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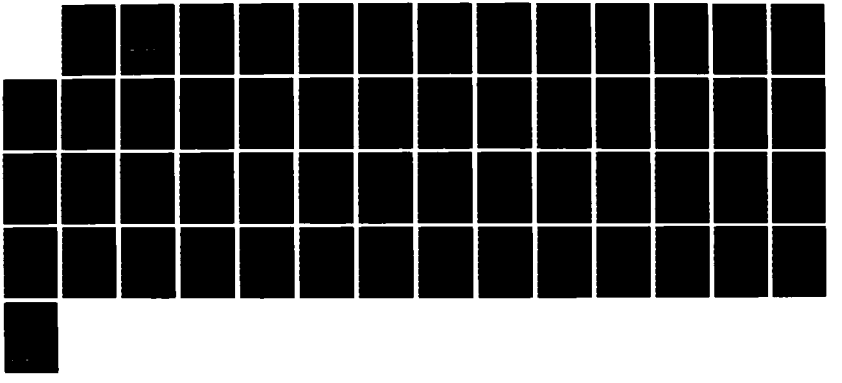

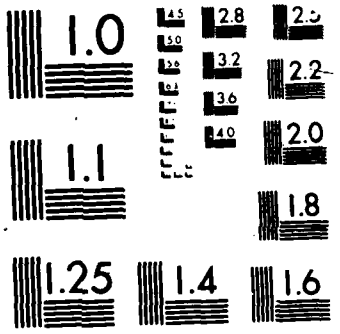
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APRIL 1986

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MOVEPLAN (1.0)

(A UNIT MOVEMENT PLANNING AID)

USERS MANUAL

TECHNICAL DOCUMENT CAORA/TD-4/86

STUDIES AND ANALYSIS DIRECTORATE
COMBINED ARMS OPERATIONS RESEARCH ACTIVITY
FORT LEAVENWORTH, KANSAS

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This manual provides general information and a detailed tutorial to users of MOVEPLAN (1.0). MOVEPLAN (1.0) is an automated tool to assist U.S. Army personnel to perform the task of unit movement planning. MOVEPLAN (1.0) is an appropriate tool for planning administrative or tactical movement of multiple units along a single route, from a common start point (SP) to a common release point (RP). MOVEPLAN (1.0) is also appropriate for use by tactical planners to develop estimates of the time required to execute phases of a maneuver operation. Thorough study of this manual is essential to proper use of MOVEPLAN (1.0). MOVEPLAN (1.0) was developed by the U.S. Army Combined Arms Operations Research Activity (CAORA), Ft. Leavenworth, Kansas. This program is designed for an IBM or compatible microcomputer w/CP/M, a disk drive, and a printer. Components include the Users Manual and the 5 1/4-inch diskette, MOVEPLAN (1.0). An evaluation questionnaire is provided in this manual. Recommendations for changes and improvements to MOVEPLAN (1.0) are encouraged.

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Studies and Analysis Directorate
Combined Arms Operations Research Activity (CAORA)
Fort Leavenworth, Kansas 66027-5220

MOVEPLAN (1.0)
(A Unit Movement Planning Aid)
Users Manual

by

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ABSTRACT

This manual provides general information and a detailed tutorial to users of MOVEPLAN (1.0). MOVEPLAN (1.0) is an automated tool to assist U.S. Army personnel to perform the task of unit movement planning. MOVEPLAN (1.0) is an appropriate tool for planning administrative or tactical movement of multiple units along a single route, from a common start point (SP) to a common release point (RP). MOVEPLAN (1.0) is also appropriate for use by tactical planners to develop estimates of the time required to execute phases of a maneuver operation. Thorough study of this manual is essential to proper use of MOVEPLAN (1.0). MOVEPLAN (1.0) was developed by the U.S. Army Combined Arms Operations Research Activity (CAORA), Ft. Leavenworth, Kansas. This program is designed for an IBM or compatible microcomputer w/CRT, a disk drive, and a printer. Components include the Users Manual and the 5 1/4-inch diskette, MOVEPLAN (1.0). An evaluation questionnaire is provided in this manual. Recommendations for changes and improvements to MOVEPLAN (1.0) are encouraged.

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MOVEPLAN (1.0)

USERS MANUAL

1. INTRODUCTION.

a. Users Manual Purpose. The purpose of this manual is to provide general information and a tutorial of procedures to train users in the proper use of MOVEPLAN (1.0). The manual does not address the detailed design of the software but does provide necessary information to use the program properly.

b. Background. MOVEPLAN (1.0) is an automated tool which was developed by the U.S. Army Combined Arms Operations Research Activity (CAORA), Fort Leavenworth, Kansas. MOVEPLAN (1.0) was developed as a tool to assist U.S. Army personnel to perform the task of unit movement planning. MOVEPLAN (1.0) was developed as a task within the Command and Staff Decision Aids Project. The requirement for a movement planning or time/distance analysis tool was identified during the AirLand Battle Study. MOVEPLAN (1.0) was developed in response to the requirement. Several alternative approaches were investigated to satisfy the requirement. The alternatives included simple spreadsheet equations and a U.S. Army Command and General Staff College (CGSC) application. However, the alternatives were restrictive in design and did not deal with the variety of movement conditions encountered during tactical operations. MOVEPLAN (1.0) is a computer simulation which accounts for most of the conditions for a single-route tactical movement.

c. Developmental Approach. MOVEPLAN (1.0) was designed to automate many of the manual procedures involved in unit movement planning. However, MOVEPLAN (1.0) does not do all the steps in the movement planning process. The user must gather data on units, the route, and unit movement tactical standing operating procedures (TSOP's) and then must input this information on a microcomputer. The microcomputer computes the data and prints a report containing a movement table and a summary of inputs. MOVEPLAN (1.0) provides the benefits of responsiveness and accuracy over manual procedures. Thorough study of this manual and tutorial is essential to proper use of MOVEPLAN (1.0).

d. Hardware and Software Requirements. This program is written in compiled BASIC and is designed for an IBM or compatible microcomputer w/CRT, a disk drive, and a printer. MOVEPLAN (1.0) requires less than 512 KB of memory. Components include the MOVEPLAN (1.0) Users Manual and the 5 1/4-inch diskette, MOVEPLAN (1.0). The diskette contains the executable progam, some associated text files, and a demonstration file. A set of MOVEPLAN Information Briefing Slides is also available through the Command and Control Microcomputer Users Group at Fort Leavenworth. Information on obtaining MOVEPLAN (1.0) is provided in section 4c.

e. Users Manual Organization. The following sections of this manual provide general information on the capabilities and limitations of MOVEPLAN (1.0). A set of key definitions is provided in section 2, Model Description. A step-by-step tutorial which explains the "how to" for each major procedure may be found in section 3, Technical Operations. The appendixes provide examples and a survey form which may be used to provide suggestions for

program improvements. Information on obtaining assistance in using MOVEPLAN (1.0) and information on obtaining the program itself are found in section 4, Summary.

2. MODEL DESCRIPTION.

a. Model Definitions.

(1) Maximum pace. The maximum rate of march for the lead (pace) vehicle of the force and may not be exceeded by any vehicle. It is equal to the maximum speed of the slowest vehicle in the force.

(2) Average vehicle length. The average vehicle length (in meters) for all vehicles in the column.

(3) Vehicle interval. The distance (in meters) between vehicles for the entire column.

(4) March unit. Composed of vehicle(s) and vehicle interval(s).

(5) March unit interval. The distance (in kilometers) between march units.

(6) Serial. Composed of march unit(s) and march unit interval(s).

(7) Serial interval. The distance (in kilometers) between serials.

(8) Column. The entire force. It is composed of serial(s) and serial interval(s).

(9) Halts. Stops (in minutes) at particular checkpoints.

(10) Route. Composed of road segments.

