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COMMAND AND CONTROL TECHNICAL CENTER WASHINGTON DC  
THE CCTC QUICK-REACTING GENERAL WAR GAMING SYSTEM. (QUICK). USE--ETC(U)  
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SUBJECT: Change 2 to Users Manual CSM UM 9-77, Volume I, Data Management Subsystem

DA 070842

1. Insert the enclosed change pages and destroy the replaced pages according to applicable security regulations.
2. A list of Effective Pages to verify the accuracy of this manual is enclosed. This list should be inserted before the title page.
3. When this change has been posted, make an entry in the Record of Changes.

FOR THE DIRECTOR

*[Handwritten Signature]*  
 J. DOUGLAS POTTER  
 Assistant to the Director  
 for Administration

88 Enclosures  
Change 2 pages

6 The CCTC Quick-Reacting General War Gaming System, (QUICK), Users Manual, Volume 1, Data Management Subsystem, Change 2.

11 May 79

12 82 p

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EFFECTIVE PAGES - MAY 1979

This list is used to verify the accuracy of CSM UM 9-77 Volume I after change 2 pages have been inserted. Original pages are indicated by the letter O, change 1 pages by the numeral 1, and change 2 pages by the numeral 2.

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13-18	0	115-116	2
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## 1.6 Limits of the QUICK System

The QUICK data base, in itself, is limited only by the capacity of the storage area. However, it is prudent to limit certain data items in order to maintain reasonable limits (compute time and core) during execution. Also, by nature of employed algorithms, certain mathematical calculations could possibly not function properly if totally open-ended parameters were permitted. Therefore, limits as given in table 1 are used within the QUICK system. Note that no restrictions are placed on the number of targets.

## 1.7 Organization of Users Manual, Volume I

In general, each major section of this manual is subdivided into two major subsections. These are:

- a. Module input - details the set-up of input data files and how they are used in a given module
- b. Module output - details the scope and content of module output, with noted examples.

Note that generally most computer activities refer to executions in terms of programs. The compatible computer program within the QUICK system is the COP. Modules, or a set of subroutines necessary to perform some function, are executed by the COP.

Table 1. Limits of the QUICK System

<u>TARGET CLASS DATA</u>	<u>MAXIMUM NUMBER</u>
Targets per plan	Open-ended
Target Classes/side	15
Targets (Target Class Items)	Open-ended
Target Complexes	Open-ended
Target Elements per Complex	99
Targets Defended by Terminal Antiballistic Missile Interceptors	Open-ended
Target Vulnerabilities (Number of unique entries)	255
<u>SUPPORTING CLASS DATA</u>	
Warhead Types	50 <sup>#</sup>
Payload Types	40 <sup>#</sup>
Bombs plus ASMs per payload	12
Air-to-Surface Missile (ASM) Types	20
Command/Control Regions	20
Corridors (Penetration)	30
Depenetration Corridors	50
Recovery Bases (Bomber) per Depenetration Point	4
Refuel Points (User-Directed)	20
Weapon Systems	100*
<u>OTHER CONSTRAINTS</u>	
Allocation of Weapons per Target Without Terminal BMD	30
Target with Terminal BMD	30**
Fixed (User-Directed) Weapon Assignments	Open-ended
Flags (Allocation Constraint Indicator)	99
Weapon Groups	
Number of Groups	250
Missile/Bomber bases per Group	150
Weapons per Group	1000
Tanker Bases	60

\* Represents sum total of missiles plus bombers. Any mix within the stated upper bound is permitted.

\*\* Weapons from a total of 30 weapon groups may be assigned with no limit on the maximum number of weapons.

<sup>#</sup> IDS will create a payload table entry for each weapon system created (of which there are up to 100). Internal processing, however, permits only 40 unique payload types. The composition of each payload type (reentry bomb types and counts) defines uniqueness.

