Decision Support System (DSS)

for

Heavy Brigade Prepositioned (PREPO) Afloat Operations Planning

USER'S MANUAL

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13. ABSTRACT (Maximum 200 words)
This document is a User's Manual to accompany the Decision Support System (DSS) developed to assist planning heavy brigade prepositioned (PREPO) afloat operations. The DSS utilizes a critical path methodology (CPM) to estimate the duration of PREPO operations from the alert phase through the theater reception/onward movement phase. The DSS contains a sequence of tasks to be completed by the off-load preparation party (OPP), advance party, transportation group, and main body during PREPO operations. The DSS can be used as a training checklist or as a planning tool. The DSS allows the user to alter the data (e.g., change sequencing of tasks, change task times, add tasks, etc.) to accommodate various contingencies. This User's Manual provides step-by-step instructions for using the DSS and should be read before starting the DSS.

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1 Introduction

Purpose

The purpose of the Decision Support System (DSS) is to assist you in planning the heavy brigade prepositioned (PREPO) afloat operations. This encompasses unit alert notification (alert phase) through the deployment phase and ending at the completion of the theater reception and onward movement (TR/OM) phase with the arrival of the combat-ready brigade in the tactical assembly area (TAA). Background on PREPO operations and the corresponding Training and Doctrine Command (TRADOC) Analysis Center (TRAC) study effort (which augments the DSS) are in Chapter 3, Background.

The TRAC study was documented as *Brigade Prepositioned (PREPO) Afloat Operations Study,* (Technical Report TRAC-TR-0494, TRADOC Analysis Center-Study and Analysis Center), dated March 1994.

Required User Capabilities

This tool is designed to be used by people of varying technical backgrounds.

Two assumptions are made about the user. First, the user has basic microcomputer (IBM-compatible personal computer (PC)) skills. The other major assumption is that the user can determine the proper hierarchy of tasks in the PREPO operations (sequence, dependence upon other tasks).

DSS Capabilities

The DSS is currently configured as a computer program designed to run on a PC.

The DSS uses a project managing tool called critical path method (CPM). CPM is the appropriate tool to use for this type of military planning because it can handle complex projects that consist of a large number of interrelated tasks that must be performed in a specified sequence.

> **Note:** Since the DSS requires three types of input data from the user, preliminary work *must* be done before using this tool. This preliminary work is discussed in detail in chapter 3 but, in brief, a task name, duration, and its immediate predecessor task(s) must be provided. The quality of the DSS output is completely dependent on the quality of the input information. It cannot compensate for poor input data.

DSS provides useful output information consisting of:

Shortest total duration of PREPO operations - minimum elapsed time in hours from receipt of alert through arrival of the brigade in the TAA. You may choose to analyze only a portion of the tasks, versus all of them. This value would reflect the shortest duration from the starting to the ending tasks you selected.

Critical path - sequence of tasks that yields the longest time from start to finish. This path is used to determine *shortest total duration of PREPO operations*. There can be more than one *critical path*.

The following are definitions of terms used in the output:

Critical tasks - tasks along the *critical path*. In other words, tasks with which any increase or delay in their completion times lengthens the entire PREPO operations.

Earliest start - earliest time the task can start.

Earliest finish - earliest time the task will be finished.

Latest start - latest time the task can start without delaying the PREPO operations.

Latest finish - latest time the task may be finished without delaying the PREPO operations.

Gantt bar chart - graphical presentation of the earliest start and latest finish times (in days) for each task group, in order, from the first day to the last day of the PREPO operations.

Classification and Distribution

The DSS and the base case data files provided are unclassified. Exercise appropriate security measures when inputting classified information in the DSS.

Distribution is limited to U.S. Army units and activities.

Support

TRAC elements at Fort Leavenworth developed this tool and are responsible for its maintainance. For assistance with DSS and/or suggestions for improvements, contact:

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MAJ Bruce Cooper/SFC Trussell; COMM: (913) 684-3030/DSN: 552-3030

2   Getting Started

Package Contents

Your DSS package should contain one 3.5" low-density diskette (720 Kilobyte format) and one DSS User's Manual.

Computer System Requirements

DSS is designed to operate on an IBM-compatible PC (microcomputer), either desktop style or laptop.

DSS makes use of all available memory in the computer. It has its own memory management routines that conflict with expanded memory managers such as HIMEM.SYS and EMM386.EXE. Because of these conflicts, HIMEM.SYS and EMM386.EXE cannot be loaded when the computer starts up. See instructions below to alter your CONFIG.SYS file.

DSS cannot be run under Windows™.

Required minimum computer hardware configuration:

- 386 processor chip running at a minimum of 25 Megahertz (Mh)
- 2 Megabyte (Mb) of hard disk space for program
- 4 Mb of random access memory (RAM)
- VGA monitor

Required computer system software: DOS version 3.1 or higher

The CONFIG.SYS file must be modified for the DSS and should have lines as follows:

- ► FILES = 40
- ► BUFFERS = 25
- ► DEVICE = C:\DOS\ANSI.SYS
- ► SHELL = C:\DOS\COMMAND.COM C:\DOS\ /P

Notes: Determine under which subdirectory your COMMAND.COM and ANSI.SYS files are located. If not C:\DOS, substitute that subdirectory for C:\DOS in the preceding lines.

You must delete lines in CONFIG.SYS which say "DEVICE = HIMEM.SYS" and "DEVICE = EMM386.EXE".

If you have DOS version 6.0 or higher, use the menu functions to add alternate choices to be offered when the computer boots up. For example:

```
[MENU]
MENU_ITEM = BASE_CONFIG, NORMAL CONFIGURATION
MENU_ITEM = DSS_CONFIG, DSS CONFIGURATION

[BASE_CONFIG]
DOS = UMB, HIGH
DEVICE = C:\DOS\HIMEM.SYS
DEVICE = C:\DOS\EMM386.EXE RAM
OTHER COMMANDS FOLLOW
[DSS_CONFIG]

[COMMON]
DEVICE = C:\DOS\ANSI.SYS
FILES = 40
BUFFERS = 25
SHELL = C:\DOS\COMMAND.COM C:\DOS\ /P
```

Note: You may have to use a statement in the AUTOEXEC.BAT file to allow only those programs to boot up that are absolutely needed (none are needed for DSS). Use the DOS manual for additional details or assistance.

Installing DSS

Installing the DSS software does not require any special procedures. You may use either these instructions or those provided in your DOS manual for loading new software applications.

1. Create a subdirectory called "DSS" on the "C" drive. (At root directory, type: MD DSS)

2. Insert DSS diskette into the appropriate diskette drive.

3. Type: COPY "drive letter":*.* C:\DSS and press **ENTER.**

Ten different files (as noted below) will be copied into the DSS subdirectory.

BAS1PRSD.BAS	BAS1INST.BAS
BAS2PRSD.BAS	BAS2INST.BAS
BAS4PRSD.BAS	BAS4INST.BAS
DSS.EXE	BROWSE.COM
LOGO.EXE	DSS.GIF

Installing Printer

Default printer for DSS is the one connected to LPT1 port.

At the printer configuration option within *PRINT MENU* of DSS, you can choose LPT1, LPT2, or LPT3.

If you have a printer which is connected to a serial port, COM1 or COM2, you can use the DOS MODE command to set up the serial port for printing. Then, redirect printer output using the following two command lines:

1. Type: MODE COM1: 4800,E,7,1,B

   This command sets the COM1 port to 4800 Baud, even parity, 7 databits, 1 stop bit, return busy if busy.

2. Type: MODE LPT1: = COM1:

   This command redirects all output of LPT1 to COM1.

   Refer to your DOS manual for complete instructions on using the MODE command for your version of DOS.

Starting DSS

1. Do a soft boot (press **CTRL+ALT+DEL**) of your computer and choose the DSS configuration (if using DOS version 6.0 or higher) if the computer is not already in this configuration.

2. Start DSS in DOS

   · Change to the DSS subdirectory (Type CD\DSS and press **ENTER**)
   · Type DSS and press **ENTER.**
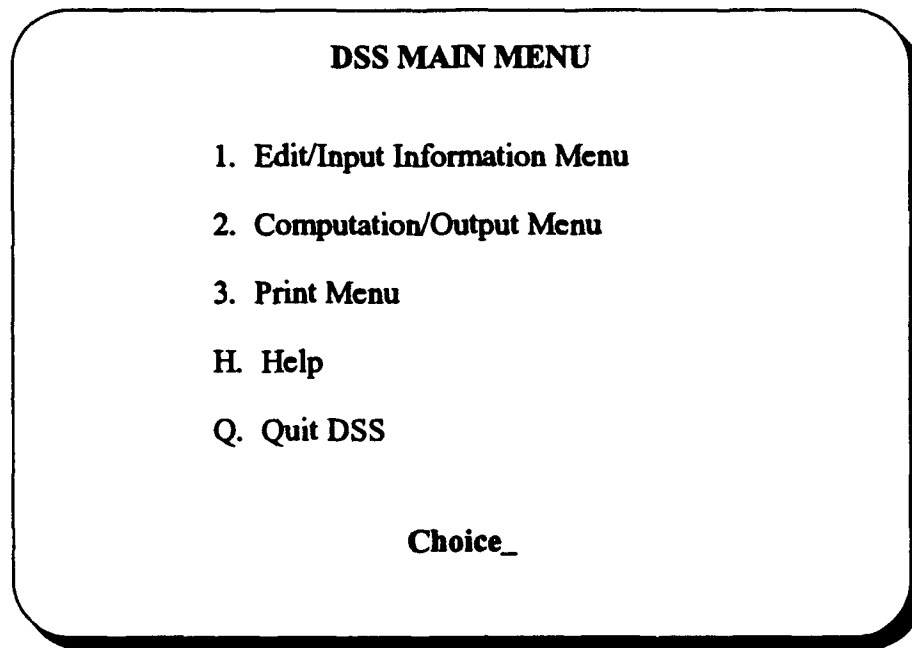
   The DSS begins with a "welcome" screen display and instructions.

Using Menus

DSS uses a menu structure to simplify the use of the program. A menu contains a list of commands or actions you can carry out with DSS. Each menu has a title at the top highlighted in red.

