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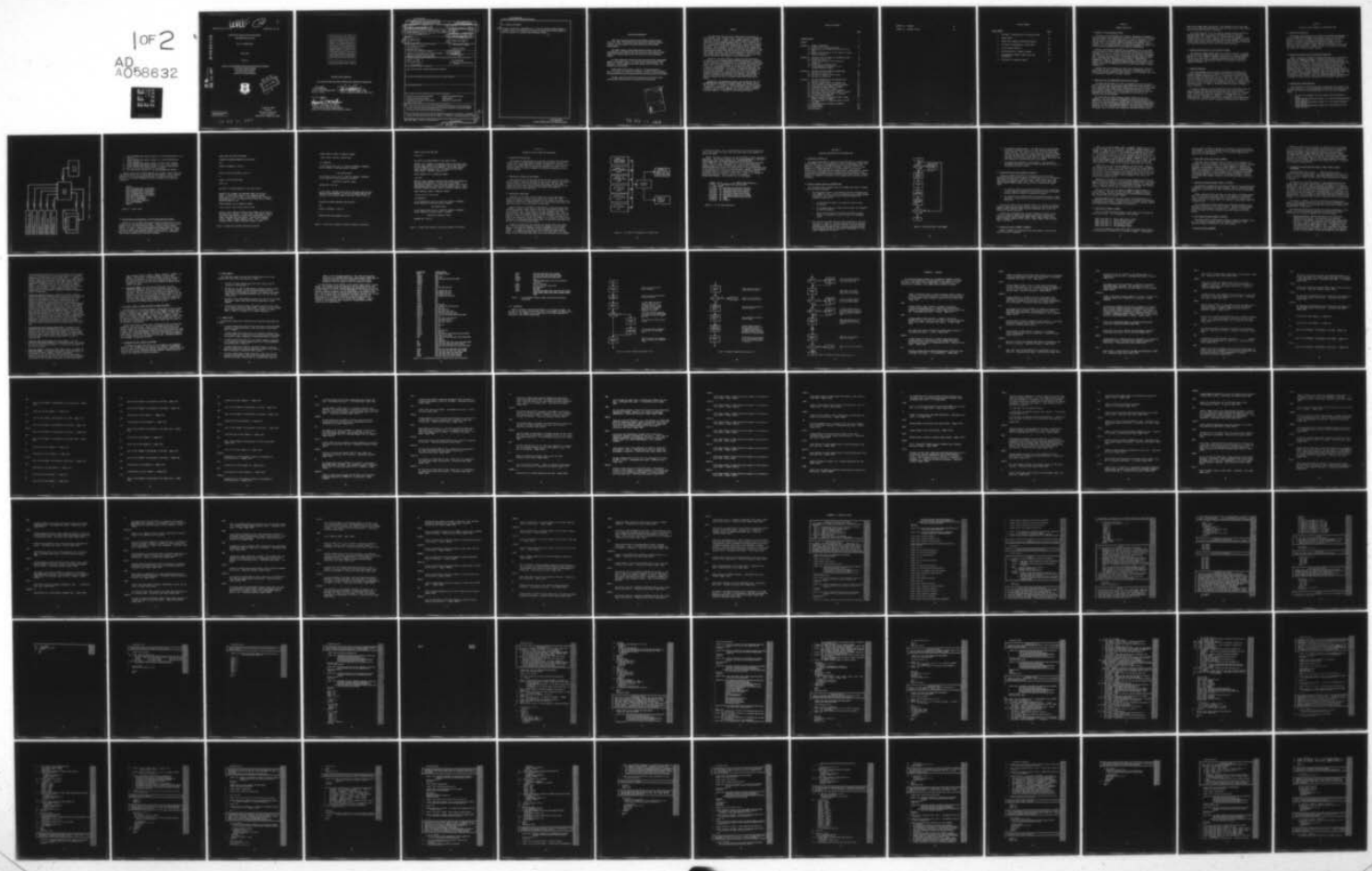

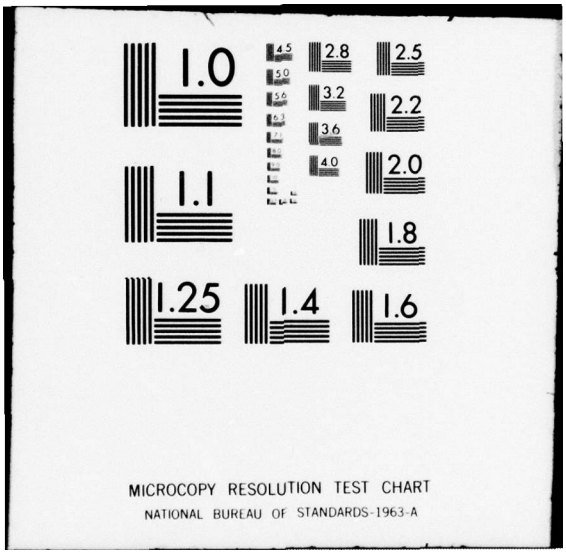
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SEEK IGLOO LIFE CYCLE COST MODEL
MAINTENANCE MANUAL

BY J.K. FERRAIOLO

JULY 1978

Prepared for

DEPUTY FOR SURVEILLANCE AND NAVIGATION SYSTEMS
ELECTRONIC SYSTEMS DIVISION
AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE
Hanscom Air Force Base, Massachusetts

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SENSITIVITY ANALYSIS

20. ABSTRACT *(Continue on reverse side if necessary and identify by block number)*

An interactive Life Cycle Cost (LCC) mathematical model with a built-in sensitivity analysis capability has been developed for use in the evaluation of proposed designs for the Air Force SEEK IGLOO Radar System.

This Maintenance Manual provides the information necessary to maintain, or possibly modify, the FORTRAN code of the LCC Model. It contains a complete discussion of the

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20. Abstract (continued)

cont. structure, conventions, subroutines, etc., of the LCC Model computer program. A complete listing of the FORTRAN code of the LCC Model, which contains extensive internal comments, is included in the Maintenance Manual.

ACKNOWLEDGEMENTS

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For their instructive comments on the organization of the programmed Model, I am grateful to Maj. A. E. Biery and Lt. Arnold Reyes of AFSC ESD/OCUI. For his support in the actual coding of the LCC Model, I am indebted to Harold Samson.

MITRE SEEK IGLOO Project Leader Dr. Thomas Kabaservice, Maj. A. E. Biery, Dr. Richard A. Moynihan, and John H. James reviewed the Maintenance Manual and initiated numerous improvements to the document.

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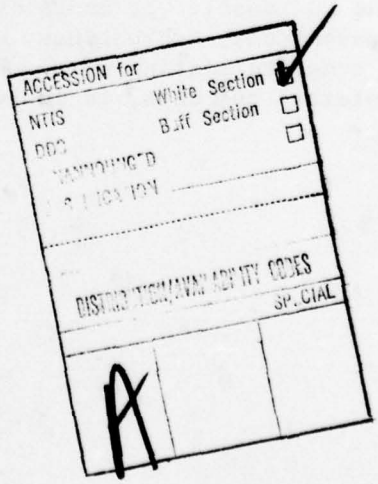

PREFACE

The SEEK IGLOO Life Cycle Cost (LCC) Model is presented in three volumes, each of which serves a unique function and addresses a specific audience. Volume I, Cost Element Equations, presents a discussion of the accounting model which is used to estimate the LCC of any proposed SEEK IGLOO Radar System. This volume presents the equations for the ten Cost Elements which comprise the accounting model. Also included is a full discussion of the assumptions concerning the acquisition, operation, and logistics support of the proposed radar system which had an impact on the development of the Cost Element equations. The intended audience of Volume I is the cost analyst who is interested in a discussion of the various Cost Element equations which comprise this accounting model.

Volume II, the User's Manual, presents all the information necessary to run the computerized LCC Model effectively. Included in this volume are (1) instructions for preparing the necessary data input files, (2) an explanation of the use of the interactive capability, (3) a discussion of how to interpret the output, and (4) a complete presentation of the built-in Sensitivity Analysis capability of the LCC Model. In addition, in order to make Volume II a stand-alone document, a full discussion of the Cost Element Equations (Volume I) is included as an appendix. Thus Volume II is both a necessary and sufficient tool for utilizing the LCC Model to compute the LCC of a proposed SEEK IGLOO Radar System design.

Volume III, the Maintenance Manual, was written for the programmer who must maintain or possibly modify the FORTRAN code of the LCC Model. It contains a complete discussion of the structure, conventions, subroutines, etc. of the LCC Model computer program. A complete listing of the FORTRAN code, which contains extensive internal comments, is included in the Maintenance Manual.

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LIST OF FIGURES

SECTION I

GENERAL DESCRIPTION

1.1 Purpose of the Maintenance Manual

The purpose of this document is to enable a maintenance programmer to effectively maintain the SEEK IGLOO Interactive Life Cycle Cost (LCC) Model computer program. This maintenance manual is meant to supplement, rather than duplicate, the extensive comments included in the FORTRAN source listing. Thus, this document gives the maintenance programmer a general discussion of the computer program, allowing the programmer to refer to the internal program documentation for more detailed explanations.

Because a maintenance programmer may be required to set up the SEEK IGLOO LCC Model for future users, this document instructs the maintenance programmer on how to set up the LCC model for both interactive and batch runs (Sections 2 and 3). General and detailed comments about the FORTRAN code, a detailed flow-chart, and a cross-reference chart between common blocks and subroutines (Section 4) are included to supplement the documentation found in the FORTRAN source listing. Also included in this document are a complete glossary of FORTRAN variables (Appendix A) and a complete listing of the SEEK IGLOO Life Cycle Cost Model computer program (Appendix B).

Excluded from this document are input/output descriptions, operating instructions for users, cost element equations, an explanation of the Sensitivity Analysis capability, and a listing of error messages, which are all described in Volume II, the User's Manual.

1.2 Application of the SEEK IGLOO Life Cycle Cost Model

The SEEK IGLOO LCC Model is a tool to estimate the total Life Cycle Cost to the Government of alternative SEEK IGLOO Radar System designs. The model highlights cost elements which depend wholly or in part on the design of the radar and those which depend on Contractor-provided data which affect support concepts. Thus, the LCC Model will be useful to both the Government and the Contractor in estimating the Life Cycle Cost of potential radar system designs.

The SEEK IGLOO LCC Model computer program consists of two main components. The first component implements an accounting model which computes the Life Cycle Cost of the SEEK IGLOO radar system based on the values of the input parameters corresponding to a particular system design. The output of this first component gives the total LCC and also the LCC broken out into ten component Cost Elements, into Development, Production, and Support Costs, and into cost incurred at different locations (e.g.,

radar sites versus repair facilities). The breakdown of Life Cycle Cost into various categories should help the user identify areas in which design and cost trade-offs should be considered.

The second component of the LCC computer program provides Sensitivity Analysis computations to be used as an additional aid in trade-off considerations. More specifically, for certain selected contractor parameter inputs (e.g., UC(i) - the unit cost of the ith assembly, or FR(i) - the failure rate of the ith assembly) this program component computes the average change (either positive or negative) in total LCC which is produced by a fractional increase in the value of the given parameter.

1.3 General Characteristics of the Computer Program

The program is highly modular and has a top-down structure. The code was written in ANS FORTRAN (X3.9-1966), except for its use of the NAMELIST feature, so that it would be compatible with almost any FORTRAN compiler. The code has a great deal of internal documentation and has consistent naming conventions. These general aspects of the computer program are detailed in Section 4.2.

1.4 Required Equipment

To run the program in the interactive environment for which it was designed, the user will need a computer facility with the capability of running a FORTRAN program on-line (i.e., in interactive mode) with 256K bytes of memory, six input files, and two output files. Five of the input files are assigned to card-image data sets. The other (sixth) input file and one of the two output files are assigned to the user's terminal, which must have at least 72 columns. The remaining output file is assigned to an off-line printer of at least 121 character width, including a carriage control character.

If the user chooses to run the program in a batch environment, then the user's computer facility will need the capability of running a batch FORTRAN program with 256K bytes of memory, six input files, and two output files. All six input files are assigned to card-image data sets. One output file can be assigned to a data set, to a dummy file, or to a printing device. The other output file is assigned to an off-line printer of at least 121 character width, including a carriage-control character.

SECTION II

SETTING UP THE LCC MODEL FOR INTERACTIVE RUNS

2.1 Overview of Section II

The purpose of this section is to enable the maintenance programmer to set up the SEEK IGLOO LCC Model for interactive use on an IBM 370/158 computer. Section 2.2 includes a very general description of the interactive capability (a detailed description is found in the User's Manual). Section 2.3 lists the file allocations necessary for an interactive run and includes a sample IBM exec file (called a CLIST under IBM's Time Sharing Option). Finally, Section 2.4 illustrates the inputs and outputs for a sample terminal session.

2.2 General Description of the Interactive Capability

Figure 1 shows the LCC Model's configuration when used in interactive mode (the word "CHANNEL" in Figure 1 refers to the data set reference number found in the FORTRAN code). The interactive capability allows for the repetitive on-line (i.e., interactive) execution of the LCC model. The model reads five "standard" data files which contain a complete set of inputs (these five files are: Miscellaneous Scalar Inputs, Support Equipment Inputs, Functional Area Inputs, LRU Equipment Inputs, and LRU Maintenance Inputs). After reading the five files, the program allows the user to override any of these "standard" inputs by entering new values from his terminal. The program will then use these interactive inputs to calculate and print the LCC. Thus, the interactive feature allows the user to change his inputs without altering his five "standard" input files.

2.3 Setting Up an Interactive Run

After having set up the five "standard" data files (see Section 3.2 of the User's Manual), to run the SEEK IGLOO LCC Model in an interactive mode, the user must perform (or have performed for him or her) the following steps:

1. Log his or her terminal onto the computer with 256K bytes of memory.
2. Assign FORTRAN input/output channel 11 to the Miscellaneous Scalar Inputs data set.
3. Assign FORTRAN input/output channel 12 to the Support Equipment Inputs data set.
4. Assign FORTRAN input/output channel 13 to the Functional Area Inputs data set.

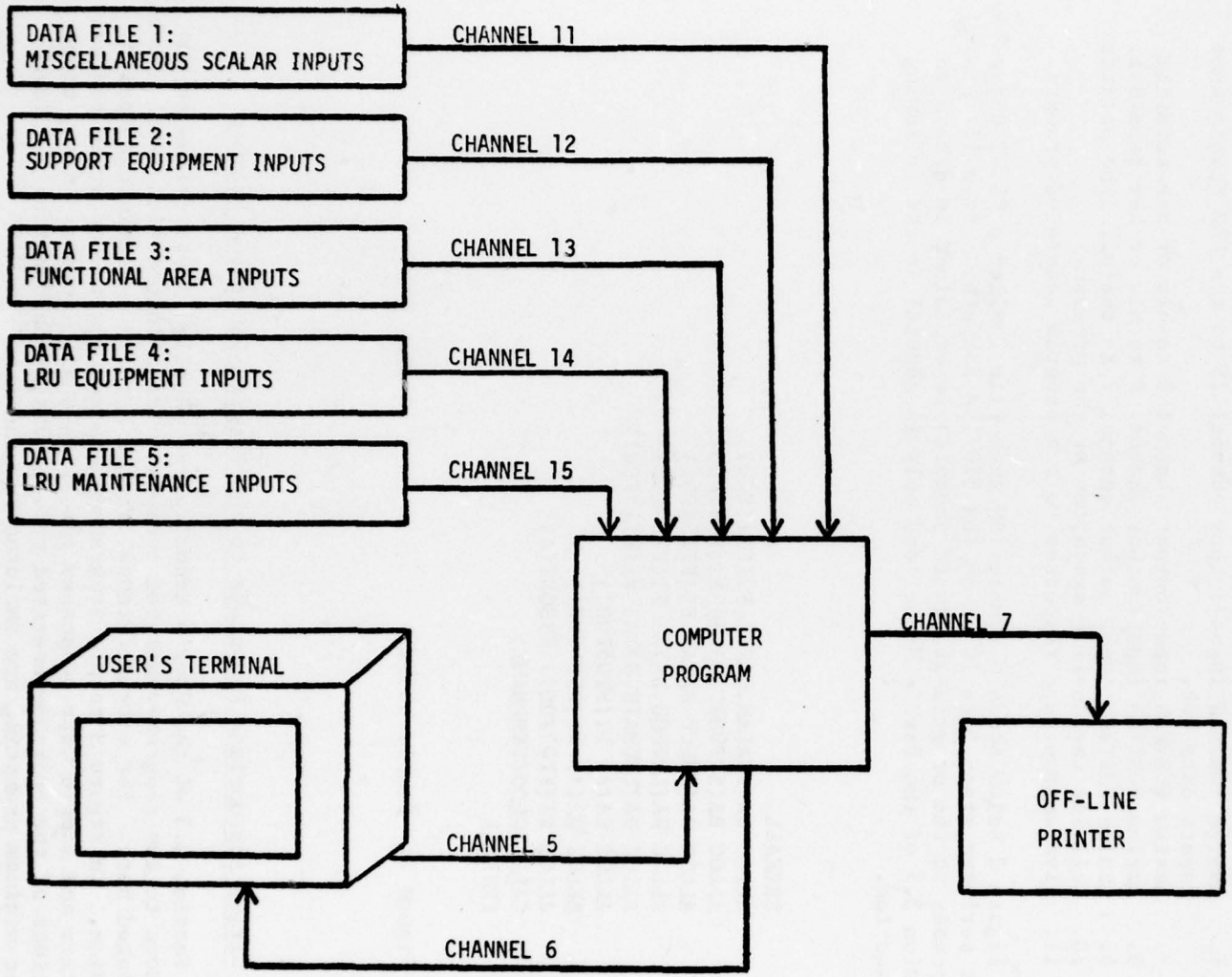


Figure 1: LCC Model's Configuration in Interactive Mode

5. Assign FORTRAN input/output channel 14 to the LRU Equipment Inputs data set.
6. Assign FORTRAN input/output channel 15 to the LRU Maintenance Inputs data set.
7. Assign FORTRAN input/output channel 5 to his or her terminal.
8. Assign FORTRAN input/output channel 6 to his or her terminal.
9. Assign FORTRAN input/output channel 7 to the off-line printer.
10. Call for the on-line execution of the program.
11. Give appropriate responses to the program generated prompts.

Figure 2 below shows a sample IBM exec file (called a CLIST under TSO) that performs steps 2 to 10 on an IBM 370/158 computer. Step 11 (giving responses to the program-generated prompts) is explained in detail in Section 3.3 of the User's Manual and only in general in the following subsection.

```
FREEALL
ALLOC DA(SCALAR.DATA) FI(FT11F001)
ALLOC DA(SUPPORT.DATA) FI(FT12F001)
ALLOC DA(FUNCT.DATA) FI(FT13F001)
ALLOC DA(LRUEQU.DATA) FI(FT14F001)
ALLOC DA(LRUMAIN.DATA) FI(FT15F001)
ALLOC DA(*) FI(FT05F001)
ALLOC DA(*) FI(FT06F001)
ALLOC FI(FT07F001) SYSOUT(A)
CALL IGLOO(TEMPNAME)
FREEALL
```

Figure 2: Sample CLIST

2.4 Giving Appropriate Responses to the Program-Generated Prompts

Section 3.3 of the User's Manual gives detailed instructions on how to respond to the program-generated prompts. These instructions will not be repeated here. For easy reference, Figure 3 shows a sample terminal session. In Figure 3 sample program-generated prompts appear in capital letters and sample user responses appear in small letters. Also, those portions of the program-generated prompts which would not be displayed under minimum prompting are enclosed in brackets.

```
SEEK IGLOO LIFE CYCLE COST MODEL

MINIMUM OR MAXIMUM PROMPTING (MIN OR MAX)-?

max

OUTPUT AT TERMINAL (Y OR N)-?

y

OUTPUT ON OFF-LINE PRINTER (Y OR N)-?

y

SUBMIT A TITLE FOR THIS RUN:

first run


SET EXIT=1 IN EITHER NAMELIST IF YOU WANT TO EXIT.


NAMELIST /GO/ CONTAINS ALL VARIABLES FOUND IN THE INPUT
FILES.  AT THIS POINT, NAMELIST /GO/ VARIABLES CONTAIN
VALUES AS IN THE INPUT FILES.  TO USE THESE VALUES, SUBMIT AN
EMPTY NAMELIST /GO/.  TO OVERRIDE ANY OF THESE VALUES, SUBMIT A
NON-EMPTY NAMELIST /GO/.

SUBMIT NAMELIST /GO/ IN NAMELIST FORMAT:

 $go uc(2)=275, fac(1)=3000, qpa(5)=0 $end


NAMELIST /SENS/ CONTAINS VARIABLES THAT CONTROL THE DISPLAY OF
THE SENSITIVITY ANALYSIS.  AT THIS POINT, THE TERMINAL DISPLAYS
SENSITIVITY WITH RESPECT TO ONLY GLOBAL FAILURE RATE (K) AND
GLOBAL EQUIPMENT COST (XUC FACTOR).  FOR THE SAME TERMINAL
DISPLAY, SUBMIT AN EMPTY NAMELIST /SENS/.  FOR A DIFFERENT
TERMINAL DISPLAY, SUBMIT A NON-EMPTY NAMELIST /SENS/.
```

Figure 3: Sample User Terminal Interactive Sequence

```
SUBMIT NAMELIST /SENS/ IN NAMELIST FORMAT:

 $sens ldfr=6, ldmci=6, ldsrts=6 $end


LCC COMPLETED.

IF YOU WISH TO EXIT, HIT -E-, THEN HIT -RETURN-; OTHERWISE,
ADJUST TERMINAL TO NEW PAGE AND HIT -RETURN-.


                    (LCC OUTPUT TABLE)

IF YOU WISH TO EXIT, HIT -E-, THEN HIT -RETURN-; OTHERWISE,
ADJUST TERMINAL TO NEW PAGE AND HIT -RETURN-.

                (SENSITIVITY ANALYSIS TABLE)

ANOTHER RUN (Y OR N)-?

y

AT THIS POINT, VARIABLE VALUES ARE AS THEY WERE AFTER THE LAST
NAMELISTS WERE SUBMITTED.  DO YOU WISH TO RESET NAMELIST /GO/
VARIABLES TO THE VALUES FOUND IN THE INPUT FILES (Y OR N)-?

n

MINIMUM OR MAXIMUM PROMPTING (MIN OR MAX)-?

max

OUTPUT AT TERMINAL (Y OR N)-?

y

OUTPUT ON OFF-LINE PRINTER (Y OR N)-?

y
```

Figure 3: Sample User Terminal Interactive Sequence (Continued)

```
SUBMIT A TITLE FOR THIS RUN:

second run


SET EXIT=1 IN EITHER NAMELIST IF YOU WANT TO EXIT.

NAMELIST /GO/ CONTAINS ALL VARIABLES FOUND IN THE INPUT FILES.
AT THIS POINT, NAMELIST /GO/ VARIABLES ARE AS THEY WERE AFTER
THE LAST NAMELIST /GO/ WAS SUBMITTED.  TO USE THESE VALUES,
SUBMIT AN EMPTY NAMELIST /GO/.  TO OVERRIDE ANY OF THESE
VALUES,SUBMIT A NON-EMPTY NAMELIST /GO/.

SUBMIT NAMELIST /GO/ IN NAMELIST FORMAT:

 $go $end

NAMELIST /SENS/ CONTAINS VARIABLES THAT CONTROL THE DISPLAY OF
THE SENSITIVITY ANALYSIS.  AT THIS POINT, THE TERMINAL
SENSITIVITY DISPLAY IS AS IT WAS ON THE PREVIOUS RUN.  FOR THE
SAME TERMINAL DISPLAY, SUBMIT AN EMPTY NAMELIST /SENS/.  FOR A
DIFFERENT TERMINAL DISPLAY, SUBMIT A NON-EMPTY NAMELIST /SENS/.

SUBMIT NAMELIST /SENS/ IN NAMELIST FORMAT:

 $sens finc=.20, ldfr=0 $end

LCC COMPLETED.

IF YOU WISH TO EXIT, HIT -E-, THEN HIT -RETURN-; OTHERWISE,
ADJUST TERMINAL TO NEW PAGE AND HIT -RETURN-.

                    (LCC OUTPUT TABLE)

IF YOU WISH TO EXIT, HIT -E-, THEN HIT -RETURN-; OTHERWISE,
ADJUST TERMINAL TO NEW PAGE AND HIT -RETURN-.

                (SENSITIVITY ANALYSIS TABLE)

ANOTHER RUN (Y OR N)-?

n
```

Figure 3: Sample User Terminal Interactive Sequence (Concluded)

SECTION III

SETTING UP THE LCC MODEL FOR BATCH RUNS

3.1 Overview of Section III

The purpose of this section is to instruct the maintenance programmer on how to set up the SEEK IGLOO LCC Model for batch runs. Section 3.2 explains why a user might want to run the LCC Model in a batch environment. Section 3.3 explains the file allocations required for a batch run and includes sample Job Control Language for running the program on an IBM 370/158 computer.

3.2 Why Run the Program in Batch Mode?

Batch execution of the LCC Model allows the user to run the LCC Model without having to spend a great deal of time at his terminal. Two types of users will want to run the LCC Model in batch mode: the user whose computer facility cannot run the program interactively; and the user who prefers the slower, more methodical, and usually less expensive characteristics of batch execution.

3.3 Setting Up a Batch Run

Appendix E of the SEEK IGLOO LCC Model User's Manual describes in detail the content of the data files needed for a batch run. This subsection supplies a general description of the content of the data files needed for a batch run, a description of the output files from a batch run, and a description of the JCL need for a batch run.

Figure 4 shows the LCC Model's configuration in batch mode (the word 'CHANNEL" in Figure 4 again refers to the data set reference number found in the FORTRAN code). The content of the five "standard" data files (Miscellaneous Scalar Inputs, Inputs by Support Equipment type, Inputs by Functional Area, LRU Equipment Inputs, and LRU Maintenance Inputs) is the same for a batch run as for an interactive run. A sixth input data file needs to be created for a batch run, however. It contains a listing of the responses to program-generated prompts which the user would have given had the user run the program interactively.

As with an interactive run, there are two output files from a batch run. One of the files (channel 7) should be assigned to the off-line printer. The other file (channel 6) can be assigned to one of three things: to a dummy file (in case the user requests off-line printing only); to a permanent-resident data set (if, for some reason, the user wishes to save the prompts and output that would have gone to the terminal

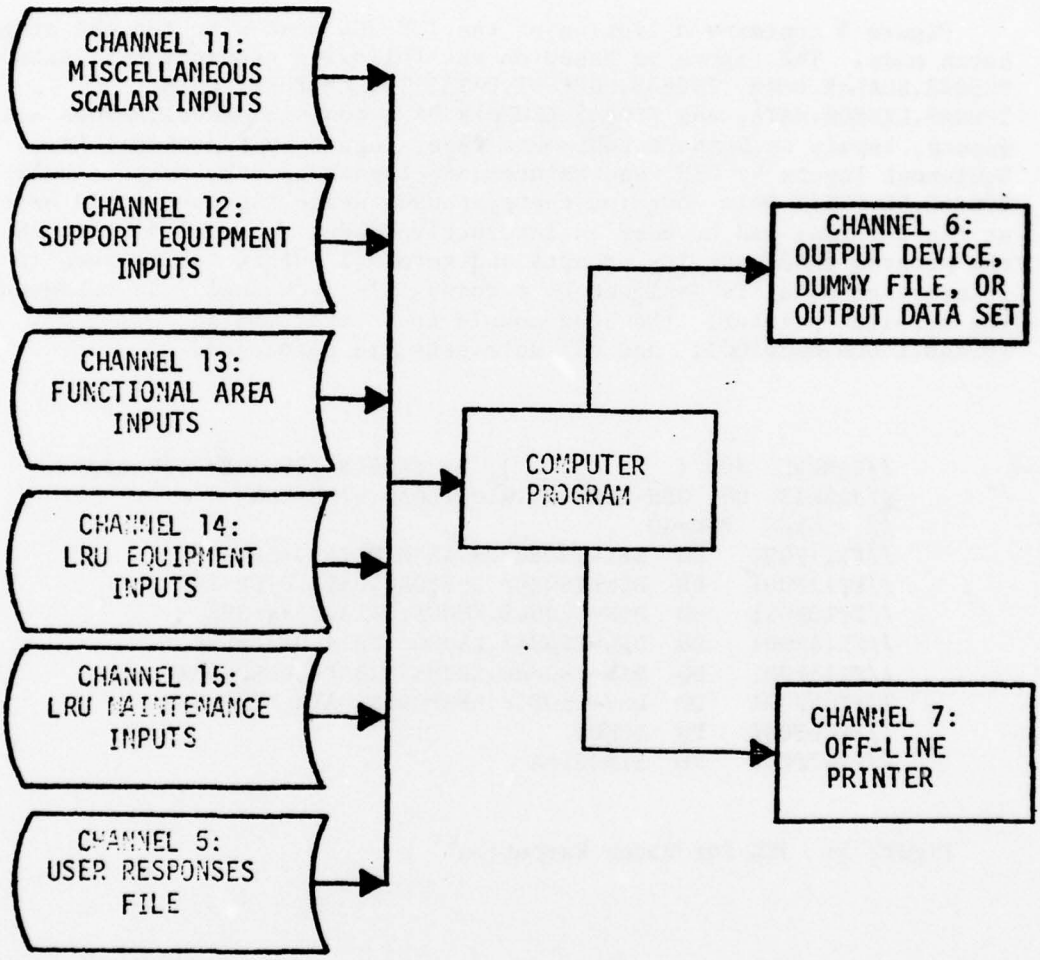


Figure 4: LCC Model's Configuration in Batch Mode

in interactive mode); or to a printing device (if the user wishes hard-copy of the prompts and output that would have gone to the terminal in interactive mode).

Figure 5 contains a listing of the IBM JCL needed to run the program in batch mode. The figure is based on the following assumptions: data sets TS0848.SCALAR.DATA, TS0848.SUPPORT.DATA, TS0848.FUNCT.DATA, TS0848.LRUEQU.DATA, and TS0848.LRUMAIN.DATA contain Miscellaneous Scalar Inputs, Inputs by Support Equipment type, Inputs by Functional Area, Equipment Inputs by LRU, and Maintenance Inputs by LRU, respectively; TS0848.RESPONSE.DATA contains the responses which the user would have typed at the terminal had he been in interactive mode; channel 6, through which the program sends out its prompts and terminal output tables when in interactive mode, is assigned to a dummy file; channel 7 is assigned to the off-line printer; the load module to be executed is TS0848.IGLOO.LOAD(GO); and all data sets are catalogued.

```
//SAMPLE  JOB (___,___,___),'H. SAMSON',REGION=256K,etc...
//JOBLIB  DD  DSN=TS0848.IGLOO.LOAD,DISP=SHR
//   EXEC  PGM=GO
//FT11F001   DD  DSN=TS0848.SCALAR.DATA,DISP=SHR
//FT12F001   DD  DSN=TS0848.SUPPORT.DATA,DISP=SHR
//FT13F001   DD  DSN=TS0848.FUNCT.DATA,DISP=SHR
//FT14F001   DD  DSN=TS0848.LRUEQU.DATA,DISP=SHR
//FT15F001   DD  DSN=TS0848.LRUMAIN.DATA,DISP=SHR
//FT05F001   DD  DSN=TS0848.RESPONSE.DATA,DISP=SHR
//FT06F001   DD  DUMMY
//FT07F001   DD  SYSOUT=A
```

Figure 5: JCL for Batch Execution

SECTION IV

DETAILED DESCRIPTION OF THE FORTRAN CODE

4.1 Overview of Section IV

The various subsections of Section IV each elaborate on a single aspect of the FORTRAN code. The discussions are meant to supplement, rather than duplicate, the extensive documentation found within the FORTRAN code. Section 4.2 comments on the code in general. Sections 4.3 to 4.12 each elaborate on a single subroutine or a related group of subroutines. Section 4.13 is concerned with the program's use of index numbers. Section 4.14 discusses the program's use of common blocks and includes a chart showing the correspondence between subroutines and common blocks. Finally, Section 4.15 contains a flow-chart of the program and a discussion of the flow-chart.

4.2 General Comments About the FORTRAN Code

The following general comments about the FORTRAN code might be helpful to the maintenance programmer.

1. The program was written in ANS (American National Standard: X3.9-1966) FORTRAN so that it would be compatible with as many machines as possible. The following characteristics exemplify the attempted compatibility:

    a. All mixed-mode arithmetic has explicit integer-to-real conversions.

    b. All variables take up a single word of memory (no Integer*2 or Real*8 variables).

    c. Characters are stored one character per memory location (hence, a 28-character string is stored in a 28-element array).

2. The code has a top-down structure that is depicted in the mini-flow chart of Figure 6. One pass through the loop in Figure 6 represents a single calculation of the LCC. The user can make multiple passes through the loop (thereby generating multiple calculations of the LCC) by successively responding 'y' to the prompt 'ANOTHER RUN (Y OR N)-?'.

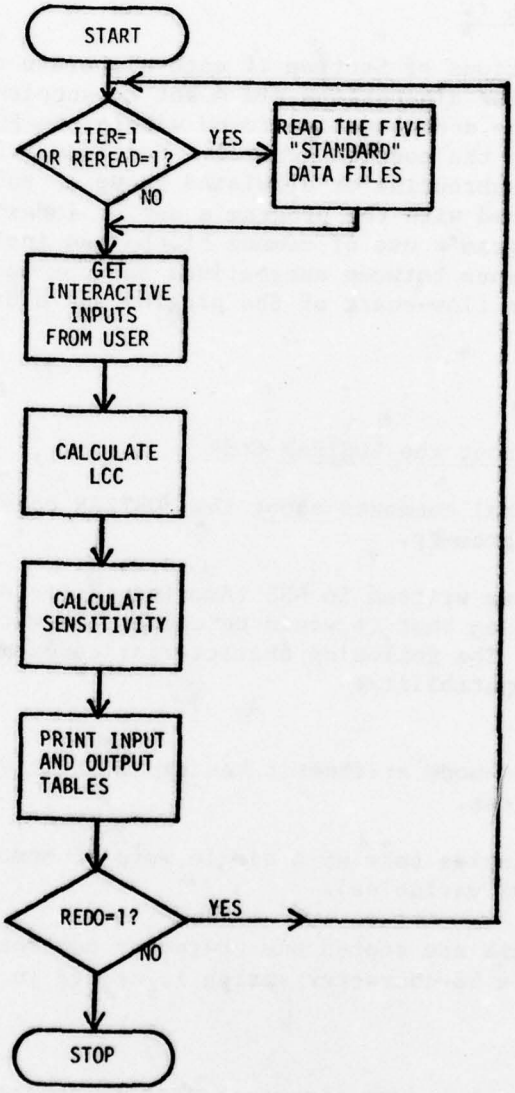


Figure 6: Mini-Flow Chart of LCC Model

3. The program is highly modular. The MAIN routine consists almost entirely of subroutine calls, with each subroutine performing a single function. For instance, for each of the five data files that must be read, there is a single subroutine which does nothing but read the given data file and check for index number errors. Similarly, for each cost element there is a single subroutine that does nothing but calculate the given cost element.

4. The program has extensive in-line comments. The maintenance programmer should have little difficulty determining the intent of any particular block of code.

4.3 Initialization Routines (SNSSET and INITAL)

Subroutine SNSSET initializes the parameters which control the Sensitivity Analysis printout (refer to subsection 4.10 for a discussion of the Sensitivity Analysis). LDERV is set to 12; FINC is set to .1; all other control parameters (LDFR, LDUC, LDWOR, LDFPR, LDCMH, LDDMH, LDRM, LDSRTS, LDCRTS, LDDRTS, LDMCI) are set to zero. These initial values cause:

1. the "default" off-line Sensitivity Analysis printout to show the 12 most significant sensitivity calculations for each LRU-indexed parameter which is subject to Sensitivity Analysis.

2. the "default" user terminal Sensitivity Analysis printout to show Sensitivity calculations only with respect to the K-factor and the XUC-factor.

For off-line output and for terminal output, the "default" printout is displayed unless the user gives specific interactive instructions through NAMELIST /SENS/ (Namelist /SENS/ contains parameters that control the Sensitivity Analysys printout).

Certain other non-sensitivity analysis variables are given initial values in subroutine INITAL. The variables which are initialized in subroutine INITAL include MAXHRS, MAXFA, MAXLR, MAXSE, CONFLO, FAC(.), NSES(j), NSEC(j), NSED(j), UC(i), FPR(i), CMH(i), DMH(i), RM(i), MCI(i), QPA(i), and MTBI(i).

4.4 Prompting Routines (PRMPT1 to PRMPT5)

PRMPT1 to PRMPT5 are subroutines that send prompts to the user and receive the user's responses.

PRMPT1 sets variables MAXPMT, PRNT, and REREAD. MAXPMT is set to 1 if the user responds 'min' to the prompt: "MINIMUM or MAXIMUM PROMPTING (MIN OR MAX) -?". PRNT is set according to the user's responses to the prompt: "OUTPUT AT TERMINAL (Y OR N) -?" and "OUTPUT ON OFFLINE PRINTER(Y OR N) -?". It receives the value 0 if the user requested terminal output only; 1 for off-line output only; and 2 for both terminal and off-line output. If the user answered 'n' to both questions, PRNT=0. REREAD is set to 1 on the second and subsequent runs if the user responds 'y' to the prompt: "DO YOU WISH TO RESET NAMELIST /GO/ VARIABLES TO THE VALUES FOUND IN THE INPUT FILES (Y OR N) -?". REREAD is not relevant on the first run of the LCC.

PRMPT2 asks the user to submit NAMELISTs /GO/ and /SENS/. NAMELIST /GO/ contains LCC inputs. The values which are inputted through NAMELIST /GO/ override the values found in the five "standard" data files (or the values used in the previous pass if this pass is not the first and if the user did not choose to reread the five "standard" data files at the start of this pass). Namelist /SENS/ contains parameters that control the Sensitivity Analysis printout.

PRMPT3 tells the user that the LCC has been completed and allows the user to adjust the terminal to a new page before Output Table 1 is printed. PRMPT4 is called if the user requested terminal printing. It allows the user to adjust the terminal to a new page before the Sensitivity Analysis printout. PRMPT5 asks the user if another run is desired.

The user can exit from the program in PRMPT2 by setting EXIT=1 in either namelist. The user can exit from PRMPT3 or PRMPT4 by hitting "e" and then carriage return in response to the program-generated message. These escapes send the program to PRMPT5.

Maximum prompting gives the user a longer, more descriptive set of program-generated prompts. Max-prompting can be switched to min-prompting on subsequent passes within a single interactive session, whereas a switch from min-prompting to max-prompting is not possible.

4.5 Read Routines (READ1 to READ5)

Each of the READ subroutines reads a single input file and checks for index number errors. The correspondence is as follows:

READ1 reads UNIT 11: Miscellaneous Scalar Inputs
READ2 reads UNIT 12: Support Equipment Inputs
READ3 reads UNIT 13: Functional Area Inputs
READ4 reads UNIT 14: LRU Equipment Inputs
READ5 reads UNIT 15: LRU Maintenance Inputs

The proper formatting of data within each of the above input files is described in detail in Section 3.2 of the User's Manual. In particular,

the data inputs in UNITS 12 through 15 are ordered on the basis of their index numbers. The rules governing the use of index numbers on these data input files are explained in Section 3.2 of the User's Manual and in Section 4.13 of this document.

4.6 Data Input Value Error Checks (ERRCHK)

Additional error checks involving the values of data parameters are performed by subroutine ERRCHK. Two types of errors are possible: warning and fatal. If an error is found, the program generates a message and increments the appropriate internal counter (IWARN for a warning error; IERROR for a fatal error). A warning error results in a warning message and in the assigning of a default value to the error-generating parameter; a fatal error results in an error message and no calculation of the LCC (the program skips the LCC calculation by jumping to PRMPT5). Section 3.3.1 of the User's Manual contains a list of the data input value error messages.

4.7 Auxiliary Variable Routines (AUXIL1 to AUXIL5)

All auxiliary variables are calculated according to the equations found in Appendix B of the SEEK IGLOO User's Manual. The only complex routines involve the calculations of Z, STK1, and STK, which are done in subroutine AUXIL5.

AUXIL5 calculates Z from the value the user gives to confidence factor CONF. Z is the approximate upper limit on the integral of the standard normal distribution such that the value of the definite integral from negative infinity to Z equals CONF. The integral is approximated using the trapezoidal rule.

The stocking factors (STK1 and STK) are calculated according to the equations in Section C.4 of the User's Manual. The User's Manual assumes convergence of the series 1.1 in Section C.4. However, if the series doesn't converge after 200 iterations, the program generates an error message.

4.8 Cost Element Routines (COST1 to COST10)

Subroutines COST1 to COST10 each calculate a single cost element of the LCC. The program calculates these cost elements according to their equations as given in Appendix C of the User's Manual.

4.9 Non-Cost Routine (NONCOS)

NONCOS calculates certain variables not used in the LCC calculations. These variables have to do with maintenance man-hours and, although they are not of interest in terms of dollars, they are still of interest in determining whether certain maintenance constraints have been met. Variables CLH, PMFA(j), SMMH, SPMH, and STMH are calculated in NONCOS. CLH, SMMH, SPMH, and STMH are checked against certain maintenance man-hour constraints in subroutine OTAB1. If they fail the required test, OTAB1 generates an error message. PMFA(j) is the annual preventive maintenance man-hours expended at each radar site within Functional Area j. It is one of the outputs in Output Table 4.

4.10 Sensitivity Analysis Routines (DXUC to DMCI, CHCALC, TDSORT, and OSENS)

Subroutines DXUC, DFR, DK, DUC, ..., DMCI each calculate the Sensitivity of the LCC with respect to a single parameter (XUC, FR(i), K, UC(i), ..., MCI(i), respectively). Subroutine OSENS prints the Sensitivity Analysis results. Except for DXUC and DK, these calculations are indexed by LRU type.

The Sensitivity of LCC with respect to a given parameter xxx is the average change in LCC which results from a given change in the value of parameter xxx. In effect, these calculations are equivalent to computing derivatives. Hence, in the internal program documentation, the sensitivity (or change) in LCC with respect to a given parameter xxx is referred to as "the derivative of LCC with respect to parameter xxx." In particular, the sensitivity of LCC with respect to a given parameter xxx is assigned to the variable TDxxx. Also, the value of the variable FINC equals the fractional increase in each parameter which is used to calculate each resulting change in LCC.

For example, if FINC=.1, then in the sensitivity calculation with respect to the parameter FPR for LRU type 10, the value of TDFPR(10) equals the approximate change in LCC that would result from a 10% increase in the false-pull-rate of LRU type 10.

The Sensitivity Analysis calculations are the most complex part of the program. The following comments supplement the Sensitivity Analysis description that is found in Appendix D of the User's Manual.

1. Naming Conventions - Naming conventions for the Sensitivity Analysis are as follows: the subroutines that calculate Sensitivity with respect to xxx have the form Dxxx (such as DXUC, DFR, DK, ..., DMCI); the variables (usually arrays) which hold the actual value of the derivative (i.e., sensitivity) have the form TDxxx (such as TDXUC, TDFR(i), TDK, ..., TDMCI(i)); the variable which tells the number of "most significant" derivatives of each type that the user wishes to be printed on the off-line printer is called LDERV; the variables which tell the number of

"most significant" derivatives of type xxx which the user wishes to see at the terminal (or on the off-line output if it exceeds LDERV) have the form LDxxx (such as LDFR, LDUC, ..., LDMCI); the variables which hold the sorted index numbers (the index number of the most significant derivative to the index number of the least significant derivative) have the form IDxxx (such as IDFR(i), IDUC(i), ..., IDMCI(i)); and, for certain parameters (WOR(i), SRTS(i), CRTS(i), DRTS(i), MCI(i)), the variables which hold the change in the parameter to which the projected LCC change corresponds have the form WF(i), SFSRTS(i), CFCRTS(i), DFDRTS(i), MCIC(i), respectively.

2. Sensitivity Analysis Printout - LDERV and the LDxxx variables control the printout of the Sensitivity Analysis calculations with respect to all parameters which are indexed by LRU type (only sensitivity with respect to K-factor and XUC-factor are not indexed by LRU type). These variables are initialized in subroutine SNSSET and are updated by user inputs through NAMELIST /SENS/ in subroutine PRMPT2. Sensitivity output at the terminal consists of global sensitivity with respect to both the K-factor and XUC-factor plus whatever additional sensitivity calculations which the user requests through NAMELIST /SENS/. The additional output depends on the values of the LDxxx variables (part 1 above describes the significance of the LDxxx variables). Sensitivity output on the off-line printer consists of global sensitivity with respect to the XUC-factor and the K-factor plus the LDERV "most significant" derivatives with respect to each of the other parameters (unless any particular LDxxx values exceed LDERV, in which case LDxxx derivatives would be printed off-line for factor xxx).

3. Skipping Sensitivity Analysis Subroutines - In general, if no sensitivity output is requested for a particular sensitivity parameter type, then the corresponding subroutine is not called. Exceptions are subroutines DXUC, DK, and DFR. Subroutines DXUC and DK are always called because TDXUC and TDK are always printed. Subroutine DFR is always called because TDFR(i) is used to calculate TDK.

4. Number of Sensitivity Outputs Per Line of Output - For any particular LRU-indexed parameter, 6 sensitivity values are printed per line of output at the terminal; 12 values per line appear in the off-line printout.

5. Subroutine CHCALC - Subroutines DWOR, DSRTS, DCRTS, and DDRTS call subroutine CHCALC to calculate the changes in LCC with respect to the parameters WOR(i), SRTS(i), CRTS(i), and DRTS(i), respectively. For each LRU type, the calling routine assigns values to variables CF, DF, SF, CCF, DCF, and SCF, which represent the changes in the internally calculated (in subroutine AUXIL1)

data parameters CRTS(i), DRTS(i), SRTS(i), CCOND(i), DCOND(i), and COND(i), respectively. Subroutine CHCALC then uses these variables as parameters to calculate CHLCC, which is returned to the calling routine to be used as the computed change in LCC. Variables CF, DF, SF, CCF, DCF, SCF and CHLCC are passed through common block CHLCC.

6. Subroutine TDSORT - For those subroutines which calculate sensitivity indexed by LRU type, the subroutine (Dxxx) first calculates sensitivity of LCC with respect to factor xxx for all LRU types. Then the subroutine calls subroutine TDSORT, which bubbles up to the top of array IDxxx the index numbers of the LRU types for which LCC is most sensitive for factor xxx. To save on execution time, only LLL index numbers are actually bubbled up to the top of array IDxxx, where LLL=max(# of off-line outputs for factor xxx,# of terminal outputs for factor xxx).

4.11 Printouts (ITAB1 to ITAB5 and OTAB1 to OTAB5 and OSENS).

Each subroutine in this group produces a single table of the LCC Model output (see Appendix F of the User's Manual for a sample off-line output listing). Terminal output consists only of Output Table 1 (OTAB1) and the Sensitivity Analysis Table (OSENS). Off-line output consists of Input Tables 1 to 5 (ITAB1 to ITAB5), Output Tables 1 to 5 (OTAB1 to OTAB5), and the Sensitivity Analysis Table (OSENS). The input tables print the data that was used to calculate the LCC. The output tables show the result of the LCC Model's calculations.

Besides these tables, certain other outputs may be sent to either the terminal or off-line printer. Input error messages are printed at the terminal (always) and on the off-line printer (if off-line output was chosen). Input error messages are generated by the read subroutines (READ1 to READ5) and by subroutine ERRCHK. They are printed before the input and output tables. Maintenance man-hour constraint error messages accompany the LCC output whenever the constraints are not met. Maintenance man-hour error messages are generated by OTAB1.

4.12 Debugging Routines (APRINT and DPRINT)

Two FORTRAN debugging subroutines can be included in the program by adding two call statements to the program (CALL APRINT and CALL DPRINT) after the calls of the Sensitivity Analysis subroutines. APRINT prints the values of all auxiliary variables and cost elements. DPRINT prints the values of all Sensitivity Analysis variables.

4.13 Index Numbers

The following comments concern index numbers used with the five standard data input files (see Section 4.5 above):

1. The Unit 13 index numbers (Functional Area Inputs) must be consecutive starting with 1.

2. The Unit 12, 14, and 15 index numbers (Support Equipment Inputs, LRU Equipment Inputs, and LRU Maintenance Inputs) must be increasing, although gaps are allowed. The largest index number cannot exceed a pre-assigned maximum value (150, 200, and 200, respectively).

3. The Unit 14 file (LRU Equipment Inputs) and the Unit 15 file (LRU Maintenance Inputs) must have identical sequences of index numbers.

4. Calculations by LRU and Support Equipment type have loops from 1 to the largest respective index number. Missing items are skipped due to zero values in the quantity arrays (QPA(i) for LRUs; NSEC( ), NSES( ), and NSED( ) for Support Equipment).

4.14 Common Blocks

The following common block conventions were used when programming the LCC Model:

1. A single common block holds all data read from a particular READx subroutine (common blocks RD1 to RD5 correspond to subroutines READ1 to READ5).

2. A single common block holds all of the auxiliary variables that were calculated in a single auxiliary variables subroutine (common blocks AUX1 to AUX5 correspond to subroutines AUXIL1 to AUXIL5).

3. A single common block holds all cost element summation variables for a single cost element (common blocks C1 to C10 correspond to subroutines COST1 to COST10).

4. A single common block holds all variables having to do with a particular Sensitivity Analysis subroutine (common blocks TDXUC to TDMCI correspond to subroutines DXUC to DMCI).

5. The other common blocks escape convention: CNTL holds various program-flow parameters; TITL holds the identifying title of a particular LCC pass; ERROR holds the variables that count the

number of error messages generated; INIT holds miscellaneous internally set variables which never change value; SENS holds the Sensitivity Analysis control parameters; and CHLCC holds parameters which are passed to and from subroutine CHGALC.

The dimensioning of the elements of the various common blocks is worth noting. All variables which are indexed by LRU are dimensioned to 200 (common blocks which contain elements which are dimensioned by LRU include RD4, RD5, AUX1-5, C2, C3, C4, C9, and TDFR-TDMCI); all variables which are indexed by support equipment type are dimensioned to 150 (common blocks which contain arrays that are dimensioned by support equipment type include RD2); all variables which are indexed by functional area type are dimensioned up to 10 (common blocks which contain arrays which are dimensioned by functional area type include RD3 and NONCOS). Figure 7 contains a cross-reference chart showing the correspondence between subroutines and common blocks.

SUBROUTINE	COMMON BLOCKS
MAIN	ALL COMMON BLOCKS
SNSSET	SENS
PRMPT1	CNTL,TITL
PRMPT2	CNTL,RD1,RD2,RD3,RD4,RD5,SENS
PRMPT3	CNTL
PRMPT4	CNTL
PRMPT5	CNTL
TITLE	TITL
INITAL	INIT,RD1,RD2,RD4,RD5
READ1	RD1
READ2	CNTL,ERROR,INIT,RD2
READ3	CNTL,ERROR,INIT,RD2
READ4	CNTL,ERROR,INIT,RD4
READ5	CNTL,ERROR,INIT,RD4,RD5
ITAB1	RD1
ITAB2	RD2
ITAB3	RD3
ITAB4	RD4
ITAB5	INIT,RD4,RD5
ERRCHK	CNTL,ERROR,INIT,RD1,RD4,RD5
AUXIL1	RD4,RD5,AUX1
AUXIL2	RD1,RD4,RD5,AUX2
AUXIL3	RD4,RD5,AUX1,AUX2,AUX3
AUXIL4	RD1,RD4,RD5,AUX1,AUX2,AUX4
AUXIL5	CNTL,INIT,RD1,RD4,RD5,AUX2,AUX4,AUX5
COST1	RD1,C1
COST2	RD1,RD4,AUX2,AUX3,AUX5,C2
COST3	RD1,RD4,AUX4,AUX5,C3
COST4	RD1,RD4,AUX1,AUX2,C4
COST5	RD1,C5
COST6	RD1,RD2,C6
COST7	RD1,C7
COST8	RD1,C8
COST9	RD1,RD4,AUX1,C9
COST10	RD1,RD3,C10
NONCOS	RD1,RD3,RD4,RD5,AUX1,AUX2,AUX3,AUX5,NCOS
DXUC	RD1,SENS,C3,C4,TDXUC
DFR	CNTL,RD1,RD4,RD5,SENS,AUX1,AUX2,AUX3,AUX4, AUX5,TDFR
DK	RD4,TDFR,TDK
DUC	CNTL,RD1,RD4,SENS,AUX1,AUX2,AUX4,AUX5,TDUC
DWOR	CNTL,RD4,RD5,SENS,AUX1,CHLCC,TDWOR
DFPR	CNTL,RD1,RD4,RD5,SENS,AUX1,AUX2,AUX4,AUX5, TDFPR
DCMH	CNTL,RD1,RD4,RD5,SENS,AUX1,AUX2,TDCMH
DDMH	CNTL,RD1,RD4,RD5,SENS,AUX1,AUX2,TDDMH
DRM	CNTL,RD1,RD4,SENS,AUX1,AUX2,TDRM
DSRTS	CNTL,RD4,SENS,AUX1,CHLCC,TDSRTS
DCRTS	CNTL,RD4,SENS,AUX1,CHLCC,TDCRTS

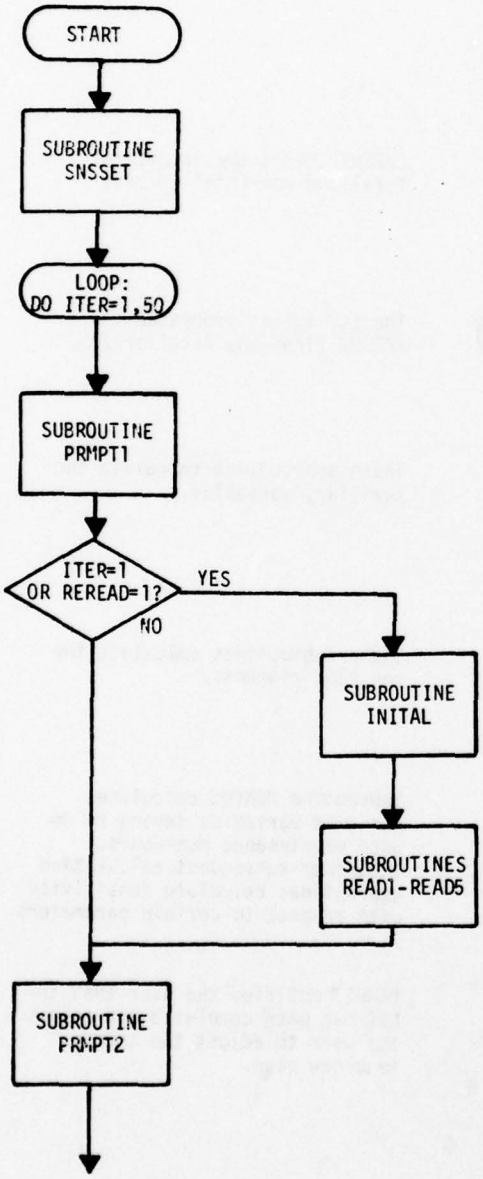
Figure 7: Correspondence Between Common Blocks and Subroutines

DDRTS	CNTL,RD4,SENS,AUX1,CHLCC,TDDRTS
DMCI	CNTL,RD1,RD4,SENS,AUX2,AUX5,TDMCI
CHCALC	RD1,RD4,RD5,AUX2,AUX4,AUX5,CHLCC
TDSORT	none
OTAB1	CNTL,RD1,NCOS,AUX3,C1,C2,C3,C4,C5,C6,C7, C8,C9,C10
OTAB2	RD4,C2,C3,C4,C9
OTAB3	C2,C3,C4,C5,C6,C7,C8,C9,C10
OTAB4	RD3,NCOS,C10
OTAB5	RD4,AUX5
OSENS	CNTL,RD4,RD5,SENS,TDXUC,TDFR,TDK,TDUC,TDWOR, TDFPR,TDCMH,TDDMH,TDRM,TDSRTS,TDCRTS,TDDRTS, TDMCI

Figure 7: Correspondence Between Common Blocks and Subroutines (Concluded)

4.15 Flow Chart

Figure 8 contains a detailed flow-chart of the computer program. On the left of the figure is the actual flow of the program from subroutine to subroutine. The comments on the right side of the figure describe the functions of the various subroutines.



