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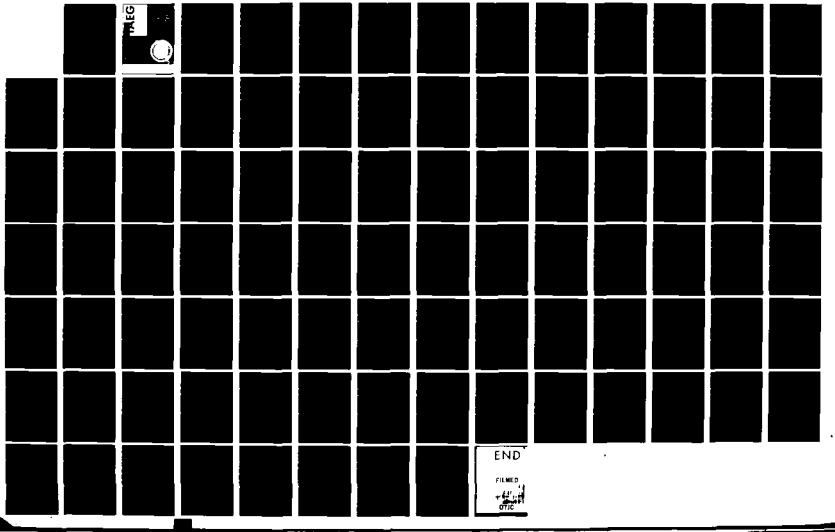

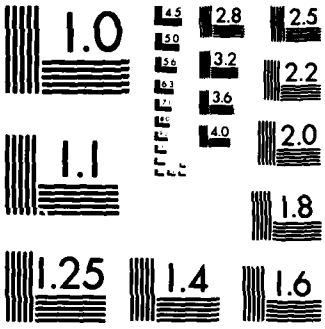

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TECHNICAL REPORT 139

TRAINING ANALYSIS AND EVALUATION GROUP

TAEG

PIPELINE ANALYSIS MODEL (PAM)

JANUARY 1983

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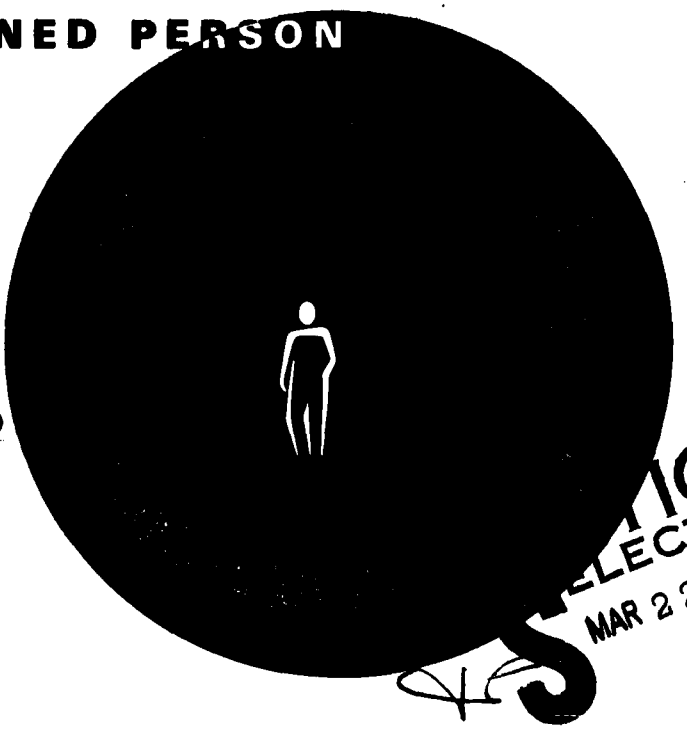

TRAINING ANALYSIS AND EVALUATION GROUP
ORLANDO, FLORIDA 32813

Technical Report 139

PIPELINE ANALYSIS MODEL (PAM)

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Training Analysis and Evaluation Group

January 1983

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Managing the training pipelines to reduce the backlog of students, and thus effecting a reduction in training costs, is a complex and difficult task. Accurately predicting the behavior of the student flow through the pipelines is necessary if the management is to be effective and efficient. The Pipeline Analysis Model (PAM) is designed to monitor and predict the

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20. ABSTRACT (continued)

flow of students at various points in the Navy training pipelines. This report presents the Pipeline Analysis Model and provides a guide to the operations of the model.

ACKNOWLEDGMENTS

Appreciation is extended to Dr. I. Shever, Chief of Naval Education and Training (N-36), for his outstanding cooperation and technical support in this effort. It was his conceptualization to develop and automate the pipeline analysis model.

The support of the TAEG personnel has been invaluable in this effort. We are especially indebted to Mr. Charles Guitard for his encouragement and guidance in program development and for helping create specific pipeline exhibits.

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

LIST OF ILLUSTRATIONS

SECTION I

INTRODUCTION

The Navy's personnel recruiting and training organizations must acquire and provide the fleet with trained personnel who are capable of effectively operating and maintaining the many complex systems in existence today. To accomplish this requirement, the Chief of Naval Education and Training (CNET) employs a variety of training technologies. Technologies in widespread use include instructional systems development (ISD) for design and development of Navy instructional materials and self-paced, individualized, and computer based/managed instruction. In spite of the increased emphasis on individualized instruction in the Navy, the time spent in the training pipelines and the costs associated with the training have continued to increase. In recent years, a significant portion of the increase in time and cost has been closely associated with the backlog of students that are in the various training pipelines but not under instruction (i.e., awaiting instruction (AI) or awaiting transfer (AT)).

Reducing the backlog of students, and thus effecting a reduction in training costs, is a complex and difficult task. Up to date information on student input and output, attrition and setback rates, schoolhouse capacities, and course information is required to effectively manage the pipelines. The number of training pipelines and their interactions contribute significantly to the complexity of pipeline management. Training device requirements and availabilities further complicate the problem. In addition, completion of self-paced courses is dependent on individual student ability and motivation; consequently, time estimates for completion of the courses are difficult to predict accurately.

The development of a Pipeline Analysis Model (PAM) that accurately reflects the current system is extremely complicated. However, the problem is ideally suited to solution using computer simulations. This approach enables planners and programmers to create models of the real system, manipulate characteristics of the model, and make inferences about the actions of the real system.

BACKGROUND

In fiscal years 1980 and 1981 the numbers of students in CNET schools awaiting instruction (AI) and awaiting transfer (AT) exceeded estimates by a significant amount. This had a twofold effect on the Navy. First, it raised training costs and, second, it reduced the number of personnel available for operational billets in the fleet and the time spent in the operational billet. A CNET Student Pipeline Management Task Force was established[1] to study the pipeline management problems and to recommend solutions. The task force was to determine the cause(s) of the AI and AT backlogs and to develop/select mathematical or simulation models of the specialized training pipelines. These models were to be used for feasibility studies during the programming process, for forecasting and tracking during the training execution process, and for identifying management actions/policies which would maximize output and minimize backlogs.

[1]CNET ltr Code 01 of 17 Dec 1980.

The Training Analysis and Evaluation Group (TAEG) was tasked[2] to provide support to the CNET Task Force. The tasking required TAEG to study existing mathematical and network simulation models for application to the Navy student pipeline management problem.

PURPOSE

This report describes the Pipeline Analysis Model and provides a guide for CNET personnel to operate the model.

ORGANIZATION OF THIS REPORT

In addition to this introduction, the report is divided into two other sections and eight appendices. Section II presents an overview of the Pipeline Analysis Model and briefly describes the major system options. Section III is a detailed guide for the operation of the system. Examples of the various outputs available from the PAM are contained in the appendices.

[2]CNET ltr Code 022 of 13 Jan 1981.

SECTION II

DESCRIPTION OF THE PIPELINE ANALYSIS MODEL

The CNET has, as a primary mission, the responsibility for providing shorebased education and training for the Navy. The Chief of Naval Technical Training (CNTECHTRA) is a shore activity, under the command of CNET, whose mission is to coordinate and direct Navy recruit and technical training. The Pipeline Analysis Model presented in this report primarily models the training activities under the direct control of CNTECHTRA. Figure 1 provides an overview of the Navy's major training pipelines. As can be seen from the figure, the students are first recruited from the general populace by the Naval Recruiting Command. They are then sent to one of the three recruit training centers (RTCs) for basic training. (All female recruit training is done in Orlando, Florida.) Upon graduation from recruit training, students generally proceed to follow-on training. Those individuals selected for electronics-related technical training will proceed to a Basic Electricity and Electronics (BE/E) School and then on to a follow-on "A" school. All individuals opting for aviation training will proceed to Naval Air Technical Training Center (NATTC) Memphis for a four week aviations fundamental (AFUN) course prior to convening BE/E School at Memphis. Those individuals not scheduled for technical training after recruit training are sent to a designated 4-week fireman, airman, or seaman apprentice school and then sent directly to the fleet. It should be noted that there is a flow of students from the fleet back into the technical training pipelines. This flow, however, only amounts to about 10 percent of the yearly throughput.

SYSTEM OVERVIEW

The PAM is designed to monitor and predict the number of students at various points in Navy training pipelines. The pipelines include Recruit Training, BE/E schools, and follow-on "A" schools.

This model simulates the flow of students of a particular rating through a series of training schools. The student's rating determines which BE/E and/or "A" schools he/she attends and in what order. The following paragraphs describe the data inputs required to initiate a simulation, the outputs generated by the simulation, and the various options available within PAM.

INPUTS. In addition to the course and pipeline parameters needed to initiate each simulation (student rating, length of simulation, starting date, etc.) the input data consists of the number of students with a "school guarantee" to the particular rating arriving weekly at each RTC. The numbers of recruit accessions and Fleet Returnees are automatically determined by the PAM. In test runs of the program, the inputs have been of three forms: (1) constant number of arrivals until a certain week when the number of arrivals goes to 0 and the following weeks simply process the students already in the system, (2) constant number of arrivals throughout the simulation run, (3) continuously varying number of arrivals (this simulates most closely the "real case").

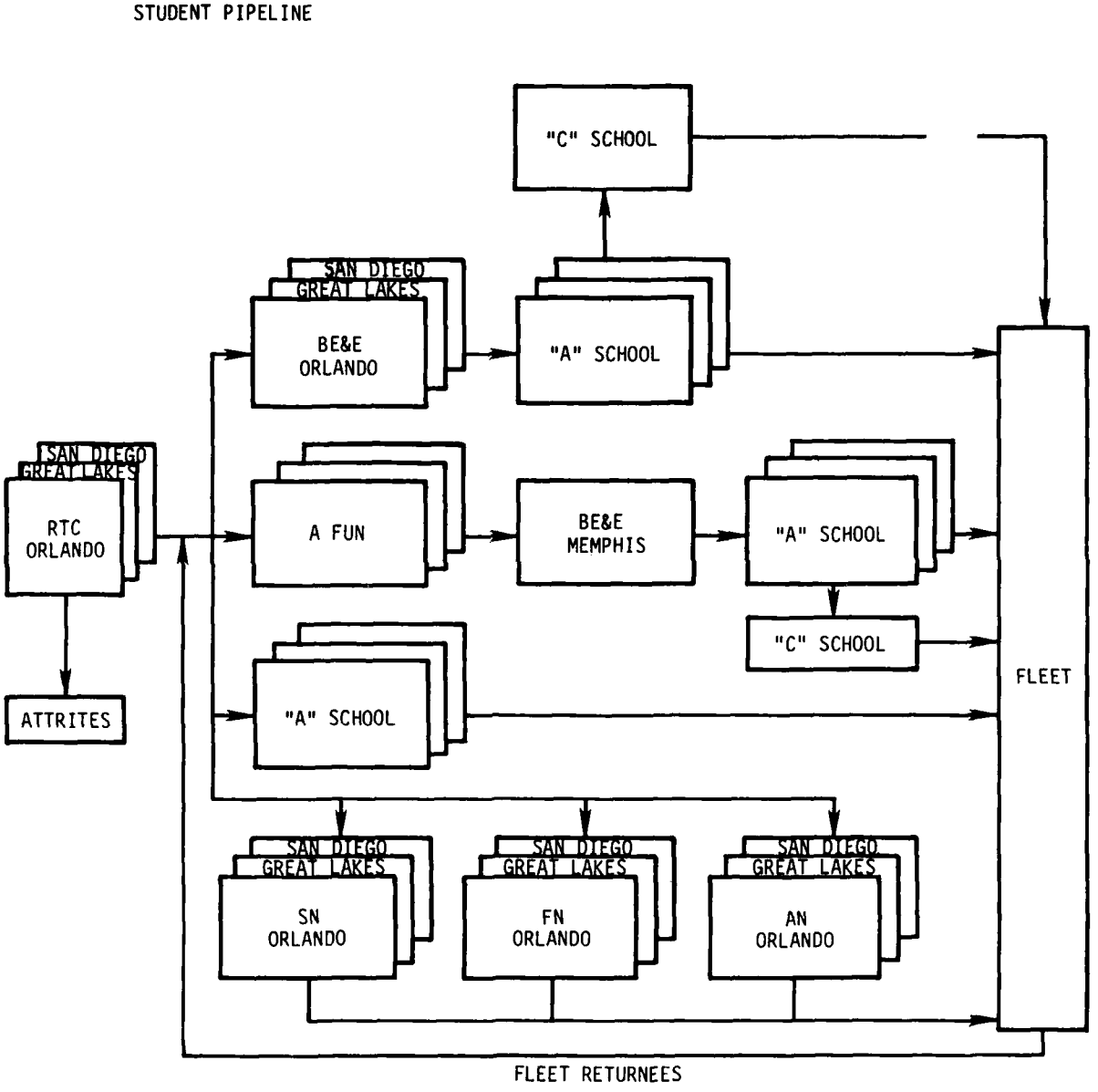

Figure 1. Student Pipelines: Macro View

OUTPUTS. For each week of training, the number of arrivals, enrollees, students under instruction, students awaiting instruction, graduates, and attrites is calculated for each course. When the simulation run is completed, these figures are printed out in a matrix display.