To make your selection from the menu, press the key of the number or letter preceding the action and press **ENTER.** DSS is not case-sensitive (i.e., letters, whether upper or lower case, are treated the same). The main menu is shown below (figure 1) for an

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example. To choose the "help" option from this menu, press **h** or **H** key. Most of the menus include the option of returning to the previous menu by selecting the *R Return to* ... or *Q Quit* actions.

```
┌─────────────────────────────────────────────┐
│              DSS MAIN MENU                    │
│                                               │
│                                               │
│        1.  Edit/Input Information Menu         │
│                                               │
│        2.  Computation/Output Menu             │
│                                               │
│        3.  Print Menu                          │
│                                               │
│        H.  Help                                │
│                                               │
│        Q.  Quit DSS                            │
│                                               │
│                                               │
│                  Choice_                       │
│                                               │
└─────────────────────────────────────────────┘
```

Figure 1. Example of main menu

3 Background

PREPO Operations Overview

PREPO operations are part of the overall plan to deploy a designated heavy brigade by contingency day (C-Day) + 15 (C+15) and two full divisions by C+30. PREPO operations deal specifically with the heavy brigade. To accomplish this, the heavy brigade's equipment and support elements are prepositioned on eight ships stationed at Diego Garcia in the Indian Ocean and off the coast of Thailand. PREPO ships are discussed later in this chapter.

The Early Entry Lethality and Survivability (EELS) Battle Laboratory (BL) conducted preliminary work to identify the processes and duration of three major phases of the PREPO operations in broad terms. EELS BL requested TRAC to break the processes down into further detail identifying the tasks, their timing, and overall duration of the PREPO operations. Furthermore, TRAC was requested to develop a DSS of the PREPO operations to allow the user to adjust the tasks and timing to reflect various contingencies. The three phases addressed in the study and DSS are defined in Field Manual (FM) 100-17-1 as follows:

> Alert phase. Units prepare for movement to the aerial port of embarkation (APOE) and loading aboard aircraft. Army forces dispatch the liaison officer party, off-load preparation party (OPP), and advance party during this phase.

> Deployment phase. This phase begins with the departure of the first element of the main body to the APOE or when PREPO ships begin transit to a designated sea port of debarkation (SPOD). The phase ends when the last element of the main body arrives at the APOE.

> TR/OM phase. This phase begins with the arrival of the first ship carrying PREPO equipment or arrival of the first aircraft of the main body at the designated aerial port of debarkation (APOD)/SPOD. The phase ends when equipment and supplies are off-loaded and issued to awaiting units; command, control, and communications are established; and personnel and equipment link up and move forward to the TAA.

The TRAC study and DSS addressed two situations: pier side off-load and in-stream operations (off-loading at sea on lighters (causeway ferries or landing craft) which maneuver to a bare beach). The EELS BL hosted a joint working group (JWG) of subject-matter experts (SME) to assist TRAC in identifying the processes, tasks, and their duration. JWG members are listed at appendix A. A flow diagram of the task groupings culminating from the JWG is shown in the following figure. This figure reflects both pier side and in-stream operations and the availability of two or three piers.
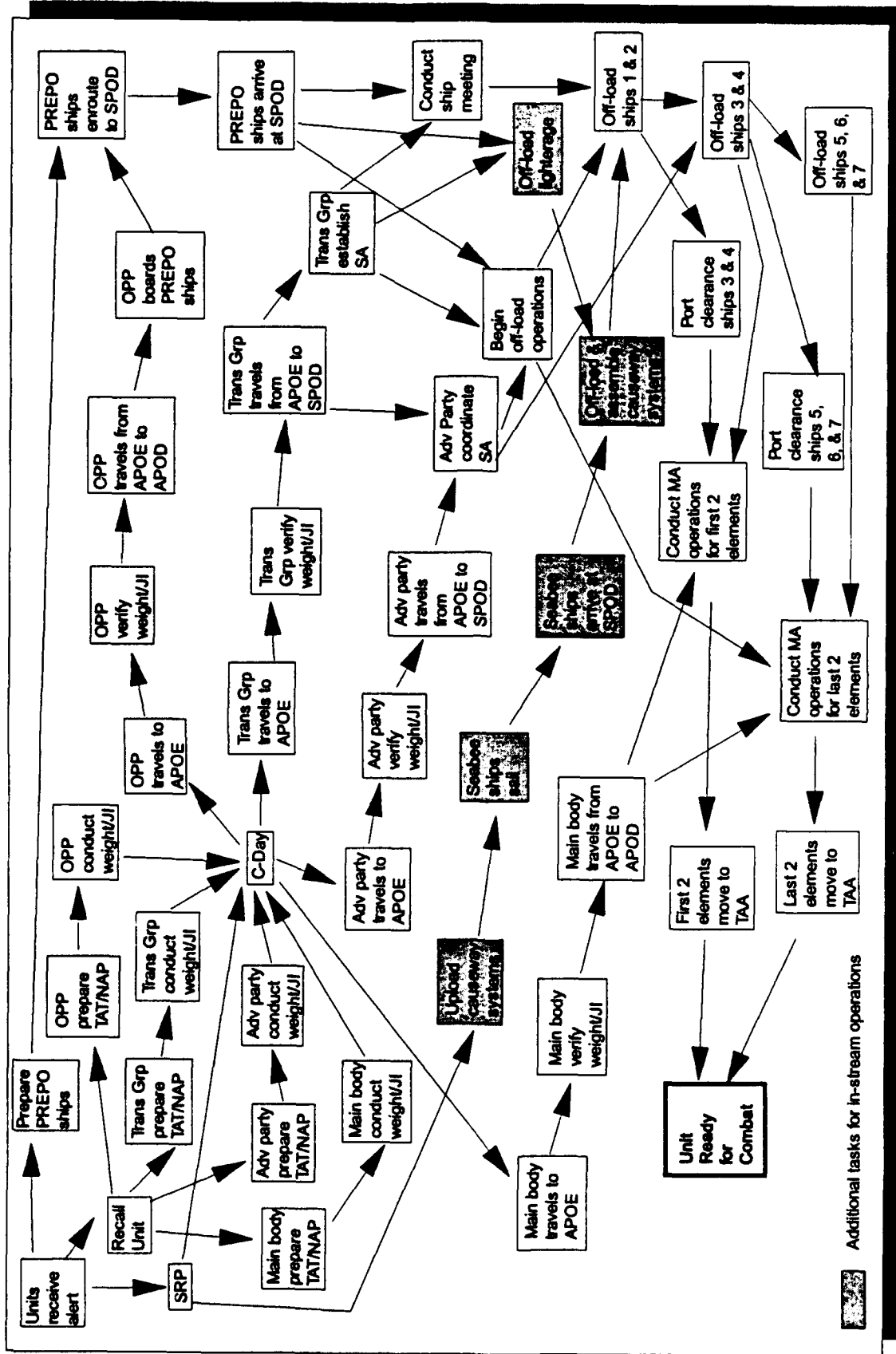
Figure 2. Flow diagram of PREPO task groupings

Additional tasks for in-stream operations

PREPO Ships

The first and second ships off-loaded in pier side operations are the ships containing off-load equipment; the third, fourth, fifth, and sixth ships off-loaded are the maneuver ships. The commander-in-chief (CINC) determines the order in which to off-load these maneuver ships depending on whether the mechanized (MX) or armored equipment is needed on the ground first. The seventh ship off-loaded carries additional support and sustainment equipment beyond the basic load of three days' supply. The purpose of this ship is to provide resupply to the PREPO brigade. The eighth ship is an auxiliary crane ship with stationary cranes used for off-loading. When causeway systems (used for in-stream operations) are procured, they will be placed on this ship. In the interim, as currently reflected in the base case files, causeway systems are transported to the area of operations on a Seabee ship from Ft. Eustis, VA. It is assumed additional causeway systems needed for off-loading four ships simultaneously are obtained from the Navy. Figure 3 is a graphic of the contents of the eight ships and their off-loading order.
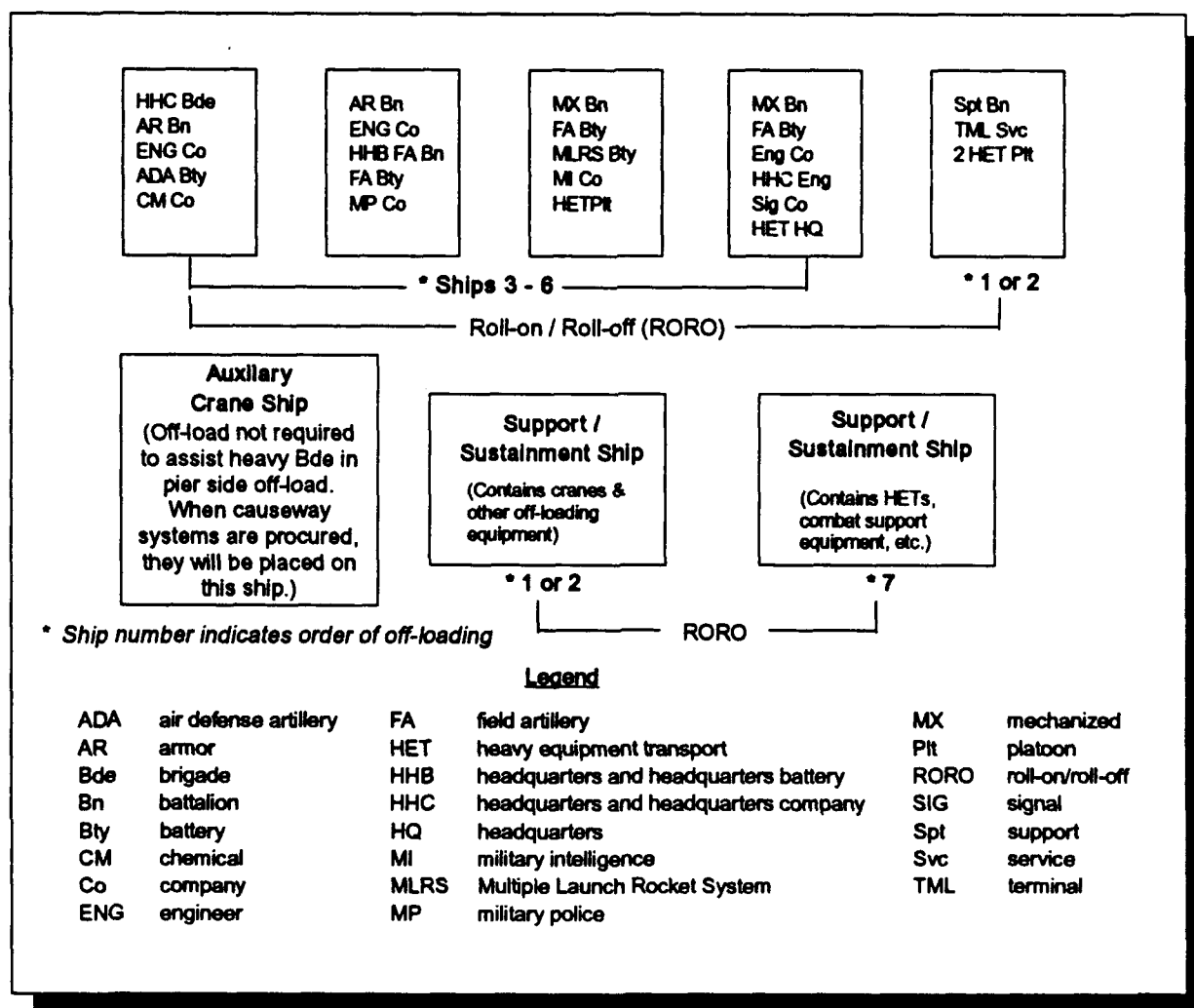
Figure 3. PREPO ships

