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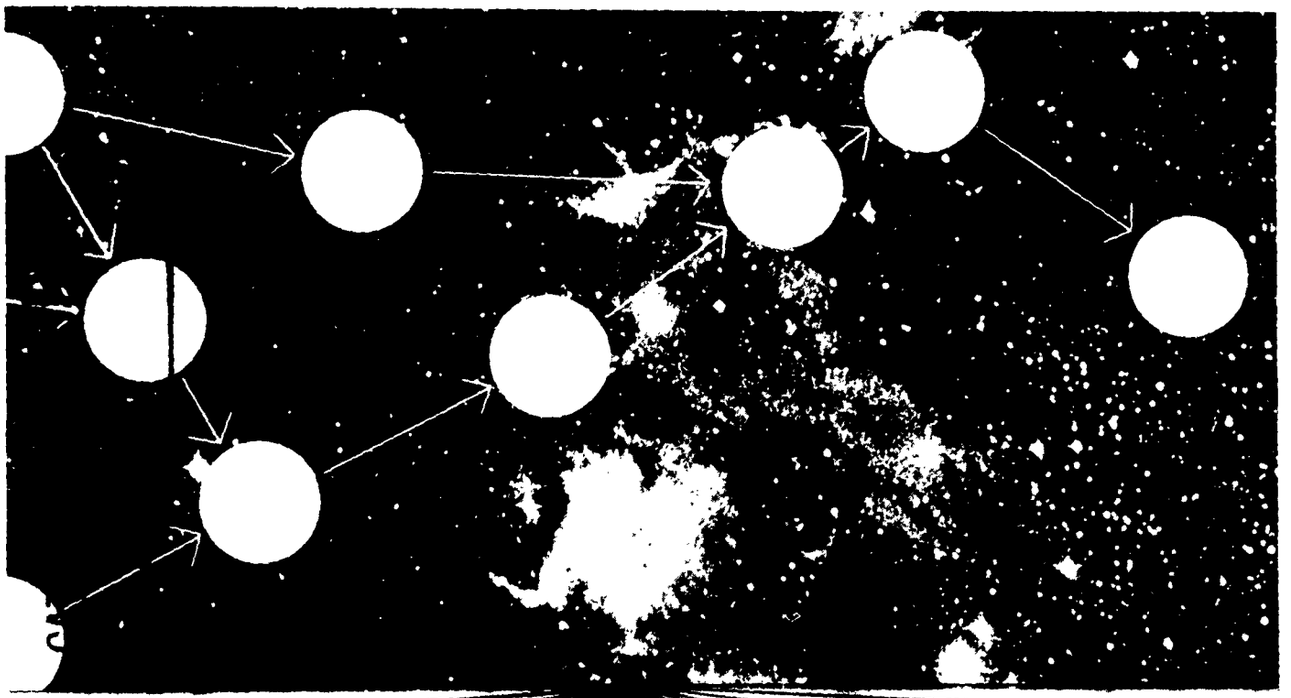


VOLUME IV

PERT COST SYSTEM COMPUTER PROGRAM HANDBOOK

(PART I)

Program User's Guide

ADVANCE COPY FOR AFSC IMPLEMENTATION

DECEMBER 1963

USAF PERT VOLUME IV (PART I)

FOREWORD

This manual is Volume IV, Part I of the USAF PERT series. It is the companion publication to Volume III, USAF PERT COST SYSTEM DESCRIPTION MANUAL, dated December 1963.

This document provides a general description of the IBM 7090 computer program which is used to process data for the USAF PERT Cost Module. The complete programmer-oriented description of this program is contained in Volume IV, Part II of this series.

The schedule information input to the program is externally generated from the USAF PERT Time program or any comparable computer program. The cost information input is obtained through the use of input forms or externally generated tapes. The program produces all of the output reports described in the USAF PERT COST SYSTEM DESCRIPTION MANUAL, dated December 1963 and Supplement #1 to the DOD and NASA Guide to PERT COST, dated March 1963.

Comments concerning any part of this publication are solicited from both Government and Industry sources, and should be forwarded to Hq AFSC (SCCSS), Andrews AFB, Washington, D. C. 20331.

DUWARD L. CROW
Brigadier General, USAF
DCS/Comptroller

USAF PERT

VOLUME IV

PERT COST SYSTEM COMPUTER PROGRAM HANDBOOK

(PART I)

DECEMBER 1963

USAF has produced a series of PERT documents to provide understanding of the USAF PERT TIME and PERT Cost Systems presently in use. This manual is the fourth volume in the USAF PERT series.

VOLUME I	USAF PERT TIME SYSTEM DESCRIPTION MANUAL
VOLUME II	USAF PERT TIME SYSTEM COMPUTER HANDBOOK
VOLUME III	USAF PERT COST SYSTEM DESCRIPTION MANUAL
VOLUME IV	USAF PERT COST SYSTEM COMPUTER PROGRAM HANDBOOK, PART I
	USAF PERT COST SYSTEM COMPUTER PROGRAM HANDBOOK, PART II
VOLUME V	USAF PERT IMPLEMENTATION MANUAL

CONTENTS

CONTENTS (Continued)

CONTENTS (CONTINUED)

CONTENTS (Continued)

FIGURES

FIGURES (Continued)

FIGURES (Continued)

FIGURES (Continued)

FIGURES (Continued)

FIGURES (Continued)

TABLES

CHAPTER I

INTRODUCTION

CHAPTER I

INTRODUCTION

I-A FUNCTION

This document provides a user oriented description of the IBM 7090 computer program designed to process data for the USAF PERT Cost System.

This document represents a revised version of the first edition which was published in May 1963. This revision contains an exposition of new capabilities which have been added to the system as well as a further clarification of some of the original capabilities.

I-B HARDWARE REQUIREMENTS

This program is designed for use on the IBM 7090 computer with a 32768-word memory. The program uses a total of nine tapes on channels A and B. These nine tapes do not include the tapes required by the system. The necessary ancillary equipment consists of an on-line printer and a tape-to-card converter.

CHAPTER II

GENERAL SYSTEM DESCRIPTION

CHAPTER II

GENERAL SYSTEM DESCRIPTION

II-A CAPABILITIES

PERT Time Data

The system derives its schedule information from tapes generated by various PERT Time systems. This is accomplished through the use of the PERT Time Tape Description Input Forms.

Output Reports

The module produces all of the reports currently described in the USAF PERT Cost System Description Manual. The user may select the type and level of report to be generated with each computer run.

Error Editing

The module has extensive error editing capabilities in each of its four phases.

Calendar Routine

The system uses a calendar routine which excludes all weekends and holidays from its computations.

Master File

Time and cost data are maintained in a master file which may be automatically updated.

Computer Run Options

There are 7 options which permit the user to start and stop the program at various points in the processing cycle. These options are discussed in subsection II-C.

Cost Data Only

The program provides an option for processing cost data without using PERT Time information. This means that the PERT Cost reports will not contain the customary schedule information.

Externally Generated Cost Data

The program will process estimated, budgeted and actual cost data which have been written on externally generated tapes. These tapes must be in the formats described in the **USAF PERT Cost System Computer Program Handbook, Part II.**

Capacity

The capacity of the program is generally stated as follows:

a. Work Breakdown Structure

The program will process a work breakdown structure composed of 16 levels. The maximum amount of charge or summary numbers that may be associated with a particular parent number is 63.

b. PERT Network

The system is capable of processing data derived from multiple PERT networks. There is no limit to the number of activities contained in these networks. However, all of this PERT Time data must be contained on a single tape.

c. Performing Organization - Resource Code Combinations

There is no limit to the number of Performing Organizations - Resource Code combinations that may be associated with a particular charge or summary number.

d. Activities

There is no limit to the number of activities that may be associated with a particular charge or summary number.

e. Cost Data

The system will retain budgeted, estimated and actual costs in the master file in monthly increments. The maximum number of monthly increments for a particular performing organization-resource code combination is 60.

Cost data may be input on multiple input tapes. The maximum number of tapes is 9.

f. Master File

The master file may be retained on multiple tapes. The maximum number of tapes is 9.

g. Rate Table

The maximum number of resource codes or combinations that may be entered in the rate table is 266. The maximum number of rates that may be distributed among these combinations is 1600.

h. Rainbow Categories

The maximum number of rainbow categories that may be entered in the system is 20. The maximum number of resource codes that may be distributed among these 20 categories is 200. A resource code may not be associated with more than one rainbow category.

i. Cost Categories

The maximum number of cost categories that may be entered in the system is 20. The maximum number that may be distributed among these 20 categories is 200. A resource code may not be associated with more than one cost category.

II-B PROGRAM LOGIC

The program is divided into four phases as shown in Fig. 2-B-1. These phases are generalized as follows:

Phase I: Edit and Input Sort

In Phase I, the program reads in all of the input data. Each card is edited for errors. These errors are written on the output tape. An edited data tape is produced and subsequently sorted into card number sequence. The final product of Phase I is a sorted data tape.

Phase II: Activity to Charge Number Merge

In Phase II, the link between the PERT Time system and the PERT Cost module is formed. The PERT Cost Secondary Master File contains the network activities and their associated charge numbers. There is no time information such as T_E, T_L, slack, etc., in this file. This time information is provided by the user's PERT Time tape.

In Phase II a sorted time tape and a new Secondary Master File are generated. This is accomplished in the following manner:

(a) The program will read in the new PERT Time parameter cards from the sorted data tape. If there are no parameter cards, then this information is read in from the PERT Cost Secondary Master File.

(b) The user's PERT Time tape is read into the system through the use of this parameter data. If the PERT Time tape is not in the proper sequence, then each record is written in a prescribed format on another tape. This tape is then sorted into the proper sequence.

(c) The program then proceeds to merge these three tapes; that is, the sorted data tape, the user's PERT time tape, and the secondary master tape are matched one activity at a time.

(d) The Type 2 cards (Activity/Charge Number card), if present on the sorted data tape, are used to update the Old PERT Cost Secondary Master File, as this master is being generated.

(e) Wherever an activity on the secondary master matches an activity on the user's PERT Time tape, that activity with its associated charge number and time information are placed on an activity - time tape.

(f) This process continues until all of the activities on the new secondary master have been matched with the user's PERT Time tape. This process results in the generation of an activity - time tape and a new secondary master tape.

(g) The activity - time tape is then sorted into charge number sequence to be used in Phase III.

Errors encountered during the time merge phase are written on the System Error Tape or on the on-line printer. Messages on the System Error Tape will not stop the processing. However, at the conclusion of this phase, the errors will be totaled and printed on-line. The computer will halt, indicating an option to continue. Some errors will cause the computer to halt during the processing cycle. These errors are written on-line and must be rectified prior to rerun.

Phase III: PERT Cost Update

In Phase III the PERT Cost Master File is either established or updated from the data contained in the sorted activity - time tape and the sorted data tape. This phase also generates a sorted report tape which contains all of the data necessary for the final reporting phase. This is accomplished in the following manner:

(a) A record is read into the system from each of the three tapes. More clearly, the information relating to one charge number is read in from each of the tapes, i.e., the PERT Cost Master, the sorted data tape, and the sorted activity - time tape.

(b) The Old PERT Cost master is updated and a new PERT Cost master is generated. The sorted activity - time tape is interrogated to obtain all of the time information associated with each activity assigned to the current charge number.

(c) This time and cost data are written on the report tape.

(d) The report tape is then sorted, to be used in Phase IV.

The errors that are encountered during this phase are written on the System Error Tape or on the on-line printer. Messages on the System Error Tape will not stop the processing. However, at the conclusion of this phase the errors will be totaled and printed on-line. The computer will halt, indicating an option to continue. Some errors will cause the computer to halt during the processing cycle. These errors are written on-line and must be rectified prior to rerun.

Phase IV: Output Reporting

In Phase IV the output reports are generated and written on the output tape. Some errors will cause the computer to halt during the processing cycle. These errors are written on-line and must be rectified prior to rerun.

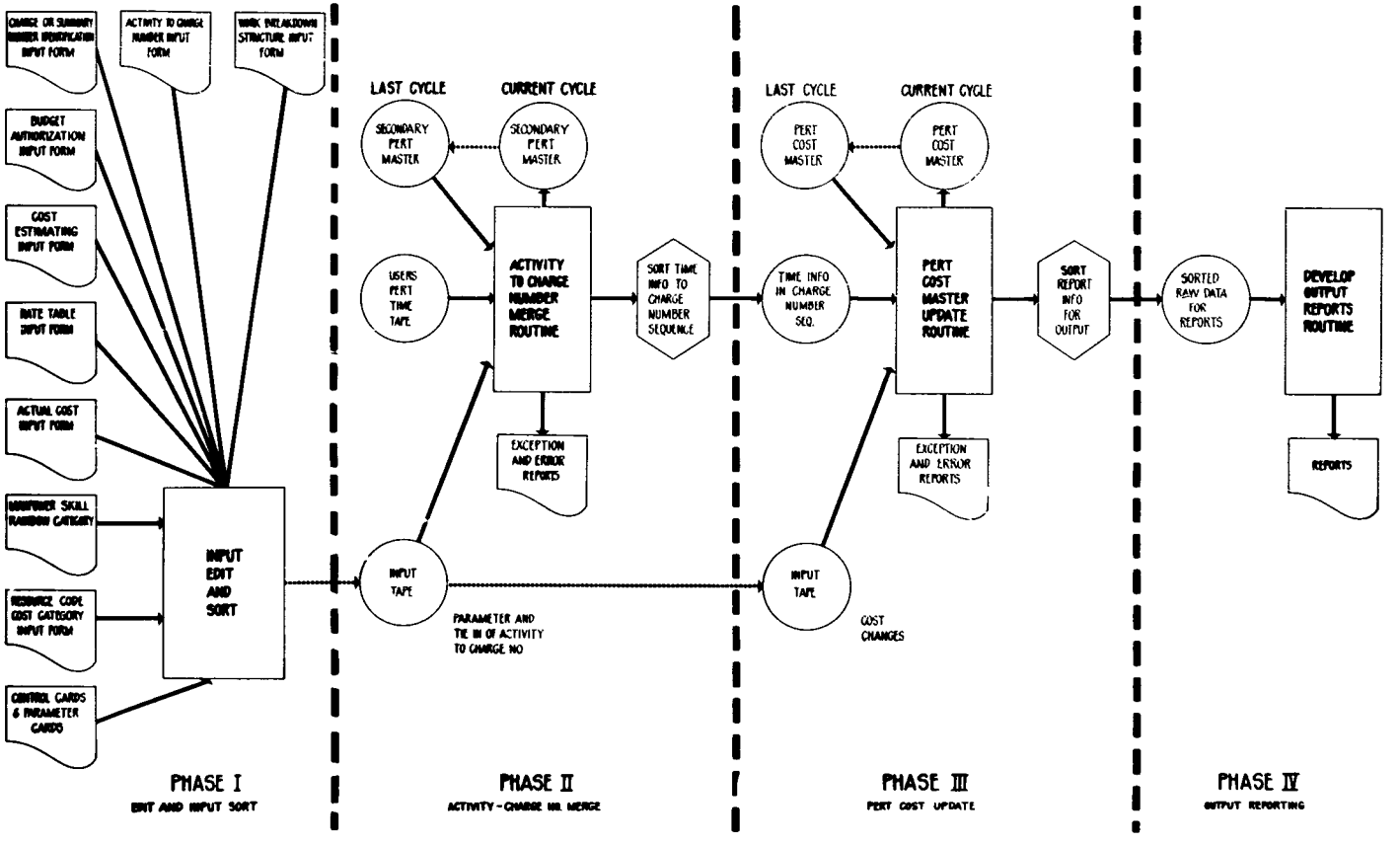


Figure II-B-1. PERT Cost Module Logic Flow

II-C COMPUTER RUN OPTIONS

The user is provided with seven options that permit the program to be started and stopped at various points in the processing cycle. The letter indicating the desired option is placed in column 2 of the main control card. These options are briefly described below.

Option A

The input data will be read into the computer and edited for errors. An edited tape will be produced. The errors found during this edit will be placed on the output tape.

Option B

The program will perform those functions described in Option A. In addition, it will sort the edited data into card and type code sequence, thus producing a sorted input tape.

If errors have been uncovered during the edit phase the computer will halt after the edited tape has been generated. The number of errors will be printed on-line. If the user does not deem the number to be excessive, the start key on the console is depressed and processing continues until the sorted input tape is produced. If no errors have been encountered, the program will automatically continue into the next phase.

Option C

The program will perform those functions described in Option B. In addition, it will update the activity-charge number data contained in the Secondary Master Tape; i.e., the first file of the PERT Cost Master Tape. This file is then merged with the user's PERT Time tape to produce a merged time tape. This tape contains each activity, its time

data, and its associated charge number. The merged time tape is then sorted into charge number sequence, producing the sorted time tape.

Errors encountered during the merge phase will be printed on the output tape. If errors have been encountered, the merged time tape will be written and the computer will halt. The number of errors will be printed on-line. If the user does not deem this number to be excessive, the start key on the console is depressed and processing continues until the Work Package/Activity Report is generated. If errors have not been encountered the system will continue processing until the Work Package/Activity Report is generated.

Option D

Option D is used to run from the start to the end of the entire program. The program will perform those functions described in Option C except that the Work Package/Activity Report is not automatically produced. It must be requested by the user through the use of the Report Selection Card.

In addition, the program will use the data contained on the sorted time tape to update the PERT Cost master tape. During this updating phase, the data necessary for the output reports are written on a tape. This tape is sorted to form the sorted output tape. Finally, the program generates all of the output reports requested by the user.

If errors in the data are encountered during this updating phase, they will be printed on the output tape. The computer will halt and the number of errors will be printed on-line. If the user does not deem this number to be excessive, the start key on the console is depressed and processing continues until all of the output reports are generated.

Option E

Option E is selected if the user has previously used Option B and now wishes to continue through Option C; that is, Option E is used if a

sorted input tape has been generated as a result of Option B and the user now wishes to continue processing to obtain the information that would have resulted from Option C (e. g., error messages or the Work Package/Activity Report).

Option F

Option F is selected if the user has previously used Option B and now wishes to go through the entire system to obtain the output reports.

Option G

If the user has generated a sorted time tape as a result of using Options C or E and now wishes to continue through the system, Option G is used. This option is also used if the user wishes to produce the PERT Cost reports without using PERT Time data. Therefore, the reports generated will not contain the customary PERT Time information.

CHAPTER III

SYSTEM INPUT FORMS

CHAPTER III

SYSTEM INPUT FORMS

III-A INTRODUCTION

The forms described in this section may be divided into 2 categories.

The first category is composed of the Control Card Input Form which is used to control the corresponding computer run and the PERT Time Tape Description Input Forms which are used to describe the User's PERT Time tape.

The second category is composed of 9 input forms which are used for establishing and updating the master file.

Table III-A-1 provides a cross reference of the input forms to the card type numbers.

TABLE III-A-1. Input Forms by Card Type Number

Card Type Number	Title	Page Number
A	Main Control Card	III-B-1
B	Report Selection Card	III-B-1
C	Project Selection Card	III-B-1
D	Tape Reassignment Card	III-B-1
E	Security Number Control Card	III-B-1
F	Program Name Change Control Card	III-B-1
1A	Data Description Block	III-C-2
1B	Tape Record & File Description Block	III-C-2
1C	Data Description Block - Time Data	III-C-4
2	Activity to Charge Number Input Form	III-E-1
4	Rate Table Input Form	III-K-1
5	Manpower Skill/Rainbow Category Input Form	III-M-1
6	Resource Code/Cost Category Input Form	III-N-1
7-0 and 7-1	Work Breakdown Structure Input Form	III-D-1
7-2	Charge or Summary Number Identification Input Form	III-F-1
7-3	Actual Cost Input Form	III-L-1
7-4	Cost Estimating Input Form	III-I-1
7-5	Budget Authorization Input Form	III-G-1

USAF PERT COST SYSTEM

CONTROL CARD INPUT FORM

Prepared by _____ Page _____ of _____

Date _____

MAIN CONTROL CARD

CARD CODE				REPORT ISSUE DATE			NEW MASTER FILE DATE			NEW PROGRAM NAME (REPLACES CURRENT NAME)	PERT TIME TAPE DATE			PERT COST MASTER DATE			SECONDARY MASTER DATE			PROGRAM FROM		SPAN TO			MAN-MONTHS CONVERSION FACTOR			
				MONTH	DAY	YEAR	MONTH	DAY	YEAR		MONTH	DAY	YEAR	MONTH	DAY	YEAR	MONTH	DAY	YEAR	MONTH	YEAR	MONTH	YEAR		INTEGER	DEC	
1	2	3	4	5		11	12		18	19 — 42	43		49	50		56	57		63	64	68	69	73	74	75	78	79	80
A																											

REPORT SELECTION CARD

CARD CODE	VARIABLE REPORT SELECTION FIELD	
1	2	80
B		
B		
B		
B		
B		

PROJECT SELECTION CARD

OMIT THIS CARD TO PROCESS ALL PROJECTS

CARD CODE			
		◀ PROJECT NUMBER	
1		7 — 12	80
C			

TAPE REASSIGNMENT CARD

CARD CODE		NEW PERT COST MASTER		SORT & MERGE TAPE		SORT & MERGE TAPE		ERROR & OUTPUT TAPE		SORTED CHANGE TAPE		OLD PERT COST MASTER		USE IF TIME TAPE		SORT & MERGE TAPE		SORT & MERGE TAPE	
		TAPE UNIT	R/B	TAPE UNIT	R/B	TAPE UNIT	R/B	TAPE UNIT	R/B	TAPE UNIT	R/B	TAPE UNIT	R/B	TAPE UNIT	R/B	TAPE UNIT	R/B	TAPE UNIT	R/B
1		11	13	17	19	23	25	29	31	35	37	41	43	47	49	53	55	59	61
D																			

SECURITY NUMBER CONTROL CARD

CARD CODE		CHARACTER NUMBER	SECURITY NUMBER	
1		5 6	7 — 30	80
E				

PROGRAM NAME CHANGE CONTROL CARD '.

CARD CODE		OLD PROGRAM NAME	
		◀	
1		19 — 42	80
F			

Figure III-B-1. Control Card Input Form

III-B CONTROL CARD INPUT FORM

General Description

The Control Card Input Form (Fig. III-B-1)is composed of 6 types of cards. Data from these cards are used for controlling the corresponding computer run.

Only those cards containing data pertinent to the prospective computer run must be entered in the system.

Main Control Card

a. Column 1, Card Code

The letter A is preprinted in this column for card identification.

b. Column 2, Option Code

A letter from A-G is entered in this field to indicate the type of run desired by the user.

These options are described in subsection II-C.

c. Column 3, Number of Input Tapes

Column 3 contains the number of input tapes containing raw data that will be used on this run. The maximum number is 9. For example, if the raw data coming into the system is on two tapes, the number 2 is placed in column 3.

d. Column 4, Successor-Predecessor Sequence Indicator

Column 4 is used to indicate the sort of the user's PERT Time tape.

1 = successor-predecessor sequence
blank = any other sequence

e. Columns 5-11, Report Issue Date

The entry in this field appears as the release date on the output reports.

f. Columns 12-18, New Master File Date

Columns 12-18 contain the date given to the new PERT Cost master tape, which is generated by this run.

This date also serves as the Time-Now date appearing in the graphical portion of the Management Summary Report

g. Columns 19-42, New Program Name

This field contains a new program name which will replace the name currently entered in the file. This program name appears on each of the output reports.

h. Columns 43-49, PERT Time Tape Date

The date in columns 43-49 appears on the user's PERT Time tape. It is equivalent to the report date described by card IC04 in the data description block. This date is used to identify the user's PERT Time system, therefore, it must be accurately entered.

i. Columns 50-56, PERT Cost Master Date

Columns 50-56 contain the date which appears on the PERT Cost master tape that will be mounted for this run. This date is used as a check to assure that the correct tape is used.

j. Columns 57-63, Secondary Master Date

The date entered in columns 57-63 appears on the secondary master tape that will be mounted for this run. This date is used as a check to assure that the correct tape is used.

k. Columns 64-73, Program Span

The date in columns 64-73 indicates the "Term (Span)" on each of the output reports. The date entered in this field will appear on the output reports. If this field is blank, the words "Total Program" will appear in this position.

l. Column 74, No Time Input Indicator

Any character entered in this field will indicate that this run will not use any PERT Time data.

If this field is left blank then the time data will be processed.

m. Columns 75-78, Man-Months Conversion Factor

The number placed in this field will be used to convert all man-month entries to man-hours. If this field is blank, and man-months are entered in the system, the program will automatically use 173.32 as the conversion factor.

n. Column 79, File Establishment Indicator Time Merge

The entry in this column indicates whether or not this run will use a previously established secondary master tape.

1 = This run will not use a previously established secondary master tape. A secondary master will be initiated with this run.

0 = This run will use a previously established secondary master tape.

o. Column 80, File Establishment Indicator UPD

The entry in this column indicates whether or not this run will use a previously established PERT Cost master tape.

1 = This run will not use a previously established PERT Cost master tape. A master tape will be initiated with this run.

0 = This run will use a previously established PERT Cost master tape.

Detailed Description, Report Selection Card

a. Column 1, Card Code

The letter B is preprinted in this column for card identification.

b. Columns 2-80, Variable Report Selection Field

This field is used to designate reports to be generated by the program on a particular run. Each report is assigned a unique report number as shown in III-B-1.

Each report entered in this field must be followed by a comma.

Blanks are not permitted between report numbers since they designate the end of the field.

TABLE III-B-1. Output Report Numbers

Report No.	Report by Level	Report Title	Sort Sequence
10	yes	Organization Status Report	Perf. Orgn., Charge No., Resp. Orgn., Res. Code
11	yes	Organization Status Report	Res. Code, Charge No., Resp. Orgn., Perf. Orgn.
12	yes	Organization Status Report	Charge No., Resp. Orgn., Perf. Orgn., Res. Code
13	yes	Organization Status Report	Resp. Orgn., Charge No., Perf. Orgn., Res. Code
20	yes	Organization Status Report	Net No., Perf. Orgn., Charge No., Resp. Orgn., Res. Code
21	yes	Organization Status Report	Net No., Res. Code, Charge No., Resp. Orgn., Perf. Orgn.
22	yes	Organization Status Report	Net No., Charge No., Resp. Orgn., Perf. Orgn., Res. Code
23	yes	Organization Status Report	Net No., Resp. Orgn., Charge No., Perf. Orgn., Res. Code
30	yes	Management Summary Report	
35	yes	Program/Project Status Report	
40	yes	Financial Plan and Status Report	Month, Charge No.
41	yes	Financial Plan and Status Report	Month
50	yes	Manpower Loading Report	Res. Code, Month, Perf. Orgn., Charge No.

TABLE III-B-1. Output Report Numbers (Continued)

Report No.	Report by Level	Report Title	Sort Sequence
51	yes	Manpower Loading Report	Res. Code, Month
52	yes	Manpower Loading Report	Perf. Orgn., Month, Res. Code
55	yes	Rainbow Category Report	
60	yes	Cost Category Status Report	
70	yes	Summary Financial Forecast	Summary, Year
71	yes	Summary Financial Forecast	Cost Cat., Year
75	yes	Summary Financial Forecast	Summary, Month
76	yes	Summary Financial Forecast	Cost Cat., Month
80	no	Budget Authorization and Updating Form	
85	no	Cost Estimating and Updating Form	

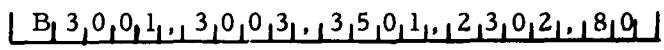
If the entries extend beyond the limit of one card, multiple cards must be used. The maximum number of cards is 5.

Most of the reports are generated for specific levels of the work breakdown structure. The level is indicated by two digits following the report number.

To illustrate, assume that the following reports were required:

1. Management Summary Report - Level 1
2. Management Summary Report -Level 3
3. Program / Project Status Report - Level 1
4. Organization Status Report - Level 2
5. Budget Authorization and Updating Form

These reports would be entered as follows:



Observe that the reports do not have to be entered in numerical sequence.

Project Selection Card

a. Column 1, Card Code

The letter C is preprinted in this column for card identification.

b. Columns 7-12, Project Number

The project number is synonymous with network code. In order to produce reports for a specific network, the code must be entered in this field. In the event that reports are desired for more than one network, multiple cards must be submitted, i.e., one card for each code.

Tape Reassignment Card

This card is used to reassign the indicated PERT Cost tapes to units other than those normally used by the module.

If this card is not submitted, the tapes will maintain their current positions. If entries are submitted on this card, corresponding tapes will be reassigned.

a. Column 1, Card Code

The letter D is preprinted in this form for card identification.

b. Columns 11-12, Tape Unit

The channel and tape unite are entered in this field. For example, A6 would indicate tape unit 6 on channel A.

c. Column 13, Density

The entry in this column indicates the tape density.

1 = High density
2 = Low density

Security Number Control Card

a. Column 1, Card Code

The letter E is preprinted in column 1 for card identification.

b. Columns 5-6, Character Incrementer

The entry in this field indicates which character of the security number is to be incremented for each successive page of output.

For example, if 04 is placed in this field then the security number will be increased by 1 for each successive report starting with the 4th character.

If the number overflows into an alpha character, then the word "OVERFLOW" will appear in place of the security number.

For example, if the security number is AA 99 and the fourth character is being incremented; the security number would appear as: SECURITY NUMBER: OVERFLOW

c. Columns 7-30, Security Number

This is the basic security number which appears on each page of the first report. This may contain a maximum of 24 alpha/numeric characters.

Program Name Change Control Card

a. Column 1, Card Code

The letter F is entered in column 1 for card identification.

b. Columns 19-42, Old Program Name

This is the name of the program being replaced by the new program name in the Main Control Card.

This name is used for identifying the program name that is to be changed. This entry is left-justified.

USAF PERT COST SYSTEM
PERT TIME TAPE DESCRIPTION INPUT FORM

Prepared by_____ Page_____ of_____

DATA DESCRIPTION BLOCK Date_____

CARD CODE	CARD NUMBER	BASE DATE			SORT REQ. INDICATOR	BASE/START DATE IND.	ACTUAL CODE-T_S/T_A	T_S/T_A SET UP CODE	
		DAY	MONTH	YEAR					
1 2	3 4	5		11	12	13	14	15	
1 A	0 1								

CARD CODE	CARD NUMBER	RECORD TYPE	WORD POSITION IN RECORD	RETRIEVAL MODE	SIGN POSITION	FIELD START POSITION	NUMBER OF UNITS	FORMAT MODE	SUB/SUMMARY MODE	
1 2	3 4	5	6 8	9	10 11	12 13	14 15	16	17	
1 C	0 1									NETWORK CODE
1 C	0 2									NETWORK DESCRIPTION
1 C	0 3									START DATE
1 C	0 4									REPORT DATE
1 C	0 5									PREDECESSOR NUMBER
1 C	0 6									SUCCESSOR NUMBER
1 C	0 7									S_E
1 C	0 8									T_E
1 C	0 9									S_L
1 C	1 0									T_L
1 C	1 1									T_S OR $T_S \cdot T_A$
1 C	1 2									t_s
1 C	1 3									t_e
1 C	1 4									SLACK
1 C	1 5									ACTIVITY DESCRIPTION
1 C	1 6									SCHEDULED ACTUAL FLAG
1 C	1 7									CHARGE NUMBER
1 C	1 8									T_A

Figure III-C-1. Data Description Block

USAF PERT COST SYSTEM

PERT TIME TAPE DESCRIPTION INPUT FORM

Prepared by _____ Page _____ of _____

Date _____

TAPE RECORD AND FILE DESCRIPTION BLOCK

CARD CODE	CARD NUMBER	FILE ORDER	RECORD TYPE	MULTIPLE RECORD INDICATOR	LENGTH OF LOGICAL RECORD	READ MODE	END OF BLOCK CODE	RECORD ID	WORD POSITION IN RECORD FOR ID	RETRIEVAL MODE FOR ID	FIELD START POSITION FOR ID	NUMBER OF UNITS FOR ID	VARIABLE RECORD IND	WORD POSITION IN RECORD FOR VAR. IND.	RETRIEVAL MODE FOR VAR. IND.	FIELD START POS. FOR VAR. IND.	NUMBER OF UNITS FOR VAR. IND.
1 2	3 4	5 6	7	8	9 11	12 14	15 17	18 23	24 25	26	27 28	29 30	31	32 33	34	35 36	37 38
1 B																	
1 B																	
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1 B																	
1 B																	

Figure III-C-2. Tape Record and File Description Block

III-C PERT TIME TAPE DESCRIPTION INPUT FORMS

General Description

In consonance with the modular concept, the cost module obtains its PERT Time data from an externally generated tape. This tape may be produced by diverse PERT systems and consequently may be written in a variety of formats. Therefore, in order to enable the module to read this tape, its precise format must be described through the use of the PERT Time Tape Description Input Forms (Figures III-C-1 and III-C-2).

These input forms consist of two data blocks:

a. The tape record and file description block, which describes each record and file on the tape.

b. The data description block, which describes the format of the PERT Time data on the tape.

Once this description has been entered in the system, it becomes a permanent part of the master file. Whenever the format of this tape changes, the entire description must be re-entered.

Although the system is flexible with respect to the tape format, there are certain minimum requirements which must be met. These requirements are:

a. The tape must be compatible with IBM 7090 data processing equipment.

b. The tape must contain, as a minimum, those elements of PERT Time data which are considered to be both necessary and sufficient for a successful computer run. These elements are as follows:

(1) Base or Start Date

(2) Predecessor and Successor Number

(3) S_E or T_E

(4) S_L or T_L

(5) T_S

(6) T_A

(7) t_s or t_e

c. The tape must contain activity oriented PERT Time data. Explicitly, the computed values, i.e., T_E, T_L, S_E, S_L and slack must be related to an activity or to the succeeding event of an activity.

d. All of the PERT Time data must be contained on a single tape. The system does not have the capability of reading multiple PERT Time tapes.

Data Description Block Fig III-C-1.

Card 1A

a. Columns 1-2, Card Code

1A is preprinted in this field for card identification.

b. Columns 3-4, Card Number

01 is preprinted in this field to indicate that this is the first card of this type.

c. Columns 5.11, Base Date

This field contains the base date. If a date is entered in this field and the base/start date indicator in column 13 contains a 1, then this date will be used by all of the networks on the tape as a reference for the conversion of S_E, S_L, T_E, T_L to calendar dates.

The months must be in the form:

JAN	APR	JUL	OCT
FEB	MAY	AUG	NOV
MAR	JUN	SEP	DEC

d. Column 12, Sort Required Indicator

This field is used to indicate whether or not the PERT Time tape must be sorted internally by the PERT Cost system.

A sort is not required if the tape is sequenced by:

Preceding event major, succeeding event minor.
Succeeding event major, preceding event minor.

A sort is required if the tape is in any other sequence. Column 12 must contain:

A zero or blank if a sort is not required.
A one or non-blank if a sort is required.

e. Column 13, Base/Start Date Indicator

In the PERT Time system, the T_E, T_L, S_E, and S_L values are computed in elapsed weeks from a particular

start or base date. These values are then converted to calendar dates based on this reference date.

A 1 placed in column 13 indicates that the base date in columns 5-11 is to be used as the reference date.

A 2 placed in column 13 indicates that a network start date is to be used as the reference date.

f. Column 14, Actual Code - T_S/T_A

This column contains the character that is used to distinguish the actual date from any other value sharing the same position on the PERT Time tape. For example:

Assume that the actual date shares the same position on the tape as the schedule date and that the number 1 is used to indicate the presence of an actual date. To illustrate:

a	8 NOV 1963	T_S/T_A
a + 10	1	Character

The 1 in a + 10 indicates that the date in a is an actual date. Therefore the number 1 must be placed in column 14.

g. Column 15, T_S/T_A Set Up Code

This field is used to indicate whether or not the schedule date and the actual date share the same position on the tape.

0 = The schedule date and the actual date share the same position.

1 = These dates do not occupy the same position.

Card 1C

General Description

These cards are used to define the position of the corresponding elements of PERT Time data on the tape.

Each element is described in relation to the record types defined by the IB cards.

These 1C cards should not be key punched for those elements of data which are not on the PERT Time tape.

Detailed Description

a. Column 5, Record Type

The entry in this column specifies the record type which contains the corresponding element of data. This record type is described by the 1B cards discussed on Page III-C-10.

b. Columns 6-8, Word Position in Record

The entry in this field specifies the location in the record of the corresponding data element.

For example: if the network code is in the third word of the record, 003 would be entered in this field.

c. Column 9, Retrieval Mode

The entry in this column specifies the mode in which the corresponding element of data is to be retrieved.