SYSTEM OPTIONS

Figure 2 displays the options available in the PAM. The Special Support Subsystem (Option $) consists of system accounting programs, error recovery programs, and initialization programs. Only options 1 and 4 of the five programs contained in this subsystem are used during normal system operations. The remainder deal with the actual program structure and are only for use by a qualified systems programmer.

The Ratings Subsystem (Option 1) allows the user to input/edit or print information on the various Navy ratings. Included in this information is the pipeline for the particular rating and any pertinent comments the user desires to enter about that rating.

The Course Subsystem (Option 2) affords the user the capability to enter, edit or print the applicable course information. This information is the course descriptive data contained in the Master Course Reference File (MCRF) and is obtained from the Navy Integrated Training Resources and Administration System (NITRAS).

The Statistics Subsystem (Option 3) enables the user to insert the appropriate statistical data (i.e., arrivals, enrollees, students under instruction, attrites, graduates) by course data processing (CDP) number for all courses in the various pipelines. The outputs generated by the simulation runs are also stored in this area and available for use as "initial conditions" for future simulations.

The Simulation Subsystem (Option 4) offers the user the means to input the weekly arrivals data, run a simulation of the Pipeline Analysis Model, and generate an output report giving the results of a simulation run.

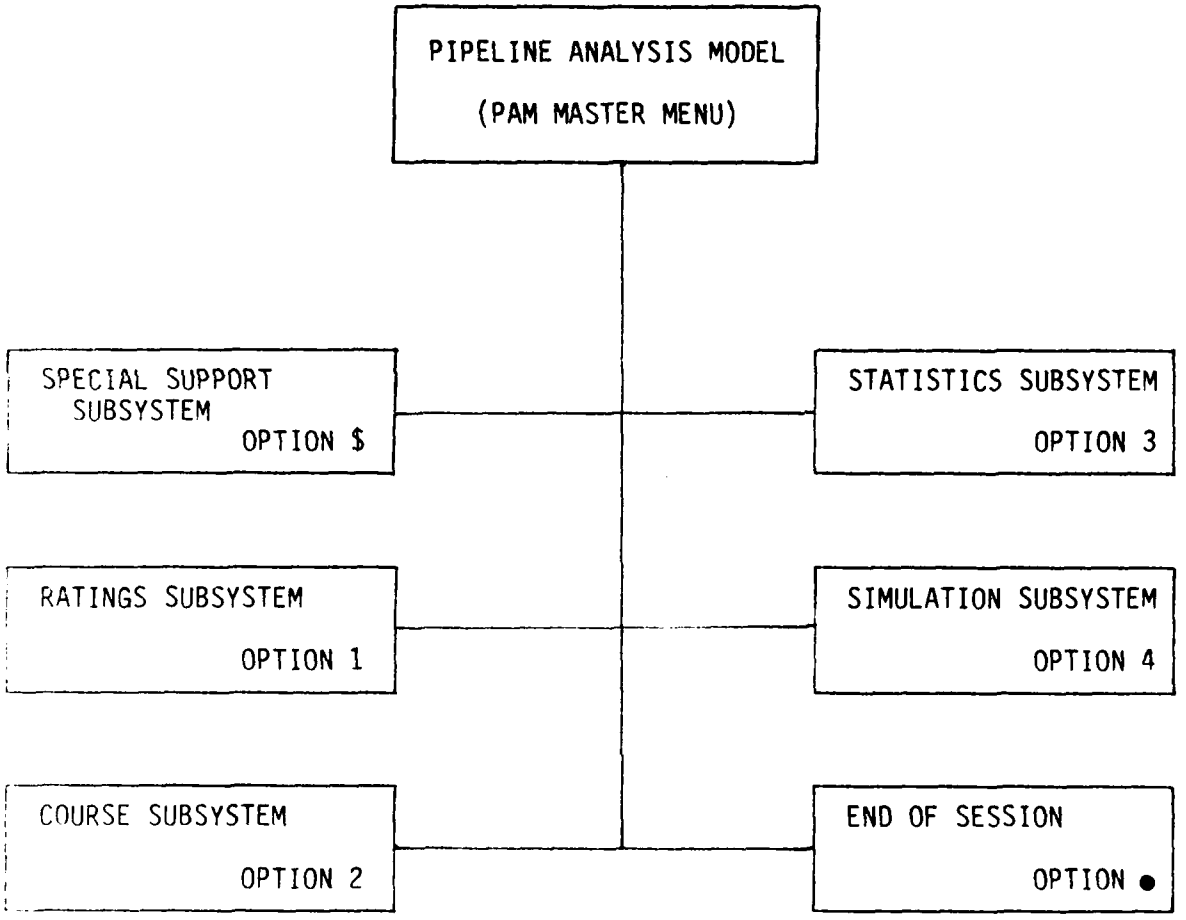

Figure 2. Pipeline Analysis Model (PAM) Master Menu

SECTION III

OPERATING PROCEDURES

It is assumed that the required computer hardware (CRT, Disk Drive, and Line Printer) is available to the personnel intending to use the PAM. Initializing the equipment is an extremely easy task. However, because of the many equipment configurations that are possible, it is desirable to have personnel knowledgeable in WANG equipment set up the system for subsequent use. When the system has been set-up, the following will appear on the CRT display:

```
READY (BASIC -2)
```

To load the Pipeline Analysis Model, the user must type in the following command(s):

```
Select Disk XXX(*)          (RETURN)
Load Run                    (RETURN)
```

* Where "XXX" is replaced by the appropriate disk address.

Upon completion of the above step, the following display will appear on the screen:

```
2200VP/MVP Disk PGM Selection Menu

    _______

    _______

    _______

    PAM:  Pipeline Analysis Model

    _______

    _______
```

After selecting the Pipeline Analysis Model and pressing RETURN (EXEC) the following will appear:

```
Pipeline Analysis Model

   Please Enter Today's Date (mmddyy): _____
```

To continue, the date must be entered as a 2-digit month, 2-digit day, 2-digit year. (The numeral 0 must precede any single-digit month or day; for example, April 4, 1982 should appear as 040482.) When the date has been entered (no RETURN necessary), the next request will appear:

```
Please Enter Printer Address: ____
```

A 3-digit address for the desired printer must be entered. Upon entry the next request will appear:

```
Please Enter the Disk Address of
   PAM System Programs: _____
```

This is requesting the 3-digit address of the disk where the PAM system programs are stored. Upon entry the next request to appear will be:

```
Please Enter the Disk Address of
   PAM RATING FILE: _____
```

Entry of the appropriate disk address where the RATING data file is located will cause the appearance of the request for the disk address of the Course File and Statistics File in the same manner.

None of the above requests require a RETURN after entry. RETURN alone will default the particular request to the value showing on the screen (which is the value entered at the last use of the PAM program).

Following entry of the above system specifications, the final requests of this section will appear:

```
Please Enter Your User ID: _____________

   Please Enter Password: _____________
```

The user ID can be any sequence of alphanumerics up to 10 characters. Usually the operator enters his/her first or last name or initials.

The password is an eight character code which must be entered by all users before the system will continue to the next section. The password must be defined at system installation time and is programmed into the system. Once the user ID and password have been entered the screen will display:

```
Pipeline Analysis Model

          PAM Master Menu                          Release 1.0

                  Enter Desired Option: _____

          Option                                   Subsystem

             $                                     Special Support
             1                                     RATINGS Subsystem
             2                                     COURSE Subsystem
             3                                     STATISTICS Subsystem
             4                                     SIMULATION Subsystem
             •                                     End of Session
```

The above display is called the PAM Master Menu. It is the beginning and end of all subsystem operations. From this menu the user may select any one of the five available options.

When the system is used for the first time, all of the system data files must be initialized; otherwise any attempts to use the system will

result in some error message. To initialize all the system data files, option 4, Reinitialize Files, of the Special Support Subsystem described in the next section must be executed. Once all the initializations are completed the user should return to the PAM Master Menu. The user now may proceed to enter data, perform calculations, and generate reports.

The remainder of this report describes the procedures for operating each of the subsystems available with the PAM.

SPECIAL SUPPORT SUBSYSTEM (PAM MASTER MENU OPTION $)

Figure 3 shows the various options available to the user of the PAM Special Support Subsystem.

Selecting option $, Special Support Subsystem, from the PAM Master Menu will cause the system to display:

Pipeline Analysis Model

Special Support Subsystem Menu

Option	System Accounting Prgms	Option	Initialize & Rebuild Files
1	RESET User Table	4	Reinitialize Files
			Special Application Prgms
		$	Load Special Application
		●	Return to Master Menu

Enter desired option: _____

OPTION 1, RESET USER TABLE. Selecting option 1 from the Special Support Subsystem Menu will result in the following display:

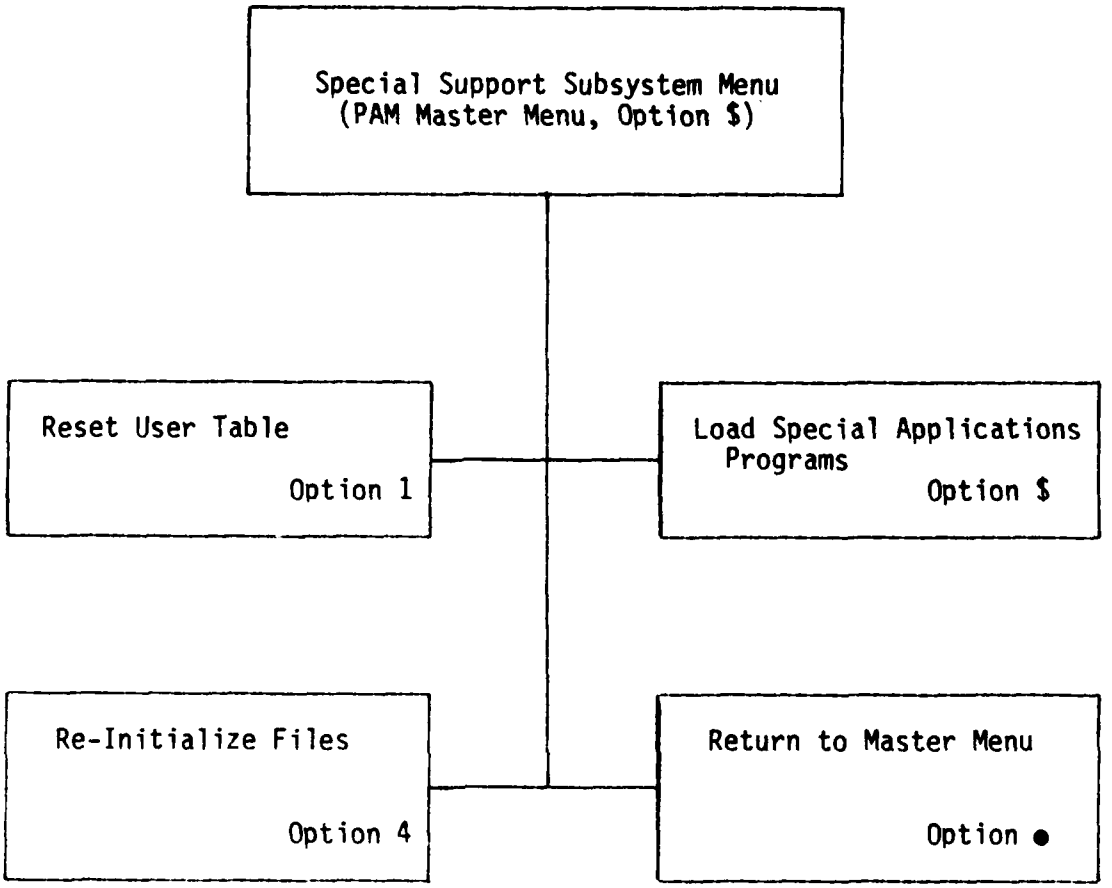

Figure 3. Special Support Subsystem Menu

```
PAM:  RESET USER TABLE                                    04/04/82  S:16

 *   This program will reset the user access table for ALL users of the
 *   system.  Because of the completeness of this procedure, please go
 *   tell any other users to end their session before you continue with
 *   this program.

       ENTER NEW OVERRIDE PASSWORD                          ##########

                                NOTE
  Having to re-set the user access table should not become normal
 procedure.  If you find that you are using this option often, it may be
 an indication of a more serious problem.  Please review your operating
 procedure and be sure you always return to the MASTER MENU and execute
 the option 'End of Session.'
```

The user should enter "SYSTEM" bringing the following:

```
PAM:  RESET USER TABLE                                    04/04/82  S:16


   Option: (R-reset, C-change address, S-skip sta, E-skip
            remaining sta.)?-

   Station: 1 (User) ID   Filename    Address        Type

                     1                               DATA
                     2                               DATA
                     '                                '
                     '                                '
                     '                                '
                     16                              DATA
```

For each of the 16 stations, the user ID entered by the user at that station is shown in the (USER) space followed by the ID number, file name, and disk address of all files currently "open" at that station. The user then selects the desired action to be taken at that station from the options listed on the screen.

Option "R" resets, or closes the files open at that user station and automatically displays the status of the next user station. Option "S" (skip) takes no action on that user station and automatically displays the status of the next user station. Option "E" (skip remaining) takes no action on the current user station and skips the presentation of the rest of the user stations' status. Option "C" (change addresses) offers the opportunity to change the disk address of any of the files listed as "open" at that user station. If this option is selected a request will appear:

```
Enter ID number of address to be changed:  (0 to END) ____
```

Entry of an ID number (1 to 16) will move the cursor to the appropriate file address in the list and the user can enter a new disk address. Entry of "0" as an ID number will indicate that the user is finished changing addresses.