General DSS Information

The DSS divides three phases of the PREPO operations (alert, deployment, and TR/OM phases) into task groups and tasks with their associated durations and sequencing. Each task group has a unique description and an identification (ID) number (e.g., 70 OPP PREPARE EQUIPMENT TO ACCOMPANY TROOPS/NOT AUTHORIZED PREPOSITIONING (TAT/NAP)). The tasks that are associated with a task group bear the same ID number followed by a letter (e.g., 70d Load Trucks at Unit Area). Tasks are organized into "task groups" according to who performs the task or because the tasks are of a similar type.

The data for the base case files were obtained from a JWG of SMEs hosted by the EELS BL. Those SMEs are listed at appendix A. At appendix B is a description of each task group with a point of contact (POC) for further data/information about that task group. The tasks, durations, and sequencing are subject to change to reflect each unit's contingency operations. The base case files are intended as a point of departure.

Base case files are provided to reflect both pier side off-loading and in-stream operations (off-loading at sea) for one to four ships off-loaded at one time. Off-loading two or three ships simultaneously is reflected in the same base case files, one for pier side and one for in-stream operations, since it is not necessary that the seventh ship be off-loaded to enable the brigade to be ready for combat. (See previous section on PREPO ships.) The following are the available base case files with a brief description of each.

File Name	Description
BAS1PRSD	1 ship off-loaded at a time (1 pier available) -- pier side off-load
BAS2PRSD	2 or 3 ships off-loaded simultaneously -- pier side off-load
BAS4PRSD	4 ships off-loaded simultaneously -- pier side off-load
BAS1INST	1 ship off-loaded at a time -- in-stream operations
BAS2INST	2 or 3 ships off-loaded simultaneously -- in-stream operations
BAS4INST	4 ships off-loaded simultaneously -- in-stream operations

Notes: Ensure ships as numbered in the tasks correspond to the earliest arriving ships at the SPOD. For example in BAS1PRSD and BAS1INST, tasks corresponding to ship 1 should be for the earliest arriving support/sustainment ship to the SPOD. Ship 3 tasks should correspond to the earliest arriving combat ship to the SPOD, ship 6 should be the latest arriving combat ship at the SPOD, etc. When ships are grouped together for tasks as in BAS2PRSD, BAS4PRSD, BAS2INST, and BAS4INST, ensure the sail time of the group of ships is the longest sail time of that group. For example in BAS4PRSD, the task time for the task PREPO SHIPS 1 AND 2 ENROUTE TO SPOD should reflect the longest sail time of those two ships. See appendix B for further instructions.

C-Day is defined for the base case files as: when the main body, advance party, OPP, and Transportation Group (Trans Grp) deploy from their homestation. Other assumptions used in the base case files are listed at appendix B.

Task Groups

The following are samples of the task group entries found in the base case files. A complete listing of the tasks found in the base case files and a data POC for each task are at appendix B):

50. SEABEE SHIPS SAIL. This task does not encompass any time; it is a snapshot in time. Seabee ships carry causeway systems. This task is only for in-stream operations.

60. COMMANDER MARITIME PREPO SQUADRON (COMPSON) TWO PREPARE PREPO SHIPS 1 AND 2 FOR SEA. This task group encompasses the tasks and corresponding times required to prepare the support/sustainment ships for sea (e.g., recalling the crews, charting a route, etc.).

70. OPP PREPARE EQUIPMENT TAT/NAP. This task group encompasses tasks and corresponding times required for a unit to prepare, verify, and load TAT/NAP.

Preparation of Input Information

As described in Chapter 1, Introduction, DSS will do all laborious calculations for your PREPO operations planning if you provide the task information. Unfortunately, the input information can be quite a chore in itself. The CPM used by DSS has its own rules and requirements. This section of the manual is dedicated to explaining these details.

No special skills or training are required to use DSS; however, familiarity with CPM or program evaluation and review technique (PERT) will greatly facilitate its use. Everything in CPM revolves around the task. There are three key pieces of information associated with each task. The first is a unique task ID label given to each task. The second key parameter is the time it takes to complete the task (referred to as task duration). The third item is the listing of immediate predecessor task(s). Every task has one or more tasks that must be accomplished before it can be started. The DSS is only concerned with task(s) which **directly precede**, not indirectly precede. In a project, the very first task(s) is often "start project" or "start deployment" and it does not depend on any other task. In CPM, the first task's immediate predecessor is itself.

To facilitate preparation, it is highly recommended that you sketch the task hierarchy as shown in figure 4. This network structure displays the tasks as lines with arrows (called arcs) and the start and finish with circles (called nodes).
Using the sketch, some clear examples of immediate predecessors can now be provided. Task 6a requires 5a to be completed before it can start, so 5a is its immediate predecessor. Task 12f has immediate predecessors of 8e and 7d.

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PREPO Task Hierarchy
Sample 1

6a   8e

5a   12f

7a   7d

7d   10c

Both arcs labeled 7d represent the same task.

For the input table, one of the 7d arcs must be relabeled (e.g., 7e).
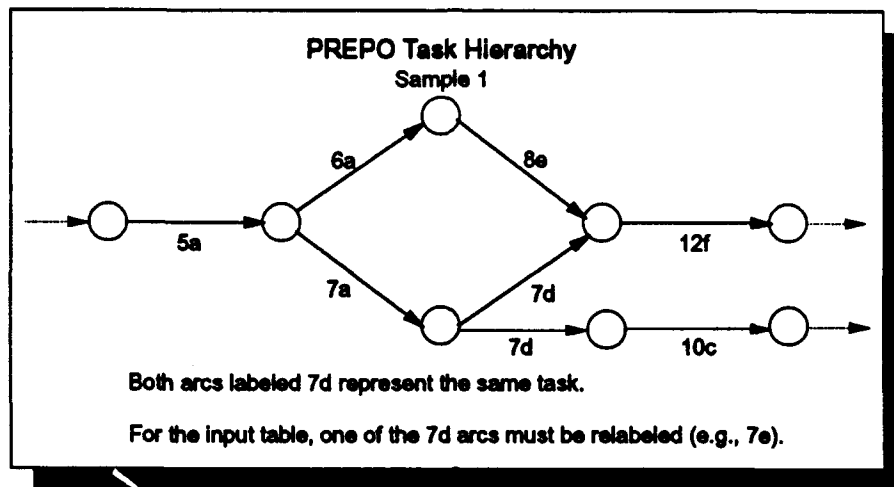
Figure 4. PREPO task hierarchy, sample 1

Hopefully, this representation of PREPO tasks seems straightforward and reasonable up to this point. There is an exception that must be handled properly. In the illustration, there are two arcs labeled as task 7d. This means that two different tasks (12f and 10c) **depend on the same task (7d).** This is not a problem for CPM. The problem arises when the group of immediate predecessors for the tasks (12f and 10c) are not identical. When this occurs, represent the extra use (7d) tasks as dummies or copies of the original and give them unique task IDs in order to get CPM to work correctly. In this example, you just need one copy and you could call it 7e.

In the base case files, the immediate predecessor situation described above occurred more than once. Those copies of the original task are labeled as "DSS use ..." in the base case files with additional description as appropriate.

Figure 5 shows task 7d dependent upon different tasks and, hence, connected in a different manner. CPM can handle this situation as is.

PREPO Task Hierarchy
Sample 2

6a   7d

5a   12f

7a   7d   8e

10c

Both arcs labeled 7d represent the same task.