SNSSET initializes sensitivity analysis variables.

One pass through the loop calculates a single LCC estimate.

If ITER>1 PRMPT1 asks the user whether to reread the five "standard" data files. In any case, PRMPT1 asks the user the destination of the output and whether minimum or maximum prompting is to be used.

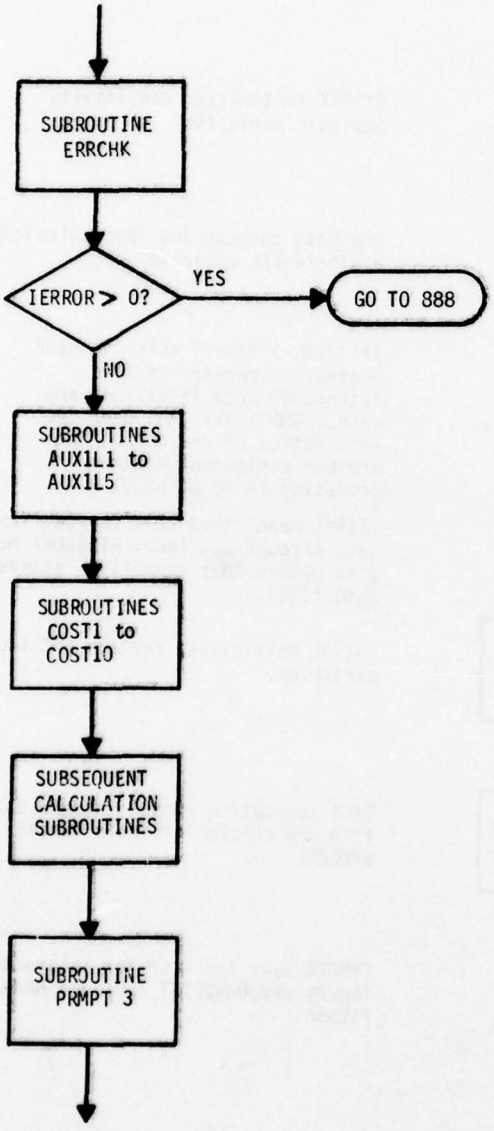
ITER=1 means that this is the first pass through LCC loop; REREAD=1 means user wishes to reread five "standard" data files.

INITAL initializes certain LCC input variables.

Each subroutine reads a single data file and checks for index number errors.

PRMPT2 asks the user for interactive inputs via NAMELIST /GO/ and NAMELIST /SENS/.

Figure 8: Flow-Chart of Computer Program (Page 1 of 3)



ERRCHK checks the inputs for fatal and non-fatal errors.

The LCC is not processed if ERRCHK finds any fatal errors.

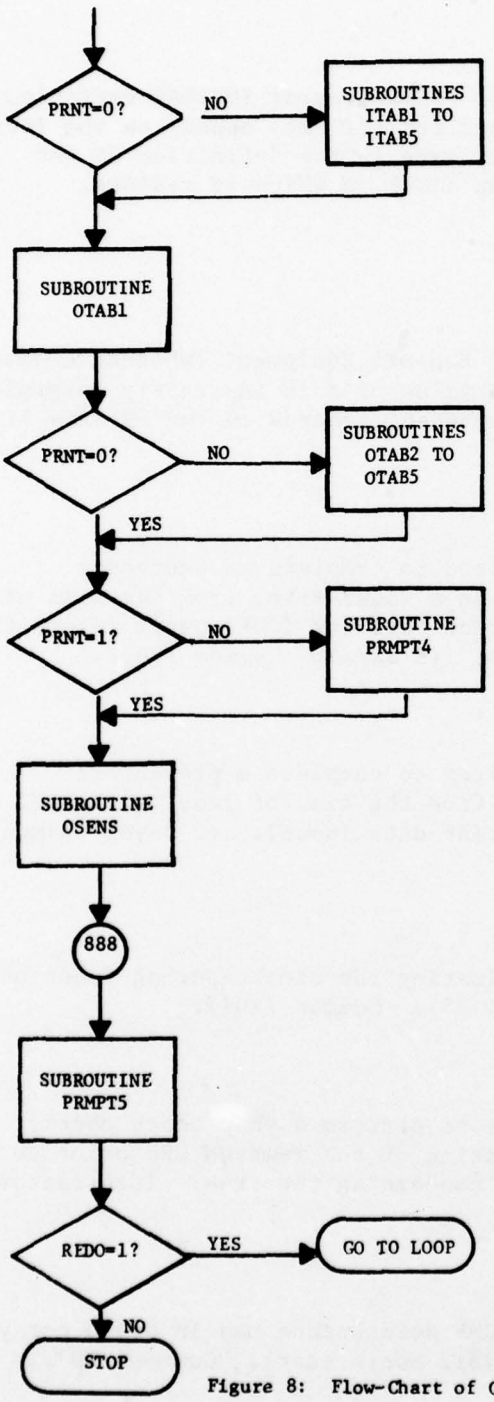
These subroutines calculate the auxiliary variables.

These subroutines calculate the ten cost elements.

Subroutine NONCOS calculates non-cost variables having to do with maintenance man-hours. The other subsequent calculation subroutines calculate sensitivity with respect to certain parameters.

PRMPT3 notifies the user that the LCC has been completed and allows the user to adjust the terminal to a new page.

Figure 8: Flow-Chart of Computer Program (Page 2 of 3)



If the user requested off-line output, print Input Tables 1 to 5 on the off-line printer.

OTAB1 prints the LCC summary output table at the terminal and/or on the off-line printer.

If the user requested off-line output, print Output Tables 2 to 5 on the off-line printer.

If the user requested output at the terminal, allow the user to adjust the terminal to a new page before the sensitivity analysis output.

OSENS prints the results of the sensitivity analysis at the terminal and/or on the off-line printer.

PRMPT5 asks the user whether another run is desired.

REDO=1 means the user wants another run.

Figure 8: Flow-Chart of Computer Program (Page 3 of 3)

APPENDIX A: GLOSSARY

The following glossary defines all consequential FORTRAN variables. The name of the variable and its subscripts (if any) appear on the left. Below and to the right of the variable name is the definition of the variable and a reference to the common block in which it resides.

A

number of different types of Support Equipment (whether common or peculiar) at all levels [the value of A is implicitly determined by the LCC Model from the number of records in the SE data file]. Common /RD1/.

ADCM

average number of days required to complete an emergency corrective maintenance trip to a radar site, from the time of leaving the central maintenance facility (CMF) until return to the CMF. [Government data input] (3 days). Common /RD1/.

ADPM

average number of days required to complete a preventive maintenance trip to a site, from the time of leaving the CMF until return to the CMF. [Government data input]. (2 days) Common /RD1/.

B

the coefficient used in evaluating the stock sparing function F. [Government data input] (1.65). Common /RD1/.

BCMH(i)

average manhours at the site to perform a shop bench check, screening and fault verification of the removed LRU prior to initiating repair action or condemning the item. [Contractor data input]. Common /RD5/.

CAA

available working time per CMF maintenance man in hours per year [Government data input] (1512 hours/year). Common /RD1/.

CADRE

number of personnel from the AAC radar squadron who are designated to perform maintenance training over the lifetime of the system. [Government data input] (10). Common /RD1/.

CAS(i)

average number of LRUs of type i in the central maintenance facility (CMF) pipeline, i.e., the expected number of demands at the CMF on supply for LRU type i over the average CMF repair pipeline time. (Auxiliary variable). Common /AUX4/.

CBCMH(i)

average manhours at the CMF to perform a shop bench check, screening and fault verification of a removed LRU of type i. (This time is assumed to be the same for a falsely pulled LRU as for a failed LRU.) [Contractor data input] Common /RD5/.

CCF

the change in the value of CCOND(i) as computed in subroutines DWOR,DSRTS,DCRTS, and DDRTS. The parameter CCF is sent to subroutine CHCALC where the resulting change in LCC is computed. Common /CHLCC/.

CCLH(i)

average number of manhours expended by CMF personnel in corrective maintenance performed at the CMF on LRU type i per year. (Auxiliary variable) Common /AUX3/.

CCMP

average number of CMF personnel required for an emergency corrective maintenance trip to a radar site. [Contractor data input] Common /RD1/.

CCOND(i)

fraction of failed (and removed) LRUs which are condemned at the CMF, due to wear-out. [Auxiliary variable] Common /AUX1/.

CDR

daily labor rate for CMF personnel on a maintenance trip to a radar ste. [Government data input] ($160 per day) Common /RD1/.

CDWH

working hours per day credited to each CMF personnel on a maintenance trip to a site. [Government data input] (8 hours) Common /RD1/.

CF

the change in the value of CRTS(i) as computed in subroutines DWOR,DSRTS,DCRTS, and DDRTS. The parameter CF is sent to subroutine CHCALC where the resulting change in LCC is computed. Common /CHLCC/.

CFCRTS(i)

change in CMF repair fraction (CRTS(i)) for LRU i from which the resulting change in LCC (TDCRTS(i)) is calculated. Common /TDCRTS/.

CHLCC

the Sensitivity Analysis variable that represents the change in total LCC that results from a fractional change in any of the factors SRTS(i), CRTS(i), DRTS(i), or WOR(i). This variable is computed internally in the Sensitivity Analysis component of the LCC Model in subroutine CHCALC and is passed back to the calling subroutine (DWOR,DSRTS,DCRTS, or DDRTS). Common /CHLCC/.

CLH

yearly total maintenance manhours expended by CMF personnel [Internally computed variable] Common /RD1/.

CLR

hourly labor rate at the CMF for radar maintenance personnel [Government data input] ($13.97 per hour) Common /RD1/.

CMH(i)

average manhours to perform corrective maintenance at the CMF on a failed LRU of type i, including fault isolation, repair and verification. [Contractor data input] Common /RD5/.

COC( )

same as COS( ), except refers to the CMF; not applicable if NSEC( )=0. [Contractor data input] Common /RD2/.

COD( )

same as COS( ) except refers to@the depot; not applicable if NSED( )=0. [Contractor data input] Common /RD2/.

COND(i)

fraction of failed (and removed) LRUs of type i which are condemned at the site. (Here we only allow either COND(i)=0 or COND(i)=1, depending on the repair level RL(i).) [Auxiliary variable] Common /AUX1/.

CONF

confidence factor (the probability that the stock of a given LRU type will last from one resupply trip to the next). [Government data input] (.98) Common /RD1/.

CONFLO

default value of CONF. If user submits a value for CONF that is less than CONFLO, a warning message is printed and CONF gets assigned the value of CONFLO. CONFLO is set to .84134 in subroutine INITAL. Common /INIT/.

COS( )

annual cost to operate and maintain one piece of Support Equipment of type at a site, expressed as a fraction of the unit cost (SEC( )); not applicable if NSEC( )=0. [Contractor data input] Common /RD2/.

CPMI

the shortest preventive maintenance interval for CMF personnel trips to a radar site (in hours). [Contractor data input] Common /RD1/.

CPMP

average number of CMF personnel required on a scheduled preventive maintenance trip to a radar site. [Contractor data input] Common /RD1/.

CPWT

manpower cost per unit weight (pound) affected by enhancement (or fixup), based upon an aggregate to include both hardware ECPs and the physical aspects of the reprogramming of firmware. [Contractor data input] Common /RD1/.

CRCT

CMF repair cycle time (in weeks) for an LRU from removal at the site of the failed (or falsely pulled) item until it is returned to CMF serviceable stock. [Government data input] (1.43 weeks) Common /RD1/.

CRTS(i)

fraction of failed (and removed) LRUs of type i which are repaired at the CMF. [Auxiliary variable] Common /AUX1/.

CRTS1(i)

the fraction of failed LRUs of type i which are to be repaired at the CMF under repair level RL(i)=1. [Contractor data input] Common /RD5/.

CRTS2(i)

the fraction of failed LRUs of type i which are to be repaired at the CMF under repair level RL(i)=2. [Contractor data input] Common /RD5/.

C1

total cost of Cost Element 1. Common /C1/.

C2

total cost of Cost Element 2. Common /C2/.

C2C

part of Cost Element 2 attributable to the CMF. Common /C2/.

C2D

part of Cost Element 2 attributable to the depot. Common /C2/.

C2L(i)

part of Cost Element 2 attributable to LRU type i. Common /C2/.

C2S

part of Cost Element 2 attributable to the radar sites. Common /C2/.

C3

total cost of Cost Element 3. Common /C3/.

C3C

part of Cost Element 3 attributable to the CMF. Common /C3/.

C3D

part of Cost Element 3 attributable to the depot. Common /C3/.

C3L(i)

part of Cost Element 3 attributable to LRU type i. Common /C3/.

C3S

part of Cost Element 3 attributable to the radar sites. Common /C3/.

C4

total cost of Cost Element 4. Common /C4/.

C4I

initial part of Cost Element 4. Common /C4/.

C4L(i)

part of Cost Element 4 attributable to LRU type i. Common /C4/.

C4R

recurring part of Cost Element 4. Common /C4/.

C5

total cost of Cost Element 5. Common /C5/.

C6

total cost of Cost Element 6. Common /C6/.

C6C

part of Cost Element 6 attributable to the CMF. Common /C6/.

C6D

part of Cost Element 6 attributable to the depot. Common /C6/.

C6I

initial part of Cost Element 6. Common /C6/.

C6R

recurring part of Cost Element 6. Common /C6/.

C6S

part of Cost Element 6 attributable to the radar sites. Common /C6/.

C7

total cost of Cost Element 7. Common /C7/.

C8

total cost of Cost Element 8. Common /C8/.

C8C

part of Cost Element 8 attributable to the CMF. Common /C8/.

C8D

part of Cost Element 8 attributable to the depot. Common /C8/.

C8I

initial part of Cost Element 8. Common /C8/.

C8R

recurring part of Cost Element 8. Common /C8/.

C8S

part of Cost Element 8 attributable to the radar sites. Common /C8/.

C9

total cost of Cost Element 9. Common /C9/.

C9C

part of Cost Element 9 attributable to the CMF. Common /C9/.

C9D

part of Cost Element 9 attributable to the depot. Common /C9/.

C9I

initial part of Cost Element 9. Common /C9/.

C9L(i)

part of Cost Element 9 attributable to LRU type i. Common /C9/.

C9R

recurring part of Cost Element 9. Common /C9/.

C9S

part of Cost Element 9 attributable to the the radar sites. Common /C9/.

C10

total cost of Cost Element 10. Common /C10/.

C10HW(j)

hardware part of Cost Element 10 which is attributable to functional area j. Common /C10/.

C10I

initial part of Cost Element 10. Common /C10/.

C10R

recurring part of Cost Element 10. Common /C10/.

C10SW(j)

software part of Cost Element 10 which is attributable to functional area j. Common /C10/.

DAA

available working time per depot maintenance man in hours per year. [Government data input] (1512 hours/year) Common /RD1/.

DAS(i)

average number of LRUs of type i in the depot pipeline, more precisely, the average number of repairable failures of LRU type i which are received by the depot over its average repair cycle time (DRCT). [Auxiliary variable] Common /AUX4/.

DBCMH(i)

average manhours at the depot to perform a shop bench check, screening and fault verification of a failed LRU of type i. [Contractor data input] Common /RD5/.

DCF

the change in the value of DCOND(i) as computer in subroutines DWOR,DSRTS,DCRTS, and DDRTS. The parameter DCF is sent to subroutine CHCALC where the resulting change in LCC is computed. Common /CHLCC/.

DCLH(i)

average number of hours expended by depot personnel in corrective maintenance on LRU type i per year. [Auxiliary variable] Common /AUX3/.

DCOND(i)

fraction of failed (and removed) LRUs of type i which are condemned at the depot, due to wear-out. [Auxiliary variable] Common /AUX1/.

DF

the change in the value of DRTS(i) as computed in subroutines DWOR,DSRTS,DCRTS, and DDRTS. The parameter is sent to subroutine CHCALC where the resulting change in LCC is computed. Common /CHLCC/.

DFDRTS(i)

change in depot repair fraction for LRU type i from which the resulting change in LCC (TDDRTS(i)) is calculated. Common /TDDRTS/.

DLH

average yearly number of manhours expended by depot personnel in corrective maintenance (total for all LRUs). [Auxiliary variable] Common /AUX3/.

DLR

hourly labor rate at the depot. [Government data input] ($15.52 per hour) Common /RD1/.

DMH(i)

average manhours to perform corrective maintenance at the depot on a failed LRU of type i, including fault isolation, repair and verification. [Contractor data input] Common /RD5/.

DRCT

depot repair cycle time, i.e., the time from when the CMF sends a repairable LRU to the depot until it is repaired and placed in depot serviceable stock (in weeks). [Government data input] (6 weeks) Common /RD1/.

DRTS(i)

fraction of failed (and removed) LRUs of type i which are repaired at the depot. [Auxiliary variable] Common /AUX1/.

DRTS1(i)

the fraction of failed LRUs of type i which are to be repaired at the depot (Sacramento ALC) under repair level RL(i)=1. [Contractor data input] Common /RD5/.

DRTS2(i)

the fraction of failed LRUs of type i which are to be repaired at the depot under repair level RL(i)=2. [Contractor data input] Common /RD5/.

DRTS3(i)

the fraction of failed LRUs of type i which are to be repaired at the depot under repair level RL(i)=3. [Contractor data input] Common /RD5/.

DS

fraction of radar system incidents (demands for maintenance action) detected automatically, including those met by repair in place, and those which do not cause system to become inoperative (e.g., failure of a redundant LRU). [Contractor data input] Common /RD1/.

DSTK(i)

the average (fractional) increase in the number of site spares (STK(i)) of LRU type i which would result from a unit increase in the computed value of SAS(i). DSTK(i) is used in Sensitivity Analysis calculations. [Auxiliary variable] Common /AUX5/.

ECMT

the average number of emergency corrective maintenance trips from the CMF to the radar sites per year (total for all sites). [Auxiliary variable] Common /AUX5/.

ENYR(j)

expected number of enhancements (including fixups) per year which will occur in Functional Area j throughout the life of the system. [Government data input] (1 per Functional Area per year) Common /RD3/.

EXIT

internal flag which is set to 1 when user communicate to program via the prompting routines that he or she wishes to skip to the end of the program. Common /CNTL/.

FA

number of different functional areas in each the radar. [Contractor data input] Common /RD3/.

FAC( )

cost of new facility number which is required at every radar site (see Section C.8). [Contractor data input] Common /RD1/.

FANAME(.,.)

nomenclature for a given functional area type. Common /RD3/.

FCS

cost for power at radar sites, in dollars per kilowatt hour per site. [Government data input] ($0.0518/KW hr/site) Common /RD1/.

FINC

the fractional increase in those LCC factors for which Sensitivity Analysis is provided. Appears in all Sensitivity Analysis computations. [Contractor interactive input] Common /SENS/.

FPR(i)

false pull rate for LRU type i, i.e., that multiple of failed LRUs which are removed but haven't failed (in most part this factor is to allow for the inability of fault isolation to a single LRU). (Thus (# of removed LRUs)=(1+FPR(i))(# of failed LRU).) [Contractor data input] Common /RD5/.

FR(i)

the failure rate (maintenance incident rate) of LRU type i. Sensitivity Analysis is provided for this factor. This factor is computed internally by the LCC Model in units of failures per million hours, i.e., FR(i)=(10E6)/MTBI(i). Not a program variable.

FSD

total contract cost to the Government for Phase II (Full-Scale Development). This is a lump-sum term in the Cost Element for Development & Production. [Contractor data input] Common /RD1/.

H

average transportation cost per site of a maintenance trip from the CMF to a site. [Government data input] ($1600 per trip) Common /RD1/.

HWCF(j)

hardware change fraction for Functional Area j, the expected fraction of the hardware or firmware component of Functional Area j which is to be changed per enhancement (or fixup) required in that functional area. [Contractor data input]) Common /RD3/.

IDCMH(i)

holds index numbers of LRUs sorted with respect to the values in array TDCMH. Common /TDCMH/.

IDCRTS(i)

holds index numbers of LRUs sorted with respect to the values in array TDCRTS. Common /TDCRTS/.

IDDMH(i)

holds index numbers of LRUs sorted with respect to the values in array TDDMH. Common /TDDMH/.

IDDRTS(i)

holds index numbers of LRUs sorted with respect to the values in array TDDRTS. Common /TDDRTS/.

IDFPR(i)

holds index numbers of LRUs sorted with respect to the values is array TDFPR. Common /TDFPR/.

IDFR(i)

holds index numbers of LRUs sorted with respect to the values in array TDFR. Common /TDFR/.

IDMCI(i)

holds index numbers of LRUs sorted with respect to the values in array TDMCI. Common /TDMCI/.

IDRM(i)

holds index numbers of LRUs sorted with respect to the values in array TDRM. Common /TDRM/.

IDSRTS(i)

holds index numbers of LRUs sorted with respect to the values in array TDSRTS. Common /TDSRTS/.

IDWOR(i)

holds index numbers of LRUs sorted with respect to the values in array TDWOR. Common /TDWOR/.

IDUC(i)

holds index numbers of LRUs sorted with respect to the values in array TDUC. Common /TDUC/.

IERRI

number of index number errors found in the data files. Not in a common block. Local to MAIN routine.

IERROR

counter for the number of fatal errors which are found among the values in the user's data. Common /ERROR/.

IMC

initial management cost to introduce a new line item of supply into the Air Force inventory. [Government data input] ($40.91) Common /RD1/.

IMH(i)

average manhours to perform in place repair of LRU type i, including fault isolation, repair and verification. [Contractor data input] Common /RD5/.

INO(i)

array holding the index numbers found in the LRU equipment input file (unit 14). Common /RD4/.

INO15(i)

array holding the index numbers found in the LRU maintenance input file (unit 15). Common /RD5/.

ITER

counts the number of passes (i.e., reruns) through the LCC loop. Common /CNTL/.

IWARN

counter for the number of non-fatal errors which are found in the user's data. Common /ERROR/.

K

the reliability factor which converts predicted failure rates (incident rates) to operational failure rates (incident rates). [Government data input] (3) Common /RD1/.

LTEMP

set to 1 if off-line printing is desired and LDERV does not equal zero. Not in a common block. Local to MAIN routine.

M

number of radar sites in the SEEK IGLOO System. [Government data input] (13) Common /RD1/.

MAXFA

maximum number of functional area types allowed. Common /INIT/.

MAXLR

maximum number of LRU types allowed. Common /INIT/.

MAXSE

maximum number of support equipment types allowed. Common /INIT/.

MAXPMT

set to 1 when user chooses to have a complete set of program-generated prompts. Common /CNTL/.

MCF(i)

"mission critical flag", identifies those LRUs which given rise to an emergency corrective maintenance trip by CMF personnel on failure. Specifically, MCF(i)=1 if LRU type i is "mission critical", but is neither stocked on site (i.e., STK(i)=0) nor redundant (i.e., QR(i)=0); and MCF(i)=0 otherwise. [Auxiliary variable] Common /AUX5/.

MCI(i)

"mission critical indicator": serves to identify those LRU types which are "mission critical" (i.e., those LRUs whose failure will cause system failure). In addition, for mission critical LRUs, the value of MCI(i) will indicate one of two possible site sparing strategies. [Contractor data input]. More precisely, MCI(i) should be set equal to:

0 if LRU type i is not mission critical

1 if LRU type i is mission critical, but no special site sparing provision made for it

2 if LRU type i is mission critical and provision is made for at least one spare of LRU type i to be stocked at each radar site.

Common /RD4/.

MCIC(i)

change in mission critical indicator for LRU i from which the expected change in LCC (TDMCI(i)) is calculated. Note that MCIC(i) can assume values 0,1, and -1 only. Common /TDMCI/.

MCRS

miscellaneous consumption rate per radar site, to include all consumables except fuel in $/year (under the assumption that this consumption rate is invariant under differing system designs); lamps, fuses, and other items which are of lower indenture level than the LRU and not included in any RM(i) factor must be included here. [Contractor data input] Common /RD1/.

MMH(j)

average manhours required to perform scheduled preventive maintenance by site personnel in Functional Area j. [Contractor data input] Common /RD3/.

MTBI(i)

mean time between incidents (maintenance actions) for LRU type i, in hours. [Contractor data input] Common /RD4/.

N

largest index number which is found in LRU equipment inputs file (unit 14). Common /RD4/.

N15

largest LRU index number found on LRU maintenance inputs file (unit 15 file). Common /RD5/.

NCP

number of CMF radar maintenance personnel. [Contractor data input] Common /RD1/.

NDP

number of depot personnel required for maintenance of the SEEK IGLOO System. [Contractor data input] Common /RD1/.

NSEC( )

number of pieces of Support Equipment of type required at the CMF (whether common or peculiar). [Contractor data input] Common /RD2/.

NSED( )

number of pieces of peculiar Support Equipment of type required at the depot. [Contractor data input] Common /RD2/.

NSES( )

number of pieces of Support Equipment of type required at each site (whether common or peculiar). [Contractor data input] Common /RD2/.

NSP

number of radar maintenance personnel per radar site. [Contractor data input] Common /RD1/.

OST

average order and shipping time (in weeks) from the depot to the CMF. [Government data input] (1.56 weeks) Common /RD1/.

PA(i)

number of new "P" coded (i.e., procurable) repairable assemblies, subassemblies, and piece parts which will be stocked to support repair of LRU type i. [Contractor data input] Common /RD4/.

PAMH(1)

average manhours expended on a radar for Preparation and Access to a failed LRU of type 1. [Contractor data input] Common /RD5/.

PIUP

number of operating years of the SEEK IGLOO Radar System. [Government data input] (20 years) Common /RD1/.

PME

Phase III CWBS, level 2 item "Prime Mission Equipment", covering all (12) production systems (including learning-curve effects), and excluding level 3 items "Software" and "Refurbishment". This is a lump-sum term in the Cost Element for Development & Production. [Contractor data input] Common /RD1/.

PMFA(j)

annual preventive maintenance man-hours expended at each radar site within Functional Area j. Common /NCOS/.

PPRS

consumption rate for primary power (for prime mission equipment) per radar site, in kilowatts. [Contractor data input] Common /RD1/.

PRNT

print flag: 0 means user wants terminal (unit 6) printing only; 1 means user wants off-line (unit 7) printing only; 2 means user wants both. If user requests neither terminal printing nor offline printing, the user gets terminal output anyway. Common /CNTL/.

PRODX

sum of all Phase III CWBS level 2 items excepting "Prime Mission Equipment," "Training," "Support Equipment," and "Initial Spares and Repair Parts." This is a lump-sum term in the Cost Element for Development & Production. [Contractor data input] Common /RD1/.

QPA(i)

number of LRUs of type i in each radar. [Contractor data input] Common /RD4/.

QR(i)

number of LRUs of type i which are redundant in each radar, i.e., a minimum of (QPA(i) - QR(i)) are sufficient to maintain operational status of the system. [Contractor data inpit] Common /RD4/.

REDO

set to 1 after LCC calculation if user chooses to have yet another LCC calculation. Common /CNTL/.

REFURB

Phase III CWBS level 3 item "Refurbishment" covering refurbishment of 2 preproduction options. This is a lump-sum term in the Cost Element for Development & Production. [Contractor data input] Common /RD1/.

REREAD

(only applicable if on second or subsequent pass of the LCC) set to 1 when user chooses to reread the five "standard" data files. Common /CNTL/.

RIP(i)

fraction of failures (maintenance incidents) of LRU type i which are met by repair in place on the radar. [Contractor data input] Common /RD5/.

RL(i)

repair level for LRU type i, equals 0 if LRU is to be condemned on failure (at the site), equals 1 if LRU repair is to be attempted (i.e., lowest level repair) at the site, equals 2 if LRU repair is to be first attempted at the CMF and equals 3 if LRU type i is to be repaired only at the depot level. [Contractor data input] Common /RD5/.

RM(i)

repair materials factor for LRU type i, the fraction of UC(i), unit cost that is consumed (in lower indenture level components of the LRU) in the repair of LRU type i. [Contractor data input] Common /RD4/.

RMC

recurring annual cost to maintain an item of supply in the depot inventory system. [Government data input] ($104.20 per year) Common /RD1/.

RMH(i)

average manhours to fault isolate, remove and replace a faulty (or falsely pulled) LRU of type i and verify restoration of the system to operational status. [Contractor data input] Common /RD5/.

SA

annual cost to maintain a line item in the site or CMF inventory system. [Government data input] ($20.20) Common /RD1/.

SAA

available work time per site radar maintenance man in hours per year. [Government data input] (1512 hours per year) Common /RD1/.

SAS(i)

average number of failed and falsely pulled LRUs of type i which have accumulated at a site by the end of an order and shipping interval (SOSI). [Auxiliary variable] Common /AUX4/.

SCF

the change in the value of COND(i) as computed in subroutines DWOR,DSRTS,DCRTS, and DDRTS. The parameter is sent to subroutine CHCALC where the resulting change in LCC in computed. Common /CHLCC/.

SEC( )

unit cost of a piece of Support Equipment of type . [Contractor data input] Common /RD2/.

SENAME(.,.)

nomenclature for a given support equipment type. Common /RD2/.

SF

the change in the value of SRTS(i) as computed in subroutines DWOR,DSRTS,DCRTS, and DDRTS. The parameter is sent to subroutine CHCALC where the resulting change in LCC is computed. Common /CHLCC/.

SFSRTS(i)

change in site repair fraction for LRU i from which the expected change in LCC (TDSRTS(i)) is calculated.

SIZE(j)

size of the software component of Functional Area j, including all programs residing in firmware, in number of object instructions (or the equivalent, for higher order languages). [Contractor data input] Common /RD3/.

SMH(i)

average manhours to perform site-level corrective maintenance of a removed LRU of type i, including fault isolation, repair and verification. [Contractor data input] Common /RD5/.

SMI(j)

average scheduled maintenance interval (in hours) for preventive maintenance of Functional Area j by site maintenance personnel. [Contractor data input] Common /RD3/.

SMMH

yearly manhours expended by site radar maintenance personnel in performing on-radar maintenance. [Internally computed variable in Section C.3.2] Common /NCOS/.

SMTBI

overall mean time between incidents (maintenance actions) for one radar, in hours; must satisfy

to reflect the fact that a radar is more than the serial array of its component LRUs. [Contractor data input] Common /RD1/.

SNRTS(i)

fraction of failed (and removed) LRUs of type i which are sent to the CMF (or depot) for possible repair. [Auxiliary variable] Common /RD1/.

SOSI

order and shipping interval between each site and the CMF in weeks (i.e., number of weeks between resupply trips). [Government data input] (1 week) Common /RD1/.

SPMH

yearly manhours expended by site radar maintenance personnel in performing corrective maintenance on LRUs off the radar (i.e., not including on-radar manhours). [Internally computed variable in Section C.3.2] Common /NCOS/.

SPRS

consumption rate for secondary power (heating and air conditioning necessary for PME) per radar site, in kilowatts. [Contractor data input] Common /RD1/.

SRCT

average site repair cycle time in weeks. (The elapsed time from removal of a failed LRU until it is repaired at the site and placed in site serviceable stock.) [Government data input] (.43 weeks)

SRTS(i)

fraction of failed (and removed) LRUs of type i which are repaired at the site. [Auxiliary variable] Common /AUX1/.

SRTS1(i)

the fraction of failed LRUs of type i which are to be repaired at the radar site under repair level RL(i)=1. [Contractor data input] Common /RD5/.

STK(i)

the actual number of off-equipment spares of LRU type i per site as determined from STK1(i) with a possible adjustment for the mission critical indicator MCI(i) (i.e., STK(i)=Max [STK1(i), MCI(i) - 1]). [Auxiliary variable] Common /AUX5/.

STK1(i)

the tentative number of off-equipment spares of LRU type i per site, including safety stock, as determined by the site stocking criterion and the confidence level CONF, but before any adjustment is made for the mission critical indicator MCI(i). [Auxiliary variable] Common /AUX5/.

STMH

sum of SMMH and SPMH. Common /NCOS/.

SW

Phase III CWBS level 3 item "Software" covering 12 production syustems. This is a lump-sum term in the Cost Element for Development & Production. [Contractor data input] Common /RD1/.

SWCF(j)

software change fraction for Functional Area j, the expected fraction of the software component of Functional Area j (including programs residing in firmware) which is to be changed per enhancement (or fixup) required in that functional area. [Contractor data input] Common /RD3/.

SWFAC

one-time cost of a software maintenance facility, if one is intended to be used, exclusive of the fixed and variable costs SWFIX(j); and SWVAR(j). [Contractor data input] Common /RD1/.

SWFIX(j)

the fixed component of manpower cost per software enhancement (SWCOST(j)) in Functional Area j when described as a function of the number of object instructions programmed (or reprogrammed) in thousands of dollars. [Contractor data input] Common /RD3/.

SWVAR(j)

the coefficient of the variable component of manpower cost per software enhancement (SWCOST(j)) in Functional Area j when described as a function of the number of object instructions programmed (or reprogrammed) in dollars. [Contractor data input] Common /RD3/.

TC

average cost per student per week to offer site, CMF, and depot maintenance training (not including student salaries). [Contractor data input] Common /RD1/.

TCCAD

cost per student per week to offer "CADRE" training (not including student salaries). [Contractor data input] Common /RD1/.

TDCMH(i)

value of sensitivity of LCC with respect to CMF maintenance hours for LRU type i. Common /TDCMH/.

TDCRTS(i)

value of sensitivity of LCC with respect to CMF repair fraction for LRU type i. Common /TDCRTS/.

TDDMH(i)

value of sensitivity of LCC with respect to depot maintenance hours for LRU type i. Common /TDDMH/.

TDDRTS(i)

value of sensitivity of LCC with respect to depot repair fraction for LRU type i. Common /TDDRTS/.

TDFPR(i)

value of sensitivity of LCC with respect to the false pull rate for LRU type i. Common /TDFPR/.

TDFR(i)

value of sensitivity of LCC with respect to failure rate for LRU type i. Common /TDFR/.

TDK

value of global sensitivity of LCC with respect to the K factor. Common /TDK/.

TDMCI(i)

value of sensitivity of LCC with respect to mission critical indicator for LRU type i. Common /TDMCI/.

TDRM(i)

value of sensitivity of LCC with respect to the repair materials factor for LRU type i. Common /TDRM/.

TDSRTS(i)

value of sensitivity of LCC with respect to site repair fraction for LRU type i. Common /TDSRTS/.

TDUC(i)

value of sensitivity of LCC with respect to unit cost for LRU type i. Common /TDUC/.

TDWOR(i)

value of sensitivity of LCC with respect to wear out rate for LRU type i. Common /TDWOR/.

TDXUC

value of global sensitivity of LCC with respect to XUC factor. Common /TDXUC/.

TE

cost of peculiar training equipment required by the Government; not to include any contractor-incurred costs already accounted for in development costs within the Cost Element for Development & Production. [Contractor data input] Common /RD1/.

TITL(.)

array that holds the (up to) 27 character title for a particular LCC calculation. Common /TITL/.

TR

average turnover rate for site, CMF, and depot maintenance personnel. [Government data input] (1.0) Common /RD1/.

TW

average number of weeks training required for site, CMF, and depot maintenance personnel. [Contractor data input] Common /RD1/.

TWCAD

number of weeks required for the initial training of "CADRE" personnel. [Contractor data input] Common /RD1/.

UC(i)

unit cost to the Government of LRU type i, final production item on the cumulative average learning curve, as used to calculate the value of PME in the Cost Element for Development & Production. (Note: Unit production cost, G&A, and profit are to be included.) [Contractor data input] Common /RD4/.

VAL

total contract cost to the Government for Phase I (Design Validation). This is a lump-sum term in the Cost Element for Development & Production. [Contractor data input] Common /RD1/.

WEIGHT(j)

weight of all hardware and firmware in Functional Area j, in pounds. [Contractor data input] Common /RD3/.

WFR(i)

average number of failed (and removed) LRUs of type i per week (total for all sites). [Auxiliary variable] Common /AUX2/.

WOR(i)

the wear-out rate of a normally repairable LRU of type i. The value of WOR(i) is computed internally by the LCC Model where WOR(i) equals either WOR1(i), WOR2(i), or WOR3(i), depending on the value of the repair level RL(i). Sensitivity Analysis is performed by the LCC Model on WOR(i). Not an actual program variable.

WOR1(i)

the wear-out rate of a (normally repairable) LRU of type i under repair level RL(i)=1. [Contractor data input] Common /RD5/.

WOR2(i)

the wear-out rate of a (normally repairable) LRU of type i under repair level RL(i)=2. [Contractor data input] Common /RD5/.

WOR3(i)

the wear-out rate of a (normally repairable) LRU of type i under repair level RL(i)=3. [Contractor data input] Common /RD5/.

WR(i)

the fraction of failed LRUs of type i which are discarded, either through a "discard-on-failure" decision (i.e., COND(i)=1) or through wear-out of normally-repairable LRUs. [Auxiliary variable] Common /AUX1/.

XUC

dummy cost adjustment factor. XUC is provided in the LCC Model to facilitate LCC tradeoffs involving any factors (such as the use of high-reliability parts throughout the design) which can be shown to multiply baseline costs of all LRU's and PME by a single constant. The value of XUC must be set at unity (1.0) in any runs of the model whose outputs correspond to proposed or contractual baseline costs. [Government data input] (1.0) Common /RD1/.

YFR(i)

average number of failed (and removed) LRUs of type i per year (total for all radar sites). [Auxiliary variable] Common /AUX2/.

YOH

yearly operating hours of the radar system. [Government data input] (8766 hours per year) Common /RD1/.

YSCAD

yearly salary for "CADRE" personnel. [Government data input] ($13400) Common /RD1/.

YSLR

yearly labor rate for site radar maintenance men. [Government data input] ($52000 per man per year) Common /RD1/.

Z

the number of standard deviations which corresponds to the CONF value, i.e., the value Z is determined so that the area under the standard normal curve to the left of the value Z equals CONF. [Auxiliary variable] Common /AUX5/.

APPENDIX B: PROGRAM LISTING

```
C*****************************************************************************00000010
C*                    SEEK IGLOO LIFE CYCLE COST MODEL                       *00000020
C*  THIS PROGRAM IS DESIGNED TO RUN REPETITIVE LIFE CYCLE COST               *00000030
C*  CALCULATIONS IN AN INTERACTIVE ENVIRONMENT.  THERE ARE SIX INPUT         *00000040
C*  DATA SETS:                                                               *00000050
C*    UNIT  5 - RECEIVES INPUTS TYPED BY THE USER AT THE TERMINAL.           *00000060
C*    UNIT 11 - MISCELLANEOUS INPUTS (MAINLY SCALARS).                       *00000070
C*    UNIT 12 - INPUTS BY SUPPORT EQUIPMENT TYPE.                            *00000080
C*    UNIT 13 - INPUTS BY FUNCTIONAL AREA.                                   *00000090
C*    UNIT 14 - INPUTS BY LRU TYPE (LRU FILE 1).                             *00000100
C*    UNIT 15 - INPUTS BY LRU TYPE (LRU FILE 2).                             *00000110
C*  TWO FILES RECEIVE THE OUTPUT:                                            *00000120
C*    UNIT 6 -  OUTPUT THAT GOES TO THE TERMINAL.                            *00000130
C*    UNIT 7 -  OUTPUT THAT GOES TO THE OFF-LINE PRINTER.                    *00000140
C*****************************************************************************00000150
C                                                                             00000160
C*****************************************************************************00000170
C*                    COMMON BLOCK ORGANIZATION                              *00000180
C*  IN GENERAL, FOR EVERY SUBROUTINE THERE IS A COMMON BLOCK THAT            *00000190
C*  CONTAINS ALL OF THE VARIABLES THAT FIRST RECEIVED VALUES IN THAT         *00000200
C*  SUBROUTINE.  HENCE, ALL VARIABLES THAT ARE READ FROM THE UNIT 11         *00000210
C*  FILE IN SUBROUTINE READ1 WILL BE IN COMMON /RD1/;  ALL VARIABLES         *00000220
C*  CALCULATED IN SUBROUTINE AUXIL1 WILL BE IN COMMON /AUX1/;  ALL           *00000230
C*  VARIABLES CALCULATED IN SUBROUTINE COST1 WILL BE IN COMMON /C1/;         *00000240
C*  ALL VARIABLES CALCULATED IN SUBROUTINE DFR WILL BE IN COMMON/IDFR/.      *00000250
C*****************************************************************************00000260
C                                                                             00000270
      COMMON /CNTL/ EXIT,ITER,MAXPMT,PRNT,REDO,REREAD                         00000280
      INTEGER EXIT,PRNT,REDO,REREAD                                           00000290
C                                                                             00000300
      COMMON /TITL/ TITL(28)                                                  00000310
C                                                                             00000320
      COMMON /ERROR/ IERROR,IWARN                                             00000330
C                                                                             00000340
      COMMON /INIT/ CONFLO,MAXFA,MAXLR,MAXSF                                  00000350
C                                                                             00000360
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPMI,         00000370
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                            00000380
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MXHRS,                      00000390
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRODX,REFURB,RMC,            00000400
     +             SA,SAA,SMTBI,SOST,SPRS,SRCT,SW,SWFAC,                      00000410
     +             TC,TCCAD,TF,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR             00000420
      INTEGER CADRE                                                           00000430
      REAL IMC,K,MCRS,MXHRS                                                   00000440
C                                                                             00000450
      COMMON /RD2/ A,COC(150),COD(150),COS(150),INOSE(150),NSEC(150),         00000460
     +             NSED(150),NSES(150),SEC(150),SENAME(150,24)                00000470
      REAL NSEC,NSED,NSES                                                     00000480
      INTEGER A                                                               00000490
C                                                                             00000500
      COMMON /RD3/ FNYR(10),FA,FANAME(10,24),HWCP(10),INOFA(10),MMH(10),      00000510
     +             SIZE(10),SMI(10),SWCP(10),SWFIX(10),SWVAR(10),             00000520
     +             WEIGHT(10)                                                 00000530
      INTEGER FA                                                              00000540
      REAL MMH                                                                00000550
C                                                                             00000560
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),           00000570
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),              00000580
     +             UC(200)                                                    00000590
      INTEGER QPA,QR                                                          00000600
      REAL MTBI                                                               00000610
C                                                                             00000620
      COMMON /RD5/ BCMH(200),CBCMH(200),CMH(200),CRTS1(200),CRTS2(200),       00000630
```

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     +              DBCMH(200),DMH(200),DRTS1(200),DRTS2(200),                00000640
     +              DRTS3(200),FPR(200),IMH(200),INO15(200),N15,              00000650
     +          PAMH(200),PIP(200),RL(200),RMH(200),SMH(200),SRTS1(200),      00000660
     +              WOP1(200),WOR2(200),WOR3(200)                             00000670
      REAL IMH                                                                00000680
      INTEGER RL                                                              00000690
C                                                                             00000700
      COMMON /SENS/ FINC,LDCMH,LDCRTS,LDDMH,LDDRTS,LDERV,LDFPR,LDFR,          00000710
     +              LDMCI,LDRM,LDSRTS,LDWOR,LDUC                              00000720
C                                                                             00000730
      COMMON /AUX1/ CCOND(200),COND(200),CRTS(200),DCOND(200),                00000740
     +              DRTS(200),SNRTS(200),SRTS(200),WR(200)                    00000750
C                                                                             00000760
      COMMON /AUX2/ YFR(200),WFR(200)                                         00000770
C                                                                             00000780
      COMMON /AUX3/ CCLH(200),DCLH(200),DLH                                   00000790
C                                                                             00000800
      COMMON /AUX4/ CAS(200),DAS(200),SAS(200)                                00000810
C                                                                             00000820
      COMMON /AUX5/ DSTK(200),ECNT,MCP(200),STK(200),STK1(200),Z              00000830
      INTEGER STK,STK1                                                        00000840
C                                                                             00000850
      COMMON /C1/ C1                                                          00000860
C                                                                             00000870
      COMMON /C2/ C2,C2C,C2D,C2L(200),C2S                                     00000880
C                                                                             00000890
      COMMON /C3/ C3,C3C,C3D,C3L(200),C3S                                     00000900
C                                                                             00000910
      COMMON /C4/ C4,C4I,C4L(200),C4R                                         00000920
C                                                                             00000930
      COMMON /C5/ C5                                                          00000940
C                                                                             00000950
      COMMON /C6/ C6,C6C,C6D,C6I,C6R,C6S                                      00000960
C                                                                             00000970
      COMMON /C7/ C7                                                          00000980
C                                                                             00000990
      COMMON /C8/ C8,C8C,C8D,C8I,C8R,C8S                                      00001000
C                                                                             00001010
      COMMON /C9/ C9,C9C,C9D,C9I,C9L(200),C9R,C9S                             00001020
C                                                                             00001030
      COMMON /C10/ C10,C10HW(10),C10I,C10R,C10SW(10)                          00001040
C                                                                             00001050
      COMMON /NCOS/ CLH,PMFA(10),SMMH,SPMH,STMH                               00001060
C                                                                             00001070
      COMMON /TDXUC/ TDXUC                                                    00001080
C                                                                             00001090
      COMMON /TDFR/ IDFP(200),TDFR(200)                                       00001100
C                                                                             00001110
      COMMON /TDK/ TDK                                                        00001120
C                                                                             00001130
      COMMON /TDUC/ IDUC(200),TDUC(200)                                       00001140
C                                                                             00001150
      COMMON /TDWOR/ IDWOP(200),TDWOR(200),WP(200)                            00001160
C                                                                             00001170
      COMMON /TDFPR/ IDFPR(200),TDFPR(200)                                    00001180
C                                                                             00001190
      COMMON /TDCMH/ IDCMH(200),TDCMH(200)                                    00001200
C                                                                             00001210
      COMMON /TDDMH/ IDDMH(200),TDDMH(200)                                    00001220
C                                                                             00001230
      COMMON /TDRM/ IDRM(200),TDRM(200)                                       00001240
C                                                                             00001250
      COMMON /TDSRTS/ IDSRTS(200),SPSRTS(200),TDSRTS(200)                     00001260
```

```
C                                                                       00001270
      COMMON /TDCRTS/ CFCRTS(200),IDCRTS(200),TDCRTS(200)               00001280
C                                                                       00001290
      COMMON /TDDRTS/ DFDRTS(200),IDDRTS(200),TDDRTS(200)               00001300
C                                                                       00001310
      COMMON /TDMCI/ IDMCI(200),MCIC(200),TDMCI(200)                    00001320
C                                                                       00001330
      COMMON /CHLCC/ CCF,CF,CHLCC,DCF,DF,SCF,SF                         00001340
C                                                                       00001350
C                                                                       00001360
  1   FORMAT (1X/49H PROGRAM WILL TERMINATE AFTER NAMELIST INPUTS DUE,  00001370
     +        30H TO ERRORS IN THE INPUT FILES.)                        00001380
  2   FORMAT (1X/10H TOTAL OF ,I3,24H INPUT WARNING MESSAGES.)          00001390
  3   FORMAT (1X/1X,26HPROGRAM TERMINATES DUE TO ,I3,14H INPUT ERRORS.) 00001400
C                                                                       00001410
C                                                                       00001420
C***********************************************************************00001430
C*                            SNSSET                                   *00001440
C*  INITIALIZE SENSITIVITY ANALYSIS VARIABLES AT THE START OF THE RUN. *00001450
C***********************************************************************00001460
C                                                                       00001470
      CALL SNSSET                                                       00001480
C                                                                       00001490
C***********************************************************************00001500
C*              LOOP ON ITER FOR EACH RUN OF THE LCC.                  *00001510
C***********************************************************************00001520
C                                                                       00001530
      DO 999 ITER=1,50                                                  00001540
C                                                                       00001550
C***********************************************************************00001560
C*                            PRMPT1                                   *00001570
C*  CALL THE FIRST OF THE FIVE PROMPTING ROUTINES TO DETERMINE:        *00001580
C*    1- MAXPMT.                                                       *00001590
C*       MAXPMT=0 - USER WANTS MINIMUM PROMPTING (WITHOUT EXPLANATORY  *00001600
C*                  MESSAGES).                                        *00001610
C*       MAXPMT=1 - USER WANTS MAXIMUM PROMPTING (WITH EXPLANATORY     *00001620
C*                  MESSAGES).                                        *00001630
C*    2- PRNT.                                                         *00001640
C*       PRNT=0 - TERMINAL PRINTING ONLY (DEFAULT).                    *00001650
C*           =1 - OFF-LINE PRINTING ONLY.                              *00001660
C*           =2 - TERMINAL AND OFF-LINE PRINTING.                      *00001670
C*    3- REREAD.                                                       *00001680
C*       REREAD=0 - (REREAD IS ONLY APPLICABLE IF ITER>1) USE THE      *00001690
C*                  VARIABLE VALUES OF THE LAST RUN AS DEFAULT VALUES  *00001700
C*                  FOR THE CURRENT RUN (DEFAULT).                    *00001710
C*              =1 - ONCE AGAIN CALL INIT AND THE FIVE READ SUBROUTINES *00001720
C*                   TO USE THE VALUES FROM THE INPUT FILES AS DEFAULT *00001730
C*                   VARIABLE VALUES.                                 *00001740
C***********************************************************************00001750
C                                                                       00001760
       EXIT = 0                                                         00001770
       CALL PRMPT1                                                      00001780
C                                                                       00001790
C***********************************************************************00001800
C*                TITLE, INITAL, AND READ SUBROUTINES                  *00001810
C*  IF USER REQUESTED OFF-LINE OUTPUT, PRINT TITLE PAGE (CALL TITLE).  *00001820
C*  IF THIS IS THE FIRST PASS THROUGH THE LCC LOOP (ITER=1) OR IF THE  *00001830
C*  USER SET REREAD=1 IN PRMPT1, THEN CALL SUBROUTINE INITAL           *00001840
C*  TO INITIALIZE CERTAIN VARIABLES TO INITIAL VALUES AND CALL THE     *00001850
C*  FIVE READ SUBROUTINES TO INITIALIZE VARIABLE VALUES TO THE VALUES  *00001860
C*  FOUND IN THE FILES.  EACH READ SUBROUTINE READS A SINGLE INPUT FILE*00001870
C*  AND CHECKS THAT FILE FOR ERRORS.  IERROR COUNTS THE NUMBER OF      *00001880
C*  ERRORS FOUND IN THE FIVE FILES.  IF IERROR>0 AFTER THE FIVE READ   *00001890
```

