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RESEARCH TRIANGLE INSTITUTE

INSTALLATION AND IMPLEMENTATION GUIDE TO THE SYSTEM FOR TRACKING EDUCATIONAL PROGRESS

(STEP)

DRAFT

• DECEMBER 1988 •

DEVELOPED BY

THE RESEARCH TRIANGLE INSTITUTE
WITH
HARVARD UNIVERSITY
UNDER THE
BASIC RESEARCH AND IMPLEMENTATION
IN DEVELOPING EDUCATION SYSTEMS PROJECT
(BRIDGES)

Sponsored by the Office of Education, Bureau for Science and Technology,
and
Office of Development Resources, Bureau for Latin America and the Caribbean
United States Agency for International Development

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Part One

Introduction to the Installation and Implementation of the STEP System (System for Tracking Educational Progress)

1. Introduction

The Installation and Implementation Guide for the STEP System is composed of four major sections. Detailed instructions for entering and editing data, running the model and generating output in predefined graphs and tables are given in Part One. The procedure for installing the required software and verifying the necessary hardware is outlined in Appendix B. The creation of comparison data files and the generation of comparison tables and graphs are presented Part Two. Part Three provides instruction on defining tables and graphs and editing and creating instruction files. Instructions for creating country specific applications are presented in Part Four.

An introduction to the STEP software distributed with this manual is provided. Assumed knowledge of microcomputer terminology, skills, hardware and software and the conventions used throughout the installation and implementation guide are summarized below.

1.1 An Introduction to the STEP Software Used in the Implementation Guide

The STEP System software is comprised of program files (one program file for each of the STEP modules) data files, library files and instruction files. Two data files are required to run the STEP System, a population data file, POPGUAT, and an education data file, GUAT. Both files contain all the input data required by the STEP System. The input data in the GUAT data file include historic enrollment by age and grade for seven years, 1974, 1975, and 1979 to 1983. All of the advantages of the STEP System can be demonstrated with these two databases. The third sample database, PRACTICE, is education database used only for practicing data entering and editing in Section 1.3. Library files contain the predefined tables, graphs and variable labels. Instruction files instruct the computer to run a given set of commands.

The User's Guide to STEP and the Reference Manual to Host are referred to this Guide. Neither reference is required reading, but a basic understanding of the STEP System, as provided in the User's Guide, is most helpful for understanding the instructions in the following sections.

1.2 Microcomputer Terminology, Skills, Hardware and Software Used Throughout this Guide

It is beyond the scope of this manual to explain or review all the computer skills required to install and implement the STEP System.

Familarity of certain computer terms and the keyboard is assumed. The keys on the keyboard, terminology, skills and DOS commands that are used throughout this manual are summarized below.

The types of keys and specific keys of the keyboard that are referred to in the manual and that are assumed to be understood by the user include: function keys, control key (ctrl), numeric keypad, cursor movement or arrow keys, the enter or return key, and the insert and delete keys. Although keyboards differ from machine to machine, the names for the keys mentioned throughout this manual are fairly generic and the types of keys are labeled similarly on most keyboards.

Terms referring to the computer hardware, the operating system (DOS) and operation of the computer with which the user should be familiar include: disk drive, hard disk (or the equivalent RAM disk or cartridge), boot disk, root directory, subdirectory, boot up, (the) cursor, (the) path, and (the) prompt.

The user must be capable of executing the following: warm boot and moving the cursor between disk drives and hard disk directories and subdirectories.

DOS commands to be used in the installation and activation of the STEP System include: copy, path, prompt, make directory and change directory.

1.3 Conventions Used Throughout the Installation and Implementation Guide

1. Throughout the manual it is assumed that the drive for the hard disk is "c". If the hard disk drive letter is designated by a letter other than "c", simply replace the letter "c" with the appropriate letter.

2. [Enter]

i.e., Press the Enter key. The Return key replaces the Enter key on some keyboards.

3. [...]

i.e., Press the key that is named between the brackets, e.g. [down arrow]: press the down arrow key; [Del]: press the delete key

4. Type: "x" [Enter]

Instructs the user to type the whatever follows the colon (:) and then press the Enter key.

5. Highlight: "x" [Enter]

Instructs the user to move the highlighted rectangle which is referred to as the cursor to the word or words following the colon (:) and then press the Enter key

1.4 Using the STEP System with the Guatemalen Database

Instructions to access the STEP System using Host, to enter and edit data, to run each of the six modules, and to generate tables and graphs of the results of the STEP System are included in this section:

1. **Activating Host and Configuring Host for STEP:** activating Host to access STEP and designating the default directories, data files, and printer and console settings.

2. **Editing and Entering Data in the STEP System:** entering new data and editing existing data using the practice data file, PRACTICE.

3. **Running the Six STEP Modules:** all the STEP modules are run using the two STEP sample data files, POPGUAT and GUAT.

4. **Displaying and Printing Data in Predefined Tables and Graphs:** generating tables and graphs of input and output data on the screen, to the printer and to print-ready files.

5. **Running Predefined Instruction Files:** automatically executing Host commands in predefined Instruction Files.

The first time that STEP is used on a microcomputer, STEP and Host must be installed on the microcomputer according to the instructions provided in Appendix B. The installation instructions of the STEP System includes the procedure for the verification of the hardware and software required to run the STEP System.

General Notes for Using the Host Software

Moving Around the Menus

Users who are familiar with the software package Lotus 1-2-3 may notice that the horizontal menu of Host resembles that of Lotus. As the different options in the Main Menu are highlighted, a description of each option appears on the line below the menu items. As in Lotus, there are two methods for choosing an option in the menu: key selection and cursor selection. Usually, each menu option or command begins with a unique letter which allows the user to activate that option by typing the first letter of the desired option. However, in lower level menus, some options in the menu may begin with the same first letter and in this case it is best to use the cursor selection method. The cursor selection method is normally a two step process: First the option is highlighted by moving the highlighted rectangle with the cursor movement keys (the arrow keys on the numeric keypad) across the menu until the desired option is highlighted and then the enter or return key is pressed which activates that option.

"Highlight" is a convention used in this manual which refers to the first step in the cursor selection process, ie. move the highlighted rectangle with the cursor movement keys to the designated menu item or option.

Moving Between Levels of Menus

Depending on the option chosen from the main menu, there may be as many as four levels of menus in Host. The menu in which the user is working is displayed in inverse video in the upper right hand corner of the screen.

If there is any confusion about the menu in which you are working, the slash key, "/" , or the escape key, "esc", can be pressed to display the current menu. Since there are instances in which some data may be lost if the escape key is used to display the menu, it is advised that the slash key always be used to display the current menu.

To return to the previous menu, press the "/" key and then highlight "Quit" in the menu at the top of the screen and press "Enter" or press the "Escape" key, "Esc". You may return to the main menu by repeatedly pressing the escape key or by highlighting "Quit" and pressing enter.

Types of Cursors

The highlighted rectangle is only one type of cursor used by the Host software. A cursor is a special symbol, color, or shape used to show position on the display screen. Host provides facilities for working with several types of information and, according to the facility being used, uses several types of cursors. Different types of cursors are introduced in the course of this manual. Refer to the Host Reference Manual for a more detailed account of types of cursors and cursor movement.

Using Query and Toggle Fields

Often the user is required to make a selection from a list of options such as variable names or data files or from a limited set of possible responses. Host indicates when either type of selection must be made by use of a query or toggle field.

A question mark, "?", in inverse video, is a query field indicating that there is a list of options or items from which the user may make a selection. This query field is activated by typing a question mark (press and hold down [shift] and type ?). A list of items appears either across the top of the screen or vertically in the center of the screen. The cursor movement keys may be used to browse through the options. To activate the desired option, the option is highlighted and the enter key pressed.

A plus-minus sign in inverse video is the toggle field indicating that there is a limited set of possible responses. Three keys may be used to view the set of responses: the plus key, "+", the minus key "-", and the space bar. By pressing the space bar or plus key, the next possible option is displayed. Pressing the minus key displays the previous option.

Deleting and Inserting Characters

The delete key, Del, may be used to delete characters above and to the right of the cursor. The backspace key may be used to delete characters to the left of the cursor.

To insert characters, move the cursor to the position where the characters are to be inserted, press the insert key, Ins, and then type the characters to be inserted.

Exiting Host

To exit Host, at the main menu type "q" or highlight the Quit Facility in the Menu and press the Enter key. The user is given an opportunity to exit to the operating system or to continue with Host. Type "y" if you want to leave Host and "n" if you want to continue with Host.

You may quit Host from any point in the system by repeatedly pressing the Escape key, Esc. Once the Main Menu appears on the screen, simply type "q" then "y" to exit to the operating system. It is advised to always exit from Host from the Main Menu.

To exit from Host temporarily, i.e. Host remains loaded in resident memory, type "*" at the Main Menu. To return to Host, type "Exit" at any DOS prompt.

1.4.1 Activating Host and Configuring Host for STEP

Activating Host

Activating Host simply means that the Host program is loaded into the computer memory and that the software is ready to use. To load Host into the computer memory, "Host" is typed at the prompt for the hard disk or cartridge. If this is the first time the STEP System is used on the microcomputer, the STEP System and the Host program files must be copied to the hard disk or cartridge. (Follow the directions in Appendix B.)

It is assumed that the Host program files are stored in a subdirectory called Host and the STEP System files are stored in a subdirectory called STEP.

1. Turn on the computer

2. Move the cursor to the hard disk prompt:

   Type: c: [Enter]

3. Designate the path to the Host program:

Type: path c:\host [Enter]

4. Move the cursor to teh subdirectory containing the STEP System files (C:\STEP)

Type: cd\step [Enter]

5. Activate the Host program:

Type: host [Enter]

The Opening Copyright Screen of Host appears (Screen 1.1)

Press: [Enter] (or any key)

Screen 1.1 The Opening Copyright Screen of Host

The next screen to appear is the main menu of the Host program (Screen 1.2).

Screen 1.2 The Host Main Menu

Configuring Host for STEP: Setting the System Environment

Before using the STEP System, the settings or system environment for the current session are designated using the options in the Configure Menu. The Configure Menu is displayed when the Configure option in the Host Main Menu is activated (Screen 1.3).

Screen 1.3 The Configure Menu

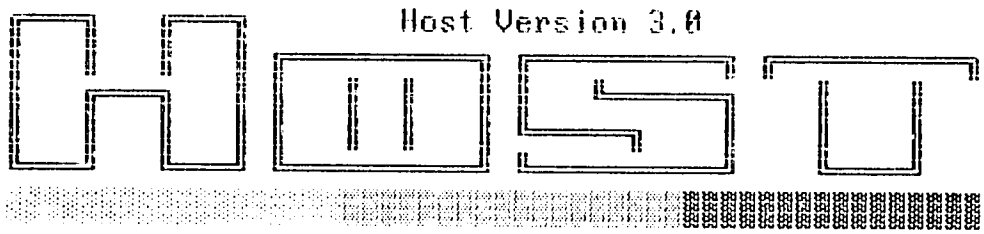
The options in the Configure Menu include settings for: default files, directories and output devices (DEFAULT), the type of printer and printing format (PRINTER), the type of plotter and plotting format (PLOTTER), the type of console and display cards (CONSOLE), saving (SAVE) the configuration and quitting (QUIT) the Configure Menu. As in the Host Main Menu, as the different options in the Configure Menu are highlighted, a description of each option appears on the line below the menu items.

For each Configure Option, the setting option and the settings to be designated are described. The instructions for designating the appropriate settings are outlined.

ess [Esc] to leave, any other key to proceed.

Funding for the development of this program has been provided by the United States Agency for International Development

Host Version 3.0



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Screen 1.1 The Opening Copyright Screen of Host

CONFIGUR

Defaults Printer Plotter Console Save Quit
Default file names, directories, and output devices.

DEFAULT FILES

Data :
Comparison :
Instruction :

DEFAULT OUTPUT DEVICES

Table : Console (CON)
Graph : Printer (PRN)

DEFAULT DIRECTORIES

Data : \STEP\
Module : \STEP\
Library : \STEP\
Instruction : \STEP\

Screen 1.2 The Host Main Menu

MAIN MENU

Configure Define Edit Run Tabulate Graph Instruct Manage *DOS Quit
Specify file names, directories, printer and monitor settings.

- Use the arrow keys to highlight your menu choice then press [Enter], or press the key corresponding to the first letter of your menu choice. Pressing the [Esc] key is the same as selecting the choice "Quit".

Screen 1.3 The Configure Menu

Once the settings are specified, they are saved in a file named system.env that is recalled whenever Host is activated from the subdirectory in which it was created. The system environment may be modified at any time during the STEP session.

Description of the Defaults Settings

Configure Defaults Menu settings include the default data files, directories, and output devices. The Default Screen (Screen 1.4) is divided into three main sections: Default Files, Default Directories, and Default Output Devices.

Default Files

The name of the data file used in the STEP session is designated in this section. The designated data file is stored in the "Data" directory designated in the Directory section. The data file PRACTICE is designated as the default data file since it is used for the editing and editing data section of Part One. Any Host data file found in the default data file directory (see below) can be designated as the default data file. No comparison or instruction file is designated at this time.

When the cursor is positioned after "Data", "Comparison" or "Instruction" in the Default Files section, a question mark highlighted in inverse video appears to $e left of the cursor. When the question mark appears, type a question mark and a list of the appropriate type of files in the designated default directory is displayed across the top of the screen. This method is especially useful when the name of the file is unknown or an attempt at remembering the file name is unsuccessful.

Default Directories

The path to and name of the subdirectory containing the four types of files is designated in the Default Directory section. If all the STEP files are stored in the STEP subdirectory (c:\step), as in the installation directions in Appendix B, then the path for all four directories (Data, Module, Library, Instruction) is the same: \step.

Default Output Devices

The options for the output devices for tables include the console (screen) and a printer. The output devices for graphs include the console, a printer and a plotter. The console is designated as the default output device for tables and graphs.

The plus-minus sign that appears when the cursor is moved next to "Tables" or "Graphs" in the Output Device section is a toggle field. It indicates that the plus-sign key, the minus-sign key or the space bar may be used to toggle through the options for the different output devices.

Once the preferred device appears the enter key is pressed and the cursor moves to the next option.

Designating Defaults Settings

Activate Host and display the Host Main Menu on the screen as described in Section 2.2.1

Highlight: Configure [Enter]

(The Configure Menu (DEFAULTS, PRINTER, PLOTTER, CONSOLE, SAVE, QUIT), appears at the top of the screen (Screen 1.3).

Highlight: Defaults [Enter]
The Configure Defaults Screen appears (Screen 1.4).

Screen 1.4 Configure Defaults Screen.

Press: [down arrow]

until the cursor is positioned next to "Data" in the Default Directory section.

(If in the following steps, any characters remain on the line after "\step", use the delete key to erase them before pressing the enter key.)

(If "\STEP\" already appears for the four directories, press the down arrow or enter key to move the cursor to the next line.)

Type: \step [Enter]
(The cursor is positioned next to "Module".)

Type: \step [Enter]
(The cursor is positioned next to "Library".)

Type: \step [Enter]
(The cursor is positioned next to "Instruction".)

Type: \step [Enter]
(The cursor is positioned next to "Table" in the Default Output Device section.)

Press: space bar
until "Console (CON)" appears.

Press: Enter
(The cursor is positioned next to "Graph".)

Press: space bar
until "Console (CON)" appears.

CONFIGURE

Defaults Printer Plotter Console Save Quit
Default file names, directories, and output devices.

DEFAULT FILES

Data : PRACTICE
Comparison :
Instruction :

DEFAULT OUTPUT DEVICES

Table : Console (CON)
Graph : Console (CON)

DEFAULT DIRECTORIES

Data : \STEP\
Module : \STEP\
Library : \STEP\
Instruction : \STEP\

Screen 1.4 Configure Defaults Screen

Press: Enter
(The cursor is positioned after "Data" in the Files section.)

Type: ?
(A list of data files appears at the top of the screen.)

Highlight: PRACTICE [Enter]
(The cursor is positioned next to "Comparison".)

Press: [Enter]
(No Comparison file name should be designated at this time. Delete any characters on this line with the Delete key [Del] and then press [Enter].)
(The cursor is positioned next to "Instruction".)

Type: [Enter]
(No Instruction file name should be designated at this time. Delete any characters on this line with the Del key and then press [Enter].)
(The cursor is positioned next to "Data".)

Press: /
(The Configure Menu appears at the top of the screen.)

Type: s

Description of the Printer Settings

Printer settings include: graph size (small or large); printing format; the printer type and the printer interface settings. The interface settings may be found in the printer manual. More information on the settings for these options may be found in the Host Reference Manual.

Use the space bar to toggle through options when the plus-minus sign appears. Otherwise the information must be typed from the keyboard.

The designations used in the instructions in this guide are the following. The graph size is small. The settings for the printing format are based on 8.5 inch by 11 inch paper: left margin: 5; top margin: 5; bottom margin: 6; page length: 66; line length: 65. Page eject is set to yes so that each table is printed on a new sheet of paper. The setup and reset strings are left blank. The settings for type of printer and the printer interface depend upon the specific hardware being used. Refer to your printer manual to determine the appropriate settings.

Designating the Printer Settings

With the Configure Menu at the top of the screen:

Highlight: Printer [Enter]
(The Configure Printer screen appears on the screen, Screen 1.5.)
(The cursor is positioned next to the plus-minus sign at "Graph Size".)

Screen 1.5. Configure Printer Screen

Press: space bar

until "small" appears.

Press: Enter
(The cursor is positioned next to "Left margin".)

Type: 5 [Enter]
(The cursor is positioned next to "Top margin".)

Type: 5 [Enter]
(The cursor is positioned next to "Bottom margin".)

Type: 6 [Enter]
(The cursor is positioned next to "Page Length".)

Type: 66 [Enter]
(The cursor is positioned next to "Line Length".)

Type: 65 [Enter]
(The cursor is positioned next to "Page Eject".)

Type: yes [Enter]
(The cursor is positioned at the space next to "Setup String".)

The space next to "Setup String" should be empty. If there are any characters, use the delete key on the numeric keypad to delete them.

Press: [Enter]
(The cursor is positioned at the space next to "Reset String".)

The space next to "Reset String" should be empty. If there are any characters, use the delete key on the numeric keypad to delete them.

Press: [Enter]
(The cursor is positioned at the space next to "Printer".)

Press: [space bar]
until the type of printer to be used for printing tables appears.

Press: Enter
(The cursor is positioned at the space next to "Port".)

The Interface settings (Port, Baud Rate, Parity, Data Bits, and Stop Bits can be input exactly as the type of printer was input. Use the space bar to toggle through the options and when the appropriate option appears on the screen press enter.

CONFIGURE PRINTER

PRINT SETTINGS		PRINTER
Graph Size	SMALL	IBM Graphics Printer
Left Margin	: 10	INTERFACE
Top Margin	: 6	
Bottom Margin	: 6	Port : LPT1
Page Length	: 66	
Line Length	: 65	Baud Rate : 9600
		Parity : NONE
		Data Bits : 8
Page Eject	: Yes	Stop Bits : 1
Setup string	:	
Reset string	:	

Screen 1.5 Configure Printer Screen

To invoke the configure menu after the interface settings are complete:

Press: /
(The Configure Menu appears at the top of the screen.)

Type: s

Description of the Plotter Settings

The plotter system settings include: the plot settings, the type of plotter and the plotter interface. Each of the plotter settings may be set using the space bar to toggle through the options. It is suggested that the user refer to the plotter manual for the settings required by Host to interface to the plotter.

Designating the Plotter Settings

At the Configure Menu:

Highlight: Plotter [Enter]
(The cursor is positioned at the "Graph Size" setting.)

Screen 1.6 The Configure Plotter Screen

Press: space bar
until the preferred size appears on the screen.

Press: Enter
(The cursor is positioned at the "Number of Pens" setting.)

Repeat the toggling and entering steps until all the settings have been designated.

Press: /
(The Configure Menu appears at the top of the screen.)

Description of the Console Settings

The console default settings include Text Colors, Graph Colors, Text Display and Graphics Display. Except for the Graph Colors settings, the space bar is used to toggle through the options for each of the settings in the Console Screen.

In the Text Colors section, the user designates the appropriate type of monitor. The colors for different types of display modes are designated if the monitor is color. The background and palette colors are set in the Graph Colors section for both types of monitors. A number from 1 to 7 is

PLOT SETTINGS

Graph Size ◘ FULL PAGE

Number of Pens : 6

Pen Width : 0.28

PLOTTER

Hewlett Packard 7475

INTERFACE

Port : COM1

Baud Rate : 9600
Parity : NONE
Data Bits : 8
Stop Bits : 1

Screen 1.6 The Configure Plotter Screen

entered for either option. For a monochrome monitor these settings are usually 0 for the background color and 4 for the pallet color. The user may experiment with the color combinations to find the preferred color mix on a color monitor. (See the Addendum to the Host User's Guide Manual for complete information on these settings.) The Text and Graphics Display options refer to the types of cards installed in the computer to display text and graphics on the screen. These are hardware specific and the type of card must be correctly designated in order for Host to display text and graphs on to the screen.

Designating the Console Settings

At the Configure Menu:

Highlight: Console [Enter]
(The cursor is positioned at the space next to "Monochrome".)

Screen 1.7 Configure Console Screen

Press: space bar

until the appropriate response appears: "Yes" for a monochrome monitor and "No" for a color monitor.

Press: Enter
(If the monitor is color, choose one of the samples for each of the four kinds of display used in the Host software. Use the space bar to choose the color and then press the enter key to move to the next option.)

(If the monitor is monochrome the cursor is positioned at the Graph Color option Background.)

When the cursor is positioned at the space next to "Background":

Type: 0 [Enter]
(The cursor is positioned at the space next to "Pallette".)

Type: 4 [Enter]
(The cursor is positioned at the Text Display option.)

Press: space bar
until the name of the appropriate text display card appears.

Press: Enter
(The cursor is positioned at the Graph Display option.)

Press: space bar
until the name of the appropriate graphics display card appears.