For the input table, neither of the 7d arcs needs to be relabeled. Transfer the information, as is, to the input table.
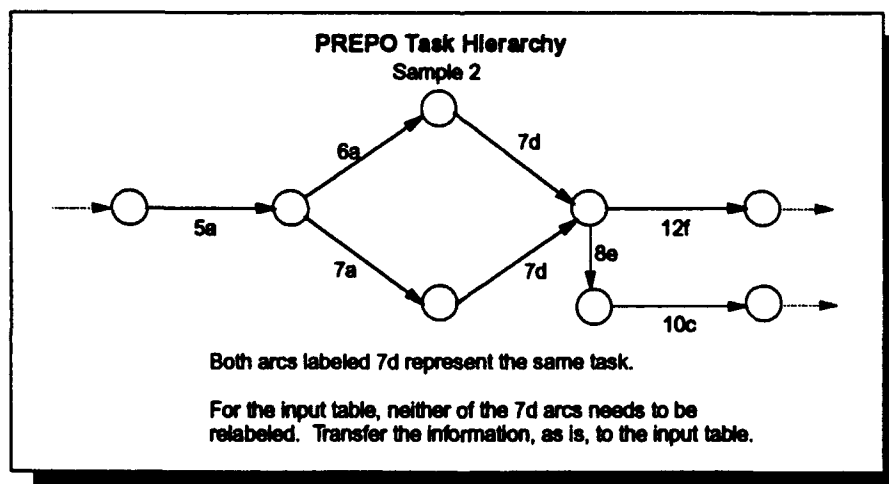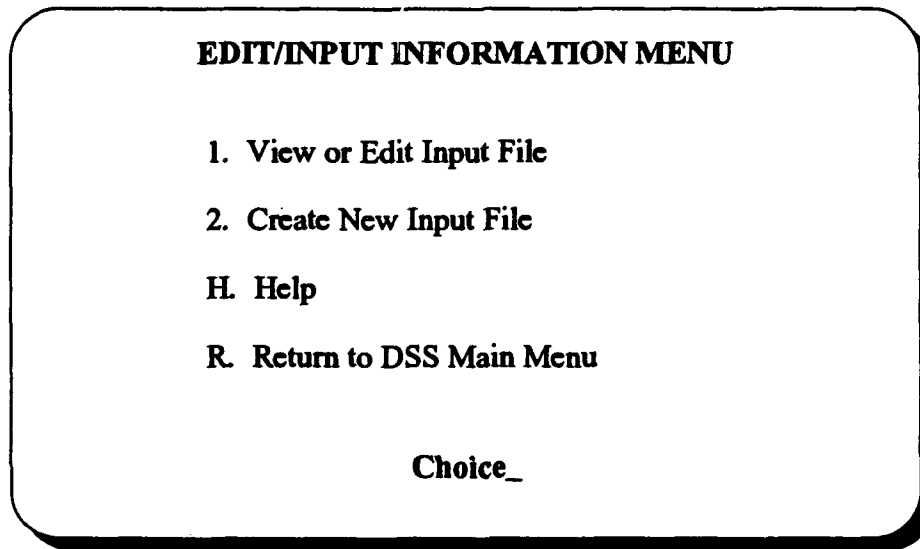
Figure 5. PREPO task hierarchy, sample 2

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4   Editing/Inputting Information

Overview

This chapter describes: 1) step-by-step instructions for using the EDIT/INPUT
INFORMATION MENU options and 2) rules to follow. The menu appears on the screen
as indicated in figure 6 below:

EDIT/INPUT INFORMATION MENU

1. View or Edit Input File

2. Create New Input File

H. Help

R. Return to DSS Main Menu

Choice_

Figure 6. Example of the edit/input information menu

Tip: It is STRONGLY RECOMMENDED that you use the base case
files as the basis for your input file. Change the tasks, duration, and/or
predecessors as required to adjust the file to your specific contingency
operation. It is easier to adjust the base case files than to create a file from
scratch.

View or Edit Input Information

1. Select *1   EDIT/INPUT INFORMATION MENU* from main menu choices.

2. Select *1   View or Edit Input Information.*

   DSS now displays the prompt "File Name   =>" with a listing of available files.
   Available input files are those that are located in the DSS subdirectory on the
   computer's hard disk. Descriptions of each base case input file are also provided.

3. Type a file name from the list of available files.

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Note: If the file is on a diskette, copy it into the DSS subdirectory to make it accessible to the DSS.

Input information is displayed on the screen in table format. The left most column of the table is the row number and is not to be confused with "TASK ID." The duration column is in hours and "PRED" indicates predecessor. Rules for predecessors are discussed later in this chapter.

In this mode, as shown in figure 7, you may get help, add, delete, edit, save, quit edit mode and return to previous menu, go back to previous table screen, or advance to next table screen as indicated by the menu at the bottom of the screen (note "Please choose ..." box is shown).

	TASK ID	DESCRIPTION	HRS DUR	PRED 1	PRED 2	PRED 3	PRED 4	PRED 5	PRED 6
1	1	UNITS RECEIVE ALERT NOTIFICATION							
2	1a	Units Receive Alert Notification	0	1a					
3	20	UNITS CONDUCTS RECALL OF UNIT							
4	20a	Units Conducts Recall of Unit	4	1a					
5	30	UNIT CONDUCTS SOLDIER READINESS PRO							
6	30a	Command Brief	1	20a					
7	30b	Pusher Unit Activity	5	1a					
...									
...									

H=help A=add D=delete E=edit S=save Q=quit edit
B=back one screen [enter]=next screen

Please choose H, A, D, E, S, B, or Q =>_

Figure 7. Example of input information table

Add row(s) of information

1. Press *A* for *add*, and the cursor will move to the very last row of the table.

   Note: DSS automatically sorts the rows in ascending order based on the "Task ID" when you save the input table. It doesn't matter what order you enter the rows. If you forgot a row and want to insert it, this is the correct mode to use.

2. Type value in the column and press **ENTER** when done with that column.

   Note: If you make a mistake and notice it before pressing **ENTER**, you can **BACKSPACE** and correct it. If you already pressed **ENTER**, you will have to fix the mistake in the edit mode.

3. Continue entering data and press **ENTER** to move to the next column and the next blank row.

4. When finished, position the cursor (using the **ENTER** key) at the beginning of the blank row and press **ENTER** one more time.

   The "Please choose ..." box is shown at the bottom of the screen.

Delete row(s) of information

1. Press *d delete.*

2. Type the row number and press **ENTER.**

Edit input table

To change individual values:

1. Press *E edit.*

2. Type row number which contains data needing change and press **ENTER**

   Note: DSS always starts on the left-most column "TASK ID." If you don't want to change that value, press **ENTER** and the cursor will move to the next column to the right. Repeat this procedure until you are on the column you want to edit.

3. Make desired changes by typing over the existing entry. *Do not use the* **SPACEBAR** *key as your first character entry in any of the columns. Use* **BACKSPACE** *if you need to go back and fix something within that column.*

   Note: If you need to remove an immediate predecessor without replacing it with another predecessor, you must delete the entire row of information. Then use the *A add* function to enter the entire row back in the table the way you want it.

4. Press **ENTER** when you are done editing the column.

5. Exit edit mode by moving the cursor to the last "immediate predecessor" column and press **ENTER**

   The "Please choose ..." box is shown at the bottom of screen.

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Save an input table

1. Press *s save.*

   A listing of input files and the prompt "File Name =>" appears.

2. Type file name.

   > **Note:** The name you provide must be according to DOS rules and must have a length of eight characters (no more, no less). (It will take approximately 15 seconds to save a large input table).

   If the file name already exists, DSS prompts you with "Do you wish to overwrite the file? [y/n]".

   If you press the *y* key, DSS overwrites the file. If you press the *n* key, the cursor moves back to the beginning of the "File Name =>" prompt. Input a different name.

   > **Notes:** You cannot overwrite a base case input file.

   > There is no automatic save feature in DSS for input information.

Quit input mode Press *Q quit edit.*

Create New Input File

1. Select *1 EDIT/INPUT INFORMATION MENU* from main menu choices.

2. Select *2 Create New Input File.*

   A blank table with headings is displayed. The cursor is in the left-most column (TASK ID) of the first row.

   > **Note:** The tasks do not have to be entered in Task ID order. DSS automatically sorts the rows in ascending order based on the "TASK ID" when you save the input table.

3. Type the value in the column and press **ENTER** when you are done with that column (cursor will move to next column). *Do not use the* **SPACEBAR** *in the first character entry in any of the columns.*

   > **Note:** If you make a mistake and notice it before pressing **ENTER** you can **BACKSPACE** and correct it. If you already pressed **ENTER**, you will have to fix the mistake in the edit mode.

Continue entering data and use **ENTER** to move to the next column and next blank row.

4. When finished, position the cursor (using **ENTER**) at the beginning of the blank row and press **ENTER** one more time.

    The "Please choose ..." box is shown at the bottom of the screen again.

    > **Tips:** Follow the input table rules listed in the edit section or on the help screen.

    > It is strongly recommended that you save your work periodically during the creation phase. A disruption in power to the computer or a program "glitch" before you save your work will result in the loss of everything you entered.

    > You may edit or delete parts of your work in this mode before saving by pressing *e edit* or *d delete*. Follow the instructions in the previous section of this manual.

5. Select *s Save* to save input table.

    Provide a name according to DOS rules with an eight character length (no more, no less).

    > **Notes:** It may take 10-15 seconds to save a large input table.

    > There is no automatic save feature in DSS so the table will be lost if not already saved.

6. Select *Q quit edit* to exit the input mode.

Rules for Editing or Creating an Input Table

Adhere to the following rules when editing or creating an input table:

<u>Assigning task ID</u> - Assign a number and letter combination to each task group and task in sequence according to task order. The number designation reflects the group to which a task belongs while the letter gives it a unique identity (maximum of three places for number and one for letter). Valid examples of task ID for task groups are "2", "18", and "999". Valid examples for tasks are "3c" and "109d". In the last example with respect to proper sequencing, task "3c" is performed earlier or at the same time as "109d". Invalid examples of task IDs are "3 c", "0", "3.c", "3-c", "2108", "1109d", and "109dd".

<u>Naming task description</u> - Limit task description to 35 characters, including spaces.

Task duration

- Round the length of time (hours) to complete the task to nearest whole hour (no fractions).

- Enter task duration between minimum value of 0 hours and maximum value of 999 hours. Duration is not needed for task groups.

Identifying Immediate Predecessor -

- Leave blank for task groups.

- Ensure the predecessors are a task(s) that *must* be accomplished immediately before the present one can begin.

- List them by task ID in ascending order. (Example, task 8a is preceded by 3f, 6b, and 7e.)

- No "short cuts" are allowed in this table; if the task requires all of a task group, you must list each task in that group separately ("70" is incorrect; "70a", "70b", and "70c" are correct).

- Ensure task ID of immediate predecessor is a lower number than the present task ID.