(11) Road segment. Has the attributes of distance and rate of travel.

b. Model Application. MOVEPLAN is an automated tool which was designed to assist movement planners to develop a movement table. A primary source of doctrinal information which was used during MOVEPLAN development was FM 55-30, Army Motor Transport Units and Operations. Most movement planning doctrine and "schoolhouse" procedures are taught with a fundamental assumption: constant pace or rate of march. While this assumption is acceptable for administrative moves, it is not appropriate for tactical movement across different types of roads and cross-country terrain under both day and limited visibility conditions. Consideration of varying movement rates over a route was a principal factor in the design of MOVEPLAN. As a result, the effects of queueing or backup along the route are represented in MOVEPLAN.

c. Model Capabilities and Limitations.

(1) Capabilities.

(a) Handles up to 10 serials with 10 march units in each serial.

(b) Handles a single route with up to 20 road segments.

(c) Provides a capability for rest/refueling halts for all units at specific checkpoints.

(d) Provides a capability to limit speeds on each road segment.

(e) Provides a capability to plan movement under three alternative march disciplines, described below.

1. Hasty with fixed start intervals: Each march unit travels as rapidly as conditions will allow but does not pass units ahead of it. Each march unit starts at a fixed interval behind the unit ahead of it.

2. Hasty with staggered starts: Each march unit travels as rapidly as conditions will allow but does not pass units ahead of it. Starts are staggered automatically to eliminate congestion on the route.

3. Control move: Force/march column integrity is maintained. Units start at fixed intervals. Slowest movement condition affecting the force dictates the force march rate.

(f) Provides a pace for each march unit for each road segment as a guideline for the pace vehicle and for the movement planner.

(g) Computes the average speed for the lead march unit across the route.

(h) Computes the (static) column length and (static) vehicle density.

(i) Computes due-in and release time for each march unit for each checkpoint.

(j) Summarizes the movement by serial.

(k) Summarizes the route description.

(2) Limitations. Currently, MOVEPLAN is restrictive in the following areas:

(a) Does not handle multiple start points (SP) or multiple release points (RP).

(b) All march units must occupy designated rest/refueling halts.

(c) Does not allow for a variable maximum pace for each type unit (wheeled vs tracked vs mixed vehicle units).

(d) Does not consider oversize or overweight vehicles and route limitations.

(e) Does not deal with transition conditions (day to night).

(f) Does not perform route selection or analysis tasks.

(g) Does not perform tactical movement planning on a multiple-route network, since it is a single-route processing model.

d. Model Operation. MOVEPLAN may be used by U.S. Army tactical movement planners at levels from section to corps. MOVEPLAN inputs are obtained from map inspection, subordinate unit reports, and unit tactical standing operating procedures (TSOP's). MOVEPLAN outputs are used by the movement planners and are an enclosure to the Movement Annex of an OPORD or a Letter of Instruction to subordinate units.

e. Model Configuration. This program is designed for an IBM or compatible microcomputer w/CRT, a disk drive, and a printer. Components include the MOVEPLAN (1.0) Users Manual and the 5 1/4-inch diskette, MOVEPLAN (1.0).

f. Model Organization. MOVEPLAN is an interactive software application. MOVEPLAN's software components are primarily an input routine, a computation routine, an output routine, and help and file maintenance routines. The software is driven by user-selected menu options and creation or recall of data files on units and routes.

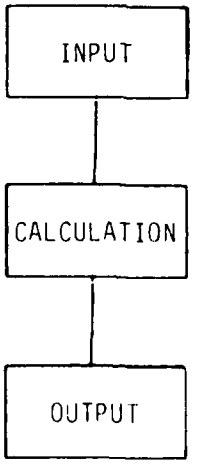

Figure 1. MOVEPLAN organization

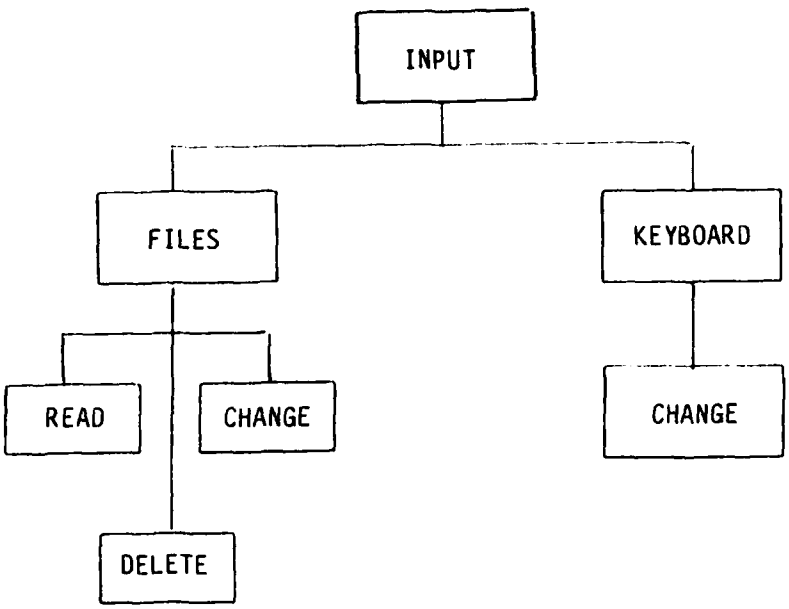

Figure 2. Input routine

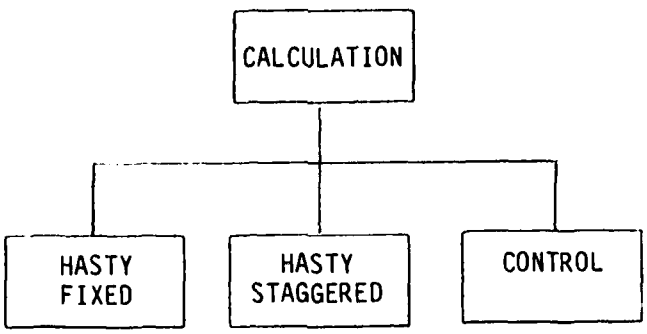

Figure 3. Calculation routine

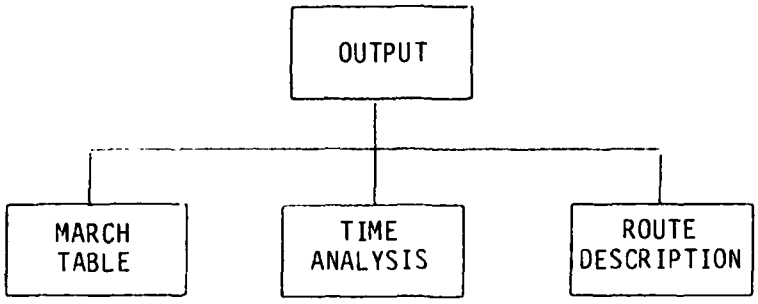

Figure 4. Output routine

g. Performance. MOVEPLAN is a responsive software application that provides real-time tactical movement information. Input intensity is highly dependent on the number of route segments and march units in the force. Response time is less than 5 minutes for an average-size force on a route with less than six different route segments.

h. Data Base. The MOVEPLAN data base consists solely of the executable programs and user created movement files. As a stand-alone application, MOVEPLAN does not access files from other automated sources or systems. Definitions of MOVEPLAN data elements are provided in section 2a.

i. General Description of Inputs, Processing, Outputs.

(1) Inputs. MOVEPLAN (1.0) requires information to be provided by Army tactical movement planners in the order shown on the sample data input sheet in appendix A. This information consists of data file name, maximum pace, vehicle interval, average vehicle length, march unit interval, serial interval, route name, number of road segments in the route, segment maximum rates and distances, number of serials, serial names, number of march units in each serial, march unit names, number of vehicles in each march unit, halt times at each checkpoint and release point, choice of march discipline, desired arrival or start time, and number of days to departure.

(2) Processing. Once inputs are completed, lengths of segments and movement rates on segments are established for the route. March unit lengths are computed and rest areas are established for the route. Due and clear times at each checkpoint are computed for each march unit and conflicts at checkpoints are resolved. Times are adjusted for user-defined arrival or start. The program is then ready to produce outputs.