When use of the above options has been completed (i.e., all 16 user stations have been checked), the following will appear:

```
PAM:  RESET USER TABLE                                  DATE  S:1

   Do you wish to reset table of current users? (Y or N) ____

            Station                User's Name

            1
            2
            .
            .
            .
            16
```

In the column headed "User's Name" will be a list of the user ID's currently entered at the 16 stations. Answering Y (Yes) will cause all stations' users to be logged-off by the system. Answering N (No) will abort the resetting mechanism at this point and any current users will remain logged-on the system. In either case, the user is transferred immediately back to the Special Support Subsystem Menu.

OPTION 4, RE-INITIALIZE FILES. Selecting option 4 from the Special Support Subsystem Menu will cause the following display to appear:

```
                 PAM:  SYSTEM DATA FILE INITIALIZATION

Subsystem Name     File Name     Key   Type        Size      Address




    * *  Enter 'GO' to start initializing procedures   * *

 !filename!key!type!sctr/rec!rec len!blk fctr!key len!strt key!kfam yr!
 !        !   !    !        !       !        !       !        !       !
```

Listed in this table will be all of the files used by the PAM System. Given for each will be: the file's descriptive name, the file's KFAM-7 format name, the number of Keys defined for the file, the file's type (data, link, KFAM7), the size currently assigned to it, and its disk address.

Using RETURN to move forward and RECALL to move backward, the user can change the size or disk address shown for any of the system's files.

Also displayed at the bottom of the screen will be more detailed file description information for one file at a time (the file currently indicated for changes in size or address). Use of RECALL will eventually bring the user back to the Special Support Subsystem Menu.

Entering "GO" at any point will cause the file initialization process to begin. The system will reset to "blank" all information stored in all logical records of all the data files listed on the screen. The completeness and irreversibility of this process indicate that it should rarely be utilized and all preliminary warning messages heeded. If only 1 (or more) files need to be re-initialized, the user should enter "Z" for size of any files not to be re-initialized then the actual file size for the file (or files) to be reinitialized. Upon entering "GO" those files indicated will be reinitialized, while the rest are skipped. When the files have all been reinitialized, the system will return automatically to the Special Support Subsystem Menu.

Option $, Load Special Applications. Selecting option $ from the Special Support Subsystem Menu will result in the following request:

```
Enter Program Name: ______________
```

At this time the user may enter the name of a program which is not a resident part of the PAM System but may use the common variables and subroutines to facilitate some special purpose application. This option allows usage of rarely-run special applications which may then make use of any files, subprograms, or other resident features of the PAM System. The user is responsible for providing a program-controlled exit out of the special application program back to the Special Support Subsystem Menu.

RATINGS SUBSYSTEM (PAM MASTER MENU OPTION 1)

Figure 4 shows the various options available to the user of the PAM Ratings Subsystem.

Selecting option 1, Ratings Subsystem, from the PAM Master Menu will cause the system to display:

```
Pipeline Analysis Model                                  04/04/82  S:1

                      Ratings Subsystem Menu

           Option                  Subsystem

             1                     Input/Edit RATINGS Data

             2                     Print RATINGS Data

             3                     Restore Default RATINGS Data

             ●                     Return to Master Menu

                      Enter Desired Option:
```

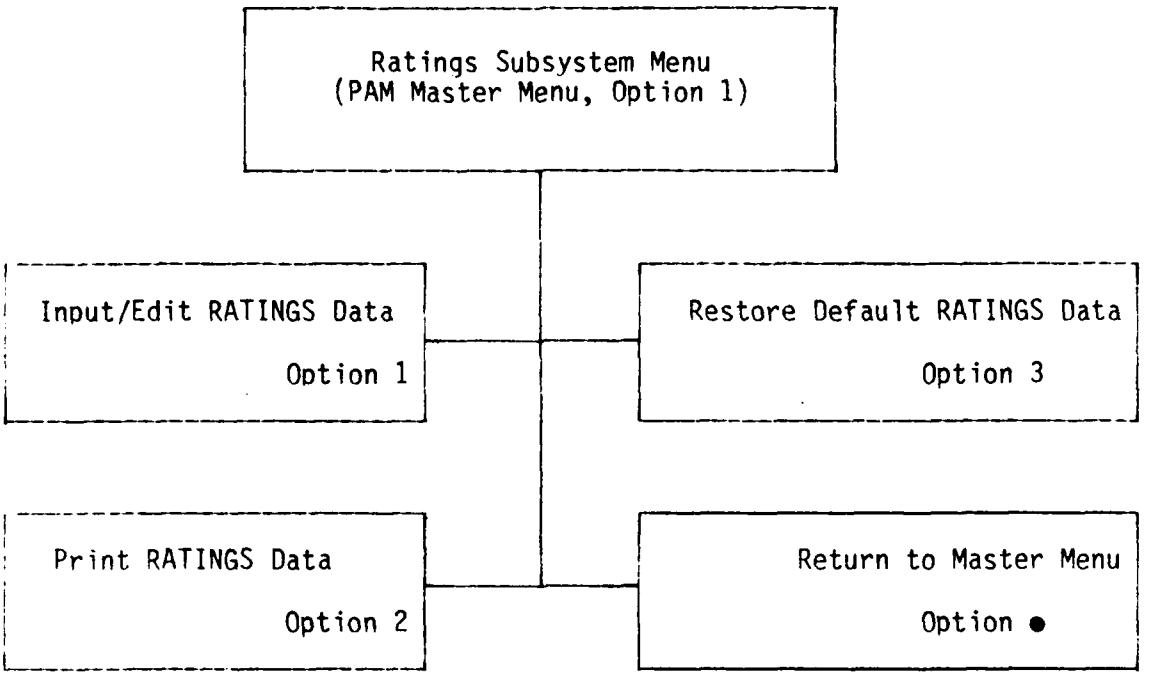

Figure 4. RATINGS Subsystem Menu

OPTION 1, INPUT/EDIT RATINGS DATA. Selecting option 1 from the Ratings Subsystem Menu will result in the following explanatory message appearing on the screen reminding the user of the implications of altering the DEFAULT File:

```
Pipeline Analysis Model                                  RATINGS Subsystem

                          Input/Edit RATINGS Data

     This program will allow you to Add, Edit, or Delete records from the
RATINGS data file or the DEFAULT RATINGS File.

     Remember that if the DEFAULT RATINGS File is updated, the new values
will be used for the next execution of the Restore Default Values option.

     If you wish to Input/Edit the RATINGS File, press RETURN to continue.

     If you wish to Input/Edit the DEFAULT RATINGS File, enter the word
"DEFAULT" to continue.

                                  #######
```

Upon pressing RETURN the following will then appear:

```
PIPELINE ANALYSIS MODEL          RATINGS INPUT/EDIT MENU  04/04/82  S:1

    Throughout the rest of this run of the Input/Edit program,
    the name "Rating" refers to the RATING file.


              Option  !                Update Menu
         - - - - - - -+- - - - - - - - - - - - - - - - - - - - -
                      !
                 1    !                INPUT a new Rating record
                 2    !                EDIT an existing Rating record
                 3    !                DELETE an existing Rating record
                      !
                 ●    !                Return to Ratings Subsystem Menu

              Please enter desired option: _______
```

If "DEFAULT" was entered on the screen on the previous page, then this display will appear next:

```
PIPELINE ANALYSIS MODEL          RATINGS INPUT/EDIT MENU  04/04/82  S:1

    Throughout the rest of this run of the Input/Edit program,
    the name "Rating" refers to the DEFAULT RATING file.


              Option  !                Update Menu
         - - - - - - -+- - - - - - - - - - - - - - - - - - - - -
                      !
                 1    !                INPUT a new Rating record
                 2    !                EDIT an existing Rating record
                 3    !                DELETE an existing Rating record
                      !
                 ●    !                Return to Ratings Subsystem Menu

              Please enter desired option: _______
```

Entering option 1, INPUT a new rating record, from the Input/Edit Menu will result in the following display:

```
***Pipeline Analysis Model                    Input/Edit Ratings File***


Enter Key for Ratings record to be Inputted.

Enter RATING abbreviation or RETURN (to return to menu): _____
```

Pressing RETURN will return the user to the RATINGS Input/Edit Menu. Entry of a RATING abbreviation will initiate creation of a record for that RATING bringing the following screen:

```
PIPELINE ANALYSIS MODEL      RATING INPUT/EDIT SCREEN      04/04/82  S:1

(1)  Abbreviation:  (RATING just entered)

(2)         Full Name: _____________________________

(3)          Pipeline: _____________________________

(4)                    _____________________________

(5)                    _____________________________

(6)                    _____________________________

(7) Parallel Schools:  _____________________________

(8)          Comments: _____________________________


RETURN-edit next line  A-abort, return to I/E MENU, S-save, return to I/E
MENU, H-Help. Please enter # of line to be edited or above option: _____
```

Selecting H, to view the Help files, will cause the following screen to appear:

```
PIPELINE ANALYSIS MODEL          RATINGS HELP SCREEN          Release 1.0

(1)  Abbreviation:  RATING ABBREVIATION TO BE USED,  =10 CHARACTERS

(2)  Full Name:  ENTIRE NAME OF RATING,   =40 CHARACTERS

(3-6)  Pipeline:  COURSES THAT THIS RATING MUST ATTEND

(7)  Parallel Schools:  LIST OF PARALLEL A-SCHOOLS, MUST BE ENTERED,
       AND SEPARATED BY TWO SPACES; i.e., 9001-1   9002-1   9003-1

(8)  Comment:  USER INFORMATION FOR THIS RATING.  NOT USED IN
       PROGRAM MANIPULATIONS.




Please press RETURN to return to INPUT/EDIT RATINGS SCREEN
```

Examples of a completed rating record are contained in appendix A.

Entering option 2, EDIT an existing record, from the Input/Edit Menu will result in the following display:

```
***PIPELINE ANALYSIS MODEL                INPUT/EDIT RATINGS FILE***

Enter Key for Ratings record to be Edited.

Enter RATING abbreviation or RETURN: _____
```

Pressing RETURN will return you to the RATINGS Input/Edit Menu, while entry of a RATING abbreviation will initiate editing of the record for that RATING bringing the following screen:

```
PIPELINE ANALYSIS MODEL      RATING INPUT/EDIT SCREEN      04/04/82  S:1

(1)     Abbreviation:  (RATING just entered)
(2)        Full Name:  _____________________________
(3)         Pipeline:  _____________________________
(4)                    _____________________________
(5)                    _____________________________
(6)                    _____________________________
(7)  Parallel Schools: _____________________________
(8)         Comments:  _____________________________

RETURN-edit next line  A-abort, return to I/E MENU, S-save, return to
I/E MENU, H-Help.  Please enter # of line to be edited or above option:
```

In this case all of the data categories will show the current values stored in that RATING record. The various values can then be edited as desired.

Selecting H, to view the Help files, will produce the following display:

```
PIPELINE ANALYSIS MODEL              RATINGS HELP SCREEN              Release 1.0


(1)  Abbreviation:  RATING ABBREVIATION TO BE USED,  =10 CHARACTERS

(2)  Full Name:  ENTIRE NAME OF RATING,   =40 CHARACTERS

(3-6)  Pipeline:  COURSES THAT THIS RATING MUST ATTEND

(7)  Parallel Schools:  LIST OF PARALLEL A-SCHOOLS, MUST BE ENTERED,
          AND SEPARATED BY TWO SPACES; i.e. 9001-1   9002-1   9003-1

(8)  Comment:  USER INFORMATION FOR THIS RATING.  NOT USED IN
          PROGRAM MANIPULATIONS.


Please press RETURN to return to INPUT/EDIT RATINGS SCREEN
```

Entering Option 3, DELETE an existing rating record, from the Input/ Edit Menu will result in the following display:

```
***PIPELINE ANALYSIS MODEL                    Input/Edit RATINGS FILE***

Enter KEY for Ratings record to be Deleted.  (starting)

Enter RATING abbreviation or RETURN (to return to Menu): _______
```

The RATING abbreviation of the first record to be deleted should be entered here. This will bring a request to:

```
***PIPELINE ANALYSIS MODEL                    Input/Edit RATINGS FILE***
Enter KEY for Rating record to be Deleted.  (ending)

Enter RATING abbreviation or RETURN (to return to Menu): _________
```

The RATING abbreviation of the last record to be deleted should be entered here. The following display will result:

```
***PAM RATING File:  Delete Mode                        04/04/82  S:1

------------------------------------------------------------------
   The Keys below will be DELETED.  Do you wish to continue? Y or N
------------------------------------------------------------------
      _________________________
      _________________________
      _________________________
      _________________________
      _________________________
      _________________________
------------------------------------------------------------------
```

Listed will be the previously specified "starting" and "ending" RATINGS as well as the keys for all records found in between these two. This entire set of records will be scheduled for deletion. Answering N (No) will abort the deletion process and return the user once again to the RATINGS Input/Edit Menu. Answering Y (Yes) will cause the deleted keys to disappear from the screen one at a time and the following message to appear:

```
Do you wish to continue in Delete mode?  (Y or N) ___
```

Answering Y (Yes) will cause the requests for "starting and ending KEYS to be DELETED" to reappear on the screen and additional sets of records may be deleted. Answering N (No) will once again return the user to the RATINGS Input/Edit Menu.

OPTION 2, PRINT RATINGS DATA. Selecting option 2 from the Ratings Subsystem Menu will result in the following display:

```
                    Print RATING Data

   This program will print or display the contents of the RATINGS data
   file or the DEFAULT RATINGS file.

   If you wish to print the RATINGS data file, press RETURN to
   continue.

   If you wish to print the DEFAULT RATINGS file, enter the word
   "DEFAULT" to continue.

                    _____________________
```

Pressing RETURN will activate the following:

```
PAM: PRINT RATINGS FILE:

        DESIRED OUTPUT DEVICE: _____________
```

If, instead, "DEFAULT" was entered, then the following will appear:

```
PAM: PRINT DEFAULT RATINGS FILE:

        DESIRED OUTPUT DEVICE: _____________
```

The user should enter the 3-digit address of the desired printer. RETURN will default the address to the one showing on the screen (the address selected the last time the program was run).