> **Note:** The input table allows for six predecessors. If the task has more than six, repeat all of the task data on the next row and input the remaining predecessors. Repeat this process until all of the immediate predecessors are entered for that task.
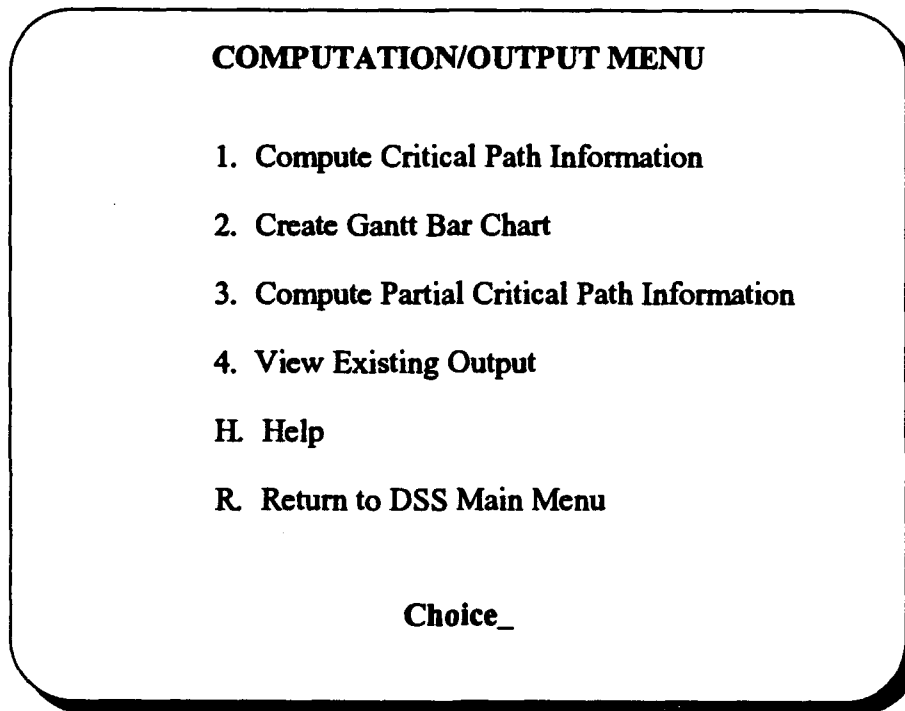
Entering first task - Label the very first task as "1a" and give it an immediate predecessor of itself (1a). If there is no task that fits this description, then use a description of "dummy starting task" with a duration of 0 hours. The only exceptions to this requirement are the standard input files included with DSS.

Entering last task - Ensure there is a dummy final task. DSS requires a dummy final task to ensure proper output. Choose any task ID which is in accordance with the rules. It is suggested that a task description of "dummy ending task" be used with a duration of 0 hours. The only exceptions are the base case input files included with DSS.

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5 Performing Computations or Viewing Existing Output

Overview

This chapter describes step-by-step instructions for using the COMPUTATION/ OUTPUT MENU options. The menu appears on the screen as indicated in figure 8 below:

```
┌─────────────────────────────────────────────┐
│          COMPUTATION/OUTPUT MENU            │
│                                             │
│                                             │
│     1. Compute Critical Path Information    │
│                                             │
│     2. Create Gantt Bar Chart               │
│                                             │
│     3. Compute Partial Critical Path Information │
│                                             │
│     4. View Existing Output                 │
│                                             │
│     H. Help                                 │
│                                             │
│     R. Return to DSS Main Menu              │
│                                             │
│                                             │
│                 Choice_                     │
│                                             │
└─────────────────────────────────────────────┘
```

Figure 8. Example of computation/output menu

Compute Critical Path Information

1. Select *2 COMPUTATION/OUTPUT MENU* from main menu.

2. Select *1 Compute Critical Path Information.*

   The prompt "File Name =>" now appears with available files listed below.

3. Type the file name and press ENTER.

   Note: If there is an error in calculations, an error message will appear at the bottom of the screen. An error in calculations is normally caused by a

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problem(s) with the input information. See chapter 7 for assistance in fixing input errors.

The output is displayed in a table format with instructions listed at the bottom. You may move up and down the table using arrow keys and **PAGE DOWN, PAGE UP** keys.

4. When finished looking at the output information, press **F10**.

    DSS now displays the prompt "Do you want to print the output file now? [y/n]."

    Note: DSS assumes the output is being printed from LPT1.

5. Type "y" or "n" (either choice returns you back to the *COMPUTATION/OUTPUT MENU*).

    DSS automatically saves the output information using the same eight-character name as the input table name (with a ".cpm" extension).

Create Gantt Bar Chart

1. Select *2 COMPUTATION/OUPUT MENU* from main menu.

2. Select *2 Create Gantt Bar Chart*.

    The prompt "File Name =>" now appears with available files listed below.

3. Type the file name and press **ENTER.**

    While the output is displayed, move up and down the chart by using arrow keys and **PAGE DOWN** and **PAGE UP**.

4. Press **F10** to quit.

    DSS now displays the prompt "Do you want to print the output file now? [y/n]."

5. Type "y" or "n" (Either choice returns you to the *COMPUTATION/OUTPUT MENU*.)

Compute Partial Critical Path Information

This function allows you to calculate critical path information for a portion of the PREPO operations. The DSS only works if you select starting and ending tasks that have closed connections within the PREPO operations (i.e., tasks must be along the same path

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with no other tasks feeding into that path). If you had training on and remember CPM planning techniques, then this should be easy to understand.

> **Note:** Sketching out a network representation of the piece of the PREPO operations you wish to study is highly recommended.

Shown in figure 9 is an illustration of a section of a flow chart of tasks. The following are examples of good and bad partial critical path analyses:

Good: Start task of 5a and end task of 12f.

Good: Start task of 5a and end task of 8e.

Good: Start task of 5a and end task of 7d.

Bad: Start task of 7a and end task of 12f. (Bad because 12f has other input tasks.)

Bad: Start task of 6a and end task of 12f. (Bad because 12f has other input tasks.)
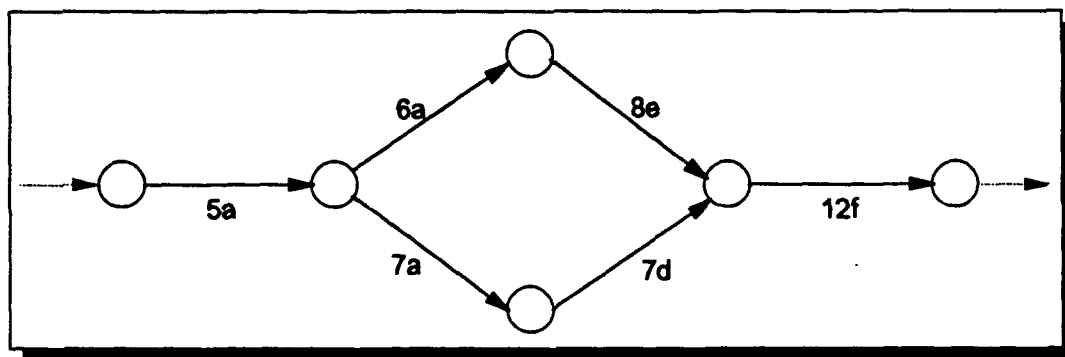
Figure 9. Example section of PREPO task flow

1. Select **2**   *COMPUTATION/OUTPUT MENU* from main menu.

2. Select **3**   *Compute Partial Critical Path Information.*

   The prompt "File Name =>" now appears with available files listed below.

3. Type in the file name and press **ENTER.**

4. Enter the starting and ending tasks at the prompt.

   If there is an error in calculations, an error message will appear at the bottom of the screen, "path points do not have closed connections" and "check input data file for proper path points". An error in calculations is normally caused by a problem(s) with the input information. See chapter 7 for assistance in fixing input errors.

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The output is displayed in a table format with instructions listed at the bottom. You may move up and down the table using arrow keys and **PAGE DOWN** and **PAGE UP**.

5. When finished looking at the output information, press **F10**.

   DSS now displays the prompt "Do you want to print the output file now? [y/n]."

6. Type "y" or "n" (either choice returns you to the *COMPUTATION/OUTPUT MENU*).

   DSS automatically saves the output information using the same eight-character name as the input table (with the .tgc extension).

View Existing Output

1. Select *2   COMPUTATION/OUTPUT MENU* from main menu.

2. Select *4   View Existing Output*.

   This action will bring up the *OUTPUT FILES MENU* with the following choices.

   > *Critical Path Info Files*
   > *Gantt Bar Chart Files*
   > *Partial Critical Path Files*

   For each choice, the prompt "File Name =>" will appear with a listing of the appropriate available files.

   > **Note:** You must compute the file firs before you can view the output or later print it. Merely saving a file from the input information mode does not create an output file to view or print.

3. Type file name and press **ENTER**.

   While the output is displayed, you may move up and down the table using arrow keys and **PAGE DOWN** and **PAGE UP**. For the Gantt bar chart, you can use the arrow keys to go left or right.

4. Select *R   Return to DSS Main Menu* to exit computation/output mode.

6 Printing

Overview

This chapter describes step-by-step instructions for using PRINT MENU options. The chapter is divided into two sections, one for using the print options for input information and one for printing output information. The menu appears on the screen as indicated in figure 10 below.