**Table 2. Reserved Target Class Names**

<u>CLASS</u> <u>MNEMONIC</u>	<u>DATA CATEGORY</u>
MISSIL	Offensive missiles
BOMBER	Offensive bombers
TANKER	Tankers
NAVAL	Naval targets
U/I	Urban/industrial targets

**Table 3. Non-Target Gaming Classes**

<u>CLASS MNEMONIC</u>	<u>PURPOSE</u>	
WEPGRP	Contains weapon group data	
PENCOR DEPCOR	Defines penetration and depenetration corridors	
COMPLX	Contains elements of targets defined as being in a complex (formed from target classes)	
REFUEL	Defines refuel points	
REGION	Defines regions	
PAYLOD	Identifies weapons and counts carried by a missile or bomber	
BOMB ASM RV MRV MIRV FACTOR	Provides warhead characteristics for gravity bombs, ASMs, single reentry vehicles (RV) and other types	
MSLWEP BMBWEP TNKWEP		Contains weapon system characteristics for missiles, bombers and tankers
RECOV		Provides special entry to recovery bases
SORTIE		Provides entry to weapon sorties
TARNUM		Provides entry to target list
NUMBER		Provides entry to general parameter table (NUMTBL)
ALCPRM	Provides entry to ALOC control parameter table (ALCPRM)	

Table 5. Value Elements

<u>FORMAT</u>	<u>DESCRIPTION</u>
Alphabetic Value	Any alpha string up to six characters in length
Numeric Value	Any number, integer or decimal, signed or unsigned
Variable Names	An alphabetic string up to twelve characters in length used in a DEFINE Clause
Attributes	Any attribute name which is defined in the dictionary
Long Strings	Any alpha string of up to 120 characters in length
Special Words	Any alpha string of up to 12 characters in length defined by the dictionary as a special word

Value definition can generally be specified by equating items to attributes. This may be as simple as directly setting outputs to attributes YIELD, VALUE, or DESIG for example. Elements may also be defined by indirect attribute reference. In other words, values may be set by requesting an attribute from a certain stated record type. If some output or calculation requires the attribute YIELD for weapon system B-52G, for example, within the allowed sentence construction, that value can be set by writing:

YIELD OF TYPE 'B-52G'

The value or end result of this request is the YIELD as input for the B-52G. The "OF" word relates the requested attribute to the record source.

3.2.2 Value Expressions. Given formats for entering values into items, the next level of syntax construction is the value expression. This is a series of value elements connected by mathematical operators and associated by parentheses.

The expression will be evaluated within a hierarchy of operations and is:

- o Imbedded parenthesis; that is, all mathematical calculations will be conducted first for all operators within the highest imbedded parenthesis grouping, a value obtained, saved, and calculation continued for the next level of parenthesis and so on.
- o POWER
- o DIVIDED and TIMES
- o PLUS and MINUS

Consider the following construction:

(YIELD TIMES (CEP PLUS 10) + 1).

Sequential steps involved are: (a) obtain the value of attribute CEP and add 10 to it; (b) to that result multiply the value of attribute YIELD; and (c) finally add one to obtain the final result. Note that value elements are set by both attributes and numeric values.

3.2.3 Relational Phrases. Value elements and/or value expressions may be connected through relational phrases. The term relational is used to refer to these phrases even when their meaning (in context) does not imply comparison. The general syntax of the relational phrase is:

subject operator object.

b. Phrase Types

- o Relational Phrases - Sublevels are used to define comparative or logical meaning according to operators
- o Restricted Relational Phrases - Used to set attributes and/or variables
- o Elements - Used to set single elements such as value elements, special words or display names.

The clause types define the overall syntax of the clause, and the phrase types define which phrases fall into or are connected by the overall syntax.

### 3.3 QUICKs Dictionary

All permissible words within the developed language that have meaning to the COP are contained within the 'Dictionary' (a list of tables stored in the data base). These words contain attributes (as employed for target and weapon definition), plus other words necessary for the syntax. Words within the dictionary are grouped as outlined in previous subsections. Based on these groupings, tables 6 through 11 present the entire list of words defined within QUICKs command language plus comments on how each word may be used. The list of attributes are defined in appendix A of this manual.