CONFIGURE CONSOLE

TEXT COLORS

Monochrome : Yes

Normal : Color Sample
Highlighted : Color Sample
Inverse : Color Sample
Input : Color Sample

Border :

GRAPH COLORS

Background : 0
Palette : 4

TEXT DISPLAY

IBM Color Graphics Adapter

GRAPHICS DISPLAY

IBM Color Graphics Adapter, 320*200,4

Screen 1.7 Configure Console Screen

Press: /
(The Configure Menu appears at the top of the screen.)

Description of the Save Settings

Whenever the Configure Menu is displayed on the screen, changes to the configuration may be saved. To save the default settings, the "Save" option in the Configure Menu must be activated. A message at the top left of the screen verifies that the configuration has been saved. The designated settings are saved in a file called system.env. They can be changed at any time during a STEP session by invoking the Configure facility of Host from the Main Menu, changing any of the default settings and then saving those changes.

Saving the Designated Settings

At the Configure Menu:

Highlight: SAVE [Enter]
(The Configure Menu reappears at the top of the screen.)

Description of the QUIT Setting

The QUIT option in the Configure Menu allows the user to leave the Configure Menu and return to the Host Main Menu. The Quit option has a fail safe Save function: whenever you try to quit the Configure Menu, Host checks for any changes that have been made to the configure settings and, if they were not saved, provides an opportunity to save them before returning to the Main Menu.

Quitting the Configure Menu

To quit the Configure Menu:

Highlight: QUIT [Enter]
(The Host Main Menu appears.)

1.4.2 Editing and Entering Data in the STEP System

Introduction to Editing and Entering Data

In order to use the STEP System, three basic tasks are required: entering and editing data, running the modules and viewing input assumptions and results. Entering and Editing data is covered in Section 1.4.2. Section 1.4.3 describes the steps to run all 6 modules of the STEP System. The generation of tables and graphs is explained in Section 1.4.4.

This section uses three variables (see the list of variables in the data file in Chapter 2 of the User's Guide) in the data file PRACTICE to illustrate the procedure for entering and editing input data. The procedure for entering new data, updating a database, or editing existing data is basically the same. The examples of variables used to illustrate the procedure for entering and editing data are representative of different types of variables.

There are two types of input variables: control variables and data variables. These two types of variables may be periodic or non-periodic and uni- or multi-dimensional.

Control variables flag a particular setting or option to be used when the application module is run. Data variables contain values required for the calculations made during the processing of a module.

The first variable for which data is entered, INCLUDE, is an option variable that is used to indicate which years of historic input data are to be used in estimating the transition rates. The second variable, ENTAGE, the age at which children enter the primary school cycle, is a data variable that is non-periodic. The third variable, ENROL, is also a data variable. It is two-dimensional (grade and sex) and periodic. See Appendix A for the correct ENROL data. The data file, PRACTICE, is used to practice the entering and editing of data in these variables.

Using the Host Software to Enter and Edit STEP Data

To enter and/or edit data, the Edit facility is activated from the Main Menu. The data file and then the particular variable in that data file containing the data to be edited are chosen. After the variable is chosen, the data edit screen for that particular variable appears on the screen. Data values are input in the appropriate spaces on the screen and then saved.

Activate Host and Display the Main Menu on the Screen (see Section 1.1).

To Activate the EDIT Facility, at the Host Main Menu:

Highlight: Edit [Enter]

The path to and name of the default data file, PRACTICE, appears after the query for the name of the data file to edit (Screen 1.8).

Press: [Enter]

Screen 1.8 The Name of the Data File to be Edited

EDIT DATA

Data file to edit ? D:\STEP\PRACTICE_____

- If no path is specified, Data Files are assumed to be in the D:\STEP\ directory.

Screen 1.8 The Name of the Data File to be Edited

If that name does not appear,

Type: **"?"**
Highlight: **"PRACTICE" [Enter]**

The user is prompted for the name of the variable to be edited (Screen 1.9)

Screen 1.9 The Name of Variable to be Edited

At the prompt ("?"):

Type: ?
Highlight: INCLUDE [Enter]

The editing screen for the variable "INCLUDE" appears (Screen 1.10).

Screen 1.10 Data Editing Screen for the Variable "INCLUDE"

The blinking underline cursor within the highlighted rectangle cursor is positioned at the top of the data column. The highlighted rectangle cursor indicates the active field in the data matrix and the blinking underline cursor indicates the active position within the field.

To specify the historic years of input that are to be included in the STEP calculations, a "y" must be placed in the space next to those years and a "n" next to the non-included years. The first year in the editing screen is 1974. A "y" is typed next to the each historic year of data that is included in the calculations of historic transition rates in the ESTIMATE module. The "included years" are 1974, 1979, 1980, 1981, and 1982. Type a "n" next to the years 1975, 1976, 1977, 1978 and 1983 to 2000.

(1974)**Type:** y [Enter]
(1975)**Type:** n [Enter]
(1976)**Type:** n [Enter]
(1977)**Type:** n [Enter]
(1978)**Type:** n [Enter]
(1979)**Type:** y [Enter]
(1980)**Type:** y [Enter]
(1981)**Type:** y [Enter]
(1982)**Type:** y [Enter]
(1983)**Type:** n [Enter]
(1984)**Type:** n [Enter]
Continue to type "n" in the space next to each year through 2000.
(2000)**Type:** n [Enter]
Press: /

[The Edit Menu appears at the top of the screen (Screen 1.11).]

EDIT DATA

Variable name ? _____

Screen 1.9 The Name of Variable to be Edited

EDIT DATA

Variable Name : INCLUDE
Description : Includes the year in estimation (y or n)

Data File : PRACTICE

YEAR	
1974	y
1975	n
1976	n
1977	n
1978	n
1979	y
1980	y
1981	y
1982	y
1983	n
1984	n
1985	n
1986	n
1987	n
1988	n
1989	n
1990	n

Screen 1.10 Data Editing Screen for the Variable "INCLUDE"

Screen 1.11 The Edit Menu

Highlight: Save [Enter]
[You are prompted for the name of the variable under which to save these changes. The name of the variable originally chosen to be edited is displayed on the screen (Screen 1.12).]

Screen 1.12. The Name Under Which to Save the Edited Variable.

Press: [Enter] (to save the changes under the same variable name)
(The Edit Menu appears at the top of the screen.)

Highlight: Variable [Enter] (to choose the next variable)
(The user is prompted for the name of the variable to edit.)

Type: ?
Highlight: ENTAGE [Enter]

[The cursor is positioned at the upper left corner of the screen (Screen 1.13).]

The highlighted rectangle cursor with a blinking underline cursor within is positioned at the top of the data column. **The highlighted rectangle cursor** indicates the active field in the data matrix and **the blinking underline cursor** indicates the active position within the field.

Screen 1.13 The Data Editing Screen for the Variable ENTAGE

Since the age at which children enter the primary school is 7:

Type: 7 [Enter]
Type: /

[The Edit Menu appears at the top of the screen (Screen 1.11).]

Highlight: Save [Enter]
(You are prompted for the name of the variable under which to save these changes. The name of the variable originally chosen to be edited is displayed on the screen.)

Press: [Enter] (to save the changes under the same variable name)
(The Edit Menu appears at the top of the screen.)

Highlight: Variable [Enter]
(The user is prompted for the name of the variable to edit.)

EDIT MENU

Resume Area Period Interpolate Save Dimension Variable File Quit
Resume editing current variable.

YEAR	
1984	n
1985	n
1986	n
1987	n
1988	n
1989	n
1990	n
1991	n
1992	n
1993	n
1994	n
1995	n
1996	n
1997	n
1998	n
1999	n
2000	n

Screen 1.11 The Edit Menu

EDIT MENU

Save variable as : INCLUDE_

YEAR	
1984	n
1985	n
1986	n
1987	n
1988	n
1989	n
1990	n
1991	n
1992	n
1993	n
1994	n
1995	n
1996	n
1997	n
1998	n
1999	n
2000	n

Screen 1.12 The Name Under Which to Save the Edited Variable

EDIT DATA

Variable Name : ENTAGE
Description : Age of entrance to school system

Data File : PRACTICE

0

Screen 1.13 The Data Editing Screen for the Variable ENTAGE

Type: ?
Highlight: ENROL [Enter]

[The cursor is positioned in the upper left corner of the ENROL data matrix (Screen 1.14).]

Screen 1.14 The Data Editing Screen for the Variable ENROL

Enrollment data by grade and age are entered in the years for which this data were available, 1974, 1975, and 1979 to 1983. For illustrative purposes, an error has been found in the 1980 third grade enrollment data. From the input data in Appendix A, the 1980 third-grade enrollment should be 124,182.

***Data Editing Notes:**

Experiment with the cursor movement keys (arrow keys, Home, End) to move from field to field. Also, use the function keys F3 through F6 to change periods. Pressing the F4 function key always advances you to the next period. If you advance too far, press the F3 key to return to the previous period. The period, or year in the case of STEP, is indicated in the space above the data matrix.

If a typing error occurs while entering the data, but before you have moved to the next field, use the backspace key or delete key to delete the digits. If you notice a typing error after you have moved to the next field, use the cursor movement keys (arrow keys) to move to the appropriate field, re-enter the correct number, press enter.

To edit the third grade enrollment in 1980, with the ENROL data matrix on the screen:

Press: [F4]

until the year 1980 appears in the space above the data matrix.

Press: [down arrow]

until the cursor is positioned next to "Third" data (Screen 1.15).

Screen 1.15 Cursor Position for Entering the Third Grade Enrollment Data

Type: 124182 [Enter]
Type: / (To invoke the Edit Menu.)
Highlight: Save [Enter]
(The prompt for the name of the variable under which to save these changes appears. The default variable name ENROL should be diplayed.)

EDIT DATA

Variable Name : ENROL
Description : Enrolment by grade

Data File : GUAT

GRADE/SEX PERIOD : 1974

	Both Sexes
First	219766.00000
Second	122426.00000
Third	94167.000000
Fourth	67218.000000
Fifth	52859.000000
Sixth	44753.000000

F3-Previous Period F4-Next Period F5-First Period F6-Last Period

Screen 1.14 The Data Editing Screen for the Variable ENROL

EDIT DATA

Variable Name : ENROL
Description : Enrolment by grade

Data File : PRACTICE

GRADE/SEX PERIOD : 1980

	1
1	290843.00000
2	162963.00000
3	142182.00000
4	92113.000000
5	72374.000000
6	60929.000000

F3-Previous Period F4-Next Period F5-First Period F6-Last Period

Screen 1.15 Cursor Position for Entering the Third Grade Enrollment Data

Press: [Enter] (to save the data under the variable "ENROL")
(The Edit Menu reappears.)

Highlight: Quit [Enter]
(The Host Main Menu appears.)

This concludes the section on editing and entering data in a STEP data file using the Host software. The same procedures as outlined for the three types of variables above can be applied to any of the other variables in a STEP data file.

1.4.3 Running the Six STEP Modules

Introduction to Running the STEP Modules

The first time the STEP System is run using the Guatemalan data base files (POPGUAT and GUAT), all six modules must be run consecutively. Each module, except the first module, POP, requires results from a previous module. The six modules, in the order presented in this section: POP, ESTIMATE, PROJRATE, EDPROJ, COHORT, COST. The Guatemalan population data file, POPGUAT, found on the distribution diskettes, contains all the required input to run the POP module for the years 1970 to 2000. The Guatemalan education data file found on the distribution diskettes, GUAT, contains all the required input data to run the remaining five modules for the years 1974 to 2000.

This section explains the mechanics of running the modules in Host and, when necessary, briefly describes some of the operational requirements of running the modules. **Chapter 2 of the STEP User's Guide describes the operational requirements in detail: the input variables and input data required for each module, the output of each module and the use of, or how to run, each module.**

A brief description of the Interactive and Batch Modes of the STEP System is given. The Run facility of Host is described since this is the first step in running any of the six STEP modules. The steps for using the Interactive Mode to run each of the modules using the Guatemalan data base are outlined. Finally, the procedure for running the modules using the Batch Mode is also provided.

The Interactive and Batch Mode of Running the Six Modules

The STEP System can be run either interactively or in "Batch Mode". In the Interactive Mode, the computer prompts the user for the choices or information required by the particular module being executed. In Batch Mode, the module reads the information and choices from two variables in the data file. The Host Edit facility is used to enter the appropriate information in the variables, BATCHOPT and POPFILE.

In the Interactive Mode, questions prompting for the information or choices required for each module are displayed on the screen. The responses are typed from the keyboard. The values that appear in brackets after each question are the default values. These are the values that were entered during the previous run of the module or were entered using the Host Edit facility (see the next paragraph on Batch Mode). To use the default value simply press the Enter key; to use a value other than the default, type in the appropriate response and then press the Enter key.

Interactive Mode assumes that all the required input for each module has already been entered in the appropriate input variables. It does provides an option that allows the user to return to the Host Menu to enter the data using the Host Edit facility. In Interactive Mode, the initial screens display lists of required input and generated output.

When Batch Mode is used to run a module, only the screen where the user chooses either Batch or Interactive mode is displayed. Batch Mode assumes that the information and choices required to run a module have already been entered in two variables, BATCHOPT and POPFILE. The contents of the variable BATCHOPT are explained at the end of Chapter 2 in the STEP User's Guide. The path to and the name of the population data file used to process the ESTIMATE and EDPROJ modules are stored in the variable POPFILE. Use the Host Edit facility to view the contents of these two variables.

There are two ways to enter the values into BATCHOPT or the population data file name into POPFILE. The information can be entered using the Host Edit facility or during an interactive session of running the modules. The responses given during the interactive session are automatically stored in the BATCHOPT and POPFILE variables. These values become the default values in the next run of the module(s).

Using the Run Facility of Host

To run any of the six STEP System modules, the Run facility of Host is activated. The name of the application module, the data file name, the starting period and the number of periods are specified in the Run Screen (Screen 1.16).

Specifying the name of the application module, the data file name, and the starting period is straightforward. The name of the application module is one of the six STEP System modules, POP, ESTIMATE, PROJRATE, EDPROJ, COHORT or COST. The name of the data file is the appropriate population or education data file created for the STEP System. The starting period for every STEP module is usually one (1), but may begin with any period where the methodology of the particular module and the data requirements allow. The number of periods for which a module can be run depends on the number of periods for which input data are available for the specific module. The guidelines for determining the number of periods for which a module can be run is explained under the description of each of the modules.

Running the 6 STEP Modules Using the Interactive Mode

The instructions for the initial run of the six modules using the Interactive Mode are given.

Any time the STEP System is run, there must be some values stored in the variable BATCHOPT.

Activating the Run Facility

To activate the Run facility, at the Host Main Menu:

Highlight: Run [Enter]
(The Run Screen is displayed, Screen 1.16.)
(The cursor is positioned next to "Application Module".)

Screen 1.16 The Run Screen

Running the POP Module

The data file POPGUAT is used to run the POP Module. The data in the data file POPGUAT begin in the year 1970. The input data required for the projection have been entered for the years 1970 to 2000. Therefore, the maximum number of projected periods is 30 (31-1 = 2000-1970). The maximum number of periods the ESTIMATE and PROJRATE modules can be run is equal to the number of periods the POP module is projected.

To run the POP Module, the following information is entered in the Run Screen: POP (the name of the application module); POPGUAT (the name of the data file); 1 (the number of the starting period); and 30 (the number of periods to run the projection). The number of periods to run the population projection is equal to the last year for which there are data minus the first year of input data (2000-1970).

With the Run Screen on the screen and the cursor positioned next to "Application Module":

Type: ?
Highlight: POP [Enter]
Type: ?
Highlight: POPGUAT [Enter]
Type: 1 [Enter]
Type: 29
Type: /
(The Run Edit Menu appears at the top of the screen.)

Highlight: Go [Enter]

(The prompt for backing up the data file is displayed on the screen.)

```
Application Module ?
Data File          : C:\STEP\GUAT
Starting period    :    1
Number of periods  :    1
```

- If no path is specified, Application Modules are assumed to be in the C:\STEP\ directory.

Screen 1.16 The Run Screen

Type: n
(The STEP Logo Screen appears.)

Screen 1.17 The STEP Logo Screen

Press: [Enter]

The running of the POP module begins immediately after pressing the Enter key.

When the module is finished running, the message "Press any key to continue" appears in the upper left corner of the screen.

Press: [Enter]
(The Run Edit Menu appears.)

At this point, continue with the instructions to run the STEP module ESTIMATE, or exit from Host.

Running the ESTIMATE Module

The ESTIMATE Module calculates transition rates (the promotion, repeater, and entrance rates) using historical enrolment and population data. The data file GUAT is used to run the ESTIMATE Module. The population data are automatically read in from a designated population data file. The number of periods for which the ESTIMATE Module is run is greater than or equal to the number of periods of historic enrollment data and population data, whichever is smaller. In the data file GUAT, there are ten periods of historic data, 1974 to 1983 and 31 years of population data, 1970 to 2000. Therefore, the minumum number of periods ESTIMATE may be run is 9 (1983-1974). If there is any question as to the number of periods for which the ESTIMATE module can be run, check the last year for which an "h" is designated for the variable HISTORIC.

The outputs of this module are calculated only for the historic periods.

To run the ESTIMATE Module, enter the following information in the Run Screen: ESTIMATE (the name of the application module); GUAT (the name of the data file); 1 (the number of the starting period); and 11 (the number of periods to run the projection).

At the prompt next to "Application Module" on the Run Screen (Screen 1.16):

Type: ?
Highlight: ESTIMATE [Enter]
Type: ?
Highlight: GUAT [Enter]

Currently executing :
RUN M=POP D=POPGUAT S=1 N=5

STEP

SYSTEM FOR TRACKING EDUCATIONAL PROGRESS

Developed by Research Triangle Institute
with Harvard University under the
Basic Research and Implementation in DevelopinG Education Systems Project
(B R I D G E S)
Funded by the United States Agency for International Development

Press ENTER to continue:

Screen 1.17 The STEP Logo Screen

Type: 1 [Enter]
Type: 11
Type: /
(The Run Edit Menu appears at the top of the screen.)

Highlight: Go [Enter]
(The prompt for backing up the data file is displayed on the screen.)

Type: n
(The Step Logo Screen appears.)

Press: [Enter]

The screen appears with the prompt for running the module under Interactive or Batch Mode. To choose the Interactive Mode (Screen 1.18):

Type: 2 [Enter]

Screen 1.18 The Interactive - Batch Mode Query Screen

A screen of input data variables appears.

Press: [Enter]

A screen of output data variables appears.

Press: [Enter]

You are asked if all the input data are entered:

Type: 1 [Enter]

The screen prompting for the source of the population data appears. POPGUAT is an external source of the population data.

Type: 1 [Enter]

A default path to and name of the data file appears (Screen 1.19).

Screen 1.19 The Prompt for the Name of the External Population Data File

If "c:\step\popguat" appears on the screen, then:

Press: [Enter]

If no data file name is supplied or another inappropriate path or name appears, then:

Type: c:\step\popguat [Enter]

```
Currently executing :
RUN M=ESTIMATE D=GUAT S=1 N=11
```

```
Would you like to run the module in batch mode or interactive mode?
If you choose batch mode, your answers to the questions must be
in the variable BATCHOPT (edited by using HOST) or the questions
will be answered as in the previous run.

1 - Batch
2 - Interactive

Enter 1 or 2 now and press ENTER:
```

Screen 1.18 The Interactive - Batch Mode Query Screen

```
Currently executing :
RUN M=ESTIMATE D=GUAT S=1 N=11
```

```
This module requires population data.
Do you want to read the variable POP from a file created
with STEPS module POP?

1 - Yes (Use data from a POP module data file).
2 - No  (Use data from the current data file).

Enter 1 or 2 now and press ENTER: [1]

What is the name of the POP module file? [c:\step\popguat]
```

Screen 1.19 The Prompt for the Name of the External Population Data File

In the next screen the method of estimating transition rates is specified. The Schiefelbein Method can be used only if enrollment data is available by age for each grade in primary school. Enrollment by grade and age is stored in the variable ENROLAGE in the data file GUAT. In this instance, either method can be used. However, the Schiefelbein Method is used to process the ESTIMATE Module.

To choose the Schiefelbein Method of estimating transition rates:

Type: 2 [Enter]

The first two questions require either the user's best estimates or you can use the defaults in brackets.

To enter your own estimate, type in the number ([number]) and then press the enter key:

Type: [number] [Enter]

or, to use the default value in the brackets just press the enter key:

Press: [Enter]

The next series of questions that appear on subsequent screens are data related and the default values should be used.

Once all the questions are answered, the module begins calculations.

After the module has been run, a question on the last screen asks about age-specific enrollment rates. To calculate these the enrollment data must have been disaggregated by age for each grade. However, the calculations are quite time consuming and therefore the process is abandoned at this time.)

Type: 2 [Enter]

The last screen reminds the user that the output may be viewed in predefined tables and graphs, Screen 1.20. See the section below on generating predefined tables and graphs.

Type: [Enter]

Screen 1.20 The View Output Screen

Press: [Enter]
(The Run Edit Menu appears.)

Currently executing :
RUN M=ESTIMATE D=GUAT S=1 N=11

Module ESTIMATE has successfully executed

To view the results of this module, return to the MAIN menu
of HOST and then display tables using TABULATE

Press ENTER to continue:

Screen 1.20 The View Output Screen

Running the PROJRATE Module

The PROJRATE Module projects the historic period transition rates into the future. There are several methods of projecting the rates available in the PROJRATE Module.

The number of periods to run the PROJRATE is calculated by subtracting the first year of historic data, 1974, from the last year projected rates are required by the EDPROJ and COHORT Modules. EDPROJ can be run for the same number of periods for which there are population data. The type of transition rates used in the COHORT module determine the required number of periods of transition rates. If the fixed rates are used in the calculations, then the number of periods of transition rates is equal to the desired COHORT projection period. However, if varying rates are used, then fifteen years of rates beyond the last year of the COHORT projection are required. For the fixed method, the maximum number of periods COHORT is run is equal to the last year of the projection minus the first year of input data (2000-1974=26). However, if varying transition rates are used for the COHORT anaylsis, an additional 15 years of transition rates beyond the last year of the projection period is required (2000-1974+15=41).

