funding Status  
CCS No. Report

<u>FIELD</u>	<u>DEFINITIONS</u>
(a) Program	The designation of the total program included in the report. The report cut-off date is also included in the program heading.
(b) Fiscal Year	No entry shown in this report. Each line item fund status is inclusive of all fiscal years of the program.
(c) CCS No.	The cost collection structure number as applied to the individual line items in the CCS table.

FIELD

DEFINITIONS

(d) Description	The noun description of each line item included in the report.
(e) Total Requirements	The total funding requirements as specified by project management for each line item in the report.
(f) Released to Project	The total funding released to the project as approved by AMC.
(g) Distributed to Field	The amount of funding (f) distributed to all commands for the specific line item in the report.
(h) Obligated	The amount of dollars obligated by all commands for a specific line item in the report.
(i) Unobligated Balance	The amount of dollars distributed (g) minus the obligations (h) for the line items in the report.
(j) Undistributed Amount	The amount of dollars released (f) minus the distributions (g) for the individual line item of the program.
(k) Classification	The security classification of the report.

Figure 2-13 is an illustration of this report generated in support of the Cheyenne (AH-56A) project while ITDS itself was under development.

AH-56A CHEYENNE  
PROGRAM FUNDING STATUS  
CCS NO. REPORT THRU 31 OCT 68

CCS NO	DESCRIPTION	TOTAL RQMTS	REL TO PROJECT	DISTRIB TO FIELD	OBLIGATED	UNOBLIG BALANCE	UNDIS- TRIB AMOUNT
111101	BASIC PRIME CONTRACT	47129000	47129000	47129000	47129000	00	00
111100	BASIC PRIME CONTRACT	47129000	47129000	47129000	47129000	00	00
111201	MISCELLANEOUS	3127000	900000	00	00	00	900000
111202	ECP'S 1,2,3,5,6	47000	47000	47000	45000	2000	00
111203	IPR APPROVED CHANGES	18000	18000	10000	10000	00	8000
111204	DUST SEPARATION TESTS	12750	12750	12750	12750	00	00
111205	XM-129	1200000	1200000	1000000	1000000	00	200000
111206	SM-140	1400000	1400000	1000000	1000000	00	400000
111207	TOW	2700000	2700000	2700000	2700000	00	00
111208	ANTENNA, AS-1304A	14000	14000	14000	12500	1500	00

Figure 2-13. Sample SCIOLIST Cost Collection Structural Number Report

2.1.2.3.5 SCIOLIST Fiscal Year Report

The Fiscal Year Report, Figure 2-14, provides funding status, grouped by fiscal year, for any level of the Cost Collection Structure.

In addition the funding categories, (RDT&E, PEMA, O&MA) are summarized in this report.

PROGRAM FUNDING STATUS FISCAL YEAR REPORT THRU _____										(k)
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)

Figure 2-14. Program Funding Status  
Fiscal Year Report

FIELD

DEFINITIONS

(a) Program	The designation of the total program included in the report. The report cut-off is also included in the program heading.
(b) Fiscal Year	The fiscal year in which the Cost Collection Structure line items are being summarized.
(c) CCS No.	The cost collection structure number as applied to each line item in the report.
(d) Description	The noun description of each item presented in the report.
(e) Total Requirements	The total funding requirements as specified by project management for the line items in the report.
(f) Released to Project	The total funding released to the project as approved by AMC.
(g) Distributed to Field	The amount of funding (f) distributed to all commands for the line item during the fiscal year (b).
(h) Obligated	The dollars obligated by all commands for a specific line item within a particular Fiscal Year (b).
(i) Unobligated Balance	The dollars distributed (g) minus the obligations (k) for the items included in the report.
(j) Undistributed Amount	The amount of dollars released (f) minus the distributions (g) for each line item.
(k) Classification	The security classification of the report.

Figure 2-15 is an illustration of this report generated in support of the Cheyenne (AH-56A) project while ITDS itself was under development.

AH-56A CHEYENNE  
PROGRAM FUNDING STATUS  
FISCAL YEAR REPORT THRU 31 OCT 68

FY	CCS NO	DESCRIPTION	TOTAL RQMTS	REL TO PROJECT	DISTRIB TO FIELD	OBLIGATED BALANCE	UNOBLIG BALANCE	UNDIS- TRIB AMOUNT
67	111101	BASIC PRIME CONTRACT	12000000	12000000	12000000	12000000	00	00
67	111100	BASIC PRIME CONTRACT	12000000	12000000	12000000	12000000	00	00
67	111202	ECP'S 1,2,3,5,6	4700	4700	4700	4700	00	00
67	111203	IPR APPROVED CHANGES	12000	12000	12000	10000	2000	00
67	111204	DUST SEPARATION TESTS	2000	2000	2000	1500	500	00
67	111205	XM-129	1400	1400	1400	1400	00	00
67	111206	XM-140	3000	3000	3000	2000	1000	00
67	111207	TOW	10000	10000	10000	10000	00	00
67	111208	ANTENNA, AS-1304A	5000	5000	5000	4700	300	00
67	111209	ADF ANTENNA	8000	8000	8000	8000	00	00
67	111200	ECP'S	46100	46100	46100	42300	3800	00

Figure 2-15. Sample SCIOLIST Fiscal Year Report

2.1.2.3.6 SCIOLIST Command Report

The Command Report, Figure 2-16, presents the funding data by line item identified to a specific command.

The information within each command is presented by fiscal year and funding category (RDT&E, PEMA, O&MA). It is also tiered in accordance with the Cost Collection Structure.

In addition to summing for each funding category, a recap is generated for each command including all funding categories.