Occasionally a user will wish to enter an alphanumeric string which ordinarily will be recognized by the dictionary but which the user wishes to treat as an alphanumeric constant. The user may do so by enclosing the string in quotation marks. For example, if the user wishes the string AS to be treated as alphanumeric rather than a null, he should enter it thus - "AS".

A sentence command written with entries not contained within the cited tables are words foreign to the language and may cause computer execution aborts. In addition, only certain combinations of words from the "dictionary" (such as verbs, adverbs, etc.) have structural meaning. The entire QUICK system generates its final output through a series of selections of individual program modules as defined by the verb. The selected module then can act (or interpret) only on those sentence patterns that request outputs produced within the program. This is also analogous to formal English where individual thoughts are expressed in separate paragraph constructions.

Many of the Adverbs in table 7 introduce clauses which are used by a number of verbs. These clauses are described in the following paragraphs.

3.3.1 DEFINE Clause. A DEFINE clause consists of a single equals phrase in which the subject is used as an alphabetic variable name. (The subject should not be an attribute.) The object of the phrase should be a mathematical formula combining attributes and numeric values plus any alphabetic string which the user intends to employ as the variable name of this or any other DEFINE.

Table 6. QUICK's Text English Verbs

<u>VERB</u>	<u>MODULE</u>	<u>DESCRIPTION</u>
ALLOCATE	ALOC	Executes the ALOC module
ALTER	REPORT	Makes updates and changes to a previously designed display
ASSIGN	JLM	Builds the Assignment Table
ASTERISK	JLM	Makes Damage Assessment Tape from a JAD format tape and the Data Base
BUILD	EIM	Instructs the External Interface Module to build a file
CHANGE	DATA	Updates data element(s)
CREATE	DATA	Creates new data elements
DATAMAKE	DATAMAKE	Executes the DATAMAKE module
DELETE	DATA	Deletes records
DESIGN	REPORT	Constructs and saves a REPORT module display
DGZSELECT	ALOCOUT	Executes the ALOCOUT module
EDIT	EDITDB	Executes the EDITDB module
EVALUATE	EVALALOC	Executes the EVALALOC module
FOOTPRNT	FOOTPRNT	Executes the FOOTPRNT module
INDEX	INDEXER	Executes the INDEXER module
MODIFY	BDMOD	Executes the BDMOD module
PLANOUT	PLANOUT	Executes the PLANOUT module
PLANSET	PLANSET	Executes the PLANSET module
PLOTDATA	EIM	Creates geography plot tapes
PLOTIT	EIM	Creates sortie plot tapes
POSTALOC	POSTALOC	Executes the POSTALOC module
PREPARE	PREPALOC	Executes the PREPALOC module
PRINT	REPORT	Prints some user defined (built by DESIGN) display
RESTORE	SRM	Brings the contents of an IDS data base from magnetic tape to a disk file
SAVE	SRM	Stores the contents of an IDS data base on a magnetic tape
SELECT	JLM	Selects records from a JAD file

Table 7. (Part 3 of 3)

<u>ADVERB</u>	<u>DESCRIPTION</u>
SMAT	Describes values and updates for the SMAT array of the allocator.
SORT	Describes the sort order for printed or tape/file output
STRIKE	Request PLANOUT to produce a Strike tape
SUPRESSING	Suppresses data value editing during data creation
TGTMOD	Introduces target value changes for EVALALOC
UICLASSES	Describes CLASS names of target classes to be treated as "U/I" by DBMOD
UNIT	Gives tape/file logical unit number
USING	Requests data value editing during data creation
VNOPTION	Used to select a complexing option
WHERE	Describes subset of data base on which verb's action is to be performed
WITH	Describes the relationships that must be met between selected attributes in the data base
WPNMOD	Introduces weapon characteristic changes for EVALALOC

Table 8. QUICKs Text English Adverbs Usage  
(Part 1 of 2)