```
C*  SUBROUTINES, THE PROGRAM ISSUES A MESSAGE SAYING IT WILL SOON STOP.*00001900
C*****************************************************************************00001910
C                                                                               00001920
      IF (PRNT.NE.0) CALL TITLE                                                 00001930
      IF (ITER.GT.1.AND.REREAD.EQ.0) GO TO 4                                    00001940
        CALL INITAL                                                             00001950
        IERROR = 0                                                              00001960
        REWIND 11                                                               00001970
        REWIND 12                                                               00001980
        REWIND 13                                                               00001990
        REWIND 14                                                               00002000
        REWIND 15                                                               00002010
        CALL READ1                                                              00002020
        CALL READ2                                                              00002030
        CALL READ3                                                              00002040
        CALL READ4                                                              00002050
        CALL READ5                                                              00002060
        IF (IERROR.NE.0) WRITE(6,1)                                             00002070
        IERRI = IERROR                                                          00002075
  4     CONTINUE                                                                00002080
C                                                                               00002090
C*****************************************************************************00002100
C*                              PRMPT2                                         *00002110
C*  CALL THE SECOND OF THE PROMPTING ROUTINES TO DETERMINE:                    *00002120
C*    1- NAMELIST /GO/, A NAMELIST THAT CONTAINS ALL VARIABLES THAT            *00002130
C*       WERE READ IN FROM THE FIVE INPUT FILES.  BY ASSIGNING VALUES          *00002140
C*       IN NAMELIST /GO/, THE USER OVERWRITES THE VALUES READ IN FROM         *00002150
C*       THE INPUT FILES.  HENCE, THE USER DOES NOT HAVE TO HAVE               *00002160
C*       DIFFERENT DATA SETS FOR EVERY LCC RUN:  HE CAN USE THE INPUT          *00002170
C*       FILES AS HIS 'STANDARD' DATA, AND CAN MODIFY WHATEVER                 *00002180
C*       VARIABLE VALUES HE WANTS IN NAMELIST /GO/.                            *00002190
C*    2- NAMELIST /SENS/, WHICH CONTAINS THE SENSITIVITY ANALYSIS              *00002200
C*       PARAMETERS.  FOR EACH OPTIONAL SENSITIVITY FACTOR XXX (TWO            *00002210
C*       SENSITIVITY FACTORS, XUC AND K, ARE NOT OPTIONAL), THE                *00002220
C*       USER CAN ASSIGN VARIABLE LDXXX IN NAMELIST /SENS/ TO THE              *00002230
C*       NUMBER OF THE LARGEST DERIVATIVES OF TYPE XXX WHICH HE WISHES         *00002240
C*       TO SEE IN HIS TERMINAL OUTPUT (DEFAULT LDXXX=0).  THE USER CAN        *00002250
C*       ALSO                                                                  *00002260
C*       ASSIGN A VALUE TO FINC, THE FRACTIONAL INCREASE IN FACTORS            *00002270
C*       WHICH THE PROGRAM SHOULD USE IN THE SENSITIVITY ANALYSIS              *00002280
C*       LDERV (DEFAULT OF 12) TELLS THE NUMBER (UNLESS A PARTICULAR           *00002290
C*       LDXXX EXCEEDS LDERV) OF DERIVATIVES OF ALL TYPES WHICH THE            *00002300
C*       USER WANTS TO SEE IN HIS OFF-LINE OUTPUT.                             *00002310
C*  IF EXIT=1 AFTER PRMPT2, THE USER WANTS TO EXIT FROM THE PROGRAM.           *00002320
C*  AFTER PRMPT2, ALL INPUT INTO THE PROGRAM HAS BEEN DETERMINED.              *00002330
C*  THE CALCULATION OF THE LCC WILL FOLLOW.                                    *00002340
C*  AFTER PRMPT2 LDERV IS SET TO THE MINIMUM OF ITS VALUE AFTER                *00002350
C*  /SENS/ IS READ AND N (LARGEST LRU INDEX NUMBER).                           *00002360
C*****************************************************************************00002370
C                                                                               00002380
      CALL PRMPT2                                                               00002390
      IF (EXIT.EQ.1) GO TO 888                                                  00002400
      LDERV = MIN0(LDERV,N)                                                     00002410
C                                                                               00002420
C*****************************************************************************00002430
C*                              ERRCHK                                         *00002440
C*  ERRCHK CONTAINS MOST OF THE CHECKS ON THE INPUT DATA.  THERE ARE           *00002450
C*  TWO CLASSES OF ERROR CHECKS: FATAL ONES THAT INCREMENT IERROR AND          *00002460
C*  NON-FATAL ONES THAT INCREMENT IWARN.  SOME FATAL CHECKS HAVE               *00002470
C*  ALREADY BEEN DONE IN THE READ SUBROUTINES;  ERRCHK DOES FURTHER            *00002480
C*  CHECKS ON RL,SRTS1+CRTS1+WOR1+DRTS1,CRTS2+WOR2+DRTS2,WOR3+DRTS3,           *00002490
C*  MTBI,SMH+RMH+BCMH:  NON-FATAL CHECKS BY ERRCHK INCLUDE:                    *00002500
C*  SMTBI,SRCT,SOSI,SMH+RMH+BCMH,CONF,CPMI,NSP                                 *00002510
```

```
C*   IF A VARIABLE FAILS A FATAL CHECK, AN ERROR MESSAGE IS PRINTED AND *00002520
C*   THE LCC WILL BE SKIPPED.       IF A VARIABLE FAILS A NON-FATAL     *00002530
C*   CHECK, A WARNING MESSAGE IS ISSUED AND A DEFAULT VALUE IS ASSIGNED.*00002540
C*******************************************************************************00002550
C                                                                               00002560
        IWARN = 0                                                               00002570
        IERROR = IERRI                                                          00002575
        CALL ERRCHK                                                             00002580
        IF (IWARN.EQ.0) GO TO 5                                                 00002590
          WRITE(6,2) IWARN                                                      00002600
          IF (PRNT.NE.0) WRITE(7,2) IWARN                                       00002610
  5     IF (IERROR.EQ.0) GO TO 6                                                00002620
          WRITE(6,3) IERROR                                                     00002630
          IF (PRNT.NE.0) WRITE(7,3) IERROR                                      00002640
          GO TO 888                                                             00002650
  6     CONTINUE                                                                00002660
C                                                                               00002670
C*******************************************************************************00002680
C*                          PRELIMINARY CALCULATIONS                           *00002690
C*   CALL THE FIVE SUBROUTINES THAT CALCULATE THE AUXILIARY VARIABLES.         *00002700
C*******************************************************************************00002710
C                                                                               00002720
        CALL AUXIL1                                                             00002730
        CALL AUXIL2                                                             00002740
        CALL AUXIL3                                                             00002750
        CALL AUXIL4                                                             00002760
        CALL AUXIL5                                                             00002770
C                                                                               00002780
C*******************************************************************************00002790
C*                       SUM UP THE COST ELEMENTS.                             *00002800
C*******************************************************************************00002810
C                                                                               00002820
        CALL COST1                                                              00002830
        CALL COST2                                                              00002840
        CALL COST3                                                              00002850
        CALL COST4                                                              00002860
        CALL COST5                                                              00002870
        CALL COST6                                                              00002880
        CALL COST7                                                              00002890
        CALL COST8                                                              00002900
        CALL COST9                                                              00002910
        CALL COST10                                                             00002920
C                                                                               00002930
C*******************************************************************************00002940
C*                        SUBSEQUENT CALCULATIONS                              *00002950
C*   CALCULATE THE NON-COST VARIABLES AND THE DESIRED DERIVATIVES.             *00002960
C*   THREE DERIVATIVES ARE ALWAYS CALCULATED (TDFR(I),TDXUC,TDK), BUT          *00002970
C*   ONLY TWO DERIVATIVES ARE ALWAYS PRINTED (TDXUC,TDK: TDFR IS ALWAYS        *00002980
C*   CALCULATED BECAUSE IT IS USED TO CALCULATE TDK).  FOR ANY OTHER           *00002990
C*   DERIVATIVE (CALL IT TD---), THE SUBROUTINE (D---) THAT CALCULATES         *00003000
C*   THE DERIVATIVE IS ONLY CALLED IF THE USER REQUESTS OFF-LINE PRINT-        *00003010
C*   ING OF A NON-ZERO NUMBER (LDERV) OF LARGEST DERIVATIVES OF ANY TYPE       *00003020
C*   OR A NON-ZERO NUMBER OF THE LARGEST DERIVATIVES OF THIS TYPE (LD---       *00003030
C*   TELLS THE NUMBER OF LARGEST TD--- VALUES THAT THE USER WANTS              *00003040
C*   OF THIS TYPE PRINTED AT THE TERMINAL) AT THE TERMINAL.                    *00003050
C*   THE SUBROUTINE (D---) WILL CALCULATE THE DERIVATIVE                       *00003060
C*   (TD---(I)) FOR EACH LRU I AND THEN WILL CALL SUBROUTINE TDSORT TO         *00003070
C*   BUBBLE INTO THE FIRST NN (NN=MAX(LDERV,LD---)) POSITIONS OF ARRAY         *00003080
C*   (ID---) THE INDEX NOS. OF THE LRUS WITH THE LARGEST TD--- VALUES.         *00003090
C*******************************************************************************00003100
C                                                                               00003110
        CALL NONCOS                                                             00003120
        CALL DXUC                                                               00003130
```

```
      CALL DFR
      CALL DK
      LTEMP = 1
      IF (LDERV.EQ.0.OR.PRNT.EQ.0) LTEMP=0
      IF (LDUC.GT.0.OR.LTEMP.GT.0) CALL DUC
      IF (LDWOR.GT.0.OR.LTEMP.GT.0) CALL DWOR
      IF (LDFPR.GT.0.OR.LTEMP.GT.0) CALL DFPR
      IF (LDCMH.GT.0.OR.LTEMP.GT.0) CALL DCMH
      IF (LDDMH.GT.0.OR.LTEMP.GT.0) CALL DDMH
      IF (LDRM.GT.0.OR.LTEMP.GT.0) CALL DRM
      IF (LDSRTS.GT.0.OR.LTEMP.GT.0) CALL DSRTS
      IF (LDCRTS.GT.0.OR.LTEMP.GT.0) CALL DCRTS
      IF (LDDRTS.GT.0.OR.LTEMP.GT.0) CALL DDRTS
      IF (LDMCI.GT.0.OR.LTEMP.GT.0) CALL DMCI
C
C*********************************************************************
C*                             PRMPT3                                *
C* CALL THE THIRD OF THE PROMPTING ROUTINES TO:                      *
C*    1- TELL THE USER THAT THE LCC CALCULATIONS HAVE BEEN COMPLETED. *
C*    2- GIVE THE USER A CHANCE TO EXIT FROM THE PROGRAM.            *
C*    3- ALLOW THE USER A CHANCE TO ADJUST TERMINAL TO A NEW PAGE    *
C*       BEFORE OTAB1 WRITES AT HIS TERMINAL.                        *
C*********************************************************************
C
      CALL PRMPT3
      IF (EXIT.EQ.1) GO TO 888
C
C*********************************************************************
C*                           INPUT TABLES                            *
C* PRINT THE INPUT TABLES IF THE USER REQUESTS HARD COPY.            *
C*********************************************************************
C
      IF (PRNT.EQ.0) GO TO 7
        CALL ITAB1
        CALL ITAB2
        CALL ITAB3
        CALL ITAB4
        CALL ITAB5
  7   CONTINUE
C
C*********************************************************************
C*                     PRINT THE OUTPUT TABLES.                      *
C*  OUTPUT TABLE 1 AND THE SENSITIVITY ANALYSIS TABLE ARE ALWAYS     *
C*  PRINTED SOMEWHERE.  THE OTHER OUTPUT TABLES ARE ONLY PRINTED (ONLY *
C*  OFF-LINE) IF THE USER REQUESTS OFF-LINE PRINTING.                *
C*  IF USER WANTS TERMINAL PRINTING, CALL PRMPT4 TO ALLOW USER TO    *
C*  ADJUST TERMINAL TO NEW PAGE BEFORE OSENS IS CALLED.              *
C*********************************************************************
C
      CALL OTAB1
      IF (PRNT.EQ.0) GO TO 8
        CALL OTAB2
        CALL OTAB3
        CALL OTAB4
        CALL OTAB5
  8   CONTINUE
      IF (PRNT.NE.1) CALL PRMPT4
      CALL OSENS
C
C*********************************************************************
C*                             PRMPT5                                *
C* CALL THE FIFTH AND FINAL PROMPTING ROUTINE TO ASK IF ANOTHER RUN  *
C* IS DESIRED.  IF NOT, STOP.                                        *
```

```
C*******************************************************************************00003770
C                                                                               00003780
 888    CALL PRMPT5                                                             00003790
        IF (REDO.EQ.0) STOP                                                     00003800
 999  CONTINUE                                                                  00003810
C                                                                               00003820
      STOP                                                                      00003830
      END                                                                       00003840
```

```
      SUBROUTINE TITLE                                                      00000010
C                                                                           00000020
C*************************************************************************00000030
C*  SUBROUTINE TO PRINT TITLE PAGE FOR OFF-LINE OUTPUT.                   *00000040
C*************************************************************************00000050
C                                                                           00000060
      COMMON /TITL/ TITL(28)                                                00000070
C                                                                           00000080
1000  FORMAT (1H1//////////////////                                         00000090
     +    35X,39H*****************************************/35X,1H*,37X,1H*/00000100
     +    35X,39H*    SEEK IGLOO LIFE CYCLE COST MODEL  */35X,1H*,37X,1H*/00000110
     +    35X,39H*           FIVE INPUT TABLES          */35X,1H*,37X,1H*/00000120
     +    35X,39H*           SIX OUTPUT TABLES          */35X,1H*,37X,1H*) 00000130
1100  FORMAT (35X,9H*   RUN: ,27A1,3H  */35X,1H*,37X,1H*/                  00000140
     +    35X,39H*****************************************///)             00000150
C                                                                           00000160
C                                                                           00000170
      WRITE(7,1000)                                                         00000180
      WRITE(7,1100) (TITL(L),L=1,27)                                        00000190
C                                                                           00000200
C                                                                           00000210
      RETURN                                                                00000220
      END                                                                   00000230
```

```
      SUBROUTINE SNSSET                                                 00000010
C                                                                       00000020
C*************************************************************************00000030
C*  THIS SUBROUTINE INITIALIZES SENSITIVITY ANALYSIS VARIABLES TO      *00000040
C*  DEFAULT VALUES.                                                    *00000050
C*************************************************************************00000060
C                                                                       00000070
      COMMON /SENS/ FINC,LDCMH,LDCRTS,LDDMH,LDDRTS,LDFRV,LDFPR,LDFR,    00000080
     +              LDMCI,LDRM,LDSRTS,LDWOR,LDUC                        00000090
C                                                                       00000100
      FINC = 0.1                                                        00000110
      LDCMH = 0                                                         00000120
      LDCRTS = 0                                                        00000130
      LDDMH = 0                                                         00000140
      LDDRTS = 0                                                        00000150
      LDERV = 12                                                        00000160
      LDFPR = 0                                                         00000170
      LDFR = 0                                                          00000180
      LDMCI = 0                                                         00000190
      LDRM = 0                                                          00000200
      LDSRTS = 0                                                        00000210
      LDWOR = 0                                                         00000220
      LDUC = 0                                                          00000230
C                                                                       00000240
      RETURN                                                            00000250
      END                                                               00000260
```

```
      SUBROUTINE INITAL                                                      00000010
C                                                                            00000020
C*************************************************************************00000030
C*  THIS SUBROUTINE INITIALIZES CERTAIN VARIABLES TO CERTAIN DESIRED     *00000040
C*  VALUES.  SCALARS ARE INITIALIZED FIRST, AND THEN ARRAYS.             *00000050
C*************************************************************************00000060
C                                                                            00000070
      COMMON /INIT/ CONFLO,MAXFA,MAXLR,MAXSE                                 00000080
C                                                                            00000090
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPMI,        00000100
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                           00000110
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MXHRS,                     00000120
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRODX,REFURB,RMC,           00000130
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                     00000140
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR            00000150
      INTEGER CADRE                                                          00000160
      REAL IMC,K,MCRS,MXHRS                                                  00000170
C                                                                            00000180
      COMMON /RD2/ A,COC(150),COD(150),COS(150),INOSE(150),NSEC(150),        00000190
     +             NSED(150),NSES(150),SEC(150),SENAME(150,24)               00000200
      REAL NSEC,NSED,NSES                                                    00000210
      INTEGER A                                                              00000220
C                                                                            00000230
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),          00000240
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),             00000250
     +             UC(200)                                                   00000260
      INTEGER QPA,QR                                                         00000270
      REAL MTBI                                                              00000280
C                                                                            00000290
      COMMON /RD5/ BCMH(200),CBCMH(200),CMH(200),CRTS1(200),CRTS2(200),      00000300
     +             DBCMH(200),DMH(200),DRTS1(200),DRTS2(200),                00000310
     +             DRTS3(200),FPR(200),IMH(200),INO15(200),N15,              00000320
     +          PAMH(200),RIP(200),RL(200),RMH(200),SMH(200),SRTS1(200),     00000330
     +             WOR1(200),WOR2(200),WOR3(200)                             00000340
      REAL IMH                                                               00000350
      INTEGER RL                                                             00000360
C                                                                            00000370
      MXHRS = 1300.                                                          00000380
      MAXFA = 10                                                             00000390
      MAXLR = 200                                                            00000400
      MAXSE = 150                                                            00000410
      CONFLO = 0.84134                                                       00000420
C                                                                            00000430
      DO 1 L=1,10                                                            00000440
        FAC(L) = 0.                                                          00000450
  1   CONTINUE                                                               00000460
C                                                                            00000470
      DO 2 J=1,MAXSE                                                         00000480
        NSES(J) = 0.                                                         00000490
        NSEC(J) = 0.                                                         00000500
        NSED(J) = 0.                                                         00000510
  2   CONTINUE                                                               00000520
C                                                                            00000530
      DO 3 I=1,MAXLR                                                         00000540
        UC(I) = 0.                                                           00000550
        FPR(I) = 0.                                                          00000560
        CMH(I) = 0.                                                          00000570
        DMH(I) = 0.                                                          00000580
        RM(I) = 0.                                                           00000590
        MCI(I) = 0                                                           00000600
        QPA(I) = 0                                                           00000610
        MTBI(I) = 990000000.                                                 00000620
  3   CONTINUE                                                               00000630
```

```
C
      RETURN                                                            00000640
      END                                                               00000650
                                                                        00000660
```

```
      SUBROUTINE PRMPT1                                                 00000010
C                                                                       00000020
C*************************************************************************00000030
C*                          SUBROUTINE PRMPT1                          *00000040
C*  FIRST OF FOUR PROMPTING SUBROUTINES TO READ IN USER INPUTS FROM     *00000050
C*  THE TERMINAL.  IF THIS IS THE FIRST CALL OF THE LCC:               *00000060
C*    1- PRINT TITLE ('SEEK IGLOO LIFE CYCLE COST MODEL,ETC')          *00000070
C*    2- ASK USER FOR MIN OR MAX PROMPTING (MAX=LONG PROMPT COMMENTS)  *00000080
C*    3- ASK USER WHERE HE WANTS HIS OUTPUT. (PRNT=0 TERMINAL ONLY;    *00000090
C*       PRNT=1 OFF-LINE ONLY;  PRNT=2 BOTH PLACES.)                   *00000100
C*    4- IF USER REQUEST OFF-LINE OUTPUT, GET A NAME FOR THE RUN.      *00000110
C*  IF THIS IS A SUBSEQUENT CALL FOR THE LCC:                          *00000120
C*    1- NOTIFY USER THAT VARIABLES ARE AS THEY WERE AFTER LAST        *00000130
C*       NAMELISTS WERE SUBMITTED.                                     *00000140
C*    2- ASK USER IF HE WANTS TO REREAD INPUT FILES (REREAD=1).        *00000150
C*    3- ASK MIN OR MAX PROMPTING ONLY IF LAST RUN WAS MAX PROMPTING.  *00000160
C*    4- ASK USER WHERE HE WANTS HIS OUTPUT. (PRNT=0 TERMINAL ONLY;    *00000170
C*       PRNT=1 OFF-LINE ONLY;  PRNT=2 BOTH PLACES)                    *00000180
C*    5- IF USER REQUEST OFF-LINE OUTPUT, GET A NAME FOR THE RUN.      *00000190
C*************************************************************************00000200
C                                                                       00000210
      COMMON /CNTL/ EXIT,ITER,MAXPMT,PRNT,REDO,REREAD                   00000220
      INTEGER EXIT,PRNT,REDO,REREAD                                     00000230
C                                                                       00000240
      COMMON /TITL/ TITL(28)                                            00000250
C                                                                       00000260
      DATA BK/1H /,CHM/1HM/,CHI/1HI/,CHN/1HN/,CHA/1HA/,CHX/1HX/,        00000270
     +     CHY/1HY/                                                     00000280
C                                                                       00000290
  1   FORMAT (1X/47H SEEK IGLOO LIFE CYCLE COST MODEL - VERSION 1.0)    00000300
  2   FORMAT (1X/50H AT THIS POINT, VARIABLE VALUES ARE AS THEY WERE A, 00000310
     +        13HFTER THE LAST/                                         00000320
     +        53H NAMELISTS WERE SUBMITTED.  DO YOU WISH TO RESET NAME, 00000330
     +         9HLIST /GO//                                           00000340
     +        54H VARIABLES TO THE VALUES FOUND IN THE INPUT FILES (Y O,00000350
     +         6HR N)-?)                                              00000360
  3   FORMAT (1X/44H MINIMUM OR MAXIMUM PROMPTING (MIN OR MAX)-?)       00000370
  4   FORMAT (3A1)                                                      00000380
  5   FORMAT (1X/50H SUBMIT 'MIN' OR 'MAX' STARTING IN COLUMN 1.  NOTH, 00000390
     +        15HING ELSE WORKS.)                                       00000400
  6   FORMAT (30H OUTPUT AT TERMINAL (Y OR N)-?)                        00000410
  7   FORMAT (A1)                                                       00000420
  8   FORMAT (49H SUBMIT 'Y' OR 'N' STARTING IN COLUMN 1.  NOTHING,     00000430
     +        12H ELSE WORKS.)                                          00000440
  9   FORMAT (38H OUTPUT ON OFF-LINE PRINTER (Y OR N)-?)                00000450
 10   FORMAT (29H SUBMIT A TITLE FOR THIS RUN:)                         00000460
 11   FORMAT (28A1)                                                     00000470
 12   FORMAT (/51H SET EXIT=1 IN EITHER NAMELIST IF YOU WANT TO EXIT.)  00000480
C                                                                       00000490
C                                                                       00000500
      IF (ITER.NE.1) GO TO 16                                           00000510
        WRITE(6,1)                                                      00000520
        GO TO 18                                                        00000530
 16   CONTINUE                                                          00000540
        WRITE(6,2)                                                      00000550
        REREAD = 2                                                      00000560
        STR1 = BK                                                       00000570
 17     READ(5,7) STR1                                                  00000580
        IF (STR1.EQ.CHY) REREAD = 1                                     00000590
        IF (STR1.EQ.CHN) REREAD = 0                                     00000600
        IF (REREAD.NE.2) GO TO 18                                       00000610
          WRITE(6,8)                                                    00000620
          GO TO 17                                                      00000630
```

```
 18   CONTINUE                                                          00000640
      IF (ITER.GT.1.AND.MAXPNT.NE.1) GO TO 20                           00000650
        WRITE(6,3)                                                      00000660
        MAXPNT = 2                                                      00000670
 19     READ(5,4) STR1,STR2,STR3                                        00000680
        IF (STR1.EQ.CHN.AND.STR2.EQ.CHI.AND.STR3.EQ.CHN) MAXPNT = 0     00000690
        IF (STR1.EQ.CHN.AND.STR2.EQ.CHA.AND.STR3.EQ.CHX) MAXPNT = 1     00000700
        IF (MAXPNT.NE.2) GO TO 20                                       00000710
          WRITE(6,5)                                                    00000720
          GO TO 19                                                      00000730
 20   CONTINUE                                                          00000740
      MM1 = 2                                                           00000750
      WRITE(6,6)                                                        00000760
 21   READ(5,7) STR1                                                    00000770
      IF (STR1.EQ.CHY) MM1 = 1                                          00000780
      IF (STR1.EQ.CHN) MM1 = 0                                          00000790
      IF (MM1.NE.2) GO TO 22                                            00000800
        WRITE(6,8)                                                      00000810
        GO TO 21                                                        00000820
 22   MM2 = 2                                                           00000830
      STR1 = BK                                                         00000840
      WRITE(6,9)                                                        00000850
 23   READ(5,7) STR1                                                    00000860
      IF (STR1.EQ.CHY) MM2 = 1                                          00000870
      IF (STR1.EQ.CHN) MM2 = 0                                          00000880
      IF (MM2.NE.2) GO TO 24                                            00000890
        WRITE(6,8)                                                      00000900
        GO TO 23                                                        00000910
 24   CONTINUE                                                          00000920
      IF (MM2.EQ.0) PRNT=0                                              00000930
      IF (MM1.EQ.0.AND.MM2.EQ.1) PRNT = 1                               00000940
      IF (MM1.EQ.1.AND.MM2.EQ.1) PRNT = 2                               00000950
      IF (PRNT.EQ.0) GO TO 88                                           00000960
        WRITE(6,10)                                                     00000970
        READ(5,11) (TITL(L),L=1,28)                                     00000980
 88   IF (MAXPNT.EQ.1.OR.ITER.EQ.1) WRITE(6,12)                         00000990
C                                                                       00001000
      RETURN                                                            00001010
      END                                                               00001020
      SUBROUTINE PRMPT2                                                 00001030
C                                                                       00001040
C*************************************************************************00001050
C*                        SUBROUTINE PRMPT2                            *00001060
C*  SECOND OF THE PROMPTING ROUTINES.  PROMPTS THE USER FOR NAMELISTS   *00001070
C*  /GO/ (WHICH CONTAINS ALL VARIABLES READ IN FROM THE FIVE INPUT      *00001080
C*  FILES AND ALLOWS THE USER TO OVERRIDE THOSE VALUES IN REAL TIME)    *00001090
C*  AND /SENS/ (WHICH CONTAINS PARAMETERS FOR THE SENSITIVITY           *00001100
C*  ANALYSIS:  FOR EACH OPTIONAL DERIVATIVE TD---, LD--- TELLS HOW MANY*00001110
C*  OF THE LARGEST TD---  DERIVATIVES THE USER WANTS TO SEE IN HIS      *00001120
C*  TERMINAL OUTPUT.  LDERV TELLS HOW MANY OF THE LARGEST DERIVATIVES   *00001130
C*  OF ALL TYPES THE USER WANTS TO SEE IN HIS OFF-LINE OUTPUT.          *00001140
C*************************************************************************00001150
C                                                                       00001160
      COMMON /CNTL/ EXIT,ITER,MAXPNT,PRNT,REDO,REREAD                   00001170
      INTEGER EXIT,PRNT,REDO,REREAD                                     00001180
C                                                                       00001190
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONP,CPMI,   00001200
     +             CPMP,CPWT,CRCT,DAA,DLR,DPCT,DS,                      00001210
     +             FAC(10),FCS,FSD,H,INC,K,M,MCRS,MXHRS,                00001220
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRCDX,REPURB,RMC,      00001230
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                00001240
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR       00001250
      INTEGER CADRE                                                     00001260
```

```
      REAL IMC,K,MCRS,MXHRS                                              00001270
C                                                                        00001280
      COMMON /RD2/ A,COC(150),COD(150),COS(150),INOSE(150),NSEC(150),    00001290
     +             NSED(150),NSES(150),SEC(150),SENAME(150,24)           00001300
      REAL NSEC,NSED,NSES                                                00001310
      INTEGER A                                                          00001320
C                                                                        00001330
      COMMON /RD3/ ENYR(10),FA,FANAME(10,24),HWCF(10),INOFA(10),MMH(10),00001340
     +             SIZE(10),SMI(10),SWCF(10),SWFIX(10),SWVAR(10),      00001350
     +             WEIGHT(10)                                          00001360
      INTEGER FA                                                         00001370
      REAL MMH                                                           00001380
C                                                                        00001390
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),      00001400
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),       00001410
     +             UC(200)                                             00001420
      INTEGER QPA,QR                                                     00001430
      REAL MTBI                                                          00001440
C                                                                        00001450
      COMMON /RD5/ BCMH(200),CBCMH(200),CMH(200),CRTS1(200),CRTS2(200),  00001460
     +             DBCMH(200),DMH(200),DRTS1(200),DRTS2(200),          00001470
     +             DRTS3(200),FPR(200),IMH(200),INO15(200),N15,        00001480
     +          PAMH(200),RIP(200),RL(200),RMH(200),SMH(200),SRTS1(200),00001490
     +             WOR1(200),WOR2(200),WOR3(200)                       00001500
      REAL IMH                                                           00001510
      INTEGER RL                                                         00001520
C                                                                        00001530
      COMMON /SENS/ FINC,LDCMH,LDCRTS,LDDMH,LDDRTS,LDERV,LDFPR,LDFR,     00001540
     +              LDMCI,LDRM,LDSRTS,LDWOR,LDUC                        00001550
C                                                                        00001560
      NAMELIST/GO/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPMI,    00001570
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                     00001580
     +             FAC,FCS,FSD,H,IMC,K,M,MCRS,MXHRS,                   00001590
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRODX,REPURB,RMC,     00001600
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,               00001610
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR,     00001620
     +             A,COC,COD,COS,INOSE,NSEC,                           00001630
     +             NSED,NSES,SRC,SENAME,                               00001640
     +             ENYR,FA,FANAME,HWCF,INOFA,MMH,                      00001650
     +             SIZE,SMI,SWCF,SWFIX,SWVAR,                          00001660
     +             WEIGHT,                                             00001670
     +             INO,LRNAME,LRPART,MCI,                              00001680
     +             MTBI,N,PA,QPA,QR,RM,                                00001690
     +             UC,                                                 00001700
     +             BCMH,CBCMH,CMH,CRTS1,CRTS2,                         00001710
     +             DBCMH,DMH,DRTS1,DRTS2,                              00001720
     +             DRTS3,FPR,IMH,INO15,N15,                            00001730
     +             PAMH,RIP,RL,RMH,SMH,SRTS1,                          00001740
     +             WOR1,WOR2,WOR3,EXIT                                 00001750
C                                                                        00001760
      NAMELIST/SENS/ FINC,LDCMH,LDCRTS,LDDMH,LDDRTS,LDERV,LDFPR,LDFR,    00001770
     +               LDMCI,LDRM,LDSRTS,LDWOR,LDUC,EXIT                  00001780
C                                                                        00001790
    1 FORMAT (1X)                                                        00001800
    2 FORMAT (51H  NAMELIST /GO/ CONTAINS ALL VARIABLES FOUND IN THE,    00001810
     +        13H INPUT FILES.)                                         00001820
    3 FORMAT (52H  AT THIS POINT, NAMELIST /GO/ VARIABLES CONTAIN VAL,   00001830
     +        13HUES AS IN THE/                                         00001840
     +        18H  THE INPUT FILES.)                                    00001850
    4 FORMAT (52H  AT THIS POINT, NAMELIST /GO/ VARIABLES ARE AS THEY,   00001860
     +        11H WERE AFTER/                                           00001870
     +        39H  THE LAST NAMELIST /GO/ WAS SUBMITTED.)               00001880
    5 FORMAT (53H  TO USE THESE VALUES, SUBMIT AN EMPTY NAMELIST /GO/./) 00001890
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     +        52H  TO OVERRIDE ANY OF THESE VALUES, SUBMIT AN NON-EMP,   00001900
     +        17HTY NAMELIST /GO/.)                                      00001910
   6  FORMAT (41H SUBMIT NAMELIST /GO/ IN NAMELIST FORMAT:)              00001920
   7  FORMAT (53H  NAMELIST /SENS/ CONTAINS VARIABLES THAT CONTROL THE/  00001930
     +        53H  DISPLAY OF THE SENSITIVITY ANALYSIS.                 )00001940
   8  FORMAT (53H  AT THIS POINT, THE TERMINAL DISPLAYS SENSITIVITY WI,  00001950
     +       18HTH RESPECT TO ONLY/32H  GLOBAL FAILURE RATE (K FACTOR),  00001960
     +        40H AND GLOBAL EQUIPMENT COST (XUC FACTOR).)              00001970
   9  FORMAT (52H  AT THIS POINT, THE TERMINAL SENSITIVITY DISPLAY IS/   00001980
     +        32H  AS IT WAS ON THE PREVIOUS RUN.)                      00001990
  10  FORMAT (53H  FOR THE SAME TERMINAL DISPLAY, SUBMIT AN EMPTY NAME,  00002000
     +        12HLIST /SENS/./                                          00002010
     +        54H  FOR A DIFFERENT TERMINAL DISPLAY, SUBMIT A NON-EMPTY,00002020
     +        17H NAMELIST /SENS/.)                                     00002030
  11  FORMAT (43H SUBMIT NAMELIST /SENS/ IN NAMELIST FORMAT:)            00002040
C                                                                       00002050
      WRITE(6,1)                                                        00002060
      IF (MAXPMT.NE.1) GO TO 30                                         00002070
        WRITE(6,2)                                                      00002080
        IF (ITER.EQ.1.OR.REREAD.EQ.1) WRITE(6,3)                        00002090
        IF (ITER.GT.1.AND.REREAD.NE.1) WRITE(6,4)                       00002100
        WRITE(6,5)                                                      00002110
  30  WRITE(6,6)                                                        00002120
      READ(5,GO)                                                        00002130
      IF (EXIT.EQ.1) RETURN                                             00002140
      WRITE(6,1)                                                        00002150
      IF (MAXPMT.NE.1) GO TO 31                                         00002160
        LDTOT = LDCMH + LDCRTS + LDDMH + LDDRTS + LDFPR + LDFR + LDRM   00002170
     +          + LDMCI + LDSRTS + LDWOR + LDUC                       00002180
        WRITE(6,7)                                                      00002190
        IF (LDTOT.EQ.0) WRITE(6,8)                                      00002200
        IF (LDTOT.NE.0) WRITE(6,9)                                      00002210
        WRITE(6,10)                                                     00002220
  31  WRITE(6,11)                                                       00002230
      READ(5,SENS)                                                      00002240
C                                                                       00002250
      RETURN                                                            00002260
      END                                                               00002270
      SUBROUTINE PRMPT3                                                 00002280
C                                                                       00002290
C*************************************************************************00002300
C*                          SUBROUTINE PRMPT3                          *00002310
C*  THIRD OF PROMPTING ROUTINES THAT TELLS USER THAT LCC HAS BEEN      *00002320
C*  COMPLETED AND THAT GIVES THE USER A CHANCE TO EXIT.                *00002330
C*************************************************************************00002340
C                                                                       00002350
      COMMON /CNTL/ EXIT,ITER,MAXPMT,PRNT,REDO,REREAD                   00002360
      INTEGER EXIT,PRNT,REDO,REREAD                                     00002370
C                                                                       00002380
      DATA ECHAR/1HE/,BK/1H /                                           00002390
C                                                                       00002400
  2   FORMAT (1X/15H LCC COMPLETED.)                                    00002410
  3   FORMAT (49H IF YOU WISH TO EXIT, HIT -E-, THEN HIT -RETURN-;,     00002420
     +        12H  OTHERWISE,)                                          00002430
  4   FORMAT (46H ADJUST TERMINAL TO NEW PAGE AND HIT -RETURN-.)        00002440
  5   FORMAT (A1)                                                       00002450
C                                                                       00002460
C                                                                       00002470
      STR = BK                                                          00002480
      WRITE(6,2)                                                        00002490
      IF (MAXPMT.EQ.1) WRITE(6,3)                                       00002500
      WRITE(6,4)                                                        00002510
      READ(5,5) STR                                                     00002520
```

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      IF (STR.EQ.ECHAR) EXIT=1                                          00002530
C                                                                       00002540
      RETURN                                                            00002550
      END                                                               00002560
      SUBROUTINE PRMPT4                                                 00002570
C                                                                       00002580
C*****************************************************************    00002590
C*                          SUBROUTINE PRMPT4                    *    00002600
C*  THIRD OF PROMPTING ROUTINES THAT ASKS USER TO ADJUST PAPER TO NEW  *00002610
C*  PAGE FOR OSENS AND GIVES THE USER A CHANCE TO EXIT.              *  00002620
C*****************************************************************    00002630
C                                                                       00002640
      COMMON /CNTL/ EXIT,ITER,MAXPMT,PRNT,REDO,REREAD                   00002650
      INTEGER EXIT,PRNT,REDO,REREAD                                     00002660
C                                                                       00002670
      DATA ECHAR/1HE/,BK/1H /                                           00002680
C                                                                       00002690
  2   FORMAT (1X)                                                       00002700
  3   FORMAT (49H IF YOU WISH TO EXIT, HIT -E-, THEN HIT -RETURN-;,     00002710
     +        12H  OTHERWISE,)                                          00002720
  4   FORMAT (46H ADJUST TERMINAL TO NEW PAGE AND HIT -RETURN-.)        00002730
  5   FORMAT (A1)                                                       00002740
C                                                                       00002750
C                                                                       00002760
      STR = BK                                                          00002770
      WRITE(6,2)                                                        00002780
      IF (MAXPMT.EQ.1) WRITE(6,3)                                       00002790
      WRITE(6,4)                                                        00002800
      READ(5,5) STR                                                     00002810
      IF (STR.EQ.ECHAR) EXIT=1                                          00002820
C                                                                       00002830
      RETURN                                                            00002840
      END                                                               00002850
      SUBROUTINE PRMPT5                                                 00002860
C                                                                       00002870
C*****************************************************************    00002880
C*                          SUBROUTINE PRMPT5                    *    00002890
C*  FIFTH  AND FINAL PROMPTING ROUTINE TO ASK IF ANOTHER RUN IS      *  00002900
C*  DESIRED.  IF SO, REDO = 1.  IF NOT, REDO = 0.                    *  00002910
C*****************************************************************    00002920
C                                                                       00002930
      COMMON /CNTL/ EXIT,ITER,MAXPMT,PRNT,REDO,REREAD                   00002940
      INTEGER EXIT,PRNT,REDO,REREAD                                     00002950
C                                                                       00002960
      DATA YES/1HY/,CNO/1HN/                                            00002970
C                                                                       00002980
  1   FORMAT (1X/23H ANOTHER RUN (Y OR N)-?)                            00002990
  2   FORMAT (A1)                                                       00003000
  3   FORMAT (49H SUBMIT 'Y' OR 'N' STARTING IN COLUMN 1.  NOTHING,     00003010
     +        12H ELSE WORKS.)                                          00003020
C                                                                       00003030
      REDO = 2                                                          00003040
      WRITE(6,1)                                                        00003050
  4   READ(5,2) STR                                                     00003060
      IF (STR.EQ.YES) REDO=1                                            00003070
      IF (STR.EQ.CNO) REDO=0                                            00003080
      IF (REDO.NE.2) GO TO 5                                            00003090
        WRITE(6,3)                                                      00003100
        GO TO 4                                                         00003110
  5   CONTINUE                                                          00003120
C                                                                       00003130
      RETURN                                                            00003140
      END                                                               00003150
```

```
      SUBROUTINE READ1                                                          00000010
C                                                                               00000020
C*****************************************************************************00000030
C*                          SUBROUTINE READ1                                  *00000040
C*  SUBROUTINE READS NAMELIST/MISC/FROM THE UNIT 11 FILE: MISCELLANEOUS*00000050
C*  INPUTS (MAINLY SCALARS).                                                  *00000060
C*****************************************************************************00000070
C                                                                               00000080
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPMI,           00000090
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                            00000100
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MXHRS,                      00000110
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRODX,REFURB,RMC,            00000120
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                      00000130
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR             00000140
      INTEGER CADRE                                                             00000150
      REAL IMC,K,MCRS,MXHRS                                                     00000160
C                                                                               00000170
      NAMELIST /MISC/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPMI,00000180
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                            00000190
     +             FAC,FCS,FSD,H,IMC,K,M,MCRS,MXHRS,                          00000200
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRODX,REFURB,RMC,            00000210
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                      00000220
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR             00000230
      READ(11,MISC)                                                             00000240
      RETURN                                                                    00000250
      END                                                                       00000260
      SUBROUTINE ITAB1                                                          00000270
C                                                                               00000280
C*****************************************************************************00000290
C*                          SUBROUTINE ITAB1                                  *00000300
C*  SUBROUTINE PRINTS A INPUT TABLE 1 WHICH DISPLAYS THE MISCELLANEOUS *00000310
C*  INPUTS (MAINLY SCALARS).                                                  *00000320
C*****************************************************************************00000330
C                                                                               00000340
C                                                                               00000350
C                                                                               00000360
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPMI,           00000370
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                            00000380
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MXHRS,                      00000390
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRODX,REFURB,RMC,            00000400
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                      00000410
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR             00000420
      INTEGER CADRE                                                             00000430
      REAL IMC,K,MCRS,MXHRS                                                     00000440
C                                                                               00000450
C                                                                               00000460
1000  FORMAT (1H1,38X,43HINPUT TABLE 1:  MISCELLANEOUS SCALAR INPUTS)           00000470
1100  FORMAT (1HO//7X,7HGENERAL//                                               00000480
     +    15X,22HK - RELIABILITY FACTOR,30X,F12.2)                             00000490
1200  FORMAT (15X,19HM - NUMBER OF SITES,37X,I5,10H     SITES/                  00000500
     +    12X,32HPIUP - NUMBER OF OPERATING YEARS,23X,F12.2,7H  YEARS/         00000510
     +    13X,22HXUC - UNIT COST FACTOR,32X,F12.2/                             00000520
     +    13X,28HYOH - YEARLY OPERATING HOURS,25X,F13.2,7H  HOURS)             00000530
1300  FORMAT (1HO/7X,27HDEVELOPMENT AND PRODUCTION //                           00000540
     +    13X,28HPSD - FULL SCALE DEVELOPMENT,26X,                             00000550
     +    F12.3,15H  $ IN MILLIONS/                                            00000560
     +    13X,29HPME - PRIME MISSION EQUIPMENT,25X,F12.3,                      00000570
     +    15H  $ IN MILLIONS/                                                  00000580
     +    11X,35HPRODX - ASSOCIATED PRODUCTION COSTS,21X,F12.3,                00000590
     +    15H  $ IN MILLIONS/                                                  00000600
     +    10X,22HREFURB - REFURBISHMENT,35X,F12.3,15H  $ IN MILLIONS/          00000610
     +    14X,25HSW - SOFTWARE DEVELOPMENT,28X,F12.3,15H  $ IN MILLIONS/       00000620
     +    13X,31HVAL - DESIGN VALIDATION        ,23X,F12.3,                    00000630
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     +    15H  $ IN MILLIONS)                                                00000640
1400  FORMAT (1HO/7X,11HMAINTENANCE//                                        00000650
     +    12X,45HADCM - AVERAGE LENGTH OF EMERGENCY CORRECTIVE/             00000660
     +    19X,16HMAINTENANCE TRIP,32X,F12.2,6H  DAYS/                       00000670
     +    12X,46HADPM - DURATION OF PREVENTIVE MAINTENANCE TRIP,            00000680
     +    9X,F12.2,6H  DAYS/                                                00000690
     +    13X,28HCAA - AVAILABLE WORK TIME FO,                              00000700
     + 23HR CMF RADAR MAINTENANCE,3X,F12.2,24H  HOURS PER YEAR PER MAN/     00000710
     +    12X,52HCCMP - AVERAGE NUMBER OF CMF PERSONNEL PER EMERGENCY/      00000720
     +    19X,27HCORRECTIVE MAINTENANCE TRIP,21X,F12.2,5H  MEN/             00000730
     +    13X,32HCDR - TDY RATE FOR CMF PERSONNEL,22X,F12.2,                00000740
     +    11H  $ PER DAY/                                                   00000750
     +    12X,49HCDWH - CMF WORKING HOURS ON SITE MAINTENANCE TRIP,         00000760
     +    6X,F12.2,23H  HOURS PER DAY PER MAN/                              00000770
     + 13X,30HCLR - HOURLY LABOR RATE AT CMF,24X,F12.2,12H  $ PER HOUR/     00000780
     +    12X,51HCPMI - SHORTEST PREVENTIVE MAINTENANCE INTERVAL FOR/       00000790
     +    19X,19HCMF PERSONNEL TRIPS,29X,F12.2,7H  HOURS)                   00000800
1500  FORMAT (12X,39HCPMP - AVERAGE NUMBER OF CMF PERSONNEL ,                00000810
     +13HPER SCHEDULED/19X,27HPREVENTIVE MAINTENANCE TRIP,21X,F12.2,2X,     00000820
     +3HMEN/13X,52HDAA - AVAILABLE WORK TIME FOR DEPOT REPAIR MAINTENAN,    00000830
     +    2HCE,F12.2,24H  HOURS PER YEAR PER MAN/                           00000840
     +    13X,32HDLR - HOURLY LABOR RATE AT DEPOT,22X,F12.2,                00000850
     +    12H  $ PER HOUR/                                                  00000860
     +14X,48HDS - FRACTION OF FAILURES AUTOMATICALLY DETECTED,5X,F12.2/     00000870
     + 15X,31HH - AVERAGE TRANSPORTATION COST,21X,F12.2,12H  $ PER SITE/    00000880
     +    11X,41HMXHRS - MAXIMUM ON-RADAR MAINTENANCE TIME,15X,F12.2,       00000890
     +    20H  MAN-HOURS PER SITE/                                          00000900
     +    13X,46HNSP - NUMBER OF RADAR MAINTENANCE MEN PER SITE,            00000910
     +    12X,I5,8H      MEN/                                               00000920
     +    13X,52HSAA - AVAILABLE WORK TIME FOR SITE RADAR MAINTENANCE,      00000930
     +    2X,F12.2,33H  HOURS PER YEAR PER SITE PER MAN/                    00000940
     +    11X,54HSMTBI - SYSTEM MEAN TIME BETWEEN MAINTENANCE INCIDENTS,    00000950
     +    1X,F13.2,7H  HOURS/                                               00000960
     +    12X,55HYSLR - YEARLY LABOR RATE FOR SITE RADAR MAINTENANCE MEN,   00000970
     +    F12.2,11H  $ PER MAN)                                             00000980
1600  FORMAT (1HO//7X,17HINVESTMENT SPARES//                                 00000990
     +    15X,51HB - NUMBER OF STANDARD DEVIATIONS FOR CMF AND DEPOT/       00001000
     +    19X,29H(ASSUMING EXPECTED BACKORDER),19X,F12.2/                   00001010
     +    12X,24HCONF - CONFIDENCE FACTOR,31X,F12.2/                        00001020
     +    12X,28HCRCT - CMF REPAIR CYCLE TIME,27X,F12.2,7H  WEEKS/          00001030
     +    12X,30HDRCT - DEPOT REPAIR CYCLE TIME,25X,F12.2,7H  WEEKS/        00001040
     +    13X,47HOST - ORDER AND SHIPPING TIME FROM DEPOT TO CMF,           00001050
     +    7X,F12.2,7H  WEEKS/                                               00001060
     +    12X,55HSOSI - ORDER AND SHIPPING INTERVAL BETWEEN SITE AND CMF,   00001070
     +    F12.2,7H  WEEKS/                                                  00001080
     +    12X,29HSRCT - SITE REPAIR CYCLE TIME,26X,F12.2,7H  WEEKS)         00001090
1700  FORMAT (1HO/7X,20HINVENTORY MANAGEMENT//                               00001100
     +    13X,29HIMC - INITIAL MANAGEMENT COST,25X,F12.2,12H  $ PER PART/   00001110
     +    13X,31HRMC - RECURRING MANAGEMENT COST,23X,F12.2,                 00001120
     +    21H  $ PER PART PER YEAR/                                         00001130
     +    14X,43HSA - SITE AND CMF INVENTORY MANAGEMENT COST,10X,F12.2,     00001140
     +    30H  $ PER PART PER SITE PER YEAR)                                00001150
1800  FORMAT (1HO/7X,20HSOFTWARE MAINTENANCE//                               00001160
     +    12X,32HCPWT - HARDWARE ENHANCEMENT COST,21X,F14.2,                00001170
     +    12H  $ PER LBS./                                                  00001180
     +    11X,25HSWPAC - SOFTWARE FACILITY,31X,F12.3,                       00001190
     +    15H  $ IN MILLIONS)                                               00001200
1900  FORMAT (1HO/7X,11HCONSUMABLES//                                        00001210
     +    13X,34HPCS - COST OF POWER AT RADAR SITES,20X,F12.2,              00001220
     +    35H  $ PER KILOWATT HOUR PER SITE     /                           00001230
     +    12X,37HMCRS - MISCELLANEOUS CONSUMPTION RATE,18X,F12.2,           00001240
     +    21H  $ PER YEAR PER SITE/                                         00001250
     +    12X,38HPPRS - CONSUMPTION RATE OF PRIME POWER,17X,F12.2,          00001260
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     +    13H  KW PER SITE/                                                  00001270
     +    12X,42HSPRS - CONSUMPTION RATE OF SECONDARY POWER,13X,F12.2,       00001280
     +    13H  KW PER SITE)                                                  00001290
2000  FORMAT (1H0/7X,10HFACILITIES/)                                         00001300
2100  FORMAT (10X,4HFAC(,I1,21H) - COST OF FACILITY ,I2,29X,F12.3,           00001310
     +    15H  $ IN MILLIONS)                                                00001320
2200  FORMAT (9X,4HFAC(,I2,21H) - COST OF FACILITY ,I2,29X,F12.3,            00001330
     +    15H  $ IN MILLIONS)                                                00001340
2300  FORMAT (1H0/7X,8HTRAINING//                                            00001350
     +    11X,39HCADRE - NUMBER OF MEN IN TRAINING CADRE,21X,I5,             00001360
     +    5X,3HMEN/                                                          00001370
     +    13X,41HNCP - NUMBER OF CMF MAINTENANCE PERSONNEL,17X,I5,5X,        00001380
     +    3HMEN/                                                             00001390
     +    13X,43HNDP - NUMBER OF DEPOT MAINTENANCE PERSONNEL,                00001400
     +    15X,I5,5X,3HMEN/                                                   00001410
     +    14X,31HTC - COST OF MAINTENANCE COURSE,22X,F12.2,                  00001420
     +    20H  $ PER MAN PER WEEK/                                           00001430
     +    11X,28HTCCAD - COST OF CADRE COURSE,28X,F12.2,                     00001440
     +    20H  $ PER MAN PER WEEK/                                           00001450
     +    14X,40HTE - COST OF PECULIAR TRAINING EQUIPMENT,11X,               00001460
     +    F14.2,3H  $/                                                       00001470
     +    14X,38HTR - AVERAGE MAINTENANCE TURNOVER RATE,15X,F12.2/           00001480
     +    14X,51HTW - AVERAGE TRAINING TIME FOR SITE, CMF, AND DEPOT,        00001490
     +    2X,F12.2,7H  WEEKS)                                                00001500
2400  FORMAT (11X,31HTWCAD - TRAINING TIME FOR CADRE,25X,F12.2,              00001510
     +    7H  WEEKS/                                                         00001520
     +    11X,20HYSCAD - CADRE SALARY,36X,F12.2,20H  $ PER MAN PER YEAR)     00001530
2500  FORMAT (1H1,38X,43HINPUT TABLE 1:  MISCELLANEOUS SCALAR INPUTS,        00001540
     +                12H (CONTINUED))                                       00001550
C                                                                           00001560
C                                                                           00001570
      WRITE(7,1000)                                                         00001580
      WRITE(7,1100) K                                                       00001590
      WRITE(7,1200) M,PIUP,XUC,YOH                                          00001600
      TEM1 = PSD / 1000000.                                                 00001610
      TEM2 = PME / 1000000.                                                 00001620
      TEM3 = PRODX / 1000000.                                               00001630
      TEM4 = REFURB / 1000000.                                              00001640
      TEM5 = SW / 1000000.                                                  00001650
      TEM6 = VAL / 1000000.                                                 00001660
      WRITE(7,1300) TEM1,TEM2,TEM3,TEM4,TEM5,TEM6                           00001680
      WRITE(7,1400) ADCM,ADPM,CAA,CCMP,CDR,CDWH,CLR,CPMI                    00001690
      WRITE(7,1500) CPMP,DAA,DLR,DS,H,MXHRS,NSP,SAA,SMTBI,YSLR              00001700
      WRITE(7,1700) INC,RMC,SA                                              00001710
      WRITE(7,2500)                                                         00001720
      WRITE(7,1600) B,CONF,CRCT,DRCT,OST,SOSI,SRCT                          00001730
      TEM1 = SWFAC / 1000000.                                               00001740
      WRITE(7,1800) CPWT,TEM1                                               00001750
      WRITE(7,1900) PCS,MCPS,PPRS,SPRS                                      00001760
      WRITE(7,2000)                                                         00001770
C                                                                           00001780
      DO 50 J3=1,10                                                         00001790
        IF (FAC(J3).LT.0.00001) GO TO 50                                    00001800
        TEM1 = FAC(J3) / 1000000.                                           00001810
        IF (J3.LE.9) WRITE(7,2100) J3,J3,TEM1                               00001820
        IF (J3.GT.9) WRITE(7,2200) J3,J3,TEM1                               00001830
 50   CONTINUE                                                              00001840
C                                                                           00001850
      WRITE(7,2300) CADRE,NCP,NDP,TC,TCCAD,TE,TR,TW                         00001860
      WRITE(7,2400) TWCAD,YSCAD                                             00001870
C                                                                           00001880
      RETURN                                                                00001890
      END                                                                   00001900
```

```
      SUBROUTINE READ2                                                          00000010
C                                                                               00000020
C*****************************************************************************00000030
C*  SUBROUTINE READ2 READS IN THE SUPPORT EQUIPMENT INPUTS FROM UNIT12.*00000040
C*  ONE RECORD IS READ IN FOR EACH SE UP TO A MAXIMUM OF 150 SES IN    *00000050
C*  THE SYSTEM.  NO INDEX NUMBER MAY EXCEED 150.                       *00000060
C*  -A- INDICATES THE LARGEST SE INDEX THAT WAS INPUT.  THE USER MUST  *00000070
C*  HAVE HIS SE INDICES IN ASCENDING ORDER, BUT INDEX NUMBERS MAY BE   *00000080
C*  SKIPPED (I.E., THERE MAY BE GAPS IN THE FILE).  FURTHERMORE, THE   *00000090
C*  USER CAN HAVE THE PROGRAM SKIP A PARTICULAR SUPPORT EQUIPMENT TYPE *00000100
C*  BY SETTING NSES,NSEC, AND NSED TO 0. FOR THAT SE TYPE.             *00000110
C*****************************************************************************00000120
C                                                                               00000130
      COMMON /RD2/ A,COC(150),COD(150),COS(150),INOSE(150),NSEC(150),           00000140
     +             NSED(150),NSES(150),SEC(150),SENAME(150,24)                  00000150
      REAL NSEC,NSED,NSES                                                       00000160
      INTEGER A                                                                 00000170
C                                                                               00000180
      COMMON /CNTL/ EXIT,ITER,MAXPMT,PRNT,REDO,REREAD                           00000190
      INTEGER EXIT,PRNT,REDO,REREAD                                             00000200
C                                                                               00000210
      COMMON /ERROR/ IERROR,IWARN                                               00000220
C                                                                               00000230
      COMMON /INIT/ CONFLO,MAXFA,MAXLR,MAXSE                                    00000240
C                                                                               00000250
      REAL NSECX,NSEDX,NSESX                                                    00000260
      DATA STAR/1H*/                                                            00000270
      DIMENSION SENAMX(24)                                                      00000280
C                                                                               00000290
  1   FORMAT (A1,I3,24A1,F4.0,F4.0,F4.0,F7.0,F3.2,F3.2,F3.2)                    00000300
C                                                                               00000310
  2   FORMAT (/49H UNIT 12 ERROR:  END OF FILE CARD NOT FOUND AFTER/            00000320
     +   17X,40HMAXIMUM NUMBER OF SE TYPES WERE READ IN.)                       00000330
C                                                                               00000340
  3   FORMAT (A1)                                                               00000350
C                                                                               00000360
  4   FORMAT (/50H UNIT 12 ERROR:  SE NUMBERS NOT INCREASING FOR SE ,           00000370
     +    6HNUMBER ,I3,1H.)                                                    00000380
C                                                                               00000390
  5   FORMAT (/48H UNIT 12 ERROR:  INDEX NUMBER WAS NOT POSITIVE. )             00000400
C                                                                               00000410
  6   FORMAT (/49H UNIT 12 ERROR:  END OF FILE CARD NOT FOUND AFTER/            00000420
     +   17X,40HMAXIMUM SE INDEX NUMBER WAS READ IN.    )                      00000430
C                                                                               00000440
      A = 0                                                                     00000450
C                                                                               00000460
C*****************************************************************************00000470
C*  THE SUPPORT EQUIPMENT INPUTS FOLLOW HERE.     AN END-OF-FILE IS    *00000480
C*  DESIGNATED BY A STAR (*) IN COLUMN 1 OF THE LAST RECORD.  IF MORE  *00000490
C*  THAN 150 SES ARE INPUT, AN ERROR MESSAGE IS PRINTED OUT.  A        *00000500
C*  KEEPS TRACK OF THE LARGEST SE INDEX FROM UNIT 12.                  *00000510
C*  USER MUST HAVE THE SE NUMBERS IS INCREASING ORDER, BUT GAPS MAY    *00000520
C*  EXIST.  THE PROGRAM WILL KNOW THAT AN SE NUMBER WAS SKIPPED        *00000530
C*  BECAUSE NSEC+NSED+NSES FOR THAT SE INDEX WILL SUM TO ZERO.         *00000540
C*  NO INDEX NUMBER MAY BE LESS THAN ZERO OR GREATER THAN 150.         *00000550
C*****************************************************************************00000560
C                                                                               00000570
      DO 25 II=1,MAXSE                                                          00000580
        READ (12,1) COL1,INOSE(II),(SENAMX(J),J=1,24),                          00000590
     +    NSESX,NSECX,NSEDX,SECX,COSX,COCX,CODX                                 00000600
C                                                                               00000610
C.......SKIP OUT IF WE HAVE FOUND THE EOF MARKER.                               00000620
        IF (COL1.EQ.STAR) GO TO 30                                              00000630
```