The PROJRATE module is run with the data file GUAT starting in period one for 41 period(200-1974+15).

At the Run Edit Menu:

Type: e
(The Run Screen appears and the cursor is positioned next to "Application Module")

Type: ?
Highlight: PROJRATE [Enter]
Type: ?
Highlight: GUAT [Enter]
Type: 1 [Enter]
Type: 41
Type: /
(The Run Edit Menu appears at the top of the screen.)

Highlight: Go [Enter]
(The prompt for backing up the data file is displayed on the screen.

Type: n
(The Step Logo Screen appears.)

Press: [Enter]
(The Screen with the prompt for using Batch or Interactive Mode appears.)

Type: 2 [Enter]
(A screen of input variables appears.)

Type: [Enter]
(A screen of output variables appears.)

Type: [Enter]
(The input data verification - exit screen appears.)

Type: [Enter]
(In this screen the computer is chosen to calculate the rates.)

Type: 1
(The prompt for the method of calculating the rates must be chosen. Choose either method, varying or fixed, 1 or 2.)

Type: [number] [Enter]

If the varying method is chosen, there are three types of varying methods.

Type: [number] [Enter]
(The module begins the calculations.)

If the fixed method is chosen, there are two types of fixed methods.

Type: [number] [Enter]
(The module begins the calculations.)

When the module is finished running:

Press: [Enter]
Press: [Enter]
(The Run Edit Menu appears.)

Running the EDPROJ Module

The EDPROJ Module projects enrollment in primary school for a specified number of future periods using the standard grade transition method of projecting education enrollment.

To run the EDPROJ Module, the same information as in the previous modules must be provided, the name of the module and data file, the starting period and number of periods. The maximum number of periods EDPROJ can be run is equal to the last period of the POP and PROJRATE modules projection (2000 and 2016), whichever is smaller (2000) minus the first period of education data (1974). The EDPROJ module can be run for 26 period (2000-1974).

At the Run Edit Menu:

Type: e
(The Run Screen appears. Move the cursor next to "Application Module".)

Type: ?
Highlight: EDPROJ [Enter]
Type: ?
Highlight: GUAT [Enter]
Type: 1 [Enter]
Type: 26
Type: /
(The Run Edit Menu appears at the top of the screen.)

Highlight: Go [Enter]
(The prompt for backing up the data file is displayed on the screen.

Type: n
(The Step Logo Screen appears.)

Press: [Enter]

The screen appears with the prompt for running the module under Interactive or Batch Mode (Screen 1.18). To choose the Interactive Mode:

Type: 2 [Enter]
(A screen of input data variables appears.)

Press: [Enter]
(A screen of output data variables appears.)

Press: [Enter]

You are asked if all the input data are entered:

Type: 1 [Enter]

The screen prompting for the source of the population data appears.

Type: 1 [Enter]

The path to and name of the population data file to be used in the calculations are requested. A default value appears after the question mark.

If the path to and name of the data file displayed in the brackets on the screen is "[c:\step\popguat]" then,

Press: [Enter]

If the path and name to the data file is not [c:\step\popguat], then:

Type: c:\step\popguat [Enter]

The Module begins calculations.

When the module completes calculations:

(The view the output screen appears.)

Press: [Enter]
(A message appears in the upper left corner of the screen.)

Press: [Enter]
(The Run Edit Menu appears.)

Running the Cohort Module

The COHORT Module project the history of a cohort of 1000 entrants in primary school according to given repeater and drop out rates. The module allows the user to use two altenative methods:

fixed drop out and repeater rates; and
varying or contemporaneous droput and repeater rates.

To run the COHORT Module, the name of the application module and data file name, the starting period and number of periods of the projection are specified on the Run Screen. The number of periods for which this module may be run is determined on the number of periods of PROJRATE Module projection and the desired method of analysis, fixed or varying rates.

With the Run Menu on the screen and the cursor positioned next to "Application Module":

Type: ?
Highlight: COHORT [Enter]
Type: ?
Highlight: GUAT [Enter]
Type: 1 [Enter]
Type: 26
Type: /
(The Run Edit Menu appears at the top of the screen.)

Highlight: Go [Enter]
(The prompt for backing up the data file is displayed on the screen.)

Type: n
(The Step Logo Screen appears.)

Press: [Enter]

The screen appears with the prompt for running the module under Interactive or Batch Mode. To choose the Interactive Mode:

Type: 2 [Enter]
(A screen of input data variables appears.)

Press: [Enter]
(A screen of output data variables appears.)

Press: [Enter]

You are asked if all the input data are entered:

Type: 1 [Enter]

(The screen prompting for the method of calculation appears.)

To choose the varying rate method:

Type: 2 [Enter]
(A screen appears verifying the number of projected years of transition rates.)

Press: [Enter]
(The module begins calculations.)

When the calculations are complete the view output screen appears:

Press: [Enter]
Press: [Enter]
(The Run Edit Menu appears.)

Running the Cost Module

The COST Module projects 1) teacher demand by salary grade, 2) emand for administrators by salary grade, 3) other recurrent costs, and 4) capital costs. This module may be run independently of the other modules if primary school enrollment are entered manually. If the enrollment data from the EDPROJ Module are used then COST must be run after EDPROJ.

To run the COST Module, the name of the module and data file, the starting period and number of periods are entered on the Run Screen. The number of periods for which this module can be run is less than or equal to the number of EDPROJ or COHORT periods, whichever is smaller.

At the Run Edit Menu:

Type: e
(The Run Screen appears and the cursor is positioned next to "Application Module")

Type: ?
Highlight: COST [Enter]
Type: ?
Highlight: GUAT [Enter]
Type: 1 [Enter]

Type: 26
Type: /
(The Run Edit Menu appears at the top of the screen.)

Highlight: Go [Enter]
(The prompt for backing up the data file is displayed on the screen.)

Type: n
(The Step Logo Screen appears.)

Press: [Enter]

The screen appears with the prompt for running the module under Interactive or Batch Mode. To chose the Interactive Mode:

Type: 2 [Enter]
The screen prompting for the target year for the cost projection appears. This year must be less than or equal to the last year for which the COST module is being projected.

Type: [year] [Enter]
(The STEP Logo screen appears.)

Press: [Enter]
(The view results screen appears when the calculations are completed.)

Press: [Enter]
Press: [Enter]
(The Run Edit Menu appears.)

Type: q
(The Main Menu appears.)

1.4.4 Using the Batch Mode to Run the Six STEP Modules

The instruction for using the Batch Mode to process the six STEP System Modules are provided in the section. The descriiption of the Batch Mode and the BATCHOPT and POPFILE variables are given in Chapter 2 of the STEP User's Guide.

The difference between using the Batch Mode and the Interactive Mode to run the six STEP modules is that the Interactive Mode prompts the user for the information an dchoices required to run the modules. During an interactive session, the information and choices are typed directly onto the screen. The Batch Mode does not prompt the user for the information. When modules are run using the Batch Mode, the information and choices are assumed to be stored in the variabls BATCHOPT and POPFILE. The values in the BATCHOPT variable must be entered before the modules are run. Use the Host Edit Facility to enter the values in the variable BATCHOPT. The description of each value in BATCHOPT is provided in Chapter 2 of the STEP User's Guide.

The instruction to run a module, using either mode, are identical up to the point where the choice is made to use the Interactive or Batch Mode. When the Batch Mode is chosen at the prompt, the calculations begin immediately. However, verify the appropriate values are stored in BATCHOPT before running the module.

An example of how to run the ESTIMATE Module is given. The procedure is identical for the other modules.

At the Host Main Menu, activate the Run Facility:

Highlight: Run [Enter]
(The Run Screen appears.)
(The cursor is positioned next to "Application Module".)

Type: ?
Highlight: ESTIMATE [Enter]
Type: ?
Highlight: GUAT [Enter]
Type: 1 [Enter]
Type: 26
Type: /
(The Run Edit Menu appears at the top of the screen.)

Highlight: Go [Enter]
(The prompt for backing up the data file is displayed on the screen.)

Type: n
(The Step Logo Screen appears.)

Press: [Enter]

The prompt for running the module under Interactive or Batch Mode appears. To choose Batch Mode:

Type: 1 [Enter]
(The calculations begin immediately.)

When the calculations are complete:

Press: [Enter]
Press: [Enter]
(The Run Menu of Host appears.)

1.4.5 Generating Predefined Tables and Graphs

The STEP System is distributed with "libraries" of predefined tables and graphs. The following sections present the procedures for generating predefined tables and graphs to the console, the printer or a print-ready file.

Generating Tables

Tables of data may be displayed on the console, printed by a printer or stored in a print-ready file. To generate a table, the Tabulate Facility in the Main Menu is activated. At the Table Generation Screen the name of the table, the data file, the comparison data file, the destination for the table and the periods or years for which the table is generated are specified.

Tables are generated by loading data from the specified data file into the predefined table structure or shell found in the table library for STEP. Part Two of this manual describes the procedure for defining new tables. A table definition can be used with any Host Data File that contains variables with the same name and structure as the variables in the table definition.

In the first example, a table, ENROL, of the projected enrollment by grade and period, is first displayed on the screen (1). Then for specific periods of data, the table is sent to the printer (2) and finally to a print-ready file (3).

Recall that the first 10 periods of enrollment data in the ENROL variable is input data and the subsequent periods are generated output of the application module EDPROJ.

1. To generate a table to the screen:

At the Host Main Menu:

Highlight: Tabulate [Enter]
(The cursor is positioned ready to accept the Table Name in the Table Generation Screen, Screen 1.21.)

Screen 1.21 Table Generation Screen

Type: ?
Highlight: ENROL [Enter]
(The cursor is positioned next to "Data File ?".)

Type: ?
Highlight: GUAT [Enter]
(The cursor is positioned next to "Comparison File ?".)

Press: [Enter]
(The cursor is positioned next to "Output" at "CON".)
(This signifies that the table is to be displayed on the console.)

Type: con [Enter]
(The cursor is positioned next to "Periods" at "ALL".)

Type: 1-27 [Enter]
Press: /
(The Tabulate Menu appears at the top of the screen.)

Highlight: Go [Enter]

The table is displayed in the work space.

Press: PgDn (to view the rest of the table)

until a beep signals the end of the table.

Press: PgUp (to review earlier screens of the table)

Press: Esc (when finished viewing the table)
(The Tabulate Menu appears at the top of the screen and the Table Generation Editing Screen appears in the work space.)

Continue with step 2 to send a table to the printer.

Remember, at any time, the user may return to the main menu and quit Host by repeatedly pressing the escape key, Esc.

2. To obtain a copy of the table ENROL, the table is sent to the printer.

Verify the type of printer specified in the Configure Printer Screen before continuing with this section.

With the Tabulate Menu at the top of the screen (Screen 1.22):

Screen 1.22 The Tabulate Menu

Type: e (for Edit)
(The cursor is positioned next to "Table Name ?")

Type: ?
Highlight: ENROL [Enter]
(The cursor is positioned next to "Data File ?" .)

Type: ?
Highlight: GUAT [Enter]
(The cursor is positioned next to "Comparison File ?".)

Press: Enter
(The cursor is positioned next to "Output File" at "CON".)

```
Table Name      ? ________
Data File       : C:\STEP\GUAT
Comparison File :
Output File     : CON
Periods         : ALL
```

Screen 1.21 Table Generation Screen

TABULATE

Edit Go Quit
Edit specification of TABLE parameters.

Table Name : ENROL
Data File : C:\STEP\GUAT
Comparison File :
Output File : CON
Periods : ALL

Screen 1.22 The Tabulate Menu

Type: prn [Enter] (To designate the printer as the output device.)
Type: 11-27 (To designate the periods for which the table is to be printed; periods 11-27 are periods containing output enrollment data)
Type: /
(The Tabulate Menu appears.)

Verify that the printer is on and ready to print.

Type: g (for Go)

After the table is sent to the printer, the Tabulate Menu reappears on the screen.

If there are any problems with the format of the printed table, modify the printer settings in the Configure Menu.

3. Creating a print-ready file of the table ENROL.

With the Tabulate Menu at the top of the screen:

Highlight: Edit [Enter]
(The cursor is positioned next to "Table Name ?")

Type: enrol [Enter]
(The cursor is positioned next to "Data File ?")

Type: ?
Highlight: GUAT [Enter]
Press: [Enter]
(The cursor is positioned next to "Output File".)

Type: enrol.tbl (To designate the name of the file in which the table is stored. The extension ".tbl" is not required but helpful in identifying the file.)

Press: Enter
(The cursor is positioned next to "Periods".

Type: 1-27
Type: /
(The Tabulate Menu appears.)

Type: g

After the table is saved to a file, the Tabulate Menu reappears on the screen.
Type: q
(The Host Main Menu appears.)

To verify creation of the file, the following steps return the user to the DOS. The table ENROL is copied to the screen.

Type: * (to exit to the operating system; Host remains resident in memory.)

The DOS prompt, c:\STEP>, appears on the screen if the installation instructions in this manual were followed. Otherwise, move to the directory where the data files used to generate the print-ready file, enrol.tbl.

Type: dir enrol.tbl
(The file name should appear on the screen.)

If the file does not appear on the screen, verify that you are in the correct subdirectory and try again.

Type: type enrol.tbl (To type the file to the screen.)

To re-activate Host and return to the Host Main Menu:

Type: exit [Enter]
(The Host Main Menu appears.)

Generating Graphs

Graphs of data may also be displayed on the console, printed by a printer or stored in a graph-image file. To generate a graph, the Graph option in the Main Menu is activated and the Definition - Graph-File Screen and then the Graph Generation Editing Screen are invoked. On the editing screen, the name of the graph definition, the data file, the comparison data file, the destination for the graph and the periods or years of the projection for which the graph is to be generated are specified.

Graphs are generated by loading data from the specified data file into the predefind graph structure or shell found in the graph library for STEP. Part Two of this manual describes the procedure for defining new graphs. A graph definition can be used with any Host Data File containing variables that have the same name and structure as the variables in the graph definition.

The graph, ENROL, the projected enrollment by grade and period, is first displayed on the screen (1), then for specific periods of data, the graph is sent to the printer (2) and finally to a graph-image file (3).

Recall that the first 10 periods of enrollment data in the ENROL variable is input data and the subsequent periods are generated output of the application module EDPROJ.

1. To generate a graph to screen, or console:

At the Host Main Menu:

Highlight: Graph [Enter]
(The Definition - Graph-File Screen appears, Screen 1.23.)

Screen 1.23 The Definition - Graph-File Screen

Type: d
(The Graph Generation Screen appears, Screen 1.24.)
(The cursor is positioned ready to accept the Graph Name.)

Type: enrol [Enter]
(The cursor is positioned next to "Data File ?".)

Type:?
Highlight: GUAT [Enter]
(The cursor is positioned next to "Comparison File ?".)

Press: [Enter]
(The cursor is positioned next to "Output File ".)

Type: con [Enter]
(The cursor is positioned next to "Periods".)

Type: 1-26 [Enter]
Press: /
(The Graph Menu appears at the top of the screen, Screen 1.24.)

Screen 1.24 The Graph Generation Screen and Graph Menu

Type: g (for go)

The graph is displayed in the work space.

Press: PgDn (To view the rest of the graph.)

until a beep signals the last in the series of graphs.

Press: PgUp (To review earlier screens of the graph.)

Press: Esc (when finished viewing the graph)
(The Graph Menu appears at the top of the screen and the Graph Generation Editing Screen appears in work space.)

Continue with step 2 to send a graph to the printer.

Definition Graph-File Quit
Generate a graph using a definition in the Graph Library.

- Use the arrow keys to highlight your menu choice then press [Enter], or press the key corresponding to the first letter of your menu choice. Pressing the [Esc] key is the same as selecting the choice "Quit".

Screen 1.23 The Definition - Graph-File Screen

```
EDIT Go Quit                                                          GRAPH
Edit specification of GRAPH parameters.
------------------------------------------------------------------------
Graph Name       : ENROL_G
Data File        : C:\STEP\GUAT
Comparison File  :
Output File      : CON
Periods          : 1-26


  ▪ Use the arrow keys to highlight your menu choice then press
    [Enter], or press the key corresponding to the first letter
    of your menu choice.  Pressing the [Esc] key is the same as
    selecting the choice "Quit".
------------------------------------------------------------------------
```

Screen 1.24 The Graph Generation Screen and Graph Menu

Remember, at any time, the user may return to the main menu and quit Host by repeatedly pressing the escape key, Esc.

2. To obtain a copy of the graph POP, the graph is sent to the printer.

With the Graph Menu at the top of the screen:

Type: e
(The cursor is positioned next to "Graph Name ?")

Type: enrol [Enter]
(The cursor is positioned next to "Data File ?".)

Type: ?
Highlight: GUAT [Enter]
(The cursor is positioned next to "Comparison File ?".)

Press: [Enter]
(The cursor is positioned next to "Output File ?".)

Type: prn [Enter] (To designate the printer as the output device.)
Type: 1-27 (To designate the period for which the graph is to be printed)
Press: [Del] (the delete key, to erase any other characters on the line)

Type: /
(The Graph Menu appears.)

Verify that the printer is on and ready to print.

Type: g (for go)

After the graph is sent to the printer, the Graph Menu reappears on the screen.

If there are any problems with the format of the printed graph, modify the printer settings in the Configure Menu.

3. Create a graph-image file.

With the Graph Menu at the top of the screen:

Type: e
(The cursor is positioned next to "Graph Name ?")

Type: enrol [Enter]
(The cursor is positioned next to "Data File ?".)

Type: ?
Highlight: GUAT [Enter]
Press: [Enter]
(The cursor is positioned next to "Output File".)

Type: enrol.hgf [Enter] (The extension signifies that the graph is to be stored in a graph-image file.)
(The cursor is positioned next to "Periods".

Type: 1-26
Type: /
(The Graph Menu appears.)

Type: g (To go.)

After the graph is saved to a file, the Graph Menu reappears on the screen.

To display the host-graph file on the screen, return to the Definition - Graph-File Screen and choose the Graph-File Facility.

Type: q (to quit the Graph Menu)
(The Definition - Graph-file Screen appears.)

Type: g (to invoke the Graph-File Editing Screen, Screen 1.25.)
(The cursor is positioned next to "Graph-File ?".)

Screen 1.25 Graph-File Editing Screen

Type: enrol [Enter]
(The cursor is positioned next to "Output File".)

Type: con [Enter]
Press: /
Type: g
(The graph is displayed on the screen.)

Press: PgDn (to view the other periods of the graph)
Press: Esc (to invoke the Graph-File Menu)
Type: q (to quit the Graph-File Menu)
(The Definition - Graph-File Screen appears.)

Type: Q
(The Host Main Menu appears.)

```
Host Graph File ? ____________________________________________________________
Output File     : CON
```

* If no path is specified, files are assumed to be in the \STEP\ directory.

Screen 1.25 Graph-File Editing Screen

1.4.6 Processing Predefined Instruction Files

This section presents the steps for viewing the contents and processing a predefined instruction file. To view or process a predefined instruction file, the "Instruct" Facility in the Host Main Menu is activated. To view the contents of the file, the "Edit" option in the Instruct Menu is activated; to process the file, the "Process" option is activated. The instruction file "Graphs" is used to demonstrate the Instruct Edit and Process options. Consult the Host User Manual for more information on instruction files. Part Three the procedure for editing and creating an instruction file.

Viewing Predefined Instruction Files

At the Host Main Menu:

Type: I (for Instruct)
(The Instruct Menu appears, Screen 1.26.)

Screen 1.26 The Instruct Menu

At the Instruct menu:

Type: e (for edit)
(The prompt for the name of the instruction file to be edited appears

Type: ?
Highlight: GRAPHS [Enter]

(The contents of the instruction file GRAPHS appears in the workspace and the cursor is positioned at the beginning of the first line in the work space, Screen 1.27.)

Screen 1.27 GRAPHS Instruction File

Press: Esc
(The Instruct Edit Menu appears.)

Type: q
(The Instruct Menu appears.)

```
                                                                    EDIT FILE
Instruction File Name : GRAPHS        Line Number : 1
------------------------------------------------------------------------------
graph g=grads p=10-26 o=con
graph g=grsschl p=10-26 o=con
graph g=enrol_g p=10,15,20,25 o=con
graph g=enrolc p=10-26 o=con
graph g=totalpop o=con p=all d=popguat
graph g=schlpop p=10-26 o=con


■ Use [↓] or [↑] to point to a line, enter text to edit or press a function key.
F3-Run  F4-Table  F5-Suspend  F6-Graph  F7-Base  F8-Incr  F9-Period  F10-Rem
```

Screen 1.26 The Instruct Menu

Create Edit Backup Process Delete Quit
Create a new Instruction file.

- Use the arrow keys to highlight your menu choice then press [Enter], or press the key corresponding to the first letter of your menu choice. Pressing the [Esc] key is the same as selecting the choice "Quit".

Screen 1.27 GRAPHS Instruction File

Processing an Instruction File

At the Instruct Menu:

Type: p (for process)
(The prompt for the name of the instruction file appears.)

Type: ?
Highlight: GRAPHS [Enter]

(The prompt to backup the default data file before processing the instruction file appears.)

Type: n (for no)
(The processing of the contents of the file begins.)

Each graph in the GRAPHS instruction file is displayed sequentially. When finished viewing one graph the user presses "Esc" to view the next graph. When the instruction file completes the last line of instructions, the Instruct Menu appears.

At the Instruct Menu:

Type: q

(The Host Main Menu appears.)

Appendix A

Enrollment by Grade Data for Editing the 1980 Third Grade Enrollment

	First	Second	Third	Fourth	Fifth	Sixth
1974	219766	122426	94167	67218	52859	44753
1975	230872	127136	97206	70152	55762	45998
1976	0	0	0	0	0	0
1977	0	0	0	0	0	0
1978	0	0	0	0	0	0
1979	276712	152197	117304	86087	68751	55490
1980	290843	162963	124182	92113	72374	60929
1981	325638	176115	134881	98035	76978	63050
1982	295867	177815	133784	99064	77208	64378
1983	331230	190138	147860	107687	84259	68956

Appendix B

Installing STEP and Host on a Hard Disk

To install STEP and Host on the hard disk, the following four steps must be completed:

A. Verify hardware and software requirements.
B. Verify config.sys file on boot disk.
C. Copy STEP and Host files from the distribution diskettes to subdirectories on the hard disk.