(3) Outputs. MOVEPLAN (1.0) produces a road movement table, a column analysis of pass times, and a description of the route in terms of lengths and travel rates. See appendix D for sample outputs from MOVEPLAN (1.0).

3. TECHNICAL OPERATIONS.

a. Initiation Procedures. This section will get the user started and ready to use MOVEPLAN. The writers assume the user has some experience with computers and has reviewed the computer's operating instructions.

(1) In order to begin, the user will need the following:

(a) IBM PC or compatible microcomputer with disk drive.

(b) IBM-compatible printer.

(c) System (PC-DOS or MS-DOS) and MOVEPLAN diskettes.

(d) MOVEPLAN (1.0) Users Manual.

(2) To start and load the computer, the user must do the following:

(a) Turn on the computer and printer.

(b) Load the PC-DOS or MS-DOS system according to the computer's operating instructions.

(c) Insert the MOVEPLAN diskette in the drive, type MOVEPLAN, and press the [ENTER] key. The program should load, and the main menu should appear on the screen (figure 5).

```
                                MOVEPLAN (1.0)
                                A UNIT MOVEMENT PLANNING AID
                                COMMAND CONTROL ANALYSIS DIVISION
                                USACAORA
                                FT LEAVENWORTH, KANSAS  66027
                                AUTOVON 552-4309

The following choices can be made from the main menu:

1.  RUN PROBLEM
2.  GENERAL PROGRAM INFORMATION
3.  QUIT
4.  READ DATA FROM DISK FILE
5.  SAVE DATA TO DISK FILE
6.  INPUT OR CHANGE DATA
7.  GET DATA INPUT SHEET
8.  DELETE A DATA FILE
9.  LISTING OF FILES

ENTER 1,2,3,4,5,6,7,8,OR 9
```

Figure 5. Title and main menu screen

b. Tutorial. The purposes of this program are best served by guiding the user through a tutorial session. A data input sheet will be printed out so that the user may compile the input data. Then the data will be keyed into the computer, saved to a data file, and the data will be computed and printed out in a report. Next, the user will make changes to the data file, another report will be printed reflecting the new results, and the session will be ended. Instructions for deleting and listing files will also be provided.

(1) Completing a Data Input Sheet.

```
                                MOVEPLAN (1.0)
                                A UNIT MOVEMENT PLANNING AID
                                COMMAND CONTROL ANALYSIS DIVISION
                                USACAORA
                                FT LEAVENWORTH, KANSAS  66027
                                AUTOVON 552-4309


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1.  RUN PROBLEM
2.  GENERAL PROGRAM INFORMATION
3.  QUIT
4.  READ DATA FROM DISK FILE
5.  SAVE DATA TO DISK FILE
6.  INPUT OR CHANGE DATA
7.  GET DATA INPUT SHEET
8.  DELETE A DATA FILE
9.  LISTING OF FILES

ENTER 1,2,3,4,5,6,7,8,OR 9
```

Figure 5. Title and main menu screen

Step 1: Assuming that the steps in the Initiation Procedures section were done correctly, the title and main menu (figure 5) should be on the screen. Enter 7 (by typing 7 and pressing the [ENTER] key) to print out a data input sheet (see figure 6, Sample data input sheet with sample data).

Step 2: After the data input sheet is printed, the main menu will reappear. Enter 2 in order to obtain instructions on completing the data input sheet. Follow each step, copying onto the data input sheet the data from the example input sheet, figure 6. Figure 7 lists the general program instructions. After completing this step, the movement rate guidelines, based on FM 7-20, The Infantry Battalion, will appear on the screen (figure 8).

DATA FILE NAME 1BDE
MAX PACE 35 KMPH
VEHICLE INTERVAL 50 METERS AVG VEHICLE LENGTH 8 METERS
MARCH UNIT INTERVAL 3 KM SERIAL INTERVAL 5 KM

ROUTE NAME Blue
NUMBER OF ROAD SEGMENTS IN ROUTE 5

SEGMENT	MAX RATE(KMPH)	DISTANCE(KM)	SEGMENT	MAX RATE(KMPH)	DISTANCE(KM)
1	35	22	11		
2	30	24	12		
3	35	22	13		
4	20	10	14		
5	35	44	15		
6			16		
7			17		
8			18		
9			19		
10			20		

NUMBER OF SERIALS 4

SERIAL # 1
SERIAL NAME TF4-77
OF MARCH UNITS IN SERIAL 4

MU	# OF VEHICLES	MU NAME
1	28	A/4-77
2	42	HHC/4-77
3	23	B/4-77
4	32	C/4-77
5		
6		
7		
8		
9		
10		

SERIAL # 2
SERIAL NAME TF4-2
OF MARCH UNITS IN SERIAL 4

MU	# OF VEHICLES	MU NAME
1	21	B/4-2
2	36	HHC/4-2
3	27	C/4-2
4	19	A/4-2
5		
6		
7		
8		
9		
10		

SERIAL # 3
SERIAL NAME 1BDE CS
OF MARCH UNITS IN SERIAL 3

MU	# OF VEHICLES	MU NAME
1	195	4-40 FA
2	72	A/4-441 AD
3	50	A/55 EN
4		
5		
6		
7		
8		
9		
10		

SERIAL # 4
SERIAL NAME 1BDE FSB
OF MARCH UNITS IN SERIAL 1

MU	# OF VEHICLES	MU NAME
1	156	1BDE FSB
2		
3		
4		
5		
6		
7		
8		
9		
10		

CP	HALT TIME(MINS)	CP	HALT TIME(MINS)	CP	HALT TIME(MINS)
SP	****	7		14	
1	0	8		15	
2	0	9		16	
3	30	10		17	
4	0	11		18	
5		12		19	
6		13		RP	0

RESULTS FROM WHICH MARCH DISCIPLINE (CIRCLE ONE)

1. HASTY WITH FIXED START INTERVALS
(2.) HASTY WITH STAGGERED STARTS
3. CONTROL MOVE

DESIRED ARRIVAL TIME (FIRST VEHICLE AT RP) _____
OR
DESIRED START TIME (FIRST VEHICLE AT SP) 0700

NUMBER OF DAYS TO DEPARTURE 0

Figure 6. Sample data input sheet with sample data

GENERAL PROGRAM INFORMATION

STEP ONE-DETERMINE GENERAL INFORMATION AND SERIAL CONSTANTS

LIST ON THE INPUT SHEET THE FOLLOWING:
DATA FILE NAME (FOR EXAMPLE: 3BDE9ID)
MAXIMUM SPEED FOR SLOWEST VEHICLE (MAX PACE)
VEHICLE INTERVAL IN METERS (999 METERS MAXIMUM)
AVERAGE VEHICLE LENGTH IN METERS (99 METERS MAXIMUM)
MARCH UNIT INTERVAL IN KILOMETERS (999 KILOMETERS MAXIMUM)
SERIAL INTERVAL IN KILOMETERS (999 KILOMETERS MAXIMUM)

PRESS ENTER TO CONTINUE

STEP TWO-ORGANIZE ROUTE INFORMATION

LIST ON THE DATA INPUT SHEET THE ROUTE NAME,
THE NUMBER OF ROAD SEGMENTS IN THE ROUTE, AND
FOR EACH ROAD SEGMENT, THE MAXIMUM TRAVEL RATE
AND THE DISTANCE.

PRESS ENTER TO CONTINUE

STEP THREE-ORGANIZE SERIAL INFORMATION

LIST ON THE DATA INPUT SHEET THE NUMBER OF SERIALS.
FOR EACH SERIAL, LIST THE SERIAL NAME AND THE NUMBER OF
MARCH UNITS IN THE SERIAL.
FOR EACH MARCH UNIT, ENTER THE NUMBER OF VEHICLES AND THE
MARCH UNIT NAME.