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C.......SKIP THIS SE TYPE IF NSES,NSEC,NSED=0.                          00000640
        TOT = NSESX + NSECX + NSEDX                                     00000650
        IF (TOT.LT.0.0001) GO TO 25                                     00000660
        L=INOSE(II)                                                     00000670
C.......PRINT AN ERROR MESSAGE IF INDEX WAS NOT POSITIVE.               00000680
        IF (L.GT.0) GO TO 21                                            00000690
          WRITE(6,5)                                                    00000700
          IF (PRNT.NE.0) WRITE(7,5)                                     00000710
          IERROR = IERROR + 1                                           00000720
          GO TO 25                                                      00000730
C.......ASSIGN VALUES FOR SE TYPE L.                                    00000740
 21     DO 22 J=1,24                                                    00000750
          SENAME(L,J) = SENAMX(J)                                       00000760
 22     CONTINUE                                                        00000770
        NSES(L) = NSESX                                                 00000780
        NSEC(L) = NSECX                                                 00000790
        NSED(L) = NSEDX                                                 00000800
        SEC(L) = SECX                                                   00000810
        COS(L) = COSX                                                   00000820
        COC(L) = COCX                                                   00000830
        COD(L) = CODX                                                   00000840
C.......PRINT AN ERROR MESSAGE IF INDEX DOESNT EXCEED PREVIOUS INDEX.   00000850
        IF (L.GT.A) GO TO 23                                            00000860
          WRITE(6,4) L                                                  00000870
          IF (PRNT.NE.0) WRITE(7,4) L                                   00000880
          IERROR = IERROR + 1                                           00000890
          GO TO 25                                                      00000900
 23     A = L                                                           00000910
C.......PRINT AN ERROR MESSAGE IF INDEX EXCEEDS 150.                    00000920
        IF (A.LE.MAXSE) GO TO 24                                        00000930
          WRITE(6,6)                                                    00000940
          IF (PRNT.NE.0) WRITE(7,6)                                     00000950
          IERROR = IERROR + 1                                           00000960
          GO TO 30                                                      00000970
 24     IF (A.EQ.MAXSE) GO TO 26                                        00000980
 25   CONTINUE                                                          00000990
C                                                                       00001000
 26   READ (12,3) COL1                                                  00001010
      IF (COL1.EQ.STAR) GO TO 30                                        00001020
      IF (II.GE.MAXSE) GO TO 27                                         00001030
C.......PRINT ERROR MESSAGE IF INDEX NUMBER 150 WAS NOT FOLLOWED BY EOF.00001040
        WRITE (6,6)                                                     00001050
        IF (PRNT.NE.0) WRITE (7,6)                                      00001060
        GO TO 28                                                        00001070
C.......PRINT ERROR MESSAGE IF 151ST CARD NOT EOF.                      00001080
 27     WRITE (6,2)                                                     00001090
        IF (PRNT.NE.0) WRITE (7,2)                                      00001100
 28   IERROR=IERROR+1                                                   00001110
C                                                                       00001120
 30   RETURN                                                            00001130
      END                                                               00001140
      SUBROUTINE ITAB2                                                  00001150
C                                                                       00001160
C***********************************************************************00001170
C*  SUBROUTINE ITAB2 PRINTS OUT TABLE 2 ON UNIT 7 (LINE PRINTER).  IT  *00001180
C*  IS BASICALLY AN ECHO PRINT OF INPUT UNIT 12.                       *00001190
C***********************************************************************00001200
C                                                                       00001210
      COMMON /BD2/ A,COC(150),COD(150),COS(150),INOSE(150),NSEC(150),   00001220
     +             NSED(150),NSES(150),SEC(150),SENAME(150,24)          00001230
      REAL NSEC,NSED,NSES                                               00001240
      INTEGER A                                                         00001250
C                                                                       00001260
```

```
C                                                                       00001270
C                                                                       00001280
  1   FORMAT (1H1,36X,29HINPUT TABLE 2:  INPUTS BY SUP,                 00001290
     +        19HPORT EQUIPMENT TYPE///)                                00001300
C                                                                       00001310
  2   FORMAT (1H1,36X,41HINPUT TABLE 2:  INPUTS BY SUPPORT EQUIPME,     00001320
     +       19HNT TYPE (CONTINUED)///)                                 00001330
C                                                                       00001340
  3   FORMAT (79X,8HFRACTION,5X,8HFRACTION,5X,8HFRACTION/               00001350
     +    79X,9HUNIT COST,4X,9HUNIT COST,4X,9HUNIT COST/               00001360
     +    1X,7HSUPPORT,29X,6HNUMBER,5X,6HNUMBER,4X,6HNUMBER,15X,       00001370
     +    10HTO OPERATE,3X,10HTO OPERATE,3X,10HTO OPERATE/             00001380
     +    1X,6HEQUIP.,30X,8HREQUIRED,3X,8HREQUIRED,                    00001390
     +    2X,8HREQUIRED,4X,4HUNIT,5X,                                  00001400
     +    10H& MAINTAIN,3X,10H& MAINTAIN,3X,10H& MAINTAIN/             00001410
     +    1X,5HINDEX,6X,12HNOMENCLATURE,13X,9HEACH SITE,2X,6HAT CMF,4X,00001420
     +    8HAT DEPOT,4X,4HCOST,5X,7HAT SITE,6X,6HAT CMF,7X,8HAT DEPOT/ 00001430
     +    37X,6H(NSES),5X,6H(NSEC),4X,6H(NSED),6X,5H(SEC),4X,5H(COS),  00001440
     +    8X,5H(COC),8X,5H(COD)/)                                      00001450
C                                                                       00001460
  4   FORMAT (2X,I3,4X,24A1,4X,F7.2,4X,F6.2,4X,F6.2,4X,F7.0,4X,F5.2,    00001470
     +    8X,F5.2,8X,F5.2)                                             00001480
C                                                                       00001490
C***********************************************************************00001500
C*  PRINT OUT TABLE 2 HEADINGS.                                       *00001510
C***********************************************************************00001520
C                                                                       00001530
      LINCNT=0                                                          00001540
      WRITE (7,1)                                                       00001550
      WRITE (7,3)                                                       00001560
C                                                                       00001570
C***********************************************************************00001580
C*  THIS DO-LOOP PRINTS OUT THE UNIT 12 DATA.  50 LINES OF DATA ARE   *00001590
C*  WRITTEN BEFORE THE PRINTER JUMPS TO A NEW PAGE.  TABLE HEADINGS   *00001600
C*  ARE PRINTED ON EACH NEW PAGE.                                     *00001610
C***********************************************************************00001620
C                                                                       00001630
      IF (A.EQ.0) GO TO 26                                              00001640
      DO 25 L=1,A                                                       00001650
        TOT = NSES(L) + NSEC(L) + NSED(L)                               00001660
        IF (TOT.LT.0.0001) GO TO 25                                     00001670
        WRITE (7,4) L,(SENAME(L,J),J=1,24),NSES(L),NSEC(L),NSED(L),     00001680
     +    SEC(L),COS(L),COC(L),COD(L)                                   00001690
C                                                                       00001700
        LINCNT=LINCNT+1                                                 00001710
        IF (LINCNT.LT.50) GO TO 25                                      00001720
        WRITE (7,2)                                                     00001730
        WRITE (7,3)                                                     00001740
        LINCNT=0                                                        00001750
 25   CONTINUE                                                          00001760
 26   CONTINUE                                                          00001770
C                                                                       00001780
      RETURN                                                            00001790
      END                                                               00001800
```

```
      SUBROUTINE READ3                                                      00000010
C                                                                           00000020
C*************************************************************************00000030
C*  SUBROUTINE READ3 READS IN THE FUNCTIONAL AREA INPUTS FROM UNIT 13.    *00000040
C*  ONE RECORD IS READ IN FOR EACH FA  UP TO A MAXIMUM OF 10  FA'S IN     *00000050
C*  THE SYSTEM.                                                           *00000060
C*  THE INDEX NUMBERS MUST BE CONSECUTIVE STARTING WITH 1.                *00000070
C*************************************************************************00000080
C                                                                           00000090
      COMMON /RD3/ ENYR(10),FA,FANAME(10,24),HWCP(10),INOFA(10),MMH(10),00000100
     +             SIZE(10),SMI(10),SWCP(10),SWFIX(10),SWVAR(10),         00000110
     +             WEIGHT(10)                                             00000120
      INTEGER FA                                                          00000130
      REAL MMH                                                            00000140
C                                                                         00000150
      COMMON /CNTL/ EXIT,ITER,MAXPNT,PRNT,REDO,REREAD                     00000160
      INTEGER EXIT,PRNT,REDO,REREAD                                       00000170
C                                                                         00000180
      COMMON /ERROR/ IERROR,IWARN                                         00000190
C                                                                         00000200
      COMMON /INIT/ CONFLO,MAXFA,MAXLR,MAXSE                              00000210
C                                                                         00000220
C                                                                         00000230
      DATA STAR/1H*/                                                      00000240
C                                                                         00000250
  1   FORMAT (A1,I3,24A1,F5.0,2F5.2,F7.0,F3.2,F7.0,F3.2,F3.1,F6.3)        00000260
C                                                                         00000270
  2   FORMAT (/49H UNIT 13 ERROR:  END OF FILE CARD NOT FOUND AFTER/      00000280
     +   17X,41HMAXIMUM NUMBER OF FA  TYPES WERE READ IN.)                00000290
C                                                                         00000300
  3   FORMAT (A1)                                                         00000310
C                                                                         00000320
  4   FORMAT (/51H UNIT 13 ERROR:  FA  NUMBERS NOT CONSECUTIVE STARTI,    00000330
     +   25HNG WITH 1 FOR FA  NUMBER ,I3,1H.)                             00000340
C                                                                         00000350
      FA = 0                                                              00000360
C                                                                         00000370
C*************************************************************************00000380
C*  THE FUNCTIONAL AREA FILE INPUTS IN THIS LOOP. AN END-OF-FILE IS      *00000390
C*  DESIGNATED BY A STAR (*) IN COLUMN 1 OF THE LAST RECORD.  IF MORE    *00000400
C*  THAN 10  FAS  ARE INPUT, AN ERROR MESSAGE IS PRINTED OUT.  FA        *00000410
C*  KEEPS TRACK OF THE LARGEST FA  INDEX FROM UNIT 12.                   *00000420
C*  USER MUST HAVE THE FA  NUMBERS CONSECUTIVE STARTING WITH 1.          *00000430
C*************************************************************************00000440
C                                                                         00000450
      DO 25 J=1,MAXFA                                                     00000460
        READ (13,1) COL1,INOFA(J),(FANAME(J,L),L=1,24),SMI(J),MMH(J),     00000470
     +    ENYR(J),WEIGHT(J),HWCP(J),SIZE(J),SWCP(J),SWFIX(J),SWVAR(J)     00000480
C                                                                         00000490
        IF (COL1.EQ.STAR) GO TO 30                                        00000500
        IF (INOFA(J).EQ.J) GO TO 23                                       00000510
          WRITE(6,4) INOFA(J)                                             00000520
          IF (PRNT.NE.0) WRITE(7,4) INOFA(J)                              00000530
          IERROR = IERROR + 1                                             00000540
 23     CONTINUE                                                          00000550
        FA = INOFA(J)                                                     00000560
        SWFIX(J) = SWFIX(J) * 1000.                                       00000570
 25   CONTINUE                                                           00000580
C                                                                         00000590
      READ (13,3) COL1                                                    00000600
      IF (COL1.EQ.STAR) GO TO 30                                          00000610
      WRITE (6,2)                                                         00000620
      IF (PRNT.NE.0) WRITE (7,2)                                          00000630
```

```
      IEPROR=IPRROR+1                                                   00000640
C                                                                       00000650
 30   RETURN                                                            00000660
      END                                                               00000670
      SUBROUTINE ITAB3                                                  00000680
C                                                                       00000690
C*************************************************************************00000700
C*  SUBROUTINE ITAB3 PRINTS INPUT TABLE 3, INPUTS BY FUNCTIONAL AREA.   *00000710
C*************************************************************************00000720
C                                                                       00000730
      COMMON /RD3/ ENYR(10),FA,FANAME(10,24),HWCP(10),INOFA(10),MMH(10),00000740
     +             SIZE(10),SMI(10),SWCP(10),SWFIX(10),SWVAR(10),       00000750
     +             WEIGHT(10)                                           00000760
      INTEGER FA                                                        00000770
      REAL MMH                                                          00000780
C                                                                       00000790
C                                                                       00000800
  1   FORMAT (1H1,30X,41HINPUT TABLE 3:  INPUTS BY FUNCTIONAL AREA///   00000810
     +      33X,49HAVG. HRS. MAN-HOURS EXPECTED WEIGHT   EXPECTED   ,  00000820
     +      17HNUMBER    EXPECTED,10X,9HMAN-POWER/                     00000830
     +       6H FUNC-,27X,38HMAINT.    SCHEDULED NUMBER   IN LBS.   ,  00000840
     +      46HFRACTION   SOFTWARE FRACTION   FIXED  COST PER/         00000850
     +       7H TIONAL,26X,37HINTERVAL  MAINT.    ENHANCE- HARDWARE,    00000860
     +      45H HARDWARE   OBJECT   SOFTWARE   MAN-   OBJECT/          00000870
     +       5H AREA,28X,38HBY SITE   TASK SITE MENTS    AND      ,    00000880
     +      46HCHANGED    INSTRUC- CHANGED    POWER  INSTRUC-/         00000890
     +      22H INDEX    NOMENCLATURE,11X,                             00000900
     +      54HPERSONNEL PERSONNEL PER YEAR FIRMWARE PER ENHMT. TIONS,  00000910
     +      26H    PER ENHMT. COST   TION/                             00000920
     +      33X,5H(SMI),5X,5H(MMH),5X,6H(ENYR),3X,15H(WEIGHT) (HWCP),  00000930
     +      5X,6H(SIZE),3X,6H(SWCP),4X,15H(SWFIX) (SWVAR)/)            00000940
  2   FORMAT (1X,I3,4X,24A1,F7.2,F10.2,F9.0,F10.0,F9.2,F11.0,           00000950
     +        F9.2,F10.1,F10.3)                                         00000960
C                                                                       00000970
C                                                                       00000980
      WRITE(7,1)                                                        00000990
      DO 5 J=1,FA                                                       00001000
        WRITE(7,2) INOFA(J),(FANAME(J,L),L=1,24),SMI(J),MMH(J),ENYR(J), 00001010
     +             WEIGHT(J),HWCP(J),SIZE(J),SWCP(J),SWFIX(J),SWVAR(J)  00001020
  5   CONTINUE                                                          00001030
C                                                                       00001040
      RETURN                                                            00001050
      END                                                               00001060
```

```
      SUBROUTINE READ4                                                  00000010
C                                                                       00000020
C*****************************************************************************00000030
C*  SUBROUTINE READ4 READS IN THE FIRST LRU FILE OFF OF INPUT UNIT 14. *00000040
C*  ONE RECORD IS READ IN FOR EACH LRU UP TO A MAXIMUM OF 200 LRUS IN  *00000050
C*  THE SYSTEM.                                                        *00000060
C*****************************************************************************00000070
C                                                                       00000080
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),NCI(200),     00000090
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),        00000100
     +             UC(200)                                              00000110
      INTEGER QPA,QR                                                    00000120
      REAL MTBI                                                         00000130
C                                                                       00000140
      COMMON /ERROR/ IERROR,IWARN                                       00000150
C                                                                       00000160
      COMMON /INIT/ CONFLO,MAXPA,MAXLR,MAXSE                            00000170
C                                                                       00000180
      COMMON /CNTL/ EXIT,ITER,MAXPNT,PRNT,REDO,REREAD                   00000190
      INTEGER EXIT,PRNT,REDO,REREAD                                     00000200
C                                                                       00000210
      REAL MTBIX                                                        00000220
      DATA STAR/1H*/                                                    00000230
      DIMENSION LRNAMX(24),LRPARX(12)                                   00000240
      INTEGER QPAX,QRX                                                  00000250
C                                                                       00000260
  1   FORMAT (A1,I3,24A1,12A1,I3,I3,F7.0,F3.3,F9.0,F5.2,I1)             00000270
C                                                                       00000280
  2   FORMAT (/49H UNIT 14 ERROR:  END OF FILE CARD NOT FOUND AFTER/     00000290
     +   17X,41HMAXIMUM NUMBER OF LRU TYPES WERE READ IN.)              00000300
C                                                                       00000310
  3   FORMAT (A1)                                                       00000320
C                                                                       00000330
  4   FORMAT (/52H UNIT 14 ERROR:  LRU NUMBERS NOT INCREASING FOR LRU ,  00000340
     +    7HNUMBER ,I3,1H.)                                            00000350
C                                                                       00000360
  5   FORMAT (/48H UNIT 14 ERROR:  INDEX NUMBER WAS NOT POSITIVE. )     00000370
C                                                                       00000380
  6   FORMAT (/49H UNIT 14 ERROR:  END OF FILE CARD NOT FOUND AFTER/     00000390
     +   17X,41HMAXIMUM LRU INDEX NUMBER WAS READ IN.    )              00000400
C                                                                       00000410
      N = 0                                                             00000420
C                                                                       00000430
C*****************************************************************************00000440
C*  THE FIRST LRU FILE IS INPUT IN THIS DO-LOOP.  AN END-OF-FILE IS    *00000450
C*  DESIGNATED BY A STAR (*) IN COLUMN 1 OF THE LAST RECORD.  IF MORE  *00000460
C*  THAN 200 LRUS ARE INPUT, AN ERROR MESSAGE IS PRINTED OUT.  N       *00000470
C*  KEEPS TRACK OF THE LARGEST LRU INDEX FROM UNIT 14.                 *00000480
C*  THE LARGEST LRU INDEX MUST NOT EXCEED 200.                         *00000490
C*  USER MUST HAVE THE LRU NUMBERS IN INCREASING ORDER, BUT GAPS MAY   *00000500
C*  EXIST.  THE PROGRAM WILL KNOW THAT AN LRU NUMBER WAS SKIPPED       *00000510
C*  BECAUSE QPA FOR THAT LRU NUMBER WILL HAVE A VALUE OF ZERO.         *00000520
C*****************************************************************************00000530
C                                                                       00000540
      DO 25 II=1,MAXLR                                                  00000550
        READ (14,1) COL1,INO(II),(LRNAMX(J),J=1,24),(LRPARX(J),         00000560
     +    J=1,12),QPAX,QRX,UCX,RMX,MTBIX,PAX,NCIX                       00000570
C                                                                       00000580
C.......SKIP OUT OF ROUTINE IF WE HAVE COME TO THE EOF CARD.            00000590
        IF (COL1.EQ.STAR) GO TO 30                                      00000600
        I=INO(II)                                                       00000610
C.......PRINT ERROR MESSAGE IF INDEX NOT POSITIVE.                      00000620
        IF (I.GT.0) GO TO 20                                            00000630
```

```
          WRITE(6,5)                                                    00000640
          IF (PRNT.NE.0) WRITE(7,5)                                     00000650
          IERROR = IERROR + 1                                           00000660
          GO TO 25                                                      00000670
C.......PRINT ERROR MESSAGE IF INDEX GREATER THAN 200.                  00000680
 20       IF (I.LE.MAXLR) GO TO 21                                      00000690
          WRITE(6,6)                                                    00000700
          IF (PRNT.NE.0) WRITE(7,6)                                     00000710
          IERROR = IERROR + 1                                           00000720
          GO TO 30                                                      00000730
C.......ASSIGN VALUES TO LRU VARIABLES.                                 00000740
 21       DO 22 J=1,24                                                  00000750
          LRNAME(I,J) = LRNAMX(J)                                       00000760
          IF (J.LT.13) LRPART(I,J) = LRPARX(J)                          00000770
 22       CONTINUE                                                      00000780
          QPA(I) = QPAX                                                 00000790
          QR(I) = QRX                                                   00000800
          UC(I) = UCX                                                   00000810
          RM(I) = RMX                                                   00000820
          MTBI(I) = MTBIX                                               00000830
          PA(I) = PAX                                                   00000840
          MCI(I) = MCIX                                                 00000850
C.......PRINT ERROR MESSAGE IF INDEX NOT GREATER THAN PREVIOUS INDEX.   00000860
          IF (I.GT.N) GO TO 23                                          00000870
          WRITE(6,4) I                                                  00000880
          IF (PRNT.NE.0) WRITE(7,4) I                                   00000890
          IERROR = IERROR + 1                                           00000900
          GO TO 25                                                      00000910
 23       N = I                                                         00000920
          IF (N.EQ.MAXLR) GO TO 26                                      00000930
 25    CONTINUE                                                         00000940
C                                                                       00000950
 26    READ (14,3) COL1                                                 00000960
       IF (COL1.EQ.STAR) GO TO 30                                       00000970
       IF (II.GE.MAXLR) GO TO 27                                        00000980
C.......PRINT ERROR MESSAGE IF EOF NOT FOUND AFTER INDEX 200.           00000990
          WRITE (6,6)                                                   00001000
          IF (PRNT.NE.0) WRITE (7,6)                                    00001010
          GO TO 28                                                      00001020
C.......PRINT ERROR MESSAGE IF MORE THAN 200 LRUS IN FILE.              00001030
 27       WRITE (6,2)                                                   00001040
          IF (PRNT.NE.0) WRITE (7,2)                                    00001050
 28    IERROR=IERROR+1                                                  00001060
C                                                                       00001070
 30    RETURN                                                           00001080
       END                                                              00001090
       SUBROUTINE ITAB4                                                 00001100
C                                                                       00001110
C***********************************************************************00001120
C*  SUBROUTINE ITAB4 PRINTS OUT TABLE 4 ON UNIT 7 (LINE PRINTER).  IT  *00001130
C*  IS BASICALLY AN ECHO PRINT OF INPUT UNIT 14.                       *00001140
C***********************************************************************00001150
C                                                                       00001160
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),     00001170
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),        00001180
     +             UC(200)                                              00001190
      INTEGER QPA,QR                                                    00001200
      REAL MTBI                                                         00001210
C                                                                       00001220
  1   FORMAT (1H1,46X,29HINPUT TABLE 4:  INPUTS BY LRU///)              00001230
C                                                                       00001240
  2   FORMAT (1H1,40X,41HINPUT TABLE 4:  INPUTS BY LRU (CONTINUED)///)  00001250
C                                                                       00001260
```

```
   3    FORMAT (47X,6HNUMBER,3X,9HNUMBER OF,11X,8HFRACTION,3X,9HMEAN TIME,00001270
     +    2X,9HNUMBER OF/47X,10HOF LRUS  REDUNDANT,11X,9HUNIT COST,      00001280
     +    9H  BETWEEN,4X,10HNEW ASSEM-,3X,7HMISSION/5H  LRU,42X,7HIN EACH00001290
     +    ,9H  LRUS IN,6X,4HUNIT,3X,8HCONSUMED,3X,6HMAINT.,5X,8HBLIES OR,00001300
     +    5X,8HCRITICAL/6H INDEX,6X,12HNOMENCLATURE,9X,11HPART NUMBER,   00001310
     +    8H    RADAR,4X,10HEACH RADAR,3X,4HCOST,3X,18HIN REPAIR  INCIDEN,00001320
     +    2HTS,2X,22HPIECE PARTS  INDICATOR/6H (INO),41X,5H(QPA),4X,     00001330
     +    4H(QR),9X,4H(UC),3X,4H(RM),7X,6H(MTBI),5X,4H(PA),9X,5H(MCI)/)  00001340
C                                                                        00001350
   4    FORMAT (2X,I3,3X,24A1,1X,12A1,3X,I3,7X,I3,6X,F8.0,3X,F5.3,2X,     00001360
     +    F10.0,5X,F6.2,8X,I2)                                          00001370
C                                                                        00001380
C*************************************************************************00001390
C*  PRINT OUT TABLE 4 HEADINGS.                                         *00001400
C*************************************************************************00001410
C                                                                        00001420
      LINCNT=0                                                           00001430
      WRITE (7,1)                                                        00001440
      WRITE (7,3)                                                        00001450
C                                                                        00001460
C*************************************************************************00001470
C*  THIS DO-LOOP PRINTS OUT THE UNIT 14 DATA.  50 LINES OF DATA ARE     *00001480
C*  WRITTEN BEFORE THE PRINTER JUMPS TO A NEW PAGE.  TABLE HEADINGS     *00001490
C*  ARE PRINTED ON EACH NEW PAGE.                                       *00001500
C*************************************************************************00001510
C                                                                        00001520
      DO 25 I=1,N                                                        00001530
        IF (QPA(I).EQ.0) GO TO 25                                        00001540
        WRITE (7,4) I,(LRNAME(I,J),J=1,24),(LRPART(I,J),J=1,12),         00001550
     +    QPA(I),QR(I),UC(I),RM(I),MTBI(I),PA(I),MCI(I)                  00001560
C                                                                        00001570
        LINCNT=LINCNT+1                                                  00001580
        IF (LINCNT.LT.50) GO TO 25                                       00001590
        WRITE (7,2)                                                      00001600
        WRITE (7,3)                                                      00001610
        LINCNT=0                                                         00001620
  25  CONTINUE                                                           00001630
C                                                                        00001640
      RETURN                                                             00001650
      END                                                                00001660
```

```
      SUBROUTINE READ5                                                  00000010
C                                                                       00000020
C*****************************************************************************00000030
C*  SUBROUTINE READ5 READS IN THE SECOND LRU FILE OFF OF INPUT UNIT    *00000040
C*  15.  ONE RECORD IS READ IN FOR EACH LRU UP TO A MAXIMUM OF 200     *00000050
C*  LRUS IN THE SYSTEM.                                                *00000060
C*****************************************************************************00000070
C                                                                       00000080
      COMMON /CNTL/ EXIT,ITER,MAXPNT,PRNT,REDO,REREAD                   00000090
      INTEGER EXIT,PRNT,REDO,REREAD                                     00000100
C                                                                       00000110
      COMMON /ERROR/ IERROR,IWARN                                       00000120
C                                                                       00000130
      COMMON /INIT/ CONFLO,MAXPA,MAXLR,MAXSE                            00000140
C                                                                       00000150
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),     00000160
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),        00000170
     +             UC(200)                                              00000180
      INTEGER QPA,QR                                                    00000190
      REAL MTBI                                                         00000200
C                                                                       00000210
      COMMON /RD5/ BCMH(200),CBCMH(200),CMH(200),CRTS1(200),CRTS2(200), 00000220
     +             DBCMH(200),DMH(200),DRTS1(200),DRTS2(200),           00000230
     +             DRTS3(200),FPR(200),IMH(200),INO15(200),N15,         00000240
     +          PAMH(200),RIP(200),RL(200),RMH(200),SMH(200),SRTS1(200),00000250
     +             WOR1(200),WOR2(200),WOR3(200)                        00000260
      REAL IMH                                                          00000270
      INTEGER RL                                                        00000280
C                                                                       00000290
      DATA STAR/1H*/                                                    00000300
      REAL IMHX                                                         00000310
      INTEGER RLX                                                       00000320
C                                                                       00000330
  1   FORMAT (A1,I3,F3.3,19(F3.2),5X,I3)                                00000340
C                                                                       00000350
  2   FORMAT (/48H UNIT 15 ERROR:  LRU INDEX NUMBERS HAVE NOT BEEN/     00000360
     +   17X,44HINPUT IN THE SAME ORDER FOR UNITS 14 AND 15./           00000370
     +   17X,29HUNIT 15 LRU INDEX NUMBER WAS ,I3,1H.)                   00000380
C                                                                       00000390
  3   FORMAT (/49H UNIT 15 ERROR:  END OF FILE CARD NOT FOUND AFTER/    00000400
     +   17X,37HMAXIMUM NUMBER OF LRUS WERE READ IN. )                  00000410
C                                                                       00000420
  4   FORMAT (A1)                                                       00000430
C                                                                       00000440
  5   FORMAT (/52H UNIT 15 ERROR:  LARGEST LRU NUMBER INPUT ON UNIT 14  00000450
     +  ,13H IS DIFFERENT/17X,36HTHAN THE LARGEST LRU NUMBER INPUT ON,  00000460
     +  9H UNIT 15.)                                                   00000470
C                                                                       00000480
  6   FORMAT (/48H UNIT 15 ERROR:  INDEX NUMBER WAS NOT POSITIVE. )     00000490
C                                                                       00000500
  7   FORMAT (/49H UNIT 15 ERROR:  END OF FILE CARD NOT FOUND AFTER/    00000510
     +   17X,37HMAXIMUM LRU INDEX NUMBER WAS READ IN.)                  00000520
C                                                                       00000530
      N15=0                                                             00000540
C                                                                       00000550
C*****************************************************************************00000560
C*  THE SECOND LRU FILE IS INPUT IN THIS DO-LOOP.  AN END-OF-FILE IS   *00000570
C*  DESIGNATED BY A STAR (*) IN COLUMN 1 OF THE LAST RECORD.           *00000580
C*****************************************************************************00000590
C                                                                       00000600
      DO 25 II=1,MAXLR                                                  00000610
        READ (15,1) COL1,INO15(II),FPRX,PAMHX,RIPX,IMHX,RMHX,BCMHX,     00000620
     +     SMHX,CBCMHX,CMHX,DBCMHX,DMHX,SRTS1X,CRTS1X,                  00000630
```

```
     +    WOR1X,DRTS1X,CRTS2X,WOR2X,DRTS2X,WOR3X,DRTS3X,                    00000640
     +    RLX                                                               00000650
C                                                                           00000660
      IF (COL1.EQ.STAR) GO TO 30                                            00000670
      I=INO15(II)                                                           00000680
C.....PRINT ERROR MESSAGE IF INDEX NOT POSITIVE.                            00000690
      IF (I.GT.0) GO TO 20                                                  00000700
        WRITE(6,6)                                                          00000710
        IF (PRNT.NE.0) WRITE(7,6)                                           00000720
        IERROR = IERROR + 1                                                 00000730
        GO TO 25                                                            00000740
C.....PRINT ERROR MESSAGE IF INDEX EXCEEDS 200.                             00000750
 20     IF (I.LE.MAXLR) GO TO 21                                            00000760
        WRITE (6,7)                                                         00000770
        IF (PRNT.NE.0) WRITE (7,7)                                          00000780
        IERROR = IERROR + 1                                                 00000790
        GO TO 30                                                            00000800
C                                                                           00000810
C*************************************************************************00000820
C*  IF THE LRUS READ IN HERE ARE NOT INPUT IN THE EXACT SAME ORDER AS  *00000830
C*  THE LRUS ON UNIT 14, AN ERROR MESSAGE IS PRINTED FOR EACH LRU OUT  *00000840
C*  OF ORDER.                                                          *00000850
C*************************************************************************00000860
C                                                                           00000870
  21    IF (INO15(II).EQ.INO(II)) GO TO 22                                  00000880
          WRITE (6,2) INO15(II)                                             00000890
          IF (PRNT.NE.0) WRITE (7,2) INO15(II)                              00000900
          IERROR=IERROR+1                                                   00000910
C                                                                           00000920
 22     N15=INO15(II)                                                       00000930
        FPR(I) = FPRX                                                       00000940
        PAMH(I) = PAMHX                                                     00000950
        RIP(I) = RIPX                                                       00000960
        IMH(I) = IMHX                                                       00000970
        RMH(I) = RMHX                                                       00000980
        BCMH(I) = BCMHX                                                     00000990
        SMH(I) = SMHX                                                       00001000
        CBCMH(I) = CBCMHX                                                   00001010
        CMH(I) = CMHX                                                       00001020
        DBCMH(I) = DBCMHX                                                   00001030
        DMH(I) = DMHX                                                       00001040
        SRTS1(I) = SRTS1X                                                   00001050
        CRTS1(I) = CRTS1X                                                   00001060
        WOR1(I) = WOR1X                                                     00001070
        DRTS1(I) = DRTS1X                                                   00001080
        CRTS2(I) = CRTS2X                                                   00001090
        WOR2(I) = WOR2X                                                     00001100
        DRTS2(I) = DRTS2X                                                   00001110
        WOR3(I) = WOR3X                                                     00001120
        DRTS3(I) = DRTS3X                                                   00001130
        RL(I) = RLX                                                         00001140
        IF (N15.EQ.MAXLR) GO TO 26                                          00001150
C                                                                           00001160
 25   CONTINUE                                                             00001170
C                                                                           00001180
 26   READ (15,4) COL1                                                     00001190
      IF (COL1.EQ.STAR) GO TO 30                                            00001200
      IF (II.GE.MAXLR) GO TO 27                                             00001210
C.....PRINT ERROR IF EOF NOT FOUND AFTER INDEX 200.                         00001220
        WRITE (6,7)                                                         00001230
        IF (PRNT.NE.0) WRITE (7,7)                                          00001240
        GO TO 28                                                            00001250
C.....PRINT ERROR MESSAGE IF MORE THAN 200 LRUS IN FILE.                    00001260
```

```
 27       WRITE (6,3)                                                    00001270
          IF (PRNT.NE.0) WRITE (7,3)                                     00001280
 28   IERROR=IERROR+1                                                    00001290
C                                                                       00001300
C*************************************************************************00001310
C*  N15 KEEPS TRACK OF THE LARGEST LRU NUMBER FROM UNIT 15. IF THIS IS *00001320
C*  NOT THE SAME AS N (LARGEST LRU NUMBER FROM UNIT 14), AN ERROR      *00001330
C*  MESSAGE IS PRINTED OUT.                                            *00001340
C*************************************************************************00001350
C                                                                       00001360
 30   IF (N.EQ.N15) GO TO 40                                             00001370
         WRITE (6,5)                                                    00001380
         IF (PRNT.NE.0) WRITE (7,5)                                     00001390
         IERROR=IERROR+1                                                00001400
C                                                                       00001410
 40   RETURN                                                             00001420
      END                                                               00001430
      SUBROUTINE ITAB5                                                  00001440
C                                                                       00001450
C*************************************************************************00001460
C*  SUBROUTINE ITAB5 PRINTS OUT TABLE 5 PART 1 AND TABLE 5 PART 2 ON   *00001470
C*  UNIT 7 (LINE PRINTER).  IT IS BASICALLY ON ECHO PRINT OF INPUT     *00001480
C*  UNIT 15.                                                           *00001490
C*************************************************************************00001500
C                                                                       00001510
      COMMON /INIT/ CONFLO,MAXPA,MAXLR,MAXSE                            00001520
C                                                                       00001530
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),     00001540
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),        00001550
     +             UC(200)                                              00001560
      INTEGER QPA,QR                                                    00001570
      REAL MTBI                                                         00001580
C                                                                       00001590
      COMMON /RD5/ BCMH(200),CBCMH(200),CMH(200),CRTS1(200),CRTS2(200), 00001600
     +             DBCMH(200),DMH(200),DRTS1(200),DRTS2(200),           00001610
     +             DRTS3(200),FPR(200),IMH(200),INO15(200),N15,         00001620
     +          PAMH(200),RIP(200),RL(200),RMH(200),SMH(200),SRTS1(200), 00001630
     +             WOR1(200),WOR2(200),WOR3(200)                        00001640
      REAL IMH                                                          00001650
      INTEGER RL                                                        00001660
C                                                                       00001670
  1   FORMAT (1H1,37X,45HINPUT TABLE 5 PART 1:  MAINTENANCE INPUTS BY , 00001680
     +   3HLRU///)                                                      00001690
C                                                                       00001700
  2   FORMAT (1H1,31X,45HINPUT TABLE 5 PART 1:  MAINTENANCE INPUTS BY , 00001710
     +   15HLRU (CONTINUED)///)                                         00001720
C                                                                       00001730
  3   FORMAT (15X,7HAVERAGE,12X,25HAVERAGE AVG. MAN- AVERAGE,           00001740
     +   4X,7HAVERAGE,                                                  00001750
     +   4X,7HAVERAGE,4X,7HAVERAGE,4X,7HAVERAGE,4X,7HAVERAGE/          00001760
     +   15X,18HMAN-HOURS FRACTION,28H MAN-HRS HRS FAULT MAN-HOURS,     00001770
     +   2X,9HMAN-HOURS,11H  MAN-HOURS,11H  MAN-HOURS,11H  MAN-HOURS,  00001780
     +   11H  MAN-HOURS/8X,5HFALSE,2X,9HFOR PREP-,9H FAILURES,1X,       00001790
     +   6HFOR IN,2X,8HISOLATE,,2X,8HFOR SITE,3X,8HFOR SITE,3X,         00001800
     +   7HFOR CMF,                                                     00001810
     +   4X,7HFOR CMF,4X,9HFOR DEPOT,2X,9HFOR DEPOT/5H  LRU,3X,         00001820
     +   4HPULL,3X,9HARATION &,9H REPAIRED,6H PLACE,3X,8HREPLACE,,2X,   00001830
     +   10HSHOP BENCH,11H CORRECTIVE,11H SHOP BENCH,11H CORRECTIVE,    00001840
     +   11H SHOP BENCH,11H CORRECTIVE/6H INDEX,6H  RATE,               00001850
     +   3X,6HACCESS,4X,8HIN PLACE,7H REPAIR,17H  & VERIFY  CHECK,      00001860
     +   6X,6HMAINT.,5X,5HCHECK,6X,6HMAINT.,5X,5HCHECK,6X,6HMAINT./     00001870
     +   6H  (INO),2X,5H(FPR),2X,6H(PAMH),4X,5H(RIP),4X,5H(IMH),3X,     00001880
     +   5H(RMH),5X,6H(BCMH),5X,5H(SMH),6X,7H(CBCMH),4X,5H(CMH),6X,     00001890
```

```
     +    7H(DBCMH),4X,5H(DMH)/)                                                00001900
C                                                                               00001910
  4   FORMAT (2X,I3,3X,F5.3,3X,F5.3,5X,F5.3,4X,F5.3,3X,F5.3,5X,F5.3,6X,        00001920
     +    F5.3,6X,F5.3,6X,F5.3,6X,F5.3,6X,F5.3)                                 00001930
C                                                                               00001940
  5   FORMAT (1H1,36X,46HINPUT TABLE 5 PART 2:  REPAIR LEVEL INPUTS BY ,        00001950
     +    3HLRU///)                                                             00001960
C                                                                               00001970
  6   FORMAT (1H1,36X,46HINPUT TABLE 5 PART 2:  REPAIR LEVEL INPUTS BY ,        00001980
     +    15HLRU (CONTINUED)///)                                                00001990
C                                                                               00002000
  7   FORMAT (9X,39H----------IF SITE REPAIRABLE----------,4X,                  00002010
     +    29H------IF CMF REPAIRABLE------,4X,19HIF DEPOT REPAIRABLE/           00002020
     +    25X,6H(RL=1),32X,6H(RL=2),22X,6H(RL=3)/9X,8HFRACTION,                 00002030
     +    10H  FRACTION,10H  FRACTION,11H   FRACTION,4X,8HFRACTION,             00002040
     +    10H  FRACTION,11H   FRACTION,4X,8HFRACTION,11H   FRACTION/            00002050
     +    9X,8HFAILURES,10H  FAILURES,10H  FAILURES,11H   FAILURES,4X,          00002060
     +    8HFAILURES,10H  FAILURES,11H   FAILURES,4X,8HFAILURES,                00002070
     +    11H   FAILURES/5H  LRU,4X,8HREPAIRED,10H  REPAIRED,                   00002080
     +    11H  CONDEMNED,10H  REPAIRED,4X,8HREPAIRED,11H  CONDEMNED,            00002090
     +    10H  REPAIRED,4X,9HCONDEMNED,10H  REPAIRED,4X,6HREPAIR/               00002100
     +    6H INDEX,3X,7HAT SITE,3X,6HAT CMF,4X,6HAT CMF,5X,                     00002110
     +    8HAT DEPOT,4X,6HAT CMF,4X,6HAT CMF,5X,8HAT DEPOT,4X,                  00002120
     +    8HAT DEPOT,3X,8HAT DEPOT,4X,5HLEVEL/6H (INO),3X,7H(SRTS1),            00002130
     +    3X,7H(CRTS1),3X,6H(WOR1),5X,7H(DRTS1),5X,7H(CRTS2),3X,                00002140
     +    6H(WOR2),5X,7H(DRTS2),5X,6H(WOR3),5X,7H(DRTS3),5X,4H(RL)/)            00002150
C                                                                               00002160
  8   FORMAT (2X,I3,5X,F5.3,5X,F5.3,5X,F5.3,6X,F5.3,7X,F5.3,5X,F5.3,           00002170
     +    6X,F5.3,7X,F5.3,7X,F5.3,5X,I3)                                        00002180
C                                                                               00002190
C*******************************************************************************00002200
C*  PRINT OUT TABLE 5 PART 1 HEADINGS.                                         *00002210
C*******************************************************************************00002220
C                                                                               00002230
      LINCNT=0                                                                  00002240
      WRITE (7,1)                                                               00002250
      WRITE (7,3)                                                               00002260
C                                                                               00002270
C*******************************************************************************00002280
C*  THIS DO-LOOP PRINTS OUT HALF OF THE UNIT 15 INPUT DATA.  50 LINES          *00002290
C*  OF DATA ARE WRITTEN BEFORE THE PRINTER JUMPS TO A NEW PAGE.  TABLE         *00002300
C*  HEADINGS ARE PRINTED ON EACH NEW PAGE.                                     *00002310
C*******************************************************************************00002320
C                                                                               00002330
      DO 25 I=1,N15                                                             00002340
        IF (QPA(I).EQ.0) GO TO 25                                               00002350
        WRITE (7,4) I,FPR(I),PAMH(I),RIP(I),IMH(I),RMH(I),BCMH(I),              00002360
     +    SMH(I),CBCMH(I),CMH(I),DBCMH(I),DMH(I)                                00002370
C                                                                               00002380
        LINCNT=LINCNT+1                                                         00002390
        IF (LINCNT.LT.50) GO TO 25                                              00002400
        WRITE (7,2)                                                             00002410
        WRITE (7,3)                                                             00002420
        LINCNT=0                                                                00002430
 25   CONTINUE                                                                  00002440
C                                                                               00002450
C*******************************************************************************00002460
C*  PRINT OUT TABLE 5 PART 2 HEADINGS.                                         *00002470
C*******************************************************************************00002480
C*                                                                              00002490
      LINCNT=0                                                                  00002500
      WRITE (7,5)                                                               00002510
      WRITE (7,7)                                                               00002520
```

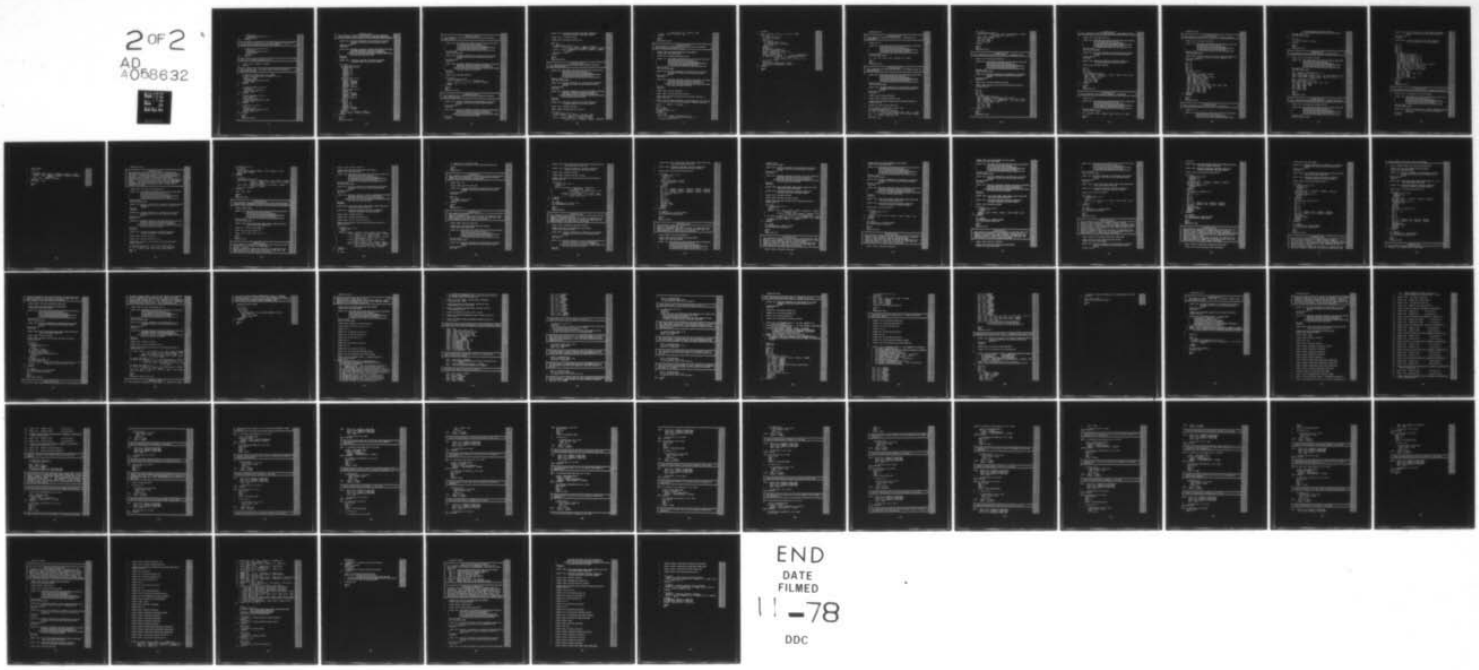
```
C                                                                       00002530
C***********************************************************************00002540
C*  THIS DO-LOOP PRINTS OUT THE SECOND HALF OF THE UNIT 15 INPUT DATA. *00002550
C*  ONCE AGAIN, 50 LINES OF DATA ARE PRINTED PER PAGE.                 *00002560
C***********************************************************************00002570
C*                                                                      00002580
      DO 50 I=1,N15                                                     00002590
        IF (QPA(I).EQ.0) GO TO 50                                       00002600
        WRITE (7,8) I,SRTS1(I),CRTS1(I),WOR1(I),DRTS1(I),               00002610
     +    CRTS2(I),WOR2(I),DRTS2(I),WOR3(I),DRTS3(I),RL(I)              00002620
C                                                                       00002630
        LINCNT=LINCNT+1                                                 00002640
        IF (LINCNT.LT.50) GO TO 50                                      00002650
        WRITE (7,6)                                                     00002660
        WRITE (7,7)                                                     00002670
        LINCNT=0                                                        00002680
 50   CONTINUE                                                          00002690
C                                                                       00002700
      RETURN                                                            00002710
      END                                                               00002720
```