A. Verify Hardware and Software Requirements

A.1 Verify Hardware Requirements

Host is designed to run on IBM PC or compatible microcomputers running version 2.0 to 3.1 of PC-DOS or MS-DOS operating system. Both operating systems are referred to throughout the remainder of this document as simply DOS.

Below is a list of required hardware and a table of computers and their operating systems that are compatible to run the Host software.

Verify that the system has the following hardware or the equivalent:

Required hardware:

- IBM PC, XT, AT or compatible with 512K bytes of RAM with compatible display adapter card (see tables below)
- Hard disk with at least 2 megabytes of free space
- 8087 or equivalent numeric co-processor

Host has been verified to function correctly with the following microcomputers and operating systems:

Microcomputer	Operating System	Version Number
IBM Personal Computer	IBM PC DOS	2.0 - 3.1
IBM Personal Computer XT	IBM PC DOS	2.0 - 3.1
IBM Personal Computer AT	IBM PC DOS	2.0 - 3.1
Compaq Portable/II	MS DOS	2.11
	IBM PC DOS	2.0 - 3.1
Compaq Deskpro	MS DOS	2.11
	IBM PC DOS	2.0 - 3.1
Wyse PC	MS DOS	2.11
Kaypro 2000	MS DOS	2.11
Kaypro 16	MS DOS	2.11

Microcomputer	Operating System	Version Number
Sperry IT	MS DOS	3.1
Wang PC	IBM PC DOS	2.0 - 3.1

Note: when using Host with a Wang PC, an IBM emulation board must be present.

Display Adapters Recommended for Use with Host

IBM Enhanced Graphics Display Adapter
IBM MOnochrome Display Adapter
IBM Color Display Adapter
Hercules Graphics Card
Genoa Spectrum
Paradise Modular Graphics Card

Verify software requirements:

Required software:

- PC or MS DOS 2.0 to 3.1 or equivalent
- STEP System (on distribution diskettes)
- Host (on distribution diskettes)

B. Verify Config.sys File on Boot Disk

The Host software requires certain operating system characteristics be set through the use of the CONFIG.SYS file. The use of the operating system configuration file, CONFIG.SYS, is explained in detail in your DOS manual. It is stored on the boot disk or boot directory of the computer.

Host requires that the config.sys file on the boot disk or on the root directory of the hard disk contain the following two lines:

```
files=16
buffers=24
```

First, the existence of the config.sys file on the boot disk or boot directory is verified. If the config.sys file does exist then the contents of the file are determined and modified if necessary. Otherwise, instructions for creating a config.sys file are provided.

B.1 Verify the Existence and Contents of a Config.sys File:

Type: type (boot path*):\config.sys [Enter]

"[Enter]" represents the action of pressing the Enter key (or Return key on some keyboards).

***replace the words "boot path" and the parentheses with the letter of the boot drive or boot directory of the computer.** For example, if the boot path is to the "a" drive of the computer, the line should by typed as:

Type: type a:\config.sys [enter]

or, if the boot path is to the root directory, "c", of the hard disk:

Type: type c:\config.sys [enter]

If a config.sys file exists on the boot disk or in the boot directory, the name and contents of the file appear on the screen.

If the config.sys file does not exist, the message "file not found" is displayed on the screen. Continue with the Section B.2 creating a config.sys file.

If the config.sys file does not contain these two lines, they must be added to the file. Or, if the number of files or buffers differ from the number required by Host, then the number of files and buffers specified in the file must be at least 16 for the number of files and at least 24 for the number of buffers. If the existing numbers do not conform to these requirements, these numbers must be changed. These lines may be added, or numbers changed, using a text, non-document editor or the DOS editor.

To edit an existing config.sys file with the PC DOS editor EDLIN,

Type: [path to DOS file EDLIN]:\edlin config.sys [Enter]
(The path to the DOS file EDLIN is the address of the file EDLIN.COM. This file may be in a subdirectory containing the DOS files on the hard disk c: or on the boot disk in the floppy drive, possible a:.

If the EDLIN.COM is located in the c: drive of the hard disk, then the command is typed as:

Type: c:\edlin config.sys [Enter]

If the EDLIN.COM is located in the subdirectory DOS on the c: drive of the hard disk, then the command is typed as:

Type: c:13-DEC-88 16:35:00os\edlin config.sys [Enter])

The existing config.sys file appears on the screen. (The cursor is positioned at the first character in the first line of the config.sys file.)

If files and buffer lines exist, then the existing line is overwritten with a new buffer or file command.

Press: [Enter]
until the cursor is at the existing file or buffer command.

Type: files=16 [Enter]

Do the same for an existing buffer command.

Press: [Enter]
until the cursor is positioned at the existing buffer command.

Type: buffers=24 [Enter]

If files and buffer lines do not exist, then a line is inserted and the new buffer or file command is entered.

With the cursor positioned at the first character in the first line of the config.sys file:

Type: i
(A line is inserted on the screen.)

Type: files=16 [Enter]

Do the same for an existing buffer command.

Type: i
(A line is inserted on the screen.)

Type: buffers=24 [Enter]

Type: e
(The new config.sys file is saved.)

Verify the creation of the config.sys file.

Type: type [boot path]:\config.sys

The file contents should appear on the screen.

Follow the above instructions if any corrections are required. See the DOS manual for further instructions.

Warm boot the computer.

Press and hold down: [Cntrl]
Press and hold down: [Alt]
Press: [Del]
Release: all three keys

To Create a Config.sys File:

If a config.sys file does not exist, one must be created on the boot disk or in the boot directory of the hard disk.

The following steps write over any existing config.sys file on the boot directory.

Execute the following steps at any prompt on the screen:

Type: copy con (boot path):\config.sys [Enter]
Type: files=16 [Enter]
Type: buffers=24 [Enter]
Press: [F6] (^z should appear on the screen)

The message "1 file(s) copied" appears on the screen.

Verify the Creation and Contents of the New Config.sys File.

To verify the creation and contents of the config.sys file:

Type: type (boot path):\config.sys [Enter]

The contents of the config.sys file appears on the screen.

The machine must be warm booted after the config.sys file is created.

To warm boot the computer:

Press and hold down: [Cntrl]
Press and hold down: [Alt]
Press: [Del]
Release: all three keys

C. Copying the STEP and Host files on the Distribution Diskettes to the Subdirectories on the Hard Disk.

The STEP System and Host are copied subdirectories on the hard disk. The Host software is distributed with a user-prompted installation procedure.

The DOS commands `MAKE DIRECTORY' and `CHANGE DIRECTORY' and `COPY' are used in this section.

Verify that sufficient disk space is available. Approximately 1.7K bytes are required to store all of the STEP files and 2.0K bytes to store all the Host files.

To verify the number of free bytes on the hard disk, at any prompt on the hard disk:

Type: dir [Enter]

The number of free bytes appears after the list of files on the disk. This number must be greater than 3,700,000.

Copying STEP to the Hard Disk

STEP is normally distributed on 5, 360K double-sided diskettes. All of the files on these diskettes must be copied to a separate subdirectory on your hard disk or cartridge disk.

The subdirectory for the STEP model files is created on the hard disk and then the files are copied to that subdirectory. The cursor is moved to the STEP subdirectory and then the files are copied from the distribution diskettes to the hard disk.

Creating the STEP Subdirectory and Copying the STEP Files to the Hard Disk

1. Move the cursor to the hard disk:

   Type: c: [Enter]

2. At the c:\ prompt:

   Type: md step [Enter]

3. Move the cursor to the STEP subdirectory:

   Type: cd\step [Enter]

4. Place the first distribution diskette of the STEP model in the a: floppy drive of the computer.

5. At the hard disk prompt(either C:> or C:\STEP>):

   Type: copy a:*.* [Enter]

Repeat 4 and 5 for each of the STEP distribution diskettes.

C.2 Copying Host to the Hard Disk

All of the files on the Host distribution diskettes are copied to your hard disk or cartridge disk via an automatic installation program found on the HOST1 distribution diskette.

To activate the user-prompted installation procedure:

1. Insert the first Host distribution diskette, "HOST1", in the "a" drive of the computer and:

2. Move the cursor to the a: drive:

   Type: a: [Enter]
   Type: install

Follow the instructions appear on the screen.

Part Two

Creating a Comparison Data File and Generating Comparison Tables and Graphs

2.1 Introduction

Part Two provides instructions for creating comparison data files and generating predefined comparison tables and graphs. A comparison data file is created, the STEP programs are rerun using the comparison data file, and then tables and graphs are generated that display data from two files.

In the following example, a comparison data file is created by copying an original data file. Some of the input data in the comparison data file are modified to reflect a change in the assumptions of the original data file or the choice of an alternative method of calculating the output of the model. Whenever the inputs are changed, the affected modules must be rerun using the new data file.

The impact of the relaxation of an original assumption or of choosing one method of calculation over another can be determined. Comparison tables and graphs which display data for a specific variable or variables from two data files in the same table facilitate the process of comparing the two data sets.

Two databases are required to run the STEP module, the population database and the education database. The population database distributed with the STEP System is called POPGUAT and the education database is GUAT. The population database contains all the data required for the population projection module, POP, ESTIMATE and EDPROJ, and the education database contains all the data required to run the other five STEP modules: ESTIMATE, PROJRATE, EDPROJ, COST, COHORT.

If the creation of the comparison scenario involves changes to the input data of either the population or education data file, then the data file is copied, renamed, edited, and used to run the affected modules. If the following comparison scenario, no changes are made to the population input data. Only the education data file is modified. The PROJRATE, EDPROJ, COST and COHORT are rerun using the new data file. Only the output data generated by PROJRATE, EDPROJ, COST and COHORT are erased.

The scenario in the new comparison data file is created to measure the impact of declining dropout rates on the projected enrollment, costs and cohort analysis. This scenario represents a possible governmental educational policy, or goal, of 100% retention of all entrants to the primary school by the year 1995. Specifically, the dropout rates for each grade decline from the historic rates to zero (0) by the year 1995 and remain at zero for the remainder of the projection period.

To create a database that reflects this plan, the target dropout rates for each grade in the school cycle, the target year or the year in which these target rates are achieved, and the method for projecting the rates

are entered in the appropriate variables. The rest of the input data in the new data file remain the same. The PROJRATE, EDPROJ, COST, and COHORT modules are rerun using the new data file.

The target dropout rates by grade are entered in the variable TARDROP. The target year in which the dropout rates attain the 0% level and the method for projecting the rates can be entered in the variable BATCHOPT by using the Edit Facility of Host or during the Interactive Mode of running the modules. The Batch Mode is used to run the modules in Part Two.

The steps in creating this new scenario and comparing the results of the new scenario (GUATTARG) with the old scenario (GUAT) include:
1) making a copy of the original data file and naming the new data file, 2) recon- reconfiguring the system for the new default data file GUATTARG, 3) clearing results from the previous run of the STEP System, 4) editing the values in the appropriate variables, 5) rerunning the appropriate STEP modules with the newly created data file, and 6) generating the results of the two data files in comparison tables and graphs to the screen.

The above scenario is only one of many that could be created. Any other changes to the assumptions of the original data base can be made by editing the appropriate input data or by choosing alternative calculation methods in the appropriate modules. The procedure for creating other comparison data files would be the same as the one below; The appropriate input data would be edited to reflect the assumptions of a desired scenario.

2.2 Creating the New Data File GUATTARG

This section explains the procedures for creating a new data file, i.e., the comparison data file, from an existing data file. The data file, GUAT, used in Part to run all the five education related modules, is copied and renamed, GUATTARG.

2.2.1 Copying the Original Run Data file (GUAT) to a New Data File and Renaming it in the Process (GUATTARG)

At the Host Main Menu (Screen 2):

Highlight: Manage [Enter]
(The Manage Menu appears, Screen 2.1.)

Screen 2.1 The Manage Menu

Highlight: Data [Enter]
(The Manage Data Menu appears, Screen 2.2.)

Screen 2.2 The Manage Data Menu

MANAGE MENU

Data Library Utility Quit
Create, rename, back up, delete, verify or pack Data Files.

Screen 2.1 The Manage Menu

- Use the arrow keys to highlight your menu choice then press [Enter], or press the key corresponding to the first letter of your menu choice. Pressing the [Esc] key is the same as selecting the choice "Quit".

MANAGE DATA

Create Rename Backup Delete Verify Pack Quit
Make a backup of a Data File.

Screen 2.2 The Manage Data Menu

- Use the arrow keys to highlight your menu choice then press [Enter], or press the key corresponding to the first letter of your menu choice. Pressing the [Esc] key is the same as selecting the choice "Quit".

Highlight: Backup [Enter]
(The prompt for the data file to be copied appears, Screen 2.3.)

Screen 2.3 The Prompt for the Name of the Data File to be Copied

Type: ?
Highlight: GUAT [Enter]
(The prompt for the name of the new data file appears, Screen 2.4.)

Type: GUATTARG [Enter]
(The copying process begins.)

Screen 2.4 The Prompt and Name of the New Comparison Data File

When the copying of the old data file is complete and the Manage Menu appears.

To return to the main menu:

Highlight: Quit [Enter]
(The Manage Menu appears.)

Highlight: Quit [Enter]
(The Main Menu appears.)

2.2.2 Reconfiguring the System for the New Default Data File GUATTARG

At the Host Main Menu:

Type: c
(The Configure Menu appears.)

Type: d
(The Defaults Menu appears.)

Press: [down arrow]
until the cursor is positioned next to Data under Data Files.

Type: ?
Highlight: GUATTARG [Enter]
Type: /
(The Configure Menu appears.)

Type: s (for save)
Type: q (for quit)
(The Host Main Menu appears.)

BACKUP FILE

Data File to backup ? C:\STEP\GUAT_____

Screen 2.3 The Prompt for the Name of the Data File to be Copied

- If no path is specified, Data Files are assumed to be in the C:\STEP\ directory.

BACKUP FILE

Copy GUAT to : GUATTARG_____

Screen 2.4 The Prompt and Name of the New Comparison Data File

- If no path is specified, a copy of GUAT will be created in the C:\STEP\ directory.

2.2.3 Clearing the Data in the Output Variables in GUATTARG

In the process of copying the old data file, all the input and output data in the old data file were copied to the new data file. The output data affected by the changes in the new scenario are erased in the new data file. In the example described in the introduction, the output genera ted by the POP and ESTIMATE modules does not change under the new scenario. Only the output generated by the PROJRATE, EDPROJ, COST, and COHORT modules is erased.

The following is a list of output variables (16) in the education data file GUATTARG that are cleared of data:

COST_CAP, COST_GRA, GER, GRADUATE, ENROL, IORATE, ONTIME, RES_COST, RES_USE, SCHLPOP, SYGRAD, SYGRAD2, TDROP, TOTENROL, TREP, YRSSCHL.

The Clear Facility erases all the data stored in a variable for all the time periods of the projection. Some variables contain input data as well as output data. For example, the variable REPEATRT contains repeater rates that are calculated during the historic period by the ESTIMATE module. The PROJRATE uses these repeater rates to project the rates into future time periods. In these cases, the data in the variables that contain input and output data are not cleared.

To clear data in variables in a data file, at the Host Main Menu:
Highlight: Define [Enter].

Screen 2.5 The Define Menu

Highlight: Variable [Enter]
(The Variable Menu appears, Screen 2.6.)

Screen 2.6 The Variable Menu

Highlight: Clear [Enter]
(The prompt for the name of the variable to be cleared appears.)

Type: ?
(The list of variables appears on the screen.)

Several variables can be cleared of data at the same time. Instructions for choosing the variables to be cleared of data are displayed on the screen, Screen 2.7.)

Highlight: ASER
Press: [space bar]
(A symbol appears to the left of the variable name, Screen 2.7. To deselect the variable, press the space bar again. The mark disappears.)

DEFINE MENU

abels Dimensions Variables Tables Graphs Quit
dd, edit, delete, list or report label format definitions.

Screen 2.5 The Define Menu

- Use the arrow keys to highlight your menu choice then press [Enter], or press the key corresponding to the first letter of your menu choice. Pressing the [Esc] key is the same as selecting the choice "Quit".

VARIABLE MENU

dd Edit Delete Clear List Report File Quit
lear one or more variables of their data.

Screen 2.6 The Variable Menu

- Use the arrow keys to highlight your menu choice then press [Enter], or press the key corresponding to the first letter of your menu choice. Pressing the [Esc] key is the same as selecting the choice "Quit".

Screen 2.7 Marking ASER for Data Clearing

Highlight: COST_CAP
Press: [space bar]

Continue to mark all the other variables in the list in the same way (ASER, COST_CAP, COST_GRA, GER, GRADUATE, IORATE, ONTIME, RES_COST, RES_USE, SCHLPOP, SYGRAD, SYGRAD2, TDROP, TOTENROL, TREP, YRSSCHL), Screen 2.8.)

Screen 2.8 Data Variables Marked for Data Clearing

When all 16 variables are marked:

Press: [Enter]
(A message asking if you want all data of marked variables to be deleted appears.)

Highlight: Yes [Enter]
(When the deletion process is completed, a message at the top left corner of the screen appears.)

Highlight: Quit [Enter]
(The Define Menu appears.)

Highlight: Quit [Enter]
(The Main Menu appears.)

2.2.4 Editing the Variables TARDROP and BATCHOPT in the GUATTARG Data File

The steps for editing the TARDROP and BATCHOPT variables are presented below. The target dropout rates by grade are entered in the variable TARDROP. The method of projecting the rates and the target year are entered in the variable BATCHOPT.

See Chapter 2 of the User's Guide for an explanation of each of the values of the variable BATCHOPT. An abbreviated description of each value is provided. The values to be edited are located in the rows: "Varying or Fix.", "Varying Future" and "Target year" row.

At the Host Main Menu:

Highlight: Edit [Enter]
(The prompt for the name of the data file to edit appears.)

If the name of the data file GUATTARG appears:

Press: [Enter]

Screen 2.9 The Data Editing Screen for the BATCHOPT Variable

EDIT DATA

Variable Name : BATCHOPT
Description : Answers to questions for batch mode.
Data File : GUATTARG

ANSWER

Method	2
Repeat Rate, MF	5
Rep. Rate, Male	4
Rep. Rate, Fem.	4
Dropout Rate MF	2
Drop Rate, Male	4
Drop Rate, Fem.	4
Aggr. or Disag.	2
Aggregated Age	14
Disagg. by Age	2
Age Enrol. Rate	2
Varying or Fix.	1
Varying Future	3
Target year	1995
Fixed Future	1
Cohort Method	1
Cost Trgt Year	1995

Screen 2.10 The Data Editing Screen for the Variable TARDROP

EDIT DATA

Variable Name : TARDROP
Description : Target dropout rate
Data File : GUATTARG

GRADE/SEX

	Male
First	0.0000000000
Second	0.0000000000
Third	0.0000000000
Fourth	0.0000000000
Fifth	0.0000000000
Sixth	0.0000000000

If the GUATTARG data file name does not appear on the screen after the question mark:

Type: ?
Highlight: GUATTARG [Enter]
(The prompt for the name of the variable to edit appears.)

Type: batchopt [Enter]
(The data editing screen for the BATCHOPT variable appears, Screen 2.9.)

Screen 2.9 The Data Editing Screen for the BATCHOPT Variable

Press: [down arrow]
until the cursor is positioned next to "Varying or Fix.".

Type: 1 [Enter]

Press: [down arrow]
until the cursor is positioned next to "Varying Future".

Type: 3 [Enter]

Press: [down arrow]
until the cursor is positioned next to "Target year".

Type: 1995 [Enter]
Type: /
(The Edit Menu appears.)

Highlight: Save [Enter]
(The variable name under which to save the changes appears, BATCHOPT.)

Press: [Enter]
(The Edit Menu appears.)

Highlight: Variable [Enter]
(The prompt for the name of the variable to be edited appears.)

Type: tardrop [Enter]
(The data editing screen for the variable TARDROP appears, Screen 2.10.)

Enter a zero (0) for each grade level on the screen.

Screen 2.10 The Data Editing Screen for the Variable TARDROP

Screen 2.7 Marking ASER for Data Clearing

SELECT VARIABLES

Contents of file GUAT.VAR.
There are 38 variables in this file.

		Name	Description
	1	AGGENROL	Enrolment data for aggregated age group
■	2	ASER	Age-specific enrolment rates
	3	BATCHOPT	Answers to questions for batch mode.
	4	COSTINCR	Rate of unit cost increase
	5	COSTTYPE	Cost Types
	6	COST_CAP	Cost per student
	7	COST_GRA	Cost per graduate
	8	DROPRT	Dropout rate
	9	ENDAGE	Last age for gross enrol. ratio calc.
	10	ENROL	Enrolment by grade
	11	ENROLAGE	Enrolment by grade and age
	12	ENTAGE	Age of entrance to school system
	13	ENTRT	Prop. Population Entering 1st Grade

■ Use [↑] or [↓] to point to a variable then press [Space] to mark or unmark it. Press [Alt-F] to mark all variables. Press [Alt-U] to unmark all variables. Press [Enter] to select marked variables.

Screen 2.8 Data Variables Marked for Data Clearing

SELECT VARIABLES

Contents of file GUAT.VAR.
There are 38 variables in this file.

		Name	Description
	1	AGGENROL	Enrolment data for aggregated age group
■	2	ASER	Age-specific enrolment rates
	3	BATCHOPT	Answers to questions for batch mode.
	4	COSTINCR	Rate of unit cost increase
	5	COSTTYPE	Cost Types
■	6	COST_CAP	Cost per student
■	7	COST_GRA	Cost per graduate
	8	DROPRT	Dropout rate
	9	ENDAGE	Last age for gross enrol. ratio calc.
	10	ENROL	Enrolment by grade
	11	ENROLAGE	Enrolment by grade and age
	12	ENTAGE	Age of entrance to school system
	13	ENTRT	Prop. Population Entering 1st Grade

■ Use [↑] or [↓] to point to a variable then press [Space] to mark or unmark it. Press [Alt-F] to mark all variables. Press [Alt-U] to unmark all variables. Press [Enter] to select marked variables.

