E_I MODEL
USER'S GUIDE

February 14, 1994

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1. BACKGROUND

The E_I model and this program were developed to assist the Office of Munitions (OM) in planning and coordination of conventional munitions programs at the macro level. OM's primary responsibilities include 1) development of an overall munitions acquisition strategy and 2) oversight of all DoD programs for conventional munitions Research and Development (R&D) and Procurement, as well as existing munitions inventories. In this role, OM faces the challenge of integrating Service budgets and priorities within the framework of overall DoD policy and objectives. OM must have a firm, quantitative basis for making acquisition decision and stockpile disposition recommendations. To do this, OM needs a rigorous but simple means for conducting top-level analyses of the overall conventional munitions program. This analysis must be founded on a consistent, quantitative process that allows for an assessment of the existing program, as well as the capability to compare and contrast alternative resource allocation recommendations. The E_I model provides a means for quickly conducting a multitude of assessments across target classes, contingency areas, and for different planning scenarios. It is neither data intensive nor is it a complex combat simulation. Its goal is to allow for rapid tradeoff analyses of competing munitions alternatives relative to acquisition and stockpile mix.

2. ABOUT E_I

DGI coined the term "Efficiency of Investment", E_I, as a top-level measure of merit for evaluating the conventional munitions program. A goal of OM's conventional munitions acquisition planning is to ensure that DoD is getting the maximum capability from the limited munitions resources it has available. In DGI's definition, efficiency of investment reflects the ability of a platform/munition combination to kill its set of allocated targets with a minimum of waste, expense, or unnecessary effort. Therefore, the E_I measure developed by DGI encompasses the critical munitions parameters of effectiveness and cost, but also incorporates platform attrition and the sufficiency of the stockpile to meet requirements based on the number of munitions required to defeat a target. E_I can be evaluated for a specific platform/munition-target combination, for sub-target classes, and for an overall target class.

The E_I model is uniquely suited to assisting OM in conducting its top-level assessments. It is a simple model based on three major factors: effectiveness, sufficiency, and cost. This model formulation is flexible enough to support the full range of analyses required to evaluate the efficiency of the overall conventional munitions program or specific platform/munition target alternatives.

The general E_I formulation is:

$$E_I = \frac{effectiveness \times sufficiency}{cost}$$

Where

$$effectiveness = P_k$$

$$sufficiency = \frac{salvos\ deliverable}{number\ of\ targets\ allocated \times salvos\ per\ kill}$$

$$cost = munition\ salvo\ cost + platform\ cost \times platform\ attrition.$$

Cost is used in the denominator because low cost has higher value in terms of efficiency than high cost. Cost is the dominant factor since effectiveness and sufficiency are between 0 and 1 and costs vary anywhere from hundreds to tens of millions of dollars depending on the platform/munition-target combination. In this equation, procurement cost is used, so that if a munition is already in the stockpile, the munition salvo cost is zero.

Using this formula, E_Is are calculated for each platform/munition-target combination. These E_Is are then normalized to an "ideal E_I" where cost and sufficiency are 1 and the per salvo cost is $1,000,000. The selection of $1M is purely arbitrary but is close to the average total salvo cost (i.e. munition + platform attrition cost). These normalized E_Is then provide a consistent basis for comparing munitions across target classes, scenarios, and timeframes for differing platform/munition-target allocation combinations. However, to evaluate E_Is at the target class level, the normalized E_Is for each individual combination must be aggregated. The aggregated target class E_Is are calculated as a weighted average, based on the target fraction allocated, of the normalized E_Is for all platform/munition-target combinations for each target class. This equation is shown below.

$$Target\,Class\,E_I = \sum_{i=1}^{n} \frac{P/M\text{–}T_i \times TF_i}{Total\,Targets\,in\,Target\,Class}$$

where: n = Total Number of Target Types in target class
$P/M\text{-}T_i$ = normalized E_I for platform/munition-target combination i
TF_i = target fraction allocated to $P/M\text{-}T_i$

Note that for consistency, all E_I model inputs are developed in terms of munitions salvos. A salvo is defined as the doctrinal number of munitions expended by the platform/munition combination against the particular target. Therefore for a gun system, the term "salvo" would have the standard definition, whereas for aircraft platforms salvo size would refer to the number of munitions expended per sortie against the particular target type.