```
      SUBROUTINE ERRCHK
C
C***********************************************************************
C*                          SUBROUTINE ERRCHK                          *
C*  THIS SUBROUTINE PERFORMS SOME ADDITIONAL ERROR CHECKS ON THE       *
C*  INPUT DATA.  THE FOLLOWING ARE ERRORS:                             *
C*     1- RL < 0 OR RL > 3 FOR AN LRU.                                 *
C*     2- SRTS1 + CRTS1 + WOR1 + DRTS1 ¬= 1 FOR LRU WITH RL OF 1.      *
C*     3- CRTS2 + WOR2 + DRTS2 ¬= 1 FOR LRU WITH RL OF 2.              *
C*     4- WOR3 + DRTS3 ¬= 1 FOR LRU WITH RL OF 3.                      *
C*     5- MTBI = 0 FOR AN LRU.                                         *
C*     6- SMTBI = 0    OR                                              *
C*        (1./SMTBI) < SUM(QPA(I)/MTBI(I),I=1,N) CAUSES A WARNING      *
C*        MESSAGE AND CAUSES SMTBI TO BE ASSIGNED A DEFAULT VALUE OF   *
C*        1./ (SUM(QPA(I)/MTBI(I),I=1,N).                              *
C*     7- CPMI = 0  CAUSES A WARNING MESSAGE AND AN ASSUMED INFINITE   *
C*        VALUE.                                                       *
C*     8- CONF < CONFLO  CAUSES A WARNING MESSAGE AND A DEFAULT VALUE  *
C*        FOR CONF OF CONFLO (CONFLO IF SET TO 0.84134 IN INITAL).     *
C*     9- NSP > 3  CAUSES A WARNING MESSAGE AND A DEFAULT VALUE OF 3.  *
C***********************************************************************
C
      COMMON /CNTL/ EXIT,ITER,MAXPMT,PRNT,REDO,REREAD
      INTEGER EXIT,PRNT,REDO,REREAD
C
      COMMON /ERROR/ IERROR,IWARN
C
      COMMON /INIT/ CONFLO,MAXFA,MAXLR,MAXSE
C
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPMI,
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MXHRS,
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRODX,REFURB,RMC,
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR
      INTEGER CADRE
      REAL IMC,K,MCRS,MXHRS
C
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),
     +             UC(200)
      INTEGER QPA,QR
      REAL MTBI
C
      COMMON /RD5/ BCMH(200),CBCMH(200),CMH(200),CRTS1(200),CRTS2(200),
     +             DBCMH(200),DMH(200),DRTS1(200),DRTS2(200),
     +             DRTS3(200),FPR(200),IMH(200),INO15(200),N15,
     +         PAMH(200),RIP(200),RL(200),RMH(200),SMH(200),SRTS1(200),
     +             WOR1(200),WOR2(200),WOR3(200)
      REAL IMH
      INTEGER RL
C
    2 FORMAT (/44H INPUT ERROR:  ILLEGAL REPAIR LEVEL HAS BEEN/
     +   17X,25HSPECIFIED FOR LRU NUMBER ,I3,1H.)
    3 FORMAT (/50H INPUT ERROR:  FOR RL OF 1, SRTS1 + CRTS1 + WOR1 +,
     +   6H DRTS1/17X,36HDOES NOT ADD UP TO 1 FOR LRU NUMBER ,I3,1H.)
    4 FORMAT (/48H INPUT ERROR:  FOR RL OF 2, CRTS2 + WOR2 + DRTS2/
     +   17X,36HDOES NOT ADD UP TO 1 FOR LRU NUMBER ,I3,1H.)
    5 FORMAT (/40H INPUT ERROR:  FOR RL OF 3, WOR3 + DRTS3/
     +   17X,36HDOES NOT ADD UP TO 1 FOR LRU NUMBER ,I3,1H.)
    6 FORMAT (/50H INPUT ERROR:  MTBI HAS BEEN INPUT AS 0.0 FOR LRU ,
     +          7HNUMBER ,I3,1H.)
    8 FORMAT (1X/47H WARNING.  INVALID SMTBI.     DEFAULTS TO SMTBI=,
```

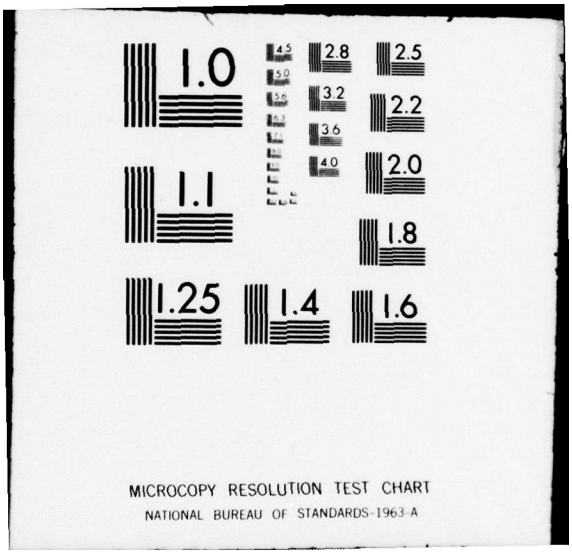
```
     +         F12.2)                                                          00000640
  11   FORMAT (/44H WARNING:  CPMI = 0.  INFINITE CPMI ASSUMED.)               00000650
  12   FORMAT (/44H WARNING:  CONF TOO SMALL.  DEFAULT TO CONF=,F10.5)         00000660
  13   FORMAT (/43H WARNING:  NSP TOO LARGE.  DEFAULTS TO NSP=,I3)             00000670
C                                                                             00000680
      TEM1 = 0.                                                               00000690
      XMAX = 0.                                                               00000700
C                                                                             00000710
C*************************************************************************** 00000720
C*  LOOP ON LRUS TO PERFORM VARIOUS ERROR CHECKS:                            *00000730
C*  RL,SRTS1+CRTS1+WOR1+DRTS1,CRTS2+WOR2+DRTS2,WOR3+DRTS3,MTBI.              *00000740
C*************************************************************************** 00000750
C                                                                             00000760
      DO 32  I=1,N                                                            00000770
        IF (QPA(I).EQ.0) GO TO 32                                             00000780
C                                                                             00000790
C*************************************************************************** 00000800
C*  DEPENDING ON THE REPAIR LEVEL FOR THE CURRENT LRU, CONTROL IS            *00000810
C*  PASSED TO ONE OF FOUR SECTIONS OF CODE.  IN THE EVENT OF AN IL-          *00000820
C*  LEGAL REPAIR LEVEL (LESS THAN 0 OR GREATER THAN 3) AN ERROR MES-         *00000830
C*  SAGE IS PRINTED.                                                         *00000840
C*************************************************************************** 00000850
C                                                                             00000860
        IF (RL(I).EQ.0) GO TO 24                                              00000870
        IF (RL(I).EQ.1) GO TO 21                                              00000880
        IF (RL(I).EQ.2) GO TO 22                                              00000890
        IF (RL(I).EQ.3) GO TO 23                                              00000900
          WRITE (6,2) I                                                       00000910
          IF (PRNT.NE.0) WRITE (7,2) I                                        00000920
          IERROR=IERROR+1                                                     00000930
          GO TO 24                                                            00000940
C                                                                             00000950
C*************************************************************************** 00000960
C*  FOR RL=1, SRTS1(I), CRTS1(I), WOR1(I), AND DRTS1(I) MUST ADD UP          *00000970
C*  TO 1.  IF NOT, AN ERROR MESSAGE IS PRINTED.                              *00000980
C*************************************************************************** 00000990
C*                                                                            00001000
 21     T1 = SRTS1(I) + CRTS1(I) + WOR1(I) + DRTS1(I)                         00001010
        IF (RL(I).EQ.1.AND.T1.GE..99999.AND.T1.LE.1.00001) GO TO 24           00001020
          WRITE (6,3) I                                                       00001030
          IF (PRNT.NE.0) WRITE (7,3) I                                        00001040
          IERROR=IERROR+1                                                     00001050
          GO TO 24                                                            00001060
C                                                                             00001070
C*************************************************************************** 00001080
C*  FOR RL=2, CRTS2(I), WOR2(I), AND DRTS2(I) MUST ADD UP TO 1.  IF          *00001090
C*  NOT, AN ERROR MESSAGE IS PRINTED.                                        *00001100
C*************************************************************************** 00001110
C                                                                             00001120
 22     T2 = CRTS2(I) + WOR2(I) + DRTS2(I)                                    00001130
        IF (RL(I).EQ.2.AND.T2.GE..99999.AND.T2.LE.1.00001) GO TO 24           00001140
          WRITE (6,4) I                                                       00001150
          IF (PRNT.NE.0) WRITE (7,4) I                                        00001160
          IERROR=IERROR+1                                                     00001170
          GO TO 24                                                            00001180
C                                                                             00001190
C*************************************************************************** 00001200
C*  FOR RL=3, WOR3(I) AND DRTS3(I) MUST ADD UP TO 1.  IF NOT, AN ERROR       *00001210
C*  MESSAGE IS PRINTED.                                                      *00001220
C*************************************************************************** 00001230
C                                                                             00001240
 23     T3 = WOR3(I) + DRTS3(I)                                               00001250
        IF (RL(I).EQ.3.AND.T3.GE..99999.AND.T3.LE.1.00001) GO TO 24           00001260
```

AD-A058 632 MITRE CORP BEDFORD MASS F/G 9/2
SEEK IGLOO LIFE CYCLE COST MODEL. VOLUME III. MAINTENANCE MANUA--ETC(U)
JUL 78 J K FERRAIOLO F19628-78-C-0001
UNCLASSIFIED MTR-3577-VOL-3 ESD-TR-78-155-VOL-3 NL

2 OF 2
AD
A058632



END
DATE FILMED
11-78
DDC


1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0
4.5
5.0
5.6
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

```
          WRITE (6,5) I                                                  00001270
          IF (PRNT.NE.0) WRITE (7,5) I                                   00001280
          IERROR=IERROR+1                                                00001290
 24     CONTINUE                                                         00001300
C                                                                       00001310
C*************************************************************************00001320
C*  IF ANY MTBI(I) IS INPUT AS 0.0, AN ERROR MESSAGE IS PRINTED OUT,    *00001330
C*  AND SKIP THE FOLLOWING ERROR CHECK AND SUMMATION.                   *00001340
C*************************************************************************00001350
C                                                                       00001360
        IF (MTBI(I).GT.0.001) GO TO 25                                  00001370
          WRITE (6,6) I                                                 00001380
          IF (PRNT.NE.0) WRITE (7,6) I                                  00001390
          IERROR=IERROR+1                                               00001400
          GO TO 32                                                      00001410
 25     CONTINUE                                                        00001420
C                                                                       00001430
C*************************************************************************00001440
C*  SET TEM1 TO SUM(QPA(I)/MTBI(I),I=1,N).                              *00001450
C*************************************************************************00001460
C                                                                       00001470
        TEM1 = TEM1 + (QPA(I) / MTBI(I))                                00001480
 32   CONTINUE                                                          00001490
C                                                                       00001500
C*************************************************************************00001510
C*  END OF LOOP ON LRUS.  NOW CHECK VARIOUS SCALARS FOR ERRORS:         *00001520
C*  SMTBI,CPMI,CONF,NSP                                                 *00001530
C*************************************************************************00001540
C                                                                       00001550
      IF (SMTBI.GT.0.00001) TEM2 = (1./ SMTBI)                          00001560
      IF (TEM2.GE.TEM1.AND.SMTBI.GT.0.00001) GO TO 33                   00001570
        SMTBI = 1./ TEM1                                                00001580
        WRITE(6,8) SMTBI                                                00001590
        IF (PRNT.NE.0) WRITE(7,8) SMTBI                                 00001600
        IWARN = IWARN + 1                                               00001610
 33   CONTINUE                                                          00001620
C                                                                       00001630
C                                                                       00001640
      IF (CPMI.GT.0.00001) GO TO 36                                     00001650
        WRITE(6,11)                                                     00001660
        IF (PRNT.NE.0) WRITE(7,11)                                      00001670
        IWARN = IWARN + 1                                               00001680
 36   CONTINUE                                                          00001690
C                                                                       00001700
      IF (CONF.GE.CONFLO) GO TO 37                                      00001710
        CONF = CONFLO                                                   00001720
        WRITE(6,12) CONF                                                00001730
        IF (PRNT.NE.0) WRITE(7,12) CONF                                 00001740
        IWARN = IWARN + 1                                               00001750
 37   CONTINUE                                                          00001760
C                                                                       00001770
      IF (NSP.LE.3) GO TO 38                                            00001780
        NSP = 3                                                         00001790
        WRITE(6,13) NSP                                                 00001800
        IF (PRNT.NE.0) WRITE(7,13) NSP                                  00001810
        IWARN = IWARN + 1                                               00001820
 38   CONTINUE                                                          00001830
C                                                                       00001840
      RETURN                                                            00001850
      END                                                               00001860
      SUBROUTINE AUXIL1                                                 00001870
C                                                                       00001880
C*************************************************************************00001890
```

```
C*                              SUBROUTINE AUXIL1                                *00001900
C*  THIS SUBROUTINE CALCULATES THE FOLLOWING AUXILIARY VARIABLES:                *00001910
C*  CCOND(I),COND(I),CRTS(I),DCOND(I),DRTS(I),SNRTS(I),SRTS(I),WR(I)             *00001920
C*******************************************************************************00001930
C                                                                                00001940
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),              00001950
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),                 00001960
     +             UC(200)                                                       00001970
      INTEGER QPA,QR                                                            00001980
      REAL MTBI                                                                 00001990
C                                                                               00002000
      COMMON /RD5/ BCMH(200),CBCMH(200),CMH(200),CRTS1(200),CRTS2(200),         00002010
     +             DBCMH(200),DMH(200),DRTS1(200),DRTS2(200),                   00002020
     +             DRTS3(200),FPR(200),IMH(200),INO15(200),N15,                 00002030
     +          PAMH(200),RIP(200),RL(200),RMH(200),SMH(200),SRTS1(200),        00002040
     +             WOR1(200),WOR2(200),WOR3(200)                                00002050
      REAL IMH                                                                  00002060
      INTEGER RL                                                                00002070
C                                                                               00002080
      COMMON /AUX1/ CCOND(200),COND(200),CRTS(200),DCOND(200),                  00002090
     +              DRTS(200),SNRTS(200),SRTS(200),WR(200)                      00002100
C                                                                               00002110
      DO 5 I=1,N                                                                00002120
        IF (QPA(I).EQ.0) GO TO 5                                                00002130
        IF (RL(I).NE.0) GO TO 1                                                 00002140
          COND(I) = 1.                                                          00002150
          SRTS(I) = 0.                                                          00002160
          CRTS(I) = 0.                                                          00002170
          CCOND(I) = 0.                                                         00002180
          DCOND(I) = 0.                                                         00002190
          DRTS(I) = 0.                                                          00002200
          GO TO 4                                                               00002210
  1     IF (RL(I).NE.1) GO TO 2                                                 00002220
          COND(I) = 0.                                                          00002230
          SRTS(I) = SRTS1(I)                                                    00002240
          CRTS(I) = CRTS1(I)                                                    00002250
          CCOND(I) = WOR1(I)                                                    00002260
          DCOND(I) = 0.                                                         00002270
          DRTS(I) = DRTS1(I)                                                    00002280
          GO TO 4                                                               00002290
  2     IF (RL(I).NE.2) GO TO 3                                                 00002300
          COND(I) = 0.                                                          00002310
          SRTS(I) = 0.                                                          00002320
          CRTS(I) = CRTS2(I)                                                    00002330
          CCOND(I) = WOR2(I)                                                    00002340
          DCOND(I) = 0.                                                         00002350
          DRTS(I) = DRTS2(I)                                                    00002360
          GO TO 4                                                               00002370
  3     CONTINUE                                                                00002380
          COND(I) = 0.                                                          00002390
          SRTS(I) = 0.                                                          00002400
          CRTS(I) = 0.                                                          00002410
          CCOND(I) = 0.                                                         00002420
          DCOND(I) = WOR3(I)                                                    00002430
          DRTS(I) = DRTS3(I)                                                    00002440
  4     CONTINUE                                                                00002450
        SNRTS(I) = 1. - SRTS(I) - COND(I)                                       00002460
        WR(I) = COND(I) + CCOND(I) + DCOND(I)                                   00002470
  5   CONTINUE                                                                  00002480
C                                                                               00002490
      RETURN                                                                    00002500
      END                                                                       00002510
      SUBROUTINE AUXIL2                                                         00002520
```

```
C                                                                       00002530
C***********************************************************************00002540
C*                          SUBROUTINE AUXIL2                          *00002550
C*  THIS SUBROUTINE CALCULATES THE FOLLOWING AUXILIARY VARIABLES:      *00002560
C*  YFR(I),WFR(I)                                                      *00002570
C***********************************************************************00002580
C                                                                       00002590
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPMI,   00002600
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                      00002610
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MXHRS,                00002620
     +             NCP,NDP,NSP,OST,PIUP,PMP,PPRS,PRODX,REFURB,RMC,      00002630
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                00002640
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR       00002650
      INTEGER CADRE                                                     00002660
      REAL IMC,K,MCRS,MXHRS                                             00002670
C                                                                       00002680
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),     00002690
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),        00002700
     +             UC(200)                                              00002710
      INTEGER QPA,QR                                                    00002720
      REAL MTBI                                                         00002730
C                                                                       00002740
      COMMON /RD5/ BCMH(200),CBCMH(200),CMH(200),CRTS1(200),CRTS2(200), 00002750
     +             DBCMH(200),DMH(200),DRTS1(200),DRTS2(200),           00002760
     +             DRTS3(200),FPR(200),IMH(200),INO15(200),N15,         00002770
     +          PAMH(200),RIP(200),RL(200),RMH(200),SMH(200),SRTS1(200),00002780
     +             WOR1(200),WOR2(200),WOR3(200)                        00002790
      REAL IMH                                                          00002800
      INTEGER RL                                                        00002810
C                                                                       00002820
      COMMON /AUX2/ YFR(200),WFR(200)                                   00002830
C                                                                       00002840
      DO 5 I=1,N                                                        00002850
        IF (QPA(I).EQ.0) GO TO 5                                        00002860
        YFR(I) = (FLOAT(M) * YOH * K * FLOAT(QPA(I))                    00002870
     +                          * (1. - RIP(I))) / MTBI(I)              00002880
        WFR(I) = YFR(I) / 52.18                                         00002890
  5   CONTINUE                                                          00002900
C                                                                       00002910
      RETURN                                                            00002920
      END                                                               00002930
      SUBROUTINE AUXIL3                                                 00002940
C                                                                       00002950
C***********************************************************************00002960
C*                          SUBROUTINE AUXIL3                          *00002970
C*  THIS SUBROUTINE CALCULATES THE FOLLOWING AUXILIARY VARIABLES:      *00002980
C*  CCLH(I),DCLH(I),DLH                                                *00002990
C***********************************************************************00003000
C                                                                       00003010
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),     00003020
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),        00003030
     +             UC(200)                                              00003040
      INTEGER QPA,QR                                                    00003050
      REAL MTBI                                                         00003060
C                                                                       00003070
      COMMON /RD5/ BCMH(200),CBCMH(200),CMH(200),CRTS1(200),CRTS2(200), 00003080
     +             DBCMH(200),DMH(200),DRTS1(200),DRTS2(200),           00003090
     +             DRTS3(200),FPR(200),IMH(200),INO15(200),N15,         00003100
     +          PAMH(200),RIP(200),RL(200),RMH(200),SMH(200),SRTS1(200),00003110
     +             WOR1(200),WOR2(200),WOR3(200)                        00003120
      REAL IMH                                                          00003130
      INTEGER RL                                                        00003140
C                                                                       00003150
```

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      COMMON /AUX1/ CCOND(200),COND(200),CRTS(200),DCOND(200),          00003160
     +              DRTS(200),SNRTS(200),SRTS(200),WR(200)             00003170
C                                                                       00003180
      COMMON /AUX2/ YFR(200),WFR(200)                                   00003190
C                                                                       00003200
      COMMON /AUX3/ CCLH(200),DCLH(200),DLH                             00003210
C                                                                       00003220
      DLH = 0.                                                          00003230
      DO 5 I=1,N                                                        00003240
        IF (QPA(I).EQ.0) GO TO 5                                        00003250
        CCLH(I) = YFR(I) * ((1.+ FPR(I)) * SNRTS(I) * CBCMH(I)          00003260
     +                + CRTS(I) * CMH(I) + FPR(I) * COND(I) * CBCMH(I)) 00003270
        DCLH(I) = YFR(I) * ((DCOND(I) + DRTS(I)) * DBCMH(I) + DRTS(I)   00003280
     +                * DMH(I))                                         00003290
        DLH = DLH + DCLH(I)                                             00003300
  5   CONTINUE                                                          00003310
C                                                                       00003320
      RETURN                                                            00003330
      END                                                               00003340
      SUBROUTINE AUXIL4                                                 00003350
C                                                                       00003360
C***********************************************************************00003370
C*                          SUBROUTINE AUXIL4                         *00003380
C*  THIS SUBROUTINE CALCULATES THE FOLLOWING AUXILIARY VARIABLES:      *00003390
C*  CAS(I),DAS(I),SAS(I)                                              *00003400
C***********************************************************************00003410
C                                                                       00003420
      COMMON /BD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPMI,   00003430
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                      00003440
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCBS,MXHRS,                00003450
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRCDI,REFURB,RMC,      00003460
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                00003470
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR       00003480
      INTEGER CADRE                                                     00003490
      REAL IMC,K,MCBS,MXHRS                                             00003500
C                                                                       00003510
      COMMON /BD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),     00003520
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),        00003530
     +             UC(200)                                              00003540
      INTEGER QPA,QR                                                    00003550
      REAL MTBI                                                         00003560
C                                                                       00003570
      COMMON /BD5/ BCMH(200),CBCMH(200),CMH(200),CRTS1(200),CRTS2(200), 00003580
     +             DBCMH(200),DMH(200),DRTS1(200),DRTS2(200),           00003590
     +             DRTS3(200),FPR(200),IMH(200),INO15(200),N15,         00003600
     +          PAMH(200),RIP(200),RL(200),RMH(200),SMH(200),SRTS1(200),00003610
     +             WOR1(200),WOR2(200),WOR3(200)                        00003620
      REAL IMH                                                          00003630
      INTEGER RL                                                        00003640
C                                                                       00003650
      COMMON /AUX1/ CCOND(200),COND(200),CRTS(200),DCOND(200),          00003660
     +              DRTS(200),SNRTS(200),SRTS(200),WR(200)              00003670
C                                                                       00003680
      COMMON /AUX2/ YFR(200),WFR(200)                                   00003690
C                                                                       00003700
      COMMON /AUX4/ CAS(200),DAS(200),SAS(200)                          00003710
C                                                                       00003720
      DO 5 I=1,N                                                        00003730
        IF (QPA(I).EQ.0) GO TO 5                                        00003740
        SAS(I) = (WFR(I) * (1.+ FPR(I)) * (SRTS(I) * SRCT               00003750
     +              + (1.- SRTS(I)) * SOSI)) / FLOAT(M)                 00003760
        CAS(I) = WFR(I) * (FPR(I) * (1.- SRTS(I)) * CRCT                00003770
     +              + CRTS(I) * CRCT + (CCOND(I) + DRTS(I) + DCOND(I))  00003780
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```
     +              * (OST + SOSI / 2.) + COND(I) * OST)                    00003790
        DAS(I) = WFR(I) * DRTS(I) * DRCT                                    00003800
  5   CONTINUE                                                              00003810
C                                                                           00003820
      RETURN                                                                00003830
      END                                                                   00003840
      SUBROUTINE AUXIL5                                                     00003850
C                                                                           00003860
C*************************************************************************00003870
C*                          SUBROUTINE AUXIL5                            *00003880
C*  THIS SUBROUTINE CALCULATES THE FOLLOWING AUXILIARY VARIABLES:        *00003890
C*  DSTK(I),ECMT,MCF(I),STK(I),STK1(I),Z                                 *00003900
C*************************************************************************00003910
C                                                                           00003920
      COMMON /CNTL/ EXIT,ITER,MAXPMT,PRNT,REDO,REREAD                       00003930
      INTEGER EXIT,PRNT,REDO,REREAD                                         00003940
C                                                                           00003950
      COMMON /INIT/ CONFLO,MAXFA,MAXLR,MAXSE                                00003960
C                                                                           00003970
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPMI,       00003980
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                          00003990
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MXHRS,                    00004000
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRODX,REFURB,RMC,          00004010
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                    00004020
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR           00004030
      INTEGER CADRE                                                         00004040
      REAL IMC,K,MCRS,MXHRS                                                 00004050
C                                                                           00004060
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),         00004070
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),            00004080
     +             UC(200)                                                  00004090
      INTEGER QPA,QR                                                        00004100
      REAL MTBI                                                             00004110
C                                                                           00004120
      COMMON /RD5/ BCMH(200),CBCMH(200),CMH(200),CRTS1(200),CRTS2(200),     00004130
     +             DBCMH(200),DMH(200),DRTS1(200),DRTS2(200),               00004140
     +             DRTS3(200),FPR(200),IMH(200),INO15(200),N15,             00004150
     +          PAMH(200),RIP(200),RL(200),RMH(200),SMH(200),SRTS1(200),    00004160
     +             WOR1(200),WOR2(200),WOR3(200)                            00004170
      REAL IMH                                                              00004180
      INTEGER RL                                                            00004190
C                                                                           00004200
      COMMON /AUX2/ YFR(200),WFR(200)                                       00004210
C                                                                           00004220
      COMMON /AUX4/ CAS(200),DAS(200),SAS(200)                              00004230
C                                                                           00004240
      COMMON /AUX5/ DSTK(200),ECMT,MCF(200),STK(200),STK1(200),Z            00004250
      INTEGER STK,STK1                                                      00004260
C                                                                           00004270
  1   FORMAT (1X//49H ERROR ENCOUNTERED IN COMPUTATION OF STK1 FOR LRU,     00004280
     +  I4,1H./49H THE SERIES DID NOT CONVERGE.  PROGRAM CONTINUES.)        00004290
C                                                                           00004300
      PIVAL = 1. / SQRT(2. * 3.1415926)                                     00004310
      Z = 1.                                                                00004320
      ZC = 0.025                                                            00004330
      AREA = CONFLO                                                         00004340
      IF (CONF.LE.AREA) GO TO 5                                             00004350
  3   CONTINUE                                                              00004360
      DO 4 MM=1,80                                                          00004370
        Z = Z + ZC                                                          00004380
        AREA = AREA + (PIVAL * (EXP((Z**2)/(-2.))                           00004390
     +               + EXP(((Z-ZC)**2)/(-2.))) * ZC) / 2.                  00004400
        IF (AREA.GE.CONF) GO TO 5                                           00004410
```

```
  4   CONTINUE                                                              00004420
C                                                                           00004430
  5   ECMT = (FLOAT(M) * YOH * K * (1.- DS)) / SMTBI                        00004440
      DO 8 I=1,N                                                            00004450
        IF (QPA(I).EQ.0) GO TO 8                                            00004460
        T1 = EXP(-1.* SAS(I))                                               00004470
        TEM1 = T1                                                           00004480
        DO 6 M1=1,200                                                       00004490
          IF (TEM1.GE.CONF) GO TO 7                                         00004500
          T1 = (SAS(I) * T1) / FLOAT(M1)                                    00004510
          TEM1 = TEM1 + T1                                                  00004520
  6     CONTINUE                                                            00004530
        WRITE(6,1) I                                                        00004540
        IF (PRNT.NE.0) WRITE(7,1) I                                         00004550
  7     STK1(I) = MAX0(0,(M1 - QR(I)) - 1)                                  00004560
        STK(I) = MAX0(STK1(I),MCI(I) - 1)                                   00004570
        FLMCI = FLOAT(MCI(I))                                               00004580
        IF (STK(I).GT.0) DSTK(I) = 1. + Z / (2. * SQRT(SAS(I)))             00004590
        IF (STK(I).EQ.0) DSTK(I) = 1. / ((SQRT(FLOAT(QR(I)) +               00004600
     +                  (FLMCI / 2.) * (FLMCI - 1.)                       00004610
     +                  + 0.5 + (Z**2) / 4.) - (Z / 2.)) ** 2)            00004620
        K2 = STK(I) + QR(I)                                                 00004630
        MCP(I) = 0                                                          00004640
        IF (MCI(I).EQ.1.AND.K2.EQ.0) MCP(I) = 1                             00004650
        ECMT = ECMT + FLOAT(MCP(I)) * YPR(I)                                00004660
  8   CONTINUE                                                              00004670
C                                                                           00004680
      RETURN                                                                00004690
      END                                                                   00004700
```

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      SUBROUTINE COST1                                                    00000010
C                                                                         00000020
C*************************************************************************00000030
C*                          SUBROUTINE COST1                            *00000040
C*  THIS SUBROUTINE CALCULATES COST ELEMENT 1, ACQUISITION AND           *00000050
C*  DEVELOPMENT.                                                         *00000060
C*************************************************************************00000070
C                                                                         00000080
      COMMON /C1/ C1                                                      00000090
C                                                                         00000100
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPMI,     00000110
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                        00000120
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MXHRS,                  00000130
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRODX,REFURB,RMC,        00000140
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                  00000150
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR         00000160
      INTEGER CADRE                                                       00000170
      REAL IMC,K,MCRS,MXHRS                                               00000180
C                                                                         00000190
      C1 = VAL + FSD + (XUC * PME) + REFURB + SW + PRODX                  00000200
C                                                                         00000210
      RETURN                                                              00000220
      END                                                                 00000230
      SUBROUTINE COST2                                                    00000240
C                                                                         00000250
C*************************************************************************00000260
C*                          SUBROUTINE COST2                            *00000270
C*  THIS SUBROUTINE CALCULATES COST ELEMENT 2, MAINTENANCE (LABOR AND    *00000280
C*  TRANSPORTATION).                                                     *00000290
C*************************************************************************00000300
C                                                                         00000310
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPMI,     00000320
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                        00000330
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MXHRS,                  00000340
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRODX,REFURB,RMC,        00000350
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                  00000360
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR         00000370
      INTEGER CADRE                                                       00000380
      REAL IMC,K,MCRS,MXHRS                                               00000390
C                                                                         00000400
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),       00000410
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),          00000420
     +             UC(200)                                                00000430
      INTEGER QPA,QR                                                      00000440
      REAL MTBI                                                           00000450
C                                                                         00000460
      COMMON /AUX2/ YFR(200),WFR(200)                                     00000470
C                                                                         00000480
      COMMON /AUX3/ CCLH(200),DCLH(200),DLH                               00000490
C                                                                         00000500
      COMMON /AUX5/ DSTK(200),ECHT,MCF(200),STK(200),STK1(200),Z          00000510
      INTEGER STK,STK1                                                    00000520
C                                                                         00000530
      COMMON /C2/ C2,C2C,C2D,C2L(200),C2S                                 00000540
C                                                                         00000550
      C2S = FLOAT(M) * FLOAT(NSP) * YSLR * PIUP                           00000560
      IF (CPMI.LE.0.00001) C2C = 0.                                       00000570
      IF (CPMI.GT.0.00001) C2C = FLOAT(M)                                 00000580
     +             * PIUP * YOH * (CPMP * ADPM * CDR + H) / CPMI         00000590
      C2C = C2C + ((PIUP * FLOAT(M) * YOH * K * (1.- DS)) / SMTBI)        00000600
     +          * (CCMP * ADCM * CDR + H)                                00000610
      C2D = 0.                                                            00000620
      C2 = C2S + C2C                                                      00000630
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      DO 5 I=1,N                                                        00000640
        IF (QPA(I).EQ.0) GO TO 5                                        00000650
        TEM2 = PIUP * CCLH(I) * CLR + PIUP * FLOAT(MCF(I)) * YPR(I)     00000660
     +                    * (CCMP * ADCM * CDR + H)                    00000670
        TEM3 = PIUP * DCLH(I) * DLR                                     00000680
        C2L(I) = TEM2 + TEM3                                            00000690
        C2C = C2C + TEM2                                                00000700
        C2D = C2D + TEM3                                                00000710
        C2 = C2 + C2L(I)                                                00000720
  5   CONTINUE                                                          00000730
C                                                                       00000740
      RETURN                                                            00000750
      END                                                               00000760
      SUBROUTINE COST3                                                  00000770
C                                                                       00000780
C***********************************************************************00000790
C*                          SUBROUTINE COST3                           *00000800
C*  THIS SUBROUTINE CALCULATES COST ELEMENT 3, INVESTMENT SPARES.      *00000810
C***********************************************************************00000820
C                                                                       00000830
      COMMON /C3/ C3,C3C,C3D,C3L(200),C3S                               00000840
C                                                                       00000850
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPHI,   00000860
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                      00000870
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MIHRS,                00000880
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRCDX,REFURB,RMC,      00000890
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                00000900
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR       00000910
      INTEGER CADRE                                                     00000920
      REAL IMC,K,MCRS,MIHRS                                             00000930
C                                                                       00000940
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),     00000950
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),        00000960
     +             UC(200)                                              00000970
      INTEGER QPA,QR                                                    00000980
      REAL MTBI                                                         00000990
C                                                                       00001000
      COMMON /AUX4/ CAS(200),DAS(200),SAS(200)                          00001010
C                                                                       00001020
      COMMON /AUX5/ DSTK(200),ECNT,MCF(200),STK(200),STK1(200),Z        00001030
      INTEGER STK,STK1                                                  00001040
C                                                                       00001050
      C3 = 0.                                                           00001060
      C3S = 0.                                                          00001070
      C3C = 0.                                                          00001080
      C3D = 0.                                                          00001090
      DO 5 I=1,N                                                        00001100
        IF (QPA(I).EQ.0) GO TO 5                                        00001110
        TEM1 = FLOAT(M) * FLOAT(STK(I)) * XUC * UC(I)                   00001120
        TEM2 = AINT(CAS(I) + B * SQRT(CAS(I)) + 0.5) * XUC * UC(I)      00001130
        TEM3 = AINT(DAS(I) + B * SQRT(DAS(I)) + 0.5) * XUC * UC(I)      00001140
        C3L(I) = TEM1 + TEM2 + TEM3                                     00001150
        C3 = C3 + C3L(I)                                                00001160
        C3S = C3S + TEM1                                                00001170
        C3C = C3C + TEM2                                                00001180
        C3D = C3D + TEM3                                                00001190
  5   CONTINUE                                                          00001200
C                                                                       00001210
      RETURN                                                            00001220
      END                                                               00001230
      SUBROUTINE COST4                                                  00001240
C                                                                       00001250
C***********************************************************************00001260
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C*                              SUBROUTINE COST4                                *00001270
C*  THIS SUBROUTINE CALCULATES COST ELEMENT 4, REPLENISHMENT SPARES.            *00001280
C*******************************************************************************00001290
C                                                                               00001300
      COMMON /C4/ C4,C4I,C4L(200),C4R                                           00001310
C                                                                               00001320
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPMI,           00001330
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                              00001340
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MXHRS,                        00001350
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRCDX,REFURB,RMC,              00001360
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                        00001370
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR               00001380
      INTEGER CADRE                                                             00001390
      REAL IMC,K,MCRS,MXHRS                                                     00001400
C                                                                               00001410
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),             00001420
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),                00001430
     +             UC(200)                                                      00001440
      INTEGER QPA,QR                                                            00001450
      REAL MTBI                                                                 00001460
C                                                                               00001470
      COMMON /AUX1/ CCOND(200),COND(200),CRTS(200),DCOND(200),                  00001480
     +              DRTS(200),SNRTS(200),SRTS(200),WR(200)                      00001490
C                                                                               00001500
      COMMON /AUX2/ YFR(200),WFR(200)                                           00001510
C                                                                               00001520
      C4 = 0.                                                                   00001530
      C4I = 0.                                                                  00001540
      C4R = 0.                                                                  00001550
      DO 5 I=1,N                                                                00001560
        IF (QPA(I).EQ.0) GO TO 5                                                00001570
        TEM1 = YFR(I) * (WR(I) + (1.- WR(I)) * RM(I)) * XUC * UC(I)             00001580
        TEM2 = (PIUP - 1.) * TEM1                                               00001590
        C4L(I) = TEM1 + TEM2                                                    00001600
        C4 = C4 + C4L(I)                                                        00001610
        C4I = C4I + TEM1                                                        00001620
        C4R = C4R + TEM2                                                        00001630
  5   CONTINUE                                                                  00001640
C                                                                               00001650
      RETURN                                                                    00001660
      END                                                                       00001670
      SUBROUTINE COST5                                                          00001680
C                                                                               00001690
C*******************************************************************************00001700
C*                              SUBROUTINE COST5                                *00001710
C*  THIS SUBROUTINE CALCULATES COST ELEMENT 5, CONSUMABLES.                     *00001720
C*******************************************************************************00001730
C                                                                               00001740
      COMMON /C5/ C5                                                            00001750
C                                                                               00001760
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPMI,           00001770
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                              00001780
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MXHRS,                        00001790
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRCDX,REFURB,RMC,              00001800
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                        00001810
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR               00001820
      INTEGER CADRE                                                             00001830
      REAL IMC,K,MCRS,MXHRS                                                     00001840
C                                                                               00001850
      C5 = FLOAT(M) * PIUP * ((PPRS + SPRS) * YOH * FCS + MCRS)                 00001860
C                                                                               00001870
      RETURN                                                                    00001880
      END                                                                       00001890
```

```
      SUBROUTINE COST6                                                          00001900
C                                                                               00001910
C*****************************************************************************00001920
C*                              SUBROUTINE COST6                              *00001930
C*  THIS SUBROUTINE CALCULATES COST ELEMENT 6, SUPPORT EQUIPMENT.              *00001940
C*****************************************************************************00001950
C                                                                               00001960
      COMMON /C6/ C6,C6C,C6D,C6I,C6R,C6S                                        00001970
C                                                                               00001980
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPMI,           00001990
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                            00002000
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MXHRS,                      00002010
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRODX,REFURB,RMC,            00002020
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                      00002030
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR             00002040
      INTEGER CADRE                                                             00002050
      REAL IMC,K,MCRS,MXHRS                                                     00002060
C                                                                               00002070
      COMMON /RD2/ A,COC(150),COD(150),COS(150),INOSE(150),NSEC(150),           00002080
     +             NSED(150),NSES(150),SEC(150),SENAME(150,24)                  00002090
      REAL NSEC,NSED,NSES                                                       00002100
      INTEGER A                                                                 00002110
C                                                                               00002120
      C6 = 0.                                                                   00002130
      C6I = 0.                                                                  00002140
      C6R = 0.                                                                  00002150
      C6S = 0.                                                                  00002160
      C6C = 0.                                                                  00002170
      C6D = 0.                                                                  00002180
      IF (A.EQ.0) GO TO 6                                                       00002190
      DO 5 L=1,A                                                                00002200
        TOT = NSES(L) + NSEC(L) + NSED(L)                                       00002210
        IF (TOT.LE.0.0001) GO TO 5                                              00002220
        TEM1 = FLOAT(M) * NSES(L) * SEC(L)                                      00002230
        TEM2 = TEM1 * PIUP * COS(L)                                             00002240
        TEM3 = NSEC(L) * SEC(L)                                                 00002250
        TEM4 = TEM3 * PIUP * COC(L)                                             00002260
        TEM5 = NSED(L) * SEC(L)                                                 00002270
        TEM6 = TEM5 * PIUP * COD(L)                                             00002280
        C6 = C6 + TEM1 + TEM2 + TEM3 + TEM4 + TEM5 + TEM6                       00002290
        C6I = C6I + TEM1 + TEM3 + TEM5                                          00002300
        C6R = C6R + TEM2 + TEM4 + TEM6                                          00002310
        C6S = C6S + TEM1 + TEM2                                                 00002320
        C6C = C6C + TEM3 + TEM4                                                 00002330
        C6D = C6D + TEM5 + TEM6                                                 00002340
  5   CONTINUE                                                                  00002350
  6   CONTINUE                                                                  00002360
C                                                                               00002370
      RETURN                                                                    00002380
      END                                                                       00002390
      SUBROUTINE COST7                                                          00002400
C                                                                               00002410
C*****************************************************************************00002420
C*                              SUBROUTINE COST7                              *00002430
C*  THIS SUBROUTINE CALCULATES COST ELEMENT 7, FACILITIES.                     *00002440
C*****************************************************************************00002450
C                                                                               00002460
      COMMON /C7/ C7                                                            00002470
C                                                                               00002480
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPMI,           00002490
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                            00002500
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MXHRS,                      00002510
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRODX,REFURB,RMC,            00002520
```