PRESS ENTER TO CONTINUE

STEP FOUR-DETERMINE HALT TIMES

LIST ON THE DATA INPUT SHEET ANY HALT TIMES AT CHECKPOINTS.
HALT TIME CANNOT BE ENTERED AT THE START POINT (SP).

STEP FIVE-DETERMINE MARCH DISCIPLINE AND TIME CONSTANTS

INDICATE ON THE DATA INPUT SHEET THE DESIRED MARCH DISCIPLINE,
DESIRED ARRIVAL TIME OR DESIRED START TIME,
AND NUMBER OF DAYS TO DEPARTURE.

PRESS ENTER TO CONTINUE

Figure 7. General program information

MOVEMENT RATE GUIDE(UNOPPOSED)
(KMPH)

TERRAIN	UNIT TYPE	WEATHER CONDITION (DAY/N-LIGHTS/N-BLACKOUT) GOOD	LIGHT PRECIPITATION	FOG/HVY PRECIPITATION
ROAD	FOOT TRPS	4/3.2/3.2	3.2/2.5/2.5	2.4/1.9/1.9
	TRK,GENRL	40/40/16	32/32/12.8	24/24/9.6
	TRCKD VEH	24/24/16	16.8/16.8/11.2	12/12/8
	ARTY,TRCK	40/40/16	32/32/16	24/24/9.6
	ARTY,TRCTR	32/32/16	22.4/22.4/11.2	16/16/8
X-COUNTRY	FOOT TRPS	2.4/1.6/1.6	1.9/1.2/1.2	1.4/0.9/0.9
	TRK,GENRL	12/8/8	9.6/6.4/6.4	7.2/4.8/4.8
	TRCKD VEH	16/8/8	11.2/5.6/5.6	8/4/4
	ARTY,TRCK	12/8/8	9.6/6.4/6.4	7.2/4.8/4.8
	ARTY,TRCTR	16/8/8	11.2/5.6/5.6	8/4/4

Figure 8. Movement rate guidelines[1].

[1]These movement rate guidelines are based on FM 7-20, The Infantry Battalion.

(2) Entering Data and Saving the Data to a File.

Step 1: At the conclusion of general program information, the main menu will reappear. Enter 6 to input data from the data input sheet. Prompts will appear on the screen, requesting the same information as recorded on the input sheet and in the same order as the information on the input sheet. Enter each data item as required. See appendix B for a list of those prompts, together with responses for the example problem.

Step 2: After the data have been entered, the main menu will reappear. At this point, the user may review his data by entering 6, run the problem using his data by entering 1, or save his data to a disk file by entering 5. If the data are not saved to a file, they will not be permanently stored, and once the program is exited, the data will be lost. Therefore, the user is encouraged to enter 5 and save the data to a file. The user is asked to name a file for the data. Enter 1BDE for this example, as shown at the top of the data input sheet, figure 6.

```
FILE TO WRITE DATA TO?   1BDE [ENTER]
```

(3) Step 3: Once again the main menu will appear. Enter 6 to review the data in 1BDE. Changes or corrections may be made at this time.

```
MAX PACE = 35
ENTER THE MAX PACE (MAX SPEED OF SLOWEST VEH.) [ENTER]
```

(3) Running the Problem.

Step 1: After the data have been reviewed, the main menu will reappear. Enter 1 to run the problem. The program will then ask for the information at the bottom of the data input sheet. The march discipline menu will appear. Enter 2 for this example, according to the data input sheet.

```
RESULTS FROM WHICH MARCH DISCIPLINE?
1.  HASTY WITH FIXED START INTERVALS
2.  HASTY WITH STAGGERED STARTS
3.  CONTROL MOVE

ENTER 1 OR 2 OR 3 OR 4 (TO RETURN TO MAIN MENU)      2 [ENTER]
```

The program will then show the time required for the move and ask the user to choose a desired arrival or start time. Enter 2 according to the data input sheet.

```
THE MOVE TAKES 7 HOURS AND 28 MINUTES

OPTIONS

[1]  SPECIFY A DESIRED ARRIVAL TIME (ARRIVAL OF FIRST VEHICLE
      AT RP)
[2]  SPECIFY A DESIRED START TIME (START OF FIRST VEHICLE
      FROM SP)
[3]  RETURN TO MAIN MENU
ENTER 1, 2, OR 3              2 [ENTER]
```

The program will ask for the desired start time. Enter 0700 for this example.

```
ENTER THE DESIRED START TIME OF LEAD VEHICLE
IN MILITARY CLOCK
?    0700 [ENTER]
```

Lastly, the program will ask the user to indicate the number of days to departure. Enter 0 according to the data input sheet.

```
ENTER THE NUMBER OF DAYS FROM TODAY TO DEPARTURE
(e.g. ENTER 2 FOR THE DAY AFTER TOMORROW)
?    0 [ENTER]
```

The program will immediately begin to run, and the printer will immediately begin to print the output consisting of a road movement table, time analysis, and route description on separate pages. See appendix D for output from the example, 1BDE.

Step 2: Before the printer has finished printing, the main menu will reappear on the screen. The user may now run another problem by changing the data (choice 6) or may quit (choice 3).

(4) Changing the Data File.

Step 1: If the user wishes to make changes to the data file, and if he has not exited the program, he should enter 6 from the main menu. If the user has exited the program and is restarting the program, he needs to enter MOVEPLAN, then enter 4 to read data from a disk file. When prompted for the file name, he should enter 1BDE.

```
FILE NAME? 1BDE [ENTER]
```

The main menu will then appear, and the user should enter 6. As the data is reviewed, changes may be made. As an example, the following changes to 1BDE will be made: a serial will be added, consisting of four march units, and the halt time at checkpoint 3 will be removed. See appendix C for a listing of prompts and responses for the sample changes to 1 8DE.

Step 2: At the conclusion of choice 6, the main menu will reappear. The user may enter 6 to review his changes, enter 5 to save the data to a disk file (either 1BDE, in which case the new data will replace the old data, or a new name, such as 1BDE(2) to save the new data as well as the old data in separate files), or enter 1 to run the problem.

(5) Running the New Problem and Ending the Session.

Step 1: The user should respond to the prompts for choice 1 exactly as he did for 1BDE, since none of that information was changed. Enter 2 for the march discipline, enter 2 for the desired start time, enter 0700 for the time itself, and enter 0 for the number of days to departure. Once again, the program will print a road movement table, time analysis, and route description. The user may compare the outputs of the two example problems.

Step 2: To end the session, simply enter 3, quit.

(6) Deleting a Data File.

Step 1: From the main menu, enter 8. The program will ask the user which file he wants to delete.

```
FILE TO ERASE     name of file     [ENTER]
```

Step 2: Enter the name of the file to be deleted. At the conclusion of this step the program will state that the file is erased and will return the main menu.

(7) Listing of Files.

Step 1: To see the list of files on the diskette, enter 9 from the main menu. Press the [ENTER] key again to obtain the default directory. (If another directory is desired, enter the path specification indicated in the machine's MS-DOS manual.) The MOVEPLAN (1.0) diskette is distributed with five files on it, so the user should see those files (shown in fig. 9) plus any others he has added.

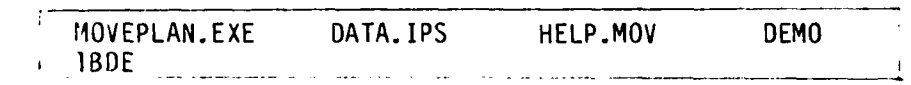

Figure 9. Input prompt for choice 9, listing of files.

An explanation of the contents of the five original files follows:

(a) MOVEPLAN.EXE - This is the executable program for MOVEPLAN (1.0). (DO NOT DELETE THIS FILE.)

(b) DATA.IPS and HELP.MOV - These are both text files used by MOVEPLAN (1.0). (DO NOT DELETE THESE FILES.)