3. E_I MODEL IMPLEMENTATION

In a typical analysis, the E_I model is run for a baseline case, modeling current operational doctrine and platform/munition-target allocations. This usually involves a large amount of data which is ultimately aggregated into sub-target class and target class E_Is. By looking at the E_Is in the base case and analyzing low E_Is in detail, the analyst can gain insight into specific problem areas and then potential solutions. By studying problems at the target class level, the analyst may be able to recommend platform/munition-target allocation alternatives, stockpile upgrades, or other resource recommendations that would improve the E_Is. As a first step, the analyst must look in detail at the data making up the E_I factors. The following section provides examples of how E_I problems can be identified and how recommendations for improvement can be developed. These recommendations can then be implemented in the E_I model, and the resulting E_Is compared to the baseline to determine the most effective improvement alternatives.

The remainder of this section demonstrates how the E_I model can be used to analyze munitions deficiency areas related to low effectiveness, low sufficiency, and high cost using example implementations, as well as how the model can be used to perform sensitivity analyses.

3.1. Low Effectiveness

Suppose that in a base case scenario assessment it is determined that a low E_I is caused primarily by low effectiveness. The analyst must then examine the data components of the effectiveness factor to determine what is driving the low effectiveness. In addition to poor warhead lethality or delivery accuracy, low effectiveness can be due to a number of operational factors including the inability to find a target, high background clutter, operator error, etc. By analyzing the range of target classes and platform/munition-target combinations, it may be possible to identify common deficiencies that impact effectiveness across target classes or across a platform or munition type. In this case, OM can recommend that technology research programs be focused to address a common deficiency. For example, a new seeker technology could dramatically improve detection capability and be adaptable to a number of weapons systems. This would represent a high leverage alternative where efficiency gains in multiple target classes and/or for multiple weapons systems could result from a common investment. OM might also determine that new weapons systems or product improvements represent viable alternatives for improving effectiveness. The E_I model can be used to determine the stockpile requirements and cost at which these effectiveness improvements are worthwhile. By testing the various alternatives in the E_I model OM can determine the most efficient means of addressing the deficiencies identified.

3.2. Low Sufficiency

Typically, low sufficiency is caused by either inadequate stockpiles or inadequate platform capacity to deliver sufficient munitions against the target set. In turn, inadequate platform delivery capacity can be driven by low sortie or firing rates or large reattack requirements. Depending on the root cause of the problem, OM may be able to recommend resource allocation alternatives to help improve sufficiency. Possible solutions could include a reallocation of munitions to platforms and targets, relocation of existing stockpiles, accelerated acquisition of new munitions, or the procurement of greater standoff (lower platform attrition) munitions. It is important to note that effectiveness improvements can also help to improve sufficiency. For example, if the introduction of a higher effectiveness munition reduces reattack requirements, then additional platform assets may be available to support other areas where sufficiency is low due to lack of platform availability. Each of these alternatives could be tested using the E_I model as excursions from the baseline to determine

the gain, if any, in efficiency that would result from implementing those alternatives.

3.3. High Cost

High total cost can be incurred as a result of high munition unit costs as well as due to platform attrition costs. If high unit cost is determined to be a problem across the board, OM might want to advocate more focused programs to design munitions affordably or to streamline procurement. In the case of high platform attrition, other platforms might be considered, or munitions improvements that would allow greater delivery standoff might be recommended.

3.4. Sensitivity Analysis

In addition to evaluating the efficiency improvements gained from implementing various alternatives, E_I can be a valuable tool for conducting sensitivity analyses. By running the E_I model with parametric changes to one or more factors, the analyst can evaluate the level of improvement required to make overall efficiency increase. For example, E_I can be used to determine the "threshold cost" below which the efficiency of a certain platform/munition combination would improve. This would then assist OM in evaluating potential new munition costs.

4. REQUIREMENTS

The E_I Model requires an IBM PC or compatible operating under MS DOS with at least 650 K of memory and 300 K of free disk space if installed on a hard disk. A color monitor is helpful but not necessary. This user's guide describes the appearance of screens with a color monitor; users with a monochrome monitor will still see bold text, although the distinction between individual screen areas will not be visible.