B = binary

C = characters

W = words

d. Columns 10-11, Sign Position

The entry in this field indicates the position of the sign of the data element. This field applies to signed data elements, such as S_L, T_L or slack.

Each word consists of 36 binary bits which are numbered from left to right. Therefore, if bit number 22 contained the sign indication, 22 would be entered in this field.

e. Columns 12-13, Field Start Position

The entry in this field indicates the position in the word in which the data element starts. The indication of this position will vary according to the retrieval mode.

If words (W) are used, this field remains blank. If characters (C) are used, this field will contain a number in the range $1 \leq n \leq 6$. If the mode is binary, this field will contain a value from 1-36 indicating the bit start position.

To illustrate: assume that the network code occupies the last four characters of a particular word. The field start position would be 3. Therefore, 03 would be entered in this field.

f. Columns 14-15, Number of Units

The entry in this field indicates the number of bits or characters used by the corresponding element of data.

If the retrieval mode indicates words (W), this field will state the number of full words that make up this item. If the retrieval mode indicates characters (C), this field will indicate the number of characters which may extend over many words that will make up this item. If the retrieval mode is binary (B), the value will be in the range 1-36.

g. Column 16, Format Mode

This column is used to describe the format of an elapsed time value or a date. The codes that may be entered are as follows:

B = The number of work days from a base date is carried in binary.

C = The number of work days from a base date is carried in BCD.

D = The calendar date is carried in BCD. The precise format is indicated in column 17.

F = The number of weeks and tenths is carried in floating point.

K = The number of weeks and tenths is carried in BCD.

T = The number of weeks and decimal tenths are carried in binary. The position of the fractional part is indicated in column 17.

W = The number of weeks X10 is carried in binary.

h. Column 17, Subformat Mode

This column is used whenever codes D, K or T have been entered in column 16. This field is used to further define these specific codes.

Code D - Whenever code D is entered in column 16, its format must be further defined by one of the following:

Code 1 = DDMMYY
2 = MMDDYY
3 = DDMMMYY
4 = MMMDDYY
} alphabetic month
5 = DD - MM - YY
6 = MM - DD - YY

Code K - Wherever code K is entered in column 16 its format must be defined as one of the following:

Code 0 = no decimal portion to this number.
1 = no decimal point and 1 decimal character.
2 = no decimal point and 2 decimal characters.
3 = no decimal point and 3 decimal characters.
4 = a decimal point and no decimal characters.
5 = a decimal point and 1 decimal character.
6 = a decimal point and 2 decimal characters.
7 = a decimal point and 3 decimal characters.

Code T - Whenever code T is used the number of bits from 0-7 that comprise the decimal value is set into this column.

Detail Description - Tape Record and File Description Block (Fig. III-C-2).

a. Columns 1-2, Card Code

1B is preprinted in this field for card identification.

b. Columns 3-4, Card Number

Each line of data entered on this form must be given a unique card number. These numbers start with 01 for

the first entry and continue in numerical sequence to the final entry. To elucidate:

> The entries on page 1 start with card number 01 and terminate with card number 15. The entries on page 2 continue in sequence starting with card number 16 and terminating with card 30.

c. Columns 5-6, File Order

Each file appearing on the PERT Time tape must be described on this form. Each file therefore is assigned a unique file order number which serves to identify the file and designate its position on the tape. For example:

> The first file on the tape is assigned file order 01 in columns 5-6, and the second file is assigned file order 02 in columns 5-6, etc.
>
> Each file must be described, i.e., entered on this form, in file order sequence.

d. Column 7, Record Type

Each physical or logical record type that contains pertinent PERT Time data must be described through the use of these IB cards.

This field, therefore, contains a single digit in the range $1 \leq n \leq 7$ that identifies the type of record which is being described in columns 9-38.

A record type is a group of one or more records having the same format and record ID. These may be physical or logical records.

A record type may be present in one or more files. The maximum number of record types that may be defined for a tape is 7. To illustrate:

> Assume that a PERT TIME tape consists of 8 records divided into 2 files, as shown below. Assume further that these records are grouped into 3 categories or types so that:
>
> Format A = Record Type 1
>
> Format B = Record Type 2
>
> Format C = Record Type 3

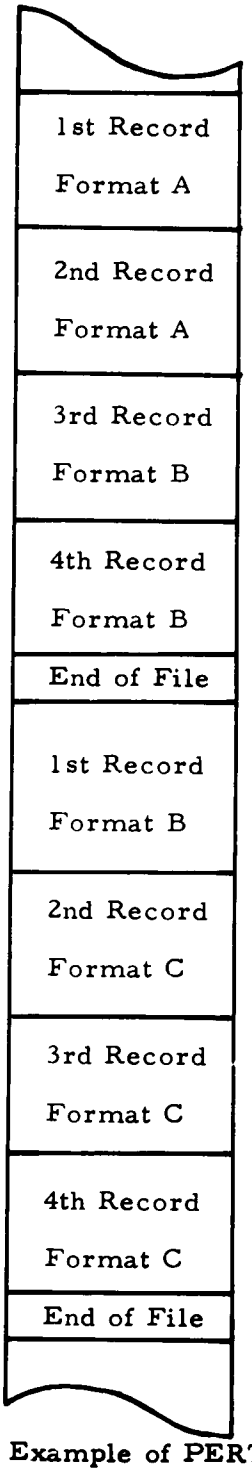

Fig. III-C-3. Example of PERT TIME TAPE

The input for Column 7 would appear as follows:

PERT COST

PERT TIME TAPE DESCRIPTION INPUT FORM

Prepared by _____ Page 1 of 1

Date _____

TAPE RECORD AND FILE DESCRIPTION BLOCK

CARD CODE	CARD NUMBER	FILE ORDER	RECORD TYPE	MULTIPLE RECORD INDICATOR	LENGTH OF LOGICAL RECORD	READ MODE	END OF BLOCK CODE	RECORD ID	WORD POSITION IN RECORD FOR I.D.	RETRIEVAL MODE FOR I.D.	FIELD BIT POSITION FOR I.D.	NUMBER OF BITS FOR I.D.	VARIABLE RECORD IND.	WORD POSITION IN RECORD FOR IND.	RETRIEVAL MODE FOR VAR. IND.	FIELD POS. START FOR VAR. IND.	NUMBER OF BITS FOR VAR. IND.
1 2	3 4	5 6	7	8	9 11	12 14	15 17	18 23	24 25	26	27 28	29 30	31	32 33	34	35 36	37 38
1 B	0,1	0,1	1	0													
1 B	0,2	0,1	2	0													
1 B	0,3	0,2	2	1													
1 B	0,4	0,2	3	0													
1 B																	
1 B																	
1 B																	
1 B																	
1 B																	
1 B																	

Figure III-C-4. Sample Input Form

Observe that each record type is entered in the order in which it appears on the tape. Moreover, the record type numbers are assigned in numerical sequence starting with 1.

In order to eliminate records which contain irrelevant information place a zero in this column.

e. Column 8, Multiple Record Indicator

This field is used to indicate whether the corresponding record type appears more than once in the corresponding file.

1 = The corresponding record type appears only once.

0 = The corresponding record type appears more than once.

f. Column 9-11, Length of Logical Record

This field contains a three digit number which specifies the number of words contained in the corresponding record type.

To clarify, if the record contains 24 words, then 024 must be entered in colums 9-11.

In the event that the record is of variable length, this field should remain blank and columns 31-38 should be filled in.

g. Columns 12-14, Read Mode

This field contains the mode in which the corresponding record type should be read.

BIN = Binary mode

BCD = Binary coded decimal mode

h. Columns 15-17, End of Block

This field contains the code which designates the end of the corresponding record type.

EOL = End of logical record

EOR = End of record

i. Columns 18-23, Record ID

This field is used to contain the word or character which is used to identify the corresponding record type.

If a word or character is contained in the record for identification, it must be entered in this field. The entry must be right justified.

To illustrate:

Assume that the corresponding record type was identified by AAI0 in the first word, then 00AAI0 would appear in columns 18-23.

Or assume that the record type was identified by the number 1 in the first word, then 000001 would appear in columns 18-23.

j. Columns 24-25, Word Position in Record for ID

This field specifies the number of the word in which the identification in columns 18-23 appears.

If the Record ID is in the third word of the record, then 03 would be entered in columns 24-25.

k. Column 26, Retrieval Mode for ID

This column contains a code indicating the mode in which the record ID is to be retrieved.

B = binary

C = characters

W = words

l. Columns 27-28, Field Start Position for ID

This field contains the position in the word in which the record ID starts. It will vary according to the retrieval mode used. If words are used, this field is left blank. If characters are used, this field will contain a value in the range 1-6 indicating the character start position. If bits are used, this field will contain a value from 1-36 indicating the bit start position. For example:

> Assume that the ID is AAI0 and that it occupies the last four characters of a particular word. The field start position would be 3. Therefore 03 is entered in columns 27-28.

m. Columns 29-30, Number of Units for ID

This field contains the number of bits or characters used by the record ID.

If the retrieval mode is W (word) then 01 should be entered in columns 29-30. If the retrieval mode is characters then 1-6 may be entered in this field. If the retrieval mode is binary then 1-36 may be entered.

n. Column 31, Variable Record Indicator

This field is used to indicate whether or not the record type is a variable length record, i.e., the number of words in the record varies from record to record.

V = This is a variable length record.
Blank = This is a fixed length record.

o. Columns 32-33, Word Position in Record for Variable Indicator

This field specifies the word number in which the word count of the variable length record appears.

If the word count is in the first word of the record, then 01 would be entered in columns 32-33.

p. Column 34, Retrieval Mode for Variable Indicator

The entry in this column specifies the mode in which the word count is to be retrieved.

B = binary
C = characters
W = word

q. Columns 35-36, Field Start Position for Variable Indicator

The entry in this field specifies the number of bits or characters used by the word count.
If the retrieval mode is W (word), then 01 should be entered in columns 37-38. If the retrieval mode is characters, then 1-6 may be entered in this field. If the retrieval mode is binary then 1-36 may be entered.

r. Columns 37-38, Number of Units for Variable Indicator

The entry in this field specifies the number of bits or characters used by the word count.

If the retrieval mode is W (word) then 01 should be entered in columns 37-38

Input Example

The current PERT system generates an Activity Assembly Tape which contains the PERT Time data used by this module.

In order to read this tape into the PERT Cost system, the PERT Time Description Input Form must be filled in as shown in Figures III-C-5 and III-C-6.

USAF PERT COST SYSTEM
PERT TIME TAPE DESCRIPTION INPUT FORM

Prepared by _____ Page 1 of 1

DATA DESCRIPTION BLOCK Date _____

FIGURE III-C-5

CARD CODE	CARD NUMBER	BASE DATE			SORT REQ. INDICATOR	BASE/START DATE IND.	ACTUAL CODE-T_S/T_A	T_E/T_L SET UP CODE	
		DAY	MONTH	YEAR					
1 2	3 4	5		11	12	13	14	15	
1 A	0 1	0 2	J A N	0 1	0	2	1	0	

Data Description Block with PERT Entries

III-C-17

CARD CODE	CARD NUMBER	RECORD TYPE	WORD POSITION IN RECORD	RETRIEVAL MODE	SIGN POSITION	FIELD START POSITION	NUMBER OF UNITS	FORMAT MODE	SUBFORMAT MODE	
1 2	3 4	5	6 8	9	10 11	12 13	14 15	16	17	
1 C	0 1	1	0 1 6	W			0 1			NETWORK CODE
1 C	0 2	1	0 1 7	W			0 6			NETWORK DESCRIPTION
1 C	0 3	1	0 1 3	C		0 1	0 6	D	2	START DATE
1 C	0 4	1	0 1 1	C		0 1	0 7	D	3	REPORT DATE
1 C	0 5	2	0 0 3	C		0 6	0 8			PREDECESSOR NUMBER
1 C	0 6	2	0 0 5	C		0 4	0 8			SUCCESSOR NUMBER
1 C	0 7									S_E
1 C	0 8	2	0 1 5	B		2 2	1 5	W		T_E
1 C	0 9									S_L
1 C	1 0	2	0 1 2	B	2 2	2 4	1 3	W		T_L
1 C	1 1	2	0 1 3	B		2 4	1 3	W		T_S OR T_S/T_A
1 C	1 2									t_S
1 C	1 3	2	0 1 5	B		0 1	1 3	W		t_e
1 C	1 4	2	0 1 4	B	2 2	2 3	1 4	W		SLACK
1 C	1 5	2	0 1 9	W			0 6			ACTIVITY DESCRIPTION
1 C	1 6	2	0 1 4	B		0 1	0 1			SCHEDULED ACTUAL FLAG
1 C	1 7									CHARGE NUMBER
1 C	1 8									T_A

USAF PERT COST SYSTEM

PERT TIME TAPE DEFINITION INPUT FORM

Prepared by _____

Page 1 of 1

Date _____

TAPE RECORD AND FILE DESCRIPTION BLOCK

CARD CODE	CARD NUMBER	FILE ORDER	RECORD TYPE	MULTIPLE RECORD INDICATOR	LENGTH OF LOGICAL RECORD	READ MODE	END OF BLOCK CODE	RECORD ID	WORD POSITION IN RECORD FOR ID	RETRIEVAL MODE FOR ID	FIELD START POSITION FOR ID	NUMBER OF UNITS FOR ID	VARIABLE RECORD IND	WORD POSITION IN RECORD FOR VAR. IND.	RETRIEVAL MODE FOR VAR. IND.	FIELD START POS. FOR VAR. IND.	NUMBER OF UNITS FOR VAR. IND.
1 2	3 4	5 6	7	8	9 11	12 14	15 17	18 23	24 25	26	27 28	29 30	31	32 33	34	35 36	37 38
1 B	0 1	0 1	1	1	0 2 4	B I N	E O L	0 0 0 0 0 1	0 1	C	0 1	0 1					
1 B	0 2	0 1	2	0	0 2 4	B I N	E O L	0 0 0 0 0 2	0 1	C	0 1	0 1					
1 B																	
1 B																	
1 B																	
1 B																	
1 B																	
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1 B																	

FIGURE III-C-6 Tape Record and File Description Block with PERT Entries

USAF PERT COST SYSTEM

WORK BREAKDOWN STRUCTURE INPUT FORM

Prepared by ____________ Page ______ of ______ Date ______

CARD CODE	CHARGE OR SUMMARY NUMBER	CARD 0: WORK PACKAGE OR SUMMARY ITEM DESCRIPTION	CARD 0: RESP ORGN	CARD 0: TYPE CODE	CARD 0: CHG CODE	CARD 1: PARENT SUMMARY NUMBER	CARD 1: LEVEL CODE	CARD 1: RSR OUT SEQ	CARD 1: TYPE CODE
1	2 – 19	20 – 55	56 – 61	78	80	20 – 37	38 39	40	78
7				0					1
7				0					1
7				0					1
7				0					1
7				0					1
7				0					1
7				0					1
7				0					1
7				0					1
7				0					1
7				0					1
7				0					1
7				0					1
7				0					1
7				0					1
7				0					1
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7				0					1
7				0					1
7				0					1
7				0					1
7				0					1
7				0					1
7				0					1
7				0					1
7				0					1
7				0					1
7				0					1
7				0					1
7				0					1

KEYPUNCH COLUMNS 2- 7 ON CARDS 0 AND 1

Figure III-D-1. Work Breakdown Structure Input Form

III-D WORK BREAKDOWN STRUCTURE INPUT FORM

General Description

The Work Breakdown Structure Input Form (FIG III-D-1) is used to enter the work breakdown structure into the system. This form permits summary and charge numbers to be assigned to the work breakdown structure in random order. Each line on the form represents two keypunched cards which are designated as card 0 and card 1. The information in columns 1-19 of card 0 must also appear in columns 1-19 of card 1.

Card zero must contain the appropriate change code.

The maximum amount of charge or summary numbers that may be associated with a particular parent summary number is 63.

Detailed Description

Card 0

a. Column 1, Card Code

Column 1 contains the preprinted number 7 which is used in conjunction with the type code in column 78. Card code 7, combined with type codes 0 and 1, uniquely identifies the cards which are produced from this two-card input form.

b. Columns 2-19, Charge or Summary Number

Columns 2-19 contain the charge or summary number, which designates a particular item or element of the work breakdown structure. This number may contain as many as 18 alpha and/or numeric characters. Entries must be right-justified (►) (Figure III-D-3).

c. Columns 20-55, Work Package or Summary Item Description

Columns 20-55 contain the description of the charge or summary number appearing in columns 2-19. Thirty-six alpha and/or numeric characters may be entered in this field. Entries must be left-justified (◄)

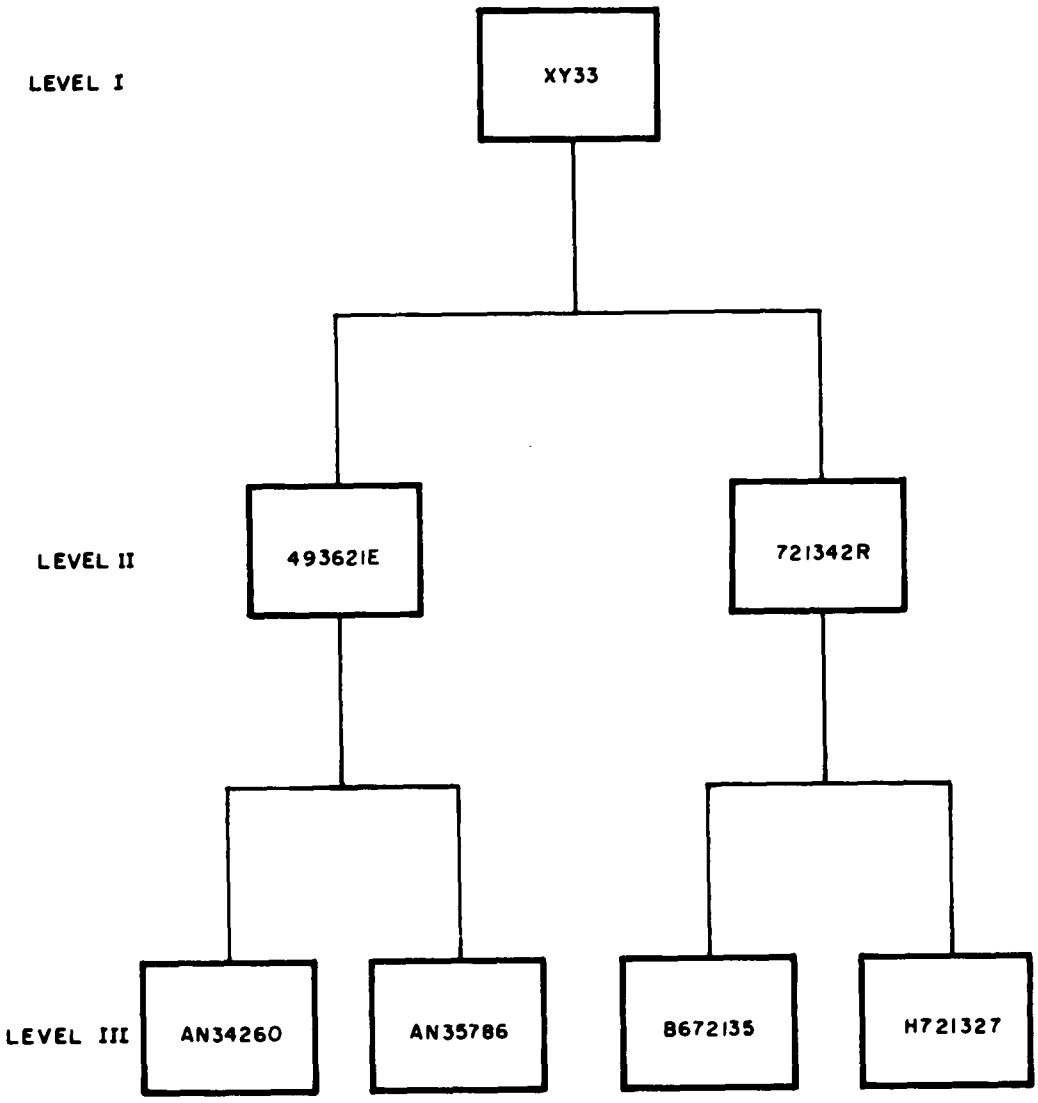

Figure III-D-2. Sample Work Breakdown Structure

d. Columns 56-61, Responsible Organization

Columns 56-61 designate the contractor's or Government's internal organization responsible for accomplishment of the charge or summary number. Six alpha and/or numeric characters may be entered in this field. Entries must be right-justified (►)

e. Column 78, Type Code

This column contains a preprinted type code for identification.

f. Column 80, Change Code

This column contains the code used to modify the elements of data in card 0. This column must contain a character. The letter A is used whenever a charge or summary number is being entered for the first time. The remaining codes that are used are described in Subsection V-D.

Card 1

a. Columns 20-37, Parent Summary Number

Columns 20-37 contain the Parent Summary Number. This is the number of the higher-level summary item in the work breakdown structure that is directly linked with the charge or summary item appearing in columns 2-19. A maximum of 18 alpha and/or numeric characters may be used. Entries must be right-justified (►)

These columns are left blank when the summary number in columns 2-19 is at the top level of the work breakdown structure.

b. Columns 38-39, Level Code

Columns 38-39 contain the two-digit number used to identify the level of the work breakdown structure of the item appearing in columns 2-19. 1 indicates the top level.

c. Column 40, Management Summary Report Output Selector

Column 40 indicates which items or the work breakdown structure are selected for inclusion in a special management summary report. This report will be composed exclusively of those items randomly selected from the work breakdown structure

In order to select the item appearing in columns 2-19, place any alpha or numeric character (other than zero) in this field. The system does not discriminate between the types of characters used; consequently, it does not group the summary items according to this code.

Input Example

The Work Breakdown Structure shown in Fig. III-D-2 should appear on the input form as follows:

USAF PERT COST SYSTEM

WORK BREAKDOWN STRUCTURE INPUT FORM

Prepared by _____ _____ Page 1 of 1

Date _____

CARD CODE	CARD 0 CHARGE OR SUMMARY NUMBER	CARD 0 WORK PACKAGE OR SUMMARY ITEM DESCRIPTION	CARD 0 RESP ORGN	CARD 1 PARENT SUMMARY NUMBER	CARD 1 LEVEL CODE
1 2	19 20	55 56	61 78 80	20	37 38 39 40 78
7	AN34260	DESCRIPTION	1830 0 A	49362/E	3 M 1
7	AN35786	DESCRIPTION	AB30 0 A	49362/E	3 M 1
7	8672/35	DESCRIPTION	C340 0 A	72/342R	3 1
7	H72/327	DESCRIPTION	D34/ 0 A	72/342R	3 1
7	49362/E	DESCRIPTION	432/ 0 A	XY33	2 1
7	72/342R	DESCRIPTION	432/ 0 A	XY33	2 1
7	XY33	DESCRIPTION	5550 0 A		/ 1
7			0		1
7			0		1
7			0		1
7			0		1
7			0		1

Figure III-D-3. Input Example for Work Breakdown Structure

3.3.4 Important Points

It is important to observe that:

a. The Work Breakdown Structure Input form is a two card input form.

b. All fields except type and card code refer to the Charge or Summary Number in columns 2-19.

c. The absence of a parent number is indicative of an item at the top level of the Work Breakdown Structure.

d. Initially, the entire work breakdown structure must be entered in the system to establish the master file. Once this file has been established it is only necessary to enter modifications.

e. The system does not require the work breakdown structure to be entered as a single structure. It may be entered as several independent structures; starting at various levels.

USAF PERT COST SYSTEM

ACTIVITY TO CHARGE NUMBER INPUT FORM

Prepared by ________________

Page ____ of ____

Date ____________

CARD CODE	NETWORK CODE	ACTIVITY IDENTIFICATION		CHARGE NUMBER		CHG CODE
		PREDECESSOR EVENT NUMBER	SUCCESSOR EVENT NUMBER			
1	7 12	13 21	22 30	31 48		80
2						
2						
2						
2						
2						
2						
2						
2						
2						
2						
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Figure III-E-1. Activity to Charge Number Input Form

III-E ACTIVITY TO CHARGE NUMBER INPUT FORM

General Description

The Activity to Charge Number Input Form (FIG III-E-1) is used to group the network activities into discrete work packages having unique charge or summary numbers. A link is thereby established between the user's PERT Time system and this PERT Cost program.

It is imperative that all of the activities to be used by the PERT Cost system be entered and assigned a charge or summary number. These numbers, in turn, must be entered in the system as elements of the work breakdown structure.

The use of this form is precluded if the PERT Time data already contains charge or summary numbers associated with each activity.

The activities may originate from several different networks. Therefore, a network code must be associated with the event numbers whenever more than one network is used.

Each card must contain the appropriate change code.

Detailed Description

a. Column 1, Card Code

Column 1 contains the preprinted number 2 to identify the cards produced from this form.

b. Columns 7-12, Network Code

Columns 7-12 contain six alpha and/or numeric characters for network identification. This code must be in the same format used in the PERT Time system.

c. Columns 13-21, Predecessor Event Number

Columns 13-21 contain the nine alpha and/or numeric characters used to designate the start event of this activity. Entries must be right-justified (►) Figure III-E-2.

d. Columns 22-30, Successor Event Number

Columns 22-30 contain the nine alpha and/or numeric characters used to designate the end event of this activitv. Entries must be right-justified (►)

e. Columns 31-48, Charge Number

Columns 31-48 contain an eighteen character alpha and/or numeric field used to designate the charge number. This number must agree with the corresponding entry on the work breakdown structure. Entries must be right-justified (►)

f. Column 80, Change Code

The code used for modifying the corresponding elements of data in the master file is placed in column 80. This column must contain a character. The letter A is used whenever a charge or summary number is being entered for the first time. The remaining codes are described in Subsection V-E.

3.4.3 Input Example:

USAF PERT COST SYSTEM

Page 1 of 1

Prepared by _____ **ACTIVITY TO CHARGE NUMBER INPUT FORM** Date _____

CARD CODE 8	NETWORK CODE	ACTIVITY IDENTIFICATION		CHARGE NUMBER	CHG CODE
		PREDECESSOR EVENT NUMBER ►	SUCCESSOR EVENT NUMBER ►	►	
1	7 12	13 21	22 30	31 48	80
2	AB3721	120001	120003	AA423610	A
2	AB3721	120004	123106	AA423610	A
2	AB3721	120006	123107	AA423610	A
2	RK3766	321727	321721	9213862E	A
2	RK3766	321722	321721	9213862E	A
2					
2					

Figure III-E-2. Input Example for Activity to Charge Number Form

Important Points

It is important to observe that:

a. Only the charge or summary numbers associated with network activities are entered on this form.

b. All of the activities on the PERT Time tape do not have to be related to charge or summary numbers.

c. The network code may remain blank.

d. Since this form is activity oriented, start or end events do not have to be entered separately, i.e., as a successor or predecessor event with a blank field.

e. The system does not distinguish charge numbers from summary numbers. Therefore, it is possible to associate network activities directly to summary numbers.

f. Initially, all activities related to charge or summary numbers must be entered to establish the master file. Once this file has been established, only the modifications must be entered.

g. If charge numbers are already entered on the PERT Time input tape, do not use this form.

USAF PERT COST SYSTEM

Page________ of ________

Prepared by ____________________ **CHARGE OR SUMMARY NUMBER IDENTIFICATION INPUT FORM** Date________________

CARD CODE	CHARGE OR SUMMARY NUMBER	START DATE			END DATE			CONTRACT NUMBER	REPORTING ORGN CODE	NETWORK CODE	TYPE CODE
		DAY	MONTH	YEAR	DAY	MONTH	YEAR				
1	2 19	23 24	25 27	28 29	30 31	32 34	35 36	37 54	55 58	59 64	78
7											2
7											2
7											2
7											2
7											2
7											2
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Figure III-F-1. Charge or Summary Number Identification Input Form

III-F CHARGE OR SUMMARY NUMBER IDENTIFICATION INPUT FORM

General Description

This form is used for entering the following types of data in the system, i. e., the master file.

a. Network code for each charge or summary number which is not network oriented. This optional code permits the inclusion of charge or summary numbers in the output reports which are sequenced by network code.

b. Contract number and reporting organization for all charge and summary numbers.

c. Start and end dates for any of the charge and summary numbers in the system. These dates establish the time references for the budgeted and estimated values of the performing organization - resource codes associated with the corresponding charge or summary numbers. These dates are used by the system in the following manner:

(1) Charge or Summary Numbers - Activity Oriented

Two options are available for activity oriented charge or summary numbers which are being entered in the system for the first time. These options are as follows:

If the date fields, columns 23-36, are left blank the program will automatically select a start and end date from the network activities associated with the particular charge or summary number. The earliest S_E value and latest S_E value will be selected as start and end dates, respectively.

If dates are placed in these fields, they will be used by the system.

Once these dates have been established in the master file, they will be used for all subsequent runs until they are replaced by new dates. The procedures governing this replacement are discussed in Subsection V-F.

(2) Charge or Summary Numbers, Non-Activity-Oriented

Two options are available for non-activity-oriented charge or summary numbers which are being entered in the system (i.e. master file) for the first time. The summary numbers referred to in this discussion are those which have been assigned budgeted or estimated values, i.e., a summary number appearing on the Budget Authorization Input Form or on the Cost Estimating Input Form. The options are as follows.

If dates are placed in columns 23-36, they will be used by the system.

If the date fields, columns 23-36, are blank, the program will automatically assign the new master file date, entered in columns 12-18 of the main control card, as the start date. An end date will not be assigned. For example:

If the new master file date is April 26, 1963, the program will automatically select April 26, 1963, as the start date.

Since the date field may have been left blank due to an oversight, an error indication will be printed out.

Once these dates have been established in the master file, they will be used for all subsequent runs until they are replaced by new dates. The procedures governing this replacement are discussed in Subsection V-F.

Detailed Description

a. Column 1, Card Code

The number 7 preprinted in this column is used in conjunction with the type code 2 appearing in column 78 to uniquely identify the cards produced from this form.

b. Columns 2-19, Charge or Summary Number

This field contains 18 alpha and/or numeric characters identifying a specific charge or summary number. Entries must be right-justified (►).

c. Columns 23-29, Start Date

The data entered in this field designates the start of the corresponding charge or summary number. The use of this field is governed by the options previously discussed in the general description, on Page IV-F-2. Months must be entered in the following format:

JAN	APR	JUL	OCT
FEB	MAY	AUG	NOV
MAR	JUN	SEP	DEC

d. Columns 30-36, End Date

The date entered in this field designates the end of the corresponding charge or summary number. The use of this field is governed by the options previously discussed in the general description on Page III-F-2.

e. Columns 37-54, Contract Number

This field contains 18 alpha and/or numeric characters used for assigning a contract number to the corresponding charge or summary number. Entries must be left-justified (◄).

f. Columns 55-58, Reporting Organization Code

This code may contain four alpha and/or numeric characters to describe the organization responsible for the work identified in the contract. Entries must be left-justified (◄).

g. Columns 59-64, Network Code

This field may contain six alpha and/or numeric characters for associating a charge or summary number with a particular network. This code must be in the same format that was used in the PERT Time system.

The system produces output reports sorted by network code. The network code number, therefore, appears on this form in order to permit the inclusion of the non-activity oriented charge or summary numbers in these reports.

h. Column 78, Type Code

The number 2 is preprinted in this column for card identification. See the discussion of column 1.

Input Example:

USAF PERT COST SYSTEM

Page 1 of 1

Prepared by _____ CHARGE OR SUMMARY NUMBER IDENTIFICATION INPUT FORM Date _____

CARD CODE	CHARGE OR SUMMARY NUMBER	START DATE DAY	START DATE MONTH	START DATE YEAR	END DATE DAY	END DATE MONTH	END DATE YEAR	CONTRACT NUMBER	REPORTING ORGN CODE	NETWORK CODE	TYPE CODE
1	2 ... 19	23 24	25 ... 27	28 29	30 31	32 ... 34	35 36	37 ... 54	55 ... 58	59 ... 64	78
7	A437/644/3210							AF12(3456)-78910	ABC	004310	2
7	A72/03648 9336							AF12(3456)-78910	ABC	00430	2
7	C7623/426/330							AF12(3456)-78910	ABC	022100	2
7	LM74261	07	APR	63	25	APR	63	AF98(7654)-32100	ABC	022100	2
7	LM7321 0	22	DEC	63	13	JUN	64	AF98(7654)-32100	ABC	022100	2
7	TR321660							XX/123456789	ABC	666320	2
7	F6371210	07	JAN	63	16	JAN	64	XX/123456789	ABC	AB1234	2
7	F6371211	18	OCT	63	29	AUG	65	YY/1234/12345A	ABC	AB1234	2
7											2
7											2

Figure III-F-2. Input Example for Charge or Summary Number Identification Input Form

Important Points

It is important to observe that:

a. This is the only input form on which the contract number and reporting organization appear. Therefore, on the first run, each charge or summary number bearing a contract number and/or a reporting organization code must be entered on this form.

b. The dates placed on this form are used by the program to select the corresponding labor and overhead rates.

USAF PERT COST SYSTEM

Page ______ of ______

Prepared by ______________________

BUDGET AUTHORIZATION INPUT FORM

Date ______________

CARD CODE	IDENTIFICATION: CHARGE OR SUMMARY NUMBER	PERFORMING ORGN.	RESOURCE CODE	UDC CODE	BUDGET ESTIMATES IN MONTHLY INCREMENTS						TYPE CODE	CARD NO.	CHG CODE
1	2 19	20 25	26 29	30	31 36	37 42	43 48	49 54	55 60	61 66	78	79	80
7											5		
7											5		
7											5		
7											5		
7											5		
7											5		
7											5		
7											5		
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Figure III-G-1. Budget Authorization Input Form

III-G BUDGET AUTHORIZATION INPUT FORM

General Description

The Budget Authorization Input Form Fig. III-G-1 is used for establishing the budgeted hours and costs for the various summary items and work packages with their corresponding performing organization - resource code combinations. Man-hours, man-months, direct costs, total costs or other units may be allocated in monthly increments for each of these combinations. Direct and total costs may be generated by the computer through the use of the rate table discussed in Subsection III-K.

Specifically, this form is used, on the initial computer run, to establish the relationship between the performing organization - resource code and a charge or summary number. It is also used to enter the budgetary values associated with this combination in the master file. Once these values have been entered, the program will produce, on request, an input form known as the Budget Authorization and Updating Form Fig. III-H-1. A separate form will be printed for each summary or charge number. The purpose of this computer-produced input form is to display the budgetary values that are being retained in the master file for each charge or summary number.

There are no restrictions as to the number of performing organization - resource codes that may be assigned to a particular charge or summary number.

The maximum number of monthly increments per input card is six. If a performing organization - resource code - UDC tied to a particular summary item or charge number extends beyond this 6-month period, multiple cards must be used.

The maximum number of monthly increments allowed for a specific charge number - performing organization - resource code - UDC combination, is 60.

In the event that multiple cards are used, each card must contain the identical information in columns 2-30 as well as the appropriate card number in column 79. See the Input Example, Figure III-G-2.

Budget estimates may be assigned directly to a summary number.

All values entered must be in the form of whole numbers. Decimal points are not permitted.

Each entry must contain the appropriate change code.

Detailed Description

a. Column 1, Card Code

The number 7 preprinted in this column is used in conjunction with the type code appearing in column 78. Card code 7 and type code 5 uniquely identify the cards produced from this form.

b. Columns 2-19, Charge or Summary Number

Eighteen alpha and/or numeric characters may be used to identify a specific charge or summary number. Entries must be right-justified (►) Figure III-G-2.

c. Columns 20-25, Performing Organization

Six alpha and/or numeric characters may be used to identify the department or organization that will do the work. Entries must be right-justified (►)

d. Columns 26-29, Resource Code

This four character alpha and/or numeric field is used to identify the particular manpower skill or material type used by the performing organization. Entries must be right-justified (►)

e. Column 30, Unit Description Code

This column must contain an alpha character which is used for identifying the types of values which appear in columns 31-66.

The characters which are permitted in this field are:

H - labor (man)-hours

M - man-months

D - direct dollars

T - total dollars

U - other units

In order to effect a conversion, such as man-hours to direct dollars, the character entered in this column must be correlated to the corresponding performing organization - resource code entries in the rate table.

If man-months are used, the system will convert man-months to man-hours using the average number of hours entered in cols. 75-78 of the main control card. If a value has not been entered, the computer will use 173.32 hours as the conversion factor.

f. Columns 31-66 Budget Estimates in Monthly Increments

This area is divided into 6 fields. Each field contains six columns. Only numeric values may be used. These values must be whole numbers. Decimal points are not permitted. All values must be right-justified (►).