PRINT MENU

1. Critical Path Information

2. Gantt Bar Chart

3. Partial Critical Path Info

4. Input Information Table

5. Input Info by Task Group

6. Input Information Worksheet

7. View Existing Output

8. Configure Printer

R. Return to DSS Main Menu

Figure 10. Example of print menu

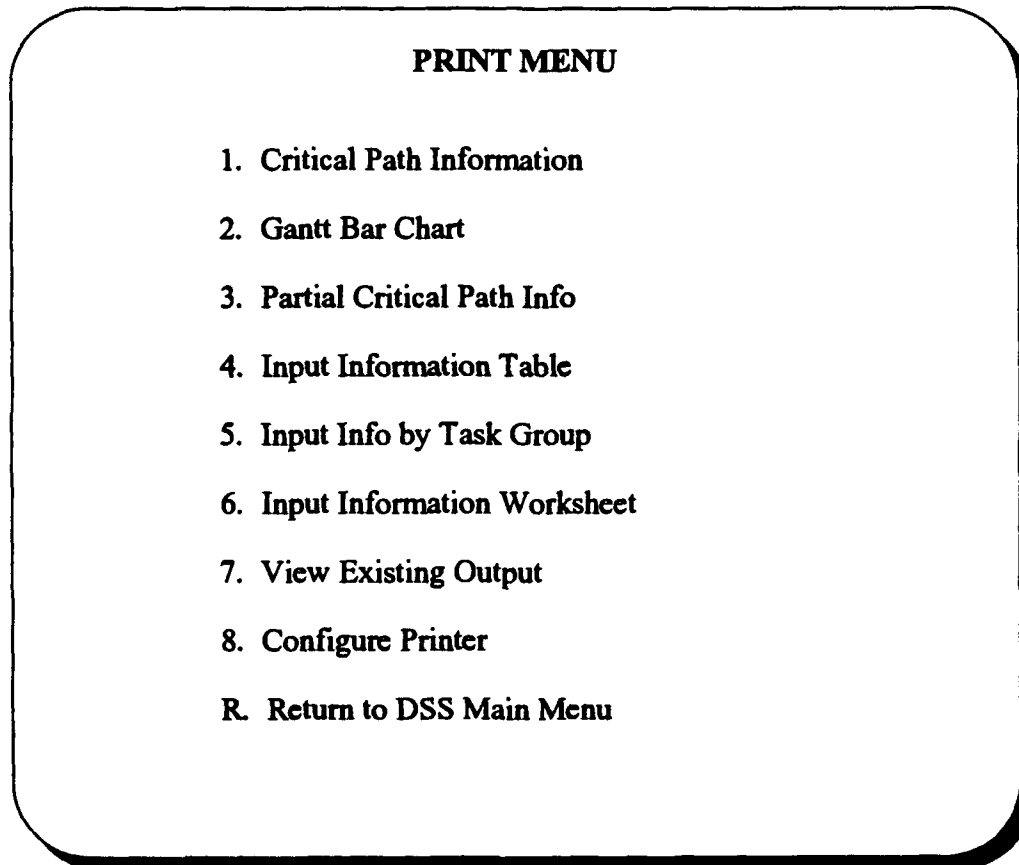## Configure Printer

You have the option to print the information (input or output) on either LPT1, LPT2, or LPT3. You can select which printer port to which your computer is connected. The default is LPT1. This means that when you print, the software assumes the printer is connected to LPT1. To change the printer configuration, perform the following:

1. Select 3 *PRINT MENU* from the main menu.

2. Select 8 *Configure Printer.*

3. Type printer port <LPT1, LPT2, or LPT3> to which your computer is connected and press **ENTER.**

A message will appear on the screen indicating the printer port selected.

4. You must now exit the DSS and soft boot (press **CTRL+ALT+DEL**) your computer for the printer port to be recognized by your computer.

5. Enter the DSS again and proceed.

Once you have set the printer configuration, it does not need to be set again unless you wish to change it. Then, you must follow the preceding commands again. If you are unsure what the DSS acknowledges as the printer port, then enter the "Configure Printer" option and the port number will be displayed.

> **Note:** Printers connected to a local area network (LAN) can not be used to print from this DSS.

Input Information

You have the option of printing the input information in two formats. One format consists of a complete and continuous listing with one task group (and its tasks) after another and no break between task groupings. The other available format prints only the task groups (with tasks) that you select. This option prints one task group with its tasks per page. You may also print a blank input table to use as a worksheet.

1. Select *3 PRINT MENU* from the main menu.

2. Select *4 Input Information Table* for the whole continuous input listing.

   The prompt "File name   =>" will appear with a listing of the available input files.

3. Type file name and press **ENTER.**

4. Select *5 Input Info by Task Group* for input by task groups.

   The prompt "File name   =>" will appear with a listing of the available input files.

5. Type file name and press **ENTER.**

6. Type the task groups to be printed.

7. Select *6 Input Info Worksheet* for an input worksheet.

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8. Select *R   Return to DSS Main Menu* to exit this mode.

Output Information

You must develop an output file (using the *COMPUTATION/OUTPUT MENU* options) before you can view or print the output. Merely saving a file from the input information mode does not create an output file to view or print.

1. Select *3   PRINT MENU* from the main menu.

2. Select *1   Critical Path Information* for critical path information.

    The prompt "File Name   =>" will appear with a listing of the available output files.

3. Type file name and press **ENTER.**

    Note: The duration along the critical path will be output in days and hours from the start of activities. You must adjust this duration to reflect C-time by subtracting the earliest or latest start time for C-Day from the total duration. Remember, C-Day for the base case files is defined as: when the main body, advance party, OPP, and Trans Grp deploy from their homestation.

4. Select *2   Gantt Bar Chart* for a Gantt bar chart printout.

    Tip: If connected to a laser printer, switch to landscape mode for printing the Gantt chart; otherwise, the text will wrap on the page. For all other printers, switch to condensed font to prevent text wrap.

    The prompt "File Name   =>" will appear with a listing of the available chart files.

5. Type file name and press **ENTER.**

6. Select *7   View Existing Output* for viewing output before printing it.

    This action will bring up the OUTPUT FILES MENU.

    For each choice, the prompt "File Name   =>" will appear with the appropriate available output listed below.

7. Type file name and press **ENTER.**

8. Select *R   Return to DSS Main Menu* to exit the print mode.

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7 Troubleshooting

General Guidance

There are basically two separate areas where problems will occur while using DSS. The first is with the computer program itself. The second area is with understanding the PREPO operations planning and scheduling information.

First it is assumed the user has basic microcomputer (IBM-compatible PC) skills. Using keys like **ESC, TAB**, etc., which were not specified for use in DSS, could be a common source of trouble. If you do this while in the edit mode of the input information, you may be able to recover by pressing **ENTER**, maybe several times.

For scheduling the deployment, it is assumed that you can determine the proper hierarchy of tasks in the PREPO operations (sequence, dependence upon other tasks). It is likely that the project most likely to be troublesome is one that you create on your own. The arc and node sketch representation shown in chapter 3 is the best way to create and troubleshoot the input data.

Error Messages

The following are some common error messages and the explanation to their cause.

"characters not allowed, valid entries are 0 ... 999 -"

[DSS requires an integer value in the range 0 to 999.]

"file name must have eight characters -"

[The file name must follow DOS rules and be eight characters in length. No extension is permitted.]

"format is 999a -"

[A one-to-three digit integer is required. The only option is the use of a letter, "a - z", immediately after the number (for tasks).]

"valid choices are 1, 2, 3, ... -"

[You must press one of the keys listed.]

"you MUST enter a description -"

[As a minimum, enter one character in this column to meet the requirement. Note that in the base cases, the task description is not repeated for tasks that have more than six immediate predecessors the task description is not repeated. The letter "c" was placed in the description column.]

"you must enter at least one predecessor -"

[At least one immediate predecessor is required for each task.]

"you must put in a number, 0 ... 999 -"

[An integer value is required in the range 0 to 999.]

"path points do not have closed connections", "check input data file for proper path points"

[You must select starting and ending tasks along the same path. No other tasks can feed into that path. Return to the input data file and determine which tasks meet these criteria. There are very few instances using the base case files where a partial critical path can be computed.]

APPENDIX A

JOINT WORKING GROUP (JWG) Members

Name	Agency	DSN
Allen, Ken	Military Sealift Command	288-0102
Berkley, LTC Robert	HQ TRADOC	680-4143
Callender, LTC Scott	HQ TRADOC	680-3911
Caroe, CPT Dale	Military Traffic Management Command - Transportation Engineering Agency (MTMC-TEA)	927-5268
Conners, LTC Gerald	HQ TRADOC	680-5855
Cooke, Jack	HQ Forces Command (FORSCOM)	367-6151
Craig, CW3 Tom	U.S. Army Ordnance, Missile & Munitions Center & School (USAOMMCS)	788-2865
Cress, James	USAOMMCS	865-6537
Dallas, COL Michael	HQ TRADOC	680-2620
Dooley, Michael	HHC 24th Infantry Division (G3 Operations)	870-5519
Fraley, CPT Doug	HHC 7th Transportation Group	927-5416
Hamilton, Jessie	U.S. Army Transportation School (USATSCH)	927-2039
Hogg, MAJ David	HQ 1st Cavalry Division (G3 Plans)	727-9345
Holland, MAJ Lee	HQ TRADOC	680-3267
Hommer, CPT Dean	HQ TRADOC	680-3912
Itao, MAJ Peter	TRAC-SAC	552-5418
Ledebuh, Charles	USATSCH	627-6178
Mayton, Ellis	Logistics Support Agency	779-6518
Peterson, MSG Robert	U.S. Army Military Police School	865-3397
Purdue, CPT Tim	HQ U.S. Army Armor Center (USAARMC)	464-3831
Ritter, James	HQ TRADOC	680-5594
Rodgers, LTC Robert	HQ TRADOC	680-3883
Rosewarne, LTC John	Marine Liaison Office	680-2542
Rush, MAJ Robert	HQ Central Command (USCENTCOM)	968-6670
Schmiel, Walt	HQ Depot Systems Command (DESCOM)	570-9936
Sova, Jim	HQ TRADOC	680-3005
Stewart, Jeb	U.S. Army Engineer School	676-7881
Sullivan, CPT Tim	U.S. Army Aviation Logistics School (USAALS)	927-6861
Swezy, Lynn	TRAC-SAC	552-5418
Troutman, LTC Carrick	HQ TRADOC	680-3439
Weiss, Jim	Logistics Management Institute (LMI)	287-2779

APPENDIX B

Task Group Descriptions and Data POC

General Information

The tasks, duration, and precedence of tasks contained in the standard data file were determined and collected from a JWG hosted by the EELS BL at Fort Monroe, VA. This information is provided to assist in planning by providing a trouble-free input base from which to work. Users of this tool will have to determine whether tasks and corresponding durations need to be added, deleted, or changed to fit their specific contingency needs.

Below are the assumptions made in the base case data files.

Assumptions

C-Day is defined as: when the main body, advance party, OPP, and Trans Grp deploy from their homestation.

The entire brigade consists of two mechanized (MX) and two armored battalions with brigade combat support and combat service support elements (direct support field artillery, engineer, signal, military intelligence (MI), etc.). The brigade is trained and prepared to fight as a four-battalion brigade.

The OPP links up with the PREPO ships prior to sailing.