5. INSTALLATION ON A HARD DISK

1) Boot up the PC it is to be installed on.

2) Make a directory for the program files, type:

```
MD EI <RETURN>
```

3) Change to the `EI` directory, type:

```
CD EI <RETURN>
```

4) Copy all the files from the program diskette into the directory, insert the EI diskette into drive A: and type:

```
COPY A:*.*
```

6. HOW TO USE E_I

The E_I program is intended to be straight forward and easy to use. The following sections describe how to use the program. Section 6.1 gives some basic instructions for using the program, Section 6.2 describes how to start the program, Section 6.3 outlines the process used to select a database file to create or edit, Section 6.4 describes how to create or edit a database, Section 6.5 discusses how to browse through an open database, Section 6.6 shows how to display the results of E_I calculations, Section 6.7 shows how to select a different database file, Section 6.8 discusses how to dump a database to the printer, Section 6.9 tells how to exit the E_I Automation program, and Section 6.10 solves common problems.

6.1. Program Basics

The E_I Model is a menu based program which takes the user to successively greater levels of detail. As the user works into the program, he/she may cancel a command and back up at any time using the <ESC> key.

The user moves to the next screen by completing the necessary information. Editable fields are indicated by a blue background. The user enters the required information using the keyboard; if a mistake is made, the <BACKSPACE>, arrow keys, <HOME>, and <END> keys may be used to edit text. Text in these fields is in type over mode. Any changes to the data are made once <ENTER> is pressed, before that time the data remains unchanged. The user can move between active fields by pressing <ENTER> or by using the up and down arrow keys.

If the user needs clarification concerning some item, help is available on most screens. The CMD key line near the bottom of the screen indicates if help is available. If so, "<F1> | HELP" will appear in red and yellow characters. Any other function keys available will also be displayed on this line. On most screens, the function keys apply to the field that the cursor is positioned in.

6.2. Starting the Program

The E_I program is started by changing to the directory containing the program and entering EI:

```
CD \EI <RETURN>

EI <RETURN>
```

6.3. Selecting a File

The program will display a start up screen which is cleared by pressing any key (except for function keys). The existing files in the default directory will be displayed in tabular form on the screen below a header giving the default path. A message line near the bottom of the screen will prompt the user for a file name. The user should then enter a file name. Do not enter an extension when creating or selecting a file for use; entering the extension will cause an error.

The user may change the directory by pressing <F7>. A prompt will appear asking the user to enter the desired directory. The user may choose to change the drive as well, for example, if he/she wishes to change to the A: drive, he/she would type "A:\". The user may also enter the name of a file in another directory by entering the path along with the name, as in "A:KOREA".

Once a file has been selected, the E_I program will display a main menu which allows the user to choose from 6 options: 1) CREATE/EDIT DATABASE, 2) BROWSE DATABASE, 3) PRESENT ANALYSIS Results, 4) SELECT A NEW FILE, 5) DUMP the contents of the DATABASE to a Printer, and 6) EXIT. The user need only press the number key corresponding to his/her choice.

6.4. Creating or Editing a Database

6.4.1. Create/Edit Database Screen

In order to create or edit a database, the user should press 1 in the main menu. The E_I program then displays a screen which shows the current file and a column on the left with record names. An empty blue square is next to the record titled TARGET CLASS. This blue square indicates that this is an editable field. At this point the user may enter a target class name or press a function key. <F1> displays help for this screen. <F2> displays a list of target classes already in the database and prompts the user to select one. The user may press <ESC> to clear this window, or enter the desired selection. The window clears once the input field is full; if choosing an item with fewer digits than in the input field,

the user must press <RETURN> to select it. <F3> adds a target class to the database. The user is prompted for the name of the new target class near the bottom of the screen. <F4> deletes a target class. The user is asked for verification of this procedure before the deletion is executed, as all sub-target classes, munitions, and platforms associated with the target class are also deleted.