The values placed in these six fields will be automatically assigned to specific calendar months in reference to the scheduled start date of the summary or charge number.

For example, assume the following conditions:

(1) Charge number 4356021 is scheduled to begin on April 27 and end on November 8.

(2) Performing organization 4231 and resource code A213 are scheduled to begin on April 27 and end on July 25.

(3) Performing organization 4232 and resource code B213 are scheduled to begin on June 15 and end on November 8.

The input form would appear as follows:

USAF PERT COST SYSTEM

Page 1 of 1

Prepared by _____ BUDGET AUTHORIZATION INPUT FORM Date _____

CARD CODE	IDENTIFICATION: CHARGE OR SUMMARY NUMBER (2–19)	PERFORMING ORGN. (20–25)	RESOURCE CODE (26–29)	REC. CONT. (30)	BUDGET ESTIMATES IN MONTHLY INCREMENTS (31–36)	(37–42)	(43–48)	(49–54)	(55–60)	(61–66)	TYPE CODE (78)	CARD NO. (79)	CHG CODE (80)
7	4356021	4231	A213	H	56	1234	1234	1200			5		A
7											5		
7	4356021	4232	B213	0			672	1234	1234	1234	5	0	A
7	4356021	4232	B213	0	1234	60					5	1	A
7											5		
7											5		
7											5		

Figure III-G-2. Input Example (a) for Budget Authorization Input Form

Observe that performing organization 4232 and resource code B213 are scheduled to start two months after the start date of charge number 4356021.

g. Column 78, Type Code

The number 5 is preprinted in this column for card identification. See the description of column 1.

h. Column 79, Card Number

Whenever the number of monthly increments exceeds 6, multiple cards must be used. The maximum number of cards is ten. This column, therefore must contain the card number of a multiple card input. In order to maintain the sequence of the monthly increments, each card must be assigned a unique number in ascending order beginning with zero.

If only one card is used this field remains blank (see the Input Example).

i. Column 80, Change Code

This code is used for modifying the corresponding elements of data in the master file. This field must contain a character. The letter A is used whenever a charge or summary number is being entered for the first time. The remaining codes that may be used are described in Chapter V.

Input Example

USAF PERT/COST SYSTEM

Page 1 of 1

Prepared by

BUDGET AUTHORIZATION INPUT FORM

Date

CARD CODE	IDENTIFICATION: CHARGE OR SUMMARY NUMBER (2–19)	PERFORMING ORGN. (20–25)	RESOURCE CODE (26–29)	SUCCOM (30)	BUDGET ESTIMATES IN MONTHLY INCREMENTS (31–36)	(37–42)	(43–48)	(49–54)	(55–60)	(61–66)	TYPE CODE (78)	CARD NO (79)	CHG CODE (80)
7	4356021	12345	AA99	H	1768	4210	2310	2310	4210	2340	5	0	A
7	4356021	12345	AA99	H	1234	2310	1440	1440	6800	6800	5	2	A
7	4356021	12345	AA99	H	1530	900					5	3	A
7											5		
7	4356021	12345	AA99	D	71768	71768	34210	34210	56200	83000	5	0	A
7	4356021	12345	AA99	D	83000	34210	12200	12200	44600	44600	5	2	A
7	4356021	12345	AA99	D	2900	650					5	3	A
7											5		
7											5		
7	7486000	82000	8835	H	2730	4000	4000	4000	3950	6700	5	2	A
7	7486000	82000	8835	H			1200	900	900	900	5	3	A
7											5		

Figure III-G-3. Input Example (b) for Budget Authorization Input Form

Important Points

It is important to observe that:

a. Hours, direct costs, total dollars and other units may be allocated to either charge numbers or summary items.

b. The activities associated with a specific charge or summary number do not have to be interconnected. Moreover, there may be periods of time during which there are no scheduled activities, and consequently no resource estimates.

This condition is illustrated in Fig. III-G-3. The entries for performing organization 12345 and resource code AA99 show that there is a 6-month period of inactivity. The absence of card number 1 indicates that this period occurs in the interval between the 6th and the 13th month of charge number 4356021.

c. Monthly increments are referenced to the scheduled start date of the summary or charge number. The first field (Cols. 31-36) is related to the month in which the schedule date occurs.

d. Frequently it will be necessary to enter resource estimates for a performing organization - resource code, which starts in some month subsequent to the charge number start date. Whenever this period extends beyond the 6th month, the card number should be used to place the estimate in the proper 6-month block.

This method is illustrated in Fig. III-G-3. The first entry for performing organization 8200 and resource code BB35 occurs in the 13th month of charge number 7486000. This is accomplished by starting the entry with card number 2.

e. Man-months are automatically converted to man-hours; therefore, only hourly rates are entered in the rate table.

f. The unit definition code - UDC (Column 30) must be related to the entry for the corresponding performing organization and resource code in the rate table.

g. A performing organization - resource code may have more than one UDC code assigned to it (See Figure III-G-3).

h. If there are unit rates and/or overhead rates associated with a performing organization - resource code combination, then the corresponding resource estimates will be extended to direct dollars and/or total costs. In the absence of the unit rate and/or the overhead rate, the corresponding conversion cannot occur.

Figure III-G-3 depicts performing organization 12345 and resource code AA99 as having two types of resource estimates labor hours (H) and direct dollars (D). Assume that the entry for 12345 - AA99 in the rate table consists of a zero unit rate and a legitimate overhead rate. The labor hours would remain intact and unextended, while the direct dollars would be converted to total dollars.

PERT COST

BUDGET AUTHORIZATION AND UPDATING FORM

REPORTING ORGN. 1234 CONTRACT NO. ABCD

TEST PROGRAM

TEST - TEST PERT TIME NETWORK

LEVEL / SUMMARY ITEM - 3 / 816293 SUB-SYSTEM F

LEVEL / CHARGE NUMBER - 4 / 101014 WORK PACKAGE 17

REPORT DATES

TERM (SPAN) - TOTAL PROGRAM

CUT OFF DATE - 01DEC62

RELEASE DATE - 01JAN63

RESP ORGN - 104

BUDGET REVISION NUMBER

APPROVED BY-

DATE -

SCHEDULED DATE

START DATE - 19AUG63

END DATE - 16DEC63

IDENTIFICATION			RESOURCE ESTIMATES MONTHS BEGINNING WITH SCHEDULED START DATE														
CD PERF CD ORGN	RES CODE	UCD	AUG	SEP	OCT	NOV	DEC	JAN	CD NO.	FEB	MAR	APR	MAY	JUN	JUL	CD NO.	TOTAL
7 DEPT 1	LAB1	H	1500	2000	2000	2000	1000		50							51	8500
7 DEPT 1	LAB1	D	6000	8000	8000	8000	4000		50							51	34000
7 DEPT 1	LAB1	T	9000	12000	12000	12000	6000		50							51	51000
7 DEPT 1	MAT1	D	5000	10000	12000	20000	8000		50							51	55000
7 DEPT 1	MAT1	T	7500	15000	18000	30000	12000		50							51	82500
7 DEPT 3	LAB3	H	200	400	500	400	100		50							51	1600
7 DEPT 3	LAB3	D	1200	2400	3000	2400	600		50							51	9600
7 DEPT 3	LAB3	T	1800	3600	4500	3600	900		50							51	14400

SECURITY NO. RED ROSE 1252 PAGE NO. 2

Figure III-H-1. Budget Authorization and Updating Form

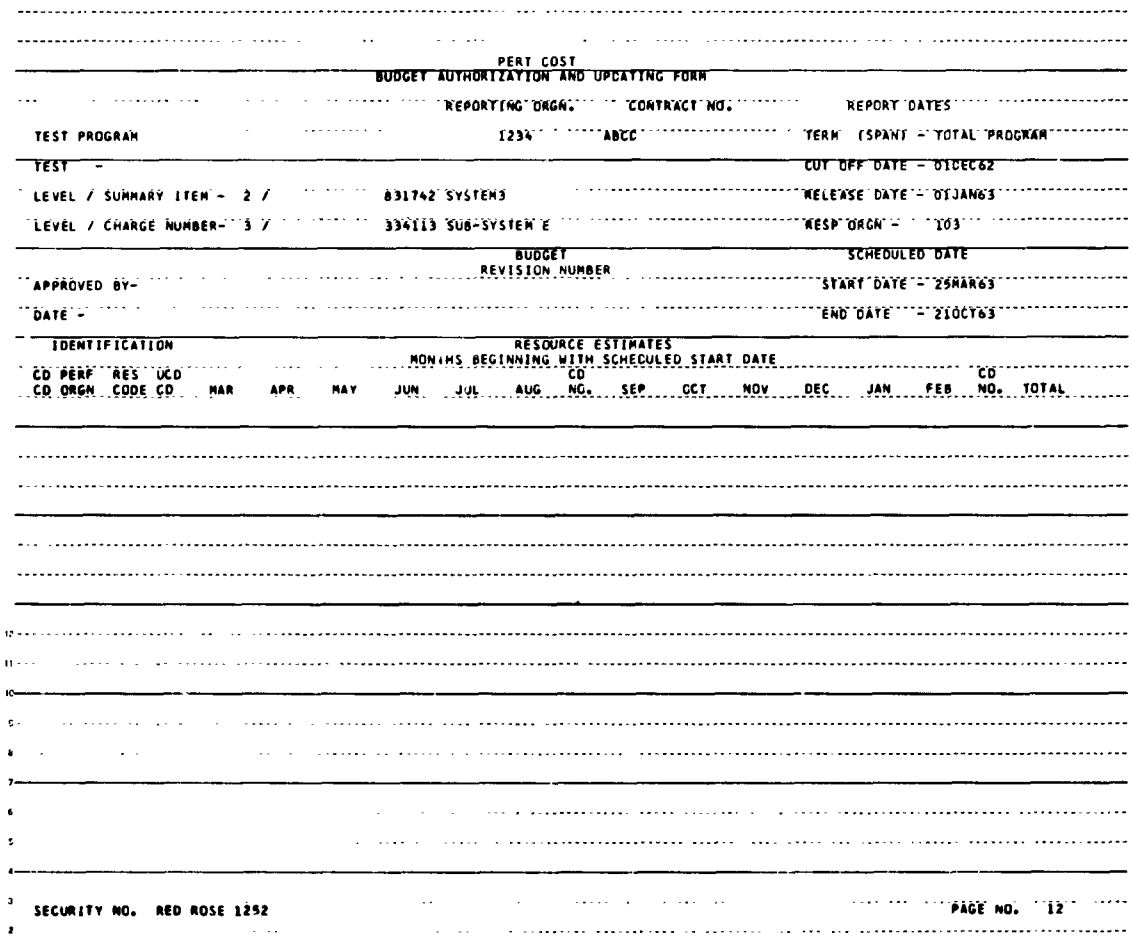

Figure III-H-2. Budget Authorization and Updating Form Without Resource Estimates

III-H THE BUDGET AUTHORIZATION AND UPDATING FORM (Report Number 80)

General Description

The Budget Authorization and Updating Form Figs. III-H-1, III-H-2 is produced by the computer and serves the following purposes:

a. On the initial run it may be used as an input form in the same content as the Budget Authorization Input Form (Fig. III-G-1) i.e., to establish the relationships among the performing organization - resource code combinations and the charge or summary numbers.

In order to produce this form in the format shown in (Fig. III-G-2) the following procedure is necessary.

1. Fill in the data required by the Work Breakdown Structure Input Form; the Activity to Charge Number Input Form and the Charge or Summary Number Identification Input Form.

2. Select report number 80 and run the program.

The program will then produce a separate form for each charge or summary number appearing in the work breakdown structure.

Performing organization, resource codes and budget values may then be entered directly on the applicable forms as shown in the Input Example Figure III-H-3.

All of the input conventions described for the Budget Authorization Input Form in subsec. III-G must be followed. For example; the UDC code, the type code, the card number and the change code must also be entered as shown in the Input Example Figure III-H-3.

Cards are then keypunched directly from the form using the format of the cards produced from the Budget Authorization Input Form.

b. On subsequent runs, this form serves a second purpose. Namely, it provides a display of all of the budget values that are stored in the master file. This includes the computer-generated values for direct and total costs as well as those submitted on the regular input form, e.g. hours and units.

c. The third purpose it serves is that of a mark-up form. To reduce the manual effort required for data modifications, the alterations may be entered directly on this form and subsequently translated onto punched cards. This procedure is described in Subsection V-H.

Detailed Description

The following elements of data appear on this form.

a. Approved By and Date

The name of the authority approving the budget and the date of authorization. These entries are not used by the system.

b. Budget Revision Number

An identification number assigned to the budgetary values. This number is not entered in the system.

c. Card Code CD

This is the preprinted card code appearing in the Budget Authorization Input Form.

d. Card Number CD NO

This card number consists of two digits. The first digit represents the preprinted number (5) of the Budget Authorization Input Form (Fig III-G-1) The second digit represents the card number. See Col 79, Page III-I-5.

e. Contract Number

The numeric designation of the contract(s) or agreement(s) included in each report (e.g., 33(600)28369A).

f. Level/Charge Number

This is the level and the corresponding charge number to which the corresponding budgeted values are assigned.

The description of the charge number follows its alpha/numeric designation.

g. Level/Summary Item

The level number, noun description, and summary number of the parent summary item associated with this charge number.

h. Page Number

The page number begins with 1 on the first page of this report and continues sequentially to the last page.

i. Performing Organization

The department or organization that is doing the corresponding work.

j. Program

The designation of the total (or a part of the total) system program or project that is identified with the reporting organization. For example, if reporting organization XYZ has the Missile and GHE part of weapon system ABC, the program or project definition would read:

ABC - Missile and GHE

k. Report Dates

TERM (Span)

The beginning and ending date for the total increment being covered in the report. For example:

1 Jan 62 to 31 Dec 62

CUTOFF DATE

The accounting cutoff date for the period of actual costs being reported.

RELEASE DATE

The date that the report is to be released to management.

l. Reporting Organization

The name or identification of the organization responsible for the work identified in the Contract Number and Program/Project blocks.

m. Resource Code

The particular manpower skill or material type used by the performing organization.

n. Resource Estimates

These are the budgeted values associated with specific calendar months.

The months begin with the month and year of the scheduled start date and end with the last month containing a resource estimate.

o. Responsible Organization

The organization which is responsible for the accomplishment of the corresponding charge or summary number.

p. Scheduled Start and End Dates

These are the scheduled start and end dates for the corresponding charge number.

These dates are either automatically derived from the PERT Time data or are entered via the Charge of Summary Number Identification Input Form,

The months which appear in the body of this report are referenced to the scheduled start date. The first month to be printed will correspond to the scheduled start date.

q. Security Number

This number is derived from the Security Number Control Card. The initial number appearing on page 1 of this report will be equal to the value entered in columns 7-24 of the Security Number Control Card. On each succeeding page of this report the security number will be incremented by the amount specified in columns 5-6 of the same control card.

r. Total

A total is computed for each resource-UDC code combination.

s. UDC Code

A code used to describe the corresponding budgeted values. The codes that may appear on this form are:

H - Hours
D - Direct dollars
T - Total dollars
U - Other units

t. Earliest Date

These are start and end dates associated with the first and last event numbers respectively. These values are derived from the PERT Time data.

INPUT EXAMPLE

PERT COST
BUDGET AUTHORIZATION AND UPDATING FORM

REPORTING ORGN. 1234 CONTRACT NO. ABCD REPORT DATES

TEST PROGRAM
TEST -
LEVEL / SUMMARY ITEM - 2 / 831192 SYSTEM I
LEVEL / CHARGE NUMBER- 3 / 548133 SUB-SYSTEM A
TERM (SPAN) - TOTAL PROGRAM
CUT OFF DATE - 01DEC62
RELEASE DATE - 01JAN63
RESP ORGN - 101

BUDGET
REVISION NUMBER

SCHEDULED DATE
START DATE - 07JAN63
END DATE - 15APR63

APPROVED BY-
DATE -

IDENTIFICATION				RESOURCE ESTIMATES MONTHS BEGINNING WITH SCHEDULED START DATE													
CD	PERF ORGN	RES CODE	UCD CD	JAN	FEB	MAR	APR	MAY	JUN	CD NO.	JUL	AUG	SEP	OCT	NOV	DEC	CD NO. TOTAL
7	AB20	1234	H	600	600	700	700	700	1500	50A	1500	1600	1000	1000			51A
7	AB20	1234	H	850	850	850	650			52A							
7	NR12	4567	H	1400	1400	1400	1400	1400	1400	50A	1250	1250			1000	1000	51A
7	ST40	4252	D	2500	2600	2500	2500	4000		53A		1700	1900	1900	1900	8000	54A
7	ST40	4252	D	700	700	800	800	800		55A							

SECURITY NC. RED ROSE 1252 PAGE NO. 15

Figure III-H-3. Budget Authorization and Updating Form With New Entries

Important Points

It is important to observe that:

a. The type code, card number and change code must be entered for each 6-month block.

b. Only the performing organization-resource code combinations associated with this charge number are entered on this form.

c. All of the conventions described for Budget Authorization Input Form must be followed when entering data on this form.

d. All of the entries are right-justified (►).

USAF PERT COST SYSTEM

Prepared By ____________ **COST ESTIMATING INPUT FORM** Page ____ of ____

Date ____________

CARD CODE	IDENTIFICATION				RESOURCE ESTIMATES IN MONTHLY INCREMENTS						TYPE CODE	CARD CODE	CHG CODE
	CHARGE NUMBER	PERFORMING ORGN.	RESOURCE CODE	ACC CODE									
1	2 — 19	20 — 25	26 — 29	30	31 — 36	37 — 42	43 — 48	49 — 54	55 — 60	61 — 66	78	79	80
7											4		
7											4		
7											4		
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Figure III-I-1. Cost Estimating Input Form

III-I COST ESTIMATING INPUT FORM

General Description

The Cost Estimating Input Form (Fig. III-I-1) is functionally similar to the Budget Authorization Input Form. It is used for establishing the estimated hours and costs for the various summary items and work packages with their corresponding performing organization - resource code combinations. Monthly estimates may be in the form of man-hours, man-months, direct costs, total costs or other units for each of these combinations. Direct and total costs may be generated by the computer through the use of the rate table discussed in Subsection III-K.

Specifically, this form is used on the initial computer run to establish the relationship between a performing organization - resource code and a charge or summary number. It is also used to enter the estimated values associated with this combination in the master file.

Once these values have been entered, the program will produce on request an input form known as the Cost Estimating and Updating Form (FIG III-J-1) A separate form will be printed for each summary or charge number. The purpose of this computer produced input form is to display the estimated values that are being retained in the master file for each charge or summary number.

There are no restrictions as to the number of performing organizations - resource codes that may be assigned to a particular charge or summary number .

The maximum number of monthly increments per input card is six. If a performing organization - resource code - UDC tied to a particular summary item or charge number extends beyond this 6-month period, multiple cards must be used.

The maximum number of monthly increments that are allowed for a performing organization - resource code - UDC combination is 60. In the event multiple cards are used, each card must contain the identical information in

columns 2-30 as well as the appropriate card number in column 79. See the Input Example, III-I-2. Estimated values may be assigned directly to a summary number.

All values entered must be in the form of whole numbers. Decimal points are not permitted.

Each card must contain the appropriate change code.

Detailed Description

a. Column 1, Card Code

The number 7 preprinted in this column is used in conjunction with the type code appearing in column 78. Card code 7 combined with type code 4 uniquely identifies the cards produced from this form.

b. Columns 2-19, Charge or Summary Number

Eighteen alpha and/or numeric characters may be used to identify a specific charge or summary number. Entries must be right-justified (►).

c. Columns 20-25, Performing Organization

Six alpha and/or numeric characters may be used to identify the department or organization that will do the work. Entries must be right-justified (►).

d. Columns 26-29, Resource Code

This four character alpha and/or numeric field is used to identify the particular manpower skill or material type used by the performing organization. Entries must be right-justified (►).

e. Column 30, Unit Description Code

This column must contain an alpha character which is used for identifying the types of values which appear in columns 31-66.

The characters which are permitted in this field are:

H - labor (man)-hours

M - man-months

D - direct dollars

T - total dollars

U - other units

In order to effect a conversion, such as man-hours to direct dollars, the character entered in this column must be correlated to the corresponding performing organization - resource code entries in the rate table.

If man-months are used the system will convert man-months to man-hours using the average number of hours entered in columns 75-78 of the main control card. If a value has not been entered the computer will use 173.32 hours as the conversion factor.

f. Columns 31-66, Cost Estimates in Monthly Increments

This area is divided into 6 fields. Each field contains six columns. Only numeric values may be used. All values must be right-justified (►).

The values placed in these six fields will be automatically assigned to specific calendar months in reference to the scheduled start date of the summary or charge number.

For example, assume the following conditions:

(1) Charge number 4356021 is scheduled to begin on April 27 and end on November 8

(2) Performing organization 4321 and resource code A213 are scheduled to begin on April 27 and end on July 25

(3) Performing organization 4232 and resource code B213 are scheduled to begin on June 15 and end on November 8.

The input form would appear as follows:

USAF PERT COST SYSTEM

Page 1 of 1

Prepared By _____ **COST ESTIMATING INPUT FORM** Date _____

CARD CODE	IDENTIFICATION: CHARGE NUMBER (1–19)	PERFORMING ORGN. (20–25)	RESOURCE CODE (26–29)	ACCOUNT CODE (30)	RESOURCE ESTIMATES IN MONTHLY INCREMENTS (31–66)	TYPE CODE (78)	CARD CODE (79)	CHG CODE (80)
7	4356021	4231	A213	M	56 / 1234 / 1234 / 621	4		A
7						4		
7	4356021	4232	B213	T	2672 / 71234 / 43671 / 13467	4	0	A
7	4356021	4232	B213	T	21348 / 6100	4	1	A
7						4		
7						4		
7						4		
7								

Figure III-I-2. Input Example (a) for Cost Estimating Input Form

Observe that performing unit 4232 and resource code B213 are scheduled to start two months after the start date of charge number 4356021.

g. Column 78, Type Code

The number 4 is preprinted in this column for card identification. See the description of column 1.

h. Column 79, Card Number

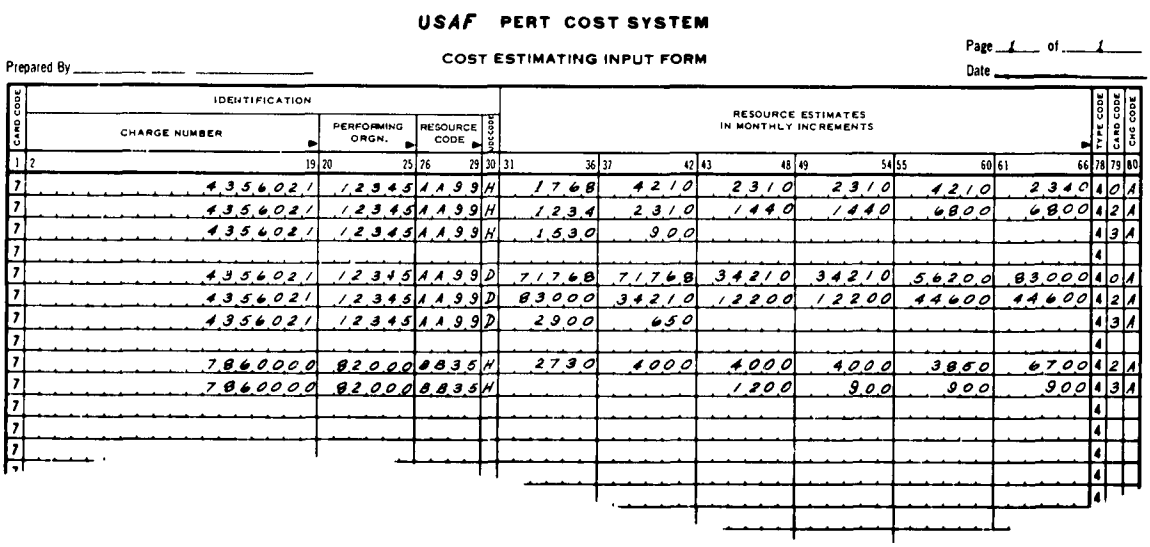
When the number of monthly increments exceeds 6, multiple cards must be used. The maximum number of cards is 10. This column, therefore must contain the card number of a multiple card input. In order to maintain the sequence of these monthly increments, each card must be assigned a unique number in ascending order beginning with zero.

If only one card is used this field remains blank. See the Input Example, Figure III-I-2.

i. Column 80, Change Code

This code is used for modifying the corresponding elements of data in the master file. This field must contain a character. The letter A is used whenever a charge or summary number is being entered for the first time. The remaining codes that may be used are described in Section V.

Input Example



USAF PERT COST SYSTEM

COST ESTIMATING INPUT FORM

Prepared By _____ Page 1 of 1

Date _____

CARD CODE	IDENTIFICATION: CHARGE NUMBER	PERFORMING ORGN.	RESOURCE CODE	SUB CODE	RESOURCE ESTIMATES IN MONTHLY INCREMENTS						TYPE CODE	CARD CODE	CHG CODE
1 2 — 19		20 — 25	26 — 29	30	31 — 36	37 — 42	43 — 48	49 — 54	55 — 60	61 — 66	78	79	80
7	4356021	12345	AA99	H	1768	4210	2310	2310	4210	2340	4	0	A
7	4356021	12345	AA99	H	1234	2310	1440	1440	6800	6800	4	2	A
7	4356021	12345	AA99	H	1530	900					4	3	A
7											4		
7	4356021	12345	AA99	D	71768	71768	34210	34210	56200	83000	4	0	A
7	4356021	12345	AA99	D	83000	34210	12200	12200	44600	44600	4	2	A
7	4356021	12345	AA99	D	2900	650					4	3	A
7											4		
7	7860000	82000	8835	H	2730	4000	4000	4000	3850	6700	4	2	A
7	7860000	82000	8835	H			1200	900	900	900	4	3	A
7											4		
7											4		
7											4		
7											4		
7											4		

Figure III-I-3. Input Example (b) for Cost Estimating Form

Important Points

It is important to observe that:

a. Hours, direct costs, total dollars and other units may be allocated to either charge numbers or summary items.

b. The activities which are associated with a specific charge or summary number do not have to be interconnected. Moreover, there may be periods of time during which there are no scheduled activities and consequently no resource estimates.

This condition is illustrated in Fig. III-I-3. The entries for performing organization 12345 and resource code AA99 shows that there is a 6-month period of inactivity. The absence of card number 1 indicates that this period occurs in the interval between the 6th and the 13th month of charge number 4356021.

c. Monthly increments are referenced to the scheduled start date of the summary or charge number. The first field (Cols. 31-36) is related to the month in which the schedule date occurs.

d. Frequently it will be necessary to enter resource estimates for a performing organization - resource code which starts in some month subsequent to the charge number start date. Whenever this period extends beyond the 6th month; the card number should be used to place the estimate in the proper 6-month block.

This method is illustrated in Fig. III-I-3. The first entry for performing organization 8200 and resource code BB35 occurs in the 13th month of charge number 7486000. This is accomplished by starting the entry with card number 2.

e. Man-months are automatically converted to man-hours; therefore, only hourly rates are entered in the rate table.

f. The unit definition code - UDC (Column 30) must be related to the entry for the corresponding performing organization and resource code in the rate table.

g. If there are unit rates and/or overhead rates associated with a performing organization - resource code combination; then the corresponding resource estimates will be extended to direct dollars and/or total costs. In the absence of the unit rate and/or the overhead rate, the corresponding conversion cannot occur.

Fig. III-I-3 depicts performing organization 12345 and resource code AA99 as having two types of resource estimates labor hours (H) and direct dollars (D). Assume that the entry for 12345 - AA99 in the rate table consists of a zero unit rate and a legitimate overhead rate. The labor hours would remain intact and unextended, while the direct dollars would be converted to total dollars.

h. **A performing organization - resource code may have more than one UDC code assigned to it. See Figure III-I-3.**

PERT COST

COST ESTIMATING AND UPDATING FORM

	REPORTING ORGN.	CONTRACT NO.	REPORT DATES
TEST PROGRAM	1234	ABCD	TERM (SPAN) - TOTAL PROGRAM
TEST - TEST PERT TIME NETWORK			CUT OFF DATE - 01DEC62
LEVEL / SUMMARY ITEM - 3 /	816293 SUB-SYSTEM F		RELEASE DATE - 01JAN63
LEVEL / CHARGE NUMBER- 4 /	101014 WORK PACKAGE 17		RESP ORGN - 104

EVENT NUMBER	EARLIEST DATE	SCHEDULED DATE
FIRST - 3	START DATE - 09SEP63	START DATE - 19AUG63
LAST - 34	END DATE - 16DEC63	END DATE - 16DEC63

IDENTIFICATION				RESOURCE ESTIMATES MONTHS BEGINNING WITH SCHEDULED START DATE												
CD PERF CD ORGN	RES CODE	UCD CD	AUG	SEP	OCT	NOV	DEC	JAN	CD NO.	FEB	MAR	APR	MAY	JUN	JUL	CD NO.	TOTAL
7 DEPT 1	LAB1	H	2000	2000	2500	2000	1000		40							41	9500
7 DEPT 1	LAB1	O	9000	9000	11250	9000	4500		40							41	42750
7 DEPT 1	LAB1	T	13500	13500	16875	13500	6750		40							41	64125
7 DEPT 1	MAT1	O	6000	9000	13000	20000	7000		40							41	55000
7 DEPT 1	MAT1	T	9000	13500	19500	30000	10500		40							41	82500
7 DEPT 3	LAB3	H	200	500	500	300	150		40							41	1650
7 DEPT 3	LAB3	O	1200	3000	3000	1800	900		40							41	9900
7 DEPT 3	LAB3	T	1800	4500	4500	2700	1350		40							41	14850

SECURITY NO. RED ROSE 1253 PAGE NO. 2

Figure III-J-1. Cost Estimating and Updating Form

PERT COST

COST ESTIMATING AND UPDATING FORM

	REPORTING ORGN.	CONTRACT NO.	REPORT DATES
TEST PROGRAM	1234	ABCD	TERM (SPAN) - TOTAL PROGRAM
TEST -			CUT OFF DATE - 01DEC62
LEVEL / SUMMARY ITEM - 2 /	831742 SYSTEM3		RELEASE DATE - 01JAN63
LEVEL / CHARGE NUMBER- 3 /	334113 SUB-SYSTEM E		RESP ORGN - 103

EVENT NUMBER	EARLIEST DATE	SCHEDULED DATE
FIRST -	START DATE -	START DATE - 25MAR63
LAST -	END DATE -	END DATE - 21OCT63

IDENTIFICATION				RESOURCE ESTIMATES MONTHS BEGINNING WITH SCHEDULED START DATE												
CD	PERF ORGN	RES CODE	UCD CD	MAR	APR	MAY	JUN	JUL	AUG	CD NO.	SEP	OCT	NOV	DEC	JAN	FEB	CD NO.	TOTAL

SECURITY NO. RED ROSE 1253 PAGE NO. 12

Figure III-J-2. Cost Estimating and Updating Form Without Resource Estimates

III-J THE COST ESTIMATING AND UPDATING FORM (Report Number 85)

General Description

The Cost Estimating and Updating Form (Figs. III-J-1, III-J-2)is produced by the computer and serves the following purposes:

a. On the initial run it may be used as an input form in the same context as the Cost Estimating Input Form (Figure 3-8), i.e., to establish the relationships among the performing organization - resource code combinations and the charge or summary numbers.

In order to produce this form in the format shown in Fig. III-J-2, the following procedure is necessary:

1. Fill in the data required by the Work Breakdown Structure Input Form; the Activity to Charge Number Input Form and the Charge or Summary Number Identification Input Form.

2. Select report number 85 and run the program.

The program will then produce a separate form for each charge or summary number appearing in the work breakdown structure.

Performing organizations, resource codes and estimated values may then be entered directly on the applicable forms as shown in the Input Example (Fig. III-J-3).

All of the input conventions described for the Cost Estimating Input Form in Subsection III-I must be followed. For example; the UDC code, the type code, the card number and the change code must also be entered as shown in the Input Example Figure III-J-3.

Cards are then keypunched directly from this form using the format of the cards produced from the Cost Estimating Input Form (Figure III-I-1).

b. On subsequent runs, this form serves a second purpose; it provides a display of all of the estimated values that are stored in the master file. This includes the computer-

generated values for direct and total costs as well as those submitted on the regular input form, e.g., hours and units.

c. The third purpose it serves is that of a mark-up form. To alleviate some of the manual effort required for data modification, the alterations may be entered directly on this form and subsequently translated onto punched cards. This procedure is described in Subsection V-J.

Detailed Description

The following elements of data appear on this form:

a. Card Code (CD / CD)

This is the preprinted card code appearing in the Cost Estimating Input Form.

b. Card Number (CD / NO)

This card number consists of two digits. The first digit represents the preprinted number (4) of the Cost Estimating Input Form (Fig. III-I-1). The second digit represents the card number.

c. Contract Number

The numeric designation of the contract(s) or agreement(s) included in each report (e.g., 33(600)28369A).

d. First Event Number

This is the preceding event number of the activity having the earliest S_E date associated with the corresponding charge number. This selection is based on the PERT Time data.

e. Last Event Number

This is the succeeding event number of the activity having the latest S_E value associated with the corresponding charge number. This selection is based on the PERT Time data.

f. Level/Charge Number

This is the level and the corresponding charge number to which the corresponding estimated values are assigned.

g. Level/Summary Item

The level number, noun description, and summary number of the parent summary item associated with this charge number.

h. Page Number

The page number begins with 1 on the first page of this report and continues sequentially to the last page.

i. Performing Organization

The department or organization doing the corresponding work.

j. Program

The designation of the total (or a part of the total) system program or project identified with the reporting organization. For example, if reporting organization XYZ has the Missile and GHE part of weapon system ABC, the program or project definition would read:

ABC - Missile and GHE

k. Report Dates

TERM (Span)

The beginning and ending date for the total increment being covered in the report. For example:

1 Jan 62 to 31 Dec 62

CUTOFF DATE

The accounting cutoff date for the period of actual costs being reported.

RELEASE DATE

The date that the report is to be released to management.

l. Reporting Organization

The name or identification of the organization responsible for the work identified in the Contract Number and Program/ Project blocks.

m. Resource Code

The particular manpower skill or material type used by the performing organization.

n. Resource Estimates

These are the estimated values associated with specific calendar months.

The months begin with the month and year of the scheduled start date and end with the last month containing a resource estimate.

o. Responsible Organization

The organization which is responsible for the accomplishment of the corresponding charge or summary number.

p. Scheduled Start and End Dates

These dates are scheduled start and end dates for the corresponding charge number. They are either automatically derived from the PERT Time data or are entered via the Charge or Summary Number Identification Input Form.

The months which appear in the body of this report are referenced to the scheduled start date. The first month to be printed will correspond to the scheduled start date.

q. Security Number

This number is derived from the Security Number Control Card. The initial number appearing on page 1 of this

report will be equal to the value entered in columns 7-24 of the Security Number Control Card. On each succeeding page of this report the security number will be incremented by the amount specified in columns 5-6 of the same control card.

r. Earliest Date

These are start and end dates associated with the first and last event numbers respectively. These values are derived from the PERT Time data.

s. Total

A total is computed for each resource-UDC code combination.

t. UDC Code

A code used to describe the corresponding estimated values. The codes that may appear on this form are:

H - Hours

D - Direct dollars

T - Total dollars

U - Other units

Input Example

PERT COST
COST ESTIMATING AND UPDATING FORM

REPORTING ORGN. 1234 CONTRACT NO. ABCC REPORT DATES

TEST PROGRAM TERM (SPAN) = TOTAL PROGRAM
TEST = CUT OFF DATE = 01DEC62
LEVEL 1 SUMMARY ITEM = 2 / 831192 SYSTEM I RELEASE DATE = 01JAN63
LEVEL 1 CHANGE NUMBER = 3 / 548133 SUB-SYSTEM A RESP ORGN = 101

EVENT NUMBER — EARLIEST DATE — SCHEDULED DATE
FIRST = START DATE = START DATE = 07JAN63
LAST = END DATE = END DATE = 15APR63

IDENTIFICATION — RESOURCE ESTIMATES
MONTHS BEGINNING WITH SCHEDULED START DATE

CD PERF CD ORGN	RES CODE	UCD CD	JAN	FEB	MAR	APR	MAY	JUN	CD NO.	JUL	AUG	SEP	OCT	NOV	DEC	CD NO.	TOTAL
7 AB20	1234	H	600	600	700	700	700	1500	40 A	1600	1500	1000	1000			41 A	
7 AB20	1234	H	850	850	850	650			42 A								
7 NR12	4567	H	1400	1400	1400	1400	1400	1400	40 A	1250	1850			1000	1000	41 A	
7 ST40	4252	D	2600	2600	2600	2500	400		43 A	1700	1800	1900	1900	2000		44 A	
7 ST40	4852	D	700	700	800	800	800		45 A								

SECURITY NO. RED ROSE 1253 PAGE NO. 13

Fig. III-J-3. Cost Estimating and Updating Form With New Entries

Important Points

It is important to observe that:

a. The type code, card number and change code must be entered for each 6-month block.

b. Only the performing organization - resource code combinations associated with this charge number are entered on this form.

c. All of the conventions described for Cost Estimating Input Form must be followed when entering data on this form.

d. All of the entries are right-justified (►).