Type: 0 [Enter] (Grade 1)
Type: 0 [Enter] (Grade 2)
Type: 0 [Enter] (Grade 3)
Type: 0 [Enter] (Grade 4)
Type: 0 [Enter] (Grade 5)
Type: 0 [Enter] (Grade 6)
Type: /
(The Edit Menu appears.)

Type: s
(The prompt for the name of the variable under which to store the new data appears.)

Press: [Enter]
(The Edit Menu appears.)

Highlight: Quit [Enter]
(The Main Menu appears.)

The GUATTARG data file is ready to use to run the STEP System.

2.2.5 Running STEP with the New Data File GUATTARG

Since the new input data does not affect the output generated by the population projection module POP or the transition rate estimation module ETIMATE, only the four subsequent STEP modules need to be rerun with the new data file GUATTARG: PROJRATE, EDPROJ, COHORT, and COST.

The Batch Mode is used to run the four modules. That way all the choices made during the previous run of the STEP System using the Interactive Mode remain the same. The only difference in the assumptions or input data between the two data files is the method of projecting the transition rates. The relevant information was entered in the variables TARDROP and BATCHOPT in the previous section.

The following instructions describe the process of running the PROJRATE, EDPROJ, COST, and COHORT modules using the Batch Mode. The specifications in the Run Screens for each of the modules remain the same. The values in the BATCHOPT variable, except the values for the method of projecting transition rates (Varying or Fix), the value for the target method of projecting transition rates (Varying Future), and the target year (Target Year), should be identical to the values in the data file GUAT.

Rerunning the Four STEP Modules

At the Host Main Menu:

Highlight: Run [Enter]
(The cursor is positioned next to "Application Module".)

Running the PROJRATE Module

Type: ?
Highlight: PROJRATE [Enter]
Type: ?
Highlight: GUATTARG [Enter]
Type: 1 [Enter]
Type: 41
Type: /
(The Run Screen appears at the top of the screen.)

Highlight: Go [Enter]
(The prompt for backing up the data file is displayed on the screen.

Type: n
(The Step Logo Screen appears.)

Press: [Enter]
(The Screen with the prompt for using Batch or Interactive Mode appears.)

Type: 1 [Enter]
(The calculations for the PROJRATE module begin.)

When the module is finished running, the screen suggesting you to view the outputs appears.

Press: [Enter]
Press: [Enter]
(The Run Screen appears.)

Running the EDPROJ Module

With the Run Menu on the screen:

Type: e
(The cursor is positioned next to "Application Module".)

Type: ?
Highlight: EDPROJ [Enter]
Type: ?
Highlight: GUATTARG [Enter]
Type: 1 [Enter]
Type: 25
Type: /
(The Run Screen appears at the top of the screen.)

Highlight: Go [Enter]
(The prompt for backing up the data file is displayed on the screen.)

Type: n
(The Step Logo Screen appears.)

Press: [Enter]

The screen appears with the prompt for running the module under Interactive or Batch Mode. To choose the Batch Mode:

Type: 1 [Enter]
(The Module begins calculations.)

When the module completes calculations:

Press: [Enter]
(A message appears in the upper left corner of the screen.)

Press: [Enter]
(The Run Screen appears.)

Running the Cohort Module

With the Run Screen:

Type: e
(The cursor is positioned next to "Application Module".)

Type: ?
Highlight: COHORT [Enter]
Type: ?
Highlight: GUATTARG [Enter]
Type: 1 [Enter]
Type: 25
Type: /
(The Run Menu appears.)

Highlight: Go [Enter]
(The prompt for backing up the data file is displayed on the screen.)

Type: n
(The Step Logo Screen appears.)

Press: [Enter]

The screen appears with the prompt for running the module under the Interactive or Batch Mode appears. To choose the Batch Mode:

Type: 1 [Enter]
(The module begins calculations.)

When the calculations are complete:

Press: [Enter]
Press: [Enter]
(The Run Menu appears.)

To return to the Host Main Menu:

Type: q
(The Main Menu appears.)

Running the Cost Module

With the Run Screen on the screen:

Type: e
(The cursor is positioned next to "Application Module".)

Type: ?
Highlight: COST [Enter]
Type: ?
Highlight: GUATTARG [Enter]
Type: 1 [Enter]
Type: 25
Type: /
(The Run Menu appears at the top of the screen.)

Highlight: Go [Enter]
(The prompt for backing up the data file is displayed on the screen.)

Type: n
(The Step Logo Screen appears.)

Press: [Enter]

The screen appears with the prompt for running the module under Interactive or Batch Mode. To chose the Batch Mode:

Type: 1 [Enter]
(The module calculations begin.)

When the module completes the calculations:

Press: [Enter]
Press: [Enter]
(The Run Menu appears.)

2.2.6 Generating Predefined Comparison Tables and Graphs

Comparison tables and graphs are designed to compare data from two different data files. In the following series of instructions, the comparison table ENROLC and graph ENROLC are displayed on the screen. The Tabulate and Graph Facilities of Host generate tables and graphs to various output devices.

The generation of a comparison table, because of the way it is defined, requires that a data file and a comparison data file be designated

in the Table Generation Screen. If a default data file and comparison data file have been designated in the configure procedure, they are displayed automatically when the table or graph generation screen is displayed. Any default settings may be changed in the Table or Graph Generation Screen.

Generate a Comparison Table to the Screen.

At the Main Menu:

Highlight: Tabulate [Enter]
(The Table Generation Screen appears and the cursor is positioned next to "Table Name ?".)

Type: enrolc [Enter]
(The cursor is positioned next to "Data File ?".)

Type: ?
Highlight: GUAT
Press: [Enter]
(The cursor is positioned next to "Comparison File ?".)

Type: ?
Highlight: GUATTARG
Press: [Enter]
(The cursor is positioned next to "Output File ".)

Type: con [Enter]
(The cursor is positioned next to "Periods".)

Type: 1-26
Press: [Enter]
Press: /
(The Tabulate Menu appears at the top of the screen.)

Type: g (for go)

Several messages are written to the top left hand corner of the screen and then the table is displayed in the work space.

Press: PgDn (To view the rest of the table.)

until a beep signals the end of the table.

Press: PgUp (To review previous screens of the table.)

Press: Esc (when finished viewing the table.)
(The Tabulate Menu appears at the top of the screen and the Table Generation Screen appears in work space.)

Type: q (To quit the Tabulate Menu.)
(The Host Main Menu appears.)

Generate a Comparison Graph to the Screen

At the Host Main Menu:

Type: g
(The Definition-Graph-File Screen appears.)

Type: d
(The Graph Generation Screen appears and the cursor is positioned to accept a graph Name.)

Type: enrolc [Enter]
(The cursor is positioned next to "Data File ?".)

Type: ?
Highlight: GUAT [Enter]
(The cursor is positioned next to "Comparison File ?".)

Type: ?
Highlight: GUATTARG [Enter]
(The cursor is positioned next to "Output File ".)

Type: con [Enter]
(The cursor is positioned next to "Periods".)

Type: 1-26 [Enter]
Press: /
(The Graph Menu appears at the top of the screen, Screen 2.12.)

Screen 2.11 The Graph Menu and Graph Generation Screen (Comparison Graph)

Type: g (for go)

Several messages are written to the top left corner of the screen and then the graph is displayed in the work space.

Press: PgDn (To view the rest of the graph.)

until a beep is sounded to signal the end of the graph.

Press: PgUp (To review previous screens of the graph.)

Press: Esc (when finished viewing the graph)
(The Graph Menu appears at the top of the screen and the Graph Generation Editing Screen appears in work space.)

Type: q (To quit the Graph Menu.)
Type: q (To quit the Definition-Graph-file Menu.)
(The Host Main Menu appears.)

TABULATE

```
Table Name       : ENROL
Data File        : C:\STEP\GUAT
Comparison File  : C:\STEP\GUATTARG
Output File      : CON
Periods          : 1-26
```

Screen 2.11 The Graph Menu and Graph Generation Screen (Comparison Graph)

Part Three

Defining Tables and Graphs and Creating Instruction Files

3. Introduction to Defining Tables and Graphs and Creating New Instruction Files

The STEP Model distribution files include libraries of predefined tables and graphs and instruction files. Part One and Part Two of the Installation and Implementation Guide use predefined tables and graphs to tabulate and graph data from the distribution data file GUAT and GUATTARG. The Instruction File demonstrated in Part I automatically generates a series of graphs. However, these predefined tables, graphs and instruction files may not always fulfill the data display or automatic operation requirements of the user of the STEP Model. New tables, graphs and instruction files may be created or existing ones redefined. Part III provides instruction on defining tables and graphs (3.1) and creating new instruction files (3.2).

Host has a table and graph generation facility which is capable of displaying data from one or more Host data files in tables and graphs. These facilities are demonstrated in Part I and Part II of the Installation and Implementation Guide.

The procedures for defining tables and graphs are similar. One additional screen of information is necessary when defining graphs.

Three representative types of tables and graphs are created in the next two sections: single- and multi-variable non-comparison and a multi-variable comparison.

For a thorough discussion on defining tables and graphs and creating instruction files, please refer to the Host User Guide sections on Defining Tables, Graphs and Instruction Files.

3.1 Defining Tables

Description of the Table Definition Screens

Each Host table is generated from a Table Definition which consists of a table name and title, the names of the variables to be included in the table, and the dimension settings which contain information on how the data are to be arranged in the table. Each table definition is stored in the Table library. The Host Tabulate facility generates a table by combining a table definition from the table library with data from a Host data file.

The information required to define a table are provided on two separate screens: the variable specification screen and the dimension specification screen.

The information required on the variable specification screen includes:

- The table name, which is the name under which the table is saved and subsequently recalled for data display or editing. The name must not contain more than eight characters.

- The title which may consist of four lines of 60 characters each and is saved with the table definition.

- The variable names which contain the data to be displayed in the table. The only restriction is that the variables to be included in one table must be all periodic or non-periodic.

The common dimensions for the variables listed in the previous screen are displayed in the left column of the dimension specification screen. The information required on the table dimension setting screen include (Screen 3.2):

- The "Use" of the common dimensions of the variables to be displayed in the table. This setting determines the way a dimension is used, or displayed, in a table. The space bar can be used to display the possible "use" settings for each dimension. The use settings include: row, column, nested, unnested, sum over.

- The "Label Format" of each dimension which provides the labeling and, if appropriate, the grouping of the levels of each dimension, as well as what groupings of data values are used for totals and summations. Appropriate label formats for each dimension are predefined and specific for each dimension.

- The "Combine" status which determines whether dimension levels are shown individually in addition to group subtotals, or only in label groups. The possible "Combine" settings are yes and no.

- "Total" calculates dimension totals for any dimension except PERIOD and any dimension that is not "summed over" by the use setting. The two possible settings for "Total" are "yes" and "no".

- "Percent" requests the calculation of percentages for Row, Column and Nested dimensions. The two possible settings for "Percent" are "yes" and "no".

3.1.1 Defining a Single-Variable Non-Comparison Table

In the following example of defining a table, the table, ENROLBYG, is initially structured to display the enrollment by grade data (Table 3.1).

TABLE

Currently executing :
TABLE T=ENROLBYG D=GUAT O=CON P=1-26

Enrollment by Grade

ENROL : Enrolment by grade

PERIOD/GRADE	First	Second	Third	Fourth	Fifth	Sixth
1974						
1975						
1976						
1977						
1978						
1979						
1980						
1981						
1982						
1983						
1984						

* Press [Esc] to quit; [PgUp], [PgDn] to page up or down.

Table 3.1 The Structure of the ENROLBYG Table

Table 3.1 The Structure of the ENROLBYG Table

At the Host Main Menu:

Highlight: Define [Enter]
(The Define Menu appears, Screen 3.1)

Highlight: Tables [Enter]
(The Define Table Menu appears, Screen 3.2)

If a data file has not previously been specified in the configure defaults menu, a prompt appears requesting a data file name. The data file GUAT is used to create this table.

Highlight: Add [Enter]
(The cursor is positioned next to "Table Name" and ready to receive the name of the table to be defined, Screen 3.3.)

Screen 3.1 The Define Menu

Screen 3.2 The Define Table Menu

Screen 3.3 The Table Variable Specification Screen

Type: ENROLBYG [Enter]
(The cursor is position next to "Title".)
(The double arrow symbol next to "Title" signifies that more than one line of text may be entered.)

If you make a typing error, use the backspace key to erase the letter(s) and then retype the correct entry.

If you make a typing error in the table name and notice it after you press the enter key, press the Escape key and abort the definition of the table and begin again by highlighting "Add".

If you realize an error in the table name and the cursor is positioned in the variable list region of the screen, the table definition must be aborted and restarted. Once the name of the table is entered it can only be changed by starting over again.

Type: Enrollment by Grade [Enter]
(The cursor is positioned next to "1?".)

The name of the variable to be included in the table is specified in the space following the "1?". Only one variable needs to be specified in this table since the variable ENROL contains the enrollment by grade data.

DEFINE MENU

Labels Dimensions Variables Tables Graphs Quit
Add, edit, delete, list or report label format definitions.

- Use the arrow keys to highlight your menu choice then press [Enter], or press the key corresponding to the first letter of your menu choice. Pressing the [Esc] key is the same as selecting the choice "Quit".

Screen 3.1 Define Menu

TABLE MENU

Add Edit Delete List Report Tabulate File Quit
Add a table to the library.

- Use the arrow keys to highlight your menu choice then press [Enter], or press the key corresponding to the first letter of your menu choice. Pressing the [Esc] key is the same as selecting the choice "Quit".

Screen 3.2 Define Table Menu

ADD TABLE

Table Name : ENROLBYG Reference Data File : PRACTICE

Title1 _____

No.	Variable	No.	Variable	No.	Variable
1		17		33	
2		18		34	
3		19		35	
4		20		36	
5		21		37	
6		22		38	
7		23		39	
8		24		40	
9		25		41	
10		26		42	
11		27		43	
12		28		44	
13		29		45	
14		30		46	
15		31		47	
16		32		48	

F3-Variable F4-Dimension

Screen 3.3 Table Variable Specification Screen

To specify a variable name two methods may be used: the variable name may be chosen from the variable list or typed in directly from the keyboard. The variable list selection method is used in the examples below.

Type: ?
Highlight: ENROL [Enter]
Type: /
(The Define Table Add Menu appears, Screen 3.4)

Screen 3.4 The Define Table Add Menu

Type: s
Type: d
(The Table Dimension Specification Screen appears, Screen 3.5 and the cursor is positioned in the Use column next to the dimension Period.)

To move the cursor around the dimension specification screen, either use the arrow keys or press the Enter key. Return the cursor to the postion indicated in Screen 3.5 to continue with the following instructions.

Screen 3.5 The Table Dimension Specification Screen

Move the cursor to the position indicated in Screen 3.5 and:

Press: [space bar]
until "Row" appears next to the plus-minus sign.

Press: [Enter]
(The cursor is positioned in the Label Format column.)
(DEFAULT is the label format assigned to the dimension Period. The default label format is the label format specified in the dimension definition. See the Host Reference Manual for more information on Label Formats.)

Press: [Enter]
(The cursor is positioned next to "Grade".)

Press: [Space bar]
until "Column" appears in the space next to the plus-minus sign.

Press: [Enter]
(The cursor is positioned in the Label Format column at "DEFAULT".)

Press: [Enter]
(The cursor is positioned in the Combine column at "Yes".)

Press: [Enter]
(The cursor is positioned in the Total column at "No".)

Press: [Enter]
(The cursor is positioned in the Percent column at "No".)

ADD-TABLE

Resume Dimension Save Next Quit
Resume work on the current table.

No.	Variable	No.	Variable	No.	Variable
1	ENROL	17		33	
2		18		34	
3		19		35	
4		20		36	
5		21		37	
6		22		38	
7		23		39	
8		24		40	
9		25		41	
10		26		42	
11		27		43	
12		28		44	
13		29		45	
14		30		46	
15		31		47	
16		32		48	

Screen 3.4 Define Table Add Menu

ADD TABLE

Table Name : ENROLBYG
Title1 : Enrollment by Grade

Reference Data File : GUAT

Dimension	Use	Label Format	Combine	Total	Percent
PERIOD	Unnested	DEFAULT	---	---	---
GRADE	Sum over	---------	---	---	---
SEX	Sum over	--------	---	---	---

F3-Variable F4-Dimension

Screen 3.5 The Table Dimension Specification Screen

Press: [Enter]
(The cursor is positioned next to "Sex".)

Press: [Space bar]
until "Sum over" appears.

Press: [Enter]
Type: /
(The Define Table Add Menu appears, Screen 3.4)

Type: s
(A message in the upper left corner of the screen verifies that the table ENROLBYG has been saved.)

The table dimension specification screen should look like Screen 3.6 after following the above instructions.

Screen 3.6 ENROLBYG Table Dimension Specification Screen

To verify the structure of the table ENROLBYG, return to the Define Table Menu and generate the table using the Tabulate option in the Define Table Menu.

At the Define Table Add Menu:

Type: q
(The Define Table Add Menu appears, Screen 3.4.)

Highlight: Tabulate [Enter]
(The Table Generation Screen appears and the cursor is positioned next to "Table Name".)

Type: ENROLBYG [Enter]
(The cursor is positioned next to "Data File" and the default data file should appear if one has been designated.)

Type: ?
Highlight: Guat [Enter]
(The cursor is positioned next to "Comparison File".)

Press: [Enter]
(The cursor is positioned next to "Output File".)

Type: con [Enter]
(The cursor is positioned next to "Periods".)

Type: 1-26 [Enter]
Type: /
(The Tabulate Menu appears.)

Type: g
(The table appears on the screen, Table 3.2. Use the PgDn and PgUp keys on the numeric keyboard to view the entire table.)

Table ENROLBYG has been saved. ADD TABLE

Resume Variable Save Next Quit

Resume work on the current table.

Dimension	Use	Label Format	Combine	Total	Percent
PERIOD	Row	DEFAULT	---	---	---
GRADE	Column	DEFAULT	Yes	No	No
SEX	Sum over	--------	---	---	---

Screen 3.6 ENROLBYG Table Dimension Specification Screen

Table 3.2 The Table ENROLBYG

Press: [Escape]
(The Define Table Menu appears.)

To return to the Host Main Menu:

Type: q
(The Define Table Menu appears.)

Type: q
(The Define Menu appears.)

Type: q
(The Main Menu appears.)

3.1.2 Defining a Multi-Variable Non-Comparison Table

To display more than one variable in a table, the names of the variables containing the data to be displayed in the table are listed in the variable specification screen. The only requirement is that the variables must be all periodic or all non-periodic. In the following example, the total enrollment, the school population and the gross enrollment ratio data are summarized in a table called GERSUM. The instructions begin at the Main Menu screen.

At the Host Main Menu:

Highlight: Define [Enter]
(The Define Menu appears, Screen 3.1)

Highlight: Tables [Enter]
(The Define Table Menu appears, Screen 3.2)

If a data file has not previously been specified in the configure defaults menu, a prompt appears requesting a data file name. The data file GUAT or any data file with an identical structure, i.e. variable composition, is required to create this table.

Highlight: Add [Enter]
(The cursor is positioned next to "Table Name" and ready to receive the name of the table to be defined, Screen 3.3.)

Currently executing :
TABLE T=ENROLBYG D=GUAT O=CON P=1-26

Enrollment by Grade

ENROL : Enrolment by grade

PERIOD/GRADE	First	Second	Third	Fourth	Fifth	Sixth
1974	219766	122426	94167	67218	52859	44753
1975	230872	127136	97206	70152	55762	45998
1976	0	0	0	0	0	0
1977	0	0	0	0	0	0
1978	0	0	0	0	0	0
1979	276712	152197	117304	86087	68751	55490
1980	290843	162963	124182	92113	72374	60929
1981	325638	176115	134881	98035	76978	63050
1982	295867	177815	133784	99064	77208	64378
1983	331230	190138	147860	107687	84259	68956
1984	359050	204298	154709	116867	88656	72198

▪ Press [Esc] to quit; [PgUp], [PgDn] to page up or down.

ıable 3.2 The Table ENROLBYG

Type: GERSUM [Enter]
(The cursor is position next to "Title".)
(The double arrow symbol next to "Title" signifies that more than one line of text may be entered.)

Type: Gross Enrollment Ratio, School Age
Press: [Tab]
Type: Population, and Total Enrollment [Enter]
cursor is position next to "1?".)

The variables that contain the gross enrollment ratios, the school age population and total enrollment are listed in the variable specification screen. The name of the variables to be included in the table are specified in the spaces following "1?", "2?" and "3?".

To specify a variable name, the variable name may be chosen from the variable list or type in directly from the keyboard. The keyboard typing method is used in the example below.

At the space next to "1?" in the variable specification screen:

Type: ger [Enter]
(The cursor is positioned next to the "2?".)

Type: schlpop [Enter]
(The cursor is positioned next to the "3?".)

Type: totenrol [Enter]
Type: /
(The Define Table Add Menu appears, Screen 3.4.)

The GERSUM variable specification screen should look like Screen 3.7.

Screen 3.7 The GERSUM Variable Specification Screen

Type: s
Type: d
(The Dimension Specification Screen appears and the cursor is positioned in the Use column next to the dimension Period.)

Press: [space bar]
until "Row" appears next to Period and the plus-minus sign.

Press: [Enter]
(The cursor is positioned in the Label Format column. "DEFAULT" is the desired format.)

Press: [Enter]
(The cursor is positioned next to "Sex".)

Table GERSUM has been added to library. ADD-TABLE
Resume Dimension Save Next Quit
Resume work on the current table.

No.	Variable	No.	Variable	No.	Variable
1	GER	17		33	
2	SCHLPOP	18		34	
3	TOTENROL	19		35	
4		20		36	
5		21		37	
6		22		38	
7		23		39	
8		24		40	
9		25		41	
10		26		42	
11		27		43	
12		28		44	
13		29		45	
14		30		46	
15		31		47	
16		32		48	

Screen 3.7 The GERSUM Variable Specification Screen

Press: [Space bar]
until "Sum over" appears in the space next to the plus-minus sign.