If 005 is entered as the printer address, the contents of the RATINGS File will be displayed on the CRT screen, one RATING at a time, as follows:

```
PAM: PRINT RATINGS FILE:                                    Page:1

   Abbreviation: _____________________________

        Rating Name: _____________________________

                     _____________________________

        Comments:    _____________________________

                     _____________________________

        Instruction Pipeline:

        _____________________

        _____________________

        _____________________

        _____________________

              Press RETURN to continue, RECALL to stop
```

If the address of an appropriate printer is entered, the contents of the RATINGS File will be output as hard copy, three RATINGS to a page (see appendix B for sample output). While this is being printed, the screen will display the message: "Press ANY key to halt printing." If any key on the keyboard is hit, the printer will stop (after finishing the current RATING record) and the following message will appear on the screen:

```
PAM: PRINT RATINGS FILE:

                          *****INTERRUPT*****

   You have halted printing of the data.
   Do you wish to continue? (Y or N) ___
```

If the user enters Y (Yes) then the printer will resume printing (picking up where it left off) and the "Press any key to halt" message will appear once again. If the user enters N (No) then the screen will display:

```
In response to your interrupt we are returning to the RATINGS
     Subsystem Menu
```

The next screen to appear will be the RATINGS Subsystem Menu (see p. 19).

In the cases of both CRT display and printed hard-copy output, when the last RATINGS record has been output, hitting RETURN the next time will activate the following message:

```
END OF FILE        Hit any key to return to RATINGS Subsystem Menu
```

When any key on the keyboard has been pressed, the user will return once again to the RATINGS Subsystem Menu.

OPTION 3, RESTORE DEFAULT RATINGS DATA. Selecting option 3 from the Subsystem Menu will cause the following explanatory message to appear on the screen summarizing what will occur during the Restore Default Values operation:

```
PIPELINE ANALYSIS MODEL                                RATINGS Subsystem
-------------------------------------------------------------------------
                    **** Restore Default Values ****

     Each record in the RATINGS File will be set equal to the
corresponding record in the DEFAULT RATINGS File.  If no corresponding
record exists in the DEFAULT RATINGS File you will have the option of
creating one.


     Do you wish to display or print the contents of the DEFAULT RATINGS
File before continuing?  (Y or N) __
```

Answering Y (Yes) will transfer the user immediately to the beginning of the PRINT RATING data operation (see RATING Subsystem, Option 2, p. 27). The user may then print or display the contents of the DEFAULT RATINGS File and use the menu system to once more return to the Restore Default RATINGS Values operation if he wishes.

Answering N (No) will cause the system to proceed with restoring the Default Values. As each record in the RATING File is processed a message will appear on the screen: "Restoring RATING: _____", until the entire file has been completed.

If any record is encountered without a corresponding DEFAULT File record, the following screen will appear:

```
Pipeline Analysis Model                                RATING Subsystem

                        ***Restore Default Values***

No DEFAULT record exists for this RATING.

You may:

   1.  Leave the record for this RATING unchanged and
       leave the DEFAULT File with no record for this RATING.

   2.  Leave the record for this RATING unchanged and
       create a record in the DEFAULT File (from this RATING record).

   3.  Delete this record from the RATING File.

   4.  Leave the record for this RATING unchanged and
       Create a record in the DEFAULT File (using the RATING Input/Edit
       Option).

Please enter # of option desired: _____
                        RATING ABBREV: _____
```

Selecting options 1, 2, or 3 will perform the designated operations and continue with the Restore Default procedure. Selection of option 4 will transfer the user to the RATING Subsystem Menu, where the Input/Edit option can be used to create the DEFAULT RATING record desired. The menu system may then be utilized to return once more to the Restore Default RATINGS values operation.

When all records in the RATINGS File have been processed, the following message will appear:

.....DEFAULT RESTORATION COMPLETE.....
Please hit RETURN to return to RATINGS Subsystem Menu

When the RETURN key has been pressed, the user will return once again to the RATINGS Subsystem Menu.

COURSE SUBSYSTEM (PAM MASTER MENU OPTION 2)

Figure 5 shows the various options available to the user of PAM Course Subsystem.

Selecting option 2, Course Subsystem, from the PAM Master Menu will result in the following display:

Pipeline Analysis Model 04/04/82 S:1

Course Subsystem Menu

Option	Subsystem
1	Input/Edit COURSE Data
2	Print COURSE Data
3	Restore Default COURSE Data
•	Return to Master Menu

Enter Desired Option: _____

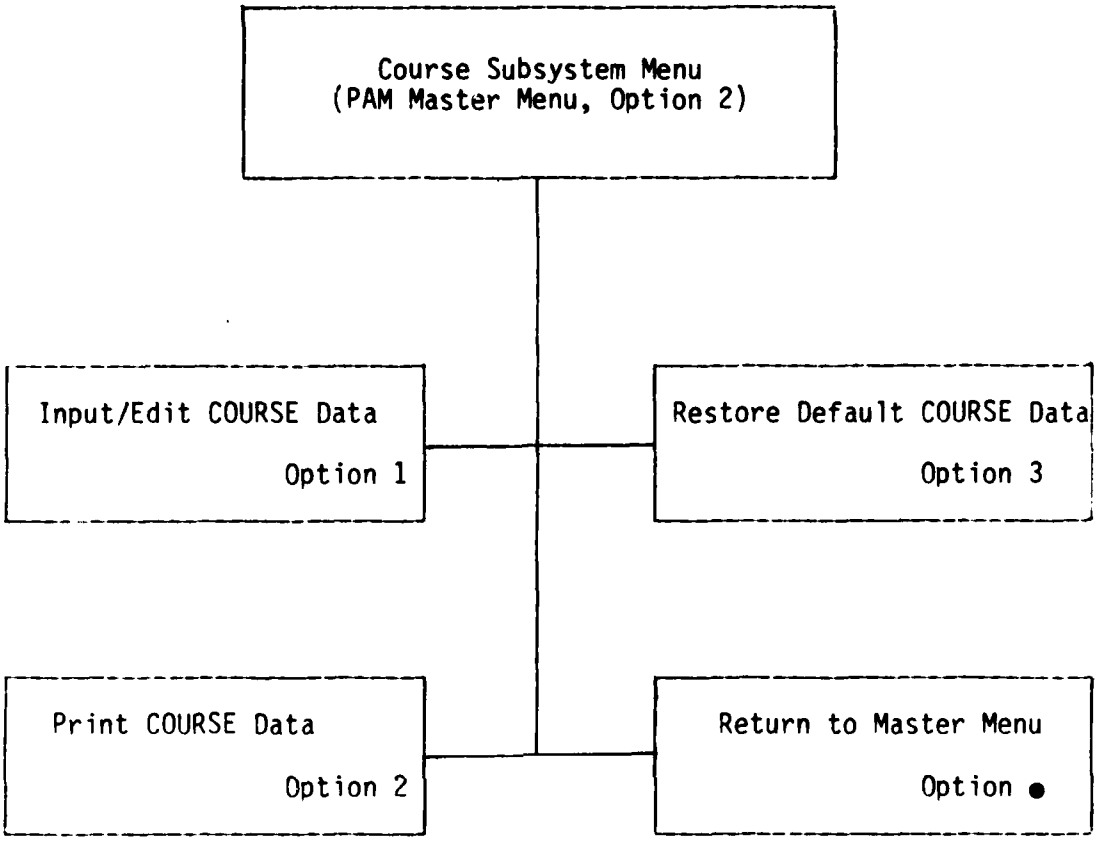

Figure 5. COURSE Subsystem Menu

OPTION 1, INPUT/EDIT COURSE DATA. Selecting option 1 from the Course Subsystem Menu will result in the following explanatory message appearing on the screen reminding the user of the implications of altering the DEFAULT File:

```
Pipeline Analysis Model                                  COURSE Subsystem
-------------------------------------------------------------------------
                        Input/Edit COURSE Data

     This program will allow you to Input, Edit, or Delete records from
the COURSE data file or the Course Default File.

     Remember that if the DEFAULT COURSE File is updated, the new values
will be used for the next execution of the Restore Default Values option.

     If you wish to Input/Edit the COURSE File, press RETURN to continue.

     If you wish to Input/Edit the DEFAULT COURSE File, enter the word
"DEFAULT" to continue.

                              _____
```

Upon pressing RETURN the following will then appear:

```
PIPELINE ANALYSIS MODEL     COURSE INPUT/EDIT MENU        04/04/82  S:1
-------------------------------------------------------------------------
   Throughout the rest of this run of the Input/Edit program, the name
   "Course" refers to the COURSE file.

          Option  !              Update Menu
        - - - - - -+- - - - - - - - - - - - - - - - - - - -
                   !
             1     !              INPUT a new Course record
             2     !              EDIT an existing Course record
             3     !              DELETE an existing Course record
                   !
             •     !              Return to COURSE Subsystem Menu

          Please enter desired option: #
```

If "DEFAULT" was entered on the previous screen, then this display will appear next:

```
PIPELINE ANALYSIS MODEL       COURSE INPUT/EDIT MENU       04/04/82   S:1
---------------------------------------------------------------------------

   Throughout the rest of this run of the Input/Edit program, the name
"Course" refers to the DEFAULT COURSE File.

           Option  !                 Update Menu
      - - - - - - -+- - - - - - - - - - - - - - - - - - - - - - -
                   !
              1    !                 INPUT a new Course record
              2    !                 EDIT an existing Course record
              3    !                 DELETE an existing Course record
                   !
              •    !                 Return to COURSE Subsystem Menu

           Please enter desired option: #
```

Entering option 1, INPUT a new course record, from the Input/Edit Menu will result in the following display:

```
***Pipeline Analysis Model              Input/Edit Course File***


Enter KEY for Course record to be Inputted

Enter CDP Number or RETURN (to Return to Menu): _______
Enter Block Number: _______
```

Selecting RETURN will return you to the COURSE Input/Edit Menu. Entry of a (4-digit) CDP# followed by a (1-digit) Block # will initiate creation of a record for that COURSE bringing the following screen:

```
PIPELINE ANALYSIS MODEL     COURSE INPUT/EDIT SCREEN     04/04/82  S:1

(1)  CDP#:              Block #:                  CIN#:
(2)  Course Title:                                          Type:
(3)  Location:                                            Length:
(4)  Maximum no. students:        Attrition rate:    %  Setback rate:    %

     Convening Schedule (mm/dd/yy):

(5)
(6)
(7)
(8)
(9)
(10)
(11)
(12)
(13)
(14)
(15)

RETURN-edit next line, A-abort, S-save record, C-clear convenings, H-help
Please enter # of line to be edited or above option:
```

Selecting H, to view the HELP files, will cause the following display to appear:

```
PIPELINE ANALYSIS MODEL          COURSE HELP SCREEN        Release 1.0

(1)  CDP#:    FOUR DIGIT NUMBER OF COURSE
     BLOCK #:  ONE DIGIT NUMBER, 1 IF NOT BE/E COURSE
     CIN #:  COURSE IDENTIFICATION NUMBER

(2)  Course Title:  FULL NAME OF COURSE,     =24 CHARACTERS
     Type:  F=AVIATION FUNDAMENTALS,  B=BE/E SCHOOL,  A=A SCHOOL,
            R=RTC SCHOOL

(3)  Location:  PLACE WHERE INSTRUCTION TAKES PLACE

(4)  Maximum no. students:  LIMIT ON NUMBER OF STUDENTS
     Attrition rate:  PERCENT RATE FAILURE
     Setback rate:  PERCENT RATE OF STUDENTS WHO MUST TAKE CLASS OVER

(5-15)  Convening Schedule:  FRIDAY OF WEEK WHEN CLASS(ES) START


Please press RETURN to return to INPUT/EDIT COURSE MENU
```

An example of a completed course record is contained in appendix C.

Entering option 2, EDIT an existing record, from the course Input/Edit Menu will result in the following display:

```
***PIPELINE ANALYSIS MODEL              Input/Edit COURSE FILE


Enter KEY for course record to be Edited.

Enter CDP Number or RETURN (to return to Menu): _______
Enter Block Number: _______
```

Pressing RETURN will return you to the COURSE Input/Edit Menu, while entry of a CDP#, followed by a Block #, will initiate editing of the record for that COURSE by bringing the following screen:

```
PIPELINE ANALYSIS MODEL     COURSE INPUT/EDIT SCREEN     Release 1.0

(1)  CDP#:              Block#:                  CIN#:
(2)  Course Title:                                        Type:
(3) Location:                                           Length:
(4)  Maximum no. students:  Attrition rate:    % Setback rate:   %

     Convening Schedule (mm/dd/yy):

(5)
(6)
(7)
(8)
(9)
(10)
(11)
(12)
(13)
(14)
(15)

RETURN-edit next line, A-abort, S-save record, C-clear convenings, H-help
Please enter # of line to be edited or above option:
```

In this case all of the data categories will show the current values stored in that COURSE record. The various values can then be edited as desired.