USAF PERT COST SYSTEM

Page_____ of _____

Prepared by _____ **RATE TABLE INPUT FORM** Date _____

CARD CODE	PERFORMING ORGN.	RESOURCE CODE	1ST FIELD				2ND FIELD				3RD FIELD				4TH FIELD				CHK SUM
			E.T.O.	YEAR	UNIT RATE	OVERHEAD RATE	E.T.O.	YEAR	UNIT RATE	OVERHEAD RATE	E.T.O.	YEAR	UNIT RATE	OVERHEAD RATE	E.T.O.	YEAR	UNIT RATE	OVERHEAD RATE	
1	7 12	13 16	18	19 20	21 27	28 32	33	34 35	36 42	43 47	48	49 50	51 57	58 62	63	64 65	66 72	73 77	80
4																			

Fig. III-K-1 . Rate Table Input Form

III-K RATE TABLE INPUT FORM

General Description

The Rate Table Input Form is used for entering unit (hour) and overhead rates into the system for each performing organization - resource code combination. These rates may be entered on a quarterly or yearly basis.

These rates are used for converting the resource estimates appearing on the budget authorization and the cost estimating input forms. The unit rate is used for converting man-hours (H), man-months (M) and other units (U) into direct dollars. The overhead rate is used for converting direct dollars (D) into total dollars.

Direct dollars and total dollars may be either generated by the computer or entered as raw data. Whenever a resource estimate in the form of man-hours (H), man-months (M), other units (U) or direct costs (D) is entered in the system and there is no corresponding entry in the rate table, the value is considered to be raw data. Therefore, no conversion will take place.

Rates may be entered for a particular performing organization - resource code combination; or for a specific resource code. In the latter case, the rates will apply to all performing organizations associated with this resource code.

The maximum number of resource codes or combinations is 266. The maximum number of rates that may be distributed among these combinations is 1600. Rates do not have to be entered on this form in chronological sequence.

The conversion from hours or units to direct and total dollars is described below.

Man-months

Man-months are automatically converted to man-hours. The conversion factor is taken from the main control card. If a factor has not been entered, the program will automatically use 173.32 as the average number of labor hours in each month. Therefore, all labor rates entered in the system must be in the form of hourly rates.

Labor Hours

Labor hours or other units are converted to direct costs if a unit rate has been entered for the corresponding performing organization - resource code. This conversion is effected by multiplying the number of hours or units by the unit rate.

The precise rate to be used in the conversion is selected in the following manner:

a. The program determines the calendar month in which the budgeted or estimated value occurs.

b. This month is converted to a yearly quarter. See the detailed description, see Item d on page III-K-4.

c. The proper rate is then selected from the rate table for the corresponding performing organization - resource code - quarter combination. If a quarter is not specified, the rate will be used for an entire year.

Direct Costs

Direct costs are converted to the overhead rates to form the total dollar value if an overhead rate has been entered.

Only hours, other units, direct costs and total costs are retained in the master file. Overhead costs are not retained.

Detailed Description

a. Column 1, Card Code

The number 4 appearing in this column is used for identifying the cards produced from this form.

b. Columns 7-12, Performing Organization

Six alpha and/or numeric characters may be used to identify the department or organization that will do the work. Entries in this field must be right-justified (►).

c. Columns 13-16, Resource Code

This 4-character alpha and/or numeric field is used to identify the particular manpower skill or material type used by the performing organization. Entries in this field must be right-justified (►).

d. Column 18, Quarter

A number, 1-4, is placed in this column to designate the quarter of the specified year for which the corresponding rates are applicable. The number 1 designates the first quarter, number 2, the second quarter, etc. This field must be blank if rates are to apply to all of the quarters for a given year.

The program divides the calendar year into the following quarters:

First quarter - January, February, March
Second quarter - April, May, June
Third quarter - July, August, September
Fourth quarter - October, November, December

e. Columns 19-20, Year

This two character numeric field is used to designate the year for which the corresponding rates are applicable. For example, if the year is 1963, the number 63 would be entered in this field.

f. Columns 21-27, Unit Rate

This field contains a maximum of 6 numeric characters and one decimal point, representing an hourly labor rate or a unit rate. Entries in this field must be left-justified (◄).

A decimal point must appear in this field. See the input example, Figure III-K-2.

g. Columns 28-32 Overhead Rate

This field contains a maximum of 4 numeric characters and a fixed decimal point, representing an overhead rate.

Entries to this field must be oriented with respect to the fixed decimal point. See the input example.

h. Column 80 Change Code

This code is used to modify the corresponding elements of data in the master file.

This field must contain a character. The letter A must be placed in this field whenever the rates for a performing organization - resource code are entered in the master file for the first time.

The remaining codes that may be used are described in Chapter V.

Input Example

USAF PERT COST SYSTEM

Page 1 of 1

Prepared by _____ **RATE TABLE INPUT FORM** Date _____

REC CODE	PERFORMING ORGN	RESOURCE CODE	1ST FIELD				2ND FIELD				3RD FIELD				4TH FIELD				CHG CODE
			E C O	YEAR	UNIT RATE	OVERHEAD RATE	E C O	YEAR	UNIT RATE	OVERHEAD RATE	E C O	YEAR	UNIT RATE	OVERHEAD RATE	E C O	YEAR	UNIT RATE	OVERHEAD RATE	
1	7 12	13 16	18	19 20	21 27	28 32	33	34 35	36 42	43 47	48	49 50	51 57	58 62	63	64 65	66 72	73 77	80
4	4396	AA31	1	63	4.32	.999	3	63	4.32	1.000	2	64	321620	.051	2	63	.321	.99	A
4	4396	AA31	4	63	5.02	.982	1	64	4.60	.931	3	64	37260	1.999	4	64	98.90	2.30	A
4																			
4	5630	8210	3	63	4.20	.880	4	63	3.70	.930		64	1000.	1.99					A
4																			
4		C300		64	6.00														
4																			
4																			
4																			
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4																			

Figure III-K-2. Input Example for Rate Table Input Form

Important Points

a. Only those performing organization - resource code combinations whose UDC codes are either H, M, D, or U appear in the rate table.

b. The rate table constitutes a separate table in the master file. Therefore, performing organization - resource codes may be deleted without affecting the charge number - performing organization - resource code combinations in other parts of the master file.

c. Labor rates must be entered as hourly rates.

d. The Change Code field must contain a character.

e. A decimal point must appear in the unit rate field.

f. Rates may be entered for a specific resource code. These rates will then be automatically applied to each performing organization associated with this resource code. See the entry for resource code C 300 in (FIG III-K-2).

USAF PERT COST SYSTEM

ACTUAL COST INPUT FORM

Prepared by ____________________ Page ___ of ___

Date ____________

CARD CODE	CHARGE NUMBER	PERFORMING ORGN.	RESOURCE CODE	1ST FIELD DC CODE	CHG CODE	DATE MO	YR	VALUE	2ND FIELD DC CODE	CHG CODE	DATE MO	YR	VALUE	3RD FIELD DC CODE	CHG CODE	DATE MO	YR	VALUE	4TH FIELD DC CODE	CHG CODE	DATE MO	YR	VALUE	TYPE CODE
1	2 19	20 25	26 29	30	31	32	35	36 41	42	43	44	47	48 53	54	55	56	59	60 65	66	67	68	71	72 77	78
7																								3
7																								3
7																								3
7																								3
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Figure III-L-1. Actual Cost Input Form

III-L ACTUAL COST INPUT FORM

General Description

The Actual Cost Input Form (Fig. III-L-1) is used for entering the actual hours and dollars expended for a particular UDC code and month associated with a charge number - performing organization - resource code combination.

Each actual value entered on this form is regarded as a separate entity having its own UDC, change code and calendar reference. This permits each discrete value to be uniquely defined, positioned in time and modified. Therefore, the values do not have to be entered on this form in chronological order.

Each value must be accompanied by the appropriate change code.

All values entered on this form are considered to be actual values. This precludes any rate conversion by the system. The only exception is man-months. This value is automatically converted to man-hours using the average number of hours entered on the main control card. If a value is not entered, the program will use 173.32 hours as the conversion factor.

All values must be in the form of whole numbers. Decimal points are not permitted. These numbers may be positive or negative depending on the presence of a minus sign in the first column of the value field. See Figure III-L-4. This sign option permits adjustments to actual values already in the master file. See Subsection V-J.

Sixty months is the maximum span of time allotted for a performing organization - resource code associated with a particular charge number. This span is measured from the earliest to the latest dates entered on this form for a particular performing organization - resource code.

Actuals are entered in a fixed length table: α - α + 59. Therefore, the program performs a validity check, prior to updating the file, to insure that the 60-month limit is not exceeded.

In order to fulfill some of the output requirements, labor hours, other units, direct dollars and total dollars must be entered for the same charge number - performing organization - resource code combination. Thus, a combination may have multiple unit description codes (UDC) associated with it. See Figure III-L-4.

Date Functions

The earliest date is called the base date. This date acts as a reference for each of the actual values entered for a particular performing organization - resource code.

The following example is used to illustrate the function of this base date.

> Assume that April 63 was the first month for which actuals were accrued for a particular performing organization - resource code. April 63 would then be defined as the base date.
>
> Assume further that actual values were accrued for succeeding months of May, June and July. The input form would appear as follows:

USAF PERT COST SYSTEM

ACTUAL COST INPUT FORM

Prepared by _____ Page 1 of 1

Date _____

CARD CODE	CHARGE NUMBER	PERFORMING ORGN.	RESOURCE CODE	1ST FIELD UDC CODE	1ST FIELD CPR CODE	1ST FIELD DATE MO	1ST FIELD DATE YR	1ST FIELD VALUE	2ND FIELD UDC CODE	2ND FIELD CPR CODE	2ND FIELD DATE MO	2ND FIELD DATE YR	2ND FIELD VALUE	3RD FIELD UDC CODE	3RD FIELD CPR CODE	3RD FIELD DATE MO	3RD FIELD DATE YR	3RD FIELD VALUE	4TH FIELD UDC CODE	4TH FIELD CPR CODE	4TH FIELD DATE MO	4TH FIELD DATE YR	4TH FIELD VALUE	TYPE CODE
1	2 — 19	20 — 25	26 — 29	30	31	32	35	36 — 41	42	43	44	47	48 — 53	54	55	56	59	60 — 65	66	67	68	71	72 — 77	78
7	AU73260	3711	A371	W	T	4	63	43700	W	T	5	63	9320	W	T	6	63	4200	W	T	7	63	6710	3
7																								3
7																								3
7																								3
7																								3
7																								3
7																								3
7																								3
7																								3
7																								3

Figure III-L-2. Input Example (a) for Actual Cost Input Form

These values are then stored in the master file. This portion of the file may be graphically represented as:

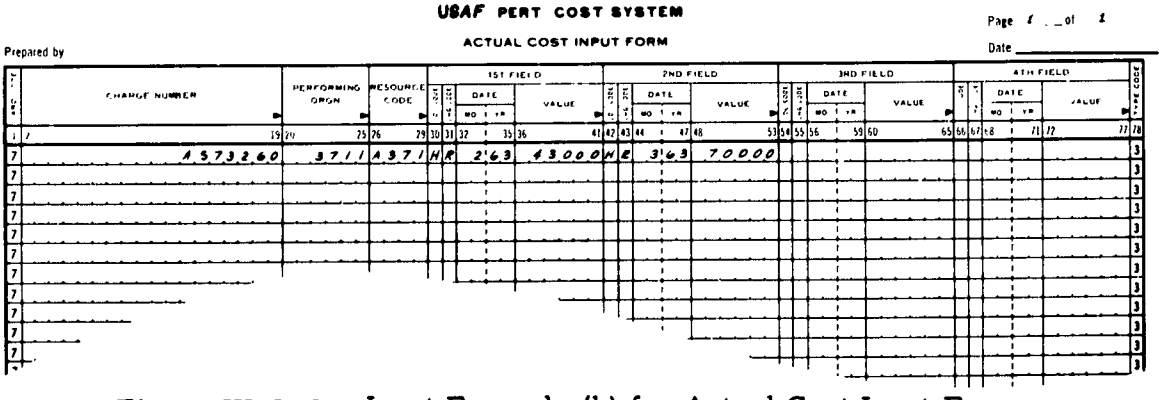
	April 63
a	43700
a + 1	9320
a + 2	4200
a + 3	6710

Observe that although a date was entered with each value, only the base date is stored in the table. The position of the value designates the calendar month. Therefore:

a = Actual value for April
a + 1 = Actual value for May
a + 2 = Actual value for June
a + 3 = Actual value for July

On succeeding runs, actuals may be entered for months prior to the base date. To illustrate:

Assume that it was necessary to enter values for February and March; the input form would appear as follows:


USAF PERT COST SYSTEM

ACTUAL COST INPUT FORM

Prepared by

Page 1 of 1

Date

CHARGE NUMBER	PERFORMING ORGN	RESOURCE CODE	1ST FIELD DATE MO	1ST FIELD DATE YR	1ST FIELD VALUE	2ND FIELD DATE MO	2ND FIELD DATE YR	2ND FIELD VALUE	3RD FIELD DATE MO	3RD FIELD DATE YR	3RD FIELD VALUE	4TH FIELD DATE MO	4TH FIELD DATE YR	4TH FIELD VALUE
1 / 19	20 25	26 29	32	35	36 41	44	47	48 53	56	59	60 65	68	71	72 77
7 A573260	3711	A371	2	63	43000	3	63	70000						
7														
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Figure III-L-3. Input Example (b) for Actual Cost Input Form

These values would be added to the file as follows:

	February 63
a	43000
a + 1	70000
a + 2	43700
a + 3	9320
a + 4	4200
a + 5	6710

Observe that the values for April - July were moved downward to permit the addition of the February and March values.

Detailed Description

a. Column 1, Card Code

Card code 7 preprinted in this column is used in conjunction with type code 3 to uniquely identify the cards produced from this form.

b. Columns 2-19, Charge Number

This field contains 18 Alpha and/or numeric characters identifying a specific charge or summary number. Entries in this field must be right-justified (►).

c. Columns 20-25, Performing Organization

Six alpha and/or numeric characters may be used to identify the department or organization that will do the work. Entries in this field must be right-justified (►).

d. Columns 26-29, Resource Code

Four alpha and/or numeric characters may be entered in this field to identify the particular manpower skill or material type used by the performing organization. Entries in this field must be right-justified (►).

e. Column 30, Unit Description Code - UDC

This column must contain an alpha character which is used for identifying the types of actual values which appear in columns 36-41. The characters which are permitted in this field are:

H - Labor (man) - hours

M - man-months

D - direct dollars

T - total dollars

U - other units

If code U is used, the value will be maintained in the master file. Currently, this value is not required by the output reports.

f. Column 31, Change Code

This code is used to modify the corresponding values in columns 30 and 32-41.

This field must contain a character. The letter T must be placed in this field whenever actual values for a performing organization-resource code are entered in the master file for the first time.

The remaining codes that may be used are described in Chapter V.

g. Columns 32-35, Month and Year

Numeric values are used in this field to indicate the month and year for which the corresponding actual value was accrued.

The months, right-justified, are indicated in the standard form, i.e., 1 equals January, 2 equals February, etc.

h. Columns 36-41, Value

Six numeric characters may be used for the actual value.

This must be a whole number. This number may be positive or negative depending on the presence of a minus sign in the first column, see Fig. III-L-4.. Entries must be right-justified (►).

i. Column 78, Type Code

The number 3 is preprinted in this column for card identification. See the description of column 1.

Input Example

USAF PERT COST SYSTEM

ACTUAL COST INPUT FORM

Prepared by _____ Page 1 of 1 Date _____

CARD CODE	CHARGE NUMBER	PERFORMING ORGN.	RESOURCE CODE	1ST FIELD UDC	CHG CODE	DATE MO	DATE YR	1ST FIELD VALUE	2ND FIELD UDC	CHG CODE	DATE MO	DATE YR	2ND FIELD VALUE	3RD FIELD UDC	CHG CODE	DATE MO	DATE YR	3RD FIELD VALUE	4TH FIELD UDC	CHG CODE	DATE MO	DATE YR	4TH FIELD VALUE	CARD CODE
1	2 19	20 25	26 29	30	31	32	35	36 41	42	43	44	47	48 53	54	55	56	59	60 65	66	67	68	71	72 77	78
7	AA/12345	R1234	XA2	H	T	2	63	10000	H	T	3	63	20000	H	T	4	63	30000	H	T	5	63	40000	3
7	AA/12345	R1234	XA2	H	T	7	63	90000	H	T	6	63	70000											3
7																								3
7	AA/12345	R1234	XA2	D	T	2	63	60000	D	T	3	63	80000	D	T	4	63	90000	D	T	5	63	100000	3
7	AA/12345	R1234	XA2	D	T	6	63	300000	D	T	7	63	900000											3
7																								3
7	AA/12345	R1234	XA2	T	T	2	63	99200	T	T	3	63	142000	T	T	4	63	920000	T	T	5	63	379000	3
7	AA/12345	R1234	XA2	T	T	6	63	702000	T	T	7	63	212000											3
7																								3
7																								3
7	BB/1700	V2000	ZL4	H	T	12	62	-7000	H	T	11	62	-35000	H	T	1	63	80000	H	T	2	63	200000	3
7																								3
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Figure III-L-4. Input Example (c) for Actual Cost Input Form

Important Points

It is important to observe that:

a. Actual values are not converted by the system.

b. Resource code may have several UDC values to fulfill output requirements.

c. Change code must always contain a value.

d. The earliest month becomes the base date.

e. Actuals are retained in the master file for a period of 60 months. During this time they may be modified or deleted according to the conventions described in Chapter V.

USAF PERT COST SYSTEM

MANPOWER SKILL / RAINBOW CATEGORY INPUT FORM

Prepared by ______________________

Page ________ of ______

Date ______________

CARD CODE	RAINBOW CATEGORY	SKILL CODES													CARD CODE
		1ST	2ND	3RD	4TH	5TH	6TH	7TH	8TH	9TH	10TH	11TH	12TH	13TH	
1	2 25	27 30	31 34	35 38	39 42	43 46	47 50	51 54	55 58	59 62	63 66	67 70	71 74	75 78	80
5															
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Figure III-M-1. Manpower Skill/Rainbow Category Input Form

III-M MANPOWER SKILL/RAINBOW CATEGORY INPUT FORM

General Description

The Manpower Skill/Rainbow Category Input Form (Fig III-M-2) is used to group resource codes, i.e., manpower skills, into various categories such as those designated in the AFSC Rainbow Report. For example:

a. Scientific and engineering
b. Engineering support
c. Management and administration
d. Shops and production
e. Others

The maximum number of categories that may be entered is 20. The maximum number of resource codes that may be distributed among the 20 categories is 200. All 200 resource codes may be associated with a single category. This, of course, would preclude the use of another category. A specific resource code may not be associated with more than one category.

Each card must contain the appropriate change code.

Detailed Description

a. Column 1, Card Code

Card code 5 preprinted in this field is used to uniquely identify the cards produced from this form.

b. Columns 2-25, Rainbow Category

Twenty-four alpha and/or numeric characters may be entered in this field to describe the manpower category. This description must be left-justified (◄) Fig. III-M-2.

The system does not distinguish between the Rainbow categories and other manpower categories.

c. Columns 27-30, Skill Codes

This four-character alpha and/or numeric field is used to enter the resource code or skill code which is associated with the corresponding manpower category.

Entries in this field must be right-justified (►)

d. Column 80, Change Code

This code is used to modify the corresponding elements of data in the master file.

This field must contain a character. The letter A must be placed in this field whenever a manpower category - resource code combination is being entered for the first time.

The remaining codes that may be used are described in Chapter V.

Input Example

USAF PERT COST SYSTEM

MANPOWER SKILL /RAINBOW CATEGORY INPUT FORM

Prepared by _____ _____ Page 1 of 1 Date

CARD CODE	RAINBOW CATEGORY	SKILL CODES 1ST	2ND	3RD	4TH	5TH	6TH	7TH	8TH	9TH	10TH	11TH	12TH	13TH	CHG CODE
1	2 25	27 30	31 34	35 38	39 42	43 46	47 50	51 54	55 58	59 62	63 66	67 70	71 74	75 78	80
5	BC/ENTIFIC-ENGINEERING	1234	5678	9101	1213	1415	1617	1819	2021	2223	2425	2627	2829	3031	A
5	BC/ENTIFIC-ENGINEERING	3233	3435	3637											A
5															
5	ENGINEERING SUPPORT	3839	4041	4243	4445	4647	4849								A
5															
5	MANAGEMENT-ADMINISTRAT	4950	5152	5354	5556	5758	5960	6162	6364						A
5															
5															
5															
5															

Figure III-M-2. Input Example for Manpower Skill/Rainbow Category Input Form

Important Points

It is important to observe that:

a. If a manpower category has more than 13 skill codes associated with it, multiple cards must be used. In this event, the category description must appear in identical format on both cards. (Figure III-M-2).

b. Only the resource codes that have already been entered in the system may be entered on this form.

USAF PERT COST SYSTEM

RESOURCE CODE/COST CATEGORY INPUT FORM

Prepared by ______________________

Page _____ of _______

Date _____________

CARD CODE	COST CATEGORY DESCRIPTION	RESOURCE CODES 1ST	2ND	3RD	4TH	5TH	6TH	7TH	8TH	9TH	10TH	11TH	12TH	13TH	CHG CODE
1	2 … 19	27 … 30	31 … 34	35 … 38	39 … 42	43 … 46	47 … 50	51 … 54	55 … 58	59 … 62	63 … 66	67 … 70	71 … 74	75 … 78	80
6															
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Figure III-N-1. Resource Code/Cost Category Input Form

III-N RESCOURCE CODE/COST CATEGORY INPUT FORM

General Description

The Resource Code/Cost Category Input Form (Fig. III-N-1) is used to group resource codes into various categories of cost elements such as those designated in the Contractor Cost Study. For example:

a. Engineering
b. Tooling
c. Testing
d. Development
e. Planning

The maximum number of cost categories that may be entered is 20. The maximum number of resource codes that may be distributed amoung the 20 elements is 200. All 200 resource codes may be associated with a single category. This, of course, would preclude the use of another category. A specific resource code may not be associated with more than one category.

Each card must contain the appropriate change code.

Detailed Description

a. Column 1, Card Code

Card code 6 preprinted in this field is used to uniquely identify the cards produced from this form.

b. Columns 2-19, Cost Element

Eighteen alpha and/or numeric characters may be entered in this field to describe the cost category. This description must be left-justified (◄) Figure III-N-2.

The system does not distinguish between the cost category designated in the Contractor Cost Study and other cost categories

c. Columns 27-30, Resource Codes

This four-character alpha and/or numeric field is used to enter the resource code which is associated with the corresponding cost categories.

Entries in this field must be right-justified (►), (FIGURE III-N-2)

d. Column 80, Change Code

This code is used to modify the corresponding categories of data in the master file.

This field must contain a character. The letter A must be placed in this field whenever a costcategories resource code combination is being entered for the first time.

The remaining codes that may be used are described in Chapter V.

Input Example

USAF PERT COST SYSTEM

Prepared by _____ RESOURCE CODE/COST CATEGORY INPUT FORM Page 1 of 1 Date _____

Card Code	COST CATEGORY DESCRIPTION	RESOURCE CODES 1ST	2ND	3RD	4TH	5TH	6TH	7TH	8TH	9TH	10TH	11TH	12TH	13TH	Card Code
1	2 19	27 30	31 34	35 38	39 42	43 46	47 50	51 54	55 58	59 62	63 66	67 70	71 74	75 78	80
6	ENG. LABOR HOURS	1234	5678	9101	1234	1516	1718	1920	2122	2324	2526	2728	2930	3132	A
6	ENG. LABOR HOURS	3334	3536												A
6															
6	TOOLING LABOR HRS	3738	3839	4042	4337	4647	4850								A
6															
6	TOOLING LABOR DLRS	6162	6371	7273	7475	7677	8090	9192	9394						A
6															
6															
6															
6															
6															

Figure III-N-2. Input Example for Resource Code/Cost Category Input Form

Important Points

It is important to observe that:

a. If a cost cagegory has more than 13 skill codes associated with it; multiple cards must be used. In this event, the description of the cost category must appear in identically the same format on both cards.

b. Only resource codes that have already been entered in the system may be entered on this form.

CHAPTER IV

SYSTEM OUTPUT REPORTS

CHAPTER IV

SYSTEM OUTPUT REPORTS

IV-A INTRODUCTION

This section describes the PERT Cost reports generated by the Program. These reports are shown below in Table IV-A-1.

Table IV-A-1. Output Report Numbers

Report No.	Report by Level	Report Title	Sort Sequence
10	yes	Organization Status Report	Perf. Orgn., Charge No., Resp. Orgn., Res. Code
11	yes	Organization Status Report	Res. Code, Charge No., Resp. Orgn., Perf. Orgn.
12	yes	Organization Status Report	Charge No., Resp. Orgn., Perf. Orgn., Res. Code
13	yes	Organization Status Report	Resp. Orgn., Charge No., Perf. Orgn., Res. Code
20	yes	Organization Status Report	Net No., Perf. Orgn., Charge No., Resp. Orgn., Res. Code
21	yes	Organization Status Report	Net No., Res. Code, Charge No., Resp. Orgn., Perf. Orgn.
22	yes	Organization Status Report	Net No., Charge No., Resp. Orgn., Perf. Orgn., Res. Code

TABLE IV-A-1 OUTPUT REPORT NUMBERS (CONTINUED)

Report No.	Report by Level	Report Title	Sort Sequence
23	yes	Organization Status Report	Net No., Resp. Orgn., Charge No., Perf. Orgn., Res. Code
30	yes	Management Summary Report	
35	yes	Program/Project Status Report	
40	yes	Financial Plan and Status Report	
41	yes	Financial Plan and Status Report	Month, Charge No.
50	yes	Manpower Loading Report	Res. Code, Month, Perf. Orgn., Charge No.
51	yes	Manpower Loading Report	Res. Code, Month
52	yes	Manpower Loading Report	Perf. Orgn., Month, Res. Code
55	yes	Rainbow Category Report	
60	yes	Cost Category Status Report	
70	yes	Summary Financial Forecast	Summary, Year
71	yes	Summary Financial Forecast	Cost Cat., Year
75	yes	Summary Financial Forecast	Summary, Month
76	yes	Summary Financial Forecast	Cost Cat., Month
80	no	Budget Authorization and Updating Form	
85	no	Cost Estimating and Updating Form	

PERT COST
MANAGEMENT SUMMARY REPORT

REPORTING ORGN. | CONTRACT NO. | REPORT DATES

PERT COST TEST | AF22(8788)21200 | TERM (SPAN) - TOTAL PROGRAM

CUT OFF DATE - 01JUL63

LEVEL / SUMMARY ITEM - 1 / AN12300 IACC | RELEASE DATE - 29APR63

ITEM	COST OF WORK $(000)								SCHEDULE	
	WORK PERFORMED TO DATE			TOTALS AT COMPLETION					S - SCHED COMPL DATE - TOTAL A - ACTUAL COMPL DATE - ITEM E - EARLIEST COMPL DATE -CRITICAL L - LATEST COMPL DATE - ITEM	
	VALUE	ACTUAL COST	(OVERRUN) UNDERRUN	PLANNED COST	LATEST REVISED EST	PROJECTED (OVERRUN) UNDERRUN	MOST CRIT SLACK (WKS)	COMPL DATE	P 1963 YRJFMAMJ JASONDJFMAMJJASOND	1964 5678L YR
IACC								06DEC65		S
LEV 1			(.80)			(.26)		06DEC65		E
AN12300	117	579	(462)	2,311	2,903	(592)	-8.8	04OCT65		L
FACILITIES								04SEP64	S	
LEV 2			(1.00)			(.13)		28MAY63	E	
AN21100		18	(18)	135	153	(18)	34.6	03FEB64	L	
OPERATIONAL GROUND EQUIPMENT								17MAR64	S	
LEV 2			(.66)			(1.04)		02MAY63	E	
AN34500	76	225	(149)	194	396	(202)	-8.8	01MAR63	L	
MAINTENANCE GROUND EQUIPMENT								18JAN65		S
LEV 2			.00			(.04)		18NOV64		E
AN42000				200	208	(8)	23.7	07MAY65		L
LOGISTICS								06DEC65		S
LEV 2			(.09)			(.03)		06DEC65		E
AN53200	10	11	(1)	753	776	(23)	-8.8	04OCT65		L
PROGRAM MANAGEMENT								12MAR65		S
LEV 2			.00			(.01)		12MAR65		E
AN66200				305	309	(4)	8.0	07MAY65		L
AIRBORNE VEHICLE EQUIPMENT								18MAR65		S
LEV 2			(.87)			(.44)		18MAR65		E
AN72300	12	92	(80)	209	301	(92)	-8.8	15JAN65		L
SYSTEM INTEGRATION								02JUN65		S
LEV 2			(.84)			(.37)		02JUN65		E
AN83000	20	129	(109)	367	501	(134)	-8.8	31MAR65		L
TEST PROGRAM								10JUN65		S
LEV 2			(1.00)			(.74)		11DEC63	E	
AN99300		105	(105)	148	258	(110)	-8.8	09OCT63	L	

SECURITY NO. | PAGE NO. 1

IV-B-1

Fig. IV-B-1. PERT Cost Management Summary Report

IV-B MANAGEMENT SUMMARY REPORT (Report Number 30)

General Description

The PERT COST Management Summary Report (Fig. IV-B-1) shows current and projected schedule and cost status of the total program and of each of the major component items within the program. The report is prepared at several levels of the work breakdown structure and for all contracts. The report may be machine produced, but when it is manually prepared, the necessary information is derived from the Program/Project Status Report.

The first line of each report shows total costs and significant schedule information for the summary item shown in title block. Subsequent lines show each subdivision of that summary item at the next lower level of the work breakdown structure; thus, each page of the report shows the time and cost status and all the next level backup information for a single summary item. Since each page of the report is a concise summary of one element of the program or project, the report is usually divided for distribution to appropriate government and contractor managers.

Definitions

Program

The designation of the total (or a part of the total) system program or project that is identified with the reporting organization. For example, if reporting organization XYZ has the Missile and GHE part of weapon system ABC, the program or project definition would read:

ABC - Missile and GHE

Level/Summary Item

The level number, noun description, and summary number of the summary item for which the report is being prepared.

Reporting Organization

The name or identification of the organization responsible for the work identified in the Contract Number and Program/Project blocks.

Contract Number

The numeric designation of the contract(s) or agreement(s) included in each report (e.g., 33(600)28369A). When a report is prepared for a large program or project, several contracts may be included. Therefore, each contract number (or its representative code) would be indicated in this space.

Report Dates

a. Term (Span)

The beginning and ending date for the total increment being covered in the report. For example:

1 Jan 62 to 31 Dec 62
Total Program (Project)
Contract

b. Cutoff Date

The accounting cutoff date for the period of actual costs being reported.

c. Release Date

The date that the report is to be released to management. In the event of subsequent rerun and redistribution of reports, it is permissible to suffix the report release date with a revision number.

Item

The level number, noun description, and summary number of each summary item on the work breakdown structure for which time information and cost information are presented in the report. The first item shown is the highest item for which the particular report is prepared and should be identical with the item named in the Level/Summary Item block. Three lines are available

for each item description, and, if necessary, the top line may be extended into the Cost of Work columns.

Value (Work Performed to Date)

The total planned cost for work completed within the summary item. This value is determined by summing the Planned Cost for each completed work package. If a work package is in process, the part of its total planned cost which applies to work completed is approximated by applying the ratio of Actual Cost to Latest Revised Estimate for that work package.

Actual Cost (Work Performed to Date)

The actual expenditures incurred plus any prespecified types of unliquidated commitments (unliquidated obligations or accrued liabilities) charged or assigned to the work packages within the summary item.

(Overrun) Underrun (Work Performed to Date)

The Value for the work performed to date minus the Actual Cost for that same work. When value exceeds actual cost, an underrun condition exists. When actual cost exceeds value, an overrun condition exists. The (overrun) underrun is also expressed as a percentage of the value of work performed to date immediately above the dollar amount. Parentheses are used as a notational device to indicate overruns. (Over) underruns in excess of one billion dollars print as 999,999.

Planned Cost (Totals at Completion)

The approved planned cost for the total summary item. This is the total of the planned costs for all work packages within the summary item.

Latest Revised Estimate (Totals at Completion)

The latest estimate of cost for the total summary item. This estimate is the sum of the actual costs plus estimates-to-complete for all the work packages in the summary item. This estimate is also known as anticipated final cost. For a completed item, the latest revised estimate equals the Actual Cost.

Projected Overrun/Underrun (Totals at Completion)

The Planned Cost minus the Latest Revised Estimate for the total summary item. When planned cost exceeds latest revised estimate, a projected underrun condition exists. When latest revised estimate exceeds planned cost, a projected overrun condition exists. The projected (overrun) underrun is also expressed as a percentage of the planned cost immediately above the dollar amount. Parentheses are used as a notational device to indicate (over) underruns. (Over) underruns in excess of one billion dollars print as 999,999.

Most Critical Slack (Weeks)

The slack, in weeks, associated with the "E" and "L" notations shown in the Schedule Completions section. This represents the worst slack (least algebraic) with respect to designated program or project end points for any of the activities within the summary item.

Completion Date

The day, month, and year of the "S", "A", "E", and "L" positions shown in the Schedule Completions section.

Schedule Calendar

A calendar time reference for display of schedule completions. The calendar contains two years divided by months, four years by years, and one division for all later years. When the calendar is printed by a computer, one space is left between the months before and after the Cut Off Date. A "Time Now" line is printed in this space. It the cutoff date falls between the 10th and the 30th of a month, that month is considered to be the "past month" and it appears to the left of the Time Now line. If the cut off date falls between the 1st and 10th of a month, that month is considered to be the "next future month" and it appears to the right of the Time Now line.

Schedule Completions

Two types of schedule completions are displayed in this section:

a. The scheduled "S" or "A" completion of all work contained within the summary item shown in the item column.

b. The earliest "E" and the latest "L" completion for the most critical schedule element or effort with respect to designated program or project end points within that summary item.

The scheduled date with its associated symbol "S" is derived in the following manner.

a. All of the events associated with the charge or summary item are examined to determine the event having the latest S_E .

b. If this event has a scheduled date, T_S, assigned to it from the PERT time system, then this date will be used as the scheduled date.

c. If this event does not have a scheduled date then S_E is used as the schedule date.

d. If S_E or the schedule date are not available, then the charge number completion date is used. This is the date that is entered on the Charge or Summary Number Identification Input Form (Card 7-2).

The "E" and the L" symbols represent the earliest completion date (S_E) and the latest completion date (S_L) for the most critical schedule element or effort within the item with respect to designated program or project end points. The most critical element within an item may or may not be the same as the last scheduled item. This will depend on whether there are critical interfaces within the item which pose more serious constraints from a program or project point of view than the completion of a total item itself.

The most critical element is the one with the worst slack (least algebraic) within the item. The "E" and "L" positions, therefore, protray the earliest completion date for that activity within the summary item with the worst slack status. When several activities have the same worst slack condition, (for instance, when they are all on the same path), the "E" and "L" positions reflect the last activity on the path.

Sequence Options

This report may be requested for any level of the work breakdown structure.