PROGRAM FUNDING STATUS COMMAND REPORT THRU _____										(l)
(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	

Figure 2-16. Program Funding Status  
Command Report

FIELD

DEFINITIONS

(a) Program	The designation of the program to be included in the report. The report cut-off date is also included in the Program heading.
(b) Command	The command to which the line item funding status applies.
(c) Fiscal Year	The fiscal year in which the funding status is shown for an individual line item of the program.
(d) CCS No.	The cost collection structure number as applied to the individual line item of the program.
(e) Description	The noun description of each line item presented in the report.
(f) Total Requirements	The total funding requirements as specified by project management for each line item presented in the report.
(g) Released to Project	The total funding released to the project for each line item of the report. The amount is in accordance with guidance established between the project manager and AMC.
(h) Distributed to Field	The amount of funding (g) distributed to the command (b) within a specific year (c) for each individual line item.
(i) Obligated	The dollars obligated by the command for each line item of the program presented in the report.
(j) Unobligated Balance	The amount of dollars distributed (h) to date minus the obligations (i) for each line item presented in the report.
(k) Undistributed Amount	The dollars released (g) minus the distribution (h) for an individual line item.
(l) Classification	The security classification of the report.

Figure 2-17 is an illustration of this report generated in support of the Cheyenne (AH-56A) project while ITDS itself was under development.

AH-56A CHEYENNE  
PROGRAM FUNDING STATUS  
COMMAND REPORT THRU 31 OCT 68

FY	CCS NO	DESCRIPTION	TOTAL RMTS	REL TO PROJECT	DISTRIB TO FIELD	OBLIGATED	UNOBLIG BALANCE	UNDISTRIB AMOUNT
AVSCOM	67	111101	BASIC PRIME CONTRACT	1200000	1200000	1200000	00	00
AVSCOM	67	111100	BASIC PRIME CONTRACT	1200000	1200000	1200000	00	00
AVSCOM	67	111202	ECP'S 1,2,3,5,6	4700	4700	4700	00	00
AVSCOM	67	111203	IPR APPROVED CHANGES	12000	12000	10000	2000	00
AVSCOM	67	111204	DUST SEPARATION TESTS	2000	2000	1500	500	00
AVSCOM	67	111205	XM-129	1400	1400	1400	00	00
AVSCOM	67	111206	XM-140	3000	3000	2000	1000	00
AVSCOM	67	111207	TOW	10000	10000	10000	00	00
AVSCOM	67	111208	ANTENNA, AS-1304A	5000	5000	4700	300	00
AVSCOM	67	111209	ADF ANTENNA	8000	8000	8000	00	00

Figure 2-17. Sample SCIOLIST Command Report

**2.1.2.3.7 SCIOLIST Program Summary Report**

The Program Report, Figure 2-18, provides project management with an overall view of the program.

The report presents the actual program for all years in accordance to the Cost Collection Structure.

PROGRAM FUNDING STATUS PROGRAM SUMMARY REPORT THRU _____								(k)
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
				FY	FY	FY	FY	

**Figure 2-18. Program Funding Status Program Summary Report**

<u>FIELD</u>	<u>DEFINITIONS</u>
(a) Program	The designation of the program to be included in the report. The report cut-off date is also included in the program heading.
(b) CCS No.	The cost collection structure number as applied to the individual line item of the program.
(c) Description	The noun description of each line item presented in the report.

FIELD

DEFINITIONS

(d) Prior	All prior years of the program.
(e) FY	The current fiscal year of the program.
(f) FY	All subsequent fiscal years of the program.
(g) Total	The total of all fiscal years of the program.
(h) Classification	The security classification of the report.

Figure 2-19 is an illustration of this report generated in support of the Cheyenne (AH-56A) project while ITDS itself was under development.

2.1.2.4 Material Acquisition Status Technique (MAST)

The MAST program is used to track and project status of deliveries of government furnished equipment against established contractual requirements and the supply of material from a prime contractor to the government.

The MAST program is updated and maintained via the MAST History Tape, which is created by card or tape inputs from a load sheet. Input source data is obtained from the DD Form 610 and other applicable documents.

The two monthly reports described in paragraphs 2.1.2.4.1 and 2.1.2.4.2 are the outputs of the MAST program. They are intended to assist in tracking the status or transfer of materiel from supplier to user.

AH-56A CHEYENNE  
PROGRAM FUNDING STATUS  
PROGRAM SUMMARY REPORT THRU 31 OCT 68

CCS NO	DESCRIPTION	PRIOR	FY69	FY70	FY71	FY72	FY73	TOTAL
111101	BASIC PRIME CONTRACT	22889000	16240000	8000000	3000000	00	00	47129000
111100	BASIC PRIME CONTRACT	22889000	16240000	8000000	3000000	00	00	47129000
111201	MISCELLANEOUS	673000	2100000	1400000	300000	00	00	3127000
111202	ECP'S 1,2,3,5,6	24000	20000	3000	00	00	00	47000
111203	IPR APPROVED CHANGES	9000	6000	2000	1000	00	00	18000
111204	DUST SEPARATION TESTS	650	10500	1600	00	00	00	12750
111205	XM-129	300000	900000	00	00	00	00	1200000
111206	XM-140	360000	740000	300000	00	00	00	1400000
111207	TOW	1100000	1240000	360000	00	00	00	2700000
111208	ANTENNA, AS-1304A	13000	1000	00	00	00	00	14000

Figure 2-19. Sample SCIOLIST Program Summary Report

### 2.1.2.4.1 Production Delivery Status Report

The MAST Production Delivery Status Report, Figure 2-20, shows the incremental available or expected deliverable quantities of materials in relation to the incremental original and revised scheduled requirements. The report is ordered so that every incremental quantity relates to a particular time period.