(c) DEMO and 1BDE - Each of these is the data file for the example 1BDE in the MOVEPLAN (1.0) Users Manual. They are identical except for file name. If the user wishes to run an example problem right away, he can enter 4 to read the data from DEMO or 1BDE and then enter 1 to run it. He will still have to enter the information from the bottom of the example data input sheet (figure 6 or appendix A), beginning with the choice of march discipline, in order to run DEMO or 1BDE. If he follows this tutorial step by step, he will actually re-create 1BDE.

Step 2: Press [ENTER] to return to the main menu.

c. Utilization of Model Outputs. The MOVEPLAN outputs are utilized by the following personnel in the indicated manner:

(1) Transportation Planner. Uses outputs to make adjustments to detailed movement plan and uses outputs as a control schedule during movement of the force.

(2) Movement Control Teams. Use outputs as a reference for making decisions about unit priorities along the route of march when conflicts occur.

(3) March Unit and Serial Commanders. Use outputs as a reference to execute move both in terms of start time and pace on each route segment.

(4) Force Commander. Uses outputs as an estimate of time and location of units as the march progresses.

d. Recovery and Error Correction Procedures. MOVEPLAN (1.0) provides the error messages shown in table 1. In all but one case, MOVEPLAN allows the user to correct the error and continue the program with the message PRESS ENTER TO CONTINUE. In the event that an I/O error occurs on a disk I/O operation, the system cannot recover from the error. The message DEVICE I/O ERROR will appear, and the user will have to restart the system according to the instructions given in section 3a of this manual. If the user enters incorrect data, it is best to complete the data input and then review or change the data using choice 6 from the main menu. Otherwise, he may use the [Control] [Break] keys to restart the program, but he will lose his data. To restart the program, he should type in MOVEPLAN.

Table 1. MOVEPLAN error messages

	ERROR MESSAGE	POSSIBLE CAUSE
1.	DEVICE TIMEOUT	PRINTER NOT CONNECTED TO COMPUTER
2.	DEVICE FAULT	PRINTER NOT ON LINE
3.	OUT OF PAPER	
4.	FILE NOT FOUND	
5.	DEVICE I/O ERROR	DISK DRIVE OR DISKETTE DAMAGED
6.	BAD FILE NAME	
7.	DEVICE UNAVAILABLE	DISK DRIVE NOT PROPERLY CLOSED
8.	DISK WRITE PROTECTED	
9.	DISK NOT READY. (NOT IN DRIVE?)	
10.	DISK MEDIA ERROR	DISK DRIVE OR DISKETTE NOT WORKING PROPERLY
11.	PATH/FILE ACCESS ERROR	PATH NAME ENTERED INCORRECTLY

4. SUMMARY.

a. General. MOVEPLAN is a flexible, responsive, transparent software application which significantly reduces the time and error associated with tactical movement planning. The user should work through the tutorial and re-read this document to ensure understanding of MOVEPLAN operations, capabilities, and limitations.

b. Assistance. Questions concerning MOVEPLAN (1.0) should be directed to:

Commander
USACAORA
ATTN: ATOR-CAS-CF
Ft. Leavenworth, KS 66027-5220
AV 552-4309 COMM (913) 684-4309

c. Obtaining MOVEPLAN (1.0). MOVEPLAN (1.0) will be released through the Command and Control Microcomputer Users Group (C2MUG) at Fort Leavenworth, KS, in May 1986. Requests for the MOVEPLAN (1.0) diskette and Users Manual may be directed to:

Chief, CECOM
ATTN: AMSEL-FL-SDSD (C2MUG)
Ft. Leavenworth, KS 66027-5600

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APPENDIX A

DATA INPUT SHEET AND SAMPLE DATA

DATA FILE NAME 1BDE
MAX PACE 35 KMPH
VEHICLE INTERVAL 50 METERS AVG VEHICLE LENGTH 8 METERS
MARCH UNIT INTERVAL 3 KM SERIAL INTERVAL 5 KM

ROUTE NAME Blue
NUMBER OF ROAD SEGMENTS IN ROUTE 5

SEGMENT	MAX RATE(KMPH)	DISTANCE(KM)	SEGMENT	MAX RATE(KMPH)	DISTANCE(KM)
1	35	22	11		
2	30	24	12		
3	35	22	13		
4	20	10	14		
5	35	44	15		
6			16		
7			17		
8			18		
9			19		
10			20		

NUMBER OF SERIALS 4

SERIAL # 1
SERIAL NAME TF4-77
OF MARCH UNITS IN SERIAL 4

MU	# OF VEHICLES	MU NAME
1	28	A/4-77
2	42	HHC/4-77
3	23	B/4-77
4	32	C/4-77
5		
6		
7		
8		
9		
10		

SERIAL # 2
SERIAL NAME TF4-2
OF MARCH UNITS IN SERIAL 4

MU	# OF VEHICLES	MU NAME
1	21	B/4-2
2	36	HHC/4-2
3	27	C/4-2
4	19	A/4-2
5		
6		
7		
8		
9		
10		

SERIAL # 6
SERIAL NAME
OF MARCH UNITS IN SERIAL

MU	# OF VEHICLES	MU NAME
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

SERIAL # 7
SERIAL NAME
OF MARCH UNITS IN SERIAL

MU	# OF VEHICLES	MU NAME
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

SERIAL # 3
SERIAL NAME 1BDE CS
OF MARCH UNITS IN SERIAL 3

MU	# OF VEHICLES	MU NAME
1	195	4-40 FA
2	72	A/4-441 AD
3	50	A/55 EN
4		
5		
6		
7		
8		
9		
10		

SERIAL # 4
SERIAL NAME 1BDE FSB
OF MARCH UNITS IN SERIAL 1

MU	# OF VEHICLES	MU NAME
1	156	1BDE FSB
2		
3		
4		
5		
6		
7		
8		
9		
10		

SERIAL # 5
SERIAL NAME
OF MARCH UNITS IN SERIAL

MU	# OF VEHICLES	MU NAME
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

SERIAL # 8
SERIAL NAME
OF MARCH UNITS IN SERIAL

MU	# OF VEHICLES	MU NAME
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

SERIAL # 9
SERIAL NAME
OF MARCH UNITS IN SERIAL

MU	# OF VEHICLES	MU NAME
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

SERIAL # 10
SERIAL NAME
OF MARCH UNITS IN SERIAL

MU	# OF VEHICLES	MU NAME
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

CP	HALT TIME(MINS)	CP	HALT TIME(MINS)	CP	HALT TIME(MINS)
SP	****	7		14	
1	0	8		15	
2	0	9		16	
3	30	10		17	
4	0	11		18	
5		12		19	
6		13		RP	0

RESULTS FROM WHICH MARCH DISCIPLINE (CIRCLE ONE)