Once a target class has been chosen, the next field, SUB TARGET CLASS, becomes active. The options available for this field are the same as for the TARGET CLASS field. Selecting the appropriate function key allows the user to get help on, list, add, or delete a SUB TARGET CLASS. Deleting a target class removes all munitions and platforms associated with it.

Once a sub-target class has been chosen, the next field, MUNITION, becomes active, and the function keys now apply to this field. Selection of a munition activates the PLATFORM field. Once a platform has been selected, the user moves to the next screen.

6.4.2. Editing Parameters Screen

The current target class, sub-target class, munition, and platform are displayed in bold letters at the top of this screen. Below these are the current values for munition E_I. The field for indicating whether or not the munition is currently in the stockpile appears just below the current munition line. Putting <Y> in this field automatically changes the munition cost to 0. All the editable parameters are in fields with a blue background. Several fields are recalculated when new data is entered; these have white characters with the same cyan background as the rest of the screen. Examples of these fields are SUFFICIENCY and % MUNITIONS DELIVERABLE. The user may get help on this screen by pressing <F1>. The help screen here applies to the entire screen, and defines all the editable parameters. The user presses <ESC> to return to the previous screen.

6.4.3. Leaving Editing Mode

When the user wishes to return to the main menu, he/she presses <ESC>. If any changes have been made to the database, the user is prompted to save the changes. If the user wishes to save the database, he/she presses <Y>, and a file name prompt appears. If the user wishes to save the file with the existing file name, then he/she presses <RETURN>, if not, he/she enters the desired file name followed by <RETURN>.

6.5. Browsing a Database

The procedure for browsing a database is the same as for creating a database. The user selects the target class, sub-target class, munition, and platform he wishes to look at. Help is available on this screen, and the user may list the available target classes, sub-target classes, etc., by pressing <F2>. Once the fields have been filled, the user is taken to the parameter screen, which is the same as the parameter screen in Create/Edit, except that none of the fields are editable. The user returns to the selection screen by pressing <ESC>. There is no help available on this screen.

6.6. Display Analysis

The user may elect to display the results of the E_I analysis by selecting DISPLAY ANALYSIS from the main menu. Once selected, this option displays a selection screen for the specific type of analysis desired: TARGET CLASS, MUNITION, WEAPON SYSTEM, or PRINT REPORT.

6.6.1. Target Class Analysis

The target class analysis screen, as shown in Figure 1, displays all the target class E_Is in the input file. Using this feature, the user may examine the target class E_Is and determine target classes that have low efficiency. The E_Is for each target class are displayed in a gray window to the right. The user may elect to display a graph of these results by pressing <F5>. The graph will appear full screen. The user may print the screen to an HP Laserjet by pressing <F6>. The Laserjet must be attached to LPT1 for this function to work correctly. To leave the graph screen and return to the selection screen, the user presses <ESC>. The user must press <ESC> to return to the display analysis menu.

6.6.2. Sub-Target Class Analysis

The Sub-Target Class Analysis screen, as shown in Figure 2, allows the user to examine the sub-target class E_Is for a target class and discover which sub-target classes are driving the target class efficiency. After selecting this option, the user is presented with a selection screen for target class. The fields on this screen may be filled in the same manner as those in the browse selection screen. Once the fields have been filled, the user is shown a gray window with a table showing the different aggregated sub-target E_Is. The user may display a graph of the aggregated E_I for each sub-target by pressing <F5>. The graph is displayed full screen, and the user may print the screen using <F6>, or exit by pressing <ESC>.