PERT COST
PROGRAM/PROJECT STATUS REPORT

REPORTING ORGN. SID | CONTRACT NO. AF22(8788)21200 | REPORT DATES TERM (SPAN) - TOTAL PROGRAM

PERT COST TEST | CUT OFF DATE - 01JUL63

LEVEL / SUMMARY ITEM - 2 / AN83000 SYSTEM INTEGRATION | RELEASE DATE - 29APR63

IDENTIFICATION				TIME STATUS			COST OF WORK $(000)					
							WORK PERFORMED TO DATE			TOTALS AT COMPLETION		
CHARGE OR SUMMARY NUMBER	L E V	FIRST EVENT NO.	LAST EVENT NO.	SCHD OR ACT(A) COMPL DATE	EARLIEST - LATEST COMPL DATE	MOST CRIT SLACK (WKS)	VALUE	ACTUAL COST	(OVERRUN) UNDERRUN	PLANNED COST	LATEST REV EST.	PROJECTED (OVERRUN) UNDERRUN
SYSTEM INTEGRATION					02JUN65	-8.8			(2.58)			(.37)
AN83000	2	1000	6700		31MAR65	6700	36	129	(93)	367	501	(134)
WEAPON SYSTEM ANALYSIS					11NOV64	-8.8			(.50)			(.50)
EK27900	3	1000	4900		10SEP64	4900	2	3	(1)	4	6	(2)
RELIABILITY					09OCT63	55.5			.00			(.30)
EK34700	3	1600	2500		09NOV64	2500	2	2		10	13	(3)
WEAPON SYSTEM SAFETY PROGRAM					16JUL63	51.4			(19.00)			(19.00)
EK52200	3	1000	2050		17JUL64	2050		19	(19)		19	(19)
MAINTAINABILITY PROGRAM					15NOV63	50.1			.00			(.04)
EK53300	3	1600	2500		09NOV64	2500				28	29	(1)
WEAPON SYSTEM ENGINEERING					02JUN65	-8.8			(12.00)			(12.00)
EK62400	3	1700	6700		31MAR65	6700		12	(12)		12	(12)
SYSTEM FUNCTIONAL ANALYSIS					03JUL63	24.8			(.88)			(.94)
EK62600	3	1200	2200		30DEC63	2200	17	32	(15)	33	64	(31)
DOCUMENTATION					30DEC64	12.8			.00			(.06)
EK89600	3	4700	6700		31MAR65	6700				17	18	(1)
CONFIGURATION MANAGEMENT					06DEC63	24.8			(43.00)			(43.00)
EK99600	3	1400	4700		02JUN64	4700		43	(43)		43	(43)

SECURITY NO. PAGE NO. 7

Fig. IV-C-1. Program/Project Status Report

IV-C PROGRAM/PROJECT STATUS REPORT (Report Number 35)

General Discussion

The Program/Project Status Report (Fig. IV-C-1) is a comprehensive computer-produced output report. It is organized to reflect the end item work breakdown structure and provides time and cost information from the work package level up to the top of the program or project.

For each work package and summary item shown on the report there is a line of item description followed by a line of significant time and cost information. The first line presents data for the summary item shown in the title block. Subsequent lines show all subdivisions of that item down to the work package levels. (Work packages may appear at different levels of the work breakdown structure.)

The primary purpose of the Program/Project Status Report is to back up the Management Summary Report. The two reports contain similar information, but whereas the Management Summary Report highlights information for a manager, this report retains detail for an analyst. The Management Summary Report is divided for distribution and the Program/Project Status Report remains intact as reference material for the entire portion of the program or project for which reports are prepared.

Definitions

Program

The designation of the total (or a part of the total) system program or project that is identified with the reporting organization. For example, if reporting organization XYZ has the Missile and GHE part of weapon system ABC, the program or project definition would read:

ABC - Missile and GHE

Level/Summary Item

The level number, noun description, and summary number of the summary item for which the report is being prepared.

Reporting Organization

The name or identification of the organization responsible for the work identified in the Contract Number and Program/Project blocks.

Contract Number

The numeric designation of the contract(s) or agreement(s) included in each report (e.g., 33(600)28369A). When a report is prepared for a large program or project, several contracts may be included. Therefore, each contract number (or its representative code) would be indicated in this space.

Report Dates

a. Term (Span)

The beginning and ending date for the total increment being covered in the report. For example:

1 Jan 62 to 31 Dec 62
Total Program (Project)
Contract

b. Cutoff Date

The accounting cutoff date for the period of actual costs being reported.

c. Release Date

The date that the report is to be released to management. In the event of subsequent rerun and redistribution of reports, it is permissible to suffix the report release date with a revision number.

Charge or Summary Number

The noun description and charge or summary number of each work package or summary item for which time information and cost information are presented in the report. For a work package, the charge number is the contractor or government charge number (shop order number, work order number) used to identify the work package for purposes of estimating and accumulating costs. The title or short description of the charge number is printed immediately above the number itself. For the summary item, the summary number is the identification of an end item on the work breakdown structure above the work package level. The title or description of the summary item is also printed directly above the summary number.

Level

The number of the level on the work breakdown structure at which the charge or summary number appears.

First Event Number

The number of the first event in time (based on S_E) for the work package or summary item. This event number defines the beginning of the work package or summary item in relation to the network.

Last Event Number

The number of the last event in time (based on S_E) for the work package or summary item. This event number defines the end of the work package or summary item in relation to the network.

Scheduled or Actual Completion Date

The calendar date on which all the work contained in the work package or summary item is scheduled for completion, or was actually completed. The scheduled completion date (T_S) is established by management as an internal control on the completion of the work. If no scheduled completion date has been established for the work package or summary item, the column is blank. The actual completion date (T_A) is the date on which all work in the work

package or summary item has been completed. When the date in this column is an actual completion date, an "A" is printed in front of the date.

Earliest Completion Date (S_E) and Latest Completion Date (S_L)

The earliest calendar date on which the work package or summary item can be completed and the latest completion date on which the work package or summary item can be scheduled for completion without delaying the completion of the program or project. When the work package or summary item has been completed, this column is blank.

The earliest completion date (S_E), printed on the upper line, is calculated by:

a. summing the scheduled elapsed time (t_s) values for activities on the longest path from the beginning of the program or project to the end of the work effort; and

b. then adding this sum to the calendar start date of the program or project.

The latest completion date (S_L), printed on the lower line, is calculated by:

a. summing the scheduled elapsed time (t_s) values for activities on the longest path from the end of the work effort to the end of the program or project; and

b. then subtracting this sum from the calendar end date of the program or project.

If the longest path contains activities which are not scheduled, expected elapsed time (t_e) values for the unscheduled activities will be processed as scheduled elapsed time (t_s) values in the calculation of S_E and S_L.

Most Critical Slack (Weeks)

The worst (least algebraic) slack with respect to the designated program or project end points, in weeks, for any of the activities within the work package or summary item. This slack is based on a comparison of S_L minus S_E for each activity. The slack indicated will not necessarily be the difference between the S_L and S_E for the end of a work package or summary item since the worst slack situation may be associated with an activity within the work package or summary item. The number of the network event at the

end of the worst slack path within the work package is printed below the slack value. If the work package or summary item has been completed, this column is blank.

Value (Work Performed to Date)

The total planned cost for work completed within the summary item or work package. This value is determined by summing the Planned Cost for each completed work package. If a work package is in process, the part of its total planned cost which applies to work completed is approximated by applying the ratio of Actual Cost to Latest Revised Estimate for that work package.

Actual Cost (Work Performed to Date)

The actual expenditures incurred plus any prespecified types of unliquidated commitments (unliquidated obligations or accrued liabilities) charged or assigned to a work package. For summary items, the appropriate work package data is summed.

(Overrun) Underrun (Work Performed to Date)

The Value for the work performed to date minus the Actual Cost for that same work. Where value exceeds actual cost, an underrun condition exists. Where actual cost exceeds value, an overrun condition exists. The (overrun) underrun is also expressed as a percentage of the value of work to date immediately above the dollar amount. Parentheses are used as a notational device to indicate overruns.

Planned Cost (Totals at Completion)

The approved planned cost for the total work package. For summary items, the appropriate work package data is summed.

Latest Revised Estimate (Totals at Completion)

The latest estimate of cost for the total work package. This estimate is the sum of actual costs plus estimates-to-complete for each work package. For summary items, the appropriate work package data is summed. This

estimate is also known as anticipated final cost. For a completed work package or summary item the latest revised estimate equals the Actual Cost.

Projected Overrun/Underrun (Totals at Completion)

The Planned Cost minus the Latest Revised Estimate. When planned cost exceeds latest revised estimate, a projected underrun condition exists. When latest revised estimate exceeds planned cost, a projected overrun condition exists. The projected (overrun) underrun is also expressed as a percentage of the planned cost immediately above the dollar amount. Parentheses are used as a notational device to indicate overruns.

Sequence Options

This report may be requested for any level of the work breakdown structure.

PERT COST
ORGANIZATION STATUS REPORT
BY RESP ORGN, CHARGE NUMBER, PERF ORGN, RES CODE

REPORTING ORGN. SID | CONTRACT NO. AF22(8788)21200 | REPORT DATES TERM (SPAN) - TOTAL PROGRAM | CUT OFF DATE - 01JUL63 | RELEASE DATE - 29APR63

PERT COST TEST

LEVEL / SUMMARY ITEM - 1 / AN12300 IACC

IDENTIFICATION				MANHOURS TOTALS AT COMPLETION				DIRECT COSTS $(000) TOTALS AT COMPLETION			TIME	
CHARGE NUMBER	RESP ORGN	PERF ORGN	RES CODE	ACTUAL WORK TO DATE	PLANNED	LATEST REV. EST.	PROJECTED (OVERRUN) UNDERRUN	ACTUAL WORK TO DATE	PLANNED	LATEST REV. EST.	PROJECTED (OVERRUN) UNDERRUN	MOST CRIT SLACK (WKS)	SCHD OR ACT(A) COMPL DATE
DOCUMENTATION												
EK89600		SP88	99		1,460	1,500	(40)		6	6		12.8	
TOTAL									6	6	.00		
CONFIGURATION MANAGEMENT													
EK99600		EE32	406	6,912	8,800	16,012	(7,212)					24.8	
TOTAL											.00		
SYSTEM GROUND TESTS													
RG12700		KA16	380	10,200		10,200	(10,200)					17.4	10JUN63
		PP04	1342									17.4	10JUN63
TOTAL											.00		
FIELD TEST GROUND EQUIPMENT													
PG16600		KB99	750		4,025	4,025			13	13		-8.8	
			794						5	5		-8.8	
TOTAL									18	18	.00		
SYSTEM FLIGHT TESTS													
FG18100		KA40	380		11,100	11,650	(550)		35	37	(2)	8.0	
			386		200	200			1	1		8.0	
TOTAL									36	38	(.06) (2)		

SECURITY NO.

PAGE NO. 5

Figure IV-D-1. Organization Status Report

IV-D ORGANIZATION STATUS REPORT (Report Numbers 10, 11, 12, 13, 20, 21, 22, 23)

General Description

The Organization Status Report (Fig. IV-D-1) provides operating level contractor managers with detailed information breakdowns from the available store of data in the PERT COST computer program.

Definitions

Program

The designation of the total (or a part of the total) system program or project that is identified with the reporting organization. For example, if reporting organization XYZ has the Missile and GHE part of weapon system ABC, the program or project definition would read:

ABC - Missile and GHE

Level/Summary Item

The level number, noun description, and summary number of the summary item for which the report is being prepared.

Reporting Organization

The name or identification of the organization responsible for the work identified in the Contract Number and Program/Project blocks.

Contract Number

The numeric designation of the contract(s) or agreement(s) included in each report (e.g., 33(600)28369A). When a report is prepared for a large program or project, several contracts may be included. Therefore, each contract number (or its representative code) would be indicated in this space.

Report Dates

a. Term (Span)

The beginning and ending date for the total increment being covered in the report. For example:

1 Jan 62 to 31 Dec 62
Total Program (Project)
Contract

b. Cutoff Date

The accounting cutoff date for the period of actual costs being reported.

c. Release Date

The date that the report is to be released to management. In the event of subsequent rerun and redistribution of reports, it is permissible to suffix the report release date with a revision number.

Sorting Sequence

The sorting sequence for these identification columns is indicated in the report title.

Charge Number

The noun description and charge number for each work package for which time information and cost information are presented in the report. This is the contractor's charge number (shop order number, work order number) used to identify the work package for purposes of estimating and accumulating costs. The title or short description of the charge number is printed immediately above the number itself.

Responsible Organization

The contractor's organization responsible for management of the work package.

Performing Organization

The contractor's department or organization which will perform work on the work package.

Resource Code

The contractor's code for a particular manpower skill or material type.

Manhours

Cost information shown in the following paragraphs may be used for services and facilities, such as computer usage, as well as for direct labor. No totals are shown in these columns.

Actual (Work to Date)

The actual manhour expenditures assigned to a work package or work package subdivision.

Planned (Totals at Completion)

The approved planned manhours for the work package or work package subdivision.

Latest Revised Estimate (Totals at Completion)

The latest estimate of manhours for the work package or work package subdivision. This estimate is the sum of actual manhour expenditures plus estimates-to-complete. This estimate is also known as anticipated final cost. For a completed work package or work package subdivision the latest revised estimate equals the Actual to Date.

Projected (Overrun) Underrun (Totals at Completion)

The Planned Manhours minus the Latest Revised Estimate. When planned manhours exceed latest revised estimate, a projected underrun condition exists. When latest revised estimate exceeds planned manhours, a projected overrun condition exists. Parentheses are used as a notational device to indicate overruns.

Direct Costs $(000)

Represents Direct Labor Costs, Direct Material Costs and Other Direct Costs.

Actual Cost (Work to Date)

The actual expenditures incurred plus any prespecified types of unliquidated commitments (unliquidated obligations or accrued liabilities) charged or assigned to a work package or work package subdivision.

Planned Cost (Totals at Completion)

The approved planned cost for the work package or work package subdivision.

Latest Revised Estimate (Totals at Completion)

The latest estimate of cost for the work package or work package subdivision. This estimate is the sum of actual costs plus estimates-to-complete. This estimate is also known as anticipated final cost. For completed work the latest revised estimate equals the Actual Cost.

Projected (Overrun) Underrun (Totals at Completion)

The Planned Cost minus the Latest Revised Estimate. When planned cost exceeds latest revised estimate, a projected underrun condition exists. When latest revised estimate exceeds planned cost, a projected overrun condition exists. The projected (overrun) underrun is also expressed as a percentage of the planned cost immediately above the dollar amount on total lines. Parentheses are used as a notational device to indicate overruns.

Most Critical Slack (Weeks)

The worst (least algebraic) slack with respect to designated program or project end points, in weeks, for any of the activities within the work package.

Slack pertains only to the work package (charge number) itself, not to the further cost element breakouts shown in this report. If the work package has been completed, this column is blank.

Scheduled or Actual (A) Completion Date

The calendar date on which all the work contained in the work package is scheduled for completion or was actually completed. The scheduled completion date (T_S) is established by management as an internal control on the completion of the work. If no scheduled completion date has been established for the work package, the column is blank. The actual completion date (T_A) is the date on which all work in the work package has been completed. When the date in this column is an actual completion date, "A" is printed in front of the date. Completion date pertains only to the work package (charge number) itself, not to the further cost element breakouts shown in this report.

Sequence Options

This report is available in different sequences. Each sequence is designated by a report number:

Report Number	Sequence
10	Perf. Org., Chg. No., Resp. Org., Res. Code
11	Res. Code, Chg. No., Resp. Org., Perf. Org.
12	Chg. No., Resp. Org., Perf. Org., Res. Code
13	Resp. Org., Chg. No., Perf. Org., Res. Code
20	Network Code, Perf. Org., Chg. No., Resp. Org., Res. Code
21	Network Code, Res. Code, Chg. No., Resp. Org., Perf. Org.
22	Network Code, Chg. No., Resp. Org., Perf. Org., Res. Code
23	Network Code, Resp. Org., Chg. No., Perf. Org., Res. Code

PERT COST
FINANCIAL PLAN AND STATUS REPORT
BY MONTH, CHARGE NUMBER

REPORTING ORGN. | CONTRACT NO. | REPORT DATES

PERT COST TEST | AF22(8788)21200 | TERM (SPAN) - TOTAL PROGRAM

CUT OFF DATE - 01JUL63

LEVEL / SUMMARY ITEM - 1 / AN12300 IACC | RELEASE DATE - 29APR63

MONTH	CHARGE NUMBER	INCREMENTAL COST $(000) ACTUAL	PLANNED	LATEST REV. EST.	(OVER) UNDER PLAN	CUMULATIVE COST $(000) ACTUAL	PLANNED	LATEST REV. EST.	(OVER) UNDER PLAN
FEB64	AN66200	20	20			63	63		
	AN83000	16	16			97	117	(20)	
	BC92100	14	14			89	107	(18)	
	CD12500	6	6			38	52	(14)	
	DF56200	24	24			56	56		
	EK34700	3	3			10	13	(3)	
	EK53300	8	8			24	24		
	FG16600	5	5			5	5		
	HH74100	24	24			120	131	(11)	
	HH88300	1	1			2	3	(1)	
	TOTAL	121	121			693	1,253	(560)	
MAR64	AN66200	20	20			83	83		
	AN83000	16	16			113	133	(20)	
	DF56200	5	5			62	62		
	EK53300	4	5		(1)	28	29	(1)	
	FG16600	9	9			15	15		
	HH74100	17	17			136	148	(12)	
	HH88300	3	3			5	6	(1)	
12	TOTAL	74	76		(2)	768	1,329	(561)	
11 APR64	AN66200	24	24			107	107		
	AN83000	16	16			129	149	(20)	
10	FG16600	10	10			25	25		
	HH74100	17	17			153	165	(12)	
9	HH88300	3	3			8	9	(1)	
8	TOTAL	69	70		(1)	837	1,399	(562)	
7 MAY64	AN66200	12	12			119	119		
6	AN83000	16	16			145	165	(20)	
5									
4									
3									
2 SECURITY NO.								PAGE NO. 4	

Figure IV-E-1. Financial Plan and Status Report

PERT COST
FINANCIAL PLAN AND STATUS REPORT
BY MONTH

REPORTING ORGN. | CONTRACT NO. | REPORT DATES

PERT COST TEST | AF22(8788)21200 | TERM (SPAN) - TOTAL PROGRAM

CUT OFF DATE - 01JUL63

LEVEL / SUMMARY ITEM - 1 / | AN12300 IACC | RELEASE DATE - 29APR63

		INCREMENTAL COST $(000)				CUMULATIVE COST $(000)			
MONTH	CHARGE NUMBER	ACTUAL	PLANNED	LATEST REV. EST.	(OVER) UNDER PLAN	ACTUAL	PLANNED	LATEST REV. EST.	(OVER) UNDER PLAN
PRIOR						485		485	(485)
JUN63		94	24	94	(70)	579	24	579	(555)
JUL63			30	35	(5)		54	614	(560)
AUG63			31	27	4		85	641	(556)
SEP63			76	77	(1)		161	718	(557)
OCT63			73	76	(3)		234	795	(561)
NOV63			95	95			329	889	(560)
DEC63			115	116	(1)		445	1,006	(561)
JAN64			127	126	1		572	1,132	(560)
FEB64			121	121			693	1,253	(560)
12 MAR64			74	76	(2)		768	1,329	(561)
11 APR64			69	70	(1)		837	1,399	(562)
10 MAY64			75	76	(1)		913	1,475	(562)
9 JUN64			67	66	1		980	1,541	(561)
8 JUL64			58	54	4		1,037	1,595	(558)
7 AUG64			61	59	2		1,098	1,654	(556)
6 SEP64			53	53			1,151	1,707	(556)
5									
4									
3									
2 SECURITY NO.									PAGE NO. 1

Figure IV-E-2. Financial Plan and Status Report by Month

IV-E FINANCIAL PLAN AND STATUS REPORT (Report Numbers 40 and 41)

General Description

The Financial Plan and Status Report (Fig. IV-E-1) provides data for a monthly comparison (at any given level) of actual costs and/or latest revised estimates against planned costs, and thus serves as a tool for monitoring the financial plans.

Historical (prior month) cumulative costs are shown for each charge number. Both incremental and cumulative costs by charge number are shown for each future month within the time period identified in the Report Dates block.

The report is prepared for higher levels of management by printing only totals for each month (Fig. IV-E-2).

Definitions

Program

The designation of the total (or a part of the total) system program or project that is identified with the reporting organization. For example, if reporting organization XYZ has the Missile and GHE part of weapon system ABC, the program or project definition would read:

ABC - Missile and GHE

Lever/Summary Item

The level number, noun description, and summary number of the summary item for which the report is being prepared.

Reporting Organization

The name or identification of the organization responsible for the work identified in the Contract Number and Program/Project blocks.

Contract Number

The numeric designation of the contract(s) or agreement(s) included in each report (e.g., 33(600)28369A). When a report is prepared for a large program

or project, several contracts may be included. Therefore, each contract number (or its representative code) would be indicated in this space.

Report Dates

a. Term (Span)

The beginning and ending date for the total increment being covered in the report. For example:

1 Jan 62 to 31 Dec 62
Total Program (Project)
Contract

b. Cutoff Date

The accounting cutoff date for the period of actual costs being reported.

c. Release Date

The date that the report is to be released to management. In the event of subsequent rerun and redistribution of reports, it is permissible to suffix the report release date with a revision number.

Month

The accounting time period for which (or through which) estimates and actuals are shown.

Charge Number

The contractor or government organization charge number (shop order number, work order number) used to identify the work package for purposes of estimating and accumulating costs.

Actual (Incremental Cost)

The actual expenditures incurred plus any prespecified types of unliquidated commitments (unliquidated obligations or accrued liabilities) charged or assigned during the indicated Month. This value is shown for individual

Charge Numbers when they are included in the report. This column is used only for the month preceding "cutoff date."

Planned (Incremental Cost)

The approved planned cost for the indicated time period. This value is shown for individual Charge Numbers when they are included in the report. No information appears in this column for prior months.

Latest Revised Estimate (Incremental Cost)

The latest estimate of cost for the indicated time period. This value is shown for individual Charge Numbers when they are included in the report.

(Over) Under Plan (Incremental Cost)

The Planned Cost minus the Latest Revised Estimate. When planned cost exceeds latest revised estimate, a projected underplan condition exists. When latest revised estimate exceeds planned cost, a projected overplan condition exists. Parentheses are used as a notational device to indicate an overplan condition. No information appears in this column for prior months.

Actual (Cumulative Cost)

The actual expenditures incurred plus any prespecified types of unliquidated commitments (unliquidated obligations or accrued liabilities) charged or assigned during the period from the beginning of the program or project to the end of the indicated Month. This value is shown for individual Charge Numbers when they are included in the report.

Planned (Cumulative Cost)

The approved planned cost during the period from the beginning of the program or project to the end of the indicated Month. This value is shown for individual Charge Numbers when they are included in the report.

Latest Revised Estimate (Cumulative Cost)

The latest estimate of cost during the period from the beginning of a program or project to the end of the indicated Month. This value is shown for individual Charge Numbers when they are included in the report. This estimate is the sum of actual costs plus estimates through the end of the indicated month. For the period prior to the cutoff date, the latest revised estimate equals the Actual.

(Over) Under Plan (Cumulative Cost)

The Planned Cost minus the Latest Revised Estimate. When planned cost exceeds latest revised estimate, a projected underplan condition exists. When latest revised estimate exceeds planned cost, a projected overplan condition exists. Parentheses are used as a notational device to indicate overplans.

1. Value of Work Performed to Date

   1) Cumulative

   2) Latest Month (from Program/Project Status Report this month, minus Program/Project Status Report last month)

2. (Over) Underrun to Date

Sequence Options

The report is available in two sequences.

Report Number	Sequence
40	Month, charge number
41	Month

PERT COST
MANPOWER LOADING REPORT
BY RESOURCE, MONTH, PERF ORGN, CHARGE NO.

REPORTING ORGN. | CONTRACT NO. | REPORT DATES

PERT COST TEST | AF22(8788)21200 | TERM (SPAN) - TOTAL PROGRAM

CUT OFF DATE - 01JUL63

LEVEL / SUMMARY ITEM - 1 / AN12300 IACC | RELEASE DATE - 29APR63

IDENTIFICATION				MANHOURS			TIME MOST
MONTH	RES (SKILL) CODE	PERF ORGN	CHARGE NUMBER	ACTUAL	PLANNED	LATEST REVISED ESTIMATE	(OVER) UNDER PLAN	CRIT SLACK (WKS)
DEC65	99	SP88	EK89600		60		60	12.8
TOTAL					60		60	
JAN66		SP88	EK89600		200	200		12.8
TOTAL					200	200		
FEB66		SP88	EK89600		400	200	200	12.8
TOTAL					400	200	200	
MAR66		SP88	EK89600		200	400	(200)	12.8
TOTAL					200	400	(200)	
APR66		SP88	EK89600		200	200		12.8
TOTAL					200	200		
MAY66		SP88	EK89600		200	200		12.8
TOTAL					200	200		
JUN66		SP88	EK89600		200	200		12.8
TOTAL					200	200		
JUL66		SP88	EK89600			100	(100)	12.8
TOTAL						100	(100)	
TOTAL					1,460	1,500	(40)	

SECURITY NO. PAGE NO. 5

Fig. IV-F-1. Manpower Loading Report

PERT COST
MANPOWER LOADING REPORT
BY PERF ORGN, MONTH, RESOURCE

REPORTING ORGN. | CONTRACT NO. | REPORT DATES

PERT COST TEST | AF22(8788)21200 | TERM (SPAN) - TOTAL PROGRAM

CUT OFF DATE - 01JUL63

LEVEL / SUMMARY ITEM - 1 / AN12300 IACC | RELEASE DATE - 29APR63

IDENTIFICATION			MANHOURS				
MONTH	RES (SKILL) CODE	PERF ORGN	CHARGE NUMBER	ACTUAL	PLANNED	LATEST REVISED ESTIMATE	(OVER) UNDER PLAN	TIME MOST CRIT SLACK (WKS)
PRIOR	406	EE32		3,720		3,720	(3,720)	
TOTAL				3,720		3,720	(3,720)	
JUN63	406			3,192		3,192	(3,192)	
TOTAL				3,192		3,192	(3,192)	
OCT63	406				3,100	3,200	(100)	
TOTAL					3,100	3,200	(100)	
NOV63	406				3,100	3,200	(100)	
TOTAL					3,100	3,200	(100)	
DEC63	406				1,900	2,000	(100)	
TOTAL					1,900	2,000	(100)	
JAN64	406				700	700		
TOTAL					700	700		
		TOTAL		6,912	8,800	16,012	(7,212)	

SECURITY NO. | PAGE NO. 5

Fig. IV-F-2. Manpower Loading Report by Month

IV-F MANPOWER LOADING REPORT (Report Numbers 50, 51 and 52)

General Description

The Manpower Loading Report (Fig. IV-F-1) is intended for use by contractors to report manpower loading for various levels of summary within the program. The Manpower Loading Report lists actual, planned, and latest estimated monthly manhours for the desired level of summary by the type of manpower.

The "type of manpower" is one of (or a combination of) the contractor's resource codes. These codes often identify types of materials, services, and facilities for which cost estimates have been made in hours, but which may not be significant in an analysis of manpower application. Therefore, the Manpower Loading Report is frequently prepared only for certain specified resource codes (skill categories).

The report is prepared for higher levels of management by printing only totals for each month (Fig. IV-F-2). When government reporting is required in categories other than those identified by contractors' resource codes, the report is prepared by grouping resource codes within the specified categories by use of a translation table.

Definitions

Program

The designation of the total (or a part of the total) system program or project that is identified with the reporting organization. For example, if reporting organization XYZ has the Missile and GHE part of weapon system ABC, the program or project definition would read:

ABC - Missile and GHE

Level/Summary Item

The level number, noun description, and summary number of the summary item for which the report is being prepared.

Reporting Organization

The name or identification of the organization responsible for the work identified in the Contract Number and Program/Project blocks.

Contract Number

The numeric designation of the contract(s) or agreement(s) included in each report (e.g., 33(600)28369A). When a report is prepared for a large program or project, several contracts may be included. Therefore, each contract number (or its representative code) would be indicated in this space.

Report Dates

a. Term (Span)

The beginning and ending date for the total increment being covered in the report. For example:

1 Jan 62 to 31 Dec 62
Total Program (Project)
Contract

b. Cutoff Date

The accounting cutoff date for the period of actual costs being reported.

c. Release Date

The date that the report is to be released to management. In the event of subsequent rerun and redistribution of reports, it is permissible to suffix the report release date with a revision number.

Month

The accounting time period for which estimates and actuals are shown.

Resource (Skill) Code

The contractor or government organization code for a particular manpower skill.

Performing Organization

The contractor or government organization which will perform work on the work package.

Charge Number

The contractor or government organization charge number (shop order number, work order number) used to identify the work package for purposes of estimating and accumulating costs.

Actual (Manhours)

The actual manhour expenditures incurred or assigned to a work package or work package subdivision. This information may appear only as a total figure when charge numbers are not shown in the report.

Planned (Manhours)

The manhours planned for a work package or work package subdivision during the indicated month. This information may appear only as a total figure when charge numbers are not shown in the report.

Latest Revised Estimate (Manhours)

The latest estimate of manhours for a work package or work package subdivision during the indicated month. This information may appear only as a total figure when charge numbers are not shown in the report.

(Over) Underplan (Manhours)

The Planned Manhours minus the Latest Revised Estimate. When planned manhours exceed latest revised estimate, a projected underplan condition exists. When latest revised estimate exceeds planned manhours, a projected overplan condition exists. Parentheses are used as a notational device to indicate an overplan condition.

Most Critical Slack (Weeks)

The worst (least algebraic) slack with respect to designated program or project end points, in weeks, for any of the activities within the work package. Slack pertains only to the work package or charge number itself, not to the further cost element breakouts shown in this report. If the work package has been completed or if the charge number is not shown, this column is blank.

Sequence Options

Report Number	Sequence
50	Res. Code, Month, Perf. Orgn, Chg. No.
51	Resource Code, Month
52	Performing Orgn., Month, Res. Code

PERT COST
COST CATEGORY STATUS REPORT

REPORTING ORGN. | CONTRACT NO. | REPORT DATES

PERT COST TEST | AF22(8788)21200 | TERM (SPAN) - TOTAL PROGRAM

CUT OFF DATE - 01JUL63

LEVEL / SUMMARY ITEM - 1 / AN12300 IACC | RELEASE DATE - 29APR63

IDENTIFICATION	MANHOURS					TOTAL COST $(000)				
	TO DATE		TOTALS AT COMPLETION			WORK TO DATE		TOTALS AT COMPLETION		
COST CATEGORY	PLANNED	ACTUAL	PLANNED	LATEST REVISED ESTIMATE	PROJECTED (OVERRUN) UNDERRUN	PLANNED	ACTUAL	PLANNED	LATEST REV EST.	PROJECTED (OVERRUN UNDERRUN
DEVELOPMENT			15,050	15,350	(.02) (300)			451	459	(.02) (8)
MAJOR SUBCONTRACT					.00		30	252	289	(.13) (37)
MANUFACTURING	4,000	38,888	73,730	110,268	(.33) (36,538)	24	197	498	673	(.26) (175)
MATERIAL					.00		48	109	158	(.31) (49)
PLANNING		6,912	14,600	21,812	(.33) (7,212)		43	70	114	(.39) (44)
PURCHASED PARTS					.00			28	29	(.03) (1)
TESTING		10,200	24,205	35,225	(.31) (11,020)		95	217	319	(.32) (102)
TOOLING		4,724	14,200	19,424	(.27) (5,224)		31	109	144	(.24) (35)
TOTAL						24	442	1,734	2,184	(.21) (450)

SECURITY NO. | PAGE NO. 1

Fig. IV-G-1. Cost Category Status Report

IV-G COST CATEGORY STATUS REPORT (Report Number 60)

General Description

The Cost Category Status Report (Fig.IV-G-1) presents a grouping of functional, hardware, or other significant cost elements in specified categories for reporting purposes.

These cost categories are established by relating work packages or elements of cost within work packages to the specified categories. Thus, no distortion of the work breakdown structure is required to segregate these data.

Any cost categories which satisfy this relationship to the work breakdown structure may be established for a program or project, but once established, they must remain as originally defined for the life of the program or project.

The Cost Category Status Report provides for each cost category a manpower and total dollar comparison of the planned vs. actual expenditure to date and the planned vs. latest revised estimate at completion.

Definitions

Program

The designation of the total (or a part of the total) system program or project that is identified with the reporting organization. For example, if reporting organization XYZ has the Missile and GHE part of weapon system ABC, the program or project definition would read:

ABC - Missile and GHE

Level Summary Item

The level number, noun description, and summary number of the summary item for which the report is being prepared.

Reporting Organization

The name or identification of the organization responsible for the work identified in the Contract Number and Program/Project blocks.

Contract Number

The numeric designation of the contract(s) or agreement(s) included in each report (e.g., 33(600)28369A). When a report is prepared for a large program or project, several contracts may be included. Therefore, each contract number (or its representative code) would be indicated in this space.

Report Dates

a. Term (Span)

The beginning and ending date for the total increment being covered in the report. For example:

1 Jan 62 to 31 Dec 62
Total Program (Project)
Contract

b. Cutoff Date

The accounting cutoff date for the period of actual costs being reported.

c. Release Date

The date that the report is to be released to management. In the event of subsequent rerun and redistribution of reports, it is permissible to suffix the report release date with a revision number.

Cost Category

The name and/or number of a functional, hardware, or other significant cost category for which costs are to be summarized.

Manhours

This information may represent services and facilities usage, as well as direct labor. Totals are shown at completion only.

Planned (To Date)

The approved planned manhours assigned to all work packages or work package subdivisions identified with the indicated Cost Category from the beginning of the Term to the Cutoff Date.

Actual (To Date)

The actual manhour expenditures incurred, charged, or assigned to all work packages or work package subdivisions identified with the indicated Cost Category.

Planned (Totals at Completion)

The approved planned manhours assigned to all work packages or work package subdivisions identified with the indicated Cost Category.

Latest Revised Estimate (Totals at Completion)

The latest estimate of manhours for all the work packages or work package subdivisions identified with the indicated Cost Category. This estimate is the sum of actual manhour expenditures plus estimates-to-complete. When all work packages associated with the cost category are completed, Latest Revised Estimate equals Actual to Date.

Projected (Overrun) Underrun (Totals at Completion)

The Planned Manhours minus the Latest Revised Estimate. When planned manhours exceed latest revised estimate, a projected underrun condition exists. When latest revised estimate exceeds planned manhours, a projected overrun condition exists. The projected (overrun) underrun is also expressed as a percentage of the planned cost immediately above the number of manhours. Parentheses are used as a notational device to indicate overruns.

Total Cost $ (000)

This information represents materials, other Direct Costs, Labor Dollar Value of manpower and overhead.

Planned (To Date)

The approved planned cost assigned to all work packages or work package subdivisions identified with the indicated Cost Category from the beginning of the Term to the Cutoff Date.

Actual (To Date)

The actual expenditures incurred plus any prespecified types of unliquidated commitments (unliquidated obligations or accrued liabilities) charged or assigned to work packages or work package subdivisions identified with the indicated Cost Category.

Planned (Totals at Completion)

The approved planned cost assigned to all work packages or work package subdivisions identified with the indicated Cost Category.

Latest Revised Estimate (Totals at Completion)

The latest estimate of cost for all the work packages or work package subdivisions identified with the indicated Cost Category. This estimate is the sum of actual expenditures plus estimates-to-complete. When all work packages associated with the cost category are completed, Latest Revised Estimate equals Actual to Date.

Projected (Overrun) Underrun (Totals at Completion)

The Planned Cost minus the Latest Revised Estimate. When planned cost exceeds latest revised estimate, a projected underrun condition exists. When latest revised estimate exceeds planned cost, a projected overrun condition exists. The projected (overrun) underrun is also expressed as a percentage of the planned cost immediately above the dollar amount. Parentheses are used as a notational device to indicate overruns.

Sequence Options

There are no sequence options.

PERT COST

WORK PACKAGE/ACTIVITY REPORT

BY CHARGE NO., PRED, SUCC

RESP ORGN

REPORTING ORGN. SID | CONTRACT NO. AF22(8788)21200 | REPORT DATES

PERT COST TEST

TERM (SPAN) - TOTAL PROGRAM

CUT OFF DATE - 01JUL63

LEVEL / CHARGE NUMBER- 3 / BC72100 IAC HARDWARE

RELEASE DATE - 29APR63

ACTIVITIES PRED EVENTS	ACTIVITIES SUCC EVENTS	ACTIVITY DESCRIPTION	SCHD ELAPSED TIME	COMPLETION DATE EXPECTED (SE)	COMPLETION DATE LATEST (SL)	COMPLETION DATE SCHD OR ACTUAL	ACTIVITY SLACK (SL-SE)
1000	1100		17.4	02MAY63	01MAR63	09MAY63	-8.8
1100	2800		5.5	11JUN63	08NOV63	10JUN63	21.2
2200	3900		12.4	01OCT63	26MAR64		24.8
2800	3500		12.6	07OCT63	10FEB64		17.4
3500	4200		18.0	13FEB64	16JUN64		17.4

SECURITY NO.