Ship steam time is six days from Diego Garcia for the combat ships and twelve days from Saipan for the support/sustainment ships to a Southwest Asia port. (The support/sustainment ships will eventually be stationed at Thailand with a ship steam time of seven to ten days.)

There is a sea state of "1" (calm, glassy surface). (Sea states of "3" or higher stop all in-stream/offshore operations.)

For in-stream operations, the ships will anchor two miles from the port.

Host-nation support supplies in-land transportation.

There is an adequate number and capacity of cranes to off-load PREPO ships.

One terminal service company (TSC) can off-load one ship at a time.

Troop transportation will be available at sea and air ports of debarkation (PODs).

Seabee ships transport prototype causeway systems (used to conduct in-stream operations) to area of operations. Prototype causeway systems are currently located at Fort Eustis, VA.

The host nation provides tugboats.

There is a benign threat at the POD. The POD, marshalling area (MA), and TAA are secured by light or airborne forces.

All classes of supply are issued by battalion as part of MA operations.

Ships and host-nation support provide adequate fuel to start combat operations. The CINC does not await additional sustainment ships.

Task Groups

Tasks are organized into task groups according to who performs the task or because the tasks are of a similar type. Each task group has a unique description and an identification number (e.g., 70 OPP PREPARE EQUIPMENT TAT/NAP). The tasks that are associated with a task group bear the same identification number followed by a letter (e.g., 70d Load Trucks at Unit Area).

Below are the task group descriptions (ordered by task ID) corresponding to base case files (BAS2PRSD and BAS2INST). The task group descriptions reflect two or three piers for both pier side off-loading and in-stream operations. References are made to additional tasks (off-loading, port clearance, and MA operations) contained in other base case data files reflecting one and four piers. The files are the same for two and three piers because it is not necessary that the seventh ship be off-loaded to enable the brigade to be combat-ready. Also indicated for each task group is a POC for further data/information.

1. **UNITS RECEIVE ALERT NOTIFICATION.** This task does not encompass any time. It is just a start point of the PREPO operations.

20. **UNIT CONDUCTS RECALL OF UNIT.** This task group encompasses the tasks and corresponding times required to recall and assemble all the members of a unit. [These tasks and times are determined and entered into the DSS by the unit.]

30. **UNIT CONDUCTS SOLDIER READINESS PROCESSING.** This task group encompasses the tasks and corresponding times required to complete homestation activities prior to deployment (e.g., loading baggage, drawing weapons, drawing class 1, family briefs, etc.). [These tasks and times are determined and entered into the DSS by the unit.]

40. **TRANS GRP UPLOAD CAUSEWAY SYSTEMS.** Causeway systems are used to off-load in-stream and, therefore, this task is only performed for in-stream operations. The elements of the Trans Grp that perform this task are not the same soldiers that

deploy and conduct later tasks, such as off-loading the ships. [Data provided by HHC, 7th Transportation Group; CPT Doug Fraley at Ft. Eustis, VA; DSN: 927-5416, COMM: (804) 878-5416/5574.]

50. **SEABEE SHIPS SAIL.** This task does not encompass any time. It is merely a snapshot in time -- a milestone. The Seabee ships carry the causeway systems; therefore, this task is only for in-stream operations.

60. **COMMANDER MARITIME PREPO SQUADRON (COMPSON) TWO PREPARE PREPO SHIPS FOR SEA.** This task group encompasses the tasks and corresponding times required to prepare the ships for sea (e.g., recalling the crews, charting a route, etc.). [Data provided by MSC, Ken Allen at Washington Navy Yard, Bldg 210, 901 M Street SE, Washington, D.C. 20398; DSN: 288-0102, COMM: (202) 433-0102.]

70. **OPP PREPARE EQUIPMENT TAT/NAP.** This task group encompasses the tasks and corresponding times required for a unit to prepare, verify, and load TAT/NAP. [These tasks and times are determined and entered into the DSS by the unit.]

80. **OPP CONDUCT WEIGHT/JOINT INVENTORY (JI) INSPECTION.** This task group encompasses the tasks and corresponding times required for a unit to weigh and conduct inventories of its TAT/NAP. Tasks may also include maintenance and cleaning of equipment, as required. [These tasks and times are determined and entered into the DSS by the unit.]

90. **ADVANCE PARTY PREPARE TAT/NAP.** This task group encompasses the tasks and corresponding times required for a unit to prepare, verify, and load TAT/NAP. [These tasks and times are determined and entered into the DSS by the unit.]

100. **ADVANCE PARTY CONDUCT WEIGHT/JI INSPECTION.** This task group encompasses the tasks and corresponding times required for a unit to weigh and conduct inventories of its TAT/NAP. Tasks may also include maintenance and cleaning of equipment, as required. [These tasks and times are determined and entered into the DSS by the unit.]

110. **TRANS GRP PREPARE TAT/NAP.** This task group encompasses the tasks and corresponding times required for a unit to prepare, verify, and load TAT/NAP. [These tasks and times may be determined and entered into the DSS by the unit or data may be provided by HHC, 7th Transportation Group; CPT Doug Fraley at Ft. Eustis, VA; DSN: 927-5416, COMM: (804) 878-5416/5574.]

120. **TRANS GRP CONDUCT WEIGHT/JI INSPECTION.** This task group encompasses the tasks and corresponding times required for a unit to weigh and conduct inventories of its TAT/NAP. Tasks may also include maintenance and cleaning of equipment, as required. [These tasks and times may be determined and entered into the DSS by the unit or data may be provided by HHC, 7th Transportation

130. MAIN BODY PREPARE TAT/NAP. This task group encompasses the tasks and corresponding times required for a unit to weigh and conduct inventories of its TAT/NAP. Tasks may also include maintenance and cleaning of equipment, as required. [These tasks and times are determined and entered into the DSS by the unit.]

140. MAIN BODY CONDUCT WEIGHT/JI INSPECTION. This task group encompasses the tasks and corresponding times required for a unit to weigh and conduct inventories of its TAT/NAP. Tasks may also include maintenance and cleaning of equipment, as required. [These tasks and times are determined and entered into the DSS by the unit.]

150. C-DAY. For the standard data file, this is defined as the point in time when the OPP, transportation group, advance party, and main body depart their homestation for the APOE. C-Day is defined by the CINC. If C-Day is defined differently, the predecessor tasks will have to be changed. Also, the tasks which use the C-Day task as a predecessor will have to be changed. [This task grouping assists the user in selecting duration times between C-Day and other events occurring after C-Day.]

160. OPP TRAVELS TO APOE. This is travel time from the unit's homestation to the APOE. [This time is determined and entered into the DSS by the unit.]

190. OPP VERIFY WEIGHT/JI INSPECTION. This task group encompasses the tasks and corresponding times required for a unit and an Air Force loadmaster to verify the weight of and load TAT/NAP. This task grouping may also include the rebuilding of pallets, cleaning of vehicles, and maintenance, as required. [These tasks and times are determined and entered into the DSS by the unit.]

200. OPP TRAVELS FROM APOE TO APOD. This is air travel time from the APOE to the APOD at Diego Garcia where the PREPO ships are docked. The duration for this task is based on the distance from a unit's APOE to Diego Garcia. The duration should encompass any waiting time at the APOE. [This time is determined and entered into the DSS by the unit.]

230. OPP BOARDS PREPO SHIPS. This task group encompasses the tasks and corresponding times to off-load the aircraft at the APOD, go through customs, and transfer and load OPP gear onto the ship. There is one task for each group of ships. [These tasks and times are determined and entered into the DSS by the unit.]

240. PREPO SHIPS ENROUTE TO SPOD. This task grouping includes tasks that are conducted by the OPP while the ships are sailing (e.g. installing vehicle batteries, maintenance, etc.). Each subtask is given a duration time equivalent to the ship's sailing time. There is one task for each group of PREPO ships (e.g., if the base case used is for 1 pier, then there will be eight tasks). Ensure ship 1 is the earliest arriving ship of the support/sustainment ships (ships 1 and 2). Ensure the combat ships (ships

3-6) are indicated by the earliest arriving ship to the SPOD (e.g., ship 3 should be the earliest arriving, ship 4 the next earliest arriving, etc.). BAS2PRSD, BAS2INST, BAS4PRSD, and BAS4INST have this task split into ship groups (i.e., ships 1 and 2). Ensure the sail time for the group of ships in these base case files corresponds to the longest sail time of ships in that group. Ship 7 is not required for off-loading to enable the brigade combat-ready given the assumption of host-nation support for in-land transportation. [Data determined and entered into the DSS by the unit. Sail time data provided by MTMC-TEA, 720 Thimble Shoals Blvd, Suite 130, Newport News, VA, 23606; DSN: 927-5268, COMM: (804) 599-1103.]

250. ADVANCE PARTY TRAVELS TO APOE. This is travel time from a unit's homestation to the APOE. [This time is determined and entered into the DSS by the unit.]

280. ADVANCE PARTY VERIFY WEIGHT/JI INSPECTION. This task group encompasses the tasks and corresponding times required for a unit and an Air Force loadmaster to verify the weight of and load TAT/NAP. This task grouping may also include the rebuilding of pallets, cleaning of vehicles, and maintenance, as required. [These tasks and times are determined and entered into the DSS by the unit.]

290. ADVANCE PARTY TRAVELS FROM APOE TO SPOD. This is air travel time from the APOE to the APOD in the theater of operations. The duration for this task is based on the distance from a unit's APOE to their final destination (SPOD). This task should encompass any waiting time at the APOE. [This time is determined and entered into the DSS by the unit.]

320. TRANS GRP TRAVELS TO APOE. This is travel time from the unit's homestation to the APOE. [This time may be determined and entered into the DSS by the unit or data may be provided by HHC, 7th Transportation Group; CPT Doug Fraley at Ft. Eustis, VA; DSN: 927-5416, COMM: (804) 878-5416/5574.]

350. TRANS GRP VERIFY WEIGHT/JI INSPECTION. This task group encompasses the tasks and corresponding times required for a unit and an Air Force loadmaster to verify the weight of and load TAT/NAP. This task grouping may also include the rebuilding of pallets, cleaning of vehicles,and maintenance, as required. [These tasks and times may be determined and entered into the DSS by the unit or data may be provided by HHC, 7th Transportation Group; CPT Doug Fraley at Ft. Eustis, VA; DSN: 927-5416, COMM: (804) 878-5416/5574.]