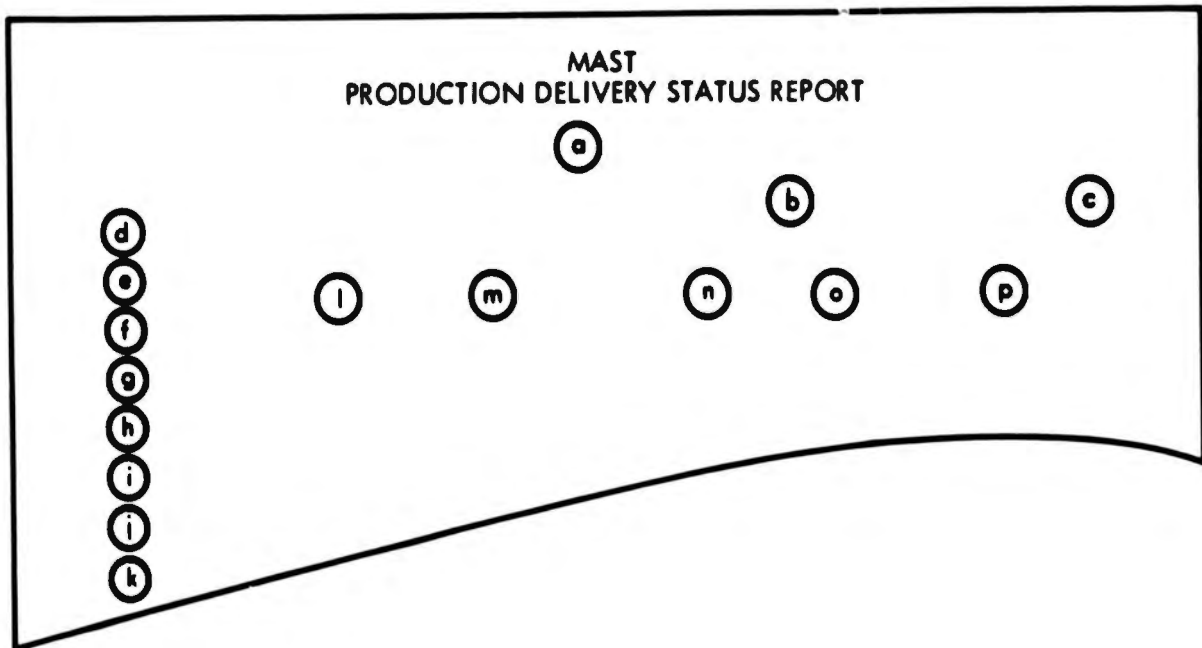


Figure 2-20. MAST  
Production Delivery Status Report

<u>FIELD</u>	<u>DEFINITION</u>
(a) Program	The designation of the program included in the report.
(b) Report Date	The date the program was run and the report produced.
(c) Status Date	The latest date, prior to the date, the data changes were entered in order to update the MAST History Tape.

<u>FIELD</u>	<u>DEFINITION</u>
<p>(d) Federal Stock Number</p>	<p>A unique identifier assigned to this number by the Department of Defense. If no Federal Stock Number exists, a unique identifier will be generated and used until a Federal Stock Number is assigned. The generated identifier will be distinguishable from a FSN by having either zeros or nines as the initial 7 characters in the number.</p>
<p>(f) Part Number</p>	<p>A unique designator that refers to a particular assembly, sub-assembly or component.</p>
<p>(g) Configured End Item (CEI) Number</p>	<p>An item number into which a system may be divided for configuration management or contracting.</p>
<p>(n) Source</p>	<p>The originating agency or contractor for the item.</p>
<p>(i) Responsible Organization</p>	<p>The organization designated as acquisition manager and controller for the item.</p>
<p>(j) Receiving Organization</p>	<p>The organization which is designated as the final destination for the item.</p>
<p>(k) Nomenclature</p>	<p>The noun description for this item.</p>
<p>(l) Date</p>	<p>The time period which applies to a designated available expected scheduled delivery quantity. The types of time periods that will be used are defined as follows:          PRIOR - the time interval between the program start date and the following date entry on the report. <u>N</u> Qtr. <u>N</u> <u>N</u>: the Fiscal Year Quarter immediately preceding the Status Date, where <u>N</u> refers to the Quarter and <u>NN</u> to the Fiscal Year. <u>A A A</u> - <u>N</u> <u>N</u>: all entries of this type indicate the month and calendar year, (e.g. Jan 68).</p>

<u>FIELD</u>	<u>DEFINITION</u>
(m) Available/Expected Delivery Quantity	The number of items that are available or expected within the given time period. The available quantity is the number of items delivered minus those items returned to the source. Only those quantity entries which are concurrent with or previous to the status date are designated as available quantities. The expected delivery quantity, for a given time period reflects either the quantity estimates received from the Source or the revised scheduled delivery quantity.
(n) Revised Scheduled Delivery Quantity	The revised scheduled quantity reflects revised requirements to the original requirements document (e.g. DD 610) as contractually agreed upon by the project manager and the receiving organization. If no revision has occurred, the revised scheduled delivery quantity will be the same as the original scheduled delivery quantity.
(o) Original Scheduled Delivery Quantity	The original scheduled quantity reflects original requirements as stipulated in contractual documents, (e.g. DD 610).
(p) Remarks	This column may be used to obtain status information from the responsible organization to reflect other pertinent information related to the specific item.

Figure 2-21, is an illustration of this report generated in support of the Cheyenne (AH-56A) Project while ITDS itself was under development.

AM-56A CHEYENNE

PRODUCTION DELIVERY STATUS REPORT  
 MATERIAL ACQUISITION STATUS TECHNIQUE

RUN DATE 08 Nov. 67  
 STATUS DATE 31 Oct. 67

FED ST NO:	4210-555-8837	DATE	AVAIL/EXPECTED DELIVERY QTY	REVISED SCHED DELIVERY QTY	ORIG SCHED DELIVERY QTY	REMARKS
PART NO:	11484	PRIOR	250	275	225	
SOURCE:	Defense Supply Agency	1 QTR 68	75	68	50	
RESPONSIBLE ORG:		Oct 67	15	27	30	
	DMSAV-QND	Nov 67	23	22	40	
RECEIVING ORG:		Dec 67	35	30	30	
	LAC	Jan 68	18	14	35	

NOMENCLATURE:  
 Extinguisher, Fire, walk  
 around

Figure 2-21. Sample MAST Production Delivery Status Report

2.1.2.4.2 Production Delivery Forecast Report

The MAST Production Delivery Forecast Report, Figure 2-22, shows the status of the cumulative available/expected and revised scheduled delivery quantity; and the analytical posture of the program in terms of an item's relation to the end item. The report is broken out by Receiving Organizations within Federal Stock Number.