PAGE NO. 1

Fig. IV-H-1. Work Package/Activity Report

WORK PACKAGE/ACTIVITY REPORT (Report Number 1)

General Description

The Work Package/Activity Report (FIG IV-H-1) provides PERT TIME data for each activity oriented charge number.

Detailed Description (Definitions)

Program

The designation of the total (or a part of the total) system program or project that is identified with the reporting organization. For example, if reporting organization XYZ has the missile and GHE part of weapon system ABC, the program or project definition would read:

ABC - Missile and GHE

Level/Charge Number

The level number, noun description, and summary number of the item for which the report is being prepared.

Reporting Organization

The name or identification of the organization responsible for the work identified in the Contract Number and Program/Project blocks.

Contract Number

The numeric description of the contract(s) or agreement(s) included in each report (e.g., 33(600)28369A). When a report is prepared for a large program or project, several contracts may be included. Therefore, each contract number (or its representative code) would be indicated in this space.

Report Dates

a. Term (Span)

The beginning and ending date for the total increment being covered in the report. For example:

1 Jan 62 to 31 Dec 62
Total Program (Project)
Contract

b. Cutoff Date

The accounting cut off date for the period of actual costs being reported.

c. Release Date

The date that the report is to be released to management. In the event of subsequent rerun and redistribution of reports, it is permissible to suffix the report release date with a revision number.

Activities

Activities associated with this charge number. Each activity is designated by a preceding and succeeding event number and an activity description.

Scheduled Elapsed Time

Activity flow time in weeks.

Expected Completion Date (S_E)

The earliest completion date for the corresponding activity.

Latest Completion Date (S_L)

The latest completion date for the corresponding activity.

Scheduled or Actual Completion

The scheduled or actual completion date for the corresponding activity.

Activity Slack

The value derived from $S_L - S_E$ for the corresponding activity.

Sequence Options

There are no sequence options.

PERT COST
RAINBOW CATEGORY REPORT

		REPORTING ORGN.	CONTRACT NO.	REPORT DATES
PERT COST TEST			AF22(8788)21200	TERM (SPAN) - TOTAL PROGRAM
				CUT OFF DATE - 01JUL63
LEVEL / SUMMARY ITEM - 1 /	AM12300 IACC			RELEASE DATE - 29APR63

IDENTIFICATION		MANHOURS			
MONTH	RAINBOW CATEGORY	ACTUAL	PLANNED	LATEST REVISED ESTIMATE	(OVER) UNDER PLAN
PRIOR	SCIENTIFIC-ENGINEERING	3,720		3,720	(3,720)
JUN63		3,192		3,192	(3,192)
OCT63			3,100	3,200	(100)
NOV63			3,100	3,200	(100)
DEC63			1,900	2,000	(100)
JAN64			700	700	
MAY66			1,600	1,600	
JUN66			1,600	1,600	
JUL66			1,600	1,600	
AUG66			1,600	1,600	
SEP66			1,600	1,600	
MAR67			200	200	
	TOTAL	6,912	17,000	24,212	(7,212)

SECURITY NO. PAGE NO. 1

Figure IV-I-1. Rainbow Category Report

IV-I RAINBOW CATEGORY REPORT (Report Number 55)

General Description

The Rainbow Category Report is intended for use by contractors to report manpower loading for various levels of summary within the program. The Rainbow Category Report lists actual, planned, and latest estimated monthly manhours for the desired level of summary by rainbow category.

The rainbow category is one of (or a combination of) the contractor's resource codes. These codes often identify types of materials, services, and facilities for which cost estimates have been made in hours, but which may not be significant in an analysis of manpower application. Therefore, the Rainbow Category Report is frequently prepared only for certain specified resource codes (skill categories).

The report is prepared for higher levels of management by printing only totals for each month. When the Government requires reporting in categories other than those identified by contractors' resource codes, the report is prepared by grouping resource codes within the specified categories by use of a translation table. This procedure is discussed in subsection III-N.

Detailed Description (Definitions)

Program

The designation of the total (or a part of the total) system program or project that is identified with the reporting organization. For example, if reporting organization XYZ has the Missile and GHE part of weapon system ABC, the program or project definition would read:

ABC - Missile and GHE

Level/Summary Item

The level number, noun description, and summary number of the summary item for which the report is being prepared.

Reporting Organization

The name or identification of the organization responsible for the work identified in the Contract Number and Program/Project blocks.

Contract Number

The numeric designation of the contract(s) or agreement(s) included in each report (e.g., 33(600)28369A).

Report Dates

a. Term (Span)

The beginning and ending date for the total increment being covered in the report. For example:

1 Jan 62 to 31 Dec 62
Total Program (Project)
Contract

b. Cutoff Date

The accounting cutoff date for the period of actual costs being reported.

c. Release Date

The date that the report is to be released to management. In the event of subsequent rerun and redistribution of reports, it is permissible to suffix the report release date with a revision number.

Month

The accounting time period for which estimates and actuals are shown.

Rainbow Category

A manpower category composed of one or more resource codes.

Actual (Manhours)

The actual manhour expenditures incurred or assigned to a work package or work package subdivision. This information may appear only as a total figure when charge numbers are not shown in the report.

Planned (Manhours)

The manhours planned for a work package or work package subdivision during the indicated month. This information may appear only as a total figure when charge numbers are not shown in the report.

Latest Revised Estimate (Manhours)

The latest estimate of manhours for a work package or work package subdivision during the indicated month. This information may appear only as a total figure when charge numbers are not shown in the report.

(Over) Underplan (Manhours)

The Planned Manhours minus the Latest Revised Estimate. When planned manhours exceed latest revised estimate, a projected underplan condition exists. When latest revised estimate exceeds planned manhours, a projected overplan condition exists. Parentheses are used as a notational device to indicate an overplan condition.

PERT COST
SUMMARY FINANCIAL FORECAST
BY COST CATEGORY BY YEAR

REPORTING ORGN. | CONTRACT NO. | REPORT DATES

PERT COST TEST | AF22(8788)21200 | TERM (SPAN) - TOTAL PROGRAM

CUT OFF DATE - 01JUL63

LEVEL / SUMMARY ITEM - 1 / AM12300 IACC | RELEASE DATE - 29APR63

SUMMARY ITEM/ COST CATEGORY	LEV	PRIOR FYS	CURRENT FY	CURRENT FY+1	CURRENT FY+2	CURRENT FY+3	CURRENT FY+4	CURRENT FY+5	CURRENT FY+6	TO COMPLETE	TOTAL
IACC											
AM12300	1		579	955	698	386	244	3			2,866
DEVELOPMENT	-HOURS			8,350		4,700	2,000				15,050
DEVELOPMENT	-DIR $			21		14	6	3			44
DEVELOPMENT	-TOT $		67	247	121	13	3				451
MAJOR SUBCONTRACT	-TOT $		30	44	157	30					282
MANUFACTURING	-HOURS		38,888	32,800	10,980	8,800	7,750	9,400			108,618
MANUFACTURING	-DIR $			96	54	15	9				175
MANUFACTURING	-TOT $		197	253	156	39	27				671
MATERIAL	-TOT $		48		33	69	7				156
PLANNING	-HOURS		6,912	14,600							21,512
PLANNING	-DIR $			17		5	6				28
PLANNING	-TOT $		43	46		10	14				113
PURCHASED PARTS	-TOT $			28							28
TESTING	-HOURS		10,200	3,700	325	4,980	15,200				34,405
TESTING	-DIR $		10	12	1	17	48				88
TESTING	-TOT $		95	29	3	48	138				312
TOOLING	-HOURS		4,724	8,600			5,600				18,924
TOOLING	-DIR $			30			18				49
TOOLING	-TOT $		31	64			45				140
UNDEFINED	-HOURS		8,944	550		5,235					14,729
UNDEFINED	-DIR $		5	201	52	27					286
UNDEFINED	-TOT $		137	403	105	69					713
TOTAL LABOR HOURS			69,668	68,600	11,305	23,715	30,550	9,400			213,238
TOTAL DIRECT LABOR $			15	378	108	77	87	3			668
TOTAL DIRECT DOLLARS			15	378	108	77	87	3			668
TOTAL OVHD, G+A, FEE			564	578	591	308	157				2,198
TOTAL DOLLARS			579	955	698	386	244	3			2,866

SECURITY NO. PAGE NO. 1

Figure IV-J-1. Summary Financial Forecast, Report No. 71

PERT COST
SUMMARY FINANCIAL FORECAST
BY SUMMARY ITEM BY YEAR

REPORTING ORGN. CONTRACT NO. REPORT DATES

PERT COST TEST AF22(8788)21200 TERM (SPAN) - TOTAL PROGRAM

CUT OFF DATE - 01JUL63

LEVEL / SUMMARY ITEM - 1 / AN12300 IACC RELEASE DATE - 29APR63

SUMMARY ITEM/ COST CATEGORY	LEV	PRIOR FYS	CURRENT FY	CURRENT FY+1	CURRENT FY+2	CURRENT FY+3	CURRENT FY+4	CURRENT FY+5	CURRENT FY+6	TO COMPLETE	TOTAL
IACC											
AN12300	1		579	955	698	386	244	3			2,866
FACILITIES											
AN21100	2		18	62		60	13				153
OPERATIONAL GROUND EQUIPMENT											
AN34500	2		225	170							395
MAINTENANCE GROUND EQUIPMENT											
AN92000	2					85	114				200
LOGISTICS											
AN53200	2		11	204	403	143		3			764
PROGRAM MANAGEMENT											
AN64200	2			123	101	67	14				305
AIRBORNE VEHICLE EQUIPMENT											
AN72300	2		92	122	87						301
SYSTEM INTEGRATION											
AN83000	2		129	231	105	30					495
TEST PROGRAM											
AN99300	2		105	43	3		103				253

SECURITY NO. PAGE NO. 1

Figure IV-J-2. Summary Financial Forecast, Report No. 70

PERT COST
SUMMARY FINANCIAL FORECAST
BY COST CATEGORY BY MONTH

REPORTING ORGN. | CONTRACT NO. | REPORT DATES

PERT COST TEST | AF22(8788)21200 | TERM (SPAN) - TOTAL PROGRAM

CUT OFF DATE - 01JUL63

LEVEL / SUMMARY ITEM - 1 / AM12300 IACC | RELEASE DATE - 29APR63

SUMMARY ITEM/ COST CATEGORY	LEV	CURRENT FY	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
IACC														
AM12300	1	579							62	114	72	111	126	94
MAJOR SUBCONTRACT	-TOT $	30								30				
MANUFACTURING	-HOURS	38,888							4,448	5,412	6,982	6,896	7,374	7,776
MANUFACTURING	-TOT $	197							22	27	38	39	34	36
MATERIAL	-TOT $	48							20	28				
PLANNING	-HOURS	6,912										500	3,220	3,192
PLANNING	-TOT $	43										3	20	20
TESTING	-HOURS	10,200							700	1,500	2,500	2,500	2,000	1,000
TESTING	-DIR $	10											7	3
TESTING	-TOT $	95							9	16	19	18	21	10
TOOLING	-HOURS	4,724										982	1,703	2,039
TOOLING	-TOT $	31										6	12	13
UNDEFINED	-HOURS	8,944							110	250	1,493	3,279	3,119	693
UNDEFINED	-DIR $	5							1	1	1	2		
UNDEFINED	-TOT $	137							11	13	14	44	39	15
TOTAL LABOR HOURS		69,668							5,258	7,162	10,975	14,157	17,416	14,700
TOTAL DIRECT LABOR $		15							1	1	1	2	7	3
TOTAL DIRECT DOLLARS		15							1	1	1	2	7	3
TOTAL OVHD, G&A, FEE		564							61	113	71	110	118	91
TOTAL DOLLARS		579							62	114	72	111	126	94

SECURITY NO. PAGE NO. 1

Figure IV-J-3. Summary Financial Forecast, Report No. 76

PERT COST
SUMMARY FINANCIAL FORECAST
BY SUMMARY ITEM BY MONTH

REPORTING ORGN. | CONTRACT NO. | REPORT DATES

PERT COST TEST | AF22(8788)21200 | TERM (SPAN) - TOTAL PROGRAM

CUT OFF DATE - 01JUL63

LEVEL / SUMMARY ITEM - 1 / AN12300 IACC | RELEASE DATE - 29APR63

SUMMARY ITEM/ COST CATEGORY	LEV	CURRENT FY	FISCAL YEAR JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
IACC AN12300	1	579							62	114	72	111	126	94
FACILITIES AN21100	2	18							6	8	3	1		
OPERATIONAL GROUND EQUIPMENT AN34500	2	225							23	25	36	52	53	37
MAINTENANCE GROUND EQUIPMENT AN42000	2													
LOGISTICS AN53200	2	11									3	3	3	3
PROGRAM MANAGEMENT AN66200	2													
AIRBORNE VEHICLE EQUIPMENT AN72300	2	92							23	33	1		19	16
SYSTEM INTEGRATION AN83000	2	129							4	7	11	37	37	32
TEST PROGRAM AN99300	2	105							6	41	18	18	14	7

SECURITY NO. | PAGE NO. 1

Figure IV-J-4. Summary Financial Forecast, Report No. 75

IV-J SUMMARY FINANCIAL FORECAST (Report Numbers 70, 71, 75, 76)

General Description

The Summary Financial Forecast report presents actual and planned (budgeted) costs, grouped by summary item and cost category for any level of the work breakdown structure.

The summary items are derived from the work breakdown structure; cost categories are derived from entries made on the Resource Code/Cost Category Input Form.

Aggregate costs are shown by fiscal year in reports 70 and 75. For the current fiscal year these costs are shown by the month in reports 71 and 76.

Reports 70 and 75

These reports present the total cost for each of the summary items on a specified level. These reports also show costs for items on lower levels that are directly linked to the specified summary items. See Figure IV-J-1.

Reports 71 and 76

These reports present units, direct labor hours, direct dollars, and total cost for each cost catagory entered in the system. If resource codes in the master file are not associated with a cost category, their costs will appear in the "undefined category" shown in Figure IV-J-2.

These reports also show totals for labor hours, direct labor dollars, direct dollars, Overhead G and A Fee, and total dollars.

It is important to note that the "Overhead G and A Fee" value is derived by subtracting direct costs from total dollars.

Definitions

Program

The designation of the total (or a part of the total) of the system program or project identified with the reporting organization. For example, if reporting

organization XYZ has the Missile and GHE part of weapon system ABC, the program or project definition would read:

ABC - Missile and GHE

Level Summary Item

The level number, noun description, and summary number of the summary item for which the report is being prepared.

Reporting Organization

The name or identification of the organization responsible for the work identified in the Contract Number and Program/Project blocks.

Contract Number

The numeric designation of the contract(s) or agreement(s) included in each report (e.g., 33(600)28369A). When a report is prepared for a large program or project, several contracts may be included. Therefore, each contract number (or its representative code) is indicated in this space.

Report Dates

a. Term (Span)

The beginning and ending date for the total increment being covered in the report. For example:

1 Jan 62 to 31 Dec 62
Total Program (Project)
Contract

b. Cutoff Date

The accounting cutoff date for the period of actual costs being reported.

c. Release Date

The date that the report is to be released to management. In the event of subsequent re-run and redistribution of reports, it is permissible to suffix the report release date with a revision number.

Summary Item/Cost Category

The name and number of the summary item or cost category for which costs are to be summarized.

Current FY

This is the current fiscal year divided into months, starting with July 1 and ending with June 30.

Prior FYS

This column will contain all of the actual costs for fiscal years prior to the current fiscal year.

Current FY+n

These columns contain the aggregate planned costs for fiscal years subsequent to the current year where $1 \leq n \leq 6$.

To Complete

This column will contain the aggregate planned costs for all of the fiscal years beyond the current year + 6.

CHAPTER V

DATA MODIFICATION PROCEDURES

CHAPTER V

DATA MODIFICATION PROCEDURES

V-A INTRODUCTION

This section describes the procedures used to modify elements of data in the master file.

The addition, change, and deletion of each element is accomplished through the use of change codes which are entered on the input forms. The following description, therefore, is rendered in terms of the input forms originally presented in Chapter III.

CONTROL CARD INPUT MODIFICATIONS

The control cards, which appear on the Control Card Input Form, must be submitted with each run. For this reason, no modification procedures are associated with this form.

PERT TIME TAPE DESCRIPTION INPUT MODIFICATIONS

The two blocks of data appearing on the PERT Time Tape Description Input Form are permanently retained in the master file.

In order to modify any of these elements, all data in both blocks must be resubmitted. Consequently, no modification procedures are associated with this form.

USAF PERT COST SYSTEM

WORK BREAKDOWN STRUCTURE INPUT FORM

Prepared by ______________________

Page ______ of ______

Date ______

CARD CODE	CHARGE OR SUMMARY NUMBER	CARD 0				CARD 1			
		WORK PACKAGE OR SUMMARY ITEM DESCRIPTION	RESP ORGN	[illegible]	CODE	PARENT SUMMARY NUMBER	LEVEL CODE	[illegible]	[illegible]
1	2 19	20 55	56 61	78	80	20 37	38 39	40	78
7				0					1
7				0					1
7				0					1
7				0					1
7				0					1
7				0					1
7				0					1
7				0					1
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7				0					1

KEYPUNCH COLUMNS 2-19 ON CARDS 0 AND 1

Figure V-B-1. Work Breakdown Structure Input Form Used to Modify Data

V-B WORK BREAKDOWN STRUCTURE INPUT MODIFICATIONS

General Description

The Work Breakdown Structure Input Form (Figure V-B-1) is used to modify the following elements of data:

Charge or summary numbers
Description
Responsible Organization
Parent summary number
Level Code
MSR Output Selector

Except for the MSR Output Selector Code, the foregoing elements also appear on the Budget Authorization and Input Form, and on the Cost Estimating and Updating Form.

Three types of change codes are used to modify these elements of data.

A = ADD
C = CHANGE
D = DELETE

These codes are entered in column 80 of the first card, i.e., card 0. (See Figure V-B-1).

Each modification entered on this form references a particular charge or summary number. This number, therefore, must appear in columns 2-19 of each card.

Code A, ADD

Code A is used to add a new charge or summary number to the master file. Therefore, both cards must be keypunched whenever change code A is used.

The program checks the master file to ascertain that the new charge or summary number is already in the master file. If the number is in the file, the card will be rejected.

Code A cannot be used to enter additional elements of data such as responsible organization to a charge or summary number already in the master file. For example:

> Assume that charge number AN3420 was initially entered in the master file without a description or MSR selector code. These elements of data cannot be subsequently added through the use of Code A.

Code C, CHANGE

Code C is used to:

a. Change existing data to a new format or value. The charge or summary number is used as indicative information to locate the items being changed. Therefore Code C cannot be used to change a charge or summary number.

b. Add fields of data such as description or MSR selector code to a previously established charge or summary number.

If the charge or summary number being changed is not in the master file the card will be rejected.

Code D, DELETE

Code D is used to delete an entire charge or summary number. Whenever a charge or summary number is deleted from the master file, all of the schedule and cost information for each associated performing organization and resource code is also deleted.

As a safeguard against accidental deletion of actual values, the system will not delete a charge or summary number if the performing organization-resource code has been assigned actual values.

If the charge or summary number being deleted is not in the master file, the card will be rejected.

Procedures For Data Modification

Charge or Summary Number

a. ADD

Enter new number in columns 2-19

Enter other data in cards 0 and 1

Enter A in column 80

b. CHANGE

Numbers without actuals

Use ADD and DELETE procedures

Numbers with actuals

Enter the new charge or summary number using the ADD procedure.

Take the activity and cost data of the charge number being replaced and enter them on the necessary input forms, using the new charge number.

Change all of the actuals associated with the old charge number to zero. See Actual Cost Input Form in this section.

Delete the old charge number using the DELETE procedure.

This entire procedure may be accomplished in a single computer pass.

c. DELETE

Numbers without actuals

Enter number in columns 2-19

Enter D in column 80

Submit card 0 only

Numbers with actuals

Change actual values to zero. See Actual Cost Input Form in this section

Enter number in columns 2-19

Enter D in column 80

Submit card 0 only

Description

a. ADD

Use CHANGE procedure

b. CHANGE

Enter charge or summary in columns 2-19

Enter description in columns 20-55

Enter C in column 80

Submit card 0 only

c. DELETE

Enter change or summary number in columns 2-19

Enter an asterisk (*) in column 20

Enter C in column 80

Submit card 0 only

Responsible Organization

a. ADD

Use CHANGE procedure

b. CHANGE

Enter charge or summary number in columns 2-19

Enter responsible organization in columns 56-61

Enter C in column 80

Submit card 0 only

c. DELETE

Enter charge or summary number in columns 2-19

Enter asterisk (*) in column 56

Enter C in column 80

Submit card 0 only

Parent Summary Number

a. ADD

Use CHANGE procedure

b. CHANGE

Enter charge or summary number in columns 2-19

Enter new parent summary number in columns 20-37

Leave column 80 blank

Submit card 1 only

c. DELETE

Enter charge or summary number in columns 2-19

Enter an asterisk (*) in column 20

Leave column 80 blank

Submit card 1 only

Level Code

a. ADD

Use CHANGE procedure

b. CHANGE

Enter charge or summary number in columns 2-19

Enter level code in columns 38-39

Leave column 80 blank

Submit card 1 only

MSR Selector Code

a. ADD

Use CHANGE procedure

b. CHANGE

Enter charge or summary number in columns 2-19

Enter MSR Selector Code in column 40

Leave column 80 blank

Submit card 1 only

c. DELETE

Enter charge or summary number in columns 2-19

Enter an asterisk (*) in column 40

Leave column 80 blank

Submit card 1 only

Input Example

Fig. V-B-4 illustrates the following modifications:

Entry A, Modifications to the work breakdown structure shown in V-B-2. The summary number AB1230000 is deleted, and charge numbers AC1230000 and AD1230000 are assigned new parent summary numbers and level codes.

These modifications will change the original work breakdown structure shown in Fig. V-B-2 to the structure shown in Fig. V-B-3.

Entry B, Change of a description

Entry C, Deletion of a description

Entry D, Change of a responsible organization

Entry E, Deletion of a responsible organization

Entry F, Deletion of a parent summary number, and MSR.

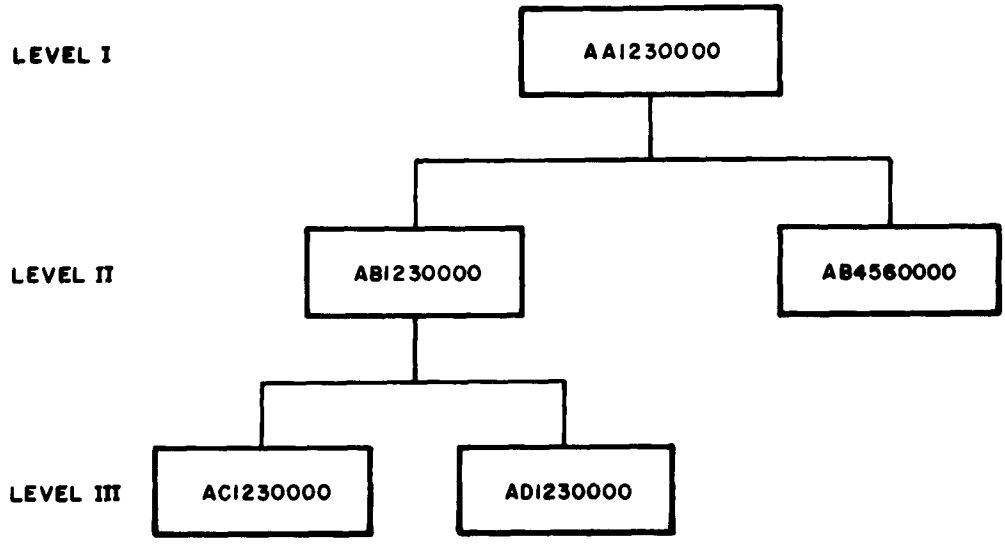

Figure V-B-2. Work Breakdown Structure Prior to Modification

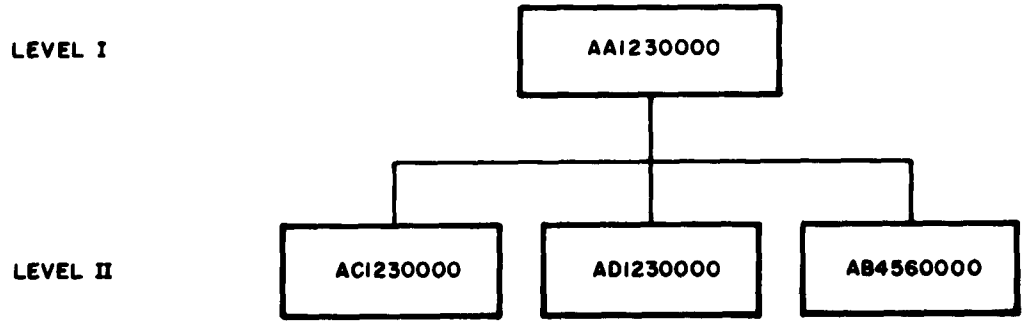

Figure V-B-3. Work Breakdown Structure After Modification

USAF PERT COST SYSTEM

Page 1 of 1

Prepared by _____

WORK BREAKDOWN STRUCTURE INPUT FORM

Date _____

	CHARGE OR SUMMARY NUMBER	CARD 0 WORK PACKAGE OR SUMMARY ITEM DESCRIPTION	RESP ORGN			CARD 1 PARENT SUMMARY NUMBER	LEVEL CODE		
	1 2 19	20 55	56 61	78	80	20 37	38 39	40	78
	7			0					
A	7 AB/1230000			0	D				
A	7 AC/1230000			0		AA/1230000	2		
A	7 AD/1230000			0		AA/1230000	2		
	7			0					
	7			0					
	7			0					
B	7 BB/1230000	GUIDANCE SYSTEM		0	C				
	7			0					
	7			0					
	7			0					
C	7 CC/1230000	*		0	C				
	7			0					
	7			0					
	7			0					
D	7 DD/1230000		ENORNG	0	C				
	7			0					
	7			0					
	7			0					
E	7 EE/1230000		*	0	C				
	7			0					
	7			0					
	7			0					
F	7 FF/1230000			0		*	*		
	7			0					
	7			0					
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[YPUNCH COLUMNS 2-19 ON CARDS 0 AND 1

Figure V-B-4. Work Breakdown Structure Input Form With Modifications

USAF PERT COST SYSTEM

ACTIVITY TO CHARGE NUMBER INPUT FORM

Prepared by ________________ Page ___ of ___ Date ________

CARD CODE	NETWORK CODE	ACTIVITY IDENTIFICATION PREDECESSOR EVENT NUMBER	ACTIVITY IDENTIFICATION SUCCESSOR EVENT NUMBER	CHARGE NUMBER		CHG CODE
1	7 12	13 21	22 30	31 48		80
2						
2						
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2						
2						
2						
2						
2						
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Figure V-C-1. Activity to Charge Number Input Form Used to Modify Data

V-C ACTIVITY TO CHARGE NUMBER INPUT MODIFICATIONS

General Description

The activity to charge number input form Fig. V-C-1 is used to modify the following elements of data.

Network Code
Activity
Charge Number

Three types of change codes may be used in conjunction with this form.

A = ADD
C = CHANGE
D = DELETE

All of the modifications entered on this form are referenced to a particular network code and activity. This data, therefore, must appear in columns 7-30 of each card.

Code A, ADD

Code A is used to add new activities to charge or summary numbers in the master file.

If the referenced network code-activity is already in the master file, the card will be rejected.

Code A cannot be used to establish a network code for activities previously entered in the master file.

Code C, CHANGE

Code C is used to change the charge or summary number.

The network code and activity are indicative information; therefore, Code C cannot be used to change the network code or event numbers.

If the activity is not in the master file, the card will be rejected.

Code D, DELETE

Code D is used to delete an activity and its associated network code from the master file. If the activity is not in the master file, the card will be rejected.

Procedures For Data Modification

Network Code

The network code cannot be separately modified. It must be modified in conjunction with the activity number.

Predecessor and Successor Event Numbers

a. ADD

Enter the predecessor and successor event numbers in columns 13-30

Enter network code in columns 7-12

Enter charge number in columns 31-48

Enter A in column 80

b. CHANGE

Use DELETE and ADD procedures

c. DELETE

Enter the predecessor and successor event numbers in columns 13-30

Enter network code in columns 7-12

Enter D in column 80

Charge Numbers

a. ADD

A charge number cannot be separately added to the master file.

b. CHANGE

Enter the activity in columns 13-30

Enter the network code in columns 7-12

Enter the new charge number in columns 31-48

Enter Code C in column 80

c. DELETE

A charge number cannot be separately deleted from the master file

Input Example

Fig. V-C-2 illustrates the following modifications:

Entry A, Deletion of an entire entry; i. e. network code, activity, and charge number.

Entry B, Change of a charge number.

USAF PERT COST SYSTEM

Page 1 of 1

Prepared by ____ __________

ACTIVITY TO CHARGE NUMBER INPUT FORM

Date ________

	CARD CODE	NETWORK CODE	ACTIVITY IDENTIFICATION: PREDECESSOR EVENT NUMBER	ACTIVITY IDENTIFICATION: SUCCESSOR EVENT NUMBER	CHARGE NUMBER		CHG CODE
	1	7 12	13 21	22 30	31 48		80
A	2	AA4200	36102	42102			D
	2						
	2						
B	2	BB4200	71000	63000	BB431000		C
	2						
	2						
	2						
	2						
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Figure V-C-2. Activity to Charge Number Input Form With Modifications

USAF PERT COST SYSTEM

Page________ of ________

Prepared by ____________________ **CHARGE OR SUMMARY NUMBER IDENTIFICATION INPUT FORM** Date ____________

CARD CODE	CHARGE OR SUMMARY NUMBER	START DATE			END DATE			CONTRACT NUMBER	REPORTING ORGN CODE	NETWORK CODE	TYPE CODE
		DAY	MONTH	YEAR	DAY	MONTH	YEAR				
1	2 19	23 24	25 27	28 29	30 31	32 34	35 36	37 54	55 58	59 64	78
7											2
7											2
7											2
7											2
7											2
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Figure V-D-1. Charge or Summary Number Identification Input Form Used to Modify Data

V-D CHARGE OR SUMMARY NUMBER IDENTIFICATION INPUT MODIFICATIONS

General Description

The Charge or Summary Number Identification Input Form (FIG V-D-1) is used to modify the following elements of data.

Charge or Summary Number Start Date
Charge or Summary Number End Date
Contract Number
Reporting Organization Code
Network Code

These elements of data also appear as header information on the Budget Authorization and Updating Form, and the Cost Estimating and Updating Form, produced by the computer.

The dates on this form are identical to the schedule dates on the Updating Forms.

Modifications may be entered directly on these updating forms. They are then keypunched in the format of the Charge or Summary Number Identification Input Form.

The following procedures, then, apply to this form as well as to the computer-produced forms.

Whenever a card produced in this format is entered in the system, it is considered to be a modification to the existing master file. Therefore, there are no modification codes associated with this form.

All of the modifications entered in this format are referenced to a particular charge or summary number. For this reason, the data must appear in columns 2-19 of each card.

Procedures for Data Modification

Charge or Summary Number

The charge or summary number is regarded as indicative information and, therefore, cannot be modified.

Start Date

a. ADD

Use CHANGE procedure.

b. CHANGE

Enter the charge or summary number in columns 2-19.

Enter the start date in columns 23-29.

c. DELETE

The start date may not be deleted.

End Date

Use the same procedures as those described for Start Date, using columns 30-36.

Contract Number

a. ADD

Use CHANGE procedure.

b. CHANGE

Enter the charge or summary number in columns 2-19.

Enter the contract number in columns 37-54.

c. **DELETE**

Enter the charge or summary number in columns 2-19.

Enter an asterisk (*) in column 37.

Reporting Organization Code

a. ADD

Use CHANGE procedure.

b. **CHANGE**

Enter the charge or summary number in columns 2-19.

Enter the reporting organization code in columns 55-58.

c. **DELETE**

Enter the charge or summary number in columns 2-19.

Enter an asterisk (*) in column 55.

Network Code

a. ADD

Use CHANGE procedure.

b. **CHANGE**

Enter the charge or summary number in columns 2-19.

Enter the network code in columns 59-64.

c. **DELETE**

Enter the charge or summary number in columns 2-19.

Enter an asterisk (*) in column 59.

Input Example

Fig. V-D-2 illustrates the following modifications:

Entry A, Change in Start Date

Entry B, Change in End Date

Entry C, Change in both Start and End Dates

Entry D, Change in Contract Number

Entry E, Deletion of Contract Number

Entry F, Change in Reporting Org Code and deletion in Network Code

Entry G, Deletion of Reporting Org Code and change in Network Code

Entry H, Change in dates; deletion of contract number; change in Reporting Org Code and Network Code.

USAF PERT COST SYSTEM

Page 1 of 1

Prepared by _____ CHARGE OR SUMMARY NUMBER IDENTIFICATION INPUT FORM Date _____

	REC CODE CARD CODE	CHARGE OR SUMMARY NUMBER	START DATE DAY	START DATE MONTH	START DATE YEAR	END DATE DAY	END DATE MONTH	END DATE YEAR	CONTRACT NUMBER	REPORTING ORGN CODE	NETWORK CODE	REC CODE CARD CODE
	1	2 — 19	23 24	25 — 27	28 29	30 31	32 — 34	35 36	37 — 54	55 — 58	59 — 64	78
A	7	AA/2340000	01	JUL	64							2
	7											2
	7											2
B	7	BB/2340000				06	AUG	64				2
	7											2
	7											2
C	7	CC/2340000	14	FEB	64	19	MAY	64				2
	7											2
	7											2
D	7	DD/2340000							AF12(3456)78910			2
	7											2
	7											2
	7											2
E	7	EE/2340000							*			2
	7											2
	7											2
F	7	FF/2340000								XYZ	*	2
	7											2
	7											2
G	7	GG/2340000								*	AX300	2
	7											2
	7											2
H	7	HH/2340000	17	MAR	63	19	APR	64	*	RST	KK400	2
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	7											2

Fig. V-D-2. **Charge or Summary Number Identification Input Form With Modifications**

USAF PERT COST SYSTEM

BUDGET AUTHORIZATION INPUT FORM

Prepared by ______________________ Page ______ of ______

Date ______________

CARD CODE	IDENTIFICATION				BUDGET ESTIMATES IN MONTHLY INCREMENTS						TYPE CODE	CARD NO.	CHG CODE
	CHARGE OR SUMMARY NUMBER	PERFORMING ORGN.	RESOURCE CODE										
1	2 19	20 25	26 29	30	31 36	37 42	43 48	49 54	55 60	61 66	78	79	80
7											5		
7											5		
7											5		
7											5		
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Fig. V-E-1. Budget Authorization Input Form Used to Modify Data

V-E BUDGET AUTHORIZATION INPUT MODIFICATIONS

General Description

The Budget Authorization Input Form (Fig. V-E-1) is used to modify the following elements of data:

Performing Organization
Resource Code
UDC Code
Budgeted Values

These elements of data also appear in the body of the Budget Authorization Updating Form which is produced by the computer.

Modifications may be entered directly on this computer-produced form. These modifications are then keypunched in the format of the Budget Authorization Input Form. See the Updating Example (Fig. V-E-3).

Three types of change codes are used to modify this data.

A = ADD
C = CHANGE
D = DELETE

All of the modifications entered in this format are referenced to a particular charge or summary number performing organization-resource code combination. This number, therefore, must appear in columns 2-29 of each card.

Code A, ADD

This code is used to establish the budget values in the master file for a charge or summary number-performing unit-resource code combination. There are no restrictions as to the number of performing organizations and resource codes that may be assigned to a particular charge or summary number.

Once this combination and its budget values have been established, additional values may be entered through the use of change code C.

Code C, CHANGE

This code is used for altering the budgetary values that were previously entered in the system.

The following elements of data are regarded as indicative information and, therefore, cannot be changed through the use of this code.

Charge or Summary Number
Performing Organization
Resource Code

Code C may also be used for entering additional budget values for new monthly increments. The maximum number of monthly increments for a Charge or Summary Number-performing organization-resource code is 60.