Figure 1. Present Analysis/Target Class Screen

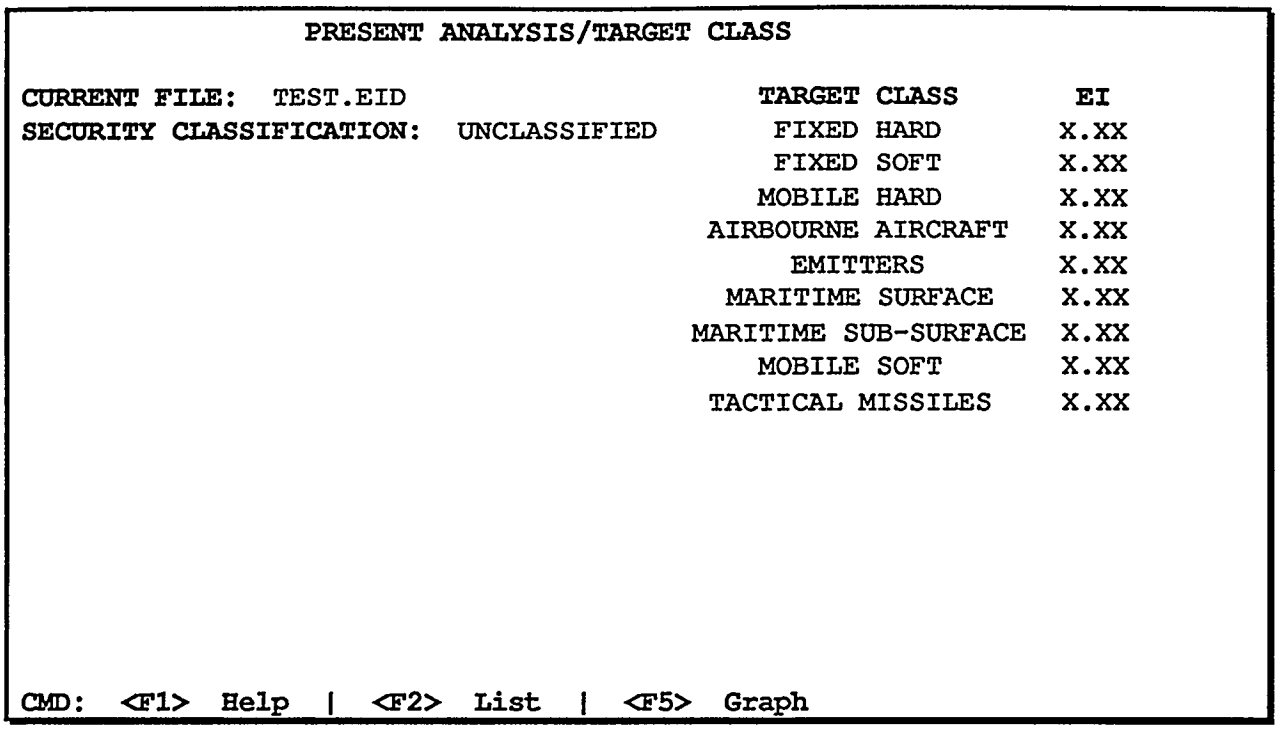
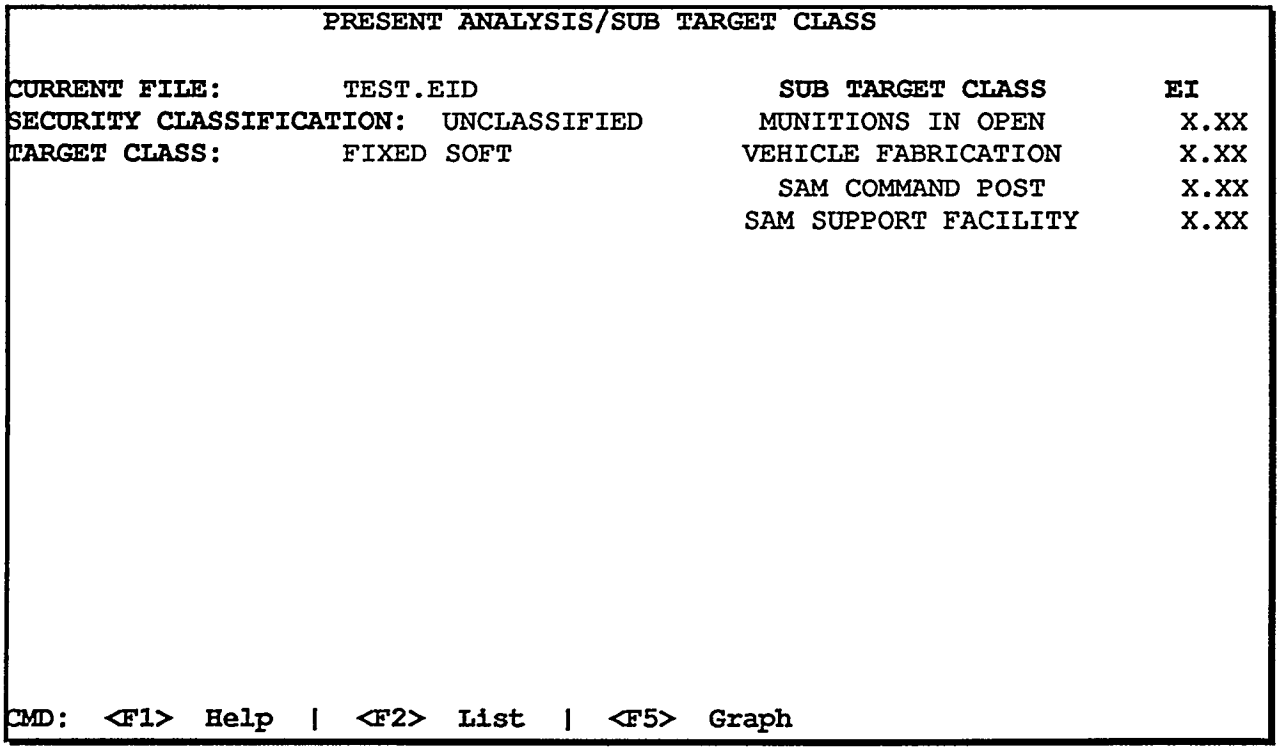