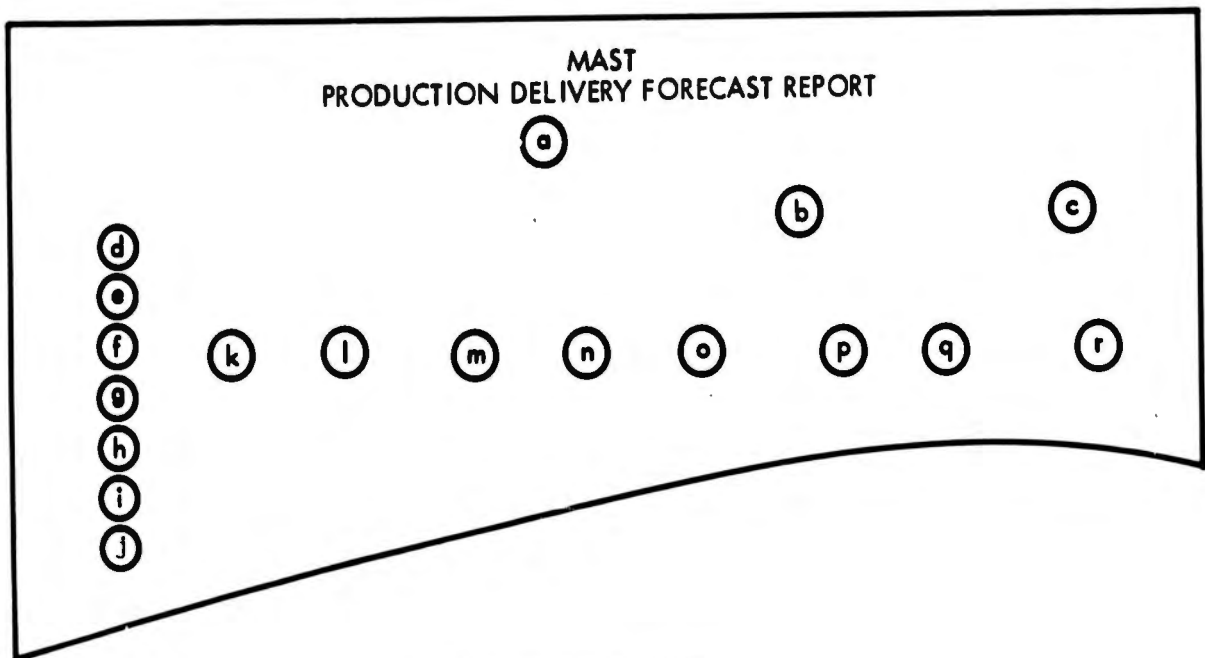


Figure 2-22. MAST  
Production Delivery Forecast Report

	<u>FIELD</u>	<u>DEFINITION</u>
(a)	Program	The designation of the program included in the report.
(b)	Report Date	The date the program was run and the report produced.
(c)	Status Date	The latest date, prior to the report date, that data changes were entered in order to update the MAST History Tape.

<u>FIELD</u>	<u>DEFINITION</u>
(d) Federal Stock Number	A unique identifier assigned to this item by the Department of Defense. If no Federal Stock Number exists, a unique identifier will be generated and used until a Federal Stock Number is assigned. The generated identifier will be distinguishable from a FSN by having either zeros or nines as the first seven characters in the number.
(e) Part Number	A unique designator that refers to a particular assembly or component.
(f) Configured End Item (CEI) Number	An item into which a system may be divided for configuration management or contracting.
(g) Source	The originating agency or contractor for this item.
(h) Responsible Organization	The organization designated as acquisition manager and controller for this item.
(i) Receiving Organization	The organization which is designated as the final destination for this item.
(j) Nomenclature	The noun description for this item.
(k) Date	The time period which applies to the designated quantity. The types of time periods that will be used are defined as follows: PRIOR - The time interval between the program start date and the following date entry on the report. <u>N</u> Qtr <u>N</u> <u>N</u> : the Fiscal Year Quarter immediately preceding the Status Date, where N refers to the Quarter and NN to the Fiscal Year. <u>A</u> <u>A</u> <u>A</u> - <u>N</u> <u>N</u> : all entries of this type indicate the month and calendar year (e.g. Jan 68)

	<u>FIELD</u>	<u>DEFINITION</u>
①	Cumulative Available/ Expected Delivery Quantity	The cumulative number of items that are available and/or expected up to and including a given time period. These quantities are obtained through a strict summation of the Incremental Available/Expected Delivery Quantity.
③	Cumulative Revised Scheduled Delivery Quantity	The cumulative number of items that are scheduled for delivery up to and including a given time period. These quantities are obtained through a strict summation of the Incremental Revised Scheduled Delivery Quantities.
④	Variance	The arithmetical difference between the Cumulative Available/Expected Delivery Quantity and the Cumulative Revised Scheduled Delivery Quantity.
⑤	Incremental Minimum Allowable Quantity	The incremental minimum allowable quantity computations are performed by SMART by projecting backward the levels of succeeding activity accomplishments necessary to support the final output commitments.
⑥	Incremental Marginal Quantity	The arithmetical difference between the Incremental Available/Expected Delivery Quantity and the Incremental Minimum Allowable Quantity.
⑦	Cumulative Minimum Allowable Quantity	The cumulative number of items that are required to support the final output commitments up to and including a given time. These quantities are obtained through a strict summation of the Incremental Minimum Allowable Quantity.

<u>FIELD</u>	<u>DEFINITION</u>
(r) Cumulative Marginal Quantity	The arithmetical difference between the cumulative available/expected delivery quantity and the cumulative minimum allowable.

Figure 2-23, is an illustration of this report generated in support of the Cheyenne (AH-56A) Project while ITDS itself was under development.