```
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                    00002530
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR           00002540
      INTEGER CADRE                                                         00002550
      REAL IMC,K,MCRS,MXHRS                                                 00002560
C                                                                           00002570
      C7 = 0.                                                               00002580
      DO 5 LL=1,10                                                          00002590
        C7 = C7 + FLOAT(M) * FAC(LL)                                        00002600
  5   CONTINUE                                                              00002610
C                                                                           00002620
      RETURN                                                                00002630
      END                                                                   00002640
      SUBROUTINE COST8                                                      00002650
C                                                                           00002660
C*************************************************************************00002670
C*                          SUBROUTINE COST8                             *00002680
C*  THIS SUBROUTINE CALCULATES COST ELEMENT 8, TRAINING COSTS.           *00002690
C*************************************************************************00002700
C                                                                           00002710
      COMMON /C8/ C8,C8C,C8D,C8I,C8R,C8S                                    00002720
C                                                                           00002730
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPMI,       00002740
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                          00002750
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MXHRS,                    00002760
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRODX,REFURB,RMC,          00002770
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                    00002780
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR           00002790
      INTEGER CADRE                                                         00002800
      REAL IMC,K,MCRS,MXHRS                                                 00002810
C                                                                           00002820
      TEM1 = FLOAT(M) * FLOAT(NSP) * TW * TC                                00002830
      TEM2 = TEM1 * (PIUP - 1.) * TR                                        00002840
      TEM3 = FLOAT(CADRE) * TWCAD * TCCAD + TE + FLOAT(NCP) * TW * TC       00002850
      TEM4 = FLOAT(CADRE) * YSCAD * PIUP + FLOAT(NCP) * (PIUP - 1.)         00002860
     +                    * TR * TW * TC                                    00002870
      TEM5 = FLOAT(NDP) * TW * TC                                           00002880
      TEM6 = TEM5 * (PIUP - 1.) * TR                                        00002890
      C8 = TEM1 + TEM2 + TEM3 + TEM4 + TEM5 + TEM6                          00002900
      C8I = TEM1 + TEM3 + TEM5                                              00002910
      C8R = TEM2 + TEM4 + TEM6                                              00002920
      C8S = TEM1 + TEM2                                                     00002930
      C8C = TEM3 + TEM4                                                     00002940
      C8D = TEM5 + TEM6                                                     00002950
C                                                                           00002960
      RETURN                                                                00002970
      END                                                                   00002980
      SUBROUTINE COST9                                                      00002990
C                                                                           00003000
C*************************************************************************00003010
C*                          SUBROUTINE COST9                             *00003020
C*  THIS SUBROUTINE CALCULATES COST ELEMENT 9, INVENTORY MANAGEMENT.     *00003030
C*************************************************************************00003040
C                                                                           00003050
      COMMON /C9/ C9,C9C,C9D,C9I,C9L(200),C9R,C9S                           00003060
C                                                                           00003070
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPMI,       00003080
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                          00003090
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MXHRS,                    00003100
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRODX,REFURB,RMC,          00003110
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                    00003120
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR           00003130
      INTEGER CADRE                                                         00003140
      REAL IMC,K,MCRS,MXHRS                                                 00003150
```

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C                                                                       00003160
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),     00003170
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),        00003180
     +             UC(200)                                              00003190
      INTEGER QPA,QR                                                    00003200
      REAL MTBI                                                         00003210
C                                                                       00003220
      COMMON /AUX1/ CCOND(200),COND(200),CRTS(200),DCOND(200),          00003230
     +              DRTS(200),SNRTS(200),SRTS(200),WR(200)              00003240
C                                                                       00003250
      C9 = 0.                                                           00003260
      C9I = 0.                                                          00003270
      C9R = 0.                                                          00003280
      C9S = 0.                                                          00003290
      C9C = 0.                                                          00003300
      C9D = 0.                                                          00003310
      DO 5 I=1,N                                                        00003320
        IF (QPA(I).EQ.0) GO TO 5                                        00003330
        IF (SRTS(I).LE.0.00001) U1 = 0.                                 00003340
        IF (SRTS(I).GT.0.00001) U1 = 1.                                 00003350
        IF (CRTS(I).LE.0.00001) U2 = 0.                                 00003360
        IF (CRTS(I).GT.0.00001) U2 = 1.                                 00003370
        IF (COND(I).GE.0.99999) U3 = 0.                                 00003380
        IF (COND(I).LT.0.99999) U3 = 1.                                 00003390
        TEM2 = FLOAT(M) * SA * PIUP * (1. + U1 * PA(I))                 00003400
        TEM4 = SA * PIUP * (1. + U2 * PA(I))                            00003410
        TEM5 = IMC * (1. + U3 * PA(I))                                  00003420
        TEM6 = PIUP * RMC * (1. + U3 * PA(I))                           00003430
        C9L(I) = TEM2 + TEM4 + TEM5 + TEM6                              00003440
        C9 = C9 + C9L(I)                                                00003450
        C9I = C9I + TEM5                                                00003460
        C9R = C9R + TEM2 + TEM4 + TEM6                                  00003470
        C9S = C9S + TEM2                                                00003480
        C9C = C9C + TEM4                                                00003490
        C9D = C9D + TEM5 + TEM6                                         00003500
  5   CONTINUE                                                          00003510
C                                                                       00003520
      RETURN                                                            00003530
      END                                                               00003540
      SUBROUTINE COST10                                                 00003550
C                                                                       00003560
C*************************************************************************00003570
C*                          SUBROUTINE COST10                          *00003580
C*  THIS SUBROUTINE CALCULATES COST ELEMENT 10, SOFTWARE MAINTENANCE.  *00003590
C*************************************************************************00003600
C                                                                       00003610
      COMMON /C10/ C10,C10HW(10),C10I,C10R,C10SW(10)                    00003620
C                                                                       00003630
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONP,CPMI,   00003640
     +             CPMP,CPMT,CRCT,DAA,DLR,DRCT,DS,                      00003650
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MXHRS,                00003660
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRODX,REFURB,RMC,      00003670
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                00003680
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR       00003690
      INTEGER CADRE                                                     00003700
      REAL IMC,K,MCRS,MXHRS                                             00003710
C                                                                       00003720
      COMMON /RD3/ ENYR(10),FA,FANAME(10,24),HWCF(10),INOFA(10),MMH(10),00003730
     +             SIZE(10),SMT(10),SWCF(10),SWFIX(10),SWVAR(10),       00003740
     +             WEIGHT(10)                                           00003750
      INTEGER FA                                                        00003760
      REAL MMH                                                          00003770
C                                                                       00003780
```

```
      C10I = SWPAC                                                      00003790
      C10R = 0.                                                         00003800
C                                                                       00003810
      DO 5 J=1,FA                                                       00003820
        C10HW(J) = PIUP * ENYR(J) * WEIGHT(J) * HWCF (J) * CPWI         00003830
        C10SW(J) = PIUP * ENYR(J) * (SIZE(J) * SWCF(J) * SWVAR(J)       00003840
     +                 + SWFIX(J))                                     00003850
        C10R = C10R + C10HW(J) + C10SW(J)                               00003860
    5 CONTINUE                                                          00003870
    6 C10 = C10I + C10R                                                 00003880
C                                                                       00003890
      RETURN                                                            00003900
      END                                                               00003910
```

```
      SUBROUTINE NONCOS
C
C***********************************************************************
C*                          SUBROUTINE NONCOS                          *
C*  THIS SUBROUTINE CALCULATES CERTAIN NON-COST VARIABLES (THE         *
C*  VARIABLES ARE CALLED NON-COST BECAUSE THEIR VALUES DO NOT ENTER    *
C*  INTO THE COST ELEMENT SUMMATIONS) THAT DEAL WITH MAINTENANCE       *
C*  MAN-HOURS.  SOME OF THESE VARIABLES (SMMH,SPMH,STMH,CLH) WILL BE   *
C*  CHECKED AGAINST CONSTRAINTS IN SUBROUTINE OTAB1 (DLH,              *
C*  CALCULATED IN AUXIL3, WILL ALSO BE CHECKED AGAINST CONSTRAINTS IN  *
C*  OTAB1).  IF THE CONSTRAINTS ARE NOT MET, OTAB1 WILL PRINT ERROR    *
C*  MESSAGES.  NONCOS ALSO CALCULATES VARIABLE PMFA(J) (PREVENTIVE     *
C*  MAINTENANCE MAN-HOURS FOR FUNCTIONAL AREA J), WHICH WILL BE        *
C*  PRINTED OUT IN OTAB4.                                              *
C***********************************************************************
C
      COMMON /NCOS/ CLH,PMFA(10),SMMH,SPMH,STMH
C
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPMI,
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MXHRS,
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRODX,REFURB,RMC,
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR
      INTEGER CADRE
      REAL IMC,K,MCRS,MXHRS
C
      COMMON /RD3/ ENYR(10),FA,FANAME(10,24),HWCF(10),INOFA(10),MMH(10),
     +             SIZE(10),SMI(10),SWCF(10),SWFIX(10),SWVAR(10),
     +             WEIGHT(10)
      REAL MMH
      INTEGER FA
C
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),
     +             UC(200)
      INTEGER QPA,QR
      REAL MTBI
C
      COMMON /RD5/ BCMH(200),CBCMH(200),CMH(200),CRTS1(200),CRTS2(200),
     +             DBCMH(200),DMH(200),DRTS1(200),DRTS2(200),
     +             DRTS3(200),FPR(200),IMH(200),INO15(200),N15,
     +         PAMH(200),RIP(200),RL(200),RMH(200),SMH(200),SRTS1(200),
     +             WOR1(200),WOR2(200),WOR3(200)
      REAL IMH
      INTEGER RL
C
      COMMON /AUX1/ CCOND(200),COND(200),CRTS(200),DCOND(200),
     +              DRTS(200),SNRTS(200),SRTS(200),WR(200)
C
      COMMON /AUX2/ YFR(200),WFR(200)
C
      COMMON /AUX3/ CCLH(200),DCLH(200),DLH
C
      COMMON /AUX5/ DSTK(200),ECMT,MCF(200),STK(200),STK1(200),Z
      INTEGER STK,STK1
C
      IF (CPMI.LE.0.00001) CLH = ECMT * CCMP * ADCM * CDWH
      IF (CPMI.GT.0.00001) CLH = (FLOAT(M) * YOH * CPMP * ADPM
     +          * CDWH) / CPMI + ECMT * CCMP * ADCM * CDWH
      SMMH = 0.
      SPMH = 0.
C
```

```
      IF (FA.EQ.0) GO TO 2                                                  00000640
      DO 1 J=1,FA                                                           00000650
        PMFA(J) = 0.                                                        00000660
        IF (SMI(J).GT.0.00001) PMFA(J) = (YOH * MMH(J)) / SMI(J)            00000670
        SMMH = SMMH + PMFA(J)                                               00000680
    1 CONTINUE                                                              00000690
    2 CONTINUE                                                              00000700
C                                                                           00000710
      DO 3 I=1,N                                                            00000720
        IF (QPA(I).EQ.0) GO TO 3                                            00000730
        SMMH = SMMH + (YOH * K * FLOAT(QPA(I)) * ((1.+ FPR(I)) * PAMH(I)    00000740
     +                 + RIP(I) * IMH(I) + (1.- RIP(I)) * (1.+ FPR(I))     00000750
     +                 * RMH(I))) / MTBI(I)                                00000760
        SPMH = SPMH + (YFR(I) / FLOAT(N)) * ((1.+FPR(I)) * BCMH(I)          00000770
     +                 + SRTS(I) * SMH(I))                                 00000780
        CLH = CLH + CCLH(I)                                                 00000790
    3 CONTINUE                                                              00000800
C                                                                           00000810
      STMH = SMMH + SPMH                                                    00000820
C                                                                           00000830
      RETURN                                                                00000840
      END                                                                   00000850
      SUBROUTINE DXUC                                                       00000860
C                                                                           00000870
C*************************************************************************00000880
C*                          SUBROUTINE DXUC                              *00000890
C*  THIS SUBROUTINE CALCULATES THE DERIVATIVE OF LIFE CYCLE COST WITH     *00000900
C*  RESPECT TO XUC (GOVERNMENT SUPPLIED LRU ESCALATION FACTOR(GLOBAL)).  *00000910
C*************************************************************************00000920
C                                                                           00000930
      COMMON /TDXUC/ TDXUC                                                  00000940
C                                                                           00000950
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPMI,       00000960
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                          00000970
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MXHRS,                    00000980
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRODX,REFURB,RMC,          00000990
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                    00001000
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR           00001010
      INTEGER CADRE                                                         00001020
      REAL IMC,K,MCRS,MXHRS                                                 00001030
C                                                                           00001040
      COMMON /SENS/ FINC,LDCMH,LDCRTS,LDDMH,LDDRTS,LDERV,LDFPR,LDFR,       00001050
     +              LDMCI,LDRM,LDSRTS,LDWOR,LDUC                            00001060
C                                                                           00001070
      COMMON /C3/ C3,C3C,C3D,C3L(200),C3S                                   00001080
C                                                                           00001090
      COMMON /C4/ C4,C4I,C4L(200),C4R                                       00001100
C                                                                           00001110
      TDXUC = FINC * (PME * XUC + C3 + C4)                                  00001120
C                                                                           00001130
      RETURN                                                                00001140
      END                                                                   00001150
      SUBROUTINE DFR                                                        00001160
C                                                                           00001170
C*************************************************************************00001180
C*                          SUBROUTINE DFR                               *00001190
C*  THIS SUBROUTINE CALCULATES THE DERIVATIVE OF LIFE CYCLE COST WITH     *00001200
C*  RESPECT TO FR = 1./ MTBI(I) (FAILURE RATE).                          *00001210
C*  IF LDFR > 0, THEN                                                    *00001220
C*  AFTER ALL DERIVATIVES HAVE BEEN CALCULATED, THE SUBROUTINE CALLS     *00001230
C*  SUBROUTINE TDSORT TO 'BUBBLE UP' TO THE TOP OF ARRAY IDFR  THE       *00001240
C*  INDEX NUMBERS OF THE LDFR  LARGEST DERIVATIVES.                      *00001250
C*************************************************************************00001260
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```
C                                                                       00001270
      COMMON /TDFR/ IDFR(200),TDFR(200)                                 00001280
C                                                                       00001290
      COMMON /CNTL/ EXIT,ITER,MAXPMT,PRNT,REDO,REREAD                   00001300
      INTEGER EXIT,PRNT,REDO,REREAD                                     00001310
C                                                                       00001320
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPMI,   00001330
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                      00001340
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MXHRS,                00001350
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRODX,REFURB,RMC,      00001360
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                00001370
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR       00001380
      INTEGER CADRE                                                     00001390
      REAL IMC,K,MCRS,MXHRS                                             00001400
C                                                                       00001410
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),     00001420
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),        00001430
     +             UC(200)                                              00001440
      INTEGER QPA,QR                                                    00001450
      REAL MTBI                                                         00001460
C                                                                       00001470
      COMMON /RD5/ BCMH(200),CBCMH(200),CMH(200),CRTS1(200),CRTS2(200), 00001480
     +             DBCMH(200),DMH(200),DRTS1(200),DRTS2(200),           00001490
     +             DRTS3(200),FPR(200),IMH(200),INO15(200),N15,         00001500
     +          PAMH(200),RIP(200),RL(200),RMH(200),SMH(200),SRTS1(200),00001510
     +             WOR1(200),WOR2(200),WOR3(200)                        00001520
      REAL IMH                                                          00001530
      INTEGER RL                                                        00001540
C                                                                       00001550
      COMMON /SENS/ FINC,LDCMH,LDCRTS,LDDMH,LDDRTS,LDERV,LDFPR,LDFR,    00001560
     +              LDMCI,LDRM,LDSRTS,LDWOR,LDUC                        00001570
C                                                                       00001580
      COMMON /AUX1/ CCOND(200),COND(200),CRTS(200),DCOND(200),          00001590
     +              DRTS(200),SNRTS(200),SRTS(200),WR(200)              00001600
C                                                                       00001610
      COMMON /AUX2/ YFR(200),WFR(200)                                   00001620
C                                                                       00001630
      COMMON /AUX3/ CCLH(200),DCLH(200),DLH                             00001640
C                                                                       00001650
      COMMON /AUX4/ CAS(200),DAS(200),SAS(200)                          00001660
C                                                                       00001670
      COMMON /AUX5/ DSTK(200),ECMT,MCP(200),STK(200),STK1(200),Z        00001680
      INTEGER STK,STK1                                                  00001690
C                                                                       00001700
      DO 5 I=1,N                                                        00001710
        IF (QPA(I).NE.0) GO TO 1                                        00001720
          TDFR(I) = 0.                                                  00001730
          GO TO 4                                                       00001740
  1     TDFR(I) = DSTK(I) * FLOAT(M) * FINC * SAS(I) * XUC * UC(I)      00001750
     +            + (FINC * CAS(I)  +  B * (SQRT((1.+ FINC) * CAS(I))  00001760
     +                    - SQRT(CAS(I)))) * XUC * UC(I)               00001770
     +            + (FINC * DAS(I)  +  B * (SQRT((1.+ FINC) * DAS(I))  00001780
     +                    - SQRT(DAS(I)))) * XUC * UC(I)               00001790
     +            + FINC * PIUP * YFR(I) * (WR(I) + (1. - WR(I))       00001800
     +                    * RM(I)) * XUC * UC(I)                       00001810
     +            + FINC * PIUP * (CCLH(I) * CLR + DCLH(I) * DLR)      00001820
     +            + PIUP * (CCMP * ADCM * CDR + H) * FINC * FLOAT(M)   00001830
     +                    * YOH * K * FLOAT(QPA(I)) * ((1.- RIP(I))    00001840
     +                    * FLOAT(MCP(I)) + (1.- DS)) / MTBI(I)        00001850
  4     IDFR(I) = I                                                     00001860
  5   CONTINUE                                                          00001870
C                                                                       00001880
      LD = LDFR                                                         00001890
```

```
      IF (PRNT.NE.0) LD = MAXO(LD,LDERV)                                00001900
      IF (LDFR.GT.0.OR.LDERV.GT.0) CALL TDSORT(TDFR,IDFR,LD,N)          00001910
C                                                                       00001920
      RETURN                                                            00001930
      END                                                               00001940
      SUBROUTINE DK                                                     00001950
C                                                                       00001960
C*************************************************************************00001970
C*                          SUBROUTINE DK                              *00001980
C*  THIS SUBROUTINE CALCULATES THE DERIVATIVE OF LIFE CYCLE COST WITH   *00001990
C*  RESPECT TO K (THE RELIABILITY FACTOR WHICH CONVERTS PREDICTED       *00002000
C*  FAILURE RATES TO OPERATIONAL FAILURE RATES).                        *00002010
C*************************************************************************00002020
C                                                                       00002030
      COMMON /TDK/ TDK                                                  00002040
C                                                                       00002050
      COMMON /TDFR/ IDFR(200),TDFR(200)                                 00002060
C                                                                       00002070
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),     00002080
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),        00002090
     +             UC(200)                                              00002100
      INTEGER QPA,QR                                                    00002110
      REAL MTBI                                                         00002120
C                                                                       00002130
      TDK = 0.                                                          00002140
      DO 5 I=1,N                                                        00002150
        IF (QPA(I).EQ.0) GO TO 5                                        00002160
        TDK = TDK + TDFR(I)                                             00002170
  5   CONTINUE                                                          00002180
C                                                                       00002190
      RETURN                                                            00002200
      END                                                               00002210
      SUBROUTINE DUC                                                    00002220
C                                                                       00002230
C*************************************************************************00002240
C*                          SUBROUTINE DUC                             *00002250
C*  THIS SUBROUTINE CALCULATES THE DERIVATIVE OF LIFE CYCLE COST WITH   *00002260
C*  RESPECT TO UC (UNIT COST).                                          *00002270
C*  AFTER ALL DERIVATIVES HAVE BEEN CALCULATED, THE SUBROUTINE CALLS    *00002280
C*  SUBROUTINE TDSORT TO 'BUBBLE UP' TO THE TOP OF ARRAY IDUC  THE      *00002290
C*  INDEX NUMBERS OF THE LDUC  LARGEST DERIVATIVES.                     *00002300
C*************************************************************************00002310
C                                                                       00002320
      COMMON /TDUC/ IDUC(200),TDUC(200)                                 00002330
C                                                                       00002340
      COMMON /CNTL/ EXIT,ITER,MAXPNT,PRNT,REDO,REREAD                   00002350
      INTEGER EXIT,PRNT,REDO,REREAD                                     00002360
C                                                                       00002370
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPMI,   00002380
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                      00002390
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MXHRS,                00002400
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRODX,REFURB,RMC,      00002410
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                00002420
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR       00002430
      INTEGER CADRE                                                     00002440
      REAL IMC,K,MCRS,MXHRS                                             00002450
C                                                                       00002460
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),     00002470
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),        00002480
     +             UC(200)                                              00002490
      INTEGER QPA,QR                                                    00002500
      REAL MTBI                                                         00002510
C                                                                       00002520
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      COMMON /SENS/ FINC,LDCMH,LDCRTS,LDDMH,LDDRTS,LDERV,LDFPR,LDPR,     00002530
     +              LDMCI,LDRM,LDSRTS,LDWOR,LDUC                         00002540
C                                                                        00002550
      COMMON /AUX1/ CCOND(200),COND(200),CRTS(200),DCOND(200),           00002560
     +              DRTS(200),SNRTS(200),SRTS(200),WR(200)               00002570
C                                                                        00002580
      COMMON /AUX2/ YPR(200),WPR(200)                                    00002590
C                                                                        00002600
      COMMON /AUX4/ CAS(200),DAS(200),SAS(200)                           00002610
C                                                                        00002620
      COMMON /AUX5/ DSTK(200),ECMT,MCF(200),STK(200),STK1(200),Z         00002630
      INTEGER STK,STK1                                                   00002640
C                                                                        00002650
      DO 5 I=1,N                                                         00002660
        IF (QPA(I).NE.0) GO TO 1                                         00002670
          TDUC(I) = 0.                                                   00002680
          GO TO 4                                                        00002690
  1     TDUC(I) = (FLOAT(M) * FLOAT(STK(I)) + AINT(CAS(I)                00002700
     +                     + B * SQRT(CAS(I)) + 0.5)                   00002710
     +                     + AINT(DAS(I) + B * SQRT(DAS(I)) + 0.5))    00002720
     +                     * XUC * FINC * UC(I)                        00002730
     +          + FLOAT(M-1) * FLOAT(QPA(I)) * XUC * FINC * UC(I)       00002740
     +             + PIUP * YPR(I) * (WR(I) + (1.- WR(I)) * RM(I))      00002750
     +                     * XUC * FINC * UC(I)                        00002760
  4     IDUC(I) = I                                                      00002770
  5   CONTINUE                                                           00002780
C                                                                        00002790
      LD = LDUC                                                          00002800
      IF (PRNT.NE.0) LD = MAXO(LD,LDERV)                                 00002810
      CALL TDSORT(TDUC,IDUC,LD,N)                                        00002820
C                                                                        00002830
      RETURN                                                             00002840
      END                                                                00002850
      SUBROUTINE DWOR                                                    00002860
C                                                                        00002870
C*************************************************************************00002880
C*                          SUBROUTINE DWOR                             *00002890
C*  THIS SUBROUTINE CALCULATES THE DERIVATIVE OF LIFE CYCLE COST WITH    *00002900
C*  RESPECT TO WOR (WEAR OUT RATE).                                     *00002910
C*  AFTER ALL DERIVATIVES HAVE BEEN CALCULATED, THE SUBROUTINE CALLS    *00002920
C*  SUBROUTINE TDSORT TO 'BUBBLE UP' TO THE TOP OF ARRAY IDWOR THE      *00002930
C*  INDEX NUMBERS OF THE LDWOR LARGEST DERIVATIVES.                     *00002940
C*************************************************************************00002950
C                                                                        00002960
      COMMON /TDWOR/ IDWOR(200),TDWOR(200),WF(200)                       00002970
C                                                                        00002980
      COMMON /CNTL/ EXIT,ITER,MAXPNT,PRNT,REDO,REREAD                    00002990
      INTEGER EXIT,PRNT,REDO,REREAD                                      00003000
C                                                                        00003010
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),      00003020
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),         00003030
     +             UC(200)                                               00003040
      INTEGER QPA,QR                                                     00003050
      REAL MTBI                                                          00003060
C                                                                        00003070
      COMMON /RD5/ BCMH(200),CBCMH(200),CMH(200),CRTS1(200),CRTS2(200),  00003080
     +             DBCMH(200),DMH(200),DRTS1(200),DRTS2(200),            00003090
     +             DRTS3(200),FPR(200),IMH(200),INO15(200),N15,          00003100
     +          PAMH(200),RIP(200),RL(200),RMH(200),SMH(200),SRTS1(200), 00003110
     +             WOR1(200),WOR2(200),WOR3(200)                         00003120
      REAL IMH                                                           00003130
      INTEGER RL                                                         00003140
C                                                                        00003150
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      COMMON /SENS/ FINC,LDCMH,LDCRTS,LDDMH,LDDRTS,LDERV,LDFPR,LDFR,     00003160
     +              LDMCI,LDRM,LDSRTS,LDWOR,LDUC                         00003170
C                                                                        00003180
      COMMON /AUX1/ CCOND(200),COND(200),CRTS(200),DCOND(200),           00003190
     +              DRTS(200),SNRTS(200),SRTS(200),WR(200)               00003200
C                                                                        00003210
      COMMON /CHLCC/ CCF,CF,CHLCC,DCF,DF,SCF,SF                          00003220
C                                                                        00003230
      DO 6 I=1,N                                                         00003240
        IF (QPA(I).NE.0) GO TO 1                                         00003250
          TDWOR(I) = 0.                                                  00003260
          WF(I) = 0.                                                     00003270
          GO TO 5                                                        00003280
  1     WF(I) = AMIN1(FINC,1.- WR(I))                                    00003290
        IF (WF(I).GT.0.00001) GO TO 2                                    00003300
          TDWOR(I) = 0.                                                  00003310
          GO TO 5                                                        00003320
  2     CONTINUE                                                         00003330
        SCF = 0.                                                         00003340
        SF = (-1. * SRTS(I) * WF(I)) / (SRTS(I) + CRTS(I) + DRTS(I))     00003350
        CF = (-1. * CRTS(I) * WF(I)) / (SRTS(I) + CRTS(I) + DRTS(I))     00003360
        DF = (-1. * DRTS(I) * WF(I)) / (SRTS(I) + CRTS(I) + DRTS(I))     00003370
        IF (RL(I).EQ.3) GO TO 3                                          00003380
        CCF = WF(I)                                                      00003390
        DCF = 0.                                                         00003400
        GO TO 4                                                          00003410
  3     CCF = 0.                                                         00003420
        DCF = WF(I)                                                      00003430
  4     CONTINUE                                                         00003440
        CALL CHCALC(I)                                                   00003450
        TDWOR(I) = CHLCC                                                 00003460
  5     CONTINUE                                                         00003470
        IDWOR(I) = I                                                     00003480
  6   CONTINUE                                                           00003490
C                                                                        00003500
      LD = LDWOR                                                         00003510
      IF (PRNT.NE.0) LD = MAX0(LD,LDERV)                                 00003520
      CALL TDSORT(TDWOR,IDWOR,LD,N)                                      00003530
C                                                                        00003540
      RETURN                                                             00003550
      END                                                                00003560
      SUBROUTINE DFPR                                                    00003570
C                                                                        00003580
C*************************************************************************00003590
C*                          SUBROUTINE DFPR                             *00003600
C*  THIS SUBROUTINE CALCULATES THE DERIVATIVE OF LIFE CYCLE COST WITH    *00003610
C*  RESPECT TO FPR (FALSE PULL RATE).                                   *00003620
C*  AFTER ALL DERIVATIVES HAVE BEEN CALCULATED, THE SUBROUTINE CALLS    *00003630
C*  SUBROUTINE TDSORT TO 'BUBBLE UP' TO THE TOP OF ARRAY IDFPR THE      *00003640
C*  INDEX NUMBERS OF THE LDFPR LARGEST DERIVATIVES.                     *00003650
C*************************************************************************00003660
C                                                                        00003670
      COMMON /TDFPR/ IDFPR(200),TDFPR(200)                               00003680
C                                                                        00003690
      COMMON /CNTL/ EXIT,ITER,MAXPNT,PRNT,REDO,REREAD                    00003700
      INTEGER EXIT,PRNT,REDO,REREAD                                      00003710
C                                                                        00003720
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,COMF,CPMI,    00003730
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                       00003740
     +             FAC(10),FCS,FSD,H,INC,K,M,MCRS,MXHRS,                 00003750
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRODX,REFURB,RMC,       00003760
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                 00003770
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR        00003780
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      INTEGER CADRE                                                     00003790
      REAL INC,K,MCRS,MXMRS                                             00003800
C                                                                       00003810
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),     00003820
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),        00003830
     +             UC(200)                                              00003840
      INTEGER QPA,QR                                                    00003850
      REAL MTBI                                                         00003860
C                                                                       00003870
      COMMON /RD5/ BCMH(200),CBCMH(200),CMH(200),CRTS1(200),CRTS2(200), 00003880
     +             DBCMH(200),DMH(200),DRTS1(200),DRTS2(200),           00003890
     +             DRTS3(200),FPR(200),IMH(200),INO15(200),N15,         00003900
     +          PAMH(200),RIP(200),RL(200),RMH(200),SMH(200),SRTS1(200), 00003910
     +             WOR1(200),WOR2(200),WOR3(200)                        00003920
      REAL IMH                                                          00003930
      INTEGER RL                                                        00003940
C                                                                       00003950
      COMMON /SENS/ FINC,LDCMH,LDCRTS,LDDMH,LDDRTS,LDERV,LDFPR,LDFR,    00003960
     +              LDMCI,LDRM,LDSRTS,LDWOR,LDUC                        00003970
C                                                                       00003980
      COMMON /AUX1/ CCOND(200),COND(200),CRTS(200),DCOND(200),          00003990
     +              DRTS(200),SNRTS(200),SRTS(200),WR(200)              00004000
C                                                                       00004010
      COMMON /AUX2/ YFR(200),WFR(200)                                   00004020
C                                                                       00004030
      COMMON /AUX4/ CAS(200),DAS(200),SAS(200)                          00004040
C                                                                       00004050
      COMMON /AUX5/ DSTK(200),ECMT,MCF(200),STK(200),STK1(200),Z        00004060
      INTEGER STK,STK1                                                  00004070
C                                                                       00004080
      DO 5 I=1,N                                                        00004090
        IF (QPA(I).NE.0) GO TO 1                                        00004100
          TDFPR(I) = 0.                                                 00004110
          GO TO 4                                                       00004120
    1   TDFPR(I) = FINC * PIUP * YFR(I) * FPR(I) * (SNRTS(I) + COND(I)) 00004130
     +                    * CBCMH(I) * CLR                             00004140
     +              + DSTK(I) * WFR(I) * FINC * FPR(I) * (SRTS(I) * SRCT 00004150
     +                    + (1.- SRTS(I)) * SOSI) * XUC * UC(I)        00004160
        IF (CAS(I).GT..0001) X1 = (1.+ B / (2. * SQRT(CAS(I)))) * WFR(I)00004170
     +              * FINC * FPR(I) * (1.- SRTS(I)) * CRCT * XUC * UC(I) 00004180
        IF (CAS(I).GT..0001) TDFPR(I) = TDFPR(I) + X1                   00004185
    4   IDFPR(I) = I                                                    00004190
    5 CONTINUE                                                          00004200
C                                                                       00004210
      LD = LDFPR                                                        00004220
      IF (PRNT.NE.0) LD = MAX0(LD,LDERV)                                00004230
      CALL TDSORT(TDFPR,IDFPR,LD,N)                                     00004240
C                                                                       00004250
      RETURN                                                            00004260
      END                                                               00004270
      SUBROUTINE DCMH                                                   00004280
C                                                                       00004290
C*************************************************************************00004300
C*                          SUBROUTINE DCMH                            *00004310
C*  THIS SUBROUTINE CALCULATES THE DERIVATIVE OF LIFE CYCLE COST WITH   *00004320
C*  RESPECT TO CMH (AVERAGE MAN-HRS FOR CORRECTIVE MAINTENANCE AT CMH).*00004330
C*  INCLUDING FAULT ISOLATION, REMOVAL, AND REPLACEMENT.               *00004340
C*  AFTER ALL DERIVATIVES HAVE BEEN CALCULATED, THE SUBROUTINE CALLS   *00004350
C*  SUBROUTINE TDSORT TO 'BUBBLE UP' TO THE TOP OF ARRAY IDCMH THE     *00004360
C*  INDEX NUMBERS OF THE LDCMH LARGEST DERIVATIVES.                    *00004370
C*************************************************************************00004380
C                                                                       00004390
      COMMON /TDCMH/ IDCMH(200),TDCMH(200)                              00004400
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C                                                                       00004410
      COMMON /CNTL/ EXIT,ITER,MAXPMT,PRNT,REDO,REREAD                   00004420
      INTEGER EXIT,PRNT,REDO,REREAD                                     00004430
C                                                                       00004440
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPMI,   00004450
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                      00004460
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MXHRS,                00004470
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRODX,REFURB,RMC,      00004480
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                00004490
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR       00004500
      INTEGER CADRE                                                     00004510
      REAL IMC,K,MCRS,MXHRS                                             00004520
C                                                                       00004530
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),     00004540
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),        00004550
     +             UC(200)                                              00004560
      INTEGER QPA,QR                                                    00004570
      REAL MTBI                                                         00004580
C                                                                       00004590
      COMMON /RD5/ BCMH(200),CBCMH(200),CMH(200),CRTS1(200),CRTS2(200), 00004600
     +             DBCMH(200),DMH(200),DRTS1(200),DRTS2(200),           00004610
     +             DRTS3(200),FPR(200),IMH(200),INO15(200),N15,         00004620
     +          PMH(200),RIP(200),RL(200),RMH(200),SMH(200),SRTS1(200), 00004630
     +             WOR1(200),WOR2(200),WOR3(200)                        00004640
      REAL IMH                                                          00004650
      INTEGER RL                                                        00004660
C                                                                       00004670
      COMMON /SENS/ FINC,LDCMH,LDCRTS,LDDMH,LDDRTS,LDERV,LDFPR,LDFR,    00004680
     +              LDMCI,LDRM,LDSRTS,LDWOR,LDUC                        00004690
C                                                                       00004700
      COMMON /AUX1/ CCOND(200),COND(200),CRTS(200),DCOND(200),          00004710
     +              DRTS(200),SNRTS(200),SRTS(200),WR(200)              00004720
C                                                                       00004730
      COMMON /AUX2/ YPR(200),WPR(200)                                   00004740
C                                                                       00004750
      DO 5 I=1,N                                                        00004760
        IF (QPA(I).NE.0) GO TO 1                                        00004770
          TDCMH(I) = 0.                                                 00004780
          GO TO 4                                                       00004790
  1     TDCMH(I) = PIUP * YPR(I) * CRTS(I) * FINC * CMH(I) * CLR        00004800
  4     IDCMH(I) = I                                                  00004810
  5   CONTINUE                                                          00004820
C                                                                       00004830
      LD = LDCMH                                                        00004840
      IF (PRNT.NE.0) LD = MAXO(LD,LDERV)                                00004850
      CALL TDSORT(TDCMH,IDCMH,LD,N)                                     00004860
C                                                                       00004870
      RETURN                                                            00004880
      END                                                               00004890
      SUBROUTINE DDMH                                                   00004900
C                                                                       00004910
C*************************************************************************00004920
C*                          SUBROUTINE DDMH                            *00004930
C*  THIS SUBROUTINE CALCULATES THE DERIVATIVE OF LIFE CYCLE COST WITH   *00004940
C*  RESPECT TO DMH (AVERAGE MAN-HRS FOR CORRECTIVE MAINT. AT DEPOT).   *00004950
C*  INCLUDING FAULT ISOLATION, REMOVAL, AND REPLACEMENT.               *00004960
C*  AFTER ALL DERIVATIVES HAVE BEEN CALCULATED, THE SUBROUTINE CALLS   *00004970
C*  SUBROUTINE TDSORT TO 'BUBBLE UP' TO THE TOP OF ARRAY IDDMH THE     *00004980
C*  INDEX NUMBERS OF THE LDDMH LARGEST DERIVATIVES.                    *00004990
C*************************************************************************00005000
C                                                                       00005010
      COMMON /TDDMH/ IDDMH(200),TDDMH(200)                              00005020
C                                                                       00005030
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      COMMON /CNTL/ EXIT,ITER,MAXPNT,PRNT,REDO,REREAD                    00005040
      INTEGER EXIT,PRNT,REDO,REREAD                                      00005050
C                                                                        00005060
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWM,CLR,CONP,CPMI,    00005070
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                       00005080
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MIMRS,                 00005090
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRODI,REPURB,RMC,       00005100
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                 00005110
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOM,YSCAD,YSLR        00005120
      INTEGER CADRE                                                      00005130
      REAL IMC,K,MCRS,MIMRS                                              00005140
C                                                                        00005150
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),      00005160
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),         00005170
     +             UC(200)                                               00005180
      INTEGER QPA,QR                                                     00005190
      REAL MTBI                                                          00005200
C                                                                        00005210
      COMMON /RD5/ BCMM(200),CBCMM(200),CMM(200),CRTS1(200),CRTS2(200),  00005220
     +             DBCMM(200),DMM(200),DRTS1(200),DRTS2(200),            00005230
     +             DRTS3(200),FPR(200),IMM(200),INO15(200),M15,          00005240
     +          PAMM(200),RIP(200),RL(200),RMM(200),SMM(200),SRTS1(200), 00005250
     +             WOR1(200),WOR2(200),WOR3(200)                         00005260
      REAL IMM                                                           00005270
      INTEGER RL                                                         00005280
C                                                                        00005290
      COMMON /SENS/ FINC,LDCMM,LDCRTS,LDDMM,LDDRTS,LDERV,LDFPR,LDPR,     00005300
     +             LDMCI,LDRM,LDSRTS,LDWOR,LDUC                          00005310
C                                                                        00005320
      COMMON /AUX1/ CCOND(200),COND(200),CRTS(200),DCOND(200),           00005330
     +             DRTS(200),SMRTS(200),SRTS(200),WR(200)                00005340
C                                                                        00005350
      COMMON /AUX2/ YPR(200),WPR(200)                                    00005360
C                                                                        00005370
      DO 5 I=1,N                                                         00005380
        IF (QPA(I).NE.0) GO TO 1                                         00005390
          TDDMM(I) = 0.                                                  00005400
          GO TO 4                                                        00005410
  1     TDDMM(I) = PIUP * YPR(I) * DRTS(I) * FINC * DMM(I) * DLR         00005420
  4     IDDMM(I) = I                                                   00005430
  5   CONTINUE                                                           00005440
C                                                                        00005450
      LD = LDDMM                                                         00005460
      IF (PRNT.NE.0) LD = MAXO(LD,LDERV)                                 00005470
      CALL TDSORT(TDDMM,IDDMM,LD,N)                                      00005480
C                                                                        00005490
      RETURN                                                             00005500
      END                                                                00005510
      SUBROUTINE DRM                                                     00005520
C                                                                        00005530
C*************************************************************************00005540
C*                          SUBROUTINE DRM                              *00005550
C*  THIS SUBROUTINE CALCULATES THE DERIVATIVE OF LIFE CYCLE COST WITH    *00005560
C*  RESPECT TO RM (FRACTION OF UC(I) CONSUMED IN REPAIR OF LRU I).       *00005570
C*  AFTER ALL DERIVATIVES HAVE BEEN CALCULATED, THE SUBROUTINE CALLS     *00005580
C*  SUBROUTINE TDSORT TO 'BUBBLE UP' TO THE TOP OF ARRAY IDRM  THE       *00005590
C*  INDEX NUMBERS OF THE LDRM  LARGEST DERIVATIVES.                      *00005600
C*************************************************************************00005610
C                                                                        00005620
      COMMON /TDRM/ IDRM(200),TDRM(200)                                  00005630
C                                                                        00005640
      COMMON /CNTL/ EXIT,ITER,MAXPNT,PRNT,REDO,REREAD                    00005650
      INTEGER EXIT,PRNT,REDO,REREAD                                      00005660
```

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C                                                                       00005670
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONP,CPMI,   00005680
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                      00005690
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MXHRS,                00005700
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRCDX,REPURB,RMC,      00005710
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                00005720
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR       00005730
      INTEGER CADRE                                                     00005740
      REAL IMC,K,MCRS,MXHRS                                             00005750
C                                                                       00005760
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),     00005770
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),        00005780
     +             UC(200)                                              00005790
      INTEGER QPA,QR                                                    00005800
      REAL MTBI                                                         00005810
C                                                                       00005820.
      COMMON /SENS/ FINC,LDCMH,LDCRTS,LDDMH,LDDRTS,LDERV,LDFPR,LDFR,    00005830
     +              LDMCI,LDRM,LDSRTS,LDWOR,LDUC                        00005840
C                                                                       00005850
      COMMON /AUX1/ CCOND(200),COND(200),CRTS(200),DCOND(200),          00005860
     +              DRTS(200),SNRTS(200),SRTS(200),WR(200)              00005870
C                                                                       00005880
      COMMON /AUX2/ YFR(200),WFR(200)                                   00005890
C                                                                       00005900
      DO 5 I=1,N                                                        00005910
        IF (QPA(I).NE.0) GO TO 1                                        00005920
          TDRM(I) = 0.                                                  00005930
          GO TO 4                                                       00005940
  1     TDRM(I) = PIUP * YFR(I) * (1.- WR(I)) * FINC * RM(I) * XUC *    00005950
     +                  UC(I)                                          00005960
  4     IDRM(I) = I                                                   00005970
  5   CONTINUE                                                          00005980
C                                                                       00005990
      LD = LDRM                                                         00006000
      IF (PRNT.NE.0) LD = MAX0(LD,LDERV)                                00006010
      CALL TDSORT(TDRM,IDRM,LD,N)                                       00006020
C                                                                       00006030
      RETURN                                                            00006040
      END                                                               00006050
      SUBROUTINE DSRTS                                                  00006060
C                                                                       00006070
C*************************************************************************00006080
C*                          SUBROUTINE DSRTS                           *00006090
C*  THIS SUBROUTINE CALCULATES THE DERIVATIVE OF LIFE CYCLE COST WITH   *00006100
C*  RESPECT TO SRTS (FRACTION OF FAILURES REPAIRED AT SITE).           *00006110
C*  THE CALCULATION OF TDSRTS(I) IS DONE BY LETTING SUBROUTINE CHCALC  *00006120
C*  CALCULATE CHLCC = F(SF,CF,DF,SCF,CCF,DCF) FROM THE VALUES OF SF,CF,*00006130
C*  DF,SCF,DCF,CCF THAT ARE SUPPLIED BY THIS SUBROUTINE AND THEN BY    *00006140
C*  SETTING TDSRTS(I) = CHLCC.                                         *00006150
C*  AFTER ALL DERIVATIVES HAVE BEEN CALCULATED, THE SUBROUTINE CALLS   *00006160
C*  SUBROUTINE TDSORT TO 'BUBBLE UP' TO THE TOP OF ARRAY IDSRTS THE    *00006170
C*  INDEX NUMBERS OF THE LDSRTS LARGEST DERIVATIVES.                   *00006180
C*************************************************************************00006190
C                                                                       00006200
      COMMON /TDSRTS/ IDSRTS(200),SPSRTS(200),TDSRTS(200)               00006210
C                                                                       00006220
      COMMON /CNTL/ EXIT,ITER,MAXPNT,PRNT,REDO,REREAD                   00006230
      INTEGER EXIT,PRNT,REDO,REREAD                                     00006240
C                                                                       00006250
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),     00006260
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),        00006270
     +             UC(200)                                              00006280
      INTEGER QPA,QR                                                    00006290
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      REAL MTBI                                                          00006300
C                                                                        00006310
      COMMON /SENS/ FINC,LDCMH,LDCRTS,LDDMH,LDDRTS,LDERV,LDFPR,LDFR,     00006320
     +              LDMCI,LDRM,LDSRTS,LDWOR,LDUC                        00006330
C                                                                        00006340
      COMMON /AUX1/ CCOND(200),COND(200),CRTS(200),DCOND(200),           00006350
     +              DRTS(200),SMRTS(200),SRTS(200),WR(200)              00006360
C                                                                        00006370
      COMMON /CHLCC/ CCF,CF,CHLCC,DCF,DF,SCF,SF                          00006380
C                                                                        00006390
      DO 6 I=1,N                                                         00006400
        IF (QPA(I).NE.0) GO TO 1                                         00006410
          TDSRTS(I) = 0.                                                 00006420
          SFSRTS(I) = 0.                                                 00006430
          GO TO 5                                                        00006440
  1     SF = AMIN1(FINC,1.- (CCOND(I) + DCOND(I) + SRTS(I)))             00006450
        SFSRTS(I) = SF                                                   00006460
        IF (SF.GT.0.00001) GO TO 2                                       00006470
          TDSRTS(I) = 0.                                                 00006480
          GO TO 5                                                        00006490
  2     CONTINUE                                                         00006500
        DCF = 0.                                                         00006510
        IF (COND(I).LT..99999) GO TO 3                                   00006520
        SCF = -1.                                                        00006530
        CCF = 1. - SF                                                    00006540
        CF = 0.                                                          00006550
        DF = 0.                                                          00006560
        GO TO 4                                                          00006570
  3     CCF = 0.                                                         00006580
        SCF = 0.                                                         00006590
        CF = (-1. * CRTS(I) * SF) / (CRTS(I) + DRTS(I))                  00006600
        DF = (-1. * DRTS(I) * SF) / (CRTS(I) + DRTS(I))                  00006610
  4     CONTINUE                                                         00006620
        CALL CHCALC(I)                                                   00006630
        TDSRTS(I) = CHLCC                                                00006640
  5     CONTINUE                                                         00006650
        IDSRTS(I) = I                                                    00006660
  6   CONTINUE                                                           00006670
C                                                                        00006680
      LD = LDSRTS                                                        00006690
      IF (PRNT.NE.0) LD = MAX0(LD,LDERV)                                 00006700
      CALL TDSORT(TDSRTS,IDSRTS,LD,N)                                    00006710
C                                                                        00006720
      RETURN                                                             00006730
      END                                                                00006740
      SUBROUTINE DCRTS                                                   00006750
C                                                                        00006760
C*************************************************************************00006770
C*                          SUBROUTINE DCRTS                            *00006780
C*  THIS SUBROUTINE CALCULATES THE DERIVATIVE OF LIFE CYCLE COST WITH    *00006790
C*  RESPECT TO CRTS (FRACTION OF FAILURES REPAIRED AT THE CMF).          *00006800
C*  THE CALCULATION OF TDCRTS(I) IS DONE BY LETTING SUBROUTINE CHCALC    *00006810
C*  CALCULATE CHLCC = F(SF,CF,DF,SCF,CCF,DCF) FROM THE VALUES OF SF,CF,  *00006820
C*  DF,SCF,DCF,CCF THAT ARE SUPPLIED BY THIS SUBROUTINE AND THEN BY      *00006830
C*  SETTING TDCRTS(I) = CHLCC.                                           *00006840
C*  AFTER ALL DERIVATIVES HAVE BEEN CALCULATED, THE SUBROUTINE CALLS     *00006850
C*  SUBROUTINE TDSORT TO 'BUBBLE UP' TO THE TOP OF ARRAY IDCRTS THE      *00006860
C*  INDEX NUMBERS OF THE LDCRTS LARGEST DERIVATIVES.                     *00006870
C*************************************************************************00006880
C                                                                        00006890
      COMMON /TDCRTS/ CPCRTS(200),IDCRTS(200),TDCRTS(200)                00006900
C                                                                        00006910
      COMMON /CNTL/ EXIT,ITER,MAXPNT,PRNT,REDO,REREAD                    00006920
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      INTEGER EXIT,PRNT,REDO,REREAD                                     00006930
C                                                                       00006940
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),     00006950
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),        00006960
     +             UC(200)                                              00006970
      INTEGER QPA,QR                                                    00006980
      REAL MTBI                                                         00006990
C                                                                       00007000
      COMMON /SENS/ FINC,LDCMH,LDCRTS,LDDMH,LDDRTS,LDERV,LDFPR,LDFR,    00007010
     +              LDMCI,LDRM,LDSRTS,LDWOR,LDUC                        00007020
C                                                                       00007030
      COMMON /AUX1/ CCOND(200),COND(200),CRTS(200),DCOND(200),          00007040
     +              DRTS(200),SNRTS(200),SRTS(200),WR(200)              00007050
C                                                                       00007060
      COMMON /CHLCC/ CCF,CF,CHLCC,DCF,DF,SCF,SF                         00007070
C                                                                       00007080
      DO 6 I=1,N                                                        00007090
        IF (QPA(I).NE.0) GO TO 1                                        00007100
          TDCRTS(I) = 0.                                                00007110
          CFCRTS(I) = 0.                                                00007120
          GO TO 5                                                       00007130
  1     CF = AMIN1(FINC,1.- (CCOND(I) + DCOND(I) + CRTS(I)))            00007140
        CFCRTS(I) = CF                                                  00007150
        IF (CF.GT.0.00001) GO TO 2                                      00007160
          TDCRTS(I) = 0.                                                00007170
          GO TO 5                                                       00007180
  2     CONTINUE                                                        00007190
        DCF = 0.                                                        00007200
        IF (COND(I).LT..99999) GO TO 3                                  00007210
        SCF = -1.                                                       00007220
        CCF = 1. - CF                                                   00007230
        SF = 0.                                                         00007240
        DF = 0.                                                         00007250
        GO TO 4                                                         00007260
  3     CCF = 0.                                                        00007270
        SCF = 0.                                                        00007280
        SF = (-1. * SRTS(I) * CF) / (SRTS(I) + DRTS(I))                 00007290
        DF = (-1. * DRTS(I) * CF) / (SRTS(I) + DRTS(I))                 00007300
  4     CONTINUE                                                        00007310
        CALL CHCALC(I)                                                  00007320
        TDCRTS(I) = CHLCC                                               00007330
  5     CONTINUE                                                        00007340
        IDCRTS(I) = I                                                   00007350
  6   CONTINUE                                                          00007360
C                                                                       00007370
      LD = LDCRTS                                                       00007380
      IF (PRNT.NE.0) LD = MAXO(LD,LDERV)                                00007390
      CALL TDSORT(TDCRTS,IDCRTS,LD,N)                                   00007400
C                                                                       00007410
      RETURN                                                            00007420
      END                                                               00007430
      SUBROUTINE DDRTS                                                  00007440
C                                                                       00007450
C*****************************************************************************00007460
C*                          SUBROUTINE DDRTS                                 *00007470
C*  THIS SUBROUTINE CALCULATES THE DERIVATIVE OF LIFE CYCLE COST WITH         *00007480
C*  RESPECT TO DRTS (FRACTION OF FAILURES REPAIRED AT DEPOT).                 *00007490
C*  THE CALCULATION OF TDDRTS(I) IS DONE BY LETTING SUBROUTINE CHCALC         *00007500
C*  CALCULATE CHLCC = F(SF,CF,DF,SCF,CCF,DCF) FROM THE VALUES OF SF,CF,       *00007510
C*  DF,SCF,DCF,CCF THAT ARE SUPPLIED BY THIS SUBROUTINE AND THEN BY           *00007520
C*  SETTING TDDRTS(I) = CHLCC.                                                *00007530
C*  AFTER ALL DERIVATIVES HAVE BEEN CALCULATED, THE SUBROUTINE CALLS          *00007540
C*  SUBROUTINE TDSORT TO 'BUBBLE UP' TO THE TOP OF ARRAY IDDRTS THE           *00007550
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C*  INDEX NUMBERS OF THE LDDRTS LARGEST DERIVATIVES.                    *00007560
C*********************************************************************00007570
C                                                                       00007580
      COMMON /TDDRTS/ DFDRTS(200),IDDRTS(200),TDDRTS(200)               00007590
C                                                                       00007600
      COMMON /CNTL/ EXIT,ITER,MAXPNT,PRNT,REDO,REREAD                   00007610
      INTEGER EXIT,PRNT,REDO,REREAD                                     00007620
C                                                                       00007630
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),     00007640
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),        00007650
     +             UC(200)                                              00007660
      INTEGER QPA,QR                                                    00007670
      REAL MTBI                                                         00007680
C                                                                       00007690
      COMMON /SENS/ FINC,LDCMH,LDCRTS,LDDMH,LDDRTS,LDERV,LDFPR,LDFR,    00007700
     +              LDMCI,LDRM,LDSRTS,LDWOR,LDUC                        00007710
C                                                                       00007720
      COMMON /AUX1/ CCOND(200),COND(200),CRTS(200),DCOND(200),          00007730
     +              DRTS(200),SNRTS(200),SRTS(200),WR(200)              00007740
C                                                                       00007750
      COMMON /CHLCC/ CCF,CF,CHLCC,DCF,DF,SCF,SF                         00007760
C                                                                       00007770
      DO 6 I=1,N                                                        00007780
        IF (QPA(I).NE.0) GO TO 1                                        00007790
          TDDRTS(I) = 0.                                                00007800
          DFDRTS(I) = 0.                                                00007810
          GO TO 5                                                       00007820
  1     DF = AMIN1(FINC,1.- (CCOND(I) + DCOND(I) + DRTS(I)))            00007830
        DFDRTS(I) = DF                                                  00007840
        IF (DF.GT.0.00001) GO TO 2                                      00007850
          TDDRTS(I) = 0.                                                00007860
          GO TO 5                                                       00007870
  2     CONTINUE                                                        00007880
        CCF = 0.                                                        00007890
        IF (COND(I).LT..99999) GO TO 3                                  00007900
        SCF = -1.                                                       00007910
        DCF = 1. - DF                                                   00007920
        SF = 0.                                                         00007930
        CF = 0.                                                         00007940
        GO TO 4                                                         00007950
  3     DCF = 0.                                                        00007960
        SCF = 0.                                                        00007970
        SF = (-1. * SRTS(I) * DF) / (SRTS(I) + CRTS(I))                 00007980
        CF = (-1. * CRTS(I) * DF) / (SRTS(I) + CRTS(I))                 00007990
  4     CONTINUE                                                        00008000
        CALL CHCALC(I)                                                  00008010
        TDDRTS(I) = CHLCC                                               00008020
  5     CONTINUE                                                        00008030
        IDDRTS(I) = I                                                   00008040
  6   CONTINUE                                                          00008050
C                                                                       00008060
      LD = LDDRTS                                                       00008070
      IF (PRNT.NE.0) LD = MAX0(LD,LDERV)                                00008080
      CALL TDSORT(TDDRTS,IDDRTS,LD,N)                                   00008090
C                                                                       00008100
      RETURN                                                            00008110
      END                                                               00008120
      SUBROUTINE DMCI                                                   00008130
C                                                                       00008140
C*********************************************************************00008150
C*                          SUBROUTINE DMCI                          *00008160
C*  THIS SUBROUTINE CALCULATES THE DERIVATIVE OF LIFE CYCLE COST WITH  *00008170
C*  RESPECT TO MCI (MISSION CRITICAL INDICATOR).                      *00008180
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C*  AFTER ALL DERIVATIVES HAVE BEEN CALCULATED, THE SUBROUTINE CALLS   *00008190
C*  SUBROUTINE TDSORT TO 'BUBBLE UP' TO THE TOP OF ARRAY IDMCI THE     *00008200
C*  INDEX NUMBERS OF THE LDMCI LARGEST DERIVATIVES.                    *00008210
C*******************************************************************************00008220
C                                                                               00008230
      COMMON /TDMCI/ IDMCI(200),MCIC(200),TDMCI(200)                            00008240
C                                                                               00008250
      COMMON /CNTL/ EXIT,ITER,MAXPMT,PRNT,REDO,REREAD                           00008260
      INTEGER EXIT,PRNT,REDO,REREAD                                             00008270
C                                                                               00008280
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONP,CPMI,           00008290
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                              00008300
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MXHRS,                        00008310
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRODX,REFURB,RMC,              00008320
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                        00008330
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR               00008340
      INTEGER CADRE                                                             00008350
      REAL IMC,K,MCRS,MXHRS                                                     00008360
C                                                                               00008370
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),             00008380
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),                00008390
     +             UC(200)                                                      00008400
      INTEGER QPA,QR                                                            00008410
      REAL MTBI                                                                 00008420
C                                                                               00008430
      COMMON /SENS/ FINC,LDCMH,LDCRTS,LDDMH,LDDRTS,LDERV,LDFPR,LDFR,            00008440
     +              LDMCI,LDRM,LDSRTS,LDWOR,LDUC                                00008450
C                                                                               00008460
      COMMON /AUX2/ YFR(200),WFR(200)                                           00008470
C                                                                               00008480
      COMMON /AUX5/ DSTK(200),ECMT,MCF(200),STK(200),STK1(200),Z                00008490
      INTEGER STK,STK1                                                          00008500
C                                                                               00008510
      DO 5 I=1,N                                                                00008520
        MCIC(I) = 0                                                             00008522
        IF (QPA(I).NE.0) GO TO 1                                                00008540
          TDMCI(I) = 0.                                                         00008550
          GO TO 4                                                               00008560
  1     L1 = STK1(I) + QR(I)                                                    00008570
        IF (MCI(I).EQ.1) MCIC(I) = 1                                            00008572
        IF (MCI(I).EQ.2) MCIC(I) = -1                                           00008574
        IF (L1.EQ.0.AND.MCI(I).NE.0) GO TO 2                                    00008580
          TDMCI(I) = 0.                                                         00008590
          GO TO 4                                                               00008600
  2     CONTINUE                                                                00008610
        IF (MCI(I).EQ.2) MCC = 1.                                               00008620
        IF (MCI(I).EQ.1) MCC = -1.                                              00008630
        TDMCI(I) = PIUP * YFR(I) * FLOAT(MCC) * (CCMP * ADCM * CDR + H)         00008650
     +                     - FLOAT(MCC) * FLOAT(M) * XUC * UC(I)                00008660
  4     IDMCI(I) = I                                                            00008670
  5   CONTINUE                                                                  00008680
C                                                                               00008690
      LD = LDMCI                                                                00008700
      IF (PRNT.NE.0) LD = MAX0(LD,LDERV)                                        00008710
      CALL TDSORT(TDMCI,IDMCI,LD,N)                                             00008720
C                                                                               00008730
      RETURN                                                                    00008740
      END                                                                       00008750
      SUBROUTINE CHCALC(I)                                                      00008760
C                                                                               00008770
C*******************************************************************************00008780
C*                          SUBROUTINE CHCALC                                  *00008790
C*  BECAUSE OF GREAT SIMILARITIES IN THE EQUATIONS FOR THE DERIVATIVES         *00008800
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C*   OF TDSRTS, TDCRTS, TDDRTS, AND TDWOR, THE PROGRAM USES SUBROUTINE  *00008810
C*   CHCALC TO CALCULATE THE FOUR DERIVATIVES.  THE FOUR CALLING        *00008820
C*   ROUTINES (DSRTS,DCRTS,DDRTS,DWOR) SET VARIABLES SF,CF,DF,DCF,SCF,  *00008830
C*   AND CCF BEFORE CALLING CHCALC.  CHCALC USED THESE SIX VARIABLES AS *00008840
C*   PARAMETERS TO A SINGLE FUNCTION TO SET VARIABLE CHLCC TO THE VALUE *00008850
C*   OF THE DERIVATIVE.  HENCE, CHLCC = F(CF,SF,DF,CCF,DCF,SCF).       *00008860
C*********************************************************************00008870
C                                                                      00008880
      COMMON /CHLCC/ CCF,CF,CHLCC,DCF,DF,SCF,SF                        00008890
C                                                                      00008900
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPMI,  00008910
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                     00008920
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MXHRS,               00008930
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRODX,REFURB,SMC,     00008940
     +             SA,SAA,SBTBI,SOSI,SPRS,SRCT,SW,SWFAC,               00008950
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLP      00008960
      INTEGER CADRE                                                    00008970
      REAL IMC,K,MCRS,MXHRS                                            00008980
C                                                                      00008990
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),    00009000
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),       00009010
     +             UC(200)                                             00009020
      INTEGER QPA,QR                                                   00009030
      REAL MTBI                                                        00009040
C                                                                      00009050
      COMMON /RD5/ BCMH(200),CBCMH(200),CMH(200),CRTS1(200),CRTS2(200),00009060
     +             DBCMH(200),DMH(200),DRTS1(200),DRTS2(200),          00009070
     +             DRTS3(200),FPR(200),IMH(200),INO15(200),N15,        00009080
     +          PAMH(200),RIP(200),RL(200),RMH(200),SMH(200),SRTS1(200),00009090
     +             WOR1(200),WOR2(200),WOR3(200)                       00009100
      REAL IMH                                                         00009110
      INTEGER RL                                                       00009120
C                                                                      00009130
      COMMON /AUX2/ YPR(200),WPR(200)                                  00009140
C                                                                      00009150
      COMMON /AUX4/ CAS(200),DAS(200),SAS(200)                         00009160
C                                                                      00009170
      COMMON /AUX5/ DSTK(200),ECMT,NCP(200),STK(200),STK1(200),Z       00009180
      INTEGER STK,STK1                                                 00009190
C                                                                      00009200
      X1 = PIUP * YPR(I) * (((1.+ FPR(I)) * (-1.* (SF + SCF)) * CBCMH(I)00009210
     +                 + CF * CMH(I) + FPR(I) * SCF * CBCMH(I)) * CLR  00009220
     +            + ((DCF + DF) * DBCMH(I) + DF * DMH(I)) * DLR)       00009230
     +            + DSTK(I) * WPR(I) * (1.+FPR(I)) * SF * (SRCT - SOSI)00009240
     +                              * XUC * UC(I)                     00009250
      IF (CAS(I).LE.0.0001) X2 = 0.                                    00009260
      IF (CAS(I).GT.0.0001) X2 = (1.+ B / (2.* SQRT(CAS(I)))) * WPR(I) 00009270
     +               * (FPR(I) * (-1.) * SF * CRCT + CF * CRCT         00009280
     +               + (CCF + DF + DCF) * (OST + SOSI / 2.) + SCF * OST)00009290
     +                                    * XUC * UC(I)               00009300
      IF (DAS(I).LE.0.0001) X3 = 0.                                    00009310
      IF (DAS(I).GT.0.0001) X3 = (1.+ B / (2.* SQRT(DAS(I)))) * WPR(I) 00009320
     +               * DF * DRCT * XUC * UC(I)                         00009330
      X4 = PIUP * YPR(I) * (SCF + CCF + DCF) * (1.-RM(I)) * XUC * UC(I)00009340
      CHLCC = X1 + X2 + X3 + X4                                        00009350
C                                                                      00009360
      RETURN                                                           00009370
      END                                                              00009380
      SUBROUTINE TDSORT(TD,ID,LD,N)                                    00009390
C                                                                      00009400
C*********************************************************************00009410
C*                          SUBROUTINE TDSORT                        *00009420
C*  THIS SUBROUTINE 'BUBBLES UP' TO THE FIRST -LD- POSITIONS IN ARRAY *00009430
```

```
C*   -ID- THE LRU INDEX NUMBERS CORRESPONDING TO THE -LD- HIGHEST       *00009440
C*   VALUES OF ARRAY -TD-.  HENCE, AT THE END OF TDSORT, ID(1) HOLDS    *00009450
C*   THE INDEX NUMBER OF THE LRU WITH THE LARGEST DERIVATIVE, ID(2) THE *00009460
C*   INDEX NUMBER OF THE SECOND LARGEST DERIVATIVE, ETC.                *00009470
C*********************************************************************00009480
C                                                                       00009490
      DIMENSION TD(200),ID(200)                                         00009500
C                                                                       00009510
      DO 7 L=1,LD                                                       00009520
        MA = N - L                                                      00009530
        DO 6 M=1,MA                                                     00009540
          MB = N - M                                                    00009550
          IF (ABS(TD(ID(MB + 1))).LT.ABS(TD(ID(MB)))) GO TO 6           00009560
            IDD = ID(MB + 1)                                            00009570
            ID(MB + 1) = ID(MB)                                         00009580
            ID(MB) = IDD                                                00009590
  6     CONTINUE                                                        00009600
  7   CONTINUE                                                          00009610
C                                                                       00009620
      RETURN                                                            00009630
      END                                                               00009640
```

```
      SUBROUTINE OTAB1                                                      00000010
C                                                                           00000020
C*************************************************************************00000030
C*  SUBROUTINE OTAB1 PRINTS OUTPUT TABLE 1.                        THIS    *00000040
C*  TABLE CONSISTS OF SYSTEM TOTALS IN MILLIONS OF DOLLARS.  ERROR        *00000050
C*  MESSAGES ARE PRINTED BENEATH THE TABLE IN THE EVENT THAT CERTAIN      *00000060
C*  DESIGNATED DATA CONSTRAINTS ARE NOT MET.                              *00000070
C*************************************************************************00000080
C                                                                           00000090
      COMMON /CNTL/ EXIT,ITER,MAXPMT,PRNT,REDO,REREAD                       00000100
      INTEGER EXIT,PRNT,REDO,REREAD                                         00000110
C                                                                           00000120
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONP,CPMI,       00000130
     +             CPMP,CPWT,CRCT,DAA,DLR,DRCT,DS,                          00000140
     +             FAC(10),FCS,FSD,H,IMC,K,M,MCRS,MXHRS,                    00000150
     +             NCP,NDP,NSP,OST,PIUP,PME,PPRS,PRODX,REFURB,RMC,          00000160
     +             SA,SAA,SMTBI,SOSI,SPRS,SRCT,SW,SWFAC,                    00000170
     +             TC,TCCAD,TE,TR,TW,TWCAD,VAL,XUC,YOH,YSCAD,YSLR           00000180
      INTEGER CADRE                                                         00000190
      REAL IMC,K,MCRS,MXHRS                                                 00000200
C                                                                           00000210
      COMMON /NCOS/ CLH,PMFA(10),SMMH,SPMH,STMH                             00000220
C                                                                           00000230
      COMMON /AUX3/ CCLH(200),DCLH(200),DLH                                 00000240
C                                                                           00000250
      COMMON /C1/ C1                                                        00000260
C                                                                           00000270
      COMMON /C2/ C2,C2C,C2D,C2L(200),C2S                                   00000280
C                                                                           00000290
      COMMON /C3/ C3,C3C,C3D,C3L(200),C3S                                   00000300
C                                                                           00000310
      COMMON /C4/ C4,C4I,C4L(200),C4R                                       00000320
C                                                                           00000330
      COMMON /C5/ C5                                                        00000340
C                                                                           00000350
      COMMON /C6/ C6,C6C,C6D,C6I,C6R,C6S                                    00000360
C                                                                           00000370
      COMMON /C7/ C7                                                        00000380
C                                                                           00000390
      COMMON /C8/ C8,C8C,C8D,C8I,C8R,C8S                                    00000400
C                                                                           00000410
      COMMON /C9/ C9,C9C,C9D,C9I,C9L(200),C9R,C9S                           00000420
C                                                                           00000430
      COMMON /C10/ C10,C10HW(10),C10I,C10R,C10SW(10)                        00000440
C                                                                           00000450
    1 FORMAT (1H1,24X,30HOUTPUT TABLE 1:  SYSTEM TOTALS/31X,                00000460
     +  15H($ IN MILLIONS)/)                                                00000470
    2 FORMAT (1H0)                                                          00000480
    3 FORMAT (4X,12HPROGRAM COST,6X,11HDEVELOPMENT,2X,                      00000490
     +  10HPRODUCTION,3X,7HSUPPORT,4X,5HTOTAL,2X,6H % HW //                 00000500
     +  24H PRIME MISSION EQUIPMENT/                                        00000510
     +  11H   HARDWARE,11X,9H     0.0 ,F12.2,7X,4H0.0 ,F11.2,F7.1/          00000520
     +  11H   SOFTWARE,16X,4H0.0 ,F12.2,7X,4H0.0 ,F11.2,F7.1/               00000530
     +  16H   REFURBISHMENT,11X,4H0.0 ,F12.2,7X,4H0.0 ,F11.2,F7.1/          00000540
     +  18H DESIGN VALIDATION,4X,F9.2,8X,4H0.0 ,7X,4H0.0 ,F11.2,F7.1/       00000550
     +  23H FULL SCALE DEVELOPMENT,F8.2,8X,4H0.0 ,7X,4H0.0 ,F11.2,F7.1/     00000560
     +  17H ASSOCIATED COSTS,10X,4H0.0 ,F12.2,7X,4H0.0 ,F11.2,F7.1/         00000570
     +  9H SPARES  ,18X,4H0.0 ,F12.2,F11.2,F11.2,F7.1/                      00000580
     +  12H MAINTENANCE,15X,4H0.0 ,8X,4H0.0 ,F11.2,F11.2,F7.1/              00000590
     +  12H CONSUMABLES,15X,4H0.0 ,8X,4H0.0 ,F11.2,F11.2,F7.1/              00000600
     +  18H SUPPORT EQUIPMENT,9X,4H0.0 ,F12.2,F11.2,F11.2,F7.1/             00000610
     +  11H FACILITIES,16X,4H0.0 ,F12.2,7X,4H0.0 ,F11.2,F7.1/               00000620
     +  9H TRAINING,18X,4H0.0 ,F12.2,F11.2,F11.2,F7.1/                      00000630
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     +   21H INVENTORY MANAGEMENT,6X,4H0.0 ,F12.2,F11.2,F11.2,F7.1/      00000640
     +   21H SOFTWARE MAINTENANCE,6X,4H0.0 ,F12.2,F11.2,F11.2,F7.1//     00000650
     +   4X,11HTOTAL COST:,4X,2F12.2,2F11.2/)                            00000660
C                                                                        00000670
  4    FORMAT (40H ***** ERROR.  THE FOLLOWING CONSTRAINT ,              00000680
     +   18HWAS NOT MET: *****)                                          00000690
C                                                                        00000700
  5    FORMAT (40H ANNUAL ON-RADAR MAINT. MAN-HRS BY SITE ,              00000710
     +   10HPERSONNEL:,F11.0,3H <=,F7.0)                                 00000720
C                                                                        00000730
  6    FORMAT (41H ANNUAL OFF-RADAR MAINT. MAN-HRS BY SITE ,             00000740
     +   10HPERSONNEL:,F10.0)                                            00000750
C                                                                        00000760
  7    FORMAT (29X,6HTOTAL:,15X,F11.0,3H <=,F7.0/)                       00000770
C                                                                        00000780
  8    FORMAT (35H ANNUAL INTERMEDIATE (CMP) MAN-HRS:,15X,F11.0,         00000790
     +   3H <=,F7.1)                                                     00000800
C                                                                        00000810
  9    FORMAT (34H ANNUAL DEPOT MAINTENANCE MAN-HRS:,16X,F11.0,          00000820
     +   3H <=,F7.0)                                                     00000830
C                                                                        00000840
C*************************************************************************00000850
C*  COMPUTE ALL COSTS INVOLVING EQUATIONS AS WELL AS %(PME*XUC) COSTS.*  00000860
C*************************************************************************00000870
C                                                                        00000880
      TEM1A = 100.                                                       00000890
      TEM1B = (SW / (PME * XUC)) * 100.                                  00000900
      TEM1C = (REFURB / (PME * XUC)) * 100.                              00000910
      TEM1D = (VAL / (PME * XUC)) * 100.                                 00000920
      TEM1E = (FSD / (PME * XUC)) * 100.                                 00000930
      TEM1F = (PRODX / (PME * XUC)) * 100.                               00000940
      TEM2 = (C3+C4I) / 1000000.                                         00000950
      TEM3 = (C3+C4) / 1000000.                                          00000960
      TEM4 = ((C3+C4)/(PME*XUC)) * 100                                   00000970
      TEM5 = (C2/(PME*XUC)) * 100                                        00000980
      TEM6 = (C5/(PME*XUC)) * 100                                        00000990
      TEM7 = (C6/(PME*XUC)) * 100                                        00001000
      TEM8 = (C7/(PME*XUC)) * 100                                        00001010
      TEM9 = (C8/(PME*XUC)) * 100                                        00001020
      TEM10 = (C9/(PME*XUC)) * 100                                       00001030
      TEM11 = (C10/(PME*XUC)) * 100                                      00001040
C                                                                        00001050
C*************************************************************************00001060
C*  COMPUTE DEVELOPMENT, PRODUCTION, SUPPORT, AND SYSTEM TOTAL         *00001070
C*  COST IN MILLIONS OF DOLLARS.                                       *00001080
C*************************************************************************00001090
C                                                                        00001100
      TOT1 = (VAL + FSD) / 1000000.                                      00001110
      TOT2 = (PME*XUC+SW+REFURB+PRODX+C3+C4I+C6I+C7+C8I+C9I+C10I)/       00001120
     +              1000000.                                             00001130
      TOT3 = (C4R+C2+C5+C6R+C8R+C9R+C10R) / 1000000.                     00001140
      TOT4 = (C1+C3+C4+C2+C5+C6+C7+C8+C9+C10) / 1000000.                 00001150
C                                                                        00001160
C*************************************************************************00001170
C*  TRANSFORM ALL COSTS TO MILLIONS OF DOLLARS.                        *00001180
C*************************************************************************00001190
C                                                                        00001200
      T1A1 = (PME * XUC) / 1000000.                                      00001210
      T1B1 = SW / 1000000.                                               00001220
      T1C1 = REFURB / 1000000.                                           00001230
      T1D1 = VAL / 1000000.                                              00001240
      T1E1 = FSD / 1000000.                                              00001250
      T1F1 = PRODX / 1000000.                                            00001260
```