Selecting H, to view the Help files, will cause the following screen to appear:

```
PIPELINE ANALYSIS MODEL                COURSE HELP SCREEN      Release 1.0

(1)  CDP#:    FOUR DIGIT NUMBER OF COURSE
     BLOCK #:  ONE DIGIT NUMBER, 1 IF NOT BE/E COURSE
     CIN #:  COURSE IDENTIFICATION NUMBER

(2)  Course Title:  FULL NAME OF COURSE,     =24 CHARACTERS
     Type:  F=AVIATION FUNDAMENTALS,  B=BE/E SCHOOL,  A=A SCHOOL,
            R=RTC SCHOOL

(3)  Location:  PLACE WHERE INSTRUCTION TAKES PLACE

(4)  Maximum no. students:  LIMIT ON NUMBER OF STUDENTS
     Attrition rate:  PERCENT RATE FAILURE
     Setback rate:  PERCENT RATE OF STUDENTS WHO MUST TAKE CLASS OVER

(5-15)  Convening Schedule:  FRIDAY OF WEEK WHEN CLASS(ES) START



Please press RETURN to return to INPUT/EDIT COURSE MENU
```

Entering option 3, DELETE an existing record, from the course Input/Edit Menu will result in the following display:

```
***PIPELINE ANALYSIS MODEL                    Input/Edit COURSE FILE


  Enter KEY for Course record to be deleted.   (starting)

  Enter CDP Number  or RETURN (to return to Menu): _______
  Enter Block Number:  _______
```

The COURSE CDP# and Block # of the first record to be deleted should be entered here. This will cause the following screen to appear:

```
***PIPELINE ANALYSIS MODEL                    Input/Edit COURSE FILE

Enter KEY for Course record to be deleted.   (ending)

Enter CDP Number or RETURN (to return to Menu): _______
Enter Block Number: _______
```

The CDP# and Block # of the last record to be deleted should be entered here. The following display will result:

```
***PAM COURSE File: Delete Mode                          04/04/82  S:1

    The Keys below will be DELETED.  Do you wish to continue? (Y or N) ___

    _____________________

    _____________________

    _____________________

    _____________________
```

Listed will be the previously specified "starting" and "ending" COURSES as well as the keys for all records found in between these two. This entire set of records will be scheduled for deletion. Answering N (No) will abort the deletion process and return the user once again to the COURSE Input/Edit Menu. Answering Y (Yes) will cause the deleted keys to disappear from the screen one at a time and the following message to appear:

```
Do you wish to continue in Delete mode?  (Y or N) ___
```

Answering Y (Yes) will cause the requests for "starting and ending KEYS to be DELETED" to reappear on the screen and additional sets of records may be deleted. Answering N (No) will once again return the user to the Course Input/Edit Menu.

OPTION 2, PRINT COURSE DATA. Selecting option 2 from the COURSE Subsystem Menu will result in the following display:

```
                    Print COURSE Data

   This program will print or display the contents of the COURSE data file
or the DEFAULT COURSE file.

   If you wish to print the COURSE data file, press RETURN to continue.

   If you wish to print the DEFAULT COURSE file, enter the word "DEFAULT"
to continue.
```

Pressing RETURN will activate the following:

```
PAM:  PRINT COURSE FILE:

        DESIRED OUTPUT DEVICE: _____
```

If, instead, "DEFAULT" was entered, then the following will appear:

```
PAM:  PRINT DEFAULT COURSE FILE:

        DESIRED OUTPUT DEVICE: _____
```

The user should enter the 3-digit address of the desired printer. Pressing RETURN will default the address to the one showing on the screen (the address selected the last time the program was run).

If 005 is entered as the printer address, the contents of the COURSE File will be displayed on the CRT screen, one COURSE at a time, as follows:

```
PAM: PRINT COURSE FILE:                                   Page:1

CDP - Block: _______                  CIN: _______

Course Title: ______________________________

Type: __________                 Location:________

Average Length of Instruction: ____     Maximum number of students:______

Attrition rate: _______          Setback Rate: ______

Convening Schedule:  (DATE=last day of week in which class opens)

____________________     ____________________     ____________________

____________________     ____________________     ____________________

        Press RETURN to continue, RECALL to stop
```

If the address of an appropriate printer is entered, the contents of the COURSE File will be output as hard copy, three COURSES to a page. (See appendix D for sample output.) While this is being printed, the screen will display the message: "Press any key to halt printing." If any key on the keyboard is hit, the printer will stop (after finishing the current COURSE record) and the following message will appear on the screen:

```
PAM:  PRINT COURSE FILE

                    ***** INTERRUPT *****

 You have halted printing of the data.
 Do you wish to continue?  (Y or N)
```

If the user enters Y (Yes) then the printer will resume printing (picking up where it left off) and the "Press any key to halt" message will reappear on the screen. If the user enters N (No) then the screen will display:

In response to your INTERRUPT we are returning to the COURSE Subsystem Menu.

The next screen to appear will be the COURSE Subsystem Menu (see p. 31).

In the cases of both CRT display and printed hard-copy output, when the last COURSE record has been output, hitting RETURN will activate the following message:

END OF FILE. HIT ANY KEY TO RETURN TO COURSE SUBSYSTEM MENU

When any key on the keyboard is pressed, the user will return once again to the COURSE Subsystem Menu.

OPTION 3, RESTORE DEFAULT COURSE DATA. Selecting option 3 from the Course Subsystem Menu will cause the following explanatory message to appear on the screen summarizing what will occur during the Restore Default Values operation:

Pipeline Analysis Model	Course Subsystem
**** Restore Default Values ****	
Each record in the COURSE File will be set equal to the corresponding record in the DEFAULT COURSE File. If no corresponding record exists in the DEFAULT COURSE File you will have the option of creating one.	
Do you wish to display or print the contents of the DEFAULT COURSE File before continuing: (Y or N) ___	

Answering Y (Yes) will transfer the user immediately to the beginning of the PRINT COURSE Data operation (see COURSE Subsystem, option "2", p. 39). The user may then print or display the contents of the DEFAULT COURSE File and use the menu system to once more return to the Restore Default COURSE Values operation if needed.

Answering N (No) will cause the system to proceed with restoring the default values. As each record in the COURSE FILE is processed a message will appear on the screen: "Restoring....COURSE: CDP# - Block #", until the entire file has been completed.

If any record is encountered without a corresponding DEFAULT File record, the following display will appear:

```
Pipeline Analysis Model                          COURSE Subsystem

                    ***Restore Default Values***

No DEFAULT record exists for this COURSE.

You may:

   1.  Leave the record for this COURSE unchanged and
       leave the DEFAULT File with no record for this COURSE.

   2.  Leave the record for this COURSE unchanged and
       create a record in the DEFAULT File (from this COURSE record).

   3.  Delete this record from the COURSE File

   4.  Leave the record for this COURSE unchanged and
       create a record in the DEFAULT File (using the COURSE Input/Edit
       Option).

Please enter # of option desired: _____
```

Selecting option 1, 2, or 3 will perform the designated operations and continue with the Restore Default procedure. Selection of option 4 will transfer the user to the COURSE Subsystem Menu, where the Input/Edit option can be used to create the COURSE DEFAULT record desired. The menu system may then be utilized to return once more to the Restore Default COURSE Values operation.

When all records in the COURSE FILE have been processed, the following message will appear:

```
                .....DEFAULT RESTORATION COMPLETE.....

   Please hit RETURN to return to COURSE Subsystem Menu.
```

When any key on the keyboard has been pressed, the user will return once again to the COURSE Subsystem Menu.

STATISTICS SUBSYSTEM (PAM MASTER MENU OPTION 3)

Figure 6 shows the various options available to the user of the PAM Statistics Subsystem.

Selecting option 3, Statistics Subsystem, from the PAM Master Menu will cause the system to display:

Pipeline Analysis Model 04/04/82 S:1

Statistics Subsystem Menu

Option	Subsystem
1	Input/Edit Statistics Data
2	Print Statistics Data
3	Restore Default Statistics Data
•	Return to Master Menu

Enter Desired Option: _____

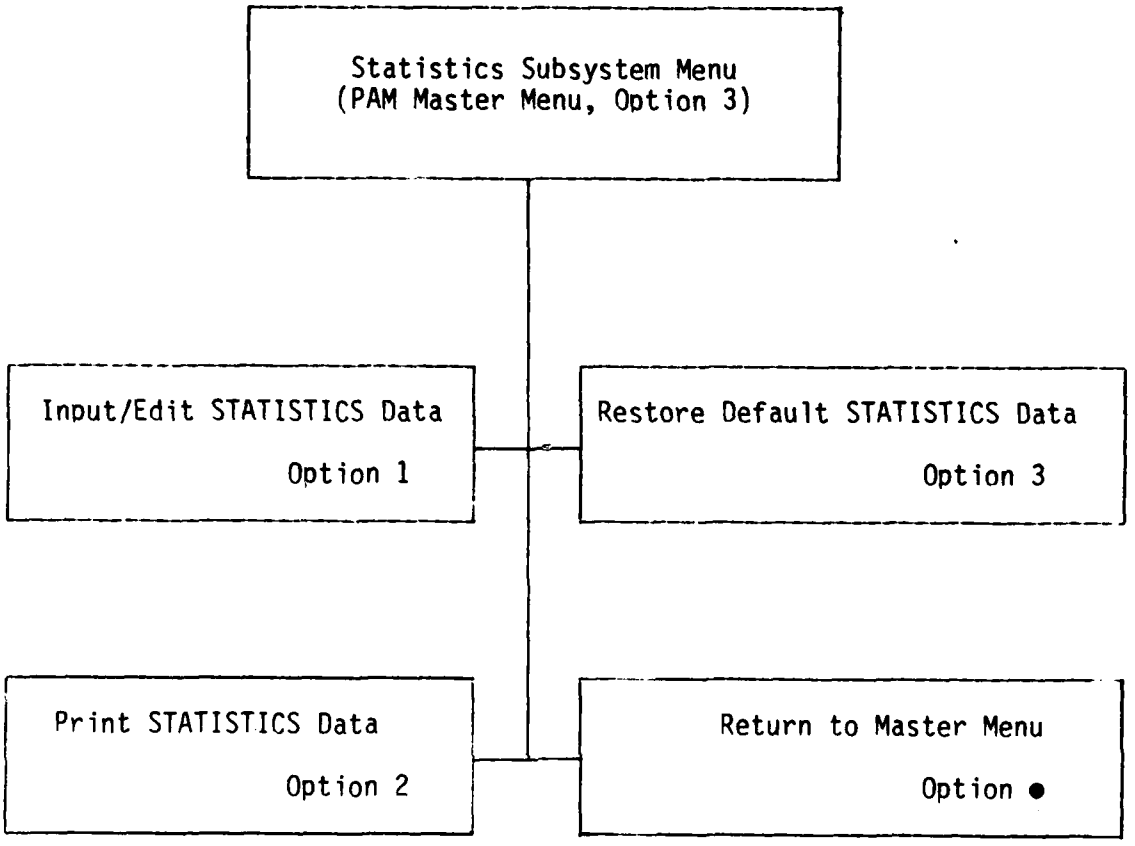

Figure 6. STATISTICS Subsystem Menu

OPTION 1, INPUT/EDIT STATISTICS DATA. Selecting option 1 from the Statistics Subsystem Menu will result in an explanatory message appearing on the screen reminding the user of the implications of altering the DEFAULT File:

```
Pipeline Analysis Model                          STATISTICS Subsystem
-----------------------------------------------------------------------
                    Input/Edit STATISTICS Data

    This program will allow you to Input, Edit, or Delete records from the
STATISTICS data file or the DEFAULT STATISTICS File.

    Remember that if the DEFAULT STATISTICS File is updated, the new values
will be used for the next execution of the Restore Default Values option.

    If you wish to Input/Edit the STATISTICS File, press RETURN to
    continue.

    If you wi-h to Input/Edit the DEFAULT STATISTICS File, enter the word
"DEFAULT" to continue.

                              #######
```

Upon pressing RETURN the following will then appear:

```
PIPELINE ANALYSIS MODEL    STATISTICS INPUT/EDIT MENU    04/04/82   S:1

    Throughout the rest of this run of the Input/Edit program, the name
"Statistics" refers to the STATISTICS file.


        Option  !             Update Menu
  - - - - - - - +- - - - - - - - - - - - - - - - - - - - -
          1     !             INPUT a new Statistics record
          2     !             EDIT an existing Statistics record
          3     !             DELETE an existing Statistics record
          4     !             DELETE a group of records of same
                !               data type and data set number
          5     !             CREATE a set of "I" Statistics
                !               records identical to a set of
                !               "O" records
                !
          ●     !             Return to STATISTICS Subsystem Menu

        Please enter desired option: ________
```

If "DEFAULT" was entered on the previous screen, then this display will appear next:

```
PIPELINE ANALYSIS MODEL     STATISTICS INPUT/EDIT MENU     04/04/82   S:1

    Throughout the rest of this run of the Input/Edit program, the name
"Statistics" refers to the DEFAULT STATISTICS file.


             Option  !              Update Menu
      ----------+-------------------------------------
               1     !              Input a new Statistics record
               2     !              EDIT an existing Statistics record
               3     !              DELETE an existing Statistics
                                      record
               4     !              DELETE a group of records of same
                     !                data type and data set number
               5     !              CREATE a set of "I" Statistics
                     !                records identical to a set of
                     !                "O" records

               •     !              Return to STATISTICS Subsystem Menu

             Please enter desired option: ________
```

Entering option 1, Input a new statistics record, from the Input/Edit Menu will result in the following display:

```
***Pipeline Analysis Model              Input/Edit STATISTICS FILE***



Enter key for STATISTICS record to be Inputted.

Enter CDP number or RETURN (to return to Menu):   ________
Enter Block number:                               ________
Enter Date (last day of week):                    ________
Enter Data Type (I or O):                         ________
Enter Data Set Number:                            ________
```

Selecting RETURN will return you to the STATISTICS Input/Edit Menu. Entry of a (4-digit) CDP #, a (1-digit) Block #, the end-of-week date (mm/dd/yy), a Data Type (I or O) and a (1 -or 2-digit) Data Set # will initiate creation

of a record containing a set of STATISTICS of the specified type for the specified course at the specified date. This will bring the following display:

```
PIPELINE ANALYSIS MODEL     STATISTICS INPUT/EDIT SCREEN     Release 1.0

(1) CDP #: _____     Block #: _____

(2) End of week date:__/__/__ Data Type: _____ Data Set #: _____

(3) ARRIVED: _____ ENROLLED: _____

(4) UNDER INSTRUCTION: _____AWAITING INSTRUCTION: _____

(5) ATTRITES: _____ GRADUATES: _____ SETBACKS: _____

RETURN-edit next line, A-abort, return to I/E MENU, S-save, return to I/E
MENU, H-HELP.  Please enter # of line to be edited or above option:
```

Selecting H, to view the HELP files, will cause the following screen to appear:

```
PIPELINE ANALYSIS MODEL          STATISTICS HELP SCREEN      Release 1.0

(1) CDP#:    FOUR DIGIT COURSE NUMBER
    BLOCK #:  ONE DIGIT BLOCK NUMBER.  BE/E ONLY CAN BE 1,2, OR 3
              NOTE:  ALL NON BE/E COURSES SHALL BE SET TO 1

(2) End of week date:  FRIDAY OF WEEK OF THIS CLASS
    Data Type:  I=INPUT,   O=OUTPUT

(3) ARRIVED:  NUMBER OF STUDENTS ARRIVING THIS WEEK
    ENROLLED:  NUMBER OF STUDENTS ENROLLING THIS WEEK

(4) UNDER INSTRUCTION:  NUMBER OF STUDENTS ENROLLED IN CLASS
    AWAITING INSTRUCTION:  NUMBER OF STUDENTS WAITING FOR ROOM IN CLASS

(5) ATTRITES:  NUMBER OF FAILURES FOR THIS WEEK
    GRADUATES:  NUMBER OF GRADUATES FOR THIS WEEK
    SETBACKS:  NUMBER OF STUDENTS THAT MUST TAKE THIS CLASS OVER

Please press RETURN to return to INPUT/EDIT STATISTICS SCREEN
```

Examples of a completed statistics record are contained in appendix E.