AH-56A CHEYENNE  
 PRODUCTION DELIVERY FORECAST REPORT  
 MATERIAL ACQUISITION STATUS TECHNIQUE

RUN DATE 08 Nov 67  
 STATUS DATE 31 Oct 67

FED ST NO: 4210-555-8837

PART NO: 11848

SOURCE: Defense Supply Agency

RESPONSIBLE ORG: AMSAV-QND

RECEIVING ORG: LAC

NOMENCLATURE: Extinguisher, Fire walk around

DATE	CUMULATIVE		VARIANCE (A/E-SCHED)	INCREMENTAL		CUMULATIVE	
	AVAIL/EXP DEL QTY	REV/SCHED DEL QTY		MINIMUM ALLOW QTY	MARG QUAN	MINIMUM ALLOW QTY	MARG QUAN
Prior	250	275	-25	225	25	225	25
1 Qtr 68	325	343	-18	50	25	275	50
Oct 67	340	370	-30	30	-15	305	35
Nov 67	363	392	-29	40	-17	345	18
Dec 67	398	422	-24	30	5	375	23
Jan 67	416	436	-20	40	-22	415	1

Figure 2-23. Sample MAST Production Delivery Forecast Report

## 2.2 SYSTEM ENGINEERING PERIPHERAL PROGRAMS

2.2.1 There are no organizational sub-elements of the system engineering functional discipline; it covers the entire life cycle of a system program and it is thus the appropriate place for the two programs described below. There is no reason, however, why these programs should not serve either the engineering design, production engineering, or operational engineering functional disciplines when their activities are most prevalent in the system life cycle.

The peripheral programs described below are used to store and reproduce material, largely composed of text, which is inconvenient to store in the central ITDS processing system because of record length. Further, the two types of engineering reports (Fact Sheets and Problem Summaries) do not require the high speed retrieval capability of direct on-line ITDS storage.

### 2.2.1.1 Engineering Fact Sheets

The purpose of an engineering fact sheet is to provide the Project Manager with a concise description of a particular area of the system, its requirements, its position with regard to the state of the art, and the status of compliance or demonstration. Major emphasis is on the technical aspects (design and performance) although costs and schedules are considered where applicable.

Engineering fact sheets, as contained in the peripheral program, are complete in themselves. Material for updating, identified through review of incoming documentation, is abstracted and entered in ITDS records along with such additional information as associated equipment identification and related engineering problems. These ITDS records allow identifying the existence of fact sheet and the equipment involved as well as providing convenient storage of updating material.

Updating of fact sheets will be on a periodic basis, although a significant change to the subject area, e.g., introduction of an ECP, is justification for updating on an exception basis. New fact sheets will be created in response to requests from the Project Manager's office.

The format of the Engineering Fact Sheet is as follows, and contains the kind of information described in the respective sections.

Subject: Statement or Title of Item Covered

Purpose: Phrase to describe the purpose

Facts:

1. Description

A detailed description of the subject is presented here, including, as a minimum, its function, significant characteristics and capabilities, operational environment, storage/preservation requirements and other peculiar considerations or special interest descriptive information.

2. Characteristics and Performance

Specific pertinent design characteristics, which might consist of such information as rate of use, speed, weight, storage capacity, range, etc.

3. Technological Advancement Represented

A description of the advancement in technology represented by the subject.

4. Test/Development Status

This section will present a description of the current and most recent test and test results with respect to the subject. In addition, this section will describe development status of the subject.

Additional performance characteristics may be presented in appendices if necessary.

Fact Sheets are retrievable on demand, and are updated manually, using ITDS records as source material and bibliography.

Appendix A is an illustration of this report generated in support of the Cheyenne (AH-56A) Project while ITDS itself was under development.

2.2.1.2 Engineering Problem Narratives

The purpose of an engineering problem summary is to provide the Project Manager's Office with a concise statement of a technical problem

concerning a particular equipment. Any level of detail may be treated. The summary will contain a brief description of the problem, its impact on the system, current status, and a bibliography of significant documents.

The engineering problem summary, as contained in the peripheral program, is an abridgement of the hard copy package contained in the ITDS hard copy file and in the SREAD files. This package contains extracts from all pertinent documents as well as an expanded description of the problem and identification of the equipment involved. Updating material, identified through review of incoming documentation, is abstracted and entered in ITDS digital storage records, along with associated information such as the system area and equipment involved. These ITDS records allow identification of the existence of a problem summary as well as updating of both the hard copy package and the summary.

Updating of problem summaries will be on the basis of significant changes in scope or status. New problem summaries will be created in response to requests from the Project Manager's Office, and as a result of forecast or identification by SREAD through review of incoming data.

The format of the Engineering Problem Narrative is as follows, and contains the kind of information described in the respective sections:

Subject: Statement or Title of Item Covered

Problem Description: An up-to-date summary description of the engineering problem.

Problem Definition: Detailed information regarding cause, effects, and magnitude of the problem.

Approach to the Problem: Identification of the agency/organization participating in resolution of the problem and the nature of the steps being taken in such resolution.

Recommendations: A statement of the current recommended action. This recommendation is formulated by ITDS functional disciplines which are involved in analysis of data pertinent to the specific problem at hand.

References: A tabulation of specific data items contained in ITDS which bear on the problem and which are the basis for recommendations presented in the section above.

Problem summaries are retrievable on demand. Each summary is updated manually at the time the corresponding hard copy package is updated. ITDS records serve as source material for updating and bibliography.

Appendix B is an illustration of this report generated in support of the Cheyenne (AH-56A) Project while ITDS itself was under development.

### 2.3 ENGINEERING DESIGN

This paragraph is allocated for future use when the need arises for peripheral programs for the Engineering Design functional discipline.

### 2.4 QUALITY ASSURANCE PERIPHERAL PROGRAMS

2.4.1 There are no organizational sub-elements of the quality assurance functional discipline. The ILS/MEADS program described in paragraph 2.4.1.1 below is categorized with quality assurance because of its inherent relationship to quality assurance per se and its applications program counterpart which manipulates MEADS data to produce certain elements of quality assurance information. See Section 2.4 in the General Descriptions of the ITDS Applications Programs.

#### 2.4.1.1 MEADS

The MEADS program consists of two related activities. The analysis and documentation in the form of worksheets B, C1, C2 and D prepared by the prime contractor and the manipulation of this data by the ITDS to produce summary data. The analysis and documentation prepared by the prime contractor provides the basic data necessary for reliability, maintainability and availability predictions and subsequently measurements. In addition this data provides the basis for predicting Quantitative and Qualitative Personnel Requirements information and provisioning and support equipment requirements for the weapons system.