Press: [Enter]
Type: /
(The Define Table Add Menu appears.)

The GERSUM Dimension Specification Screen should look like Screen 3.8.

Screen 3.8 The GERSUM Dimension Specification Screen

Type: s
(A message in the upper left corner of the screen verifies that the table GERSUM has been saved.)

To verify the structure of the table GERSUM, return to the Define Table Menu and generate the table using the Tabulate option.

To return to the Define Table Menu from the Table Define Add Menu:

Type: q
(The Define Table Menu appears.)

Type: t
(The table generation screen appears and the cursor is positioned next to "Table Name".)

Type: GERSUM [Enter]
(The cursor is positioned next to "Data File".)

If the default data file name is GUAT, then:

Press: [Enter]

If a default data file does not appear on the screen or is not the data file listed below then:

Type: c:\step\guat [Enter]
(The cursor is positioned next to "Comparison File".)

Press: [Enter]
(The cursor is positioned next to "Output File".)

Type: con [Enter]
(The cursor is positioned next to "Periods".)

Type: 1-26 [Enter]
Type: /
(The Tabulate Menu appears.)

Table GERSUM has been saved. ADD TABLE

Resume Variable Save Next Quit

Resume work on the current table.

Dimension	Use	Label Format	Combine	Total	Percent
PERIOD	Row	DEFAULT	---	---	---
SEX	Sum over	--------	---	---	---

▪ More than one variable in table; each column is a variable

Screen 3.8 The GERSUM Dimension Specification Screen

Type: g
(The table appears on the screen, Table 3.4. Use the PgDn and PgUp keys on the numeric keyboard to view the entire table.)

Table 3.3 The Table GERSUM

Press: [Escape]
(The Tabulate Menu appears.)

To return to the Host Main Menu:

Type: q
(The Define Table Menu appears.)

Type: q
(The Define Menu appears.)

Type: q
(The Main Menu appears.)

3.1.3 Defining a Multi-Variable Comparison Table

A comparison table displays data for one or more variables from two data files. In the following series of instructions, the multi-variable table, GERSUM, defined in the previous instructions, is redefined to display the gross enrollment ratios, the school-age population and the total enrollment from two data files. The data files used to generate the table must contain the variables listed in the variable specification screen. When a comparison table is generated, data for the first ocurrence is read from a specified Host data file and data for the second ocurrence is read from a second, or Comparison, data file.

Variable names are listed twice in the variable specification screen. If the variable is listed a third time, the percent difference of the data values from the two data files is displayed. The variables appearing in the variable specification screen must be periodic or non-periodic.

At the Host Main Menu:

Highlight: Define [Enter]
(The Define Menu appears, Screen 3.1)

Highlight: Tables [Enter]
(The Define Table Menu appears, Screen 3.2)

Currently executing :
TABLE T=GERSUM D=GUAT O=CON P=1-27

Gross Enrollment Ratio, School Age Population and Total Enrollment

GER : Gross enrolment ratio
SCHLPOP : Population of School Age
TOTENROL : Total Enrolment in Primary School

PERIOD/	GER	SCHLPOP	TOTENROL
1974	0.00	0	601189
1975	0.61	1032462	627126
1976	0.00	1060000	0
1977	0.00	1088110	0
1978	0.00	1107927	0
1979	0.67	1130087	756541
1980	0.70	1154942	803404
1981	0.74	1183221	874697
1982	0.70	1214649	848116

▪ Press [Esc] to quit; [PgUp], [PgDn] to page up or down.

Table 3.3 The Table GERSUM

If a data file has not been specified in the configure defaults menu, a prompt appears requesting a data file name. The data file GUAT or any data file with an identical structure, i.e., variable composition, is required to create this table.

Highlight: Add [Enter]
(The cursor is positioned next to "Table Name" and ready to receive the name of the table to be defined, Screen 3.3.)

Type: GERSUMC [Enter]
(The cursor is position next to "Title".)

Type: Gross Enrollment Ratio, School Age
Press: [Tab]
Type: Population, and Total Enrollment [Enter]
cursor is positioned next to "1?".)

The name of the variables to be included in the table are specified in the spaces following "1?", "2?", "3?", "4?", "5?", and "6?".

At the space next to "1?" in the variable specification screen:

Type: ger [Enter]
(The cursor is positioned next t the "2?".)

Type: ger [Enter]
(The cursor is positioned next to the "3?".)

Type: schlpop [Enter]
(The cursor is positioned next to the "4?".)

Type: schlpop [Enter]
(The cursor is positioned next to the "5?".)

Type: totenrol [Enter]
(The cursor is positioned next to the "6?".)

Type: totenrol [Enter]
Type: /
(The Define Table Add Menu appears.)

Type: s
(The message that the table definition has been saved appears in the upper left corner of the screen.)

Screen 3.9 GERSUMC Variable Specification Screen

Type: d
(The Dimension Specification Screen appears and the cursor is positioned in the Use column next to the dimension Period.)

Table GERSUMC has been added to library. ADD-TABLE
Resume Dimension Save Next Quit
Resume work on the current table.

No.	Variable	No.	Variable	No.	Variable
1	GER	17		33	
2	GER (Comp)	18		34	
3	SCHLPOP	19		35	
4	SCHLPOP (Comp)	20		36	
5	TOTENROL	21		37	
6	TOTENROL (Comp)	22		38	
7		23		39	
8		24		40	
9		25		41	
10		26		42	
11		27		43	
12		28		44	
13		29		45	
14		30		46	
15		31		47	
16		32		48	

Screen 3.9 GERSUMC Variable Specification Screen

Press: [space bar]
until "Row" appears next to Period and the plus-minus sign.

Press: [Enter]
(The cursor is positioned in the Label Format column. "DEFAULT" is the desired format.)

Press: [Enter]
(The cursor is positioned next to "Sex".)

Press: [Space bar]
until "Sum over" appears in the space next to the plus-minus sign.

Press: [Enter]
Type: /
(The Define Table Add Menu appears.)

Type: s
(A message in the upper left corner of the screen verifies that the table GERSUMC has been saved.)

Return to the Define Table menu and generate the table using the Tabulate option in the menu.

To return to the Define Table Menu from the Define Table Add Menu:

Type: q
(The Define Table Menu appears.)

Type: t
(The table generation screen appears and the cursor is positioned next to "Table Name".)

Type: GERSUMC [Enter]
(The cursor is positioned next to "Data File".)

If the default data file name is GUAT, then:

Press: [Enter]

If a default data file GUAT does not appear on the screen or is not the data file listed below then:

Type: ?
Highlight: GUAT [Enter]
(The cursor is positioned next to "Comparison File".)

Press: [Enter]
(The cursor is positioned next to "Output File".)

Type: con [Enter]
(The cursor is positioned next to "Periods".)

Type: 1-26 [Enter]
Type: /
(The Tabulate Menu appears.)

Type: g
(The table appears on the screen, Table 3.4. Use the PgDn and PgUp keys on the numeric keyboard to view the entire table.)

Table 3.4 GERSUMC

Press: [Escape]
(The Tabulate Menu appears.)

Type: q
(The Define Table Menu appears.)

To return to the Host Main Menu:

Type: q
(The Define Menu appears.)

Type: q
(The Main Menu appears.)

3.2 Defining Graphs

Description of the Graph Definition Screens

Each Host graph is generated from a "Define Graph" which consists of a graph name and title, the list of variables to be included in the graph, the layout settings which determine the type of graph to be drawn and the data settings which determine the colors and patterns used to depict each data series and the type of data to be displayed. Each graph definition is stored in the Graph library. The Host Graph facility generates a graph by combining a graph definition from the graph library with data from a Host data file.

The information that defines a graph is provided on three separate screens: the variable specification, the layout and the data screens.

The information required on variable specification screen includes:

- The graph name, which is the name under which the graph is saved and subsequently recalled for data display or editing. The name must not contain more than eight characters.

- The title which may consist of four lines of 60 characters each and is saved with the graph definition.

- The variable names which contain the data to be displayed in the graph. The only restriction is that the variables to be included in one graph must be all periodic or non-periodic. When the same

Currently executing :
TABLE T=GERSUMC D=GUAT C=GUATTARG O=CON P=1-26

Gross Enrollment Ratio, School

GER : Gross enrolment ratio
SCHLPOP : Population of School Age
TOTENROL : Total Enrolment in Primary School

PERIOD/	GER	GER(Comp)	SCHLPOP	SCHLPOP(Comp)	TOTENROL
1974	0.00	0.60	0	1005182	601189
1975	0.61	0.61	1032462	1032462	627126
1976	0.00	0.00	1060000	1060000	0
1977	0.00	0.00	1088110	1088110	0
1978	0.00	0.00	1107927	1107927	0
1979	0.67	0.67	1130087	1130087	756541
1980	0.70	0.70	1154942	1154942	803404
1981	0.74	0.74	1183221	1183221	874697
1982	0.70	0.70	1214649	1214649	848116

▪ Press [Esc] to quit; [PgUp], [PgDn] to page up or down.

Table 3.4 GERSUMC

variable name is entered twice data for the first occurence is read from a specified Host data file and data for the second occurrence is read from a second, or Comparison, data file.

Settings in the layout screen determine the type of graph to be drawn. The left hand side of this screen is similar to the table dimension specification screen. The dimensions common to the variables listed in the variable specification screen are displayed in the left column of the dimension specification screen. Information concerning the graph type, labeling of the data points and axes, and the scaling method is entered on the right hand side of the screen. The information required on the graph layout screen (Screen 3.10) include:

- The "Use" of the common dimensions of the variables to be displayed in the graph. This setting determines the way a dimension is used, or displayed, in a graph. The space bar can be used to display the possible "use" settings for each dimension. The use settings include: X-axis, series, unnested, and sum over. "X-axis" diplays the levels of the dimension along the x-axis. Only one dimension can be displayed along the x-axis. "Series" graphs each level of the dimension as a separate line, series of bars or points or slice of a pie, depending on the type of graph. Only one dimension can be designated "Series". "Unnested" graphs each dimension level on a separate graph. When more than one dimension is unnested, then a separate subgraph is drawn for every possible combination of the dimension levels. "Sum over" sums across the designated dimension level.

- The "Label Format" of each dimension which provides the labeling and, if appropriate, the grouping of the levels of each dimension, as well as what groupings of data values are used for totals and summations. Appropriate label formats for each dimension are predefined and specific for each dimension.

- The "Graph Type". The types of graphs available include vertical bar, stacked vertical bar, horizontal bar, stacked horizontal bar, line, filled area line, step, filled area step, scatter, mixed an pie.

- The "Labeling" of the graph. "Data Labels" controls whether data value appear on the graph. "Horizontal Grid Lines" determines whether horizontal reference lines appear on the graph. "X-axis Label Skip" determines which reference marks on the X-axis are labeled.

- The "Scaling" method. This field determines how the Y-axis is scaled for all graph types except pie charts. The default method is automatic. The Automatic method automatically sets the minimum and maximum values and the step size between marks on the Y-axis.

Settings on the graph definition data screen determine the colors and patterns used to depict each data series, and whether the values in the graph are raw data, the cumulative sum, percentages, or cumulative

percentages. The appearance of the data screen depends on the information given in the previous two screens, the variable specification and layout screens. The information on the graph definition data screen (Screen 3.13) include:

- The "Series" or the names of the separate data series that appear in the graph. This information is determined by the information in the previous two screens.

- The "Color" used to represent each data series. The possible values for these fields range from "Color 0" to "Color 15". When the number of available colors is less than 16 then the available colors are reused.

- The "Pattern" or the patterns or line styles used to represent each data series. The possible values depend on the graph type.

- The "Data Type" for each series in the graph. The types include "Raw Data", "Cumulative sum", "Raw percent", and "Cumulative percent".

- If the graph layout type is "Pie", then a "PIE TYPE" column is displayed in the data screen. The possible choices are "Ignore", "Centered", "Exploded". Centered displays the series as a section of the pie; Exploded pulls-out the section of the pie for the particular series for emphasis; Ignore does not include the designated series in the graph.

- If the graph type is "Mixed", then a "MIXED TYPE" column appears on the data screen. Settings in this column determine how each series is represented. The possible settings are "Ignore", "Vertical Bar", "Line", "Filled Area Line", "Step", "FIlled Area Step", and "Scatter".

Once the graph is defined, the definition is saved in a graph library.

3.2.1 Defining a Single-Variable Graph

In the following example of defining a graph, the graph, ENROLBYG, displays the grade data as a series of lines on a graph. Each line represents the enrollment data for each of the six grades across time (Graph 3.1).

Graph 3.1 The ENROLBYG Graph

At the Host Main Menu:

Highlight: Define [Enter]
(The Define Menu appears, Screen 3.1)

Highlight: Graph [Enter]
(The Define Graph Menu appears, Screen 3.10)

If a data file has not previously been specified in the configure defaults menu, a prompt appears requesting a data file name. The data file GUAT is used to create this graph. identical structure, i.e. variable composition, is required to create this graph.

Highlight: Add [Enter]
(The cursor is positioned next to "Graph Name" and ready to receive the name of the graph to be defined, Screen 3.11.)

Screen 3.10 The Define Graph Menu

Screen 3.11 The Graph Variable Specification Screen

Type: ENROLBYG [Enter]
(The cursor is position next to "Title".)

The double arrow symbol next to "Title" signifies that more than one line of text may be entered.

**If you make a typing error, use the backspace key to erase the letter(s) and then retype the correct entry.

If you make a typing error in the graph name and notice it after you press the enter key, press the Escape key and abort the definition of the graph and begin again by highlighting "Add".

If you realize an error in the graph name and the cursor is positioned in the variable list region of the screen, the graph definition must be aborted and restarted. Once the name of the graph is entered it can only be changed by starting over again.

Type: Enrollment by Grade [Enter]
(The cursor is position next to "1?".)

The name of the variable to be included in the graph is specified in the space following the "1?". Only one variable is specified in this graph definition. The variable ENROL contains the enrollment by grade data. The variable list selection method is used in the example below.

Type: ?
Highlight: ENROLBYG [Enter]

The graph variable specification screen for the graph ENROLBYG should appear as Screen 3.12.

GRAPH-MENU

Add Edit Delete List Report Graph File Quit
Add a graph to the library.

- Use the arrow keys to highlight your menu choice then press [Enter], or press the key corresponding to the first letter of your menu choice. Pressing the [Esc] key is the same as selecting the choice "Quit".

Screen 3.10 The Define Graph Menu

ADD GRAPH

Graph Name : _____ Reference Data File : GUAT

Title1 :

Screen 3.11 The Graph Variable Specification Screen

Screen 3.12 The Graph Variable Specification Screen for the Graph ENROLBYG

Type: /
(The Define Graph Add Menu appears, Screen 3.13)

The graph variable specification screen should appear as in Screen 3.13.

Screen 3.13 The Define Graph Add Menu

Type: s
Type: 1
(The Graph Layout Screen appears. Screen 3.14 and the cursor is positioned in the Use column next to the dimension Period.)

To move the cursor around the layout screen, either use the arrow keys or the Enter key. Return the cursor to the position indicated in Screen 3.14 in order to continue with the following instructions.

Screen 3.14 The Graph Layout Screen for the Graph ENROLBYG

Move the cursor to the position indicated in Screen 3.13 and:

Press: [space bar]
until "X axis" appears next to the plus-minus sign.

Press: [Enter]
(The cursor is positioned in the Label Format column and DEFAULT appears in the space next to the cursor. DEFAULT is the label format assigned to the definition of the dimension Period. See the Host Reference Manual for more information on Label Formats.)

Press: [Enter]
(The cursor is positioned next to "Grade".)

Press: [Space bar]
until "Series" appears in the space next to the plus-minus sign.

Press: [Enter]
(The cursor is positioned in the Label Format column under "DEFAULT".)

Press: [Enter]
(The cursor is positioned next to "Sex".)

Press: [Space bar]
until "Sum over" appears in the space next to the plus-minus sign.

Press: [Enter]
(The cursor is positioned under "GRAPH TYPE".)

ADD GRAP

Graph Name : ENROLBYG
Title1 : Enrolment by Grade

Reference Data File : GUA

No.	Variable	No.	Variable
1	ENROL	13	
2	? --------	14	
3		15	
4		16	
5		17	
6		18	
7		19	
8		20	
9		21	
10		22	
11		23	
12		24	

F3-Variable F4-Layout F5-Data

Screen 3.12 The Graph Variable Specification Screen for the Graph ENROLBYG

ADD GRAPH

Resume **Layout** Data Save Next Quit
Edit layout of current graph.

No.	Variable	No.	Variable
1	ENROL	13	
2		14	
3		15	
4		16	
5		17	
6		18	
7		19	
8		20	
9		21	
10		22	
11		23	
12		24	

Screen 3.13 The Define Graph Add Menu

```
                                                                    ADD GRAPH
Graph Name : ENROLBYG                                  Reference Data File : GUAT
Title1 : Enrolment by Grade
------------------------------------------------------------------------------
  DIMENSION    USE            LABEL FORMAT        GRAPH TYPE

  PERIOD     [-] Unnested     DEFAULT             Vertical bar
  GRADE         Sum over      --------
  SEX           Sum over      --------            LABELING

                                                  Data Labels           : No
                                                  Horizontal Grid Lines : No
                                                  X-Axis Label Skip     :   1

                                                  SCALING

                                                  Method        : Automatic

 F3-Variable                    F4-Layout                    F5-Data
```

Screen 3.14 The Graph Layout Screen for the Graph ENROLBYG

Press: [Space bar]
until "Line" appears.

Press: [Enter]
(The cursor is positioned next to "Data Labels".)

Press: [Enter]
(The cursor is positioned next to "Horizontal Grid Lines".)

Press: [Enter]
(The cursor is positioned next to "X-Axis Label Skip" at "1".)

Type: 5 [Enter]
(The cursor is positioned under "Method" next to "Automatic".)

Type: /
(The Define Graph Add Menu appears.)

Type: s
(A message in the upper left hand corner of the screen verifies that the graph ENROLBYG has been saved, Screen 3.15.)

The completed layout screen for the graph ENROLBYG should be identical to Screen 3.15.

Screen 3.15 The Completed Graph Layout Screen for the Graph ENROLBYG and Define Graph Add Menu

Type: d [Enter]
(The cursor is positioned in the first row under the color column in the Graph Data Screen for ENROLBYG.)

The color, pattern, data type and, depending on the type of graph to be generated, the type of display for each series of data to be drawn on the graph are specified in the Graph Data Screen. The colors and patterns of the data series are chosen in a manner that the data bars, lines, points, etc. are easily differentiated on the screen or on paper.

In the following example of a "line" graph, the patterns for the six data series of the variable ENROL are designated in the data screen. It is assumed that the graph is generated to a monochrome monitor. The COLOR and DATA TYPE for each series remain as initially displayed on the data screen.

Move the cursor to the space in the first row in the Pattern column using the right arrow key on the numeric keypad

Press: [Space bar]
until the solid single line pattern appears.

Press: [down arrow]
(The cursor is positioned in the second row in the Pattern column.)

```
Graph ENROLBYG has been saved.                                          ADD GRAP
Resume Variable Data Save Next Quit
Resume work on the current graph.
------------------------------------------------------------------------------
 DIMENSION    USE          LABEL FORMAT      GRAPH TYPE

 PERIOD       X axis       DEFAULT           Line
 GRADE        Series       DEFAULT
 SEX          Sum over     --------          LABELING

                                             Data Labels           : No
                                             Horizontal Grid Lines : No
                                             X-Axis Label Skip     :   5

                                             SCALING

                                             Method        : Automatic
------------------------------------------------------------------------------
```

Screen 3.15 The Completed Graph Layout Screen for the Graph ENROLBYG and Define Graph Add Menu

Press: [space bar]
until the pattern in Screen 3.16 appears.

Continue with moving the cursor down one row and using the space bar to choose the line pattern for each data series until all six series shown in Screen 3.16 have been chosen.

Type: /
(The Define Graph Add Menu appears.)

Type: s
(The message that the graph ENROLBYG appears in the upper left hand corner of the screen.)

Screen 3.16. The Completed Graph Data Screen for the Graph ENROLBYG

Return to the define graph menu and generate the graph ENROLBYG using the Graph option in the Main Menu. To generate the graph that was just created:

At the Define Graph Add Menu:

Type: q
(The Define Graph Menu appears, Screen 3.9.)

Highlight: graph [Enter]
(The Graph Definition - Graph-file Menu appears.)

Type: d
(The graph generation screen appears and the cursor is positioned next to "Graph Name ?".)

Type: ENROLBYG [Enter]
(The cursor is positioned next to "Data File".)

If the data file name is other than c:\step\guat or there is no file name displayed:

Type: c:\step\guat [Enter]

If the correct path to and name of the data file GUAT appears then:

Press: [Enter]
(The cursor is positioned next to "Comparison File".)

Press: [Enter]
(The cursor is positioned next to "Output File".)

Type: con [Enter]
(The cursor is positioned next to "Periods".)

ADD GRAPH

Graph Name : ENROLBYG
Title1 : enrolbyg

Reference Data File : GUAT

SERIES	COLOR	PATTERN	DATA TYPE
First	Color 1	————————	Raw data
Second	Color 2	- - - - - -	Raw data
Third	Color 3	. . . . .	Raw data
Fourth	Color 4	-.-.-.-.-.-	Raw data
Fifth	Color 5	═══════════	Raw data
Sixth	Color 6	==========	Raw data

F3-Variable F4-Layout F5-Data

Screen 3.16 The Completed Graph Data Screen for the Graph ENROLBYG

Type: 1-26 [Enter]
Type: /
(The Graph Menu appears.)

The Graph Generation Screen for the graph ENROLBYG should have the same information as Screen 3.17.

Screen 3.17. The Graph Generation Screen for the Graph ENROLBYG

Type: g
(The graph ENROLBYG appears on the screen, Graph 3.1.)

Graph 3.1 ENROLBYG

To bring back the Graph Menu from the screen with the graph:

Press: [Escape]
(The Graph Menu appears.)

To return to the Host Main Menu:

Type: q
(The Graph Definition - Graph-file Menu appears.)

Type: q
(The Define Graph Menu appears.)