Figure 2. Present Analysis/Sub-Target Class Screen



6.6.3. Munition Analysis

The Munition Analysis screen, as shown in Figure 3, allows the user to examine the individual platform/munition-target efficiencies across a sub-target class in detail in order to learn of specific allocation, efficiency, or cost problems that affect the sub-target class efficiency. This table lists all the platform/munition combinations allocated to the sub-target class. After selecting this option, the user is presented with a selection screen for target class and sub-target class. The fields on this screen may be filled in the same manner as those in the browse selection screen or the sub-target class analysis selection screen. Once the fields have been filled, the user is shown a gray window with a table showing the different munition E_Is by platform. The user may display a graph of the aggregated E_I for each munition by pressing <F5>. The graph is displayed full screen, and the user may print the screen using <F6>, or exit by pressing <ESC>.

6.6.4. Weapon System Analysis

The Weapon System Analysis screen, as shown in Figure 4, allows the user to examine the platform/munition-target efficiencies for a *particular* munition in a sub-target class in order to learn of specific allocation, efficiency, or cost problems that affect the sub-target class efficiency. This differs from the Munition Analysis screen in that the E_Is for only the selected munition are shown. This is helpful if there are a number of different munitions in a target class, and the user wishes to examine only one munition's parameters. After selecting this option, the user is presented with a selection screen for target class, sub-target class, and munition. These required fields may be filled in the same manner as in the browse selection screen. Once filled, a table is displayed showing the weapon system E_I and its main components for each platform. The user may display a graph of these E_Is by pressing <F5>. The graph may be printed by pressing <F6>, or the user may leave the graph screen by pressing <ESC>. The user may clear the current table by pressing <ESC>, then choose another munition, or leave the weapon system analysis screen by pressing <ESC> again.

Figure 3. Present Analysis/Munition Screen

```
                    PRESENT ANALYSIS/MUNITION
CURRENT FILE:        TEST1.EID
SECURITY CLASSIFICATION: UNCLASSIFIED
TARGET CLASS:        FIXED HARD
SUB-TARGET CLASS:    FIELD FORTIFICATION
  MUNITION              PLATFORM          PK      SUFF       COST      MUN EI
25MM, APDS-T          PLATFORM 1        X.XX     X.XX     XXXXXX        X.XX




CMD:  <F1>  Help  |  <F2>  List |  <F5>  Graph
```

Figure 4. Present Analysis/Weapon System Screen

```
                  PRESENT ANALYSIS/WEAPON SYSTEM
CURRENT FILE:        TEST1.EID
SECURITY CLASSIFICATION:  UNCLASSIFIED
TARGET CLASS:        FIXED HARD
SUB-TARGET CLASS:    FIELD FORTIFICATION
MUNITION:            25MM, APDS-T
          PLATFORM            PK        SUFF       COST        MUNITION EI
          PLATFORM 1        X.XX        X.XX      XXXXXX              X.XX




CMD:  <F1>  Help  |  <F2>  List |  <F5>  Graph
```

6.6.5. Print Report

This option prints a report containing the full selection of analyses for the database. The report is sent directly to LPT1, which must be able to act as a line printer. The report is headed by the name of the database file, then the target class analysis table is displayed, followed by the sub-target class and munitions tables for the first target class, second target class, etc.