```
      T4R = C4R / 1000000.                                                  00001270
      T2 = C2 / 1000000.                                                    00001280
      T5 = C5 / 1000000.                                                    00001290
      T6I = C6I / 1000000.                                                  00001300
      T6R = C6R / 1000000.                                                  00001310
      T6 = C6 / 1000000.                                                    00001320
      T7 = C7 / 1000000.                                                    00001330
      T8I = C8I / 1000000.                                                  00001340
      T8R = C8R / 1000000.                                                  00001350
      T8 = C8 / 1000000.                                                    00001360
      T9I = C9I / 1000000.                                                  00001370
      T9R = C9R / 1000000.                                                  00001380
      T9 = C9 / 1000000.                                                    00001390
      T10I = C10I / 1000000.                                                00001400
      T10R = C10R / 1000000.                                                00001410
      T10 = C10 / 1000000.                                                  00001420
C                                                                           00001430
C*************************************************************************00001440
C*  WRITE OUTPUT TABLE 1 AT THE TERMINAL IF PRNT .= 1.                    *00001450
C*************************************************************************00001460
C                                                                           00001470
      IF (PRNT.EQ.1) GO TO 111                                              00001480
      WRITE(6,1)                                                            00001490
      WRITE (6,3) T1A1,T1A1,TEM1A,T1B1,T1B1,TEM1B,T1C1,T1C1,TEM1C,T1D1,     00001500
     +  T1D1,TEM1D,T1E1,T1E1,TEM1E,T1F1,T1F1,TEM1F,                        00001510
     +  TEM2,T4R,TEM3,TEM4,T2,T2,TEM5,T5,                                  00001520
     +  T5,TEM6,T6I,T6R,T6,TEM7,T7,T7,TEM8,T8I,T8R,T8,TEM9,T9I,T9R,        00001530
     +  T9,TEM10,T10I,T10R,T10,TEM11,TOT1,TOT2,TOT3,TOT4                   00001540
C                                                                           00001550
C*************************************************************************00001560
C*  FOUR ERROR CHECKS ARE MADE HERE WITH MESSAGES PRINTED IN THE EVENT    *00001570
C*  THAT CONSTRAINTS ARE NOT MET.  THE FIRST ERROR OCCURS WHEN THE        *00001580
C*  NUMBER OF SITE MAINTENANCE MAN-HOURS EXCEEDS THE MAXIMUM ON-RADAR     *00001590
C*  MAINTENANCE TIME.                                                     *00001600
C*************************************************************************00001610
C                                                                           00001620
      IF (SMMH.GT.MXHRS) WRITE (6,4)                                        00001630
      WRITE (6,5) SMMH,MXHRS                                                00001640
      WRITE (6,6) SPMH                                                      00001650
C                                                                           00001660
C*************************************************************************00001670
C*  THE SECOND ERROR IS PRINTED WHEN THE TOTAL MAINTENANCE MAN-HOURS      *00001680
C*  BY SITE PERSONNEL EXCEEDS THE ANNUAL OFF-RADAR MAINTENANCE TIME.      *00001690
C*************************************************************************00001700
C                                                                           00001710
      TEM12 = FLOAT(NSP)*SAA                                                00001720
      IF (STMH.GT.TEM12) WRITE (6,4)                                        00001730
      WRITE (6,7) STMH,TEM12                                                00001740
C                                                                           00001750
C*************************************************************************00001760
C*  THE THIRD ERROR IS PRINTED WHEN THE YEARLY MAINTENANCE HOURS BY       *00001770
C*  CMP PERSONNEL EXCEDS THE TOTAL AMMOUNT OF MAN-HOURS AVAILABLE AT      *00001780
C*  THE CMP.                                                              *00001790
C*************************************************************************00001800
C                                                                           00001810
      TEM13 = FLOAT(NCP)*CAA                                                00001820
      IF (CLH.GT.TEM13) WRITE (6,4)                                         00001830
      IF (CLH.GT.TEM13) WRITE (6,8) CLH,TEM13                               00001840
C                                                                           00001850
C*************************************************************************00001860
C*  THE FOURTH ERROR IS PRINTED WHEN THE YEARLY CORRECTIVE MAINTENANCE     *00001870
C*  HOURS BY DEPOT PERSONNEL EXCEEDS THE TOTAL AMOUNT OF MAN-HOURS        *00001880
C*  AVAILABLE AT THE DEPOT.                                               *00001890
```

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C*************************************************************************00001900
C                                                                         00001910
      TEM14 = FLOAT(NDP)*DAA                                              00001920
      IF (DLH.GT.TEM14) WRITE (6,4)                                       00001930
      IF (DLH.GT.TEM14) WRITE (6,9) DLH,TEM14                             00001940
C                                                                         00001950
C*************************************************************************00001960
C*  WRITE OUTPUT TABLE 1 AT ON OFF-LINE PRINTER IF PRNT ~= 0.            *00001970
C*************************************************************************00001980
C                                                                         00001990
 111  IF (PRNT.EQ.0) GO TO 222                                            00002000
      WRITE(7,1)                                                          00002010
      WRITE(7,2)                                                          00002020
      WRITE (7,3) T1A1,T1A1,TEM1A,T1B1,T1B1,TEM1B,T1C1,T1C1,TEM1C,T1D1,   00002030
     +  T1D1,TEM1D,T1E1,T1E1,TEM1E,T1F1,T1F1,TEM1F,                       00002040
     +  TEM2,T4R,TEM3,TEM4,T2,T2,TEM5,T5,                                 00002050
     +  T5,TEM6,T6I,T6R,T6,TEM7,T7,T7,TEM8,T8I,T8R,T8,TEM9,T9I,T9R,       00002060
     +  T9,TEM10,T10I,T10R,T10,TEM11,TOT1,TOT2,TOT3,TOT4                  00002070
C                                                                         00002080
C*************************************************************************00002090
C*  FOUR ERROR CHECKS ARE MADE HERE WITH MESSAGES PRINTED IN THE EVENT   *00002100
C*  THAT CONSTRAINTS ARE NOT MET.  THE FIRST ERROR OCCURS WHEN THE       *00002110
C*  NUMBER OF SITE MAINTENANCE MAN-HOURS EXCEEDS THE MAXIMUM ON-RADAR    *00002120
C*  MAINTENANCE TIME.                                                    *00002130
C*************************************************************************00002140
C                                                                         00002150
      IF (SMMH.GT.MXHRS) WRITE (7,4)                                      00002160
      WRITE (7,5) SMMH,MXHRS                                              00002170
      WRITE (7,6) SPMH                                                    00002180
C                                                                         00002190
C*************************************************************************00002200
C*  THE SECOND ERROR IS PRINTED WHEN THE TOTAL MAINTENANCE MAN-HOURS     *00002210
C*  BY SITE PERSONNEL EXCEEDS THE ANNUAL OFF-RADAR MAINTENANCE TIME.     *00002220
C*************************************************************************00002230
C                                                                         00002240
      TEM12 = FLOAT(NSP)*SAA                                              00002250
      IF (STMH.GT.TEM12) WRITE (7,4)                                      00002260
      WRITE (7,7) STMH,TEM12                                              00002270
C                                                                         00002280
C*************************************************************************00002290
C*  THE THIRD ERROR IS PRINTED WHEN THE YEARLY MAINTENANCE HOURS BY      *00002300
C*  CMF PERSONNEL EXCEDS THE TOTAL AMMOUNT OF MAN-HOURS AVAILABLE AT     *00002310
C*  THE CMF.                                                             *00002320
C*************************************************************************00002330
C                                                                         00002340
      TEM13 = FLOAT(NCP)*CAA                                              00002350
      IF (CLH.GT.TEM13) WRITE (7,4)                                       00002360
      IF (CLH.GT.TEM13) WRITE (7,8) CLH,TEM13                             00002370
C                                                                         00002380
C*************************************************************************00002390
C*  THE FOURTH ERROR IS PRINTED WHEN THE YEARLY CORRECTIVE MAINTENANCE    *00002400
C*  HOURS BY DEPOT PERSONNEL EXCEEDS THE TOTAL AMOUNT OF MAN-HOURS       *00002410
C*  AVAILABLE AT THE DEPOT.                                              *00002420
C*************************************************************************00002430
C                                                                         00002440
      TEM14 = FLOAT(NDP)*DAA                                              00002450
      IF (DLH.GT.TEM14) WRITE (7,4)                                       00002460
      IF (DLH.GT.TEM14) WRITE (7,9) DLH,TEM14                             00002470
C                                                                         00002480
222   RETURN                                                              00002490
      END                                                                 00002500
```

```
      SUBROUTINE OTAB2                                                          00000010
C                                                                               00000020
C*****************************************************************************00000030
C*  THIS SUBROUTINE PRINT OUTPUT TABLE 2:  OUTPUTS BY LRU TYPE.               *00000040
C*****************************************************************************00000050
C                                                                               00000060
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),NCI(200),             00000070
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),              00000080
     +             UC(200)                                                    00000090
      INTEGER QPA,QR                                                            00000100
      REAL MTBI                                                                 00000110
C                                                                               00000120
      COMMON /C2/ C2,C2C,C2D,C2L(200),C2S                                       00000130
C                                                                               00000140
      COMMON /C3/ C3,C3C,C3D,C3L(200),C3S                                       00000150
C                                                                               00000160
      COMMON /C4/ C4,C4I,C4L(200),C4R                                           00000170
C                                                                               00000180
      COMMON /C9/ C9,C9C,C9D,C9I,C9L(200),C9R,C9S                               00000190
C                                                                               00000200
C                                                                               00000210
  2   FORMAT (1H1,19X,34HOUTPUT TABLE 2:  LRU COST ELEMENTS/31X,                00000220
     +     15H($ IN MILLIONS)///)                                               00000230
  3   FORMAT (1H1,19X,46HOUTPUT TABLE 2:  LRU COST ELEMENTS (CONTINUED)/        00000240
     +     31X,15H($ IN MILLIONS)///)                                           00000250
  4   FORMAT (31X,36HCORREC-  INVESI-  REPLEN-  INVENTORY/                      00000260
     +      4H LRU,6X,3HLRU,18X,4HTIVE,5X,4HMENT,5X,7HISHMENT,2X,              00000270
     +       7HMANAGE-/4H INO,6X,4HNOON,17X,6HMAINT.,3X,6HSPARES,              00000280
     +       3X,6HSPARES,3X,4HMENT,5X,5HTOTAL/)                                00000290
  5   FORMAT (1X,I3,2X,24A1,F7.2,F9.2,F9.2,F9.2,F8.2)                           00000300
  6   FORMAT (1H0,11X,6HTOTAL:,12X,F7.2,F9.2,F9.2,F9.2,F8.2///                  00000310
     +   5X,52HNOTE:  ONLY THOSE PORTIONS OF COST ELEMENTS DIRECTLY,            00000320
     +   7H ATTRI-/12X,45HBUTABLE TO INDIVIDUAL LRU TYPES ARE DISPLAYED,        00000330
     +   6H HERE.)                                                            00000340
C                                                                               00000350
C                                                                               00000360
      WRITE(7,2)                                                                00000370
      WRITE(7,4)                                                                00000380
C                                                                               00000390
      LINCNT = 0                                                                00000400
      TOT1 = 0.                                                                 00000410
      TOT2 = 0.                                                                 00000420
      TOT3 = 0.                                                                 00000430
      TOT4 = 0.                                                                 00000440
      DO 15 I=1,N                                                               00000450
        IF (QPA(I).EQ.0) GO TO 15                                               00000460
        TOT = (C2L(I) + C3L(I) + C4L(I) + C9L(I)) / 10000C0.                    00000470
        T1 = C2L(I) / 1000000.                                                  00000480
        T2 = C3L(I) / 1000000.                                                  00000490
        T3 = C4L(I) / 1000000.                                                  00000500
        T4 = C9L(I) / 1000000.                                                  00000510
        WRITE(7,5) I,(LRNAME(I,J),J=1,24),T1,T2,T3,T4,TOT                       00000520
        TOT1 = TOT1 + C2L(I)                                                    00000530
        TOT2 = TOT2 + C3L(I)                                                    00000540
        TOT3 = TOT3 + C4L(I)                                                    00000550
        TOT4 = TOT4 + C9L(I)                                                    00000560
        LINCNT = LINCNT + 1                                                     00000570
        IF (LINCNT.LT.50) GO TO 15                                              00000580
        WRITE(7,3)                                                              00000590
        WRITE(7,4)                                                              00000600
        LINCNT = 0                                                              00000610
 15   CONTINUE                                                                  00000620
C                                                                               00000630
```

```
      IF (LINCNT.LE.45) GO TO 16                                        00000640
      WRITE(7,3)                                                        00000650
      WRITE(7,4)                                                        00000660
 16   TOT = (TOT1 + TOT2 + TOT3 + TOT4) / 1000000.                     00000670
      TOT1 = TOT1 / 1000000.                                            00000680
      TOT2 = TOT2 / 1000000.                                            00000690
      TOT3 = TOT3 / 1000000.                                            00000700
      TOT4 = TOT4 / 1000000.                                            00000710
      WRITE(7,6) TOT1,TOT2,TOT3,TOT4,TOT                                00000720
C                                                                       00000730
      RETURN                                                            00000740
      END                                                               00000750
      SUBROUTINE OTAB3                                                  00000760
C                                                                       00000770
C*****************************************************************************00000780
C*  SUBROUTINE OTAB3 PRINTS OUTPUT TABLE 3:  OUTPUT BY LOCATION        *00000790
C*  (SITE, CMF, DEPOT).                                                *00000800
C*****************************************************************************00000810
C                                                                       00000820
      COMMON /C2/ C2,C2C,C2D,C2L(200),C2S                               00000830
C                                                                       00000840
      COMMON /C3/ C3,C3C,C3D,C3L(200),C3S                               00000850
C                                                                       00000860
      COMMON /C4/ C4,C4I,C4L(200),C4R                                   00000870
C                                                                       00000880
      COMMON /C5/ C5                                                    00000890
C                                                                       00000900
      COMMON /C6/ C6,C6C,C6D,C6I,C6R,C6S                                00000910
C                                                                       00000920
      COMMON /C7/ C7                                                    00000930
C                                                                       00000940
      COMMON /C8/ C8,C8C,C8D,C8I,C8R,C8S                                00000950
C                                                                       00000960
      COMMON /C9/ C9,C9C,C9D,C9I,C9L(200),C9R,C9S                       00000970
C                                                                       00000980
      COMMON /C10/ C10,C10HW(10),C10I,C10R,C10SW(10)                    00000990
C                                                                       00001000
C                                                                       00001010
  1   FORMAT (1H1,17X,42HOUTPUT TABLE 3:  COST ELEMENTS BY LOCATION/    00001020
     +    31X,15H($ IN MILLIONS)////                                    00001030
     +    4X,12HCOST ELEMENT,12X,4HSITE,5X,3HCMF,5X,5HDEPOT,5X,5HTOTAL// 00001040
     +    12H MAINTENANCE,11X,3F9.2,F10.2/                              00001050
     +    18H INVESTMENT SPARES,5X,3F9.2,F10.2/                         00001060
     +    21H REPLENISHMENT SPARES,2X,2F9.2,9H     0.0 ,F10.2/          00001070
     +    12H CONSUMABLES,11X,F9.2,2(9H     0.0 ),F10.2/               00001080
     +    18H SUPPORT EQUIPMENT,5X,3F9.2,F10.2/                         00001090
     +    11H FACILITIES,12X,F9.2,2(9H     0.0 ),F10.2/                00001100
     +    9H TRAINING,14X,3F9.2,F10.2/                                  00001110
     +    21H INVENTORY MANAGEMENT,2X,3F9.2,F10.2/                      00001120
     +    21H SOFTWARE MAINTENANCE,2X,2(9H     0.0 ),F9.2,F10.2//       00001130
     +    5X,11HTOTAL COST:,7X,3F9.2,F10.2)                             00001140
C                                                                       00001150
C                                                                       00001160
      T2S = C2S / 1000000.                                              00001170
      T2C = C2C / 1000000.                                              00001180
      T2D = C2D / 1000000.                                              00001190
      T2 = C2 / 1000000.                                                00001200
      T3S = C3S / 1000000.                                              00001210
      T3C = C3C / 1000000.                                              00001220
      T3D = C3D / 1000000.                                              00001230
      T3 = C3 / 1000000.                                                00001240
      T4R = C4R / 1000000.                                              00001250
      T4I = C4I / 1000000.                                              00001260
```

```
      T4 = C4 / 1000000.                                                    00001270
      T5 = C5 / 1000000.                                                    00001280
      T6S = C6S / 1000000.                                                  00001290
      T6C = C6C / 1000000.                                                  00001300
      T6D = C6D / 1000000.                                                  00001310
      T6 = C6 / 1000000.                                                    00001320
      T7 = C7 / 1000000.                                                    00001330
      T8S = C8S / 1000000.                                                  00001340
      T8C = C8C / 1000000.                                                  00001350
      T8D = C8D / 1000000.                                                  00001360
      T8 = C8 / 1000000.                                                    00001370
      T9S = C9S / 1000000.                                                  00001380
      T9C = C9C / 1000000.                                                  00001390
      T9D = C9D / 1000000.                                                  00001400
      T9 = C9 / 1000000.                                                    00001410
      T10 = C10 / 1000000.                                                  00001420
      TOT1 = (C2S + C3S + C4R + C5 + C6S + C7 + C8S + C9S) / 1000000.       00001430
      TOT2 = (C2C + C3C + C4I + C6C + C8C + C9C) / 1000000.                 00001440
      TOT3 = (C2D + C3D + C6D + C8D + C9D + C10) / 1000000.                 00001450
      TOT4 = TOT1 + TOT2 + TOT3                                             00001460
      WRITE(7,1) T2S,T2C,T2D,T2,T3S,T3C,T3D,T3,T4R,T4I,T4,                  00001470
     +           T5,T5,T6S,T6C,T6D,T6,T7,T7,T8S,T8C,T8D,                    00001480
     +           T8,T9S,T9C,T9D,T9,T10,T10,TOT1,TOT2,TOT3,TOT4              00001490
C                                                                           00001500
      RETURN                                                                00001510
      END                                                                   00001520
      SUBROUTINE OTAB4                                                      00001530
C                                                                           00001540
C*************************************************************************00001550
C*  SUBROUTINE THAT PRINTS OUTPUT TABLE 4:  OUTPUTS BY FUNCTIONAL AREA.*00001560
C*************************************************************************00001570
C                                                                           00001580
      COMMON /RD3/ ENYR(10),FA,FANAME(10,24),HWCF(10),INOFA(10),MMH(10),00001590
     +             SIZE(10),SMI(10),SWCF(10),SWFIX(10),SWVAR(10),         00001600
     +             WEIGHT(10)                                             00001610
      INTEGER FA                                                          00001620
      REAL MMH                                                            00001630
C                                                                         00001640
      COMMON /NCOS/ CLH,PMFA(10),SMMH,SPMH,STMH                           00001650
C                                                                         00001660
      COMMON /C10/ C10,C10HW(10),C10I,C10R,C10SW(10)                      00001670
C                                                                         00001680
C                                                                         00001690
  1   FORMAT (1H1,17X,43HOUTPUT TABLE 4:  RESULTS BY FUNCTIONAL AREA////00001700
     +     33X,34HANNUAL SITE .     ENHANCEMENT COST/                    00001710
     +     33X,33HPREVENTIVE  .     ($M/LIFE CYCLE)/                     00001720
     +     10X,15HFUNCTIONAL AREA,8X,13HMAINTENANCE ./                    00001730
     +     22H INDEX    NOMENCLATURE,11X,28H(MAN-HOURS) . SOFTWARE  HARD,00001740
     +     11HWARE  TOTAL/45X,1H.)                                        00001750
  2   FORMAT (1X,I3,3X,24A1,F10.2,4X,1H.,F8.2,F9.2,F9.2)                  00001760
  3   FORMAT (45X,1H./16X,6HTOTAL:,9X,F10.2,4X,1H.,F8.2,F9.2,F9.2)        00001770
C                                                                         00001780
      WRITE(7,1)                                                          00001790
      TOT1 = 0.                                                           00001800
      TOT2 = 0.                                                           00001810
      TOT3 = 0.                                                           00001820
      DO 5 J=1,FA                                                         00001830
        T1 = C10SW(J) / 1000000.                                          00001840
        T2 = C10HW(J) / 1000000.                                          00001850
        TOT1 = TOT1 + PMFA(J)                                             00001860
        TOT2 = TOT2 + T1                                                  00001870
        TOT3 = TOT3 + T2                                                  00001880
        TOT4 = T1 + T2                                                    00001890
```

```
      WRITE(7,2) INOFA(J),(FANAME(J,L),L=1,24),PHFA(J),T1,T2,TOT4      00001900
5     CONTINUE                                                         00001910
C                                                                      00001920
      TOT4 = TOT2 + TOT3                                               00001930
      WRITE(7,3) TOT1,TOT2,TOT3,TOT4                                   00001940
C                                                                      00001950
      RETURN                                                           00001960
      END                                                              00001970
```

```
      SUBROUTINE OTAB5                                                  00000010
C                                                                       00000020
C*********************************************************************  00000030
C*                          SUBROUTINE OTAB5                         *  00000040
C*   SUBROUTINE THAT PRINTS OUTPUT TABLE 5:  MISSION  CRITICAL LRUS   *  00000050
C*   NOT STOCKED AT SITE.                                             *  00000060
C*********************************************************************  00000070
C                                                                       00000080
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),     00000090
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),        00000100
     +             UC(200)                                              00000110
      INTEGER QPA,QR                                                    00000120
      REAL MTBI                                                         00000130
C                                                                       00000140
      COMMON /AUX5/ DSTK(200),ECMT,MCF(200),STK(200),STK1(200),Z        00000150
      INTEGER STK,STK1                                                  00000160
C                                                                       00000170
  1   FORMAT (1H1,6X,30HOUTPUT TABLE 5:  MISSION CRITI,                 00000180
     +     29HCAL LRUS NOT STOCKED ON SITE ///                          00000190
     +     52X,6HNUMBER,5X,9HMEAN TIME/                                 00000200
     +     2X,3HLRU,47X,7HOF LRUS,4X,7HBETWEEN/                         00000210
     +     1X,5HINDEX,46X,7HIN EACH,4X,6HMAINT./                        00000220
     +     1X,6HNUMBER,5X,4HNAME,20X,11HPART NUMBER,5X,5HRADAR,6X,      00000230
     +     9HINCIDENTS/52X,5H(QPA),6X,6H(MTBI)/)                        00000240
  2   FORMAT (2X,I3,4X,24A1,3X,12A1,I8,5X,F11.3)                        00000250
  3   FORMAT (//8X,47H MISSION CRITICAL LRUS ARE ALL STOCKED ON SITE.)  00000260
  4   FORMAT (///51H AVERAGE NUMBER OF EMERGENCY CORRECTIVE MAINTENANCE/00000270
     +     44H TRIPS FROM CMF TO THE RADAR SITES PER YEAR:,12X,F10.3)   00000280
C                                                                       00000290
C                                                                       00000300
      WRITE(7,1)                                                        00000310
C                                                                       00000320
      ICNT = 0                                                          00000330
      DO 5 I=1,N                                                        00000340
        IF (MCF(I).EQ.0.OR.QPA(I).EQ.0) GO TO 5                         00000350
        WRITE(7,2) I,(LRNAME(I,J),J=1,24),(LRPART(I,K),K=1,12),QPA(I),  00000360
     +             MTBI(I)                                              00000370
        ICNT = 1                                                        00000380
  5   CONTINUE                                                          00000390
C                                                                       00000400
      IF (ICNT.EQ.0) WRITE(7,3)                                         00000410
      WRITE(7,4) ECMT                                                   00000420
C                                                                       00000430
      RETURN                                                            00000440
      END                                                               00000450
```

```
      SUBROUTINE OSENS                                                      00000010
C                                                                           00000020
C*************************************************************************00000030
C*  SUBROUTINE OSENS WRITES OUT AT EITHER THE TERMINAL OR THE OFF-LINE *00000040
C*  PRINTER ANY NUMBER OF DERIVATIVES THE USER REQUESTS.  THESE ARE    *00000050
C*  DISPLAYED IN DECREASING ORDER WITH RESPECT TO TOTAL CHANGE IN LCC  *00000060
C*  (IN MILLIONS OF DOLLARS).  OUTPUT CAN BE SENT TO THE TERMINAL AND/ *00000070
C*  OR TO THE OFF-LINE PRINTER  AT THE USER'S DISCRETION.              *00000080
C*************************************************************************00000090
C                                                                           00000100
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),         00000110
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),            00000120
     +             UC(200)                                                  00000130
      INTEGER QPA,QR                                                        00000140
      REAL MTBI                                                             00000150
C                                                                           00000160
      COMMON /RD5/ BCMH(200),CBCMH(200),CMH(200),CRTS1(200),CRTS2(200),     00000170
     +             DBCMH(200),DMH(200),DRTS1(200),DRTS2(200),               00000180
     +             DRTS3(200),FPR(200),IMH(200),INO15(200),N15,             00000190
     +          PAMH(200),RIP(200),RL(200),RMH(200),SMH(200),SRTS1(200),    00000200
     +             WOR1(200),WOR2(200),WOR3(200)                            00000210
      REAL IMH                                                              00000220
      INTEGER RL                                                            00000230
C                                                                           00000240
      COMMON /SENS/ FINC,LDCMH,LDCRTS,LDDMH,LDDRTS,LDERV,LDFPR,LDFR,        00000250
     +              LDMCI,LDRM,LDSRTS,LDWOR,LDUC                            00000260
C                                                                           00000270
      COMMON /CNTL/ EXIT,ITER,MAXPMT,PRNT,REDO,REREAD                       00000280
      INTEGER EXIT,PRNT,REDO,REREAD                                         00000290
C                                                                           00000300
      COMMON /TDXUC/ TDXUC                                                  00000310
C                                                                           00000320
      COMMON /TDFR/ IDFR(200),TDFR(200)                                     00000330
C                                                                           00000340
      COMMON /TDK/ TDK                                                      00000350
C                                                                           00000360
      COMMON /TDUC/ IDUC(200),TDUC(200)                                     00000370
C                                                                           00000380
      COMMON /TDWOR/ IDWOR(200),TDWOR(200),WF(200)                          00000390
C                                                                           00000400
      COMMON /TDFPR/ IDFPR(200),TDFPR(200)                                  00000410
C                                                                           00000420
      COMMON /TDCMH/ IDCMH(200),TDCMH(200)                                  00000430
C                                                                           00000440
      COMMON /TDDMH/ IDDMH(200),TDDMH(200)                                  00000450
C                                                                           00000460
      COMMON /TDRM/ IDRM(200),TDRM(200)                                     00000470
C                                                                           00000480
      COMMON /TDSRTS/ IDSRTS(200),SPSRTS(200),TDSRTS(200)                   00000490
C                                                                           00000500
      COMMON /TDCRTS/ CFCRTS(200),IDCRTS(200),TDCRTS(200)                   00000510
C                                                                           00000520
      COMMON /TDDRTS/ DFDRTS(200),IDDRTS(200),TDDRTS(200)                   00000530
C                                                                           00000540
      COMMON /TDMCI/ IDMCI(200),MCIC(200),TDMCI(200)                        00000550
C                                                                           00000560
      DIMENSION TEMP(200),ITEMP(200),TEMP2(200)                             00000570
C                                                                           00000580
    1 FORMAT (1H1,25X,26HSENSITIVITY ANALYSIS TABLE)                        00000590
C                                                                           00000600
    2 FORMAT (1H1,20X,37HOUTPUT TABLE 6:  SENSITIVITY ANALYSIS//)           00000610
C                                                                           00000620
    3 FORMAT (/23H CHANGE IN LCC DUE TO A,F5.1,15H % INCREASE IN://         00000630
```

```
     +  36H   GLOBAL EQUIPMENT COST (XUC) ($M):,F15.3/                    00000640
     +  41H   GLOBAL FAILURE RATE (K FACTOR) ($M):  ,F10.3)               00000650
C                                                                         00000660
  4   FORMAT (/12H   LRU INDEX,17X,6(4X,I3))                              00000670
C                                                                         00000680
  5   FORMAT (21H   CHANGE IN LCC ($M),9X,6F7.3)                          00000690
C                                                                         00000700
  6   FORMAT (/12H   LRU INDEX,17X,12(4X,I3))                             00000710
C                                                                         00000720
  7   FORMAT (21H   CHANGE IN LCC ($M),9X,12F7.3)                         00000730
C                                                                         00000740
  8   FORMAT (///40H LRU UNIT COST (ORDERED BY SENSITIVITY):)             00000750
C                                                                         00000760
  9   FORMAT (22H   CHANGE IN UC       ,8X,6(1X,F6.0))                    00000770
C                                                                         00000780
 10   FORMAT (22H   CHANGE IN UC       ,8X,12(1X,F6.0))                   00000790
C                                                                         00000800
 11   FORMAT (///43H LRU FAILURE RATE (ORDERED BY SENSITIVITY):)          00000810
C                                                                         00000820
 12   FORMAT (29H   CHANGE IN FR (PPM)        ,1X,6(1X,F6.2))             00000830
C                                                                         00000840
 13   FORMAT (29H   CHANGE IN FR (PPM)        ,1X,12(1X,F6.2))            00000850
C                                                                         00000860
 14   FORMAT (///44H LRU WEAR-OUT RATE (ORDERED BY SENSITIVITY):)         00000870
C                                                                         00000880
 15   FORMAT (26H   CHANGE IN WOR          ,4X,6(1X,F6.3))                00000890
C                                                                         00000900
 16   FORMAT (26H   CHANGE IN WOR          ,4X,12(1X,F6.3))               00000910
C                                                                         00000920
 17   FORMAT (///46H LRU FALSE PULL RATE (ORDERED BY SENSITIVITY):)       00000930
C                                                                         00000940
 18   FORMAT (28H   CHANGE IN FPR            ,2X,6(1X,F6.3))             00000950
C                                                                         00000960
 19   FORMAT (28H   CHANGE IN FPR            ,2X,12(1X,F6.3))            00000970
C                                                                         00000980
 20   FORMAT (///46H LRU CMF REPAIR TIME (ORDERED BY SENSITIVITY):)       00000990
C                                                                         00001000
 21   FORMAT (28H   CHANGE IN CMH            ,2X,6(1X,F6.2))             00001010
C                                                                         00001020
 22   FORMAT (28H   CHANGE IN CMH            ,2X,12(1X,F6.2))            00001030
C                                                                         00001040
 23   FORMAT (///48H LRU DEPOT REPAIR TIME (ORDERED BY SENSITIVITY):)     00001050
C                                                                         00001060
 24   FORMAT (28H   CHANGE IN DMH            ,2X,6(1X,F6.2))             00001070
C                                                                         00001080
 25   FORMAT (28H   CHANGE IN DMH            ,2X,12(1X,F6.2))            00001090
C                                                                         00001100
 26   FORMAT (///46H LRU REPAIR MATERIAL (ORDERED BY SENSITIVITY):)       00001110
C                                                                         00001120
 27   FORMAT (28H   CHANGE IN RM             ,2X,6(1X,F6.0))             00001130
C                                                                         00001140
 28   FORMAT (28H   CHANGE IN RM             ,2X,12(1X,F6.0))            00001150
C                                                                         00001160
 29   FORMAT (///51H LRU SITE REPAIR FRACTION (ORDERED BY SENSITIVITY, ,00001170
     +   18HNOT INCLUDING SE):)                                           00001180
C                                                                         00001190
 30   FORMAT (28H   CHANGE IN SRTS           ,2X,6(1X,F6.3))             00001200
C                                                                         00001210
 31   FORMAT (28H   CHANGE IN SRTS           ,2X,12(1X,F6.3))            00001220
C                                                                         00001230
 32   FORMAT (///50H LRU CMF REPAIR FRACTION (ORDERED BY SENSITIVITY, ,   00001240
     +  18HNOT INCLUDING SE):)                                           00001250
C                                                                         00001260
```

```
 33   FORMAT (27H   CHANGE IN CRTS          ,3X,6(1X,F6.3))                00001270
C                                                                          00001280
 34   FORMAT (27H   CHANGE IN CRTS          ,3X,12(1X,F6.3))               00001290
C                                                                          00001300
 35   FORMAT(///52H LRU DEPOT REPAIR FRACTION (ORDERED BY SENSITIVITY, ,00001310
     +  18HNOT INCLUDING SE):)                                            00001320
C                                                                          00001330
 36   FORMAT (28H   CHANGE IN DRTS           ,2X,6(1X,F6.3))              00001340
C                                                                          00001350
 37   FORMAT (28H   CHANGE IN DRTS           ,2X,12(1X,F6.3))             00001360
C                                                                          00001370
 38   FORMAT (///47H LRU MISSION CRITICAL (ORDERED BY SENSITIVITY, ,     00001380
     +  24HFOR LRUS WITH MCI >= 1):)                                      00001390
C                                                                          00001400
 39   FORMAT (16H   CHANGE IN MCI,13X,6(4X,I3))                          00001410
C                                                                          00001420
 40   FORMAT (16H   CHANGE IN MCI,13X,12(4X,I3))                         00001430
C                                                                          00001440
C*************************************************************************00001450
C*  PRINT OUT HEADINGS AT THE TERMINAL AND/OR AT THE OFF-LINE            *00001460
C*  PRINTER.                                                             *00001470
C*************************************************************************00001480
C                                                                          00001490
      IF (PRNT.NE.1) WRITE (6,1)                                           00001500
      IF (PRNT.NE.0) WRITE (7,2)                                           00001510
C                                                                          00001520
      TEM1 = FINC * 100                                                    00001530
      TEM2 = TDXUC / 1000000.                                              00001532
      TEM3 = TDK / 1000000.                                                00001533
      IF (PRNT.NE.1) WRITE (6,3) TEM1,TEM2,TEM3                            00001540
      IF (PRNT.NE.0) WRITE (7,3) TEM1,TEM2,TEM3                            00001550
C                                                                          00001560
C*************************************************************************00001570
C*  THIS SECTION OF CODE (FROM HERE UNTIL LABELL NUMBER 22001) IS RE-    *00001580
C*  PEATED 11 TIMES -- ONCE FOR EACH DERIVATIVE.  AT THE START OF EACH   *00001590
C*  SECTION, VARIABLES  (LDERV AND   LDUC) ARE CHECKED TO SEE IF ANY     *00001600
C*  DERIVATIVES OF THIS TYPE         ARE REQUESTED. IF NOT, CONTROL IS   *00001610
C*  TRANSFERED TO THE NEXT SECTION.  EACH OF THE 11 SECTIONS IS DIVI-    *00001620
C*  DED INTO 2 PARTS - ONE FOR PRINTING AT THE TERMINAL AND THE OTHER    *00001630
C*  FOR THE OFF-LINE PRINTER.                                            *00001640
C*************************************************************************00001650
C                                                                          00001660
C*************************************************************************00001670
C*  THE FIRST SECTION COMPUTES LRU UNIT COST ORDERED BY SENSITIVITY      *00001680
C*************************************************************************00001690
C                                                                          00001700
      IF (LDUC.EQ.0.AND.LDERV.EQ.0) GO TO 2001                             00001710
C                                                                          00001720
      ILDUC = MAX0(LDERV,LDUC)                                             00001730
      DO 50 I=1,ILDUC                                                      00001740
        TEMP(I) = FINC * UC(IDUC(I))                                       00001750
        TEMP2(I) = TDUC(IDUC(I)) / 1000000.                                00001760
 50   CONTINUE                                                             00001770
C                                                                          00001780
      IF (LDUC.EQ.0.OR.PRNT.EQ.1) GO TO 1001                               00001790
      WRITE (6,8)                                                          00001800
      IFIN = 0                                                             00001810
      IBEG = 1                                                             00001820
      INUM = 0                                                             00001830
      ILDUC = LDUC                                                         00001840
C                                                                          00001850
C*************************************************************************00001860
C*  COMPUTE CHANGE IN UNIT COST FOR NUMBER OF DERIVATIVES REQUESTED.     *00001870
```

```
C*****************************************************************************00001880
C                                                                              00001890
      DO 1000 I=1,34                                                           00001900
        IF (ILDUC.GT.6) GO TO 100                                              00001910
          INUM = ILDUC + INUM                                                  00001920
          IFIN = 1                                                             00001930
          GO TO 150                                                            00001940
 100    INUM = 6 + INUM                                                        00001950
        ILDUC = ILDUC-6                                                        00001960
C                                                                              00001970
C*****************************************************************************00001980
C  PRINT OUT DERIVATIVES AT THE TERMINAL (6 PER LINE)                         *00001990
C*****************************************************************************00002000
C                                                                              00002010
 150    WRITE (6,4) (IDUC(J),J=IBEG,INUM)                                      00002020
        WRITE (6,9) (TEMP(J),J=IBEG,INUM)                                      00002030
        WRITE (6,5) (TEMP2(J),J=IBEG,INUM)                                     00002040
        IBEG = INUM + 1                                                        00002050
C                                                                              00002060
        IF (IFIN.EQ.1) GO TO 1001                                              00002070
1000  CONTINUE                                                                 00002080
C                                                                              00002090
C*****************************************************************************00002100
C*  IF PRNT=0 THEN DON'T SEND THE OUTPUT TO THE OFF-LINE PRINTER.            *00002110
C*****************************************************************************00002120
C                                                                              00002130
1001  IF (PRNT.EQ.0) GO TO 2001                                                00002140
      WRITE (7,8)                                                              00002150
      IFIN = 0                                                                 00002160
      IBEG = 1                                                                 00002170
      INUM = 0                                                                 00002180
C                                                                              00002190
C*****************************************************************************00002200
C*  LDERV IS THE MINIMUM NUMBER OF DERIVATIVES PRINTED AT THE OFF-LINE       *00002210
C*  PRINTER FOR AN LRU.  E.G., IF THE USER REQUESTS THAT 5 DERIVATIVES       *00002220
C*  BE PRINTED AND LDERV IS 7, THEN 7 DERIVATIVES WILL BE PRINTED FOR *      00002230
C*  THAT LRU.                                                               *00002240
C*****************************************************************************00002250
C                                                                              00002260
      ILDUC = MAX0(LDERV,LDUC)                                                 00002270
C                                                                              00002280
      DO 2000 I=1,17                                                           00002290
C                                                                              00002300
        IF (ILDUC.GT.12) GO TO 1100                                            00002310
          INUM = ILDUC + INUM                                                  00002320
          IFIN = 1                                                             00002330
          GO TO 1150                                                           00002340
1100    INUM = 12 + INUM                                                       00002350
        ILDUC = ILDUC-12                                                       00002360
C                                                                              00002370
C*****************************************************************************00002380
C*  PRINT OUT DERIVATIVES AT THE OFF-LINE PRINTER. (12 PER LINE)             *00002390
C*****************************************************************************00002400
C                                                                              00002410
1150    WRITE (7,6) (IDUC(J),J=IBEG,INUM)                                      00002420
        WRITE (7,10) (TEMP(J),J=IBEG,INUM)                                     00002430
        WRITE (7,7) (TEMP2(J),J=IBEG,INUM)                                     00002440
        IBEG = INUM + 1                                                        00002450
C                                                                              00002460
        IF (IFIN.EQ.1) GO TO 2001                                              00002470
2000  CONTINUE                                                                 00002480
C                                                                              00002490
C*****************************************************************************00002500
```

```
C*  THE SECOND SECTION PRINTS OUT LRU FAILURE RATE ORDERED BY SENSI-   *00002510
C*  TIVITY.                                                           *00002520
C*****************************************************************************00002530
C                                                                               00002540
2001  IF (LDFR.EQ.0.AND.LDERV.EQ.0) GO TO 4001                          00002550
C                                                                               00002560
      ILDFR = MAX0(LDERV,LDFR)                                          00002570
      DO 2050 I=1,ILDFR                                                 00002580
        TEMP(I) = FINC * (10E6/MTBI(IDFR(I)))                           00002590
        TEMP2(I) = TDFR(IDFR(I)) / 1000000.                             00002600
2050  CONTINUE                                                          00002610
C                                                                               00002620
      IF (LDFR.EQ.0.OR.PRNT.EQ.1) GO TO 3001                            00002630
      WRITE (6,11)                                                      00002640
      IFIN = 0                                                          00002650
      IBEG = 1                                                          00002660
      INUM = 0                                                          00002670
      ILDFR = LDFR                                                      00002680
C                                                                               00002690
C*****************************************************************************00002700
C*  COMPUTE CHANGE IN FAILURE RATE IN PARTS PER MILLION FOR NUMBER OF  *00002710
C*  DERIVATIVES REQUESTED.                                            *00002720
C*****************************************************************************00002730
C                                                                               00002740
      DO 3000 I=1,34                                                    00002750
        IF (ILDFR.GT.6) GO TO 2100                                      00002760
          INUM = ILDFR + INUM                                           00002770
          IFIN = 1                                                      00002780
          GO TO 2150                                                    00002790
2100    INUM = 6 + INUM                                                 00002800
        ILDFR = ILDFR-6                                                 00002810
C                                                                               00002820
C*****************************************************************************00002830
C*  PRINT OUT DERIVATIVES AT TERMINAL (6 PER LINE).                   *00002840
C*****************************************************************************00002850
C                                                                               00002860
2150    WRITE (6,4) (IDFR(J),J=IBEG,INUM)                               00002870
        WRITE (6,12) (TEMP(J),J=IBEG,INUM)                              00002880
        WRITE (6,5) (TEMP2(J),J=IBEG,INUM)                              00002890
        IBEG = INUM + 1                                                 00002900
C                                                                               00002910
        IF (IFIN.EQ.1) GO TO 3001                                       00002920
3000  CONTINUE                                                          00002930
C                                                                               00002940
3001  IF (PRNT.EQ.0) GO TO 4001                                         00002950
      WRITE (7,11)                                                      00002960
      IFIN = 0                                                          00002970
      IBEG = 1                                                          00002980
      INUM = 0                                                          00002990
      ILDFR = MAX0(LDERV,LDFR)                                          00003000
C                                                                               00003010
      DO 4000 I=1,17                                                    00003020
C                                                                               00003030
        IF (ILDFR.GT.12) GO TO 3100                                     00003040
          INUM = ILDFR + INUM                                           00003050
          IFIN = 1                                                      00003060
          GO TO 3150                                                    00003070
3100    INUM = 12 + INUM                                                00003080
        ILDFR = ILDFR-12                                                00003090
C                                                                               00003100
C*****************************************************************************00003110
C*  PRINT OUT DERIVATIVES AT THE OFF-LINE PRINTER (12 PER LINE).      *00003120
C*****************************************************************************00003130
```

```
C                                                                       00003140
3150     WRITE (7,6) (IDFR(J),J=IBEG,INUM)                              00003150
         WRITE (7,13) (TEMP(J),J=IBEG,INUM)                             00003160
         WRITE (7,7) (TEMP2(J),J=IBEG,INUM)                             00003170
         IBEG = INUM + 1                                                00003180
C                                                                       00003190
         IF (IFIN.EQ.1) GO TO 4001                                      00003200
4000  CONTINUE                                                          00003210
C                                                                       00003220
C*************************************************************************00003230
C*  THE THIRD SECTION PRINTS OUT LRU WEAR-OUT RATE ORDERED BY          *00003240
C*  SENSITIVITY.                                                       *00003250
C*************************************************************************00003260
C                                                                       00003270
4001  IF (LDWOR.EQ.0.AND.LDERV.EQ.0) GO TO 6001                         00003280
C                                                                       00003290
      ILDWOR = MAXO(LDERV,LDWOR)                                        00003300
      DO 4050 I=1,ILDWOR                                                00003310
        TEMP(I) = WF(IDWOR(I))                                          00003320
        TEMP2(I) = TDWOR(IDWOR(I)) / 100000C.                           00003330
4050  CONTINUE                                                          00003340
C                                                                       00003350
      IF (LDWOR.EQ.0.OR.PRNT.EQ.1) GO TO 5001                           00003360
      WRITE (6,14)                                                      00003370
      IFIN = 0                                                          00003380
      IBEG = 1                                                          00003390
      INUM = 0                                                          00003400
      ILDWOR = LDWOR                                                    00003410
C                                                                       00003420
C*************************************************************************00003430
C* COMPUTE CHANGE IN WEAR-OUT RATE FOR NUMBER OF DERIVATIVES REQUESTED *00003440
C*************************************************************************00003450
C                                                                       00003460
      DO 5000 I=1,34                                                    00003470
        IF (ILDWOR.GT.6) GO TO 4100                                     00003480
          INUM = ILDWOR + INUM                                          00003490
          IFIN = 1                                                      00003500
          GO TO 4150                                                    00003510
4100    INUM = 6 + INUM                                                 00003520
        ILDWOR = ILDWOR-6                                               00003530
C                                                                       00003540
C*************************************************************************00003550
C*  PRINT OUT DERIVATIVES AT TERMINAL. (6 PER LINE)                    *00003560
C*************************************************************************00003570
C                                                                       00003580
4150     WRITE (6,4) (IDWOR(J),J=IBEG,INUM)                             00003590
         WRITE (6,15) (TEMP(J),J=IBEG,INUM)                             00003600
         WRITE (6,5) (TEMP2(J),J=IBEG,INUM)                             00003610
         IBEG = INUM + 1                                                00003620
C                                                                       00003630
         IF (IFIN.EQ.1) GO TO 5001                                      00003640
5000  CONTINUE                                                          00003650
C                                                                       00003660
5001  IF (PRNT.EQ.0) GO TO 6C01                                         00003670
      WRITE (7,14)                                                      00003680
      IFIN = 0                                                          00003690
      IBEG = 1                                                          00003700
      INUM = 0                                                          00003710
      ILDWOR = MAXO(LDERV,LDWOR)                                        00003720
C                                                                       00003730
      DO 6000 I=1,17                                                    00003740
C                                                                       00003750
        IF (ILDWOR.GT.12) GO TO 5100                                    00003760
```

```
          INUM = ILDWOR + INUM                                          00003770
          IFIN = 1                                                      00003780
          GO TO 5150                                                    00003790
5100      INUM = 12 + INUM                                              00003800
          ILDWOR = ILDWOR-12                                            00003810
C                                                                       00003820
C*************************************************************************00003830
C*  PRINT OUT DERIVATIVES AT THE OFF-LINE PRINTER (12 PER LINE)         *00003840
C*************************************************************************00003850
C                                                                       00003860
5150      WRITE (7,6) (IDWOR(J),J=IBEG,INUM)                            00003870
          WRITE (7,16) (TEMP(J),J=IBEG,INUM)                            00003880
          WRITE (7,7) (TEMP2(J),J=IBEG,INUM)                            00003890
          IBEG = INUM + 1                                               00003900
C                                                                       00003910
          IF (IFIN.EQ.1) GO TO 6001                                     00003920
6000   CONTINUE                                                         00003930
C                                                                       00003940
C*************************************************************************00003950
C*  THE FOURTH SECTION PRINTS OUT LRU FALSE PULL RATE ORDERED BY        *00003960
C*  SENSITIVITY.                                                        *00003970
C*************************************************************************00003980
C                                                                       00003990
6001   IF (LDFPR.EQ.0.AND.LDERV.EQ.0) GO TO 8001                        00004000
C                                                                       00004010
       ILDFPR = MAX0(LDERV,LDFPR)                                       00004020
       DO 6050 I=1,ILDFPR                                               00004030
         TEMP(I) = FINC * FPR(IDFPR(I))                                 00004040
         TEMP2(I) = TDFPR(IDFPR(I)) / 1000000.                          00004050
6050   CONTINUE                                                         00004060
C                                                                       00004070
       IF (LDFPR.EQ.0.OR.PRNT.EQ.1) GO TO 7001                          00004080
       WRITE (6,17)                                                     00004090
       IFIN = 0                                                         00004100
       IBEG = 1                                                         00004110
       INUM = 0                                                         00004120
       ILDFPR = LDFPR                                                   00004130
C                                                                       00004140
C*************************************************************************00004150
C*  COMPUTE CHANGE IN FALSE PULL RATE FOR NUMBER OF DERIVATIVES         *00004160
C*  REQUESTED.                                                          *00004170
C*************************************************************************00004180
C                                                                       00004190
       DO 7000 I=1,34                                                   00004200
         IF (ILDFPR.GT.6) GO TO 6100                                    00004210
           INUM = ILDFPR + INUM                                         00004220
           IFIN = 1                                                     00004230
           GO TO 6150                                                   00004240
6100       INUM = 6 + INUM                                              00004250
           ILDFPR = ILDFPR-6                                            00004260
C                                                                       00004270
C*************************************************************************00004280
C*  PRINT OUT DERIVATIVES AT TERMINAL (6 PER LINE)                      *00004290
C*************************************************************************00004300
C                                                                       00004310
6150       WRITE (6,4) (IDFPR(J),J=IBEG,INUM)                           00004320
           WRITE (6,18) (TEMP(J),J=IBEG,INUM)                           00004330
           WRITE (6,5) (TEMP2(J),J=IBEG,INUM)                           00004340
           IBEG = INUM + 1                                              00004350
C                                                                       00004360
           IF (IFIN.EQ.1) GO TO 7001                                    00004370
7000   CONTINUE                                                         00004380
C                                                                       00004390
```

```
7001  IF (PRNT.EQ.0) GO TO 8001                                          00004400
      WRITE (7,17)                                                       00004410
      IFIN = 0                                                           00004420
      IBEG = 1                                                           00004430
      INUM = 0                                                           00004440
      ILDFPR = MAX0(LDERV,LDFPR)                                         00004450
C                                                                        00004460
      DO 8000 I=1,17                                                     00004470
C                                                                        00004480
        IF (ILDFPR.GT.12) GO TO 7100                                     00004490
          INUM = ILDFPR + INUM                                           00004500
          IFIN = 1                                                       00004510
          GO TO 7150                                                     00004520
7100    INUM = 12 + INUM                                                 00004530
        ILDFPR = ILDFPR-12                                               00004540
C                                                                        00004550
C*************************************************************************00004560
C*  PRINT OUT DERIVATIVES AT THE OFF-LINE PRINTER (12 PER LINE)         *00004570
C*************************************************************************00004580
C                                                                        00004590
7150    WRITE (7,6) (IDFPR(J),J=IBEG,INUM)                               00004600
        WRITE (7,19) (TEMP(J),J=IBEG,INUM)                               00004610
        WRITE (7,7) (TEMP2(J),J=IBEG,INUM)                               00004620
        IBEG = INUM + 1                                                  00004630
C                                                                        00004640
        IF (IFIN.EQ.1) GO TO 8001                                        00004650
8000  CONTINUE                                                           00004660
C                                                                        00004670
C*************************************************************************00004680
C*  THE FIFTH SECTION PRINTS OUT LRU CMF REPAIR TIME ORDERED BY         *00004690
C*  SENSITIVITY.                                                        *00004700
C*************************************************************************00004710
C                                                                        00004720
8001  IF (LDCMH.EQ.0.AND.LDERV.EQ.0) GO TO 10001                         00004730
C                                                                        00004740
      ILDCMH = MAX0(LDERV,LDCMH)                                         00004750
      DO 8050 I=1,ILDCMH                                                 00004760
        TEMP(I) = FINC * CMH(IDCMH(I))                                   00004770
        TEMP2(I) = TDCMH(IDCMH(I)) / 1000000.                            00004780
8050  CONTINUE                                                           00004790
C                                                                        00004800
      IF (LDCMH.EQ.0.OR.PRNT.EQ.1) GO TO  9001                           00004810
      WRITE (6,20)                                                       00004820
      IFIN = 0                                                           00004830
      IBEG = 1                                                           00004840
      INUM = 0                                                           00004850
      ILDCMH = LDCMH                                                     00004860
C                                                                        00004870
C*************************************************************************00004880
C*  COMPUTE CHANGE IN CMF REPAIR TIME FOR NUMBER OF DERIVATIVES         *00004890
C*  REQUESTED.                                                          *00004900
C*************************************************************************00004910
C                                                                        00004920
      DO 9000 I=1,34                                                     00004930
        IF (ILDCMH.GT.6) GO TO 8100                                      00004940
          INUM = ILDCMH + INUM                                           00004950
          IFIN = 1                                                       00004960
          GO TO 8150                                                     00004970
8100    INUM = 6 + INUM                                                  00004980
        ILDCMH = ILDCMH-6                                                00004990
C                                                                        00005000
C*************************************************************************00005010
C*  PRINT OUT DERIVATIVES AT TERMINAL (6 PER LINE)                      *00005020
```

```
C*****************************************************************************00005030
C                                                                              00005040
 8150     WRITE (6,4) (IDCMH(J),J=IBEG,INUM)                                   00005050
          WRITE (6,21) (TEMP(J),J=IBEG,INUM)                                   00005060
          WRITE (6,5) (TEMP2(J),J=IBEG,INUM)                                   00005070
          IBEG = INUM + 1                                                      00005080
C                                                                              00005090
          IF (IFIN.EQ.1) GO TO 9001                                            00005100
 9000   CONTINUE                                                              00005110
C                                                                              00005120
 9001   IF (PRNT.EQ.0) GO TO 10001                                            00005130
        WRITE (7,20)                                                          00005140
        IFIN = 0                                                              00005150
        IBEG = 1                                                              00005160
        INUM = 0                                                              00005170
        ILDCMH = MAXO(LDERV,LDCMH)                                            00005180
C                                                                              00005190
        DO 10000 I=1,17                                                       00005200
C                                                                              00005210
          IF (ILDCMH.GT.12) GO TO 9100                                        00005220
            INUM = ILDCMH + INUM                                              00005230
            IFIN = 1                                                          00005240
            GO TO 9150                                                        00005250
 9100     INUM = 12 + INUM                                                    00005260
          ILDCMH = ILDCMH-12                                                  00005270
C                                                                              00005280
C*****************************************************************************00005290
C*  PRINT OUT DERIVATIVES AT THE OFF-LINE PRINTER (12 PER LINE)              *00005300
C*****************************************************************************00005310
C                                                                              00005320
 9150     WRITE (7,6) (IDCMH(J),J=IBEG,INUM)                                   00005330
          WRITE (7,22) (TEMP(J),J=IBEG,INUM)                                   00005340
          WRITE (7,7) (TEMP2(J),J=IBEG,INUM)                                   00005350
          IBEG = INUM + 1                                                      00005360
C                                                                              00005370
          IF (IFIN.EQ.1) GO TO 10001                                           00005380
10000   CONTINUE                                                              00005390
C                                                                              00005400
C*****************************************************************************00005410
C*  THE SIXTH SECTION PRINTS OUT LRU DEPOT REPAIR TIME ORDERED BY            *00005420
C*  SENSITIVITY.                                                             *00005430
C*****************************************************************************00005440
C                                                                              00005450
10001 IF (LDDMH.EQ.0.AND.LDERV.EQ.0) GO TO 12001                               00005460
C                                                                              00005470
      ILDDMH = MAXO(LDERV,LDDMH)                                               00005480
      DO 10050 I=1,ILDDMH                                                      00005490
        TEMP(I) = FINC * DMH(IDDMH(I))                                         00005500
        TEMP2(I) = TDDMH(IDDMH(I)) / 1000000.                                  00005510
10050 CONTINUE                                                                 00005520
C                                                                              00005530
      IF (LDDMH.EQ.0.OR.PRNT.EQ.1) GO TO 11001                                 00005540
      WRITE (6,23)                                                             00005550
      IFIN = 0                                                                 00005560
      IBEG = 1                                                                 00005570
      INUM = 0                                                                 00005580
      ILDDMH = LDDMH                                                           00005590
C                                                                              00005600
C*****************************************************************************00005610
C*  COMPUTE CHANGE IN DEPOT REPAIR TIME FOR NUMBER OF DERIVATIVES            *00005620
C*  REQUESTED.                                                               *00005630
C*****************************************************************************00005640
C                                                                              00005650
```

```
      DO 11000 I=1,34                                                   00005660
        IF (ILDDMH.GT.6) GO TO 10100                                    00005670
          INUM = ILDDMH + INUM                                          00005680
          IFIN = 1                                                      00005690
          GO TO 10150                                                   00005700
10100   INUM = 6 + INUM                                                 00005710
        ILDDMH = ILDDMH-6                                               00005720
C                                                                       00005730
C***********************************************************************00005740
C*  PRINT OUT DERIVATIVES AT TERMINAL (6 PER LINE)                     *00005750
C***********************************************************************00005760
C                                                                       00005770
10150   WRITE (6,4) (IDDMH(J),J=IBEG,INUM)                              00005780
        WRITE (6,24) (TEMP(J),J=IBEG,INUM)                              00005790
        WRITE (6,5) (TEMP2(J),J=IBEG,INUM)                              00005800
        IBEG = INUM + 1                                                 00005810
C                                                                       00005820
        IF (IFIN.EQ.1) GO TO 11001                                      00005830
11000 CONTINUE                                                          00005840
C                                                                       00005850
11001 IF (PRNT.EQ.0) GO TO 12001                                        00005860
      WRITE (7,23)                                                      00005870
      IFIN = 0                                                          00005880
      IBEG = 1                                                          00005890
      INUM = 0                                                          00005900
      ILDDMH = MAX0(LDERV,LDDMH)                                        00005910
C                                                                       00005920
      DO 12000 I=1,17                                                   00005930
C                                                                       00005940
        IF (ILDDMH.GT.12) GO TO 11100                                   00005950
          INUM = ILDDMH + INUM                                          00005960
          IFIN = 1                                                      00005970
          GO TO 11150                                                   00005980
11100   INUM = 12 + INUM                                                00005990
        ILDDMH = ILDDMH-12                                              00006000
C                                                                       00006010
C***********************************************************************00006020
C*  PRINT OUT DERIVATIVES AT THE OFF-LINE PRINTER (12 PER LINE)        *00006030
C***********************************************************************00006040
C                                                                       00006050
11150   WRITE (7,6) (IDDMH(J),J=IBEG,INUM)                              00006060
        WRITE (7,25) (TEMP(J),J=IBEG,INUM)                              00006070
        WRITE (7,7) (TEMP2(J),J=IBEG,INUM)                              00006080
        IBEG = INUM + 1                                                 00006090
C                                                                       00006100
        IF (IFIN.EQ.1) GO TO 12001                                      00006110
12000 CONTINUE                                                          00006120
C                                                                       00006130
C***********************************************************************00006140
C*  THE SEVENTH SECTION PRINTS OUT LRU REPAIR MATERIAL COSTS ORDERED   *00006150
C*  BY SENSITIVITY.                                                    *00006160
C***********************************************************************00006170
C                                                                       00006180
12001 IF (LDRM.EQ.0.AND.LDERV.EQ.0) GO TO 14001                         00006190
C                                                                       00006200
      ILDRM = MAX0(LDERV,LDRM)                                          00006210
      DO 12050 I=1,ILDRM                                                00006220
        TEMP(I) = FINC * RM(IDRM(I)) * UC(IDRM(I))                      00006230
        TEMP2(I) = TDRM(IDRM(I)) / 1000000.                             00006240
12050 CONTINUE                                                          00006250
C                                                                       00006260
      IF (LDRM.EQ.0.OR.PRNT.EQ.1) GO TO 13001                           00006270
      WRITE (6,26)                                                      00006280
```

```
      IFIN = 0                                                          00006290
      IBEG = 1                                                          00006300
      INUM = 0                                                          00006310
      ILDRM = LDRM                                                      00006320
C                                                                       00006330
C*****************************************************************    00006340
C*  COMPUTE CHANGE IN REPAIR MATERIAL COSTS FOR NUMBER OF DERIVATIVES  *00006350
C*  REQUESTED.                                                         *00006360
C*****************************************************************    00006370
C                                                                       00006380
      DO 13000 I=1,34                                                   00006390
        IF (ILDRM.GT.6) GO TO 12100                                     00006400
          INUM = ILDRM + INUM                                           00006410
          IFIN = 1                                                      00006420
          GO TO 12150                                                   00006430
12100   INUM = 6 + INUM                                                 00006440
        ILDRM = ILDRM-6                                                 00006450
C                                                                       00006460
C*****************************************************************    00006470
C*  PRINT OUT DERIVATIVES AT TERMINAL (6 PER LINE)                     *00006480
C*****************************************************************    00006490
C                                                                       00006500
12150   WRITE (6,4) (IDRM(J),J=IBEG,INUM)                               00006510
        WRITE (6,27) (TEMP(J),J=IBEG,INUM)                              00006520
        WRITE (6,5) (TEMP2(J),J=IBEG,INUM)                              00006530
        IBEG = INUM + 1                                                 00006540
C                                                                       00006550
        IF (IFIN.EQ.1) GO TO 13001                                      00006560
13000 CONTINUE                                                          00006570
C                                                                       00006580
13001 IF (PRNT.EQ.0) GO TO 14001                                        00006590
      WRITE (7,26)                                                      00006600
      IFIN = 0                                                          00006610
      IBEG = 1                                                          00006620
      INUM = 0                                                          00006630
      ILDRM = MAXO(LDERV,LDRM)                                          00006640
C                                                                       00006650
      DO 14000 I=1,17                                                   00006660
C                                                                       00006670
        IF (ILDRM.GT.12) GO TO 13100                                    00006680
          INUM = ILDRM + INUM                                           00006690
          IFIN = 1                                                      00006700
          GO TO 13150                                                   00006710
13100   INUM = 12 + INUM                                                00006720
        ILDRM = ILDRM-12                                                00006730
C                                                                       00006740
C*****************************************************************    00006750
C*  PRINT OUT DERIVATIVES AT THE OFF-LINE PRINTER (12 PER LINE)        *00006760
C*****************************************************************    00006770
C                                                                       00006780
13150   WRITE (7,6) (IDRM(J),J=IBEG,INUM)                               00006790
        WRITE (7,28) (TEMP(J),J=IBEG,INUM)                              00006800
        WRITE (7,7) (TEMP2(J),J=IBEG,INUM)                              00006810
        IBEG = INUM + 1                                                 00006820
C                                                                       00006830
        IF (IFIN.EQ.1) GO TO 14001                                      00006840
14000 CONTINUE                                                          00006850
C                                                                       00006860
C*****************************************************************    00006870
C*  THE EIGHTH SECTION PRINTS OUT LRU SITE REPAIR FRACTION ORDERED BY  *00006880
C*  BY SENSITIVITY, NOT INCLUDING SE.                                  *00006890
C*****************************************************************    00006900
C                                                                       00006910
```