Type: q
(The Define Menu appears.)

Type: q
(The Main Menu appears.)

3.2.2 Defining a Multi-Variable Non-Comparison Graph

To display more than one variable in a graph, the names of the variables containing the data to be displayed in the graph are listed in the variable specification screen. The only requirement is that the variables must be all periodic or all non-periodic. The information for the layout and data screens is also specified in the graph definition process.

In the following example, the number of graduates per 1000 entrants and the number of "on time" graduates per 1000 entrants data are drawn in the graph GRADON. The graph is shown in Graph 3.2. The instructions begin at the Main Menu.

```
                                                                    GRAPH
Edit Go Quit
Edit specification of GRAPH parameters.
------------------------------------------------------------------------
Graph Name       : ENROLBYG
Data File        : C:\STEP3\GUAT
Comparison File  :
Output File      : CON
Periods          : 1-30

  ■ Use the arrow keys to highlight your menu choice then press
    [Enter], or press the key corresponding to the first letter
    of your menu choice.  Pressing the [Esc] key is the same as
    selecting the choice "Quit".
------------------------------------------------------------------------
```

Screen 3.17 The Graph Generation Screen for the Graph ENROLBYG

Graph 3.1 ENROLBYG

Graph 3.2 The Multi-Variable Non-Comparison Graph GRADON

At the Host Main Menu:

Highlight: Define [Enter]
(The Define Menu appears, Screen 3.1)

Highlight: Graphs [Enter]
(The Define Graph Menu appears, Screen 3.9)

If a data file has not previously been specified in the configure defaults menu, a prompt appears for the data file name. The data file GUAT or any data file with an identical structure, i.e. variable composition, is required to create this graph.

Highlight: Add [Enter]
(The cursor is positioned next to "Graph Name" and ready to receive the name of the graph to be defined, Screen 3.10.)

Type: GRADON [Enter]
(The cursor is positioned next to "Title".)

Type: Graduate Rate and On Time Graduation
Press: [Tab]
Type: Rate [Enter]
cursor is position next to "1?".)

The variables that contain graduate rate and on time graduate rate data are listed in the variable specification screen. The name of the variables to be included in the table are specified in the spaces following "1?", and "2?".

At the space next to "1?" in the variable specification screen:

Type: gradrate [Enter]
(The cursor is positioned next to the "2?".)

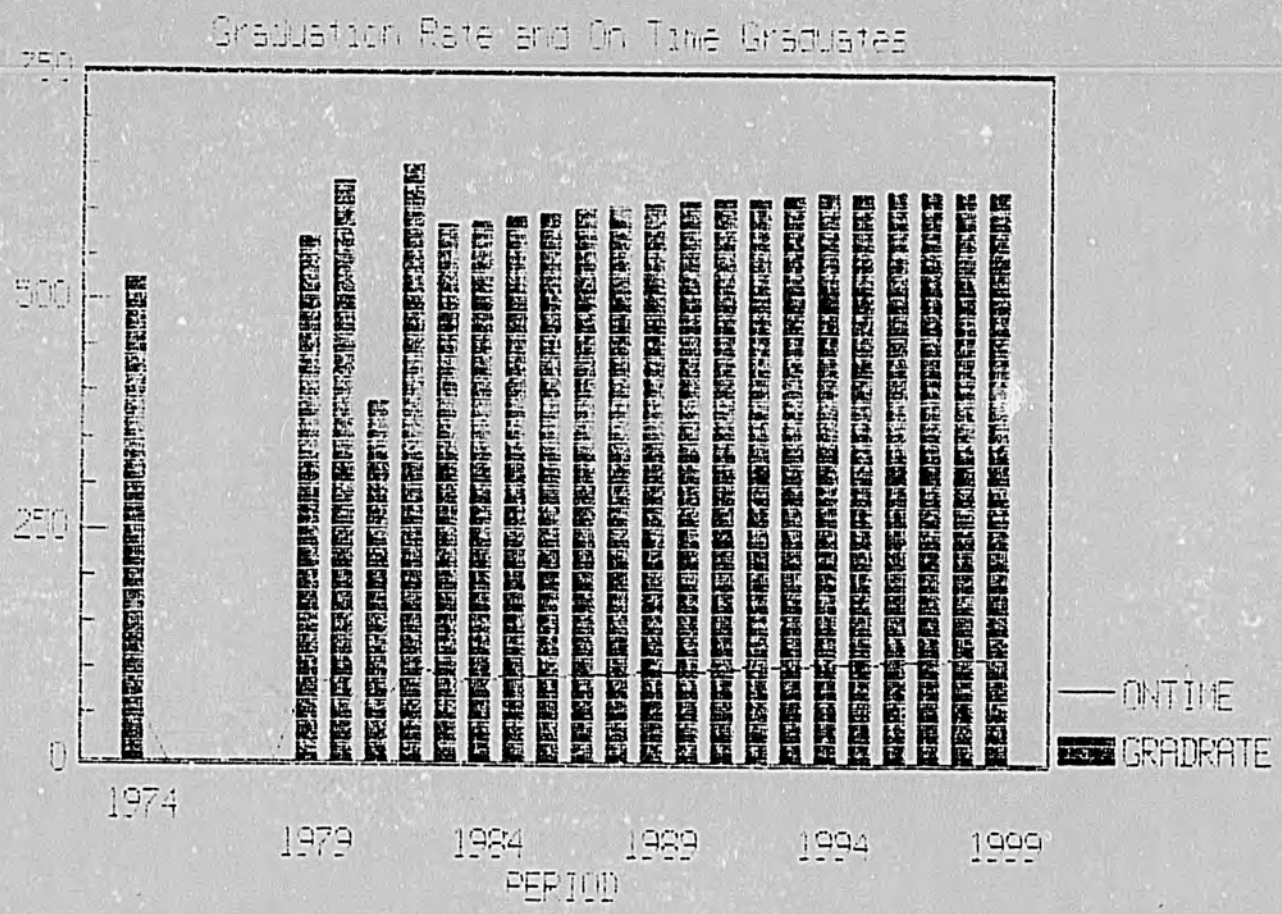
Type: ontime [Enter]
Type: /
(The Graph Definition Add Menu appears, Screen 3.18.)

The GRADON variable specification screen should look like Screen 3.18.

Screen 3.18 The GRADON Variable Specification Screen

Type: s
(The message that the table definition has been saved appears.)

Type: l
(The layout screen appears and the cursor is positioned in the Use column next to the dimension Period.)



Graph 3.2 The Multi-Variable Non-Comparison Graph GRADON

ADD GRAPH

Resume Layout Data Save Next Quit
Resume work on the current graph.

No.	Variable	No.	Variable
1	GRADRATE	13	
2	ONTIME	14	
3		15	
4		16	
5		17	
6		18	
7		19	
8		20	
9		21	
10		22	
11		23	
12		24	

Screen 3.18 The GRADON Variable Specification Screen

Press: [space bar]
until "X axis" appears next to Period and the plus-minus sign.

Press: [Enter]
(The cursor is positioned in the Label Format column. "DEFAULT" is the desired format.)

Press: [Enter]
(The cursor is positioned in the Use column next to the dimension "Sex".)

Press: [Space bar]
until "Sum over" appears in the space next to the plus-minus sign.

Press: [Enter]
(The cursor is positioned under "GRAPH TYPE".)

Press: [Space bar]
until "Mixed" appears.

Press: [Enter]
(The cursor is positioned next to "Data Labels" under "No".)

Press: [Enter]
(The cursor is positioned next to "Horizontal Grid Lines" under "No".)

Press: [Enter]
(The cursor is positioned next to "X-Axils Label Skip" next to "1".)

Type: 5 [Enter]
(The cursor is positioned next to "Method" under "Automatic".)

Type: /
(The Define Graph Add Menu appears, Screen 3.19.)

Type: s
(A message in the upper left corner of the screen verifies that the graph GRADON has been saved.)

The completed graph layout screen for the graph GRADON should look like Screen 3.19.

Screen 3.19 The Completed Graph Layout Screen for the Graph GRADON and Define Graph Add Menu

Type: d [Enter]
(The cursor is positioned in the first row under the color column in the Graph Data Screen for GRADON, Screen 3.20.)

Screen 3.20 The Graph Data Screen for the Graph GRADON

```
Graph GRADON has been saved.                                          ADD GRAPH
Resume Variable Data Save Next Quit
Resume work on the current graph.
------------------------------------------------------------------------------
 DIMENSION    USE          LABEL FORMAT      GRAPH TYPE

 PERIOD       X axis       DEFAULT           Mixed
 SEX          Sum over     --------
                                             LABELING

                                             Data Labels           : No
                                             Horizontal Grid Lines : No
                                             X-Axis Label Skip     :   5


                                             SCALING

                                             Method        : Automatic


  ▪ More than one variable in graph; each response range is a variable
------------------------------------------------------------------------------
```

Screen 3.19 The Completed Graph Layout Screen for the Graph GRADON and Define Graph Add Menu

ADD GRAPH

Graph Name : GRADON
Reference Data File : GUAT
Title1 : Graduation Rate and On Time Graduates

SERIES	COLOR	PATTERN	DATA TYPE	MIXED TYPE
GRADRATE	Color 1	//////////	Raw data	Vertical Bar
ONTIME	Color 2	==========	Raw data	Line
	Color 3	XXXXXXXXXX	Raw data	Vertical Bar
	Color 4	==========	Raw data	Line
	Color 5	XXXXXXXXXX	Raw data	Vertical Bar
	Color 6	==========	Raw data	Line

F3-Variable F4-Layout F5-Data

Screen 3.20 The Graph Data Screen for the Graph GRADON

The color, pattern, and data type and, depending on the type of graph to be generated, the type of display for each series of data to be drawn on the graph are specified in the Data Screen. The colors and patterns of the data series are chosen in a manner that the data bars, lines, points, etc. are easily differentiated on the screen or on paper.

In the following example of a "mixed" type graph, only the pattern for the two data series, GRADRATE and ONTIME, are chosen. It is assumed that the graph is generated to a monochrome monitor. There are ten possible PATTERNS available for each series of data. The MIXED TYPE, COLOR and DATA TYPE for each series remain as initially displayed on the data screen.

Move the cursor to the space in the first row in the Pattern column using the arrow key on the numeric keypad

Press: [Space bar]
until the same pattern as in Screen 3.21 appears.

Press: [down arrow]
(The cursor is positioned in the second row in the Pattern column.)

Press: [space bar]
until the same pattern as in Screen 3.21 appears.

Continue with moving the cursor down one row and using the space bar to choose the line pattern for each data series until all six series shown in Screen 3.21 have been chosen.

Type: /
(The Define Graph Add Menu appears.)

Type: s
(The message that the graph GRADON has been saved appears in the upper left corner of the screen.)

Screen 3.21 The Completed Graph Data Screen for the Graph GRADON

Return to the graph definition menu to generate the graph GRADON using the Graph option in the Main Menu.

At the Define Graph Add Menu:

Type: q
(The Define Graph Menu appears, Screen 3.9.)

Highlight: graph [Enter]
(The Graph Definition - Graph-file Menu appears.)

Type: d
(The graph generation screen appears and the cursor is positioned next to "Graph Name ?".)

Graph GRADON has been saved. ADD GRAPH

Resume Variable Layout Save Next Quit

Resume work on the current graph.

SERIES	COLOR	PATTERN	DATA TYPE	MIXED TYPE
GRADRATE	Color 1	▪▪▪▪▪▪▪▪▪▪	Raw data	Vertical Bar
ONTIME	Color 2	————————	Raw data	Line
	Color 3	XXXXXXXXXX	Raw data	Vertical Bar
	Color 4	==========	Raw data	Line
	Color 5	XXXXXXXXXX	Raw data	Vertical Bar
	Color 6	==========	Raw data	Line

INS

Screen 3.21 The Completed Graph Data Screen for the Graph GRADON

Type: GRADON [Enter]
(The cursor is positioned next to "Data File" and the default data file should appear if one has been designated.)

If the data file name is other than c:\step\guat or there is no file name displayed:

Type: c:\step\guat [Enter]

Otherwise, if the correct path to and name of the data file GUAT appears then:

Press: [Enter]
(The cursor is positioned next to "Comparison File".)

Press: [Enter]
(The cursor is positioned next to "Output File".)

Type: con [Enter]
(The cursor is positioned next to "Periods".)

Type: 1-25 [Enter]
Type: /
(The Graph Menu appears.)

Type: g
(The graph GRADON appears on the screen, Graph 3.2.)

Press: [Escape]
(The Graph Menu appears.)

To return to the Host Main Menu:

Type: q
(The Graph Definition - Graph-file Menu appears.)

Type: q
(The Graph Define Menu appears.)

Type: q
(The Define Menu appears.)

Type: q
(The Main Menu appears.)

3.2.3 Defining a Multi-Variable Comparison Graph

A comparison graph displays data for one or more variables from two data files in the same graph. In the following series of instructions, the multi-variable graph, GRADON, defined in the previous instructions, is redefined to display the graduation rates and ontime graduation rates from two data files. Only data files that contain the variables listed in the variable specification screen can be used to generate the graph.

The name of the variables which contain the data to be displayed are listed twice in the variable specification screen. If the variable is listed a third time, the percent difference of the data points from the two data files is displayed. The only requirement for including variables in a comparison graph is that all the variables in the list must be periodic or non-periodic. The following instructions define a graph, GRADONC (Graph 3.3).

Graph 3.3 The Multi-variable Comparison Graph GRADONC

At the Host Main Menu:

Highlight: Define [Enter]
(The Define Menu appears, Screen 3.1)

Highlight: Graphs [Enter]
(The Define Graph Menu appears, Screen 3.9)

If a data file has not previously been specified in the configure defaults menu, a prompt appears requesting a data file name. The data file GUAT or any data file with an identical structure, i.e. variable composition, is required to create this graph.

Highlight: Add [Enter]
(The cursor is positioned next to "Graph Name" and ready to receive the name of the graph to be defined, Screen 3.10.)

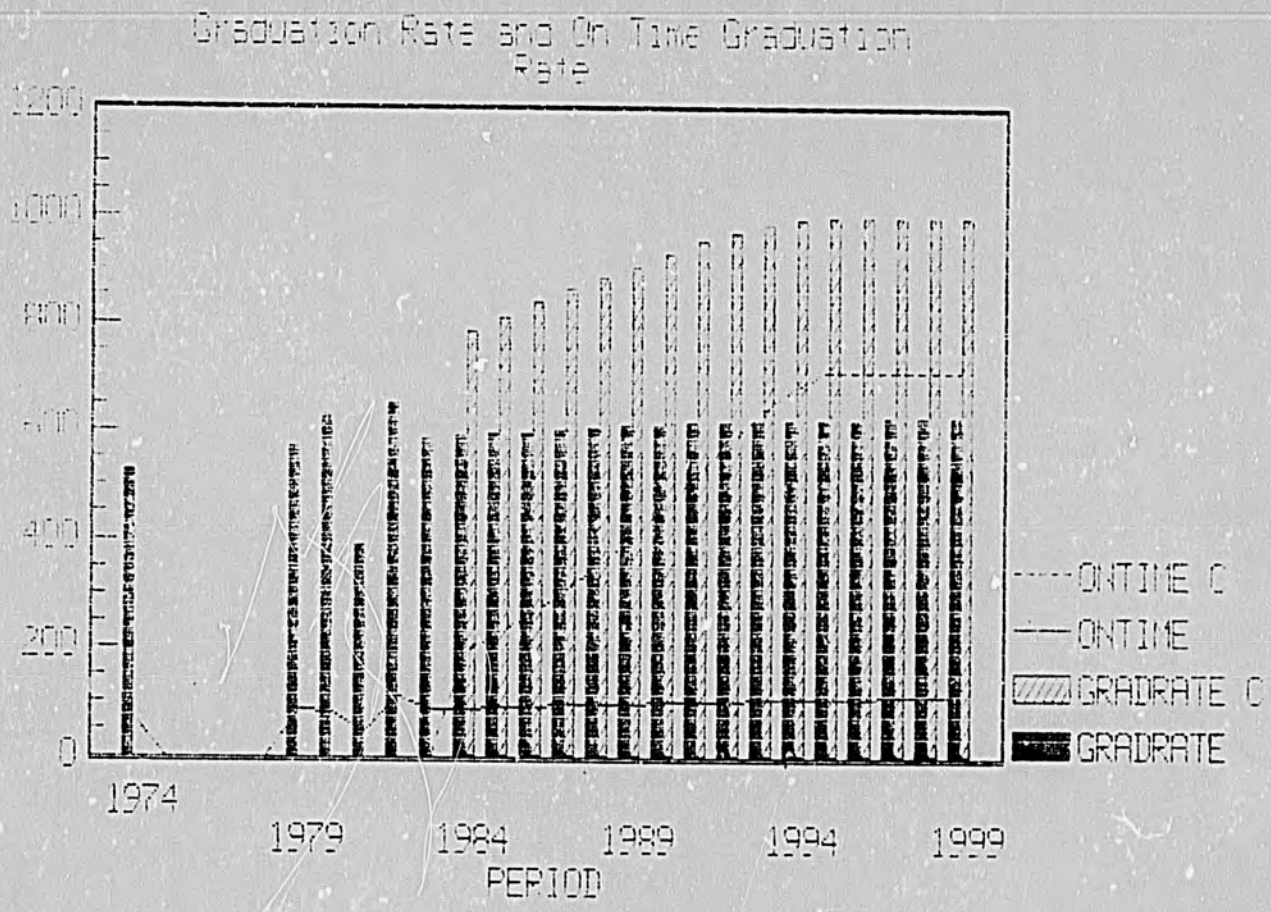
Type: GRADONC [Enter]
(The cursor is positioned next to "Title".)
(The double arrow symbol next to "Title" signifies that more than one line of text may be entered.)

Type: Graduate Rate and On Time Graduate
Press: [Tab]
Type: Rate [Enter]
(The cursor is position next to "1?".)

The variables that contain graduation rate and on time graduation rate data are listed in the variable specification screen. The names of the variables to be included in the graph are specified in the spaces following "1?", "2?", "3?", "4". To specify a variable name two methods may be used: the variable name may be chosen from the variable list or typed in directly from the keyboard. The keyboard typing method is used in the example below.

At the space next to "1?" in the variable specification screen:

Type: gradrate [Enter]
(The cursor is positioned next to the "2?".)



Graph 3.3 The Multi-Variable Comparison Graph GRADONC

Type: gradrate [Enter]
(The cursor is positioned next to the "3?".)

Type: ontime [Enter]
(The cursor is positioned next to the "4?".)

Type: ontime [Enter]
Type: /
(The graph definition add menu appears.)

Type: s
(The message that the graph definition has been saved appears in the upper left hand corner of the screen, Screen 3.22.)

The GRADONC variable specification screen should look like Screen 3.22.

Screen 3.22 The GRADONC Variable Specification Screen

Type: l
(The layout screen appears and the cursor is positioned in the Use column next to the dimension Period.)

Press: [space bar]
until "X axis" appears next to Period and the plus-minus sign.

Press: [Enter]
(The cursor is positioned in the Label Format column. "DEFAULT" is the desired format.)

Press: [Enter]
(The cursor is positioned in the Use column next to the dimension "Sex".)

Press: [Space bar]
until "Sum over" appears in the space next to the plus-minus sign.

Press: [Enter]
(The cursor is positioned under "GRAPH TYPE".)

Press: [Space bar]
until "Mixed" appears.

Press: [Enter]
(The cursor is positioned next to "Data Labels" at "No".)

Press: [Enter]
(The cursor is positioned next to "Horizontal Grid Lines" at "No".)

Press: [Enter]
(The cursor is positioned next to "X-Axils Label Skip" at "1".)

Graph GRADONC has been added to library. ADD GRAPH

Resume Layout Data Save Next Quit

Resume work on the current graph.

No.	Variable	No.	Variable
1	GRADRATE	13	
2	GRADRATE (Comp)	14	
3	ONTIME	15	
4	ONTIME (Comp)	16	
5		17	
6		18	
7		19	
8		20	
9		21	
10		22	
11		23	
12		24	

Screen 3.22 The GRADONC Variable Specification Screen

Type: 5 [Enter]
(The cursor is positioned next to "Method" under "Automatic".)

Type: /
(The Define Graph Add Menu appears, Screen 3.23.)

Type: s
(A message in the upper left corner of the screen verifies that the graph GRADONC has been saved.)

If the above instructions were followed, the completed graph layout screen for the graph GRADONC should look like Screen 3.23.

Screen 3.23 The Completed Graph Layout Screen for the Graph ENROLBYG and Define Graph Add Menu

Type: d [Enter]
(The cursor is positioned in the first row under the color column in in the Graph Data Screen for GRADONC, Screen 3.24.)

Screen 3.24 The Graph Data Screen for the Graph GRADONC

The color, pattern, data type and, depending on the type of graph to be generated, the type of display for each series of data to be drawn on the graph are specified in the Data Screen. The colors and patterns of the data series are chosen in a manner that the data bars, lines, points, etc. are easily differentiated on the screen or on paper.

In the following example of a "mixed" type graph, the MIXED TYPE's and PATTERN's for the four data series, GRADRATE, GRADRATEC, ONTIME and ONTIMEC, are be chosen. It is assumed that the graph is generated to a monochrome monitor. The COLOR and DATA TYPE for each series remain as initially displayed on the data screen.

Use the GRADONC graph (Graph 3.3) as a visual guide for following the instructions in the steps below. This is a mixed type graph where the number of graduates per 1000 entrants are displayed in vertical bars and the number of on time graduates per 1000 entrants are displayed as lines across the vertical bars. Since this is a comparison graph, there are two sets of bars and two sets of lines. A pattern for each bar and each line are chosen in the data screen.

In the data screen, the Mixed Type is chosen for each of the four series of data, GRADRATE, GRADRATEC, ONTIME and ONTIMEC. Next the pattern for each of the four series is designated. It is assumed that the graph is generated to a monochrome monitor. The colors and data types for each series remain as initially displayed on the data screen.

Move the cursor to the space in the first row in the MIXED TYPE column using the right arrow key on the numeric keypad

Graph GRADONC has been saved. ADD GRAPH
Resume Variable Data Save Next Quit
Resume work on the current graph.