6.7. Selecting a Different File

The user may change the file he/she is working on without leaving E_I by choosing SELECT FILE from the main menu. After making this selection, the user is shown the existing files in the default drive and prompted for the file he/she wishes to edit. If the user enters a nonexistent file name, he/she is asked whether or not to create a new file.

6.8. Dumping the Database

The user has the option of dumping the complete contents of the open database to the printer to make examination of all of the data simpler. The dump goes directly to LPT1, and the printer must be able to act as a line printer. This printout lists all of the E_I factors and subfactors for all platform/munition-target combinations in the database.

6.9. Exiting the Program

The user may leave the program from the main menu by selecting EXIT or by pressing <ESC>.

6.10. Solutions to Problems

Problem: The program hangs up frequently.

Solution: Your data file is probably too large. Try splitting it into smaller files. You can do this by copying the file, for example, DATA.EID to DATA1.EID and DATA2.EID, reading in the first file, deleting half the target classes, and then reading in the second file and deleting the other half of the target classes. It's a good idea to make two copies so that if you make a mistake, you still have the original file.

Problem: When I choose PRINT REPORT *nothing happens.*

Solution: Make sure that your printer is hooked up to LPT1. If it is on a serial port, make DOS route data sent to LPT1 to your printer port. For instance, if your printer is on COM1, enter MODE LPT1=COM1 at the DOS

prompt. If your printer is on another parallel port, you will have to find a way to connect it to LPT1. Another problem you may have is that your printer is expecting Postscript™ input. If you have a Postscript™ printer, see if you can set it to accept HP input.

7. EXAMPLE SESSION

Start EI and load the sample file, TEST. This file contains an example database useful for gaining familiarity with the E_I program.

7.1. Editing the Data

After loading the file, the main menu appears on the screen. To edit the data, select CREATE/EDIT DATABASE. This takes you to the select screen, which has input lines for data classification and target class. Press ENTER to move to the target class field. You can list the available target classes by pressing <F2>, and then select the one you want by typing the appropriate number. Press 1 in this case. Now that you have selected a target class, you can select a sub-target class. In the same manner as before, press <F2>, and select 1. Now you can select a munition by repeating the previous process and selecting 1. Do the same with the platform.

Now you are in the editing parameters screen. The editable fields are highlighted in blue. You can change any of these fields by typing in numbers and pressing <RETURN>. Once you enter a number, the calculated fields are updated, and you can view the change in munition E_I on the screen. You can use the up and down arrow keys to move between fields without changing them. To exit this screen press <ESC>. Continue pressing <ESC> until you return to the main menu.

The next section reviews analyzing the data in a file.

7.2. Analyzing the Data

The CREATE/EDIT DATABASE and BROWSE DATABASE selections in the main menu are essentially the same, except that the BROWSE DATABASE selection does not allow you to change data for a platform/munition-target combination, only look at it. Often, OM is interested in the efficiency of a target class or its sub-target classes. To look at these data on-line, you select PRESENT ANALYSIS. This option allows you to view screens showing the aggregated target class and sub-target class E_Is, as well as listings of the munition E_Is within the target class.

To look at the target class E_Is in the file, select TARGET CLASS in the PRESENT ANALYSIS menu. This will draw a table on the screen showing the aggregated E_Is. Press <ESC> to clear the table, and then press <ESC> again to exit this screen.

To look at the sub-target class E_Is within a target class, select SUB TARGET CLASS in the menu. You can use <F2> to display the target classes, just like in the EDIT DATA screen. Once a target class is selected, you are shown a table of the aggregated sub-target class E_Is. If there are more sub-target classes than will fit on the screen, a prompt will appear at the bottom to use <PGUP> to scroll up or <PGDN> to scroll down. Clear the table by pressing <ESC>, then exit this screen by pressing <ESC> again.