This code is further used for deleting budgetary figures by changing their values to zero.

Code D, DELETE

Code D is used for the following modifications:

a. To delete all of the values for a particular UDC code.

b. To delete all of the values for all of the UDC codes associated with a particular performing organization-resource code.

c. To delete all of the estimated and budgeted values associated to a charge or summary number - performing organization-resource code combination.

The functions of this code are more clearly understood when described in terms of the layout of the PERT Cost master tape (Fig. V-E-2).

It is important to observe that:

a. The same resource code may be associated with various performing organizations.

b. The same performing organization may be associated with various charge or summary numbers.

c. There may be more than one type of resource estimate, e.g., man-hours, direct dollars, etc., associated with a specific performing organization-resource code.

d. Performing organization-resource code combinations cannot be deleted from the master file as long as there are actual values associated with them. Actuals, budgets, and estimates must be deleted to effect the elimination of a particular combination. Actuals are deleted separately, budgets and estimates may be deleted separately or simultaneously.

Deletions

Code D deletes performing organization-resource code combinations in the following manner:

a. Resource codes with actuals

If the estimated and budgeted values are deleted the performing organization-resource code is not affected.

b. Resource codes without actuals

1. If the estimated and budgeted values are deleted and there is at least one UDC code which is not deleted (i.e., a value is entered in column 30); the performing organization-resource code is unaffected.

2. If the estimated and budgeted values are deleted and all of the UDC codes are deleted (i.e., column 30 is blank); the resource code will also be deleted.

To illustrate: Fig. V-E-2 shows resource code M200 associated with performing organization 4321. M200 does not have any actual values. Therefore, it would be deleted from the file. Observe that M200 is also associated with performing organization 5630; however, its values in this location are not affected.

3. If the last resource code has been deleted, the performing organization will also be deleted.

To illustrate: Fig. V-E-2 shows that resources M200 and R700 are eligible for deletion. When they

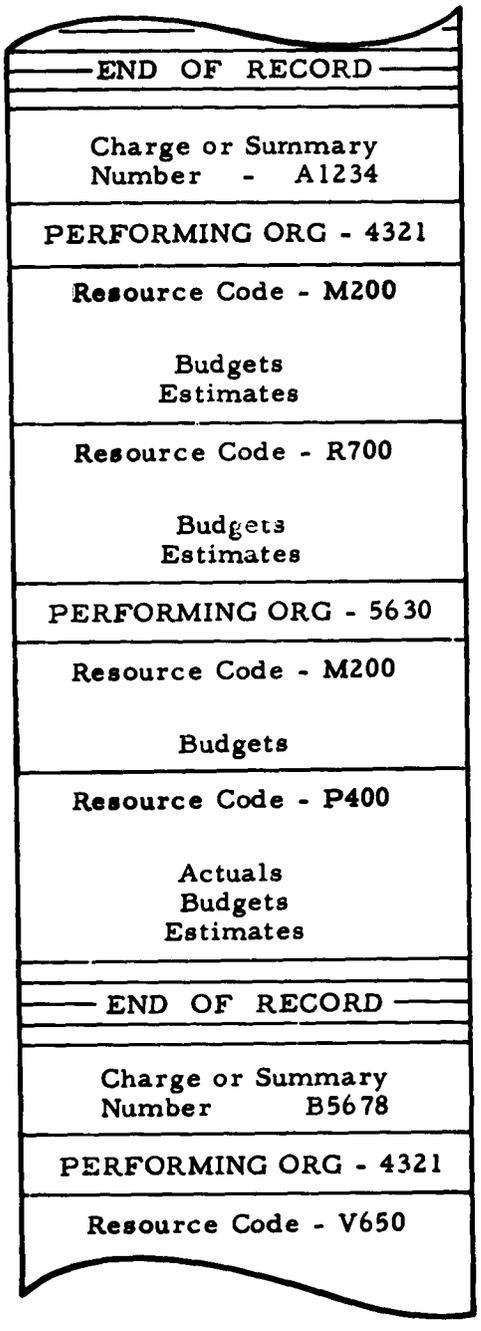

Figure V-E-2. Illustration of a Charge Number on the PERT Cost Master Tape

are deleted, performing organization 4321 is also deleted. Observe that performing organization 4321 is also associated with charge number B5678, but its values in this location are not affected.

Procedures for Data Modification

Charge or Summary Number

A charge or summary number cannot be separately modified using this input form.

Performing Organization and Resource code

a. ADD

Enter the charge or summary number in columns 2-19.

Enter the performing organization in columns 20-25.

Enter the resource code in columns 26-29.

Enter the UDC code in column 30.

Enter budgeted values starting in appropriate field.

Enter appropriate card numbers in column 79.

Enter A in column 80.

b. CHANGE

Use DELETE and ADD procedures.

c. DELETE

See the discussion starting on V-E-3.

Use DELETE procedures described for Budget Estimates.

Unit Description Code (UDC)

a. ADD

Cannot be separately added.

b. CHANGE

Use the DELETE procedure for Budget Estimates (Case II). Then use the following CHANGE procedures.

Enter charge or summary number in columns 2-19.

Enter performing unit and resource code in columns 20-29.

Enter new UDC code in column 30.

Enter Budget Estimates starting in appropriate column.

Enter appropriate card numbers in column 79.

Enter C in column 80.

The change in UDC code must be coordinated with the entry for the corresponding performing organization-resource code in the rate table.

c. DELETE

UDC code can only be deleted when all budget values are deleted. See DELETE procedure for Budget Estimates.

Budget Estimates

a. ADD

To establish new budgets, use ADD procedure described for Performing Organization.

To enter additional values in new monthly increments, use CHANGE procedure.

b. CHANGE

Enter charge or summary number in columns 2-19.

Enter performing organization-resource code and UDC code in columns 20-30.

Enter new budgets in appropriate fields.

Leave other fields blank.

Enter appropriate card numbers in column 79.

Enter C in column 80.

c. DELETE

Case I

To delete selected budgeted values:

Enter zeros in appropriate fields.

Use CHANGE procedures

Case II

To delete all of the budgets for a particular UDC type:

Enter the UDC code of the budgets to be deleted, in column 30.

Use DELETE procedures described in Case III.

Case III

To delete all Budget Estimates for all UDC types:

Enter charge or summary in columns 2-19.

Enter performing organization and resource code in columns 20-29.

Enter UDC code in column 30.

Leave all budget fields blank.

Leave card number blank.

Enter D in column 80.

Submit one card for each UDC type which must be deleted.

Case IV

To delete all estimated and budgeted values simultaneously:

Enter charge or summary number in columns 2-19.

Enter performing organization and resource code in columns 20-29.

Leave UDC in column 30 blank.

Leave all budgeted fields blank.

Leave card number blank.

Enter D in column 80.

Submit only one card

Card Number

To change the card number resubmit card with correct number in column 79.

Input Example

Fig. V-E-3 illustrates the following types of modifications:

Entry A, The entry of new values to a previously established performing organization - resource code.

Observe that card number 2 indicates that the new values are being entered in the 13th and 14th month.

Entry B, Changes to previously established values.

Observe that card number 1 indicates that the values being changed are in the 8th, 9th and 10th months.

Observe further that the values in months 9 and 10 are being deleted.

Entry C, Deletion of all of the values for a particular UDC (Case II).

Observe that the UDC code being deleted is direct dollars.

Entry D, The deletion of all of the values associated with a performing organization - resource code (Case III).

Observe that each UDC code must be separately deleted.

Entry E, The deletion of all of the estimated and budgeted values associated with the combination appearing in columns 2-29.

Observe that column 30 is blank.

USAF PERT COST SYSTEM

BUDGET AUTHORIZATION INPUT FORM

by ____________

Page 1 of 1

Date ____________

		IDENTIFICATION: CHARGE OR SUMMARY NUMBER	PERFORMING ORGN.	RESOURCE CODE	DOC CODE	BUDGET ESTIMATES IN MONTHLY INCREMENTS						TYPE CODE	CARD NO.	CHG CODE
	1	2–19	20–25	26–29	30	31–36	37–42	43–48	49–54	55–60	61–66	78	79	80
A	7	AA12340000	1234	5678	H	4800	4900					5	2	C
	7											5		
	7											5		
B	7	BB12340000	2345	6789	H		700	000000	000000			5	1	C
	7											5		
	7											5		
C	7	CC12340000	5678	9101	D							5		D
	7											5		
	7											5		
D	7	DD12340000	4567	8910	H							5		D
D	7	DD12340000	4567	8910	D							5		D
	7											5		
	7											5		
E	7	EE12340000	7890	1234								5		D
	7											5		
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Figure V-E-3. Budget Authorization Input Form With Modifications

PERT COST

BUDGET AUTHORIZATION AND UPDATING FORM

REPORTING ORGN. CONTRACT NO. REPORT DATES

TEST PROGRAM I234 ABCD TERM (SPAN) = TOTAL PROGRAM

TEST = TEST PERT TIME NETWORK CUT OFF DATE = 01DEC62

LEVEL / SUMMARY ITEM = 3 / 871003 SUB-SYSTEM B RELEASE DATE = 01JAN63

LEVEL / CHANGE NUMBER= 4 / 286834 WORK PACKAGE 5 RESP ORGN = 101

BUDGET REVISION NUMBER

SCHEDULED DATE

APPROVED BY-

START DATE = 11MAR63

DATE -

END DATE = 06MAY63

IDENTIFICATION

RESOURCE ESTIMATES

MONTHS BEGINNING WITH SCHEDULED START DATE

CD PERF CD ORGN	RES CODE	UCD CD	MAR	APR	MAY	JUN	JUL	AUG	CD NO.	SEP	OCT	NOV	DEC	JAN	FEB	CD NO.	TOTAL
7 DEPT 2	MAT1	D	4000	8000	6000				50							51	18000
7 DEPT 2	MAT1	T	6000	12000	9000				50							51	27000
7 DEPT 4	LAB1	H	600	1000	500				50							51	2100
7 DEPT 4	LAB1	D	2400	4000	2000				50							51	8400
7 DEPT 4	LAB1	T	3600	6000	3000				50							51	12600
7 DEPT 4	MAT1	D	8000	10000	8000				50							51	26000
7 DEPT 4	MAT1	T	10400	13000	10400				50							51	33800
7 DEPT 4	MAT2	D	15000	30000	20000				50							51	65000
7 DEPT 4	MAT2	T	22500	45000	30000				50							51	97500

Figure V-F-1. Budget Authorization And Updating Form Used to Modify Data

SECURITY NO. RED ROSE 1252 PAGE NO. 10

V-F BUDGET AUTHORIZATION AND UPDATING MODIFICATIONS (Report Number 80)

The Budget Authorization and Updating Form may be used to modify the budgetary values in the master file.

Modifications may be entered directly on this form and subsequently keypunched in the format of the Budget Authorization Input Form.

In order to modify any element of data appearing on this form, the user must follow the modification procedures pertaining to the Budget Authorization Input Form.

Observe that there are some resource estimates, which appear on this form, that are computer generated. These values, per se, cannot be modified through the use of this form. For example:

> Assume that the resource estimates were originally submitted as labor hours and subsequently extended by the computer to direct and total dollars. These direct and total values cannot be modified directly. However, they may be altered by modifying the labor hours or associated rates.

Input Example

Fig. V-F-2 illustrates the following types of modifications:

Entry A

Entry A illustrates changes to the resource estimates currently in the master file and the entry of additional estimates to a previously established performing organization and resource code.

In order to effect these changes 2 cards must be keypunched. These cards should appear as follows:

CARD 1

a. Card code 7 and type code 5 in columns 1 and 78 respectively.

b. Charge number in columns 2-19.

c. Performing organization and resource in columns 20-29.

d. UDC code H in column 30.

e. The new resource estimates starting with the first field.

f. Card number 0 in column 79.

g. Change code C in column 80.

CARD 2

a. Card code 7 and type code 5 in columns 1 and 78 respectively.

b. Charge number in columns 2-19.

c. Performing organization DEPT 2 and resource code LAB 2 in columns 20-29.

d. UDC code H in column 30.

e. The additional resource estimates starting with the first field.

f. Card number 1 in column 79.

g. Change code C in column 80.

Entry B

Entry B illustrates the simultaneous deletion of all of the resource estimates, i. e., both budgeted and estimated for the performing organization, and resource code.

In order to effect this deletion, one card must be keypunched. This card should appear as follows:

a. Card code 7 and type code 5 in columns 1 and 78 respectively.

b. Charge number in columns 2-19.

c. Performing organization, and resource code, in columns 20-29.

d. Change code D in column 80.

Entry C

Entry C illustrates the initial entry of resource estimates for a new performing organization and resource code.

In order to effect this initial entry, two cards must be keypunched. These two cards should appear as follows:

a. Card code 7 and type code 5 in columns 1 and 78 respectively.

b. Charge number in columns 14-19.

c. Performing organization, and resource code, in columns 20-29.

d. UDC code T in column 30.

e. Resource estimates starting in the first field.

f. Card codes 3 and 4 in the first and second card respectively.

g. Change code A in column 80.

PERT COST
BUDGET AUTHORIZATION AND UPDATING FORM

REPORTING ORGN. CONTRACT NO. REPORT DATES

ABCC

TEST PROGRAM — YEAR (SPAN) - TOTAL PROGRAM

TEST - TEST PERT TIME NETWORK — CUT OFF DATE - 01DEC62

LEVEL / SUMMARY ITEM - 3 / 689913 SUB-SYSTEM D — RELEASE DATE - 01JAN63

LEVEL / CHARGE NUMBER- 4 / 189294 WORK PACKAGE 10 — RESP ORGN -

BUDGET REVISION NUMBER — SCHEDULED DATE

APPROVED BY- — START DATE

DATE - — END DATE

RESOURCE ESTIMATES
MONTHS BEGINNING WITH SCHEDULED START DATE

	IDENTIFICATION CD PERF ORGN	RES CODE	UCD CD	JAN	FEB	MAR	APR	MAY	JUN	CD NO.	JUL	AUG	SEP	OCT	NOV	DEC	CD NO.	TOTAL
A	7 DEPT 2	LAB2	H	~~600~~ 700	~~600~~ 600	~~600~~ 100	400	400	200	50 C	150	150	300	900			51C	1500
	7 DEPT 2	LAB2	D	1800	2400	300				50							51	4500
	7 DEPT 2	LAB2	T	2700	3600	450				50							51	6750
B	7 DEPT 3	LAB2	~~H~~	~~1000~~	~~1400~~	~~500~~				50 D							51	3100
B	~~7 DEPT 3~~	~~LAB2~~	~~D~~	~~5000~~	~~8000~~	~~2500~~				~~50~~							51	15500
B	~~7 DEPT 3~~	~~LAB2~~	~~T~~	~~7500~~	~~12000~~	~~3750~~				~~50~~							51	23250
C	7 DEPT 4	ENG	T	4000	4000	4000	6000	4500	4500	53A	7000	7000	7000	1200	1400		54A	

Figure V-F-2. Budget Authorization And Updating Form With Modifications

SECURITY NO. RED ROSE 1252 — PAGE NO. 9

USAF PERT COST SYSTEM

COST ESTIMATING INPUT FORM

Prepared By ______________________ Page ____ of ______

Date ______________

CARD CODE	IDENTIFICATION				RESOURCE ESTIMATES IN MONTHLY INCREMENTS						TYPE CODE	CARD CODE	CHG CODE
	CHARGE NUMBER	PERFORMING ORGN.	RESOURCE CODE										
1	2 19	20 25	26 29	30	31 36	37 42	43 48	49 54	55 60	61 66	78	79	80
7											4		
7											4		
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Figure V-G-1. Cost Estimating Input Form Used to Modify Data

V-G COST ESTIMATING INPUT MODIFICATIONS

General Description

The Cost Estimating Input Form (Fig. V-G-1) is used to modify the following elements of data:

Performing Organization
Resource Code
UDC Code
Estimated Values

These elements of data also appear in the body of the Cost Estimating Updating Form, which is produced by the computer.

Modifications may be entered directly on this computer produced form. These modifications are then keypunched in the format of the Cost Estimating Input Form.

Three types of change codes are used to modify this data.

A = ADD
C = CHANGE
D = DELETE

All of the modifications entered in this format are referenced to a particular charge or summary number-performing organization-resource code combination. This number, therefore, must appear in columns 2-29 of each card.

Code A, ADD

This code is used to establish the estimated values in the master file for a charge or summary number-performing organization-resource code combination. There are no restrictions as to the number of performing organizations and resource codes that may be assigned to a particular charge or summary number.

Once this combination and its estimated values have been established, additional values may be entered through the use of change code C.

Code C, CHANGE

This code is used for altering the estimated values that were previously entered in the system.

The following elements of data are regarded as indicative information and, therefore, cannot be changed through the use of this code.

Charge or Summary Number
Performing Organization
Resource Code

Code C may also be used for entering additional estimated values for new monthly increments. The maximum number of monthly increments for a charge or summary number–performing organization-resource code is 60.

This code is further used for deleting estimated figures by changing their values to zero.

Code D, DELETE

Code D is used for the following modifications:

a. To delete all of the values for a particular UDC code.

b. To delete all of the values for all of the UDC codes associated with a particular performing organization-resource code.

c. To delete all of the estimated and budgeted values associated to a charge or summary number - performing organization-resource code combination.

The functions of this code are more clearly understood when described in terms of the layout of the PERT Cost master tape. (See Fig. V-G-2).

It is important to observe that:

a. The same resource code may be associated with various performing organizations.

b. The same performing organization may be associated with various charge or summary numbers.

c. There may be more than one type of resource estimate, e.g., man-hours, direct dollars, etc., associated with a specific performing organization-resource code.

d. Performing organization-resource code combinations cannot be deleted from the master file as long as there are actual values associated with them. Actuals, budgets and estimates must be deleted to effect the elimination of a particular combination. Actuals are deleted separately; budgets and estimates may be deleted separately or simultaneously.

Deletions

Code D deletes performing organization-resource code combination in the following manner:

a. Resource codes with actuals

If the estimated and budgeted valued are deleted, the performing organization-resource code is not affected.

b. Resource codes without actuals

1. If the estimated and budgeted values are deleted and there is at least one UDC code which is not deleted (i.e., a value is entered in column 30), the performing organization-resource code is unaffected.

2. If the estimated and budgeted values are deleted and all of the UDC codes are deleted (i.e., column 30 is blank), the resource code will also be deleted.

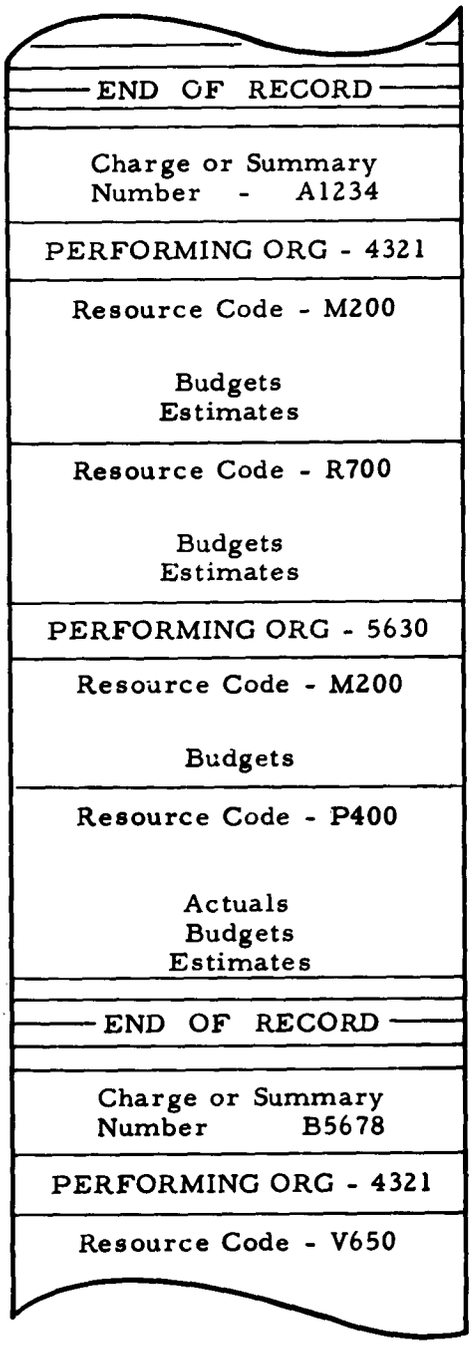

Figure V-G-2. Illustration of a charge number on the PERT Cost master tape

To illustrate: Fig. V-G-2 shows resource code M200 associated with performing organization 4321. M200 does not have any actual values. Therefore, it would be deleted from the file. Observe that M200 is also associated with performing organization 5630. However, its values in this location are not affected.

3. If the last resource code has been deleted, the performing organization will also be deleted.

   To illustrate: Fig. V-G-2 shows that resources M200 and R700 are eligible for deletion. When they are deleted, performing organization 4321 is also deleted. Observe that performing organization 4321 is also associated with charge number B5678. However, its values in this location are not affected.

Procedures for Data Modification (Fig. V-G-3)

Charge or Summary Number

A charge or summary number cannot be separately modified using this input form.

Performing Organization and Resource Code

a. ADD

   Enter the charge or summary number in columns 2-19.

   Enter the performing organization in columns 20-25.

   Enter the resource code in columns 26-29.

   Enter the UDC code in column 30.

   Enter estimated values starting in appropriate field.

   Enter appropriate card numbers in column 79.

   Enter A in column 80.

b. CHANGE

   Use DELETE and ADD procedures.

c. **DELETE**

Use DELETE procedures described for Estimated Values.

Unit Description Code (UDC)

a. ADD

Cannot be separately added.

b. CHANGE

Use the DELETE procedure for Estimated Values (Case II). Then use the following CHANGE procedures.

Enter charge or summary number in columns 2-19.

Enter performing unit and resource code in columns 20-29.

Enter new UDC code in column 30.

Enter estimated values starting in appropriate column.

Enter appropriate card numbers in column 79.

Enter C in column 80.

The change in UDC code must be coordinated with the entry for the corresponding performing organization-resource code in the rate table.

c. **DELETE**

UDC code can only be deleted when all estimated values are deleted. See DELETE procedures for Estimated Values.

Estimated Values

a. ADD

To establish new estimates, use ADD procedure described for Performing Organization.

To enter additional values in new monthly increments, use CHANGE procedure.

b. CHANGE

Enter charge or summary number in columns 2-19.

Enter performing organization-resource code and UDC code in columns 20-30.

Enter changed estimates in appropriate fields.

Leave other fields blank.

Enter appropriate card numbers in column 79.

Enter C in column 80.

c. DELETE

Case I -To delete selected estimated values;

Enter zeros in appropriate fields.

Use CHANGE procedures.

Case II -To delete all of the estimates for a particular UDC type:

Enter the UDC code, of the estimates to be deleted, in column 30.

Use DELETE procedures described in Case III.

Case III -To delete all estimated values for all UDC types:

Enter charge or summary number in columns 2-19.

Enter performing organization and resource code in columns 20-29.

Enter UDC code in column 30.

Leave all estimated fields blank.

Leave card number blank.

Enter D in column 80.

Submit one card for each UDC type which must be deleted.

Case IV - To Delete all estimated and budgeted values simultaneously:

Enter charge or summary number in columns 2-19.

Enter performing organization and resource code in columns 20-29.

Leave UDC in column 30 blank.

Leave all estimated fields blank.

Leave card number blank.

Enter D in column 80.

Submit only one card.

Card Number

To modify the card number, resubmit card with correct number in column 79.

Input Example

Fig. V-G-3 illustrates the following types of modifications:

Entry A, The entry of new values to a previously established performing organization - resource code.

Observe that card number 2 indicates that the new values are being entered in the 13th and 14th month.

Entry B, Changes to previously established values.

Observe that card number 1 indicates that the values being changed are in the 8th, 9th and 10th months.

Observe further that the values in months 9 and 10 are being deleted.

Entry C, Deletion of all of the values for a particular UDC (Case II).

Observe that the UDC code being deleted is direct dollars.

Entry D, The deletion of all of the values associated with a performing organization - resource code (Case III).

Observe that each UDC code must be separately deleted.

Entry E, The deletion of all of the estimated and budgeted values associated with the combination appearing in columns 2-29.

Observe that column 30 is blank.

USAF PERT COST SYSTEM

COST ESTIMATING INPUT FORM

By ____________________

Page 1 of 1

Date ______

		IDENTIFICATION: CHARGE NUMBER	PERFORMING ORGN.	RESOURCE CODE	RSC CODE	RESOURCE ESTIMATES IN MONTHLY INCREMENTS						TYPE CODE	CARD CODE	CHG CODE
	1	2–19	20–25	26–29	30	31–36	37–42	43–48	49–54	55–60	61–66	78	79	80
A	7	AA12340000	1234	5678	H	4800	4900					4	3	C
	7											4		
	7											4		
B	7	BB12340000	2345	6789	H		700	000000	000000			4	2	C
	7											4		
	7											4		
C	7	CC12340000	5678	9101	D							4		D
	7											4		
	7											4		
D	7	DD12340000	4567	8910	H							4		D
D	7	DD12340000	4567	8910	D							4		D
	7											4		
	7											4		
E	7	EE12340000	7890	1234								4		D
	7											4		
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Figure V-G-3. Cost Estimating Input Form With Modifications

PERT COST
COST ESTIMATING AND UPDATING FORM

	REPORTING ORGN.	CONTRACT NO.	REPORT DATES
TEST PROGRAM	1234	ABCC	TERM (SPAN) - TOTAL PROGRAM
TEST - TEST PERT TIME NETWORK			CUT OFF DATE - 01DEC62
LEVEL 1 SUMMARY ITEM - 3 /	871003 SUB-SYSTEM B		RELEASE DATE - 01JAN63
LEVEL 1 CHARGE NUMBER- 4 /	286834 WORK PACKAGE 5		RESP ORGN - ICI

EVENT NUMBER	EARLIEST DATE	SCHEDULED DATE
FIRST - 17	START DATE - 11MAR63	START DATE - 11MAR63
LAST - 13	END DATE - 06MAY63	END DATE - 06MAY63

IDENTIFICATION				RESOURCE ESTIMATES MONTHS BEGINNING WITH SCHEDULED START DATE													
CD PERF CD ORGN	RES CODE	UCD CD	MAR	APR	MAY	JUN	JUL	AUG	CD NO.	SEP	OCT	NOV	DEC	JAN	FEB	CD NO.	TOTAL
7 DEPT 2	MAT1	D	4000	8000	6000				40							41	18000
7 DEPT 2	MAT1	T	6000	12000	9000				40							41	27000
7 DEPT 4	LAB1	H	400	1000	500				40							41	1900
7 DEPT 4	LAB1	D	1600	4000	2000				40							41	7600
7 DEPT 4	LAB1	T	2400	6000	3000				40							41	11400
7 DEPT 4	MAT1	D	6000	10000	8000				40							41	24000
7 DEPT 4	MAT1	T	7800	13000	10400				40							41	31200
7 DEPT 4	MAT2	D	20000	30000	20000				40							41	70000
7 DEPT 4	MAT2	T	30000	45000	30000				40							41	105000

Figure V-H-1. Cost Estimating and Updating Form Used to Modify Data

SECURITY NO. RED ROSE 1253 PAGE NO. 10

V-H COST ESTIMATING AND UPDATING MODIFICATIONS (Report Number 85)

The Cost Estimating and Updating Form may be used to modify the estimated values in the master file.

Modifications may be entered directly on this form and subsequently keypunched in the format of the Cost Estimating Input Form.

In order to modify any element of data appearing on this form the user must follow the modification procedures pertaining to the Cost Estimating Input Form.

Observe that there are some resource estimates, which appear on this form, that are computer generated. These values, per se, cannot be modified through the use of this form. For example:

> Assume that the resource estimates were originally submitted as labor hours and subsequently extended by the computer to direct and total dollars. These direct and total values cannot be modified directly. However, they may be altered by modifying the labor hours or associated rates.

Input Example

Fig. V-H-2 illustrates the following types of modifications:

Entry A

Entry A illustrates changes to the resource estimates currently in the master file and the entry of additional estimates to a previously established performing organization and resource code.

In order to effect these changes, 2 cards must be keypunched. These cards should appear as follows.

Card 1 contains:

a. Card code 7 and type code 4 in columns 1 and 78, respectively.

b. Charge number in columns 14-19.

c. Performing organization and resource code in columns 20-29.

d. UDC code H in column 30.

e. The new resource estimates starting with the first field.

f. Card number 0 in column 79.

g. Change code C in column 80.

Card 2 contains:

a. Card code 7 and type code 4 in columns 1 and 78, respectively.

b. Charge number in columns 14-19.

c. Performing organization and resource code in columns 20-29.

d. UDC code H in column 30.

e. The additional resource estimates starting with the first field.

f. Card number 1 in column 79.

g. Change code C in column 80.

Entry B

Entry B illustrates the simultaneous deletion of all the resource estimates, i. e., both budgeted and estimated for the performing organization, and resource code.

In order to effect this deletion, one card must be keypunched as follows:

a. Card code 7 and type code 4 in columns 1 and 78, respectively.

b. Charge number in columns 14-19.

c. Performing organization, and resource code, in columns 20-29.

d. Change code D in column 80.

Entry C

Entry C illustrates the initial entry of resource estimates for a new performing organization and resource code.

In order to effect this initial entry, two cards must be keypunched as follows:

a. Card code 7 and type code 4 in columns 1 and 78, respectively.

b. Charge number in columns 14-19.

c. Performing organization, and resource code, in columns 20-29.

d. UDC code T in column 30.

e. Resource estimates starting in the first field.

f. Card codes 3 and 4 in the first and second card, respectively.

g. Change code A in column 80.

PERT COST

COST ESTIMATING AND UPDATING FORM

REPORTING ORGN. | CONTRACT NO. | REPORT DATES

TEST PROGRAM | ABCC | TERM (SPAN) - TOTAL PROGRAM

TEST - TEST PERT TIME NETWORK | CUT OFF DATE - 01DEC62

LEVEL / SUMMARY ITEM - 3 / 689913 SUB-SYSTEM D | RELEASE DATE - 01JAN63

LEVEL / CHARGE NUMBER- 4 / 111214 WORK PACKAGE 12 | RESP ORGN -

EVENT NUMBER | EARLIEST DATE | SCHEDULED DATE

FIRST - 35 | START DATE - 04MAR63 | START DATE

LAST - 1 | END DATE - 06MAY63 | END DATE

IDENTIFICATION | RESOURCE ESTIMATES

MONTHS BEGINNING WITH SCHEDULED START DATE

	CD PERF CD ORGN	RES CODE	UCD CD	MAR	APR	MAY	JUN	JUL	AUG	CO NO.	SEP	OCT	NOV	DEC	JAN	FEB	CO NO.	TOTAL
A	7 DEPT 4	LAB2	H	~~400~~ 800	~~400~~ 800	~~400~~ 50	600	600	600	40C	700	700	700	100			41C	1450
	7 DEPT 4	LAB2	D	4200	5600	350				40							41	10150
	7 DEPT 4	LAB2	T	6300	8400	525				40							41	15225
B	~~7 DEPT 5~~	~~LAB3~~	~~H~~	~~1200~~	~~1200~~	~~200~~				40D							41	2600
B	~~7 DEPT 5~~	~~LAB3~~	~~D~~	~~6000~~	~~6000~~	~~1000~~				~~40~~							41	13000
B	~~7 DEPT 5~~	~~LAB3~~	~~T~~	~~9000~~	~~9000~~	~~1000~~				~~40~~							41	19000
C	7 DEPT 6	ENG	T	1700	1700	1900	2000	2000	1700	43A	1200	1400	1400	1400			44A	

Figure V-H-2. Cost Estimating and Updating Form With Modifications

SECURITY NO. RED ROSE 1253 | PAGE NO. 5

PERT COST

RATE TABLE INPUT FORM

Prepared by _____ Page _____ of _____

Date _____

CARD CODE	PERFORMING ORGN.	RESOURCE CODE	1ST FIELD				2ND FIELD				3RD FIELD				4TH FIELD				CYC CODE
			R T O	YEAR	UNIT RATE	OVERHEAD RATE	R T O	YEAR	UNIT RATE	OVERHEAD RATE	R T O	YEAR	UNIT RATE	OVERHEAD RATE	R T O	YEAR	UNIT RATE	OVERHEAD RATE	
1	1 12	13 16	18	19 20	21 27	28 32	33	34 35	36 42	43 47	48	49 50	51 57	58 62	63	64 65	66 72	73 77	80

Figure V-I-1. Rate Table Input Form Used to Modify Data

V-I RATE TABLE INPUT MODIFICATIONS

General Description

The Rate Table Input Form (Fig. V-I-1) is used to modify the following elements of data:

Performing Organization
Resource Code
Quarter-Year
Unit Rate
Overhead Rate

These elements of data constitute the rate table which is maintained in a separate part of the master file. Therefore, these modifications to the performing organization and resource codes do not affect other parts of the file.

Three types of change codes are used to modify this data.

A = ADD
C = CHANGE
D = DELETE

All of the modifications entered on this form are referenced to a resource code or to a performing organization-resource code combination. These numbers, therefore, must appear in columns 7-16 of each card.

The maximum number of resource codes or combinations is 266. The maximum number of quarters or years that may be distributed among these combinations is 1600.

Code A, ADD

This code is used to establish the unit and overhead rates in the rate table, for a resource code or a performing organization-resource code combination.

Code A is also used for entering additional quarterly rates for previously established resource codes or combinations.

If the rates are associated with a resource code only, they will be used by each performing organization associated with that specific resource code: For example:

> Assume that rates are entered for resource code 4710 and there is no performing organization, i.e., columns 7-12 are blank.
>
> Assume further that performing organization 6721 and 4390 are associated with resource code 4710 on the Cost Estimating Input Form.

The system would then use the rates for resource code 4710 to convert the estimated values of both performing organizations.

Code C, CHANGE

Code C is used for altering the unit and overhead rates that were previously entered in the system.

The following elements of data are considered to be indicative information and, therefore, cannot be changed through the use of this code:

> Performing Organization
>
> Resource Code
>
> Quarter-Year

Code C is further used for deleting unit rates and/or overhead rates for specific quarters and years. This is accomplished by reducing the corresponding values to zero.

Code D, DELETE

Code D is used for the following modifications:

a. To delete individual unit or overhead rates.

b. To delete individual quarters or years and their associated rates.

c. To delete individual resource codes or combinations.

The mechanics of code D operation are:

a. When both rates are deleted for a specific quarter, the quarter is deleted.

b. When all quarters are deleted for a specific resource code or combination, the resource code or combination is also deleted.

Detailed Description

Performing Organization and Resource Code

a. ADD

Enter resource code or combination in columns 7-16.

Enter the quarter and year starting with columns 18-20.

Enter the unit rate and/or overhead rates starting with columns 21-32 of the first field.

Enter A in column 80.

b. CHANGE

Use ADD and DELETE

c. DELETE

Enter resource code or combination in columns 7-16.

Enter D in column 80.

Submit 1 card only.

Year and Quarter

a. ADD

A year may be entered without a quarter, in which case the rates will apply across all of the months of that year.

Year and quarter are modified as a single element of data.

Each year and quarter must have a corresponding unit rate and/or overhead rate.

To enter additional years and quarters and their rate(s) to a previously entered set of rates, use the ADD procedure for resource code.

b. CHANGE

Use ADD and DELETE

c. DELETE

When a year and quarter are deleted, the rates are also deleted.

Enter performing organization-resource code, or just the resource code in columns 7-16.

Enter years and quarters, starting with columns 18-20.

Leave rate fields blank.

Enter D in column 80.

Unit and Overhead Rates

a. ADD

Use ADD procedures described for resource code, year and quarter.

b. CHANGE

Enter resource code or combination in columns 7-16.

Enter year and quarters of rates to be changed, starting with columns 18-20.

Enter only the new rates in appropriate fields starting with columns 21-32.

Enter C in column 80.

c. DELETE

Individual Rates

Use CHANGE procedure placing zeros in the fields to be deleted. A decimal point must appear in the unit rate field when these zeros are entered.

Both Unit and Overhead Rates

Use DELETE procedures for year and quarter.

Entire Resource Code

Enter resource code or combination in columns 7-16.

Leave all fields blank.

Enter D in column 80.

Input Example

Fig. V-I-2 illustrates the following modifications:

Entry A,
1. Change of rates for the second quarter of 1963.
2. Change of unit rate and deletion of overhead rate for third quarter of 1963.
3. The deletion of both rates for the fourth quarter of 1963.

Entry B, Deletion of all of the rates for 1963.