The automated portion of this peripheral system performed by ITDS deals with five of the worksheets described in PP-AVCOM-ILS/MEADS-1

- Worksheet C, Maintenance Analysis Summary
- Worksheet E, Support Equipment Summary and Analysis
- Worksheet G, Spare and Repair Parts Summary and Analysis

- Worksheet H, Personnel and Training Summary and Analysis
- Worksheet I, Technical Data and Information Summary

The programmed system will accept and revise data via Worksheets C, E, and G and retain it in a master file. It will print preliminary and final versions of Worksheets E and G and final versions of Worksheets H and I.

The products reproduce, within computer printing limitations, MEADS Worksheets as described in existing U.S. Army documents.

Inputs to the system are handled as received from the prime contractor.

Figures 2-24 through 2-27 are illustrations of these reports generated in support of the Cheyenne (AH-56A) Project while ITDS itself was under development.

2.5 OPERATIONAL ENGINEERING

2.6 PRODUCTION ENGINEERING

2.7 TEST

2.8 LOGISTICS

2.9 PRODUCTION AND PROCUREMENT

The above paragraphs are allocated for future use when the need arises for peripheral programs in those functional disciplines.



WORKSHEET G 07/01/67

SPARES AND REPAIR PARTS SUMMARY AND ANALYSIS

IDENT-- WS'C' REV COST ACCOUNT CODE PAGE NO	DRAWING, PART --NUMBER OR FSM---	END ITEM MODEL CODE FS		FUNCTIONAL GROUP CODE 01002				EFFECTIVITY		REC MIT COD	REC ACT CODE	JUL DATE	EST DOLLAR VALUE
		REC ALW FTR 1	REC ALW FTR 2	REC ALW FTR 3	REC ALW FTR 4	REC MAINT FCTR	REC OHAUL FCTR	TEST TBL QTY	WS'C' LINE NO				
		REC ALW FTR 1 MNT COD FACTOR	REC ALW FTR 2 MNT COD FACTOR	REC ALW FTR 3 MNT COD FACTOR	REC ALW FTR 4 MNT COD FACTOR	ITEM UTIL TASK FREQ	QTY PER E 1	FLY MAINT QTY	REC MIT COD	REC ACT CODE	JUL DATE	EST DOLLAR VALUE	
11	15	26 27	31 32	36 37	41 42			46			74	78	
		TUBE TORQUE										\$8.00	
01							0.01					02	
50		TUBE TORQUE										\$10.00	
01							0.01					03	
01		TUBE TORQUE										\$10.00	
01							0.01					04	
01		BEARING					0.02					\$4.00	
01												05	

Figure 2-25. Spares and Repair Parts Summary and Analysis

WORKSHEET H 08/12/68  
PERSONNEL AND TRAINING SUMMARY AND ANALYSIS

EIMC FS JULIAN DATE 7319 EFFECTIVITY

MANPOWER UTILIZATION										DISTRIBUTION OF MAINTENANCE MANHOURS PER FLIGHT HOUR					
MOS	FUNC GRP CD	TASK CODE	TSK FRQ (300 H)	ELAPSED TIME	NO MEN	MOS MOD	MOS ADD	ORGANIZATIONAL CORR	DIRECT PREV	SUPPORT CORR	GEN. PREV	SUPPORT CORR	DEPOT PREV	DEPOT CORR	
67A10	01002	C80A4	50.00	9.1	01			0.0139							
67A10	01002	GSFE4	0.40	0.0	01		X			0.0002					
67X20	01002	GJFE4	0.40	13.2	01					0.0003					
67X20	01002	HJ0B4	0.20	14.6	01			0.0002							
68A10	01002	HJH24	0.05	82.6	01	X						0.0002		0.0003	
68A10	01002	IJD20	0.02	234.3	01									0.0001	
68D20	01002	HJH24	0.05	0.0	01										
68G20	01002	C80A4	50.00	0.0	01	X		0.0114							
68G20	01002	CEFA4	1.00	19.2	02	X			0.0021						
68G20	01002	IJD20	0.02	0.0	01	X								0.0002	

Figure 2-26. Personnel and Training Summary and Analysis

WORKSHEET 1 07/07/67

TECHNICAL DATA AND INFORMATION SUMMARY

EIMC ES		JULIAN DATE		6346 EFFECTIVITY					OHI	DRAWING OR	REMARKS
FUNC	TASK	-20PMD	-20PMI	-20PMP	-35	-35P	-40	-50	P A	ILLUSTRATION	
GRP CODE	NO										
01002	HJFD4				X	X				1002803-102	
01002	HJFD4				X	X				1002840-103	
01002	HJFD4				X	X				1004129-101	
01002	HJFD4				X	X				1004175-101	
01002	HJFD4				X					5180 323 4692	
01002	HJFD4				X					740437	
01002	HJOB4									1003690-103	
01002	HJOB4									1003690-105	
01002	HJOB4									1003690-107	
01002	HJOB4									1003694-101	
01002	HJOB4									5180 323 469	

Figure 2-27. Technical Data and Information Summary

APPENDIX A  
FACT SHEET

SUBJECT: Propulsion System (U)

PURPOSE: Background Information

FACTS:

1. Description of System and Major Components. The propulsion system provides and applies the power for vertical take-off and landing, hover, and thrust for forward flight. It also provides power for the auxiliary electric and hydraulic power systems.

a. Main Power Plant - This is a government-furnished turboshaft engine featuring a 14-stage axial-flow compressor with a nominal compression ratio of 13.0 to 1.0, a through-flow annular combustion chamber, a 2-stage axial flow gas-generator turbine, and a free or independent 2-stage axial-flow power turbine. The power shaft is coaxial with the gas generator/compressor shaft and extends forward of the front frame to engage the main transmission via an external spline on the power shaft. The power shaft has a nominal (rated) speed of 13,600 RPM. The engine also incorporates: a manifold and nozzle system, integral with the front frame, to provide injection of water to flush internal deposits of salt and of a rust-preventive fluid as a corrosion inhibitor following the flush operation; fire shield attachment; fire-resistant covered fuel lines; and a turbine assembly guard.