To look at the munition E_Is within a sub-target class, choose MUNITION. This selection will take you to a screen prompting you for target class and sub-target class. Once these are selected (you can use <F2> here as well), you will see a table showing each platform/munition-target combination in the sub-target class and its munition E_I. Clear the table by pressing <ESC>, then exit this screen by pressing <ESC> again.

The following section reviews printing a report using E_I.

7.3. Printing a Report

Often, OM will wish to see the target class efficiencies and its components in a written report. E_I has a reporting facility in the PRESENT ANALYSIS menu. When you select PRINT REPORT, a prompt will appear asking for the type of printer you are using: a line printer or an HP Laserjet. Press 1 or 2 for the appropriate printer, and the program will format a report and send it to the printer on LPT1.

This report lists first the aggregated target class E_Is, then the sub-target class E_Is and munition E_Is for each target class in order. You can use this report to quickly scan the target class E_Is.

APPENDIX

THE PREPROCESSOR

1. PREPARING THE INPUT FILES

A preprocessor was developed to simplify the input of data into the E_I program and to demonstrate how the E_I model can be interfaced with a common OM database. It is a simple program that takes input from several ASCII files and produces an E_I database file. These files are all unclassified by themselves, but generally the output database file is classified. This happens because the classified P_k data in the main input file are referenced to generic platform, munition and target numbers rather than names. The associated platform, munition, and target table files then reference these numbers to the actual name. Once these four files are brought together in the E_I model they become a classified database. A listing of the necessary files and their contents follows.

PLATFORM.TBL A table to convert the platform numbers in the main file to names.

HEADER LINE (ANY NUMBER OF CHARACTERS)
(each line) REFERENCE #, ONE SPACE, PLATFORM NAME (20 CHARACTERS), NUMBER OF PLATFORMS, COST OF PLATFORM

Unless specified, any number of blank spaces can separate each datum.

MUNITION.TBL A table to convert the munition numbers in the main file to names.

HEADER LINE (ANY NUMBER OF CHARACTERS)
(each line) REFERENCE #, ONE SPACE, MUNITION NAME (20 CHARACTERS), NUMBER OF MUNITIONS, COST OF EACH MUNITION

Unless specified, any number of blank spaces can separate each datum.

TARGET.TBL A table to convert the sub-target class numbers in the main file to names.

HEADER LINE (ANY NUMBER OF CHARACTERS)
(each line) REFERENCE #, ONE SPACE, SUB-TARGET CLASS NAME (20 CHARACTERS), NUMBER OF SUB-TARGETS, ONE SPACE, TARGET CLASS ABBREVIATION.

The target class abbreviations are as follows:

MH MOBILE HARD
FH FIXED HARD
MS MOBILE SOFT
FS FIXED SOFT
EM EMITTERS
TM TACTICAL MISSILES
AC AIRBOURNE AIRCRAFT
SHIP MARITIME SURFACE
SUB MARITIME SUB-SURFACE

The preprocessor will only recognize the above abbreviations.

Unless specified, any number of blank spaces can separate each datum.

datafile.ext The main input file - any file name can be used. Any extension can be used *except* `.EID`. Do not use this extension because the preprocessor saves the database in a file named *datafile*`.EID`. You specify this input file after starting the preprocessor.

2 LINES HEADER

(each line) PLATFORM REFERENCE #, MUNITION REFERENCE #, TARGET REFERENCE #, PLATFORM ATTRITION (fraction), MUNITIONS PER SALVO, P_k PER SALVO, SALVOS ALLOCATED, FRACTION OF TARGETS ALLOCATED, SALVOS PER KILL

2. RUNNING THE PREPROCESSOR

First, locate the executable file, `PREPROCS.EXE`, which should be located on your installation disk. Then, change the current directory to match the location of your input files. You should now be able to run the program by entering `B:PREPROCS`. The program will first prompt you for the main input file name, which you must enter with any extension it may have. The program will then read in the data and create an E_I database. You will be prompted to enter the security classification of the data before it is saved with the same filename as the input file, but with an extension of `.EID`.