360. TRANS GRP TRAVELS FROM APOE TO SPOD. This is the travel time from the APOE to the APOD and on to the SPOD. The duration time for this task is determined based on the distance from a unit's APOE and the final destination. This task should encompass any waiting time at the APOE. [This time may be determined and entered into the DSS by the unit or data may be provided by HHC, 7th Transportation Group; CPT Doug Fraley at Ft. Eustis, VA; DSN: 927-5416, COMM: (804) 878-5416/5574.]

390. MAIN BODY TRAVELS TO APOE. This is travel time from a unit's homestation to the APOE. This time should encompass the time from the departure of the first element to the arrival of the last element. [This time is determined and entered into the DSS by the unit.]

420. MAIN BODY VERIFY WEIGHT/JI INSPECTION. This task group encompasses the tasks and corresponding times required for a unit and an Air Force load master to verify the weight of and load TAT/NAP. This task grouping may also include the rebuilding of pallets, cleaning of vehicles, and maintenance, as required. [These tasks and times are determined and entered into the DSS by the unit.]

430. MAIN BODY TRAVELS FROM APOE TO APOD. This is the travel time from the APOE to the APOD and on to the unit staging area in the area of operations. The duration time for this task is determined based on the distance from a unit's APOE to its final destination. This task should encompass any waiting time at the APOE. [This time is determined and entered into the DSS by the unit.]

460. TRANS GRP ESTABLISH STAGING AREAS (SAs). Most of the tasks in this grouping are ongoing until SAs are established. [Data provided by HHC, 7th Transportation Group; CPT Doug Fraley at Ft. Eustis, VA; DSN: 927-5416, COMM: (804) 878-5416/5574.]

470. ADVANCE PARTY COORDINATE SA. This task group encompasses the tasks and corresponding times required for the advance party to coordinate with the Trans Grp for port SA locations. It also encompasses the tasks and corresponding times required for them to establish unit SA in the marshaling area. [These tasks and times are determined and entered into the DSS by the unit.]

480. PREPO SHIPS ARRIVE AT SPOD. This task is just a snapshot in time -- a milestone.

490. TRANS GRP BEGINS OFF-LOAD OPERATIONS. The Trans Grp conducts the tasks in this task grouping. These tasks are generally ongoing until port clearance operations are complete. [Data provided by HHC, 7th Transportation Group; CPT Doug Fraley at Ft. Eustis, VA; DSN: 927-5416, COMM: (804) 878-5416/5574.]

500. SEABEE SHIPS ARRIVE. This task is a milestone for in-stream operations only.

510. TRANS GRP OFF-LOADS LIGHTERAGE FROM HEAVY LIFT PREPOSITIONING SHIP (HLPS). Tasks in this task grouping entail off-loading the ninth ship which contains lighters, causeway systems, tugboats, etc. This task is necessary if conducting in-stream operations. For pier side off-loading, this task is not required. [Data provided by HHC, 7th Transportation Group; CPT Doug Fraley at Ft. Eustis, VA; DSN: 927-5416, COMM: (804) 878-5416/5574.]

520. TRANS GRP OFF-LOAD AND ASSEMBLE CAUSEWAY SYSTEMS. This task is for in-stream operations only. The causeway systems are carried on the

Seabee ships. [Data provided by HHC, 7th Transportation Group; CPT Doug Fraley at Ft. Eustis, VA; DSN: 927-5416, COMM: (804) 878-5416/5574.]

530. TRANS GRP/OPP CONDUCT SHIP MEETING. This task encompasses the "marrying up" of the military representatives off-loading the ships (terminal service companies) with the ship's crew. There is one ship meeting for each arriving group of ships. [Data provided by HHC, 7th Transportation Group; CPT Doug Fraley at Ft. Eustis, VA; DSN: 927-5416, COMM: (804) 878-5416/5574.]

540. TRANS GRP/OPP BERTH/OFF-LOAD FIRST AND SECOND SHIPS. This task encompasses off-loading the first two ships simultaneously (the support and sustainment ships carrying off-loading equipment). It assumes that there are two or three piers capable of handling the ships (for pier side off-loading); sea state permits off-loading; there are sufficient cranes and off-loading equipment; and that there are at least two terminal service companies. For in-stream operations, the standard data file assumes the ships are anchored two miles offshore and that causeway systems are used to construct the piers. The duration for this task will need to be changed if any of these assumptions are not valid. Additionally, if the number of available piers is other than two or three, then separate tasks should be created to reflect the off-loading process for each set of ships off-loaded simultaneously. This has been done in the other files representing one and four piers. (For instance, if only one pier is available, then there should be six tasks for the off-loading, one for each ship off-loaded at a time.) The seventh ship is not required to be off-loaded to enable the brigade to be combat ready. It contains additional resupply. If four piers and four terminal service companies are available, then there should be two tasks for off-loading -- one task for berthing/off-loading the first and second ships (remember they must be off-loaded first to provide equipment to off-load the other ships) and one task for berthing/off-loading the third, fourth, fifth, and sixth ships. This construction of tasks is contained in the data file representing four piers. When the current PREPO ships are replaced with new ships (FY96 - FY02), then the berthing/off-loading task for the first and second ships can be discarded since the off-loading equipment will be located on the maneuver ships. The new ships will not require additional off-loading time (even though more equipment will be located on them) because they will have additional cranes and roll-on/roll-off ramps. [Data for this task grouping may be provided by HHC, 7th Trans Grp.]

550. TRANS GRP/OPP BERTH/OFF-LOAD THIRD AND FOURTH SHIPS. The third and fourth ships referred to in the standard data file are two of the four maneuver ships. For further explanation of this task, see task 540.

560. TRANS GRP/OPP/ADVANCE PARTY CONDUCT PORT CLEARANCE FOR THIRD AND FOURTH SHIPS. The tasks in this task grouping are ongoing from the time the first piece of equipment from these ships is off-loaded until all equipment from these ships has been cleared from the port. The duration time for this task *must always* be longer than the off-loading time for the ships. There is no port clearance task for the first and second ships because those ships contain off-loading equipment which is utilized, not cleared from the port. There should be a

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port clearance task for each berthing/off-loading task with the exception of the first two ships. [Data for this task grouping may be provided by HHC, 7th Trans Grp.]

570. TRANS GRP/OPP BERTH/OFF-LOAD FIFTH, SIXTH, AND SEVENTH SHIPS. The fifth and sixth ships are the remaining two maneuver ships and the seventh is another support/sustainment ship carrying additional resupplies for the PREPO brigade. The seventh ship doesn't have to be off-loaded for the unit to conduct MA operations given the assumption of host-nation support for in-land transportation. The data files for one and four piers does not include the time to off-load the seventh ship. For further explanation of this task, see task 540.

580. TRANS GRP/OPP/ADVANCE PARTY CONDUCT PORT CLEARANCE FOR FIFTH, SIXTH, AND SEVENTH SHIPS. See explanation for task 560.

590. UNIT CONDUCTS MA OPERATIONS FOR FIRST TWO ELEMENTS. This task grouping encompasses the tasks and corresponding times required to prepare the first two units off-loaded for combat (e.g., issuing of supplies, drawing ammunition, test firing weapons, etc.). This task grouping is conducted in the MA at a unit staging area. There should be a task grouping, conduct MA operations, for each set of maneuver ships off-loaded simultaneously. For instance, if only one ship is off-loaded at a time, then there would be four port clearance tasks just for the four maneuver ships. Since MA operations commence for each element as the equipment has cleared the port, then there should be four "UNIT CONDUCTS MA OPERATIONS" tasks, one task for each element. This construction of tasks is contained in the data files (one data file for pier side and the other for in-stream operations) representing one pier.

600. UNIT CONDUCTS MA OPERATIONS FOR LAST TWO ELEMENTS. See explanation of task 590.

610. FIRST TWO ELEMENTS MOVE TO TAA. This task encompasses the travel time from the SAs to the TAA. The task duration time should be changed to reflect each contingency. There should be the same number of these tasks as there are for "UNIT CONDUCTS MA OPERATIONS". Each element will move out for the TAA after they have finished MA operations.

620. LAST TWO ELEMENTS MOVE TO TAA. See explanation of task 610.

630. BRIGADE READY FOR COMBAT. This task does not encompass any time. It is merely an end point of the PREPO operations.

APPENDIX C

Glossary

APOD	aerial port of debarkation
APOE	aerial port of embarkation
C-Day	contingency day
CINC	commander-in-chief
COMPSRON	Commander Maritime PREPO Squadron
CPM	critical path method
DESCOM	Depot Systems Command
DSS	decision support system
DUR	duration
EELS BL	Early Entry Lethality and Survivabilty Battle Laboratory
FORSCOM	Forces Command
FM	Field Manual
HHC	headquarters and headquarters company
HLPS	heavy lift prepositioning ship
ID	identification
JI	joint inventory
JWG	joint working group
LMI	Logistics Management Institute
Mb	Megabyte
Mh	Megahertz
MSC	Military Sealift Command
MTMC-TEA	Military Traffic Management Command - Transportation Engineering Agency
MX	mechanized
OPP	off-load preparation party
PC	personal computer
PERT	program evaluation and review technique
POC	point of contact
POD	port of debarkation
PRED	predecessor
PREPO	prepositioned

RAM	random access memory
RORO	roll-on/roll-off
SA	staging area
SME	subject-matter expert
SPOD	sea port of debarkation
TAA	tactical assembly area
TAT/NAP	to accompany troops/not authorized prepositioning
TR/OM	theater reception/onward movement
TRAC	TRADOC Analysis Center
TRAC-SAC	TRAC-Study and Analysis Center
TRADOC	Training and Doctrine Command
Trans Grp	Transportation Group
TSC	terminal service company
ULLS	unit-level logistics system
USAALS	U.S. Army Aviation Logistics School
USAARMC	U.S. Army Armor Center
USAOMMCS	U.S. Army Ordnance, Missile, & Munitions Center & School
USATSCH	U.S. Army Transportation School
USCENTCOM	U.S. Central Command

APPENDIX D

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