Entering option 2, EDIT an existing record, from the Input/Edit Menu will result in the following display:

```
***PIPELINE ANALYSIS MODEL              Input/Edit STATISTICS FILE


Enter Key for Statistics record to be Edited

Enter CDP Number or RETURN (to return to menu):  ________
Enter Block Number:                              ________
Enter Date (last day of week):                   ________
Enter Data Type:                                 ________
Enter Data Set Number:                           ________
```

Selecting RETURN again returns the user to the STATISTICS Input/Edit Menu, while entry of the CDP#, Block#, Date, Data Type, and Data Set # will initiate editing of that STATISTICS record bringing the following screen:

```
PIPELINE ANALYSIS MODEL     STATISTICS INPUT/EDIT SCREEN     Release 1.0


(1)  CDP#:        Block#:
(2)  End of week date:   /  /    Data Type:         Data Set Number:

(3)  ARRIVED:          ENROLLED:
(4)  UNDER INSTRUCTION:                AWAITING INSTRUCTION:
(5)  ATTRITES:         GRADUATES:      SETBACKS:

RETURN-edit next line, A-abort, return to I/E MENU, S-save, return to I/E
MENU, H-HELP.  Please enter # of line to be edited or above option:
```

In this case all of the data categories will show the current values stored in that STATISTICS record. The various values can then be edited as desired.

Selecting H, to view the HELP files, will cause the following screen to appear:

```
PIPELINE ANALYSIS MODEL      STATISTICS HELP SCREEN      Release 1.0

(1)  CDP#:  FOUR DIGIT COURSE NUMBER
     Block#:ONE DIGIT BLOCK NUMBER.  BE/E ONLY CAN BE 1,2, OR 3
            NOTE:  ALL NON BE/E COURSES SHALL BE SET TO 1

(2)  End of week date:   FRIDAY OF WEEK OF THIS CLASS
     Data Type:  I=INPUT,   O-OUTPUT

(3)  ARRIVED:  NUMBER OF STUDENTS ARRIVING THIS WEEK
     ENROLLED:  NUMBER OF STUDENTS ENROLLING THIS WEEK

(4)  UNDER INSTRUCTION:  NUMBER OF STUDENTS ENROLLED IN CLASS
     AWAITING INSTRUCTION: NUMBER OF STUDENTS WAITING FOR ROOM IN CLASS

(5) ATTRITES:  NUMBER OF FAILURES FOR THIS WEEK
    GRADUATES: NUMBER OF GRADUATES FOR THIS WEEK
    SETBACKS:  NUMBER OF STUDENTS THAT MUST TAKE THIS CLASS OVER



Please press RETURN to return to INPUT/EDIT STATISTIC SCREEN
```

Entering option 3, DELETE an existing record, from the Input/Edit Menu will result in the following display:

```
PIPELINE ANALYSIS MODEL                    Input/Edit STATISTICS FILE


Enter KEY for Statistics record to be deleted (starting)

Enter CDP Number or RETURN (to return to Menu): _____
Enter Block Number:                             _____
Enter Date (last day of week):                  _____
Enter Data Type:                                _____
Enter Data Set Number:                          _____
```

The specifying variables (key) for the first STATISTICS record to be deleted should be entered here. Once the appropriate entries are made the following screen will appear:

```
***PIPELINE ANALYSIS MODEL                 Input/Edit STATISTICS FILE

Enter KEY for Statistics record to be deleted (ending)

Enter CDP Number or RETURN (to return to Menu): _____
Enter Block Number                            : _____
Enter Date (last day of week)                 : _____
Enter Data Type                               : _____
Enter Data Set Number                         : _____
```

The key of the last STATISTICS record to be deleted should be entered here. After this is completed, the following display will appear:

```
***PAM STATISTICS File: Delete Mode                          04/04/82  S:1
-------------------------------------------------------------------------

   The Keys below will be DELETED.  Do you wish to Continue? Y or N
-------------------------------------------------------------------------

    ----------------------

    ----------------------

    ----------------------

    ----------------------

    ----------------------
-------------------------------------------------------------------------
```

Listed will be the keys for the previously specified "starting" and "ending" STATISTICS records as well as for all records found in between these two. This entire set of records will be scheduled for deletion. Answering N (No) will abort the deletion process and return the user once again to the STATISTICS Input/Edit Menu. Answering Y (Yes) will cause the deleted keys to disappear from the screen one at a time and the following message to appear:

```
Do You Wish To Continue In DELETE Mode? (Y or N) ___
```

Answering Y (Yes) will cause the requests for "starting and ending keys to be DELETED" to reappear on the screen and additional sets of records may be deleted. Answering N (No) will return the user to the STATISTICS Input/Edit Menu.

Entering option 4, DELETE a group of records of same data type and data set number, results in the following display:

```
Pipeline Analysis Model                    Input/Edit STATISTICS File

    This option will delete all STATISTICS records with the below specified
Data Type and Data Set Number.  (The end-of-week dates do not need to be
entered.)

    Please enter:

        CDP number or RETURN (to return to Menu): ..... _____
        Block number: ................................. _____
        Data Type (I or O): ........................... _____
        Data Set number: .............................. _____
```

The user must enter the (4-digit) CDP number and (1-digit) Block number to specify a course, then the Data Type and Data Set number of the group of records to be deleted. This will result in the same display of the keys to be deleted that is described under Option 3 (see p. 50). Operation from this point until return to the STATISTICS Subsystem Menu is that described on pp. 50 to 51.

Entering option 5, CREATE a set of "I" records identical to a set of "O" records, will result in the following display:

```
Pipeline Analysis Model                          STATISTICS Subsystem

    This option creates a set of STATISTICS of type "I" identical to the
set of STATISTICS of type "0" with Data Set # and Date specified below.

    Please enter:

         Data Set #: .....
         End-of-week date: ..... 77

    Old set of STATISTICS records:

         Courses: ..... CDP # - Block #
         Data Type: ..... 0
         Data Set #: .....
         Date: .................

    New set of STATISTICS records:

         Courses: ..... CDP # - Block #
         Data Type: ..... 0
         Data Set #: .....
         Date: .................

Press RETURN to continue, RECALL to return to Subsystem Menu.
```

When the user enters the Data Set number and Date of the "0" type files he wishes to use, the program will display the summary information shown on the display above; i.e., a description of the old "0" type group of records to be used as the information source and the new "I" type group of records to be created with that information. (The Data Set # to be used for the "I" records is the lowest unused number, determined automatically.) The new group of records will be created and the user will be transferred once again to the STATISTICS Subsystem Menu.

OPTION 2, PRINT STATISTICS DATA. Selecting option 2 from the Statistics Subsystem Menu will result in the following display:

```
                    Print STATISTICS Data

   This program will print or display the contents of the STATISTICS data file
or the DEFAULT STATISTICS file.

   If you wish to print the STATISTICS data file, press RETURN to continue.

   If you wish to print the DEFAULT STATISTICS file, enter the word "DEFAULT"
to continue.

                          #######
```

Pressing RETURN will activate the following:

```
PAM:  PRINT STATISTICS FILE:

        DESIRED OUTPUT DEVICE: _____
```

If, instead, "DEFAULT" was entered, then the following will appear:

```
PAM:  PRINT DEFAULT STATISTICS FILE:

        DESIRED OUTPUT DEVICE: _____
```

The user should enter the 3-digit address of the desired printer. Pressing RETURN will default the address to the one showing on the screen (the address selected the last time the program was run).

If 005 is entered as the printer address, the contents of the STATISTICS File will be displayed on the CRT screen, three sets of STATISTICS at a time, as follows:

```
PAM:  PRINT STATISTICS FILE                                   Page:   1
CDP -  Block: _______________              End of week date:_________
                                           Data Type:_______________
                                           Data Set: ______________

        Arrived: _____________             Enrolled: ______________
        Under Instruction: _______         Awaiting Instruction: ____
        Attrites: _____________            Graduates: _____________
        Setbacks: ____________

        Press RETURN to continue, RECALL to STOP
```

If the address of an appropriate printer is entered, the contents of the STATISTICS File will be output as hard copy, eight sets of STATISTICS to a page. (See appendix F for sample output.) While this is being printed, the screen will display the message: "Press ANY key to halt printing." If any key on the keyboard is hit, the printer will stop (after finishing the current STATISTICS record) and the following message will appear on the screen:

```
PAM:  PRINT STATISTICS FILE

                    ***** INTERRUPT *****

            You have halted printing of the data.
             Do you wish to continue?  (Y or N)
```

If the user enters Y (Yes) then the printer will resume printing (picking up where it left off) and the "Press any key to halt" message will reappear once more. If the user enters N (No) then the screen will display:

In response to your interrupt, we are returning to the STATISTICS Subsystem Menu.

The next screen to appear will be the STATISTICS Subsystem Menu (see p. 43).

In the cases of both CRT display and printed hard-copy output when the last STATISTICS record has been output, hitting RETURN the next time will activate the following message.

END OF FILE Hit any key to return to STATISTICS Subsystem Menu

When any key on the keyboard has been pressed, the user will return once again to the STATISTICS Subsystem Menu.

OPTION 3, RESTORE DEFAULT STATISTICS DATA. Selecting option 3 from the Statistics Subsystem Menu will cause the following explanatory message to appear on the screen summarizing what will occur during the Restore Default Values operation:

Pipeline Analysis Model STATISTICS Subsystem
**** Restore Default Values ****
Each record in the STATISTICS File will be set equal to the corresponding record in the DEFAULT STATISTICS File. If no corresponding record exists in the DEFAULT STATISTICS File you will have the option of creating one.
Do you wish to display or print the contents of the DEFAULT STATISTICS file before continuing (Y or N)

Answering Y (Yes) will transfer the user immediately to the beginning of the PRINT STATISTICS Data operation (see STATISTICS Subsystem, option 2, p. 45). The user may then print or display the contents of the DEFAULT STATISTICS File and use the menu system to once more return to the Restore Default STATISTICS Values operation if desired.

Answering N (No) will cause the system to proceed with restoring the default values. As each record in the STATISTICS File is processed a message will appear on the screen:

```
Restoring ...   STATISTICS record:

CDP-Block: _____________        End of week data: _________

Data Type-Data Set: _________
```

This message will continue to appear, identifying each STATISTICS record until the entire file has been completed.

If any record is encountered without a corresponding DEFAULT File record, the following screen will appear:

```
Pipeline Analysis Model                          STATISTICS Subsystem

                    ***Restore Default Values***

No DEFAULT record exists for this STATISTICS record.

You may:

   1.  Leave the record for this STATISTICS record unchanged and
       leave the DEFAULT File with no record for this STATISTICS record.

   2.  Leave the record for this STATISTICS record unchanged and
       create a record in the DEFAULT File (from this STATISTICS record).

   3.  Delete this record from the STATISTICS File

   4.  Leave the record for this STATISTICS record unchanged and
       create a record in the DEFAULT File (using the STATISTICS Input/Edit
       Option).

Please enter # of option desired: _____

CDP-BLOCK:          DATA TYPE-DATA SET:          END OF WEEK DATE:  __/__/__
```

Selecting option 1, 2, or 3 will perform the designated operations and continue with the Restore Default procedure. Selection of option 4 will transfer the user to the STATISTICS Subsystem Menu, where the Input/Edit option can be used to create the STATISTICS DEFAULT record desired. The menu system may then be utilized to return once more to the Restore Default STATISTICS Values operation.

When all records in the STATISTICS FILE have been processed, the following message will appear:

```
..... DEFAULT RESTORATION IS NOW COMPLETE .....

Please hit RETURN to return to STATISTICS Subsystem Menu
```

Upon pressing RETURN, the user will return once again to the STATISTICS Subsystem Menu.

SIMULATION SUBSYSTEM (PAM MASTER MENU OPTION 4)

Figure 7 shows the various options available to the user of the PAM Simulation Subsystem.