1. HASTY WITH FIXED START INTERVALS
(2.) HASTY WITH STAGGERED STARTS
3. CONTROL MOVE

DESIRED ARRIVAL TIME (FIRST VEHICLE AT RP) _____
OR
DESIRED START TIME (FIRST VEHICLE AT SP) 0700

NUMBER OF DAYS TO DEPARTURE 0

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APPENDIX B

DATA INPUT PROMPTS AND SAMPLE RESPONSES

```
SYSTEM:  ENTER THE MAX PACE (MAX SPEED OF SLOWEST VEH.)
USER:    35

SYSTEM:  ENTER VEHICLE INTERVAL IN METERS
USER:    50

SYSTEM:  ENTER AVG VEH LENGTH IN METERS
USER:    8

SYSTEM:  ENTER MARCH UNIT INTERVAL IN KM
USER:    3

SYSTEM:  ENTER SERIAL INTERVAL IN KM
USER:    5
SYSTEM:  ENTER ROUTE NAME, 10 CHARACTERS OR LESS
USER:    Blue

SYSTEM:  ENTER # OF SEGMENTS, MAX 20
USER:    5

SYSTEM:  THIS IS SEGMENT NO. 1
         ENTER MAX SPEED IN KMPH
USER:    35

SYSTEM:  ENTER DISTANCE IN KM
USER:    22

SYSTEM:  THIS IS SEGMENT NO. 2
         ENTER MAX SPEED IN KMPH
USER:    30

SYSTEM:  ENTER DISTANCE IN KM
USER:    24

SYSTEM:  THIS IS SEGMENT NO. 3
         ENTER MAX SPEED IN KMPH
USER:    35

SYSTEM:  ENTER DISTANCE IN KM
USER:    22

SYSTEM:  THIS IS SEGMENT NO. 4
         ENTER MAX SPEED IN KMPH
USER:    20

SYSTEM:  ENTER DISTANCE IN KM
USER:    10
```

```
SYSTEM:  THIS IS SEGMENT NO. 5
         ENTER MAX SPEED IN KMPH
USER:    35

SYSTEM:  ENTER DISTANCE IN KM
USER:    44

SYSTEM:  ENTER NO. OF SERIALS (MAX 10)
USER:    4

SYSTEM:  THIS IS SERIAL NO. 1
         ENTER SERIAL NAME, 10 CHARACTERS OR LESS
USER:    TF4-77

SYSTEM:  ENTER # OF MARCH UNITS (MAX 10)
USER:    4

SYSTEM:  IN SERIAL NO. 1 THIS IS MARCH UNIT NO. 1
         ENTER # OF VEHS. IN MU
USER:    28

SYSTEM:  ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    A/4-77

SYSTEM:  IN SERIAL NO. 1 THIS IS MARCH UNIT NO. 2
         ENTER # OF VEHS. IN MU
USER:    42

SYSTEM:  ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    HHC/4-77

SYSTEM:  IN SERIAL NO. 1 THIS MARCH UNIT NO. 3
         ENTER # OF VEHS. IN MU
USER:    23

SYSTEM:  ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    B/4-77

SYSTEM:  IN SERIAL NO. 1 THIS IS MARCH UNIT No. 4
         ENTER # OF VEHS. IN MU
USER:    32

SYSTEM:  ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    C/4-77

SYSTEM:  THIS IS SERIAL NO. 2
         ENTER SERIAL NAME, 10 CHARACTERS OR LESS
USER:    TF4-2

SYSTEM:  ENTER # OF MARCH UNITS (MAX 10)
USER:    4
```

```
SYSTEM:  IN SERIAL NO. 2 THIS IS MARCH UNIT NO. 1
         ENTER # OF VEHS. IN MU
USER:    21

SYSTEM:  ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    B/4-2

SYSTEM:  IN SERIAL NO.2  THIS IS MARCH UNIT NO. 2
         ENTER # OF VEHS. IN MU
USER:    36

SYSTEM:  ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    HHC/4-2

SYSTEM:  IN SERIAL NO. 2 THIS IS MARCH UNIT NO. 3
         ENTER # OF VEHS. IN MU
USER:    27

SYSTEM:  ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    C/4-2

SYSTEM:  IN SERIAL NO. 2 THIS IS MARCH UNIT NO. 4
         ENTER # OF VEHS. IN MU
USER:    19

SYSTEM:  ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    A/4-2

SYSTEM:  THIS IS SERIAL NO. 3
         ENTER SERIAL NAME, 10 CHARACTERS OR LESS
USER:    18DE CS

SYSTEM:  ENTER # OF MARCH UNITS (MAX 10)
USER:    3

SYSTEM:  IN SERIAL NO. 3 THIS IS MARCH UNIT NO. 1
         ENTER # OF VEHS. IN MU
USER:    195

SYSTEM:  ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    4-40 FA

SYSTEM:  IN SERIAL NO. 3 THIS IS MARCH UNIT NO. 2
         ENTER # OF VEHS. IN MU
USER:    72

SYSTEM:  ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    A/4-441 AD

SYSTEM:  IN SERIAL NO. 3 THIS IS MARCH UNIT NO. 3
         ENTER # OF VEHS. IN MU
USER:    50
```

```
SYSTEM:  ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    A/55 EN

SYSTEM:  THIS IS SERIAL NO. 4
         ENTER SERIAL NAME, 10 CHARACTERS OR LESS
USER:    1BDE FSB

SYSTEM:  ENTER # OF MARCH UNITS (MAX 10)
USER:    1

SYSTEM:  IN SERIAL NO. 4 THIS IS MARCH UNIT NO. 1
         ENTER # OF VEHS. IN MU
USER:    156

SYSTEM:  ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    1BDE FSB

SYSTEM:  THIS IS CHECKPOINT 1
         ENTER HALT TIME IN MINUTES
USER:    0

SYSTEM:  THIS IS CHECKPOINT 2
         ENTER HALT TIME IN MINUTES
USER:    0

SYSTEM:  THIS IS CHECKPOINT 3
         ENTER HALT TIME IN MINUTES
USER:    30

SYSTEM:  THIS IS CHECKPOINT 4
         ENTER HALT TIME IN MINUTES
USER:    0

SYSTEM:  THIS IS CHECKPOINT RP
         ENTER HALT TIME IN MINUTES
USER:    0
```