<u>ADVERB</u>	<u>CLAUSE TYPE</u>	<u>PHRASE TYPE</u>	<u>VERB(S)</u>
ABTAPE	Null	Null	PLANOUT
ACARD	Sequence	Elements	PLANOUT
ALPHAS	Sequence	Elements	ASSIGN
ATTACKERS	Sequence	Elements	PLANSET
CCARD	Sequence	Elements	PLANOUT
COUNTRIES	Sequence	Elements	EVALUATE
DEFENDERS	Single	Restricted Relational	PLANSET, DATAMAKE
DEFINE	Single	Restricted Relational	DESIGN, ALTER, BUILD
DISPLAY	Sequence	Elements	DESIGN, ALTER, PRINT
EQUATE	Sequence	Elements	FOOTPRNT
FIELDS	Sequence	Elements	EDIT
FILE	Single	Element	BUILD
FINDMIN	Single	Element	DGZSELECT
FIX	Sequence	Elements	PREPARE
FLAGREST	Sequence	Elements	ALLOCATE
FORMAT	Sequence	Elements	DESIGN, ALTER, BUILD
FUNCOM	Sequence	Elements	PLANOUT
GAMETIME	Sequence	Elements	PLANOUT
ICARD	Sequence	Elements	PLANOUT
IF	Boolean	Relational	FOOTPRNT, PLANOUT
KEEPING	Sequence	Elements	ASTERISK
LOCREST	Sequence	Elements	ALLOCATE
MINRANGE	Sequence	Elements	ALLOCATE
MIRVREST	Sequence	Elements	ALLOCATE
MISTME	Sequence	Elements	PLANOUT
MODRANGE	Sequence	Elements	ALLOCATE
MSLCOR	Sequence	Elements	PLANOUT
ONPRINTS	Sequence	Elements	(ALL VERBS)
OMITTING	Null	Null	SELECT
ORDER	Sequence	Elements	SELECT

Table 8. (Part 2 of 2)

<u>ADVERB</u>	<u>CLAUSE TYPE</u>	<u>PHRASE TYPE</u>	<u>VERB(S)</u>
PLANE	Sequence	Elements	PLANOUT
PLAYERS	Sequence	Elements	ASSIGN
PRIORITY	Sequence	Elements	PLANSET, DATAMAKE
PUNCH	Sequence	Elements	ALLOCATE
READMUL	Sequence	Elements	ALLOCATE
RECALC	Null	Null	ALLOCATE, PLANOUT, INDEX, PREPARE
REEQUATE	Sequence	Elements	FOOTPRINT
REPLACING	Null	Null	SELECT
SAME	Sequence	Elements	CREATE
SETTING	Sequence	Restricted Relational	PLANSET, MODIFY, DESIGN PREPARE, CREATE, ALTER, CHANGE, PLOTDATA, SELECT, ALLOCATE, EVALUATE, POSTALOC, PLOTIT, PLANOUT, DATAMAKE
SMAT	Sequence	Elements	ALLOCATE
SORT	Sequence	Elements	DESIGN, ALTER, BUILD, EVALUATE
STRIKE	Null	Null	PLANOUT
SUPRESSING	Null	Null	CREATE
TGTMOD	Sequence	Elements	EVALUATE
ULCLASSES	Sequence	Elements	MODIFY
UNIT	Single	Element	SELECT, SAVE, RESTORE, BUILD
USING	Null	Null	CREATE
VNOPTION	Null	Null	INDEX, DATAMAKE
WHERE	Boolean	Relational	DESIGN, PRINT, ALTER, CHANGE, DELETE, SELECT, BUILD, EDIT
WITH	Sequence	Relational	INDEX, EDIT, DATAMAKE
WPNMOD	Sequence	Elements	EVALUATE

Table 9. QUICKs Text English Special Words  
(Part 1 of 3)