Entry C, Deletion of all of the rates for the combination in columns 7-16

USAF PERT COST SYSTEM

RATE TABLE INPUT FORM

by ______________________

Page 1 of 1

Date ______________________

	1	FORMING ORGN. (7–12)	RESOURCE CODE (13–16)	1ST FIELD ETO (18)	1ST FIELD YEAR (19–20)	1ST FIELD UNIT RATE (21–27)	1ST FIELD OVERHEAD RATE (28–32)	2ND FIELD ETO (33)	2ND FIELD YEAR (34–35)	2ND FIELD UNIT RATE (36–42)	2ND FIELD OVERHEAD RATE (43–47)	3RD FIELD ETO (48)	3RD FIELD YEAR (49–50)	3RD FIELD UNIT RATE (51–57)	3RD FIELD OVERHEAD RATE (58–62)	4TH FIELD ETO (63)	4TH FIELD YEAR (64–65)	4TH FIELD UNIT RATE (66–72)	4TH FIELD OVERHEAD RATE (73–77)	CHG CODE (80)
	4																			
	4																			
	4																			
A	4	AA123	A456	2	63	4.21	.980	3	63	4.35	0.000	4	63	0.0	0.000					C
	4																			
	4																			
	4																			
B	4	BB123	B456	1	63			2	63			3	63			4	63			D
B	4	BB345	B770		63															
	4																			
	4																			
C	4	CC123	C456																	D
	4																			
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Figure V-I-2. Rate Table Input Form With Modifications

USAF PERT COST SYSTEM

ACTUAL COST INPUT FORM

Prepared by ______________________ Page ____ of ______

Date ______________

CARD CODE	CHARGE NUMBER	PERFORMING ORGN.	RESOURCE CODE	1ST FIELD					2ND FIELD					3RD FIELD					4TH FIELD					TYPE CODE
				UDC CODE	CHG CODE	DATE MO	DATE YR	VALUE	UDC CODE	CHG CODE	DATE MO	DATE YR	VALUE	UDC CODE	CHG CODE	DATE MO	DATE YR	VALUE	UDC CODE	CHG CODE	DATE MO	DATE YR	VALUE	
1	2 19	20 25	26 29	30	31	32	35	36 41	42	43	44	47	48 53	54	55	56	59	60 65	66	67	68	71	72 77	76
7																								3
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Figure V-J-1. Actual Cost Input Form Used to Modify Data

ACTUAL COST INPUT MODIFICATIONS

General Description

The Actual Cost Input Form (Fig. V-J-1) is used to modify the following elements of data.

UDC
DATE
ACTUAL VALUE

Three types of change codes are used to modify this data.

T = ADD ALGEBRAICALLY
R = REPLACE
D = DELETE

All of the modifications entered on this form refer to a particular charge or summary number - performing organization - resource code combination. These numbers then, must appear in columns 2-29 of each card.

Code T, ADD ALGEBRAICALLY

Code T is used for the following modifications:

a. For the initial entry of actual values in the master file for a performing organization - resource code.

b. To increase the value of an entry already in the master file.

c. To decrease the value of an entry already in the master file.

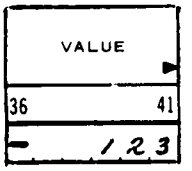
The system functions as follows:

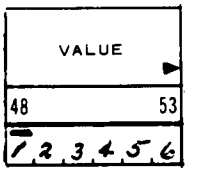
a. If there is no corresponding entry in the file; the actual value is placed in the file.

b. If there is a corresponding entry in the file and the new actual is positive; it will be added to the corresponding entry.

c. If there is a corresponding entry in the file and the new actual is negative, it will be subtracted from the corresponding entry.

A negative number is designated by a minus sign in the first column of the value field. To illustrate:





Code R, REPLACE

Code R is used for the following modifications:

a. Replace actual values in the file with new values.

b. Enter additional actual values for a previously established performing organization - resource code.

c. Delete individual actuals by replacing their values with zero.

Code D, DELETE

This code is used to delete all of the actual values for a particular UDC code associated with a performing organization - resource code combination.

Code D is also used to delete all of the actuals associated with a performing organization - resource code.

The deletion of these actuals, however, will not cause the performing organization and/or the resource code to be eliminated from the file. In order to delete these data; use the procedure described on Page V-G-4.

Procedures for Data Modification

Charge or Summary Number - Performing Organization - Resource Code

These elements of data are considered to be indicative information and therefore cannot be altered through the use of change codes.

Date

The date, i. e., month and year, is used in conjunction with the UDC code to locate a specific actual value in the file. Therefore, whenever a date is entered; it must be accompanied by a UDC code and an actual value.

The date is automatically deleted from the file when all of the actuals associated with it are deleted.

a. ADD

Use ADD procedures described for actual values.

b. REPLACE

Use DELETE and ADD procedures described for actual values.

c. DELETE

Use DELETE procedures described for actual values.

UDC, Unit Description Code

The UDC code is used in conjunction with the date to locate a specific item in the master file. Therefore, whenever a UDC code is entered; it must be accompanied by a date and an actual value.

A UDC code is deleted in conjunction with its associated actual value.

a. ADD

Use ADD procedures described for actual values.

b. REPLACE

Use DELETE and ADD procedures described for actual values.

c. DELETE

Use DELETE procedures described for actual values.

Actual Values

a. ADD

Enter charge or summary number in columns 2-19.

Enter performing organization - resource code in columns 20-29.

Enter UDC codes starting with column 30.

Enter T starting with column 31.

Enter the date starting with columns 32-35.

Enter positive or negative actual values starting with columns 36-41.

b. REPLACE

Use ADD procedure, substituting R in column 31.

c. DELETE

Case I

Individual values for a specific date and UDC code.

Enter charge or summary number in columns 2-19.

Enter performing organization - resource code in columns 20-29.

Enter UDC code in appropriate field.

Enter R or D in appropriate field.

Enter the date.

Enter zeros in value field to be deleted if R is used.

Leave value field blank if D is used.

Case II

All actual values associated with a specific UDC code.

Enter charge or summary number in columns 2-19.

Enter performing organization - resource code in columns 20-29.

Enter UDC code in column 30.

Enter D in column 31.

Leave date fields blank.

Leave value fields blank
Submit 1 card per UDC code.

Case III

All actual values for a particular date.

Delete each actual associated with the date using the procedure described for case I.

Case IV

All actual values for a performing organization - resource code.

Delete the actual values for each UDC code using the procedure described for case II.

Input Example

Fig. V-J-2 illustrates the following modifications:

Entry A, The algebraic addition of actual values to the master file.

Entry B, The replacement of old actuals with new actuals.

Entry C, The deletion of actuals through the use of codes D and R. This is an example of Case I.

Entry D, The deletion of all of the actuals for specific UDC codes. This is an example of Case II.

Entry E, The deletion of all of the actuals associated with a specific date. This is an example of Case III.

Entry F, The deletion of all of the actuals associated with the combination appearing in columns 2-29. This is an example of Case IV.

USAF PERT COST SYSTEM

ACTUAL COST INPUT FORM

Prepared by _____ Page 1 of 1

Date _____

	CARD CODE	CHARGE NUMBER	PERFORMING ORGN.	RESOURCE CODE	1ST FIELD UDC CODE	1ST FIELD CHG CODE	1ST FIELD DATE MO	1ST FIELD DATE YR	1ST FIELD VALUE	2ND FIELD UDC CODE	2ND FIELD CHG CODE	2ND FIELD DATE MO	2ND FIELD DATE YR	2ND FIELD VALUE	3RD FIELD UDC CODE	3RD FIELD CHG CODE	3RD FIELD DATE MO	3RD FIELD DATE YR	3RD FIELD VALUE	4TH FIELD UDC CODE	4TH FIELD CHG CODE	4TH FIELD DATE MO	4TH FIELD DATE YR	4TH FIELD VALUE	TYPE CODE
	1	2 19	20 25	26 29	30	31	32	35	36 41	42	43	44	47	48 53	54	55	56	59	60 65	66	67	68	71	72 77	78
	7																								3
	7																								3
	7																								3
A	7	AA1230000	A456	A789	H	T	04	63	-4000	H	T	05	63	-3000	H	T	06	63	1000						3
	7																								3
	7																								3
	7																								3
B	7	BB1230000	B456	B789	D	R	06	63	7000	D	R	07	63	8000											3
	7																								3
	7																								3
	7																								3
C	7	CC1230000	C456	C789	W	D	04	63		W	R	04	63	000000											3
	7																								3
	7																								3
	7																								3
D	7	DD1230000	D456	D789	W	D																			3
D	7	DD1230000	D456	D789	D	D																			3
	7																								3
	7																								3
	7																								3
E	7	EE1230000	E123	E789	H	D	04	64		D	D	04	64		Q	T	04	64							3
	7																								3
	7																								3
	7																								3
F	7	FF1230000	F123	F789	H	D																			3
F	7	FF1230000	F123	F789	D	D																			3
F	7	FF1230000	F123	F789	T	D																			3
	7																								3
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Figure V-J-2. Actual Cost Input Form With Modifications

USAF PERT COST SYSTEM

MANPOWER SKILL / RAINBOW CATEGORY INPUT FORM

ared by ______________________ Page ______ of ______

Date ______________

CARD CODE	RAINBOW CATEGORY	SKILL CODES													CHG CODE
		1ST	2ND	3RD	4TH	5TH	6TH	7TH	8TH	9TH	10TH	11TH	12TH	13TH	
1	2 25	27 30	31 34	35 38	39 42	43 46	47 50	51 54	55 58	59 62	63 66	67 70	71 74	75 78	80
5															
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Figure V-K-1. Manpower Skill/Rainbow Category Input Form Used to Modify Data

V-K MANPOWER SKILL/RAINBOW CATEGORY INPUT MODIFICATIONS

General Description

The Manpower Skill/Rainbow Category Input Modifications Form Fig. V-K-1 is used to modify resource codes and rainbow categories.

A table of resource codes and rainbow categories is separately maintained in the master file. Modifications to the resource codes in this table do not affect the resource codes in other parts of the table.

Three types of change codes are used to modify these elements of data.

A = ADD
C = CHANGE
D = DELETE

Code A, ADD

Code A is used to add a rainbow category and its resource code(s) to the master file. It is also used to enter additional resource codes to a previously established rainbow category.

A rainbow category cannot be added to the file without a resource code.

The maximum number of rainbow categories is 20. The maximum number of resource codes is 200.

Code C, CHANGE

Code C is used to change the rainbow category associated with a particular resource code.

In order to alter the format or spelling of a category, delete and add codes must be used.

Code D, DELETE

Code D is used to delete resource codes and rainbow categories from the table.

If the last resource code associated with a category is deleted, the corresponding category will also be deleted.

Procedures for Data Modification

Rainbow Category

a. ADD

Enter the category in columns 2-25.

Enter the resource code(s) starting in column 27.

Enter A in column 80.

b. CHANGE

Use DELETE and ADD procedures.

c. DELETE

Enter category in columns 2-25.

Enter D in column 80.

Resource Code(s)

a. ADD

Enter rainbow category in columns 2-25.

Enter resource code(s) starting in column 27.

Enter A in column 80.

b. CHANGE

Enter previously established rainbow category in columns 2-25.

Enter resource code(s) starting in column 27.

Enter C in column 80.

c. DELETE

Enter rainbow category in columns 2-25.

Enter resource code(s) to be deleted starting in column 27.

Enter D in column 80.

Input Example

Fig. V-K-2 illustrates the following modifications:

Entry A, Deletion of a rainbow category

Entry B, Reassignment of resource codes to a previously established rainbow category.

Entry C, Deletion of five resource codes.

USAF PERT COST SYSTEM

MANPOWER SKILL / RAINBOW CATEGORY INPUT FORM

by ______________________

Page __/__ of __/__
Date ______________

	CARD	RAINBOW CATEGORY	SKILL CODES 1ST	2ND	3RD	4TH	5TH	6TH	7TH	8TH	9TH	10TH	11TH	12TH	13TH	CHG CODE
	1	2 – 25	27 – 30	31 – 34	35 – 38	39 – 42	43 – 46	47 – 50	51 – 54	55 – 58	59 – 62	63 – 66	67 – 70	71 – 74	75 – 78	80
	5															
	5															
A	5	SCIENTIFIC-ENGINEERING														D
	5															
	5															
	5															
B	5	ENGINEERING SUPPORT	4231	1234	9630	5210										C
	5															
	5															
	5															
C	5	MANAGEMENT-ADMINISTRAT	7000	8900	5796	8088	3456									D
	5															
	5															
	5															
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	5															
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Fig. V-K-2. Manpower Skill/Rainbow Category Input Form With Modifications

USAF PERT COST SYSTEM

RESOURCE CODE / COST CATEGORY INPUT FORM

Prepared by ____________________

Page ______ of ______

Date ______________

CARD CODE	COST CATEGORY DESCRIPTION	RESOURCE CODES													CHG CODE
		1ST	2ND	3RD	4TH	5TH	6TH	7TH	8TH	9TH	10TH	11TH	12TH	13TH	
1	2 19	27 30	31 34	35 38	39 42	43 46	47 50	51 54	55 58	59 62	63 66	67 70	71 74	75 78	80
6															
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Figure V-L-1. Resource Code/Cost Category Input Form Used to Modify Data

V-L RESOURCE CODE/COST CATEGORY INPUT MODIFICATIONS

General Description

The Resource Code/Cost Category Input Form (Fig. V-L-1) is used to modify resource codes and cost categories. A table of resource codes and cost categories is separately maintained in the master file. Modifications to the resource codes in this table do not affect the resource codes in other parts of the table.

Three type of change codes are used to modify these elements of data.

A = ADD

C = CHANGE

D = DELETE

Code A, ADD

This code is used to add a cost category and its resource code(s) to the master file. It is also used to enter additional resource codes for a previously established cost category.

A cost element cannot be added to the file without a resource code.

The maximum numbe~ of cost categories is 20. The maximum number of resource codes is 200.

Code C, CHANGE

This code is used to change the cost category associated with a particular resource code.

In order to alter the format or spelling of a cost category, delete and add codes must be used.

Code D, DELETE

This code is used to delete resource codes and cost categories from the table.

If the last resource code associated with a cost category is deleted, the corresponding resource code will also be deleted.

Procedures for Data Modification

Cost Caterogy

a. ADD

Enter the cost category in columns 2-25.

Enter the resource code(s) starting in column 27.

Enter A in column 80.

b. CHANGE

Use DELETE and ADD procedures.

c. DELETE

Enter cost category in columns 2-25.

Enter D in column 80.

Resource Code(s)

a. ADD

Enter cost category in columns 2-25.

Enter resource code(s) starting in column 27.

Enter A in column 80.

b. CHANGE

Enter previously established cost category in columns 2-25.

Enter resource code(s) starting in column 27.

Enter C in column 80.

c. DELETE

Enter cost category in columns 2-25.

Enter resource code(s) to be deleted starting in column 27.

Enter D in column 80.

Input Example

Fig. V-L-2 illustrates the following modifications:

Entry A, Deletion of a cost category

Entry B, Reassignment of resource codes to a previously established cost category

Entry C, Deletion of five resource codes.

USAF PERT COST SYSTEM

3 by _____ RESOURCE CODE/COST CATEGORY INPUT FORM Page 1 of 1

Date _____

	COST CATEGORY DESCRIPTION	RESOURCE CODES 1ST	2ND	3RD	4TH	5TH	6TH	7TH	8TH	9TH	10TH	11TH	12TH	13TH	CHG CODE
	1 2 19	27 30	31 34	35 38	39 42	43 46	47 50	51 54	55 58	59 62	63 66	67 70	71 74	75 78	80
A	AIRBORNE EQUIP.														D
B	AIRBORNE SPARES	1234	5678	9101	1121	3141									C
C	SITE ACTIVATION	1516	1718	1920	2122	3456									D

V-L-5

Figure V-L-2. Resource Code/Cost Category Input Form With Modifications

CHAPTER VI

OPERATING PROCEDURES

CHAPTER VI

OPERATING PROCEDURES

VI-A IBSYS MONITOR

The USAF PERT Cost system uses the IBSYS Basic Monitor system. The official designation of this monitor is the IBM 7090/7040 IBSYS Processor 7090-PR-130, Version 8.

System Unit Function Table, SYSUNI

Systems operating under the IBSYS monitor must use certain tape units to carry out specific functions such as library, job input, and output. Tape units, therefore, are assigned certain symbolic names which are indicative of their functions. These symbolic names and their corresponding tape units are maintained by the monitor in a table designated as the System Unit Function Table, or SYSUNI. Since the assignment of tapes may vary with each computer installation, the monitor provides for the modification of this table through the use of the Unit Assignment Control Cards.

The IBSYS Master used by the Air Force uses the following SYSUNI TABLE.

SYSLB1	A1	SYSPP1	A5
SYSOU1	A2	SYSUT2	B1
SYSIN1	A3	SYSUT3	B2
SYSUT1	A4	SYSUT4	B3

All other tape units are unassigned.

VI-B TAPE ASSIGNMENT

The USAF PERT Cost program uses the tape assignments shown in Figure VI-B-1.

Channel A

1	2	3	4	5	6	7	8
IBSYS Master SYSLB1	Output List SYSOU1	PERT Cost PGM. input deck SYSIN1	Utility SYSUT1		Change tape and NEW P/C MASTER FILE	Utility	

Channel B

1	2	3	4	5	6	7	8
Utility SYSUT2	Utility SYSUT3		PERT Time Data	Utility (edited input)	OLD P/C MASTER FILE (only for updating)		

Figure VI-B-1. Tape Assignments

VI-C TAPE REASSIGNMENT

The tapes shown in Fig. VI-B-1 may be reassigned to other units and channels through the use of either of the following two procedures:

(a) The Tape Reassignment Card (Control Card D) described in section III-C.

(b) A permanent change may be effected by recompiling the program, using the change cards shown in Fig VI-C-1. The asterisks shown in the variable field portion of these cards refer to the entries in Table VI-C-1.

LOCATION 1 8		OPERATION 9 14	ADDRESS, TAG, DECREMENT/COUNT 16	COMMENTS 34 72	LABEL 73 80
TA1		PZE	*, *	INPUT - NEW MASTER	00246000
TA3		PZE	*, *	INPUT - SORT	00245100
TA4		PZE	*, *	SORT	00246200
TA5		PZE	*, *	OUTPUT (SYSOU1)	00245300
TB1		PZE	*, *	CHANGE	00245400
TB2		PZE	*, *	OLD MASTER	00245500
TB4		PZE	*, *	USER'S PART TIME TAPE	00245600
TB5		PZE	*, *	SORT	00246700
TB6		PZE	*, *	SORT	00245800

Figure VI-C-1. Change Cards for Tape Reassignment

Important Points

It is important to observe that:

(a) TA5 must correspond to the SYSOU1 tape

(b) TA3 and TA4 should be on opposite channels from TB5 and TB6 for efficiency in sorting.

TABLE VI-C-1

Variable Field Entries for Assigning Tapes

PHYSICAL UNIT	VARIABLE FIELD (COLS 16-21)
A1	641, 1
A2	642, 1
A3	643, 1
A4	644, 1
A5	645, 1
A6	646, 1
A7	647, 1
A8	648, 1
B1	1153, 1
B2	1154, 1
B3	1155, 1
B4	1156, 1
B5	1157, 1
B6	1158, 1
B7	1159, 1
B8	1160, 1

Tape Assignments With ASD Basic Monitor

In the event that the USAF PERT Cost program is run in conjunction with the version of the IBSYS Basic Monitor used at the Aeronautical Systems Division (ASD), the user may consider it advantageous to permanently change the tape assignments in the PERT Cost program. In this case the following modifications are suggested.

(a) Recompile the PERT Cost program using the change cards shown in Figure VI-C-2.

LOCATION 1 6		OPERATION 8 14	ADDRESS, TAG, DECREMENT/COUNT 16	COMMENTS 36 72		LABEL 73 80
TA1		PZE	647, 1	A7	INPUT - NEW MASTER	00246000
TA3		PZE	646, 1	A6	SORT	00245100
TA4		PZE	645, 1	A5	SORT	00246200
TA5		PZE	1155, 1	A3	OUTPUT	00245300
TB1		PZE	1154, 1	A2	CHANGE	00245400
TB2		PZE	1156, 1	A4	OLD MASTER	00246500
TB4		PZE	1159, 1	A7	USER'S TAPE	00246600
TB5		PZE	1158, 1	A6	SORT	00245700
TB6		PZE	1157, 1	A5	SORT	00245800

Figure VI-C-2. Change Cards for Conversion to the ASD Version of IBSYS

(b) Modify the SYSUNI table through the use of the following cards:

```
Col 1        8          16      21
    $ RELEASE          SYSCK 1
    $ RELEASE          SYSCK 2
    $ RELEASE          SYSOU 2
    $ RELEASE          SYSPP 2
```

VI-D IBSYS COMPILING PROCEDURES

Input Deck Set-up

The input deck consists of the following cards in the following sequence:

Card Columns	1	7	8	16	73	80
(a)	$IBSYS					
(b)	$ATTACH			A7		
(c)	$AS			SYSCK1		
(d)	$REWIND			SYSCK1		
(e)	$ATTACH			B7		
(f)	$AS			SYSCK 2		
(g)	$REWIND			SYSCK 2		
(h)	$EXECUTE			FORTRAN		
(i)	$ID					
(j)	*	PACK				
(k)	*		FAP			
(l)			UPDATE 9, 10			
(m)			DELETE		00000010	
(n)			COUNT 30000		00000250	
(o)	Correction cards					

Correction cards are used to update the symbolic program cards. Serialization must be entered in columns 73 - 80. See the FAP manual for the precise format of these cards.

End Card

An end card must be inserted with the following format:

Card Column	8	73	80
(p)	**END**	**99999999**	

IBSYS Control Cards

Card Columns	1	16
(q)	$ IBSYS	
(r)	$ REMOVE	SYSCK 1
(s)	$ REMOVE	SYSCK 2
(t)	$ STOP	

Tape Assignments

The tape assignments for compilation are shown in Fig. VI-D-1.

Channel A

1	2	3	4	5	6	7	8
IBSYS Master SYSLB 1	Output list SYSOU 1	Input deck SYSIN 1	Utility SYSUT 1	Punch SYSPP 1		Old blocked update tape (symbolics) SYSCK 1	

Channel B

1	2	3	4	5	6	7	8
Utility SYSUT 2	Utility SYSUT 3	Utility SYSUT 4				New blocked update tape (symbolics) SYSCK 2	

Figure VI-D-1. Tape Assignments for Compilation

Peripheral Input

Place the card deck described on Page VI-D-1 on tape, using an IBM 1401 card-to-tape program. Place this tape on unit A3 as indicated in Fig. VI-D-1.

Console Operation

(a) **Reset.**

(b) **Clear and load tape.**

(c) On-line printer message will indicate the number of errors.

(d) Save B7 (new, updated symbolic tape).

Peripheral Output

(a) Program listing is on A2 (SYSOU 1).

(b) Absolute FAP deck is on punch tape A5 (SYSPP 1).

Compilation Using ASD IBSYS Monitor

The tape assignments for compiling the PERT Cost module using the ASD version of IBSYS are shown in Fig. VI-D-2.

Channel A

1	2	3	4	5	6	7	8
IBSYS Master SYSLB 1		Input deck SYSIN 1		SYSUT 1	SYSUT 3	Old blocked update tape (symbolics) SYSCK 1	

Channel B

1	2	3	4	5	6	7	8
Punch Tape SYSPP 1		Output List SYSOU 1		SYSUT 2	SYSUT 4	New blocked update tape SYSCK 2	

Figure VI-D-2. Tape Assignments for Compilation Using the ASD Version of IBSYS

Peripheral Output

(a) Program listing is on B3 (SYSOU 1).

(b) Absolute FAP deck is on punch tape B1 (SYSPP 1).

(c) Due to the size of the program, a symbolic reference table will not be generated.

VI-E IBSYS OPERATING PROCEDURES

Input Deck Set-up--Program

The PERT Cost program deck consists of the following cards in the following sequence.

IBSYS Control Cards

Card Columns	1	7	8	16
(a)	$IBSYS			
(b)	$EXECUTE			FORTRAN
(c)	End-of-file card			
(d)	*ID			
(e)	*	XEQ		

Program Cards

(a) First program section

(b)

Card Columns	1	7
	*	DATA

(c) Remaining program sections

IBSYS Control Cards

Card Columns	1
(a)	$IBSYS
(b)	$STOP

Input Deck Set-up--PERT Cost Data

The PERT Cost data cards must be assembled in the following sequence.

(a) UNSORTED RAW DATA TAPE (Columns 1-22)

(b) Control Card A *

(c) Control Card B *

(d) All other control cards if required *

(e) Cost Data (sort not required) *

(f) EOF Card

*See USAF PERT Cost System Description Manual Volume III for precise format

Tape Assignments

The tape assignments required for operation of this program are shown in Fig. VI-B-1.

Peripheral Input

(a) Place deck on tape and place the deck on H3.

(b) Place deck containing Cost Data on tape. Place tape on A6.

Console Operation

(a) Reset.

(b) Clear and load tape.

(c) Follow on-line printer instructions.

Program Halt

Should the program be aborted (due to machine malfunction, etc.) after operating the PERT Cost edit sort phase, logical tape unit B-5 must be switched with A6 in order to restart without having to rewrite the tape containing the PERT Cost data. An on-line message will indicate when this portion of the program has been operated.

VI-F IBSYS CONVERSION MACROS

This PERT Cost program was initially programmed, compiled, and checked out using the Aerospace System B monitor. In order to distribute the program for use with the IBSYS monitor, a compatibility package was written. This package channels all of the I/O through IOEX (the trap supervisor employed by IBSYS) through the use of macro instructions. It is used to start and stop all I/O operations as well as to check for redundancies and initiate recovery procedures. This package was used to compile the PERT Cost program using IBSFAP by placing the card deck containing the macros in front of the PERT Cost program.

The following macros were used:

(a) LODMIT - Brings successive program sections from SYSIN1 into core.

(b) OUTPUT - Writes on-line and off-line messages

(c) BACKR - Backspace a record (s)

(d) BACKF - Backspace a file (s)

(e) READ - Read a record

(f) WRITE - Write a record

(g) WEOF - Write an end-of-file mark

(h) REWND - Rewind a tape

(i) UNLOAD - Rewind and unload a tape

(j) CARDS - Read a card image from SYSIN1

(k) STEPR - Skip a record (s)

(l) STEPF - Skip a file (s)

(m) TAPESN - Returns the address of the unit control block for the tape unit indicated in the address of the accumulator

APPENDIX A

APPENDIX A

GLOSSARY OF TERMS

SYMBOLS

a = Optimistic time estimate for an activity.

b = Pessimistic time estimate for an activity.

m = Most likely time estimate for an activity.

t_e = Elapsed time for an activity.

t_s = Scheduled elapsed time for an activity.

E = A symbol on the Management Summary Report representing S_E for the most critical activity within a work package or summary item.

L = A symbol on the Management Summary Report representing S_L for the most critical activity within a work package or summary item.

S = A symbol on the Management Summary Report representing the scheduled completion date (T_S) for the final activity in a work package or summary item.

S_E = Earliest completion date for an activity (based on t_s).

S_L = Latest completion date for an activity (based on t_s).

T_A = Actual completion date.

T_E = Earliest expected date for an event (based on t_e).

T_D = Directed date (directed by USAF, DOD, or other top level authority) for a specific accomplishment.

T_L = Latest allowable date for an event (based on t_e).

T_S = Scheduled completion date for an activity.

A = A symbol on the Management Summary Report representing the actual completion date (T_A) for the final activity in a work package or summary item.

SYMBOLS (Continued)

S = A symbol appearing on the Management Summary Report representing the scheduled completion date (T_S) for the final activity in a work package or summary item.

► = Data Justification marker, Right-Justified

◄ = Data Justification marker, Left-Justified

TERMS

Account Code Structure The numbering system used to assign summary numbers to elements of the work breakdown structure and charge numbers to individual work packages.

Activity An element of a program which is represented on a network by an arrow. An activity cannot be started until the event preceding it has occurred. An activity may represent:

a. a process
b. a job to be performed
c. a procurement cycle
d. waiting time

In addition, an activity may simply represent an interdependency or constraint between two events on the network.

Activity Slack The difference in time, comparing the earliest completion date (S_E) with the latest completion date (S_L) for a given activity. The activity slack indicates the range of time within which an activity can be scheduled for completion. When the S_E for an activity is later than the S_L, then the activity is said to have negative slack and either the current activities or subsequent activities must be replanned or the program schedule will slip. When the S_L for an activity is later than the S_E, the activity is said to have positive slack, and additional time is available for performing the activity without causing the program schedule to slip.

Actual Costs The expenditures incurred plus any prespecified types of unliquidated commitments charged or assigned to a work effort.

Burden Center A group of organizations using a common overhead rate.

Charge Number A number used for identifying the costs charged to a work package.

Commitment An obligation (in dollars) incurred by a contractor in performance of a contract.

Completion Date The completion date for an event.

Constraint The relationship of an event to a succeeding activity wherein an activity may not start until the event preceding it has occurred. The term "constraint" is also used to indicate the relationship of an activity to a succeeding event wherein an event cannot occur until all activities preceding it have been completed.

Contract Estimate The cost estimate associated with a specific work package or summary item which, when totaled with the contract estimates for all other work packages in a program, results in the total cost estimate for the program.

Contract Estimate for Work Completed The sum of the contract estimates for each completed work package plus a portion of each work package in process results in the contract estimate for work completed. The contract estimate for work is computed as follows:

$$\text{Current Contract Estimate} \times \frac{\text{Actual Cost to Date}}{\text{Latest Revised Estimate}}$$

Contract Number The numeric designation, or a representative code, for for the contract(s) or agreement(s) included in each report.

Cost Activity An activity which employs resources, the costs of which are a direct charge to the program.

Cost Category The name and/or number of a functional, hardware, or other significant cost category for which costs are to be summarized.

Critical Path That particular sequence of activities that has the greatest negative (or least positive) activity slack.

Direct Cost Cost charged directly to the contract.

Directed Date for an Event (T_D) A date for a specific accomplishment directed by USAF, DOD, or similar top level authority.

Earliest Completion Date (S_E) The S_E value for a given activity is equal to the sum of the scheduled elapsed time (t_s) for the activities on the longest path from the beginning of the program up to and including the given activity. Thus, S_E represents the earliest date on which an activity can be completed.

Earliest Expected Date (T_E) The earliest date on which an event can be expected to occur. The T_E value for a given event is equal to the sum of the statistically calculated expected elapsed times (t_e) for the activities on the longest path from the beginning of the program to the given event.

Elements of Cost Specific subdivisions of cost used to identify the nature of resources employed. An addendum will be published to provide a list of cost elements to be used for reporting to the Air Force.

Estimate-to-Complete The estimated manhours, costs, and time required to complete a work package or summary item (includes applicable overhead except where direct costs are specified).

Event A specific definable accomplishment in a program plan, recognizable at a particular instant in time. Events do not consume time or resources and are normally represented in the network by circles or rectangles.

Expected Elpased Time (t_e) The expected (or statistically computed) elapsed time for performing an activity in weeks (calculated using the formula $t_e = \frac{a + 4m + b}{6}$).

Expenditure Actual disbursement of funds by a contractor for in-plant or subcontract expenses pertaining to a contract.

First Event Number The number of the first event in time (based on S_E) for a work package or summary item. This event number defines the beginning of the work package or summary item in relation to the network.

Individual Cost Activity A cost activity that, by itself, constitutes a work package with identifiable resources.

Item A summary item on the work breakdown structure.

Justified This term is used to indicate the position of an element of data in a data field on the input form. For example:

Left-Justified = |8|0| | |

Right-Justified = | | |8|0|

Labor Hours Direct manhours expended by personnel involved in direct labor activities affecting the design, development, test, fabrication, and assembly of contract articles.

Last Event Number The number of the last event in time (based on S_E) for a work package or summary item. This event number defines the end of the work package or summary item in relation to the network.

Latest Allowable Date (T_L) The latest date on which an event can occur without creating an expected delay in the completion of the program. The T_L value for a given event is calculated by subtracting the sum of the expected elapsed times (t_e) for the activities on the longest path from the given event to the end event of the program from the latest date allowable for completing the program. T_L for the end event in a program is equal to the directed date (T_D) of the program. If a directed date is not specified, $T_L = T_E$ for the end event.

Latest Completion Date (S_L) The S_L value for a given activity is calculated by subtracting the sum of the scheduled elapsed times (t_s) for the activities on the longest path from the given activity to the end event of the program from the directed date or latest allowable date (T_L) for completing the

program. Therefore, S_L represents the latest date on which an activity can be scheduled for completion without delaying the completion of the program.

Latest Revised Estimate The sum of the actual incurred costs plus the latest estimate-to-complete for a work package or summary item as concurrently reviewed and/or revised (including applicable overhead except where direct costs are specified).

Level Number The number of the tier or level on the work breakdown structure at which a charge or summary number appears.

Man-hours The common unit of direct labor used in PERT COST reports. When specific reports and/or input forms make use of other units such as man-months, appropriate conversion techniques are used to maintain these data in manhours within the system.

Most Critical Slack (Weeks) The worst (least algebraic) slack with respect to designated program or project end points, in weeks, for any of the activities within the work package or summary item. This slack is based on $S_L - S_E$ for each activity. The slack indicated will not necessarily be the difference between the S_L and S_E for the end of a work package or summary item since the worst slack situation may be associated with an activity within the work package or summary item rather than at the end of the work package.

Network A flow plan consisting of all the activities and events that must be accomplished to reach the program objectives, showing the sequences in which they are planned to be accomplished with their interdependencies and interrelationships.

Network Code A code which is used to distinguish one network from another.

Over/Under Plan The planned cost to date minus the latest revised estimate of cost to date. When planned cost exceeds latest revised estimate, a projected underplan condition exists. When latest revised estimate exceeds planned cost, a projected overplan condition exists.

Overrun/Underrun (Work Performed to Date) The value for the work performed to date minus the actual cost for that same work. Where value exceeds actual cost, an underrun condition exists. When actual cost exceeds value, an overrun condition exists.

Performing Organization The contractor or government organization which will perform work on a work package.

Planned Cost The approved planned cost for a work package or summary item. This cost, when totaled with the planned costs for all other work packages, results in the total cost estimate, committed under contract, for the program or project. Planned and budgeted are used synonymously.

Program Breakdown Structure This term is used interchangeably with Work Breakdown Structure. (See Work Breakdown Structure for definition.)

Projected Overrun/Underrun The planned cost minus the latest revised estimate for a work package or summary item. When planned cost exceeds latest revised estimate, a projected underrun condition exists. When latest revised estimate exceeds planned cost, a projected overrun condition exists.

Resource Code The contractor's code for a particular manpower skill or material type.

Responsible Organization The contractor or government organization responsible for management of a work package.

Scheduled Completion Date (T_S) A date assigned for completion of an activity (accomplishment of an event) for the purposes of planning and control within an organization. (Where no specific date is assigned, $T_S = S_E$.)

Scheduled Elapsed Time (t_s) The period of time scheduled for performing an activity.

Starting Event (Beginning Event) An event which signifies the beginning of one or more activities on a network.

Subcontract Costs Costs of parts or assemblies produced by a manufacturer other than the reporting contractor in accordance with designs, specifications, or directions of the reporting contractor, and designed specifically for the subsystem being reported.

Summary Item An item appearing in the work breakdown structure.

Summary Level Any level in the work breakdown structure.

Summary Number A number which identifies an item in the work breakdown structure.

Underrun The amount by which the current approved contract estimate exceeds the sum of the actual costs and the estimate-to-complete.

Unliquidated Commitment That portion of a commitment for which payment has not been made.

Value (Work Performed to Date) The planned cost for completed work, including that part of work in process which has been finished. This value is determined by summing the planned cost for each completed work package. If a work package is in process, the part of its total planned cost which applies to work completed is approximated by applying the ratio of actual cost to latest revised estimate for that work package.

Work/Program Breakdown Structure A family tree subdivision of a program, beginning with the end objectives and then subdividing these objectives into successively smaller end item subdivisions. The program breakdown structure establishes the framework for:

a. defining the work to be accomplished;
b. constructing a network plan;
c. summarizing the cost and schedule status of a program for progressively higher levels of management.

Work Package The unit of work required to complete a specific job or process, such as a report, a design, a document, a piece of hardware, or a service. The content of a work package may be limited to the work which can be performed by a single operating unit in an organization or may require the contributing services of several operating units. The overall responsibility for the work content of a work package should be assigned to a single organization or responsible individual.