Selecting option 4, Simulation Subsystem, from the PAM Master Menu will cause the system to display:

```
PIPELINE ANALYSIS MODEL      SIMULATION SUBSYSTEM MENU      Release 1.0

                    Simulation Subsystem Menu

        Option                      Subsystem

          1                    Determine INPUTS

          2                    Run SIMULATION

          3                    Generate OUTPUT report

          •                    Return to Master Menu

                    Enter Desired Option: _____
```

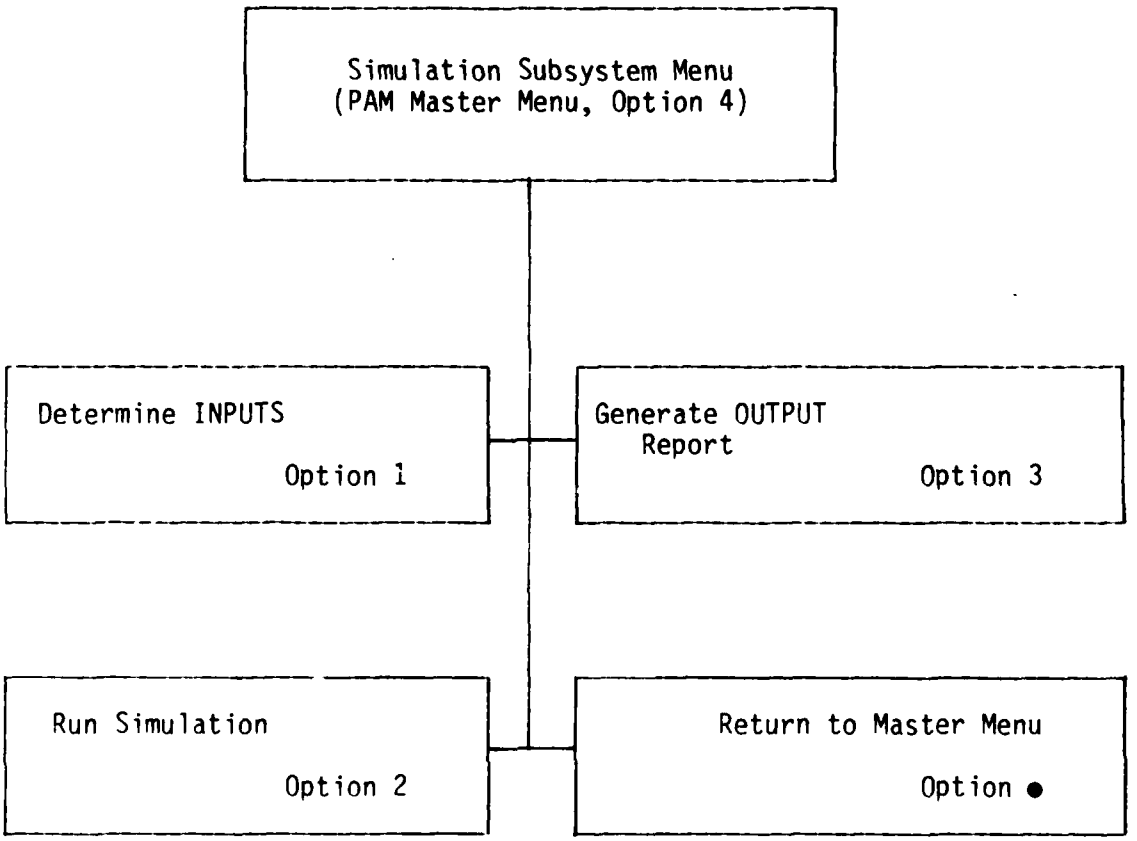

Figure 7. SIMULATION Subsystem Menu

OPTION 1, GENERATE INPUTS. Selecting option 1 from the Simulation Subsystem Menu will result in the following:

```
PIPELINE ANALYSIS MODEL                              SIMULATION SUBSYSTEM
-------------------------------------------------------------------------

                          INPUT SUBSYSTEM MENU

        Option          INPUT Operations Menu

           1            Create/Edit INPUT File via tape
           2            Create/Edit INPUT File via disk
           3            Create/Edit INPUT File directly via keyboard
           4            Delete INPUT File records
           5            Print contents of INPUT File

           •            Return to Simulation Subsystem Menu

    Please enter desired option:  #


 NOTE:  Options 1 and 2 are not available at this time
```

Entering option 1, Create/Edit INPUT File via tape, will initiate only a message saying "options 1 and 2 are not available at the current time, please re-enter desired option." In the future, the option will allow translation and transferral of INPUT data directly from a magnetic tape into the INPUT File.

Entering option 2, Create/Edit INPUT File via disk, will initiate the same message as option 1. This option, in the future, will allow translation and transferral of INPUT data directly from other disk storage into the INPUT file.

Entering option 3, Create/Edit INPUT File directly via keyboard, will result in the following display:

PIPELINE ANALYSIS MODEL SIMULATION SUBSYSTEM

Please enter the following specifications for the INPUT data records to be created:

Course CDP# - Block #: ____

*First End-of-Week Date: __/__/__

Program will automatically determine the first Data Set # available and assign it to this set of data.

*Program will automatically calculate the end-of-week dates which follow this initial date so corresponding ARRIVAL data can be entered for each.

Upon entry of a (4-digit) CDP number, a (1-digit) block number, and a starting date, the following display will appear:

PIPELINE ANALYSIS MODEL SIMULATION SUBSYSTEM

Course CDP#-Block #: XXXX-X INPUT DATA Set #: XX

Date	Arrivals	Date	Arrivals	Date	Arrivals

Note: Enter END for ARRIVALS after last desired week of data has been entered.

The course CDP number and block number just entered will be displayed along with the Data Set number which will be assigned to this set of Inputs. (This is the first unused data set number for this course and will be automatically determined by the program.) The first end-of-week date, just entered, will be displayed and a prompt will appear for the corresponding ARRIVALS figure. When the user enters the desired number of ARRIVALS for that date, the following week's date will be displayed. When the desired weeks of data have been entered the user should type "END". This will transfer the user back to the INPUT Operations Menu.

Entering option 4, Delete INPUT File, will bring the following display:

```
PIPELINE ANALYSIS MODEL                          SIMULATION SUBSYSTEM

                    INPUT FILE ------ DELETE MODE

Please enter key of record to be Deleted:  (Starting)

        CDP#: _____
        Block #: _____
        Data Set #: _____
        Date: ___/___/___
```

The specifying variables for the first INPUT record to be deleted should be entered here. This will cause the following screen to appear:

```
PIPELINE ANALYSIS MODEL                          SIMULATION SUBSYSTEM

                    INPUT FILE ------ DELETE MODE

Please enter key of record to be
                Deleted:  (Ending)

        CDP#: _____
        Block #: _____
        Data Set #: _____
        Date: ___/___/___
```

The key of the last INPUT record to be deleted should be entered here. After this is completed the following display will result:

```
***PAM INPUT File :  Delete Mode                    04/04/82  S:1

   The keys below will be DELETED.  Do you wish to continue?  Y or N
```

Listed will be the keys for the previously specified "starting" and "ending" INPUT records as well as for all records found in between these two. This entire set of records will be scheduled for deletion. Answering N (No) will abort the deletion process and return the user to the INPUT Operations Menu. Answering Y (Yes) will cause the deleted keys to disappear from the screen one at a time and the following message to appear:

```
Do you wish to continue in DELETE mode?  (Y or N)
```

Answering Y (Yes) will cause the requests for "starting and ending keys to be DELETED" to reappear on the screen and additional sets of records may be deleted. Answering N (No) will once again return the user to the INPUT Operations Menu.

Entering option 5, Print contents of INPUT File, will produce the following display:

```
PAM:  PRINT INPUT FILE

    Desired output device: _____
```

The user should enter the 3-digit address of the desired printer. RETURN will default the address to the one showing on the screen (the address selected the last time the program was run).

If 005 is entered as the printer adddress, the contents of the INPUT File will be displayed on the CRT screen, seven records at a time, as follows:

```
PAM:  PRINT INPUT FILE                                  Page: 1

CDP - Block: _____                          Data Set: ________

      End of week date: _________           Arrived: _______

        Press RETURN to continue, RECALL to stop
```

If the address of an appropriate printer is entered, the contents of the INPUT File will be output as hardcopy, 12 INPUT records to a page. (See appendix G for sample output.) While this is being printed, the screen will display the message: "Press any key to halt printing." If any key on the keyboard is hit, the printer will stop (after finishing the current INPUT record) and the following message will appear on the screen:

```
PAM:  PRINT INPUT FILE

                          ****  INTERRUPT ****

    You have halted printing of the data.
    Do you wish to continue?  (Y or N)
```

If the user enters Y (Yes) then the printer will resume printing (picking up where it left off) and the "Press any key to halt" message will reappear once more. If the user enters N (No) then the screen will display:

```
In response to your interrupt, we are returning to the
INPUT Subsystem Menu.
```

The next screen to appear will be the INPUT Operations Menu (see p. 59).

In the cases of both CRT display and printed hard-copy output when the last INPUT record has been output, hitting RETURN the next time will activate the following message:

```
END OF FILE.  Hit any key to return to INPUT Subsystem Menu
```

When any key on the keyboard has been pressed, the user will return once again to the INPUT Operations Menu.

OPTION 2, RUN SIMULATION. Selecting option 2 from the Simulation Subsystem Menu will result in the following display:

PIPELINE ANALYSIS MODEL — Simulation Subsystem

This portion of the program will simulate the flow of Naval students through their training pipeline. The simulation will handle one RATING at a time, analyzing the courses encountered in a particular training pipeline.

Please enter:

Rating to be simulated (RATING abbreviation): ..... ##########

Date of beginning of simulation (last day of first week to be simulated, mm/dd/yy): ..... ##/##/##

Length of simulation (number of weeks): ..... ##

Data set # indicating which set of STATISTICS is to be used for simulation's Initial Conditions: ..... ##

Data set # indicating which set of INPUT data is to be used for simulation's weekly ARRIVALS: ..... ##

Enter FLEET returnee rate of reentry (1 to 100 percent): ..... ###

NOTE: Hit RECALL if you wish to return to the PAM Simulation Subsystem Menu

When the user has entered the various specifications for the simulation run, the following will appear:

PIPELINE ANALYSIS MODEL — Simulation Subsystem

SIMULATION IN PROGRESS

Data Set #X will be used for OUTPUT Statistics

Currently updating week # _____.

Press RETURN to halt.

NOTE: Actual halt will occur at end of weekly update.

The number of the data set where the output statistics for this simulation run will be stored will be displayed. (This will be the first unused output data set found.) The number of the simulation week being processed will also be displayed. If the user presses RETURN at any time, the simulation will halt when it has completed updating all the courses in the pipeline for the current week. The following will then appear:

```
PIPELINE ANALYSIS MODEL                          SIMULATION SUBSYSTEM

                          **** INTERRUPT ****

    You have halted simulation at week XX.

    Do you wish to continue?  (Y or N)
```

Entering Y (Yes) will cause the simulation to continue from the following week to the originally specified end. Entering N (No) will cause the simulation run to abort at that point. In both cases, the end of the simulation run will cause the following display to appear:

```
PIPELINE ANALYSIS MODEL                          SIMULATION SUBSYSTEM

    THIS SIMULATION RUN IS NOW COMPLETE

    This run had the following specifications:

        Rating simulated was XXXXX.

        First week of simulation was mm/dd/yy.

        Last week of simulation was mm/dd/yy.

        Total length of simulated time was XX weeks.

        Data Set # used for Initial Conditions STATISTICS was XX.

        Data Set # used for INPUT weekly ARRIVALS was XX.

        Data Set # used for output STATISTICS was XX.

        The Pipeline of courses simulated was the following:


    Would you like a hard copy of this summary?  (Y or N)
```

Displayed will be the various specifications which describe the simulation run just completed. Answering N (No) will bring the following message:

Please press RETURN to transfer to Subsystem Menu

Following this, the user will be transferred once again to the Simulation Subsystem Menu.

Answering Y (Yes) will bring a request to:

Please enter address of desired printer: ____

Upon entry of the address of an appropriate printer, the same summary is output as hard copy in a similar format. When this has been completed, the user is once again transferred to the Simulation Subsystem Menu.

OPTION 3, GENERATE OUTPUT REPORT. Selecting option 3 from the Simulation Subsystem Menu will result in the following display:

PIPELINE ANALYSIS MODEL	SIMULATION SUBSYSTEM
**** PRINT SIMULATION OUTPUT ****	
Enter the Rating to Output - _____	
Enter the Starting Week to Output - __/__/__	
Enter the Output Data Set # - _____	
Please enter address of desired printer: _____	
Hit RECALL to return to Simulation Subsystem.	

Entering the abbreviation of the rating that was simulated, the date of the first week of the simulation and the data set # under which the output statistics were stored will fully specify the simulation run to be reported. The user should also enter the 3-digit address of the desired printer. RETURN will default the address to the one showing on the screen (the last address selected).

If 005 is entered as the printer address, the output statistics for the specified simulation run will be displayed on the CRT screen one course at a time as shown:

PAM: PRINT SIMULATION OUTPUT REPORT
RATING ABBREVIATION = XXXXX

OUTPUT DATA SET: XX Page: 1

Weeks	1	2	3	4	5	6	7	8	9	10
Course Type (CDP#-B#)										
ARR										
ENR										
UI										
AI										
Attrites										
Grads										

Weeks	11	12	13	14	15	16	17	18	19	20
ARR										
ENR										
UI										
AI										
Attrites										
Grads										

Press RETURN to continue, RECALL to stop.

Each of the matrix entries will represent the number of students in a particular category at a particular simulation week. Pressing RETURN will display the statistics for the next course simulated, until they have all been displayed.

If the address of an appropriate printer is entered, the output statistics for each course simulated will be output as hard copy in a similar format. (See appendix H for sample output.) While this is being printed, the screen will display the message: "Press any key to halt printing." If any key on the keyboard is hit, the printer will stop (after finishing the current course's statistics) and the following message will appear on the screen:

```
                    **** INTERRUPT ****

    You have halted printing of the data.
    Do you wish to continue?  (Y or N)
```

If the user enters Y (Yes) then the printer will resume printing (picking up where it left off) and the "Press any key to halt" message will reappear once more. If the user enters N (No) then the screen will display:

```
    In response to your interrupt, we are returning
    to the INPUT Subsystem Menu.
```

The next screen to appear will be the Simulation Subsystem Menu (see p. 58).

In the cases of both CRT display and hard-copy output, when the last course's output statistics have been output, hitting RETURN the next time will also activate the "return to Simulation Subsystem Menu" message and transfer to the PAM Simulation Subsystem Menu. (See appendix H for an example of the output.)