<u>SPECIAL WORD</u>	<u>USE</u>	<u>DESCRIPTION</u>
A	SORT adverb PLANOUT verb	Same as ASCENDING for SORT, Implies air burst for PLANOUT
ACOS	EQUATE, REEQUATE adverbs	Arc-cosine
ACOT	EQUATE, REEQUATE adverbs	Arc-cotangent
AFTER	ALTER verb* FORMAT adverb	Introduces additions to format after indicated PAGE, LINE, etc.
ASCENDING	SORT adverb	Lowest values will be first
ASIN	EQUATE, REEQUATE adverbs	Arc-sine
ATAN	EQUATE, REEQUATE adverbs	Arc-tangent
C	PLANOUT verb	Value for "CALOFF" field, implies DLATOF and DLONGOF represent actual DGZ
COS	EQUATE, REEQUATE adverbs	Cosine
COT	EQUATE, REEQUATE adverbs	Cotangent
D	SORT adverb	Same as DESCENDING
DESCENDING	SORT adverb	Highest values will be first
EXCLUDE	FLAGREST, LOCREST, and COUNTRIES adverb	Indicates following items are excluded from consideration
EXP	EQUATE, REEQUATE adverbs	Exponential

**1 INPUT EXCEEDS MAXIMUM ALLOWED**

For a given verb, there are too many sublevels within the sentence. Restructure the sentence into several commands.

**2 \$\$\$ QDATA ENCOUNTERED (A6) ERROR WITH ARGUMENT (A6) \$\$\$**

IDS error. First argument is either standard IDS error code or one of the three special QUICK codes. (Refer to IDS User Manual.)

OOORRR - Illegal record type  
OOOCCC - Illegal chain name  
OOOILC - Illegal call

Second argument is name of record type or chain which caused error. IDS error codes commonly encountered are:

OOOR04 - An attempt to retrieve on a chain which has no current record. This will often occur in cases where the master of a record to be stored, particularly those to which the record is linked by control attributes (match-keys), are not sufficiently identified.

OOOD01 - An attempt to store a duplicate record. The duplication is due to a control attribute, such as DESIG, ICOMPL, GROUP, etc.

OOOS01 - The IDS data base file has no further space available.

**3 SYNTAX ERROR - COMMAND ENDED TOO SOON**

End of input sentence occurred where illegal

**4 SYNTAX ERROR - VERB NOT RECOGNIZED**

Error in syntax directory, verb recognized by dictionary not in syntax directory

**5 SYNTAX ERROR - ADVERB OUTSIDE COMMAND**

Adverb found where verb expected.

**6 SYNTAX ERROR - CLAUSE MET EARLY END**

End of clause where not expected.

Figure 5. COPs Error Messages (Part 1 of 4)

- 7 SYNTAX ERROR - LOST ITEM  
Item, which is neither verb nor adverb, where one was expected.
- 8 SYNTAX ERROR - ATTRIBUTE IN VALUE ELEMENT NOT ID  
Error in OF phrase, identifier attribute not defined as such in dictionary.
- 9 SYNTAX ERROR - VALUE ELEMENT WRONG  
Error in syntax of value element.
- 10 SYNTAX ERROR - UNBALANCED PARENS IN VALUE EXPRESSION  
Error in mathematical statement-unbalanced parentheses.
- 11 SYNTAX ERROR - RELATIONAL EXPRESSION HAS BAD COLLECT  
Unbalanced collection or collection containing illegal items.
- 12 SYNTAX ERROR - ILLEGAL RELATIONAL OPERATOR  
GREATER, LESS or BETWEEN appears in clause restricted to EQUAL and LIKE.
- 13 SYNTAX ERROR - ERROR IN SUBJECT OF RELATIONAL PHRASE  
Subject should be either an attribute or define name.
- 14 SYNTAX ERROR - NO ID-ATTRIBUTE FOR LIKE  
LIKE phrase has no identifier attribute.
- 15 SYNTAX ERROR - LIKE PHRASE HAS NO VALUE  
Value for Identifier attribute is missing.
- 16 SYNTAX ERROR - ABNORMAL END TO BOOLEAN  
Boolean clause ended where illegal.
- 17 SYNTAX ERROR - BOOLEAN STATEMENT IN WRONG ORDER  
Elements of boolean clause follow one another in an illogical fashion.

Figure 5. (Part 2 of 4)

18 SYNTAX ERROR - ILLEGAL ITEM IN VALUE EXPRESSION

Value expression contains illegal item.