APPENDIX C

CHANGE DATA PROMPTS AND SAMPLE RESPONSES

```
SYSTEM:  MAX PACE = 35
         ENTER THE MAX PACE (MAX SPEED OF SLOWEST VEH.)
USER:    [ENTER]

SYSTEM:  VEHICLE INTERVAL 50
         ENTER VEHICLE INTERVAL IN METERS
USER:    [ENTER]

SYSTEM:  AVG VEHICLE LENGTH 8
         ENTER AVG VEH LENGTH IN METERS
USER:    [ENTER]

SYSTEM:  MARCH UNIT INTERVAL = 3
         ENTER MARCH UNIT INTERVAL IN KM
USER:    [ENTER]

SYSTEM:  SERIAL INTERVAL IN KM = 5
         ENTER SERIAL INTERVAL IN KM
USER:    [ENTER]

SYSTEM:  ROUTE NAME = Blue
         ENTER ROUTE NAME, 10 CHARACTERS OR LESS
USER:    [ENTER]

SYSTEM:  NUMBER OF ROAD SEGMENTS = 5
         ENTER # OF SEGMENTS, MAX 20
USER:    [ENTER]

SYSTEM:  THIS IS SEGMENT NO. 1
         SPEED = 35
         ENTER MAX SPEED IN KMPH
USER:    [ENTER]

SYSTEM:  DISTANCE = 22
         ENTER DISTANCE IN KM
USER:    [ENTER]

SYSTEM:  THIS IS SEGMENT NO. 2
         SPEED = 30
         ENTER MAX SPEED IN KMPH
USER:    [ENTER]

SYSTEM:  DISTANCE = 24
         ENTER DISTANCE IN KM
USER:    [ENTER]
```

```
SYSTEM:  THIS IS SEGMENT NO. 3
         SPEED = 35
         ENTER MAX SPEED IN KMPH
USER:    [ENTER]

SYSTEM:  DISTANCE = 22
         ENTER DISTANCE IN KM
USER:    [ENTER]

SYSTEM:  THIS IS SEGMENT NO. 4
         SPEED = 20
         ENTER MAX SPEED IN KMPH
USER:    [ENTER]

SYSTEM:  DISTANCE = 10
         ENTER DISTANCE IN KM
USER:    [ENTER]

SYSTEM:  THIS IS SEGMENT NO. 5
         SPEED = 35
         ENTER MAX SPEED IN KMPH
USER:    [ENTER]

SYSTEM:  DISTANCE = 44
         ENTER DISTANCE IN KM
USER:    [ENTER]

SYSTEM:  NUMBER OF SERIALS = 4
         ENTER NO. OF SERIALS (MAX 10)
USER:    5

SYSTEM:  THIS IS SERIAL NO. 1
         SERIAL NAME = TF4-77
         ENTER SERIAL NAME, 10 CHARACTERS OR LESS
USER:    [ENTER]

SYSTEM:  # OF MARCH UNITS = 4
         ENTER # OF MARCH UNITS (MAX 10)
USER:    [ENTER]

SYSTEM:  IN SERIAL NO. 1 THIS IS MARCH UNIT NO. 1
         # OF VEHICLES IN MU = 28
         ENTER # OF VEHS. IN MU
USER:    [ENTER]

SYSTEM:  MARCH UNIT NAME = A/4-77
         ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    [ENTER]
```

```
SYSTEM:  IN SERIAL NO. 1 THIS IS MARCH UNIT NO. 2
         # OF VEHICLES IN MU = 42
         ENTER # OF VEHS. IN MU
USER:    [ENTER]

SYSTEM:  MARCH UNIT NAME = HHC/4-77
         ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    [ENTER]

SYSTEM:  IN SERIAL NO. 1 THIS IS MARCH UNIT NO. 3
         # OF VEHICLES IN MU = 23
         ENTER # OF VEHS. IN MU
USER:    [ENTER]

SYSTEM:  MARCH UNIT NAME = B/4-77
         ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    [ENTER]

SYSTEM:  IN SERIAL NO. 1 THIS IS MARCH UNIT NO. 4
         # OF VEHICLES IN MU = 32
         ENTER # OF VEHS. IN MU
USER:    [ENTER]

SYSTEM:  MARCH UNIT NAME = C/4-77
         ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    [ENTER]

SYSTEM:  THIS IS SERIAL NO. 2
         SERIAL NAME = TF4-2
         ENTER SERIAL NAME, 10 CHARACTERS OR LESS
USER:    [ENTER]

SYSTEM: # OF MARCH UNITS = 4
         ENTER # OF MARCH UNITS (MAX 10)
USER:    [ENTER]

SYSTEM:  IN SERIAL NO. 2 THIS IS MARCH UNIT NO. 1
         # OF VEHICLES IN MU = 21
         ENTER # OF VEHS. IN MU
USER:    [ENTER]

SYSTEM:  MARCH UNIT NAME = B/4-2
         ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    [ENTER]

SYSTEM:  IN SERIAL NO. 2 THIS IS MARCH UNIT NO. 2
         # OF VEHICLES IN MU = 36
         ENTER # OF VEHS. IN MU
USER:    [ENTER]

SYSTEM:  MARCH UNIT NAME = HHC/4-2
         ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    [ENTER]
```

```
SYSTEM:  IN SERIAL NO. 2 THIS IS MARCH UNIT NO. 3
         # OF VEHICLES IN MU = 27
         ENTER # OF VEHS. IN MU
USER:    [ENTER]

SYSTEM:  MARCH UNIT NAME = C/4-2
         ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    [ENTER]

SYSTEM:  IN SERIAL NO. 2 THIS IS MARCH UNIT NO. 4
         # OF VEHICLES IN MU = 19
         ENTER # OF VEHS. IN MU
USER:    [ENTER]

SYSTEM:  MARCH UNIT NAME = A/4-2
         ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    [ENTER]

SYSTEM:  THIS IS SERIAL NO. 3
         SERIAL NAME = 1BDE CS
          NTER SERIAL NAME, 10 CHARACTERS OR LESS
USER:    [ENTER]

SYSTEM:  # OF MARCH UNITS = 3
         ENTER # OF MARCH UNITS (MAX 10)
USER:    [ENTER]

SYSTEM:  IN SERIAL NO. 3 THIS IS MARCH UNIT NO. 1
         # OF VEHICLES IN MU = 195
         ENTER # OF VEHS. IN MU
USER:    [ENTER]

SYSTEM:  MARCH UNIT NAME = 4-40 FA
         ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    [ENTER]

SYSTEM:  IN SERIAL NO. 3 THIS IS MARCH UNIT NO. 2
         # OF VEHICLES IN MU = 72
         ENTER # OF VEHS. IN MU
USER:    [ENTER]

SYSTEM:  MARCH UNIT NAME = A/4-441 AD
         ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    [ENTER]

SYSTEM:  IN SERIAL NO. 3 THIS IS MARCH UNIT NO. 3
         # OF VEHICLES IN MU = 50
         ENTER # OF VEHS. IN MU
USER:    [ENTER]

SYSTEM:  MARCH UNIT NAME = A/55 EN
         ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    [ENTER]
```

```
SYSTEM:  THIS IS SERIAL NO. 4
         SERIAL NAME = 1BDE FSB
         ENTER SERIAL NAME, 10 CHARACTERS OR LESS
USER:    [ENTER]

SYSTEM:  # OF MARCH UNITS = 1
         ENTER # OF MARCH UNITS (MAX 10)
USER:    [ENTER]

SYSTEM:  IN SERIAL NO. 4 THIS IS MARCH UNIT NO. 1
         # OF VEHICLES IN MU = 156
         ENTER # OF VEHS. IN MU
USER:    [ENTER]

SYSTEM:  MARCH UNIT NAME = 1BDE FSB
         ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    [ENTER]

SYSTEM:  THIS IS SERIAL NO. 5
         ENTER SERIAL NAME, 10 CHARACTERS OR LESS
USER:    TF4-23

SYSTEM:  ENTER # OF MARCH UNITS (MAX 10)
USER:    4

SYSTEM:  IN SERIAL NO. 5 THIS IS MARCH UNIT NO. 1
         ENTER # OF VEHS. IN MU
USER:    21

SYSTEM:  ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    B/4-23

SYSTEM:  IN SERIAL NO. 5 THIS IS MARCH UNIT NO. 2
         ENTER # OF VEHS. IN MU
USER:    36

SYTEM:   ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    HHC/4-23

SYSTEM:  IN SERIAL NO. 5 THIS IS MARCH UNIT NO. 3
         ENTER # OF VEHS. IN MU
USER:    27

SYSTEM:  ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    C/4-23

SYSTEM:  IN SERIAL NO. 5 THIS IS MARCH UNIT NO. 4
         ENTER # OF VEHS. IN MU
USER:    19

SYSTEM:  ENTER MARCH UNIT NAME, 10 CHARACTERS OR LESS
USER:    A/4-23
```

```
SYSTEM:  THIS IS CHECKPOINT 1
         ENTER HALT TIME IN MINUTES
USER:    [ENTER]

SYSTEM:  THIS IS CHECKPOINT 2
         ENTER HALT TIME IN MINUTES
USER:    [ENTER]

SYSTEM:  THIS IS CHECKPOINT 3
         HALT TIME = 30
         ENTER HALT TIME IN MINUTES
USER:    0

SYSTEM:  THIS IS CHECKPOINT 4
         ENTER HALT TIME IN MINUTES
USER:    [ENTER]

SYSTEM:  THIS IS CHECKPOINT RP
         ENTER HALT TIME IN MINUTES
USER:    [ENTER]
```

APPENDIX D

SAMPLE OUTPUT

HASTY MOVE WITH STAGGERED STARTS
FILE IS 1BDE

ROAD MOVEMENT TABLE

MAX PACE(KMPH)= 35
AVG SPEED FOR 1ST UNIT(KMPH)= 32
LENGTH OF COLUMN(KM)= 79.1
AVG VEHICLE LENGTH(METERS)= 8
VEHICLE DENSITY(VPKM)= 8.9