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14001 IF (LDSRTS.EQ.0.AND.LDERV.EQ.0) GO TO 16001                       00006920
C                                                                       00006930
      ILDSRT = MAXO(LDERV,LDSRTS)                                       00006940
      DO 14050 I=1,ILDSRT                                               00006950
        TEMP(I) = SFSRTS(IDSRTS(I))                                     00006960
        TEMP2(I) = TDSRTS(IDSRTS(I)) / 1000000.                         00006970
14050 CONTINUE                                                          00006980
C                                                                       00006990
      IF (LDSRTS.EQ.0.OR.PRNT.EQ.1) GO TO 15001                         00007000
      WRITE (6,29)                                                      00007010
      IFIN = 0                                                          00007020
      IBEG = 1                                                          00007030
      INUM = 0                                                          00007040
      ILDSRT = LDSRTS                                                   00007050
C                                                                       00007060
C*************************************************************************00007070
C*  COMPUTE CHANGE IN SITE REPAIR FRACTION FOR NUMBER OF DERIVATIVES   *00007080
C*  REQUESTED.                                                         *00007090
C*************************************************************************00007100
C                                                                       00007110
      DO 15000 I=1,34                                                   00007120
        IF (ILDSRT.GT.6) GO TO 14100                                    00007130
          INUM = ILDSRT + INUM                                          00007140
          IFIN = 1                                                      00007150
          GO TO 14150                                                   00007160
14100   INUM = 6 + INUM                                                 00007170
        ILDSRT = ILDSRT-6                                               00007180
C                                                                       00007190
C*************************************************************************00007200
C*  PRINT OUT DERIVATIVES AT TERMINAL (6 PER LINE)                     *00007210
C*************************************************************************00007220
C                                                                       00007230
14150   WRITE (6,4) (IDSRTS(J),J=IBEG,INUM)                             00007240
        WRITE (6,30) (TEMP(J),J=IBEG,INUM)                              00007250
        WRITE (6,5) (TEMP2(J),J=IBEG,INUM)                              00007260
        IBEG = INUM + 1                                                 00007270
C                                                                       00007280
        IF (IFIN.EQ.1) GO TO 15001                                      00007290
15000 CONTINUE                                                          00007300
C                                                                       00007310
15001 IF (PRNT.EQ.0) GO TO 16001                                        00007320
      WRITE (7,29)                                                      00007330
      IFIN = 0                                                          00007340
      IBEG = 1                                                          00007350
      INUM = 0                                                          00007360
      ILDSRT = MAXO(LDERV,LDSRTS)                                       00007370
C                                                                       00007380
      DO 16000 I=1,17                                                   00007390
C                                                                       00007400
        IF (ILDSRT.GT.12) GO TO 15100                                   00007410
          INUM = ILDSRT + INUM                                          00007420
          IFIN = 1                                                      00007430
          GO TO 15150                                                   00007440
15100   INUM = 12 + INUM                                                00007450
        ILDSRT = ILDSRT-12                                              00007460
C                                                                       00007470
C*************************************************************************00007480
C*  PRINT OUT DERIVATIVES AT THE OFF-LINE PRINTER (12 PER LINE)        *00007490
C*************************************************************************00007500
C*                                                                      00007510
15150   WRITE (7,6) (IDSRTS(J),J=IBEG,INUM)                             00007520
        WRITE (7,31) (TEMP(J),J=IBEG,INUM)                              00007530
        WRITE (7,7) (TEMP2(J),J=IBEG,INUM)                              00007540
```

```
        IBEG = INUM + 1                                                    00007550
C                                                                          00007560
        IF (IFIN.EQ.1) GO TO 16001                                         00007570
16000 CONTINUE                                                             00007580
C                                                                          00007590
C*************************************************************************00007600
C*  THE NINTH SECTION PRINTS OUT LRU CMF REPAIR FRACTION ORDERED BY      *00007610
C*  SENSITIVITY, NOT INCLUDING SE.                                       *00007620
C*************************************************************************00007630
C                                                                          00007640
16001 IF (LDCRTS.EQ.0.AND.LDERV.EQ.0) GO TO 18001                          00007650
C                                                                          00007660
      ILDCRT = MAX0(LDERV,LDCRTS)                                          00007670
      DO 16050 I=1,ILDCRT                                                  00007680
        TEMP(I) = CFCRTS(IDCRTS(I))                                        00007690
        TEMP2(I) = TDCRTS(IDCRTS(I)) / 1000000.                            00007700
16050 CONTINUE                                                             00007710
C                                                                          00007720
      IF (LDCRTS.EQ.0.OR.PRNT.EQ.1) GO TO 17001                            00007730
      WRITE (6,32)                                                         00007740
      IFIN = 0                                                             00007750
      IBEG = 1                                                             00007760
      INUM = 0                                                             00007770
      ILDCRT = LDCRTS                                                      00007780
C                                                                          00007790
C*************************************************************************00007800
C*  COMPUTE CHANGE IN CMF REPAIR FRACTION FOR NUMBER OF DERIVATIVES      *00007810
C*  REQUESTED.                                                           *00007820
C*************************************************************************00007830
C                                                                          00007840
      DO 17000 I=1,34                                                      00007850
        IF (ILDCRT.GT.6) GO TO 16100                                       00007860
          INUM = ILDCRT + INUM                                             00007870
          IFIN = 1                                                         00007880
          GO TO 16150                                                      00007890
16100   INUM = 6 + INUM                                                    00007900
        ILDCRT = ILDCRT-6                                                  00007910
C                                                                          00007920
C*************************************************************************00007930
C*  PRINT OUT DERIVATIVES AT TERMINAL (6 PER LINE)                       *00007940
C*************************************************************************00007950
C                                                                          00007960
16150   WRITE (6,4) (IDCRTS(J),J=IBEG,INUM)                                00007970
        WRITE (6,33) (TEMP(J),J=IBEG,INUM)                                 00007980
        WRITE (6,5) (TEMP2(J),J=IBEG,INUM)                                 00007990
        IBEG = INUM + 1                                                    00008000
C                                                                          00008010
        IF (IFIN.EQ.1) GO TO 17001                                         00008020
17000 CONTINUE                                                             00008030
C                                                                          00008040
17001 IF (PRNT.EQ.0) GO TO 18001                                           00008050
      WRITE (7,32)                                                         00008060
      IFIN = 0                                                             00008070
      IBEG = 1                                                             00008080
      INUM = 0                                                             00008090
      ILDCRT = MAX0(LDERV,LDCRTS)                                          00008100
C                                                                          00008110
      DO 18000 I=1,17                                                      00008120
C                                                                          00008130
        IF (ILDCRT.GT.12) GO TO 17100                                      00008140
          INUM = ILDCRT + INUM                                             00008150
          IFIN = 1                                                         00008160
          GO TO 17150                                                      00008170
```

```
17100   INUM = 12 + INUM                                                00008180
        ILDCRT = ILDCRT-12                                              00008190
C                                                                       00008200
C*****************************************************************************00008210
C*  PRINT OUT DERIVATIVES AT THE OFF-LINE PRINTER (12 PER LINE)        *00008220
C*****************************************************************************00008230
C                                                                       00008240
17150   WRITE (7,6) (IDCRTS(J),J=IBEG,INUM)                             00008250
        WRITE (7,34) (TEMP(J),J=IBEG,INUM)                              00008260
        WRITE (7,7) (TEMP2(J),J=IBEG,INUM)                              00008270
        IBEG = INUM + 1                                                 00008280
C                                                                       00008290
        IF (IFIN.EQ.1) GO TO 18001                                      00008300
18000 CONTINUE                                                          00008310
C                                                                       00008320
C*****************************************************************************00008330
C*  THE TENTH SECTION PRINTS OUT LRU DEPOT REPAIR FRACTION ORDERED BY  *00008340
C*  SENSITIVITY, NOT INCLUDING SE.                                     *00008350
C*****************************************************************************00008360
C                                                                       00008370
18001 IF (LDDRTS.EQ.0.AND.LDERV.EQ.0) GO TO 20001                       00008380
C                                                                       00008390
      ILDDRT = MAX0(LDERV,LDDRTS)                                       00008400
      DO 18050 I=1,ILDDRT                                               00008410
        TEMP(I) = DPDRTS(IDDRTS(I))                                     00008420
        TEMP2(I) = TDDRTS(IDDRTS(I)) / 1000000.                         00008430
18050 CONTINUE                                                          00008440
C                                                                       00008450
      IF (LDDRTS.EQ.0.OR.PRNT.EQ.1) GO TO 19001                         00008460
      WRITE (6,35)                                                      00008470
      IFIN = 0                                                          00008480
      IBEG = 1                                                          00008490
      INUM = 0                                                          00008500
      ILDDRT = LDDRTS                                                   00008510
C                                                                       00008520
C*****************************************************************************00008530
C*  COMPUTE THE CHANGE IN DEPOT REPAIR FRACTION FOR THE NUMBER OF      *00008540
C*  DERIVATIVES REQUESTED.                                             *00008550
C*****************************************************************************00008560
C                                                                       00008570
      DO 19000 I=1,34                                                   00008580
        IF (ILDDRT.GT.6) GO TO 18100                                    00008590
          INUM = ILDDRT + INUM                                          00008600
          IFIN = 1                                                      00008610
          GO TO 18150                                                   00008620
18100   INUM = 6 + INUM                                                 00008630
        ILDDRT = ILDDRT-6                                               00008640
C                                                                       00008650
C*****************************************************************************00008660
C*  PRINT OUT DERIVATIVES AT TERMINAL (6 PER LINE)                     *00008670
C*****************************************************************************00008680
C                                                                       00008690
18150   WRITE (6,4) (IDDRTS(J),J=IBEG,INUM)                             00008700
        WRITE (6,36) (TEMP(J),J=IBEG,INUM)                              00008710
        WRITE (6,5) (TEMP2(J),J=IBEG,INUM)                              00008720
        IBEG = INUM + 1                                                 00008730
C                                                                       00008740
        IF (IFIN.EQ.1) GO TO 19001                                      00008750
19000 CONTINUE                                                          00008760
C                                                                       00008770
19001 IF (PRNT.EQ.0) GO TO 20001                                        00008780
      WRITE (7,35)                                                      00008790
      IFIN = 0                                                          00008800
```

```
      IBEG = 1                                                          00008810
      INUM = 0                                                          00008820
      ILDDRT = MAX0(LDERV,LDDRTS)                                       00008830
C                                                                       00008840
      DO 20000 I=1,17                                                   00008850
C                                                                       00008860
        IF (ILDDRT.GT.12) GO TO 19100                                   00008870
          INUM = ILDDRT + INUM                                          00008880
          IFIN = 1                                                      00008890
          GO TO 19150                                                   00008900
19100   INUM = 12 + INUM                                                00008910
        ILDDRT = ILDDRT-12                                              00008920
C                                                                       00008930
C*****************************************************************************00008940
C*  PRINT OUT DERIVATIVES AT THE OFF-LINE PRINTER (12 PER LINE)        *00008950
C*****************************************************************************00008960
C                                                                       00008970
19150   WRITE (7,6) (IDDRTS(J),J=IBEG,INUM)                             00008980
        WRITE (7,37) (TEMP(J),J=IBEG,INUM)                              00008990
        WRITE (7,7) (TEMP2(J),J=IBEG,INUM)                              00009000
        IBEG = INUM + 1                                                 00009010
C                                                                       00009020
        IF (IFIN.EQ.1) GO TO 20001                                      00009030
20000 CONTINUE                                                          00009040
C                                                                       00009050
C*****************************************************************************00009060
C*  THE ELEVENTH SECTION PRINTS OUT LRU MISSION CRITICAL ORDERED BY     *00009070
C*  SENSITIVITY FOR LRUS WITH MCI >= 1.                                *00009080
C*****************************************************************************00009090
C                                                                       00009100
20001 IF (LDMCI.EQ.0.AND.LDERV.EQ.0) GO TO 22001                        00009110
C                                                                       00009120
      ILDMCI = MAX0(LDERV,LDMCI)                                        00009130
      DO 20050 I=1,ILDMCI                                               00009140
        ITEMP(I) = MCIC(IDMCI(I))                                       00009150
        TEMP2(I) = TDMCI(IDMCI(I)) / 1000000.                           00009160
20050 CONTINUE                                                          00009170
C                                                                       00009180
      IF (LDMCI.EQ.0.OR.PRNT.EQ.1) GO TO 21001                          00009190
      WRITE (6,38)                                                      00009200
      IFIN = 0                                                          00009210
      IBEG = 1                                                          00009220
      INUM = 0                                                          00009230
      ILDMCI = LDMCI                                                    00009240
C                                                                       00009250
C*****************************************************************************00009260
C*  COMPUTE THE CHANGE IN MCI FOR NUMBER OF DERIVATIVES REQUESTED.     *00009270
C*****************************************************************************00009280
C                                                                       00009290
      DO 21000 I=1,34                                                   00009300
        IF (ILDMCI.GT.6) GO TO 20100                                    00009310
          INUM = ILDMCI + INUM                                          00009320
          IFIN = 1                                                      00009330
          GO TO 20150                                                   00009340
20100   INUM = 6 + INUM                                                 00009350
        ILDMCI = ILDMCI-6                                               00009360
C                                                                       00009370
C*****************************************************************************00009380
C*  PRINT OUT DERIVATIVES AT TERMINAL (6 PER LINE)                     *00009390
C*****************************************************************************00009400
C                                                                       00009410
20150   WRITE (6,4) (IDMCI(J),J=IBEG,INUM)                              00009420
        WRITE (6,39) (ITEMP(J),J=IBEG,INUM)                             00009430
```

```
        WRITE (6,5) (TEMP2(J),J=IBEG,INUM)                                00009440
        IBEG = INUM + 1                                                   00009450
C                                                                         00009460
        IF (IFIN.EQ.1) GO TO 21001                                        00009470
21000 CONTINUE                                                            00009480
C                                                                         00009490
21001 IF (PRNT.EQ.0) GO TO 22001                                          00009500
      WRITE (7,38)                                                        00009510
      IFIN = 0                                                            00009520
      IBEG = 1                                                            00009530
      INUM = 0                                                            00009540
      ILDMCI = MAX0(LDERV,LDMCI)                                          00009550
C                                                                         00009560
      DO 22000 I=1,17                                                     00009570
C                                                                         00009580
        IF (ILDMCI.GT.12) GO TO 21100                                     00009590
          INUM = ILDMCI + INUM                                            00009600
          IFIN = 1                                                        00009610
          GO TO 21150                                                     00009620
21100   INUM = 12 + INUM                                                  00009630
        ILDMCI = ILDMCI-12                                                00009640
C                                                                         00009650
C*************************************************************************00009660
C*  PRINT OUT DERIVATIVES AT THE OFF-LINE PRINTER (12 PER LINE)          *00009670
C*************************************************************************00009680
C                                                                         00009690
21150   WRITE (7,6) (IDMCI(J),J=IBEG,INUM)                                00009700
        WRITE (7,40) (ITEMP(J),J=IBEG,INUM)                               00009710
        WRITE (7,7) (TEMP2(J),J=IBEG,INUM)                                00009720
        IBEG = INUM + 1                                                   00009730
C                                                                         00009740
        IF (IFIN.EQ.1) GO TO 22001                                        00009750
22000 CONTINUE                                                            00009760
C                                                                         00009770
22001 RETURN                                                              00009780
      END                                                                 00009790
```

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      SUBROUTINE APRINT                                                 00000010
C                                                                       00000020
C*****************************************************************************00000030
C                                                                       00000040
C*****************************************************************************00000050
C*                     COMMON BLOCK ORGANIZATION                         *00000060
C*  IN GENERAL, FOR EVERY SUBROUTINE THERE IS A COMMON BLOCK THAT        *00000070
C*  CONTAINS ALL OF THE VARIABLES THAT FIRST RECEIVED VALUES IN THAT     *00000080
C*  SUBROUTINE.  HENCE, ALL VARIABLES THAT ARE READ FROM THE UNIT 11     *00000090
C*  FILE IN SUBROUTINE READ1 WILL BE IN COMMON /RD1/;  ALL VARIABLES     *00000100
C*  CALCULATED IN SUBROUTINE AUXIL1 WILL BE IN COMMON /AUX1/;  ALL       *00000110
C*  VARIABLES CALCULATED IN SUBROUTINE COST1 WILL BE IN COMMON /C1/;     *00000120
C*  ALL VARIABLES CALCULATED IN SUBROUTINE DFR WILL BE IN COMMON/TDFR/.  *00000130
C*****************************************************************************00000140
C                                                                       00000150
      COMMON /CNTL/ EXIT,ITER,MAXPNT,PRNT,REDO,REREAD                   00000160
      INTEGER EXIT,PRNT,REDO,REREAD                                     00000170
C                                                                       00000180
      COMMON /ERROR/ IERROR,IWARN                                       00000190
C                                                                       00000200
      COMMON /INIT/ CONFLO,MAXFA,MAXLR,MAXSE                            00000210
C                                                                       00000220
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPMI,   00000230
     +             CPMP,CPWT,CRCT,DAA,DATA,DLR,DRCT,DS,                 00000240
     +             FAC(10),FCS,H,IMC,K,M,MCRS,MXHRS,                    00000250
     +             NCP,NDP,NSP,OSA,OST,PIUP,PME,PPRS,REPURB,RMC,        00000260
     +             SA,SAA,SMTBI,SOSI,SPM,SPRS,SRCT,STE,SWDEV,SWFAC,     00000270
     +             TC,TCCAD,TE,TR,TW,TWCAD,XUC,YOH,YSCAD,YSLR           00000280
      INTEGER CADRE                                                     00000290
      REAL IMC,K,MCRS,MXHRS                                             00000300
C                                                                       00000310
      COMMON /RD2/ A,COC(150),COD(150),COS(150),INOSE(150),NSEC(150),   00000320
     +             NSED(150),NSES(150),SEC(150),SENAME(150,24)          00000330
      REAL NSEC,NSED,NSES                                               00000340
      INTEGER A                                                         00000350
C                                                                       00000360
      COMMON /RD3/ ENYR(10),FA,FANAME(10,24),HWCF(10),INOFA(10),MMH(10),00000370
     +             SIZE(10),SMI(10),SWCF(10),SWFIX(10),SWVAR(10),       00000380
     +             WEIGHT(10)                                           00000390
      INTEGER FA                                                        00000400
      REAL MMH                                                          00000410
C                                                                       00000420
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),     00000430
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),        00000440
     +             UC(200)                                              00000450
      INTEGER QPA,QR                                                    00000460
      REAL MTBI                                                         00000470
C                                                                       00000480
      COMMON /RD5/ BCMH(200),CBCMH(200),CMH(200),CRTS1(200),CRTS2(200), 00000490
     +             DBCMH(200),DMH(200),DRTS1(200),DRTS2(200),           00000500
     +             DRTS3(200),FPR(200),IMH(200),INO15(200),N15,         00000510
     +          PAMH(200),RIP(200),RL(200),RMH(200),SMH(200),SRTS1(200),00000520
     +             WOR1(200),WOR2(200),WOR3(200)                        00000530
      REAL IMH                                                          00000540
      INTEGER RL                                                        00000550
C                                                                       00000560
      COMMON /SENS/ FINC,LDCMH,LDCRTS,LDDMH,LDDRTS,LDERV,LDFPR,LDFR,    00000570
     +              LDMCI,LDRM,LDSRTS,LDWOR,LDUC                        00000580
C                                                                       00000590
      COMMON /AUX1/ CCOND(200),COND(200),CRTS(200),DCOND(200),          00000600
     +              DRTS(200),SNRTS(200),SRTS(200),WR(200)              00000610
C                                                                       00000620
      COMMON /AUX2/ YFR(200),WFR(200)                                   00000630
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C                                                                       00000640
      COMMON /AUX3/ CCLH(200),DCLH(200),DLH                             00000650
C                                                                       00000660
      COMMON /AUX4/ CAS(200),DAS(200),SAS(200)                          00000670
C                                                                       00000680
      COMMON /AUX5/ DSTK(200),ECNT,MCF(200),STK(200),STK1(200),Z        00000690
      INTEGER STK,STK1                                                  00000700
C                                                                       00000710
      COMMON /C1/ C1,C1D,C1P                                            00000720
C                                                                       00000730
      COMMON /C2/ C2,C2C,C2D,C2L(200),C2S                               00000740
C                                                                       00000750
      COMMON /C3/ C3,C3C,C3D,C3L(200),C3S                               00000760
C                                                                       00000770
      COMMON /C4/ C4,C4I,C4L(200),C4R                                   00000780
C                                                                       00000790
      COMMON /C5/ C5                                                    00000800
C                                                                       00000810
      COMMON /C6/ C6,C6C,C6D,C6I,C6R,C6S                                00000820
C                                                                       00000830
      COMMON /C7/ C7                                                    00000840
C                                                                       00000850
      COMMON /C8/ C8,C8C,C8D,C8I,C8R,C8S                                00000860
C                                                                       00000870
      COMMON /C9/ C9,C9C,C9D,C9I,C9L(200),C9R,C9S                       00000880
C                                                                       00000890
      COMMON /C10/ C10,C10HW(10),C10I,C10R,C10SW(10)                    00000900
C                                                                       00000910
      COMMON /NCOS/ CLH,PMFA(10),SMHH,SPMH,STMH                         00000920
C                                                                       00000930
      COMMON /TDXUC/ TDXUC                                              00000940
C                                                                       00000950
      COMMON /TDFR/ IDFR(200),TDFR(200)                                 00000960
C                                                                       00000970
      COMMON /TDK/ TDK                                                  00000980
C                                                                       00000990
      COMMON /TDUC/ IDUC(200),TDUC(200)                                 00001000
C                                                                       00001010
      COMMON /TDWOR/ IDWOR(200),TDWOR(200),WF(200)                      00001020
C                                                                       00001030
      COMMON /TDFPR/ IDFPR(200),TDFPR(200)                              00001040
C                                                                       00001050
      COMMON /TDCMH/ IDCMH(200),TDCMH(200)                              00001060
C                                                                       00001070
      COMMON /TDDMH/ IDDMH(200),TDDMH(200)                              00001080
C                                                                       00001090
      COMMON /TDRM/ IDRM(200),TDRM(200)                                 00001100
C                                                                       00001110
      COMMON /TDSRTS/ IDSRTS(200),SFSRTS(200),TDSRTS(200)               00001120
C                                                                       00001130
      COMMON /TDCRTS/ CFCRTS(200),IDCRTS(200),TDCRTS(200)               00001140
C                                                                       00001150
      COMMON /TDDRTS/ DFDRTS(200),IDDRTS(200),TDDRTS(200)               00001160
C                                                                       00001170
      COMMON /TDMCI/ IDMCI(200),MCIC(200),TDMCI(200)                    00001180
C                                                                       00001190
      COMMON /CHLCC/ CCF,CF,CHLCC,DCF,DF,SCF,SF                         00001200
C                                                                       00001210
C                                                                       00001220
    1 FORMAT ('1  FINC=',F6.3,'  LDCMH=',I3,'  LDCRTS=',I3,             00001230
     +     '  LDDMH=',I3,'  LDDRTS=',I3/'  LDERV=',I3,'  LDFPR=',I3,   00001240
     +     '  LDFR=',I3,'  LDMCI=',I3,'  LDRM=',I3,'  LDSRTS=',I3/      00001250
     +     '  LDWOR=',I3,'  LDUC=',I3/)                                00001260
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  2   FORMAT (1X,'  EXIT=',I3,'  ITER=',I3,'  MAXPMT=',I3/                00001270
     +     '  PRNT=',I3,'  REREAD=',I3/)                                 00001280
  3   FORMAT (1X,'  CONFLO=',F8.5,'  MAXPA=',I3,'  MAXLR=',I3,           00001290
     +     '  MAXSE=',I3/)                                               00001300
  4   FORMAT (1X,'  I=',I3,'  CCOND=',F6.3,'  COND=',F6.3,               00001310
     +    '  CRTS=',F6.3,'  DCOND=',F6.3)                               00001320
  5   FORMAT (1X,'  I=',I3,'  DRTS=',F6.3,'  SNRTS=',F6.3,               00001330
     +    '  SRTS=',F6.3,'  WR=',F6.3)                                  00001340
  6   FORMAT (1X)                                                       00001350
  7   FORMAT (1X,'  I=',I3,'  YFR=',F12.3,'  WFR=',F12.3)               00001360
  8   FORMAT (1X,'  I=',I3,'  CCLH=',F12.3,'  DCLH=',F12.3)             00001370
  9   FORMAT (1X,'  DLH=',F12.3)                                        00001380
 10   FORMAT (1X,'  I=',I3,'  CAS=',F12.3,'  DAS=',F12.3,'  SAS=',F12.3)00001390
 11   FORMAT (1X,'  I=',I3,'  DSTK=',F12.5,'  NCP=',I5,'  STK=',I5,     00001400
     +    '  STK1=',I5)                                                 00001410
 12   FORMAT (1X/'  ECMT=',F12.5)                                       00001420
 13   FORMAT ('  I=',I3,'  C2L=',E10.5,'  C3L=',E10.5,'  C4L=',E10.5,   00001430
     +          '  C9L=',E10.5)                                         00001435
 14   FORMAT ('  C1D=',E10.5,'  C1P=',E10.5,' C1=',E10.5/                00001440
     +  ' C2C=',E10.5,' C2D=',E10.5,' C2S=',E10.5,' C2=',E10.5/         00001450
     +  ' C3C=',E10.5,' C3D=',E10.5,' C3S=',E10.5,' C3=',E10.5/         00001460
     +  ' C4I=',E10.5,' C4R=',E10.5,' C4=',E10.5/' C5=',E10.5/          00001470
     +  ' C6C=',E10.5,' C6D=',E10.5,' C6S=',E10.5,' C6I=',E10.5,' C6R=',00001480
     +  E10.5,' C6=',E10.5/' C7=',E10.5/                                00001490
     +  ' C8C=',E10.5,' C8D=',E10.5,' C8S=',E10.5,' C8I=',E10.5,' C8R=',00001500
     +  E10.5,' C8=',E10.5/                                             00001510
     +  ' C9C=',E10.5,' C9D=',E10.5,' C9S=',E10.5,' C9I=',E10.5,' C9R=',00001520
     +  E10.5,' C9=',E10.5/' C10I=',E10.5,' C10R=',E10.5,' C10=',E10.5/ 00001530
     +  ' TOTAL LCC COST=',E14.9/                                       00001535
     +  ' CLH=',E10.5,' SMHH=',E10.5,' SPHH=',E10.5,' STHH=',E10.5)     00001540
 15   FORMAT (1X/'  Z=',E10.5)                                          00001550
C                                                                       00001560
C                                                                       00001570
      LL=7                                                              00001580
      IF (PRNT.EQ.0) LL=6                                               00001590
      WRITE(LL,1) FINC,LDCMH,LDCRTS,LDDMH,LDDRTS,LDERV,LDFPR,LDFR,      00001600
     +            LDMCI,LDRM,LDSRTS,LDWOR,LDUC                          00001610
      WRITE(LL,2) EXIT,ITER,MAXPMT,PRNT,REREAD                          00001620
      WRITE(LL,3) CONFLO,MAXPA,MAXLR,MAXSE                              00001630
C                                                                       00001640
      DO 55 I=1,N                                                       00001650
        WRITE(LL,4) I,CCOND(I),COND(I),CRTS(I),DCOND(I)                 00001660
 55   CONTINUE                                                          00001670
      DO 56 I=1,N                                                       00001680
        WRITE(LL,5) I,DRTS(I),SNRTS(I),SRTS(I),WR(I)                    00001690
 56   CONTINUE                                                          00001700
C                                                                       00001710
      WRITE(LL,6)                                                       00001720
      DO 57 I=1,N                                                       00001730
        WRITE(LL,7) I,YFR(I),WFR(I)                                     00001740
 57   CONTINUE                                                          00001750
C                                                                       00001760
      WRITE(LL,6)                                                       00001770
      DO 58 I=1,N                                                       00001780
        WRITE(LL,8) I,CCLH(I),DCLH(I)                                   00001790
 58   CONTINUE                                                          00001800
      WRITE(LL,9) DLH                                                   00001810
C                                                                       00001820
      WRITE(LL,6)                                                       00001830
      DO 59 I=1,N                                                       00001840
        WRITE(LL,10) I,CAS(I),DAS(I),SAS(I)                             00001850
 59   CONTINUE                                                          00001860
C                                                                       00001870
```

```
      WRITE(LL,6)                                                       00001880
      DO 60 I=1,N                                                       00001890
        WRITE(LL,11) I,DSTK(I),MCF(I),STK(I),STK1(I)                    00001900
 60   CONTINUE                                                          00001910
      WRITE(LL,12) ECHT                                                 00001920
      WRITE(LL,6)                                                       00001930
      DO 61 I=1,N                                                       00001940
        WRITE(LL,13) I,C2L(I),C3L(I),C4L(I),C9L(I)                      00001950
 61   CONTINUE                                                          00001960
C                                                                       00001970
      CTOT = C1+C2+C3+C4+C5+C6+C7+C8+C9+C10                             00001975
      WRITE(LL,14) C1D,C1P,C1,C2C,C2D,C2S,C2,                           00001980
     +             C3C,C3D,C3S,C3,C4I,C4R,C4,C5,C6C,C6D,C6S,            00001985
     +   C6I,C6R,C6,C7,C8C,C8D,C8S,C8I,C8R,C8,C9C,C9D,C9S,C9I,C9R,C9,   00001990
     +   C10I,C10R,C10,CTOT,CLH,SMHH,SPMH,STMH                         00002000
C                                                                       00002010
      WRITE(LL,15) Z                                                    00002020
C                                                                       00002030
      RETURN                                                            00002040
      END                                                               00002050
```

```
      SUBROUTINE DPRINT                                                 00000010
C                                                                       00000020
C*****************************************************************************00000030
C*                    SEEK IGLOO LIFE CYCLE COST MODEL                       *00000040
C*  THIS PROGRAM IS DESIGNED TO RUN REPETITIVE LIFE CYCLE COST               *00000050
C*  CALCULATIONS IN AN INTERACTIVE ENVIRONMENT.  THERE ARE SIX INPUT         *00000060
C*  DATA SETS:                                                               *00000070
C*    UNIT  5 - RECEIVES INPUTS TYPED BY THE USER AT THE TERMINAL.           *00000080
C*    UNIT 11 - MISCELLANEOUS INPUTS (MAINLY SCALARS).                       *00000090
C*    UNIT 12 - INPUTS BY SUPPORT EQUIPMENT TYPE.                            *00000100
C*    UNIT 13 - INPUTS BY FUNCTIONAL AREA.                                   *00000110
C*    UNIT 14 - INPUTS BY LRU TYPE (LRU FILE 1).                             *00000120
C*    UNIT 15 - INPUTS BY LRU TYPE (LRU FILE 2).                             *00000130
C*  TWO FILES RECEIVE THE OUTPUT:                                            *00000140
C*    UNIT 6 -  OUTPUT THAT GOES TO THE TERMINAL.                            *00000150
C*    UNIT 7 -  OUTPUT THAT GOES TO THE OFF-LINE PRINTER.                    *00000160
C*****************************************************************************00000170
C                                                                       00000180
C*****************************************************************************00000190
C*                    COMMON BLOCK ORGANIZATION                              *00000200
C*  IN GENERAL, FOR EVERY SUBROUTINE THERE IS A COMMON BLOCK THAT            *00000210
C*  CONTAINS ALL OF THE VARIABLES THAT FIRST RECEIVED VALUES IN THAT         *00000220
C*  SUBROUTINE.  HENCE, ALL VARIABLES THAT ARE READ FROM THE UNIT 11         *00000230
C*  FILE IN SUBROUTINE READ1 WILL BE IN COMMON /RD1/;  ALL VARIABLES         *00000240
C*  CALCULATED IN SUBROUTINE AUXIL1 WILL BE IN COMMON /AUX1/;  ALL           *00000250
C*  VARIABLES CALCULATED IN SUBROUTINE COST1 WILL BE IN COMMON /C1/;         *00000260
C*  ALL VARIABLES CALCULATED IN SUBROUTINE DFR WILL BE IN COMMON/TDFR/.      *00000270
C*****************************************************************************00000280
C                                                                       00000290
      COMMON /CNTL/ EXIT,ITER,MAXPMT,PRNT,REDO,REREAD                   00000300
      INTEGER EXIT,PRNT,REDO,REREAD                                     00000310
C                                                                       00000320
      COMMON /ERROR/ IERROR,IWARN                                       00000330
C                                                                       00000340
      COMMON /INIT/ CONFLO,MAXFA,MAXLR,MAXSE                            00000350
C                                                                       00000360
      COMMON /RD1/ ADCM,ADPM,B,CAA,CADRE,CCMP,CDR,CDWH,CLR,CONF,CPMI,   00000370
     +             CPMP,CPWT,CRCT,DAA,DATA,DLR,DRCT,DS,                 00000380
     +             FAC(10),FCS,H,IMC,K,M,MCRS,MXHRS,                    00000390
     +             NCP,NDP,NSP,OSA,OST,PIUP,PME,PPRS,REFURB,RMC,        00000400
     +             SA,SAA,SMTBI,SOSI,SPM,SPRS,SRCT,STE,SWDEV,SWFAC,     00000410
     +             TC,TCCAD,TE,TR,TW,TWCAD,XUC,YOH,YSCAD,YSLR           00000420
      INTEGER CADRE                                                     00000430
      REAL IMC,K,MCRS,MXHRS                                             00000440
C                                                                       00000450
      COMMON /RD2/ A,COC(150),COD(150),COS(150),INOSE(150),NSEC(150),   00000460
     +             NSED(150),NSES(150),SEC(150),SENAME(150,24)          00000470
      REAL NSEC,NSED,NSES                                               00000480
      INTEGER A                                                         00000490
C                                                                       00000500
      COMMON /RD3/ ENYR(10),FA,FANAME(10,24),HWCP(10),INOFA(10),MMH(10),00000510
     +             SIZE(10),SMI(10),SWCP(10),SWFIX(10),SWVAR(10),       00000520
     +             WEIGHT(10)                                           00000530
      INTEGER FA                                                        00000540
      REAL MMH                                                          00000550
C                                                                       00000560
      COMMON /RD4/ INO(200),LRNAME(200,24),LRPART(200,12),MCI(200),     00000570
     +             MTBI(200),N,PA(200),QPA(200),QR(200),RM(200),        00000580
     +             UC(200)                                              00000590
      INTEGER QPA,QR                                                    00000600
      REAL MTBI                                                         00000610
C                                                                       00000620
      COMMON /RD5/ BCMH(200),CBCMH(200),CMH(200),CRTS1(200),CRTS2(200), 00000630
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     +             DBCMH(200),DMH(200),DRTS1(200),DRTS2(200),                00000640
     +             DRTS3(200),FPR(200),IMH(200),INO15(200),N15,              00000650
     +          PAMH(200),RIP(200),RL(200),RMH(200),SMH(200),SRTS1(200),     00000660
     +             WOR1(200),WOR2(200),WOR3(200)                             00000670
      REAL IMH                                                               00000680
      INTEGER RL                                                             00000690
C                                                                            00000700
      COMMON /SENS/ FINC,LDCMH,LDCRTS,LDDMH,LDDRTS,LDERV,LDFPR,LDFR,         00000710
     +              LDMCI,LDRM,LDSRTS,LDWOR,LDUC                             00000720
C                                                                            00000730
      COMMON /AUX1/ CCOND(200),COND(200),CRTS(200),DCOND(200),               00000740
     +              DRTS(200),SNRTS(200),SRTS(200),WR(200)                   00000750
C                                                                            00000760
      COMMON /AUX2/ YFR(200),WFR(200)                                        00000770
C                                                                            00000780
      COMMON /AUX3/ CCLH(200),DCLH(200),DLH                                  00000790
C                                                                            00000800
      COMMON /AUX4/ CAS(200),DAS(200),SAS(200)                               00000810
C                                                                            00000820
      COMMON /AUX5/ DSTK(200),ECMT,MCP(200),STK(200),STK1(200),Z             00000830
      INTEGER STK,STK1                                                       00000840
C                                                                            00000850
      COMMON /C1/ C1,C1D,C1P                                                 00000860
C                                                                            00000870
      COMMON /C2/ C2,C2C,C2D,C2L(200),C2S                                    00000880
C                                                                            00000890
      COMMON /C3/ C3,C3C,C3D,C3L(200),C3S                                    00000900
C                                                                            00000910
      COMMON /C4/ C4,C4I,C4L(200),C4R                                        00000920
C                                                                            00000930
      COMMON /C5/ C5                                                         00000940
C                                                                            00000950
      COMMON /C6/ C6,C6C,C6D,C6I,C6R,C6S                                     00000960
C                                                                            00000970
      COMMON /C7/ C7                                                         00000980
C                                                                            00000990
      COMMON /C8/ C8,C8C,C8D,C8I,C8R,C8S                                     00001000
C                                                                            00001010
      COMMON /C9/ C9,C9C,C9D,C9I,C9L(200),C9R,C9S                            00001020
C                                                                            00001030
      COMMON /C10/ C10,C10HW(10),C10I,C10R,C10SW(10)                         00001040
C                                                                            00001050
      COMMON /MCOS/ CLH,PMFA(10),SMMH,SPMH,STMH                              00001060
C                                                                            00001070
      COMMON /TDXUC/ TDXUC                                                   00001080
C                                                                            00001090
      COMMON /TDFR/ IDFR(200),TDFR(200)                                      00001100
C                                                                            00001110
      COMMON /TDK/ TDK                                                       00001120
C                                                                            00001130
      COMMON /TDUC/ IDUC(200),TDUC(200)                                      00001140
C                                                                            00001150
      COMMON /TDWOR/ IDWOR(200),TDWOR(200),WF(200)                           00001160
C                                                                            00001170
      COMMON /TDFPR/ IDFPR(200),TDFPR(200)                                   00001180
C                                                                            00001190
      COMMON /TDCMH/ IDCMH(200),TDCMH(200)                                   00001200
C                                                                            00001210
      COMMON /TDDMH/ IDDMH(200),TDDMH(200)                                   00001220
C                                                                            00001230
      COMMON /TDRM/ IDRM(200),TDRM(200)                                      00001240
C                                                                            00001250
      COMMON /TDSRTS/ IDSRTS(200),SPSRTS(200),TDSRTS(200)                    00001260
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C                                                                       00001270
      COMMON /TDCRTS/ CFCRTS(200),IDCRTS(200),TDCRTS(200)               00001280
C                                                                       00001290
      COMMON /TDDRTS/ DFDRTS(200),IDDRTS(200),TDDRTS(200)               00001300
C                                                                       00001310
      COMMON /TDMCI/ IDMCI(200),MCIC(200),TDMCI(200)                    00001320
C                                                                       00001330
      COMMON /CHLCC/ CCF,CF,CHLCC,DCF,DF,SCF,SF                         00001340
C                                                                       00001350
C                                                                       00001360
      DO 2 I=1,N                                                        00001370
        WRITE(7,1) I,TDFR(I),TDUC(I),TDRM(I),TDFPR(I)                   00001380
 1      FORMAT (' I=',I3,' TDFR=',E11.5,' TDUC=',E11.5,' TDRM=',E11.5,  00001390
     +       ' TDFPR=',E11.5)                                           00001400
 2    CONTINUE                                                          00001410
C                                                                       00001420
      DO 4 I=1,N                                                        00001430
        WRITE(7,3) I,TDCMH(I),TDDMH(I),TDMCI(I),TDWOR(I)                00001440
 3      FORMAT (' I=',I3,' TDCMH=',E11.5,' TDDMH=',E11.5,' TDMCI=',     00001450
     +          E11.5,' TDWOR=',E11.5)                                  00001460
 4    CONTINUE                                                          00001470
C                                                                       00001480
      DO 6 I=1,N                                                        00001490
        WRITE(7,5) I,TDSRTS(I),TDCRTS(I),TDDRTS(I)                      00001500
 5      FORMAT (' I=',I3,' TDSRTS=',E11.5,' TDCRTS=',E11.5,' TDDRTS=',  00001510
     +          E11.5)                                                  00001520
 6    CONTINUE                                                          00001530
      IF (PRNT.NE.0) WRITE(7,7) TDXUC,TDK                               00001540
      IF (PRNT.NE.1) WRITE(6,7) TDXUC,TDK                               00001545
 7    FORMAT('  DXUC=',E11.5,'  DK=',E11.5)                             00001550
C                                                                       00001560
      RETURN                                                            00001570
      END                                                               00001580
```