DIMENSION	USE	LABEL FORMAT	GRAPH TYPE
PERIOD	X axis	DEFAULT	Mixed
SEX	Sum over	--------	

LABELING

Data Labels : No
Horizontal Grid Lines : No
X-Axis Label Skip : 5

SCALING

Method : Automatic

▪ More than one variable in graph; each response range is a variable

Screen 3.23 The Completed Graph Layout Screen for the Graph ENROLBYG and Define Graph Add Menu

ADD GRAPH

Graph Name : GRADONC
Title1 : Graduation Rate and On Time Graduation

Reference Data File : GUAT

SERIES	COLOR	PATTERN	DATA TYPE	MIXED TYPE
GRADRATE	Color 1_	XXXXXXXXXX	Raw data	Vertical Bar
GRADRATE (Comp)	Color 2	==========	Raw data	Line
ONTIME	Color 3	XXXXXXXXXX	Raw data	Vertical Bar
ONTIME (Comp)	Color 4	==========	Raw data	Line
	Color 5	XXXXXXXXXX	Raw data	Vertical Bar
	Color 6	==========	Raw data	Line

F3-Variable F4-Layout F5-Data

Screen 3.24 The Graph Data Screen for the Graph GRADONC

Press: [Space bar]
until "Vertical Bar" pattern appears.

Press: [down arrow]
(The cursor is positioned in the second row in the MIXED TYPE column.)

Press: [Space bar]
until "Vertical Bar" pattern appears.

Press: [down arrow]
(The cursor is positioned in the third row in the MIXED TYPE column.)

Press: [space bar]
until "Line" appears.

Press: [down arrow]
(The cursor is positioned in the fourth row in the MIXED TYPE column.)

Press: [space bar]
until "Line" appears.

Move the cursor to the space in the first row in the PATTERN column using the left and up arrow keys on the numeric keypad.

Press: [Space bar]
until the solid single line pattern appears as in Screen 3.25.

Press: [down arrow]
(The cursor is positioned in the second row in the Pattern column.)

Press: [space bar]
until the dashed line pattern that shown in Screen 3.25 appears.

Type: /
(The Define Graph Add Menu appears.)

Type: s
(The message that the graph GRADONC has been saved appears in the upper left hand corner of the screen.)

Screen 3.25 The Completed Graph Data Screen for the Graph GRADONC

To verify the structure of the graph that was just defined, return to the graph definition menu and generate the graph using the Graph option in the Main Menu. To generate the graph that was just created:

At the Define Graph Add Menu:

Type: q
(The Define Graph Menu appears, Screen 3.9.)

Graph GRADONC has been saved. ADD GRAPH

Resume Variable Layout Save Next Quit

Resume work on the current graph.

SERIES	COLOR	PATTERN	DATA TYPE	MIXED TYPE
GRADRATE	Color 1	■■■■■■■■■■	Raw data	Vertical Bar
GRADRATE (Comp)	Color 2	//////////	Raw data	Vertical Bar
ONTIME	Color 3	————————	Raw data	Line
ONTIME (Comp)	Color 4	- - - - -	Raw data	Line
	Color 5	XXXXXXXXXX	Raw data	Vertical Bar
	Color 6	==========	Raw data	Line

Screen 3.25 The Completed Graph Data Screen for the Graph GRADONC

Highlight: graph [Enter]
(The Graph Definition - Graph-file Menu appears.)

Type: d
(The graph generation screen appears and the cursor is positioned next to "Graph Name ?".)

Type: GRADONC [Enter]
(The cursor is positioned next to "Data File" and the default data file should appear if one has been designated.)

If the data file name is other than c:\step\guat or there is no file name displayed:

Type: guat [Enter]

Otherwise, if the correct path to and name of the data file GUAT appears then:

Press: [Enter]
(The cursor is positioned next to "Comparison File".)

Press: [Enter]
(The cursor is positioned next to "Output File".)

Type: con [Enter]
(The cursor is positioned next to "Periods".)

Type: 1-26 [Enter]
Type: /
(The Graph Menu appears.)

Type: g
(The graph GRADONC appears on the screen, Graph 3.3.)

Press: [Escape]
(The Graph Menu appears.)

To return to the Host Main Menu:

Type: q
(The Graph Definition - Graph-file Menu appears.)

Type: q
(The Graph Define Menu appears.)

Type: q
(The Define Menu appears.)

Type: q
(The Main Menu appears.)

3.3 Instruction Files: Processing and Editing Existing Instruction Files and Creating New Instruction Files

Instruction files execute a series of operating system (DOS) commands and Host instructions without operator intervention. Instruction files are created and edited using the Instruct facility of Host or by using an equivalent text editor software. The Instruct facility in the Host Main Menu is used to edit and create instruction files in this guide. See the Host User's Guid for further information on Instruction Files.

Instruction files provide a convenient way of making presentations and also executing repetitious Host tasks. In the following sections, an existing instruction file, STEP, is first executed, or "processed", to give the user an idea of the function and utility of an instruction file. The instruction file is edited. A new instruction file, STEPS, is created in the last section.

3.3.1 Processing an Existing Instruction File

The instructions for processing an existing Instruction File STEP are provided in this section. The contents of the file can be reviewed before the file is processed since only the line of the file currently being executed is displayed in the upper left hand corner of the screen. The instructions for viewing and editing the file are provided in the next section.

The system must be configured for a default data file and a default comparison file for the following Instruction File to execute properly. Return to the Configure Menu and select a data file and comparison data file on the Defaults Screen. See Part One for instructions on configuring the system.

At the Main Menu:

Highlight: Instruct [Enter]
(The Instruct Menu appears, Screen 3.26.)

Screen 3.26 The Instruct Menu

Highlight: Process [Enter]
(The prompt for the instruction file to be processed appears.)

If the name of the instruction file STEP appears:

Press: [Enter]
(The prompt for backing up the data file appears.)

```
                                                              INSTRUCT MENU
Create Edit Backup Process Delete Quit
Create a new Instruction file.
```

- Use the arrow keys to highlight your menu choice then press [Enter], or press the key corresponding to the first letter of your menu choice. Pressing the [Esc] key is the same as selecting the choice "Quit".

Screen 3.26 The Instruct Menu

If the name of the instruction file STEP does not appear after the prompt:

Type: ?
Highlight: STEP [Enter]
(The prompt for backing up the data file appears.)

At the prompt for backing up the data file:

Type: n

Messages appear in the upper left corner of the screen including the line of instruction file currently being executed. The table or graph is displayed in the work space or center of the screen.

Instructions for viewing the generated table or graph appear at the bottom of the screen. Use the PgUp and PgDn keys on the numeric keypad for viewing the complete table or series of graph when necessary. The Esc key is used to continue to the next line of the Instruction File.

When you finish viewing the table or graph:

Press: [Esc]
and the next line of instructions in the file is executed automatically.

When you finish viewing the next table or graph:

Press: [Esc]

Continue viewing the tables and graphs generated by the Instruction File by pressing the Escape key. The Instruct Menu appears automatically when the Escape Key [Esc] is pressed after the last table or graph has been displayed.

3.3.2 Editing Existing Instruction Files

The instruction file STEP is an example of an instruction file that may be used to make a presentation of the assumptions and the results of the projection of student enrollment and education efficiency indicators. The original instruction file STEP is shown in Screen 3.27.

Screen 3.27 The Original Instruction File STEP

The instruction file STEP produces tables and graphs of the input data and the major outputs of the six modules of the STEP System for the appropriate time periods. In several tables and graphs it compares the input assumptions and the output of two scenarios of the enrollment projection and cohort analysis. **Therefore, two data files, GUAT and GUATTARG, must be designated in the Configure Defaults Menu before running the Instruction File.**

EDIT FILE

Instruction File Name : STEP Line Number : 1

```
table t=enrolage o=con p=1,7-9
table t=rates o=con p=all
graph g=schlpop o=con p=10-26
graph g=dropcomp o=con p=6-10
graph g=rates o=con p=6-10
graph g=enrolcmp o=con p=10-26
graph g=grads o=con p=10-26
```

Use [↓] or [↑] to point to a line, enter text to edit or press a function key

F3-Run F4-Table F5-Suspend F6-Graph F7-Base F8-Incr F9-Period F10-Rem

Screen 3.27 The Original Instruction File STEP

Any of the commands in the instruction file may be edited. In the following instructions, the periods for which tables and graphs are generated are changed to the appropriate periods (see below), and tables and graphs are deleted and added.

The appropriate time periods depend on the type of data to be displayed. The time periods for which the first table ENROLAGE is to be displayed correspond to the years of input data: 1974, 1975, and 1979 to 1983. The rest of the tables and graphs are generated for similarly appropriate time periods, i.e. some tables and graphs include the historic periods only, others are generated for the projection periods only, while others are generated for both the historice and projection periods. (Also note that the transition rates are projected for 15 years beyond the 25 year projection period of the enrollment, cost and cohort analysis modules.)

A graph of the assumptions about the entrance rates into first grade, ENTRT, and the table ENROLBYG are added to the file. The table RATES in the second line of the instruction file is deleted and replaced with the graph RATES. The graph GRADS is replaced with the graph GRADONC; GRADONC is the comparison graph which was created in the previous section on defining graphs.

The edited version of the STEP instruction file, named STEP1, appears in Screen 3.28.

Screen 3.28 The Edited Instruction File STEP1

The Insert Mode should be inactive during the session on editing the Instruction File. If Ins in inverse video appears in the bottom right corner of the screen, press the Insert key [Ins]. The word should disappear.

To edit the Instruction File STEP, at the Host Main Menu:

Highlight: Instruct [Enter]
(The Instruct Menu appears.)

Highlight: Edit [Enter]
(The prompt for the instruction file to be edited appears.)

If the name of an instruction file is designated as the default instruction file in the Configure Defaults Menu, then the path to and the name of that instruction file appears after the prompt.

If the name of the instruction file STEP appears:

Press: [Enter]
(The Instruction File STEP appears in the workspace, Screen 3.27.)

EDIT FIL

Instruction File Name : STEP Line Number : 1

```
table t=enrolage o=con p=1,2,6-10
table t=rates o=con p=1-10
table t=entrt o=con p=1-41
graph g=schlpop o=con p=1-26
graph g=dropcomp o=con p=1-26
graph g=enrolcmp o=con p=1-26
graph g=gradonc o=con p=1-26
```

▪ Use [↓] or [↑] to point to a line, enter text to edit or press a function key.

F3-Run F4-Table F5-Suspend F6-Graph F7-Base F8-Incr F9-Period F10-Rem

Screen 3.28 The Edited Instruction File STEP1

If the name of the Instruction File STEP does not appear after the prompt:

Type: ?
Highlight: STEP [Enter]
(The Instruction File STEP appears in the workspace, Screen 3.27.)

(The cursor is positioned at the first space in the first line of the instruction file, Screen 3.27.)

Press: [right arrow]
until the cursor is positioned under the 7 in line number 1 (see the line number displayed in the upper center portion of the screen).

Type: 2,6-10
Press: [down arrow]
(The cursor moves to the first position in line number 2.)

The table RATES in line number 2 is replaced with the graph RATES:

Press: [F6]
(The Definition - Graph-File Menu appears.)

Type: d
(The prompt for the name of the graph to be generated appears.)

Type: rates [Enter]
(The prompt for the output file or device appears.)

All the tables and graphs are to be generated to the console or monitor.

If the default output device is not CON then:

Type: con
Press: [Del]
to delete any remaining characters after con.
Press: [Enter]

Otherwise,:

Press: [Enter]

(The prompt for the number of periods appears. The default value is **ALL.**)

Type: 1-10
Press: [Del]
to delete any remaining characters after 1-10.

(The query for changing this instruction appears.)

Type: n
(The cursor moves to the first position in line 3.)

Line 3 is not edited.

Press: [down arrow]
(The cursor moves to the first position in line 4.)

Press: [right arrow]
until the cursor is positioned under the 6.)

Type: 10-41
Press: [down arrow]
(The cursor moves to the first position in line number 5.)

The graph RATES in line 5 is deleted.

Press and hold: [Ctrl]
Type: y
Release: [Ctrl]
Press: [down arrow]
(The cursor moves to the first position in line number 6.)

Line 6 is not edited.

Press: [down arrow]
(The cursor moves to the first position in line number 7.)

The graph GRADS is replaced with the graph GRADONC.

Press: [F6]
(The Definition - Graph-File Menu appears.)

Type: d
(The prompt for the name of the graph appears at the top of the screen.)

Type: ?
Highlight: GRADONC [Enter]
(The prompt for the output file or device appears.)

If the default output device is not CON then:

Type: con
Press: [Del]
to delete any remaining characters after con.
Press: [Enter]

Otherwise,:

Press: [Enter]

(The prompt for the number of periods appears. The default value is **ALL**.)

Type: 1-26
Press: [Del]
to delete any remaining characters after 1-10.
Press: [Enter]

(The query for changing this instruction appears.)

Type: n
(The cursor moves to the first position in line 8.)

Type: /
(The Instruct Edit Menu appears.)

Type: s
(The name for the edited version of the Instruction File appears.)

Type: step1 [Enter]
(The Instruct Edit Menu appears.)

Type: q
(The Main Menu appears.)

The edited instruction file STEP1 may now be processed.

3.3.3 Creating New Instruction Files

A new Instruction File is created in the following instructions. Commands to run several modules and then generate comparison tables and graphs are included.

The PROJRATE, EDPROJ and COHORT Modules are run using the instruction file. Several comparison tables and graphs are generated to the screen. **The system must be configured for a data file (GUATTARG) and a comparison data file (GUAT). If this is not the case, return to the Main Menu and reconfigure the default files on the Defaults screen.**

The completed Instruction File is shown in Screen 3.29.

Screen 3.29 The Instruction File STEPS

To create an Instruction File STEPS, at the Host Main Menu:

Highlight: Instruct [Enter]
(The Instruct Menu appears.)

Highlight: Create [Enter]
(The prompt for the name of the new instruction file appears.)

```
Instruction File Name : STEPS        Line Number : 1                    EDIT FILE

run m=d:\step3\projrate s=1 n=25
run m=d:\step3\edproj s=1 n=25
run m=d:\step3\cohort s=1 n=25
table t=ratescmp o=con p=1-26
graph g=enrolcmp o=con p=1-26
graph g=gradonc o=con p=1-26

Use [↓] or [↑] to point to a line, enter text to edit or press a function key.
F3-Run  F4-Table  F5-Suspend  F6-Graph  F7-Base  F8-Incr  F9-Period  F10-Rem
```

Screen 3.29 The Instruction File STEPS

Type: steps [Enter]
(The cursor is positioned at the first space in the first line of the instruction file, Screen 3.30.)

Screen 3.30 The First Line of the Instruction File STEPS

Press: [F3]
(The prompt for the name of the application module appears.)

Type: projrate [Enter]
(The prompt for the starting period (1) appears.)

Press: [Enter]
(The prompt for the number of periods (1) appears.)

Type: 25
(The prompt for changing the instruction appears.)

Type: n
(The cursor is positioned at the first space in line 2 of the instruction file.)

Press: [F3]
(The prompt for the name of the application module appears.)

Type: edproj [Enter]
(The prompt for the starting period (1) appears.)

Press: [Enter]
(The prompt for the number of periods (1) appears.)

Type: 25
(The prompt for changing the instruction appears.)

Type: n
(The cursor is positioned at the first space in line 3 of the instruction file.)

Press: [F3]
(The prompt for the name of the application module appears.)

Type: cohort [Enter]
(The prompt for the starting period (1) appears.)

Press: [Enter]
(The prompt for the number of periods (1) appears.)

Type: 25
(The prompt for changing the instruction appears.)

```
Instruction File Name : STEPS        Line Number : 1                    EDIT FIL

■ Use [↓] or [↑] to point to a line, enter text to edit or press a function key
F3-Run   F4-Table   F5-Suspend   F6-Graph   F7-Base   F8-Incr   F9-Period   F10-Rem
```

Screen 3.30 The First Line of the Instruction File STEPS

Type: n
(The cursor is positioned at the first space in line 4 of the instruction file.)

Press: [F4]
(The prompt for the name of the table appears.)

Type: ?
Highlight: ratescmp [Enter]
(The prompt for the output file appears.)

Type: con [Enter]
(The prompt for the number of periods (ALL) appears.)

Type: 1-26
Press: [Del] (to erase the remaining letter)
Press: [Enter]
(The prompt for changing the instruction appears.)

Type: n
(The cursor is positioned at the first space in line 5 of the instruction file.)

Press: [F6]
(The Definition - Graph-File Menu appears.)

Type: d
(The prompt for the name of the graph appears at the top of the screen.)

Type: ?
Highlight: ENROLCMP [Enter]
(The prompt for the output file or device appears.)

If the default output device is not CON, then

Type: con
Press: [Del]
to delete any remaining characters after con.
Press: [Enter]

Otherwise,:

Press: [Enter]

(The prompt for the number of periods appears. The default value is **ALL**.)

Type: 1-26
Press: [Del]
to delete any remaining characters after 1-26.

Press: [Enter]
(The query for changing this instruction appears.)

Type: n
(The cursor moves to the first position in line 6.)

Press: [F6]
(The Definition - Graph-File Menu appears.)

Type: d
(The prompt for the name of the graph appears at the top of the screen.)

Type: ?
Highlight: GRADONC [Enter]
(The prompt for the output file or device appears.)

If the default output device is not CON, then:

Type: con
Press: [Del]
to delete any remaining characters after con.
Press: [Enter]

Otherwise,:

Press: [Enter]

(The prompt for the number of periods appears. The default value is **ALL.**)

Type: 1-26
Press: [Del]
to delete any remaining characters after 1-10.

Press: [Enter]
(The query for changing this instruction appears.)

Type: n
(The cursor moves to the first position in line 10.)

Type: /
(The Instruct Edit Menu appears.)

Type: s
(The prompt for the name of the Instruction File (STEPS) appears.)

Press: [Enter]
(The Instruct Edit Menu appears.)

Type: q
(The Instruct Menu appears.)

3.2.4 Processing the Newly Created Instruction File

At the Instruct Menu:

Type: p
(The prompt for the name of the Instruction File appears.)

Type: ?
Highlight: STEPS [Enter]
(The prompt for backing up the data file appears.)

Type: n
(The processing of the Instruction File begins.)

Part Four

Modification of STEP to an Education System

4. Dimensions and Labels to be Modified When Applying STEP to Another Education System

Since there are two data files that are required to run STEP, the population data base and the education, or STEP, data base, several dimensions and labels in both data files must be modified for the specific application.

Country Specific Modifications to the Population Database

If the Age-Specific fertility rates are used to make the population projection, than the dimension and the label for the variable ASFR must be modified to reflect the appropriate fertile ages of the country or region. The dimension and label for the variable ASFR are also called ASFR.

If country specific life tables and fertility tables are used instead of the supplied tables then the appropriate dimensions and labels for the variables LTFILE and MODFERT need to be modified. User supplied life and fertility tables must be designated as the method of calculation in the variables MORTOPT and FERTOPT, respectively. For a user-supplied life table in the variable LTFILE, the dimensions LTCOLS and LTROWS and the label for LTROWS which is also called LTROWS must be changed. The name of the user-supplied life table must be added to the dimension LTFILE and the label LTFILE. For a user-supplied fertility table the dimensions MFCOLS and MFROWS and their respective labels of the same name must be modified. The name of the new fertility table must be added to the dimension FERTOPT.

The number of five-year age groups and single year ages in the variables POP5 and POP, respectively, must be adjusted to reflect the pattern found in the source of the population data. Only the dimension AGE5 and the label AGGPOP for the variable POP5 need to be modified.

The minimum and maximum fertile ages of women must be designated in the variable FERTAGES.

The label for the dimension sex must correspond to the structure of the population data. The value for the variable FEMINDEX reflects the position of the female population values in the data entry matrix. If female population values are entered in the first column, then the value for the variable FEMINDEX should be 1 and the labels for male and female the dimension SEX, which is also called SEX, must be changed accordingly. If total population is entered than only the label SEX must be changed to read "Both Sexes" or "Total".

The dimension PERIOD is modified to reflect the first year of data in the data base and to set the maximum number of years of the projection.

The dimension REGION can be set to 2 if regional population data is provided but when the population data is read into the education, or STEP, data base, the regional data will be summed to a total population since STEP cannot be specified for more than one region.

To Disaggregate 5-Year Age-Group Population Data to Single Age Population Data Using the Program INT5TO1

When the base population data is available in five-year age groups, the five-year age groups must be disaggregated into single ages. A module INT5TO1 is supplied with STEP to disaggregate the age-groups using Beers coefficients. If this module is used then the variables INT1NAME and INT5NAME must be edited to reflect the name of the variables that contain the single age population data and the 5-year age-group population data, respectively. The variable INT5OPT must also be edited to reflect the structure of the population data. If the last age or age-group of population data is open then a zero (0) is entered if the data is not open ended in the last age group then a (1) is entered. Once these changes are made, the 5-year population data is entered into the variable POP5 and then the module or program INT5TO1 is run. The disaggregated population data are automatically stored in the variable POP for the first year of the projection.

Country Specific Modifications to the Education, or STEP, Database

The number of levels in the population variable POP, where the population is required in single ages, must be modified in the dimension AGE to the number corresponding to the changes to the variable POP in the population data base.

The SEX dimension and label for the population data variable POP must be modified as was the SEX dimension and label in the population data base.

The dimension and label ENAGE for the variable ENROLAGE is modified to correspond to age-specific enrollment data. The age range of the enrollment data is designated in this dimension and in the label ENAGE.

The number of grades in primary school is designated in the dimension GRADE and the label GRADE. The dimension GRADE is used with the following variables ENROL, ENROLAGE, NREPEAT, AGGENROL, REPEATRT, DROPRT, PROMRT, TARREP, TARDROP, TREP, and TDROP.

The number of periods of the education projection is designated in the dimension PERIOD. The first year of the projection period is designated in the dimension settings and as well as the maximum number of years of the projection.

The dimension YEAR is modified to reflect the years for which the data is provided and projected for the variables HISTORIC and INCLUDE.