19 SYNTAX ERROR - ILLEGAL ELEMENT

Item included in clause of elemental adverb which is illegal according to syntax directory.

20 SYNTAX ERROR - TOO MANY PHRASES

Adverb defined as "single" has more than one phrase.

21 SYNTAX ERROR - RELATION NOT RIGHT IN SEQUENCE

Normal sequence of relational phrase violated.

22 TYPE (I5) VALUE (I5) (A12)

Arguments are the type, value and alphabetic representation of the offending item. This message appears following most of the messages that begin with "SYNTAX ERROR"

The values for type are as follows:

- |                           |                        |
|---------------------------|------------------------|
| 1 - operator              | 5 - special word       |
| 2 - long string delimiter | 6 - attribute          |
| 3 - verb                  | 9 - alphanumeric value |
| 4 - adverb                | 10 - numeric value     |

If type is 1, 3, 4, 5, or 6 - value will contain the numeric identifier associated (see Appendixes C and D).

If type 1 or 2, no alphabetic representation appears.

23 INPUT TABLES EXCEEDED, TYPE (I2)

Tables built by subroutine ERRFND have been exceeded. Argument indicates type of table in which error occurred.

The following are the table types:

- 1 - Numeric entries
- 2 - Attributes entered
- 3 - Alphabetic value entries
- 4 - Items entered (one entry for each syntactically distinct portion of the input)

Figure 5. (Part 3 of 4)

- 24 LONG STRING TOO LONG  
Input long string exceeds 120 characters.
- 25 INPTRN - UNBALANCED COLLECTION  
Number of items in object collection(s) does not agree with number in subject.
- 26 INPTRN - BOOLEAN STATEMENT WRONG  
Error in boolean statement logic.
- 27 \$\*\$\*\$ (A6) ENCOUNTERED ERROR \$\*\$\*\$  
Agreement is link name of module which encountered an error.
- 28 NUMBER OF ADVERBS/VERB EXCESSIVE  
Verb has more than 300 clauses.
- 29 \$\*\$\*\$ ILLEGAL ACTION (A6) \$\*\$\*\$  
Value is action stored in /ERRCOM/ block. (Legal actions are: "ABORT", "FLAG", and "PASS".)
- 30 SYNTAX ERROR - ILLEGAL ADVERB  
Adverb not legal with input verb.

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Figure 5. (Part 4 of 4)

#### 4.4 BOOT Module

4.4.1 General Purpose. The BOOT Module is designed to create and update those portions of the data base which are essential to normal COP operation. As a result, the input to BOOT is on fixed formatted card images rather than a free form text English input. The portions of the data base which BOOT addresses are:

- o The data organization index, which contains a functional description of the IDS data base structure, the information required to retrieve headers and the data editing directory
- o The data entry point headers
- o The dictionary
- o The text English syntax directory
- o The module link table

In general, each input card image to BOOT creates or updates a record within one of the above structures. Normally, BOOT will be run only when a QUICK data base is being created from scratch.

4.4.2 Input. The input to BOOT consists of an introductory command verb followed by a series of sets of card images. Each set is begun by a command adverb and terminated by a card containing END in card columns 1-3. The last set is followed by a second END card. The order of the sets is important if the user is building a data base from scratch because the creation of some records is dependent upon the previous creation of others. The order to be followed is that in which the sets will be presented.

4.4.2.1 Verb Command. The introductory verb for BOOT is INITIALIZE. This command must be defined starting with column 1 on the first card image that the COP reads in.

4.4.2.2 Introductory Adverbs. As cited, each set is introduced by a command adverb and ended with an END card. The command adverbs must appear on separate card images with the adverb starting in column 1. The command adverbs and the general description of the sets they introduce are shown in table 12. Discussions of each set follow.

4.4.2.3 NEWINDEX Adverb. This command adverb has no following cards. It must appear only in the case of a construction of the data base from scratch. In this case it must appear first. It causes the creation of the data organization index header and a utility table header used internally by COP.