APPENDIX A

EXAMPLE OF A RATINGS RECORD

```
PIPELINE ANALYSIS MODEL              RATINGS EDIT SCREEN              Release 1.0
-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-

[1]  Abbreviation:XX

[2]  Full Name:TEST RATING


[3]  Pipeline:1111-1    2222-1    3333-1    111D-1    111G-1
[4]           111S-1    111D-2    111G-2    111S-2    999A-1
[5]           ####-#    ####-#    ####-#    ####-#    ####-#
[6]           ####-#    ####-#    ####-#    ####-#    ####-#

[7]  Comment:FICTITIOUS COURSE NAMES AND CDP'S
[8]                  6 BLANK CHAR'S = NO PARALLEL A'S




RETURN-edit next line   A-abort,return to I/E MENU  S-save,return to I/E MENU
Please enter # of line to be edited or above option:                          #
```

APPENDIX B

EXAMPLE OF A PRINT RATINGS FILE

07/14/82 PIPELINE ANALYSIS MODEL RATINGS

Abbreviation:XX Rating Name:TEST RATING
Comments:FICTITIOUS COURSE NAMES AND CRN'S
Comments: 6 BLANK CHAR'S = NO PARALLEL A'S
Instruction Pipeline:
1111-1
2222-1
3333-1
111O-1
111G-1
111S-1
111O-2
111G-2
111S-2
999A-1
-
-
-
-
-
-
-
-
-
-

Abbreviation:XY Rating Name:SECOND TEST RATING
Comments:FICTITIOUS COURSES
Comments:
Instruction Pipeline:
-
-
-
-
-
-
-
-
-
-
-
-
-
-
-
-

APPENDIX C

EXAMPLE OF A COURSE RECORD

```
 PIPELINE ANALYSIS MODEL              COURSE EDIT SCREEN                  Release 1.0
-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-

[1]  CDP #:111G    Block #:1                        CIN #:B-100-1000
[2]  Course Title:BE/E SCHOOL - BLOCK 1                                  Type:B
[3]  Location:GREAT LAKES                                             Length:  20
[4]  Maximum no. students:  46       Attrition rate:  8%     Setback rate:  8%

     Convening Schedule (mm/dd/yy):
[5]   1/ 1/82          3/19/82      ########        ########        ########
[6]   1/ 8/82          3/26/82      ########        ########        ########
[7]   1/15/82          4/ 2/82      ########        ########        ########
[8]   1/22/82          4/ 9/82      ########        ########        ########
[9]   1/29/82          4/16/82      ########        ########        ########
[10]  2/ 5/82          4/23/82      ########        ########        ########
[11]  2/12/82          4/30/82      ########        ########        ########
[12]  2/19/82          5/ 7/82      ########        ########        ########
[13]  2/26/82          5/14/82      ########        ########        ########
[14]  3/ 5/82         ########      ########        ########        ########
[15]  3/12/82         ########      ########        ########        ########

RETURN-edit next line   A-abort, return to I/E MENU   S-save, return to I/E MENU
Please enter # of line to be edited or above option:                        ##
```

APPENDIX D

EXAMPLE OF PRINT COURSE FILE

(07/14/82) PIPELINE ANALYSIS MODEL: COURSE(1) Page 1

CDP-Block: 111I-1 CIN:B-100-1000 Course Title:RECRUIT TRAINING - ORL Location:ORLANDO
Type:A Attrition Rate:10% Setback Rate:10% Avg. Length of Instruction: 40 Max. Number of Students: 100
Convening Schedule(Date=last day of week in which class opens)

01/01/82	03/19/82
01/08/82	03/26/82
01/15/82	04/02/82
01/22/82	04/09/82
01/29/82	04/16/82
02/05/82	04/23/82
02/12/82	04/30/82
02/19/82	05/07/82
02/26/82	05/14/82
03/05/82	
03/12/82	

CDP-Block: 111G-1 CIN:B-100-1000 Course Title:BE/E SCHOOL - BLOCK 1 Location:GREAT LAKES
Type:B Attrition Rate: 8% Setback Rate: 8% Avg. Length of Instruction: 20 Max. Number of Students: 46
Convening Schedule(Date=last day of week in which class opens)

01/01/82	03/19/82
01/08/82	03/26/82
01/15/82	04/02/82
01/22/82	04/09/82
01/29/82	04/16/82
02/05/82	04/23/82
02/12/82	04/30/82
02/19/82	05/07/82
02/26/82	05/14/82
03/05/82	
03/12/82	

CDP-Block: 111G-2 CIN:B-100-2000 Course Title:BE/E SCHOOL - BLOCK 2 Location:GREAT LAKES
Type:B Attrition Rate: 9% Setback Rate: 9% Avg. Length of Instruction: 20 Max. Number of Students: 52
Convening Schedule(Date=last day of week in which class opens)

01/01/82	03/19/82
01/08/82	03/26/82
01/15/82	04/02/82
01/22/82	04/09/82
01/29/82	04/16/82
02/05/82	04/23/82
02/12/82	04/30/82
02/19/82	05/07/82
02/26/82	05/14/82
03/05/82	
03/12/82	

APPENDIX E

EXAMPLE OF A STATISTICS RECORD

```
PIPELINE ANALYSIS MODEL          STATISTICS EDIT SCREEN          Release 1.0
-----------------------------------------------------------------------------
[1]  CDP #:2222    Block #:1
[2]  End of week date: 1/ 8/82    Data Type:0    Data Set #: 3

[3]  ARRIVED:  10      ENROLLED:  10
[4]  UNDER INSTRUCTION:  66              AWAITING INSTRUCTION:   0
[5]  ATRITES:   1        GRADUATES:  11        SETBACKS:   1

RETURN-edit next line   A-abort, return to I/E MENU   S-save,return to I/E MENU
Please enter # of line to be edited or above option:                        #
```

APPENDIX F

EXAMPLE OF PRINT STATISTICS FILE

```
07/14/82          PIPELINE ANALYSIS MODEL :  STATISTICS          Page  1
-----------------------------------------------------------------------------
CDP-Block: 1111-1       Data Type-Data Set: 1-01       End of week date: 01/01/82
         ARRIVED:  10                        ENROLLED:  10
         UNDER INSTRUCTION:  66              AWAITING INSTRUCTION:   0
         ATTRITES:   1                        GRADUATES:   9
         SETBACKS:   1
-----------------------------------------------------------------------------
CDP-Block: 1111-1       Data Type-Data Set: 1-02       End of week date: 01/29/82
         ARRIVED:  10                        ENROLLED:  10
         UNDER INSTRUCTION:  66              AWAITING INSTRUCTION:   0
         ATTRITES:   1                        GRADUATES:  11
         SETBACKS:   1
-----------------------------------------------------------------------------
CDP-Block: 1111-1       Data Type-Data Set: 0-02       End of week date: 01/01/82
         ARRIVED:  10                        ENROLLED:  10
         UNDER INSTRUCTION:  66              AWAITING INSTRUCTION:   0
         ATTRITES:   1                        GRADUATES:  11
         SETBACKS:   1
-----------------------------------------------------------------------------
CDP-Block: 1111-1       Data Type-Data Set: 0-03       End of week date: 01/01/82
         ARRIVED:  10                        ENROLLED:  10
         UNDER INSTRUCTION:  66              AWAITING INSTRUCTION:   0
         ATTRITES:   1                        GRADUATES:  11
         SETBACKS:   1
-----------------------------------------------------------------------------
CDP-Block: 1111-1       Data Type-Data Set: 0-03       End of week date: 01/08/82
         ARRIVED:  10                        ENROLLED:  10
         UNDER INSTRUCTION:  66              AWAITING INSTRUCTION:   0
         ATTRITES:   1                        GRADUATES:  11
         SETBACKS:   1
-----------------------------------------------------------------------------
CDP-Block: 1111-1       Data Type-Data Set: 0-03       End of week date: 01/15/82
         ARRIVED:  10                        ENROLLED:  10
         UNDER INSTRUCTION:  66              AWAITING INSTRUCTION:   0
         ATTRITES:   1                        GRADUATES:  11
         SETBACKS:   1
-----------------------------------------------------------------------------
CDP-Block: 1111-1       Data Type-Data Set: 0-03       End of week date: 01/22/82
         ARRIVED:  10                        ENROLLED:  10
         UNDER INSTRUCTION:  66              AWAITING INSTRUCTION:   0
         ATTRITES:   1                        GRADUATES:  11
         SETBACKS:   1
```

APPENDIX G

EXAMPLE OF PRINT INPUT FILE

07/14/82 PIPELINE ANALYSIS MODEL : INPUT FILE Page 1

CDP-Block: 1111-1 Data Set : 1
End of week date: 01/01/82 ARRIVED: 15

CDP-Block: 1111-1 Data Set : 1
End of week date: 01/08/82 ARRIVED: 5

CDP-Block: 1111-1 Data Set : 1
End of week date: 01/15/82 ARRIVED: 10

CDP-Block: 1111-1 Data Set : 1
End of week date: 01/22/82 ARRIVED: 0

CDP-Block: 1111-1 Data Set : 1
End of week date: 01/29/82 ARRIVED: 13

CDP-Block: 1111-1 Data Set : 1
End of week date: 02/05/82 ARRIVED: 14

CDP-Block: 1111-1 Data Set : 1
End of week date: 02/12/82 ARRIVED: 15

CDP-Block: 1111-1 Data Set : 1
End of week date: 02/19/82 ARRIVED: 15

CDP-Block: 1111-1 Data Set : 1
End of week date: 02/26/82 ARRIVED: 7

CDP-Block: 1111-1 Data Set : 1
End of week date: 03/05/82 ARRIVED: 2

CDP-Block: 1111-1 Data Set : 1
End of week date: 03/12/82 ARRIVED: 11

CDP-Block: 1111-1 Data Set : 1
End of week date: 03/19/82 ARRIVED: 15

APPENDIX H

EXAMPLE OF PRINT OUTPUT REPORT

PAM SIMULATION ... REPORT 07/14 82

PIPELINE ANALYSIS MODEL

RATING ... STATIONS XX

OUTPUT STATISTICS DATA SET: 05

PAGE 1

WEEK	1	2	3	4	5	6	7	8	9	10
RTC (11111)										
ARR	10	5	10	0	13	14	15	15	7	2
ENR	10	5	10	0	13	14	15	15	7	2
UI	66	61	61	51	54	58	63	69	66	62
AI	0	0	0	0	0	0	0	0	0	0
ATTRITES	1	1	1	1	1	1	1	0	1	1
GRADS	11	11	11	11	11	11	11	11	11	6
RTC (22221)										
ARR	10	5	0	10	13	14	15	15	7	2
ENR	10	5	0	10	13	14	15	15	7	2
UI	66	61	51	51	54	58	64	69	66	62
AI	0	0	0	0	0	0	0	0	0	0
ATTRITES	1	1	1	1	1	1	0	1	1	1
GRADS	11	11	11	11	11	11	11	11	11	6
RTC (33331)										
ARR	10	5	10	13	14	15	15	7	2	11
ENR	10	5	10	13	14	15	15	7	2	11
UI	[illegible]	61	61	64	68	73	78	75	67	71
AI	0	0	0	0	0	0	0	0	0	0
ATTRITES	1	1	1	1	1	1	1	1	1	2
GRADS	11	11	11	11	11	11	11	11	11	6
BE/E-SCH. (11101)										
ARR	12	12	12	12	12	12	12	12	12	12
ENR	12	12	12	12	12	12	12	12	12	12
UI	46	46	46	46	46	46	46	46	46	46
AI	10	10	10	10	10	10	10	10	10	10
ATTRITES	1	1	1	1	1	1	1	1	1	1
GRADS	11	11	11	11	11	11	11	11	11	11
BE/E-SCH. (11101)										
ARR	12	12	12	12	12	12	12	12	12	12
ENR	12	12	12	12	12	12	12	12	12	12
UI	46	46	46	46	46	46	46	46	46	46
AI	10	10	10	10	10	10	10	10	10	10
ATTRITES	1	1	1	1	1	1	1	1	1	1
GRADS	11	11	11	11	11	11	11	11	11	11

WEEK	11	12	13	14	15	16	17	18	19	20
RTC (11111)										
ARR	0	0	0	0	0	0	0	0	0	0
ENR	0	0	0	0	0	0	0	0	0	0
UI	0	0	0	0	0	0	0	0	0	0
AI	0	0	0	0	0	0	0	0	0	0
ATTRITES	0	0	0	0	0	0	0	0	0	0
GRADS	0	0	0	0	0	0	0	0	0	0
RTC (22221)										
ARR	0	0	0	0	0	0	0	0	0	0
ENR	0	0	0	0	0	0	0	0	0	0
UI	0	0	0	0	0	0	0	0	0	0
AI	0	0	0	0	0	0	0	0	0	0
ATTRITES	0	0	0	0	0	0	0	0	0	0
GRADS	0	0	0	0	0	0	0	0	0	0
RTC (33331)										
ARR	0	0	0	0	0	0	0	0	0	0
ENR	0	0	0	0	0	0	0	0	0	0
UI	0	0	0	0	0	0	0	0	0	0
AI	0	0	0	0	0	0	0	0	0	0
ATTRITES	0	0	0	0	0	0	0	0	0	0
GRADS	0	0	0	0	0	0	0	0	0	0
BE/E-SCH. (11101)										
ARR	0	0	0	0	0	0	0	0	0	0
ENR	0	0	0	0	0	0	0	0	0	0
UI	0	0	0	0	0	0	0	0	0	0
AI	0	0	0	0	0	0	0	0	0	0
ATTRITES	0	0	0	0	0	0	0	0	0	0
GRADS	0	0	0	0	0	0	0	0	0	0
BE/E-SCH. (11101)										
ARR	0	0	0	0	0	0	0	0	0	0
ENR	0	0	0	0	0	0	0	0	0	0
UI	0	0	0	0	0	0	0	0	0	0
AI	0	0	0	0	0	0	0	0	0	0
ATTRITES	0	0	0	0	0	0	0	0	0	0
GRADS	0	0	0	0	0	0	0	0	0	0

Technical Report 139

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