b. Power Train - This consists of the main transmission, propeller shaft, tail rotor shaft, and propeller/tail rotor gear box. The main transmission delivers engine power to the main rotor, propeller shaft, and accessories, providing the speed reductions required, and provides the structural link from the main rotor to the airframe. The transmission incorporates an overrunning clutch which automatically disengages the engine from the power train in the event of engine failure. It also incorporates a tailored shear section in the planet carrier output support which will rupture in the event of gear train seizure and allow the main rotor to autorotate. A hydraulically actuated rotor brake prevents the main rotor and propeller shaft from turning during the engine start and at ground idle; an interlock releases this brake when the engine throttle is advanced beyond ground idle. The accessory drive portion of the main transmission powers the alternators and the utility-flight control hydraulic pump. (The flight control hydraulic pump is driven only when the rotor mast is rotating.) The accessory drive is driven by a take-off from the propeller shaft drive train or by an auxiliary power unit (APU). The propeller shaft attaches to the main transmission and the propeller/tail rotor gear box with spline fittings. The tail rotor shaft, located in the left horizontal stabilizer, attaches to the propeller/tail rotor gear box and the tail rotor. The propeller/tail rotor gear box, located in the end of the aft fuselage, is an integral unit with the propeller and provides the reduced-speed power take-off for the tail rotor.

c. Main Rotor - This performs the vertical lifting function by utilizing proprietary "rigid rotor" system. The main rotor consists of four metal-fiberglass cantilevered blades, pivoted only about their feathering axes, and a rotor hub. The rotor hub consists of a fixed hub with four arms and movable hubs to which the blades attach. A tension-torsion pack, located between the inboard end of each movable hub and the fixed hub, resists and transmits centrifugal forces with low torsional restraint.

d. Tail Rotor - This provides main rotor anti-torque and vehicle directional control. The tail rotor consists of four blades, of fiberglass construction, and is mounted on the left horizontal stabilizer.

e. Propeller - This provides thrust for high forward speed and reverse thrust for deceleration. This consists of three blades, of fiberglass construction and with a retention method which permits replacement of individual blades without special tools, and is mounted on the aft end of the fuselage, integral with the propeller/tail rotor gear box.

f. Fuel System - This consists of three internal fuel cells plus the capability to install, on pylons, external tanks as may be needed for various missions and plus the associated plumbing and piping. There is one fuel cell in each sponson and one near the aft end of the mid-fuselage. The fuselage cell serves as the main feed (and fill) tank to which fuel from the sponson cells is transferred by gravity flow. The extended range fuel tanks system consists of provisions to mount fuel tanks up to 430 gallon capacity on each of the four wing pylons and the two fuselage (sponson) pylons. A boost pump installed in the fuselage cell supplies fuel under pressure to the engine fuel inlet. Fuel from the external tanks is transferred to the fuselage cell (and the sponson cells) by pressurizing the external tanks with engine bleed air.

g. Lubrication Systems - The engine lubrication system is completely separate from other lubrication systems and consists of the engine-mounted oil tank, an engine-driven pump (integral), a forced-air cooler, and the necessary piping and valves. The oil tank is self-sealing on all surfaces when penetrated by fully-tumbled 12.7mm projectiles.

The transmission lubrication system is completely separate from the engine lubrication system and consists of a main transmission mounted scavenging-and-pressure pump, a fuselage-mounted oil tank, a forced air cooler, and the minimum piping and valves. Oil passages integral with the transmission structure serve to reduce external piping requirements. The oil tank is self-sealing on all surfaces when penetrated by fully-tumbled 12.7mm projectiles.

The propeller/tail rotor gear box contains two independent oil systems, one for the gearbox itself and one for the pitch changing mechanism of the integrally-mounted propeller. Sight level gages, visible from ground level, are provided for the gear box and propeller pitch oil levels. The tail rotor bearings are splash lubricated by a self-contained lubrication system.

h. Starting System - The engine is started by an engine-mounted hydraulic motor which receives its power from the utility-flight control (main) hydraulic pump mounted on the main transmission accessory drive. The Auxiliary Power Unit via one-way-clutches, provides power to the accessory drive for engine starting. The Auxiliary Power Unit is battery-started, thus the starting system is self-contained.

2. Characteristics and Performance Parameters.

a. Main Power Plant - The salient dimensions of the are presented below. Performance ratings at sea level/59°F and 6,000ft/95°F static conditions are presented on attached sheets.

(1) Envelope: overall length, 67.89 in.  
vertical height, 33.10 in.  
nominal width, 26.05 in.

(2) Weight: dry weight shall not exceed 700 lb.

b. Main Rotor - The salient dimensions and other characteristics are:

Rotor Diameter	51.2 ft
Normal Rotational Speed	246 RPM
Tip Speed (normal)	660 ft/sec
Solidity	0.1158
Chord	28 in
Twist	-5°
Inertia	8100 slug-ft <sup>2</sup>
Disc Loading (at Design Gross Weight)	8.20 lb/ft <sup>2</sup>

The tip speed gives an advancing tip Mach number of 0.930. The DGW is 16,995 lb. However, the September 1 Weight Report gives a Gross Weight of 17,559 lb, which would result in a disc loading of 8.54 lb/ft<sup>2</sup>.

c. Tail Rotor - The salient dimensions and other characteristics are:

Diameter	10.0 ft
Normal Rotational Speed	1238 RPM
Tip Speed (normal)	648 ft/sec
Solidity	0.297
Chord	14 in
Twist	0°
Inertia	12.6 slug-ft <sup>2</sup>
Pitch Range	10° to 26°

Maximum thrust for equilibrium in hover out of ground effect is 2,200 lb.

d. Propeller - The salient dimensions and characteristics are:

Diameter	10.0 ft
Normal Rotational Speed	1717 RPM

Tip Speed (normal)	900 ft/sec
Inertia	13.98 slug-ft <sup>2</sup>
Pitch Range	-19° to +39°
Integrated Lift Coefficient	0.411

Maximum efficiency at 140-180 knots. Will reverse thrust but will not feather.

e. Fuel System - The internal fuel cells (sponsons and fuselage) are of crash-resistant, flexible self-sealing material. They are self-sealing, except on the top surface, when penetrated by fully-tumbled 12.7mm projectiles.