VEHICLE INTERVAL(METERS)= 50
MARCH UNIT INTERVAL(KILOMETERS)= 3
SERIAL INTERVAL(KILOMETERS)= 5

SERIAL NO	MARCH UNIT NO	NUMBER OF VEHICLES	CHECK POINT	DUE IN TIME (HHMM DD)	RELEASE TIME (HHMM DD)	REMARKS	PACE (KMPH)	PACE (MPH)
1						TF4-77		
	1	28	SP	0700+00	0703+00	A/4-77	35.0	21.7
			1	0738+00	0741+00		30.0	18.6
			2	0826+00	0829+00		34.6	21.4
			3	0904+00	0939+00	30 -MINUTE REST	20.0	12.4
			4	1004+00	1009+00		34.1	21.1
			RP	1121+00	1124+00			
	2	42	SP	0710+00	0714+00	HHC/4-77	35.0	21.7
			1	0747+00	0752+00		30.0	18.6
			2	0835+00	0840+00		34.4	21.3
			3	0914+00	0951+00	30 -MINUTE REST	20.0	12.4
			4	1014+00	1021+00		33.6	20.9
			RP	1132+00	1136+00			
	3	23	SP	0722+00	0724+00	B/4-77	35.0	21.7
			1	0800+00	0803+00		30.0	18.6
			2	0848+00	0851+00		34.7	21.5
			3	0926+00	1000+00	30 -MINUTE REST	20.0	12.4
			4	1026+00	1030+00		34.3	21.2
			RP	1143+00	1145+00			
	4	32	SP	0731+00	0734+00	C/4-77	35.0	21.7
			1	0809+00	0812+00		30.0	18.6
			2	0857+00	0900+00		34.5	21.4
			3	0935+00	1010+00	30 -MINUTE REST	20.0	12.4
			4	1035+00	1040+00		34.0	21.1
			RP	1153+00	1156+00			
2						TF4-2		
	1	21	SP	0745+00	0747+00	B/4-2	35.0	21.7
			1	0823+00	0825+00		30.0	18.6
			2	0911+00	0913+00		34.7	21.5
			3	0949+00	1023+00	30 -MINUTE REST	20.0	12.4
			4	1049+00	1053+00		34.3	21.3
			RP	1206+00	1208+00			

	2	36	SP	0745+00	0757+00	HHC/4-2	35.0	21.7
			1	0831+00	0835+00		30.0	18.6
			2	0919+00	0923+00		34.5	21.4
			3	0958+00	1034+00	30 -MINUTE REST	20.0	12.4
			4	1058+00	1104+00		33.8	21.0
			RP	1216+00	1219+00			
	3	27	SP	0805+00	0803+00	C/4-2	35.0	21.7
			1	0843+00	0846+00		30.0	18.6
			2	0931+00	0934+00		34.6	21.5
			3	1009+00	1043+00	30 -MINUTE REST	20.0	12.4
			4	1109+00	1113+00		34.1	21.2
			RP	1226+00	1229+00			
	4	19	SP	0815+00	0817+00	A/4-2	35.0	21.7
			1	0853+00	0855+00		30.0	18.6
			2	0941+00	0943+00		34.7	21.5
			3	1019+00	1052+00	30 -MINUTE REST	20.0	12.4
			4	1119+00	1122+00		34.4	21.3
			RP	1235+00	1237+00			
3						1BDE CS		
	1	195	SP	0826+00	0845+00	4-40 FA	35.0	21.7
			1	0903+00	0926+00		30.0	18.6
			2	0951+00	1014+00		32.2	20.0
			3	1032+00	1136+00	30 -MINUTE REST	20.0	12.4
			4	1132+00	1206+00		29.4	18.2
			RP	1302+00	1321+00			
	2	72	SP	0907+00	0914+00	A/4-441 AD	35.0	21.7
			1	0944+00	0952+00		30.0	18.6
			2	1032+00	1040+00		33.9	21.0
			3	1111+00	1154+00	30 -MINUTE REST	20.0	12.4
			4	1211+00	1224+00		32.7	20.3
			RP	1332+00	1339+00			

	3	50	SP	0924+00	0929+00	A/55 EN	35.0	21.7
			1	1002+00	1008+00		30.0	18.6
			2	1050+00	1056+00		34.3	21.2
			3	1129+00	1207+00	30 -MINUTE REST	20.0	12.4
			4	1229+00	1237+00		33.4	20.7
			RP	1348+00	1353+00			
4						1BDE FSB		
	1	156	SP	0940+00	0955+00	1BDE FSB	35.0	21.7
			1	1017+00	1035+00		30.0	18.6
			2	1105+00	1123+00		32.8	20.3
			3	1146+00	1243+00	30 -MINUTE REST	20.0	12.4
			4	1246+00	1313+00		30.3	18.8
			RP	1413+00	1428+00			

TIME ANALYSIS--FULL COLUMN

START TIME = 0700+00
COMPLETION TIME = 1428+00
MARCH TIME (INCLUDING HALTS) = 7:28

SERIAL NO	SERIAL NAME	TIME LEFT SP	TIME CLEARED SP	TIME ARRIVED RP	TIME CLEARED RP	PASSTIME AT RP
1	TF4-77	0700+00	0734+00	1121+00	1156+00	00:35
2	TF4-2	0745+00	0817+00	1206+00	1237+00	00:31
3	1BDE CS	0826+00	0929+00	1302+00	1353+00	00:51
4	1BDE FSB	0940+00	0955+00	1413+00	1428+00	00:15

ROUTE
DESCRIPTION

ROUTE IS Blue

ROAD SEGMENT	DISTANCE (KM)	(MI)	MAX RATE OF TRAVEL (KMPH)	(MPH)
1	22	14	35	22
2	24	15	30	19
3	22	14	35	22
4	10	6	20	12
5	44	27	35	22

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APPENDIX E
MOVEPLAN EVALUATION QUESTIONNAIRE
(USER FEEDBACK FORM)

1. PURPOSE. The purpose of this questionnaire is to obtain feedback from users on the utility of and potential enhancements for MOVEPLAN.

2. BACKGROUND. MOVEPLAN was developed by analysts assigned to the Combined Arms Operations Research Activity (CAORA), Fort Leavenworth, Kansas in 1985. MOVEPLAN was developed as a prototype decision aid to assist tactical planners to develop a unit movement plan. MOVEPLAN was designed to be robust and flexible to enable Army-wide use and to support both detailed unit movement planning and to provide logic for analysis of large force movement on multiple independent routes. Current anticipated enhancements to MOVEPLAN include representation of unit movement from assembly areas to start point and from release point to final positions. Other enhancements may be implemented based on user feedback provided by completion of this questionnaire.

3. PROCEDURE. MOVEPLAN users should complete the questionnaire and multiple observation sheets and mail completed materials to:

Commander
USACAORA
ATTN: ATOR-CAS-CF
Ft. Leavenworth, KS 66027-5220

MOVEPLAN SURVEY SHEET

1. USER'S NAME AND RANK: _____

2. USER'S UNIT ADDRESS: _____

_____

_____

3. USER'S DUTY POSITION: _____

4. USER'S PHONE NUMBER: _____

5. BRIEFLY DESCRIBE WHY YOU USE MOVEPLAN:

6. INDICATE FREQUENCY OF USE (Circle One):

a. During Garrison Operations.

DAILY WEEKLY MONTHLY NEVER

b. During Field Operations.

DAILY WEEKLY MONTHLY NEVER

7. INDICATE THE EASE OF USE OF THE USER'S MANUAL (Circle One):

VERY EASY EASY DIFFICULT* VERY DIFFICULT*

*If you circled difficult or very difficult then please make suggestions on an evaluation worksheet.

8. INDICATE THE EASE OF PROGRAM OPERATION (Circle One):

VERY EASY EASY DIFFICULT* VERY DIFFICULT*

*Suggestions for improvements?

9. DOES MOVEPLAN SUPPORT MOST OF YOUR MOVEMENT PLANNING NEEDS? (Circle One)

YES NO*

*What needs to be added or changed?

10. DOES MOVEPLAN OPERATE IN A LOGICAL AND TIMELY MANNER FOR YOUR NEEDS? (Circle One)

YES NO*

*What needs to be changed?

11. PLEASE PROVIDE GENERAL COMMENTS BELOW:

12. PLEASE COMPLETE AN EVALUATION WORKSHEET FOR EACH SPECIFIC OBSERVATION OR SUGGESTED IMPROVEMENT (PLEASE PROVIDE DETAILS).

MOVEPLAN EVALUATION WORKSHEET

OBSERVATION/PROBLEM:

DISCUSSION:

RESOLUTION:

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APPENDIX F

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