Internal Fuel Cell Capacities:

Left Sponson Cell	78 gal
Right Sponson Cell	60 gal
Fuselage Cell	<u>300 gal</u>
TOTAL	438 gal

When mission requirements dictate the need for more fuel, external tanks can be attached to wing and fuselage pylons. For the ferry mission, the external tank arrangement, capacities, and fuel loads are:

Wing Tanks (four at 450 gal each)	1800 gal
Fuselage Tank (one at 200 gal)	<u>162 gal</u>
TOTAL	1962 gal

These external tanks are not self-sealing. They are jettisonable and the attachments incorporate breakaway features in the event of a crash landing. Fuel management by the pilot is accomplished by following standard procedures.

3. Test/Development Status.

ENGINE

PERFORMANCE RATINGS AT SEA-LEVEL-STATIC CONDITIONS, T<sub>2</sub>-59F (15C)

(Ratings Are At Power-Turbine Output Shaft)  
(Based on E-1123B)

Rating	Min. SHP	Torque For Rated Power & Speed (lb-ft)	Max. SFC (lb/shp/hr)	Max. Gas-Generator Speed (a) (rpm)	Rated Power-Turbine Speed (b) (rpm)	Max. Measured Power-Turbine Inlet Temp. (T <sub>5</sub> ) (c) (°F)
Maximum (10-min)	3435	1326	0.483	18,080	13,600	1250
Military (30-min)	3435	1326	0.483	18,080	13,600	1250
Normal	3230	1247	0.488	17,800	13,600	1225
90% Normal	2905	1122	0.496	-----	13,600	----
75% Normal	2420	934	0.517	-----	13,600	----
Ground Idle	110 (Max.)	-----	300 lb/hr (Max. Fuel Flow)	-----	-----	----

Notes: (a) Maximum allowable continuous gas-generator speed is 18,230 rpm (100% gas generator speed). Maximum allowable transient gas-generator overspeed limit is 18,500 rpm for a transient excursion over maximum allowable continuous gas-generator speed shown for a duration of not more than 10 sec.

(b) Maximum allowable continuous output speed for Engine: 17,000 rpm.

(c) For reference purposes, Maximum (10-min) T<sub>4</sub>-1900F(1038C); Military (30-min) T<sub>4</sub>-1900F (1038C); Normal T<sub>4</sub>-1856F(1013C).

**ENGINE**

**PERFORMANCE RATINGS AT 5,000 FT-STATIC CONDITIONS, T<sub>2</sub>=95F (35C)**

(Ratings Are At Power-Turbine Output Shaft)  
(Based on E-1123B)

Rating	Min. SHP	Torque For Rated Power & Speed (lb.-ft)	Max. SFC (lb/shp/hr)	Max. Gas-Generator Speed (a) (rpm)	Rated Power-Turbine Speed (b) (rpm)	Max. Measured Power-Turbine Inlet Temp. (T <sub>5</sub> ) (c) (°F)
Maximum (10-min)	2650	1023	0.496	18,230	13,600	1325
Military (30-min)	2470	954	0.502	18,080	13,600	1290
Normal	2100	811	0.518	17,800	13,600	1225
90% Normal	1890	730	0.532	-----	13,600	----
75% Normal	1575	608	0.561	-----	13,600	----
Ground Idle	95 (Max.)	-----	265 lb/hr (Max. Fuel Flow)	-----	-----	----

**Notes:** (a) Maximum allowable continuous gas-generator speed is 18,230 rpm (100% gas generator speed).  
Maximum allowable transient gas-generator overspeed limit is 18,500 rpm for a transient excursion over maximum allowable continuous gas-generator speed shown for a duration of not more than 10 sec.

(b) Maximum allowable continuous output speed for Engine: 17,000 rpm.

(c) For reference purposes, Maximum (10-min) T<sub>4</sub>=2003F(1095C); Military (30-min) T<sub>4</sub>=1951F (1066C); Normal T<sub>4</sub>=1853F(1012C).

## APPENDIX B

### PROBLEM ANALYSIS

SUBJECT: System Weight Trends

PROBLEM DESCRIPTION: As of the date of this report, February 196 (DAI 27305), the weight of the system has increased to the point where it requires special focus.

PROBLEM DEFINITION:

1. This is an inherent problem in aircraft programs, especially where the "state of the art" is being advanced.
2. Sufficient data are not being submitted for inclusion in the ITDS to keep a current weight analysis available.

APPROACH TO THE PROBLEM: The latest weight data available in the ITDS were used to predict the empty weight. The empty weight value predicted, and the latest contractor submitted empty weight were then used as the basic weights to which were added all items required for the vehicle to "fly" the specified missions. The specified mission was not included as the contractor has already shown that the specified mission range can not be met.

RECOMMENDATIONS: It is recommended that the contractor conduct a current and a predicted weight and balance analysis. It is also recommended that the contractor conduct a trade-off analysis. At the completion, these analyses together with reference and background material should be submitted for inclusion in the ITDS.

REFERENCES:

1. Contractor report, "Weight and Balance Status", originated May 196 and revised periodically through January 196 . (Refer to Table 4, Page 5 of subject report for DAI numbers.)
2. Contractor report, "Estimated Weight Report", dated May 196 . (DAI 00304)
3. Contractor Report, "Actual Weight Report - Model, dated January 196 . (DAI 12253)
4. "Agenda - System Technical Briefing", Washington, D. C., dated January 196 . (DAI 26015B)
5. "System Description for the System", No.                      dated January 196 .
6. Contractor Report No.                      , "System Capabilities and Performance Data", dated February 196 . (DAI 05643)
7. Contractor Report, "Model Specification Engine, Aircraft Turboshaft", revised August 196 . (DAI 23107)