**1 SETTING CLAUSE WRONG FOR CREATE**

An error has occurred in the setting clause, check inputs.

**2 (F15.4) VIOLATES EDIT RANGE FOR (A12)**

Edit error for floating point attribute. Value and attribute name are displayed.

**3 (I10) VIOLATES EDIT RANGE FOR (A12)**

Edit error for integer attribute: value and attribute name are displayed.

**4 (A6) IS NOT IN EDIT LIST FOR (A12)**

Edit error for alphabetic attribute: value and attribute name are displayed.

**5 DATA//ERROR IN SAME AS CLAUSE**

DATA could not find record identified in SAME clause.

**6 ERROR IN TARGET INPUT**

Error detected by Assignment table. Not sufficient amount of data supplied or the wrong data supplied.

**7 LINKUP FAILURE**

User supplied insufficient data to build a viable retrieval scheme.

**8 DUPLICATE STORE ATTEMPTED (2A7,2I10)**

Fields are record type name, DESIG, IREG and ICOMPL. Message occurs when store attempt results in a D01 error--this error is not fatal.

**9 DATA//HEADER NOT FOUND FOR (A6)**

Value is illegal value entered for CLASS.

Figure 11. CREATE Verb Error Messages

- 1    **ERROR IN CHANGE VERB - MISSING CLAUSE**  
CHANGE verb requires both WHERE and SETTING clauses.
- 2    **SETTING CLAUSE WRONG**  
Error in SETTING clause, check inputs.
- 3    **WHERE CLAUSE WRONG**  
Error in WHERE clause, check inputs
- 4    **NO RECORD TYPES DETERMINED IN CHANGE**  
User has not specified sufficient data to build a retrieval scheme.
- 5    **LINKUP FAILURE**  
Same as above.
- 6    **(I10) VIOLATES EDIT RANGE FOR (A12)**  
The first value is input as change for attribute shown as second value. Value violates directory limits. Input value is honored, however.
- 7    **(F15.4) VIOLATES EDIT RANGE FOR (A12)**  
Same as above for a floating point attribute.
- 8    **(A6) IS NOT IN EDIT LIST FOR (A12)**  
The first value is not in the directory's list of valid values for the attribute shown as the second value.
- 9    **ERROR IN WHERE CLAUSE QUEUE**  
Attribute in where clause queue also appears outside of the queue in the same clause.

Figure 12. CHANGE Verb Error Messages

1    **ERROR IN DELETE VERB**

WHERE clause either in error or missing.

2    **CANNOT BUILD SCHEME**

User has not specified sufficient data to build a retrieval scheme.

Figure 13. DELETE Verb Error Messages

- 1      **ERROR-NO DISPLAY CLAUSE**  
Display clause missing from ALTER verb.
- 2      **ERROR IN DISPLAY CLAUSE**  
Display clause input incorrectly.
- 3      **OLD DISPLAY (A12) NOT FOUND**  
Argument is name of old display clause sought.
- 4      **ERROR IN SETTING CLAUSE**  
Illegal attribute (only REPORTCODE, LINELENGTH and PAGELENGTH are allowed).
- 5      **ERROR IN WHERE CLAUSE**  
WHERE clause entered incorrectly, check inputs.
- 6      **ERROR IN DEFINE CLAUSE**  
DEFINE clause entered incorrectly.
- 7      **ERROR IN FORMAT CLAUSE**  
Format clause entered incorrectly.
- 8      **NEW DISPLAY (A12) ALREADY EXISTS**  
Argument is name of display which user tried to create but which already exists on file.
- 9      **NO FORMAT CLAUSE**  
FORMAT clause left out (DESIGN only).
- 10     **ERROR IN DEFINE CLAUSE (I3)**  
Analysis of DEFINE clause encountered error. Argument is occurrence of clause.
- 11     **ERROR IN SORT CLAUSE**  
Order of argument is sort clause wrong or alphabetic is not a define name.

Figure 23. REPORT Module Error Messages  
(Part 1 of 2)

- 12 **DEFINES CANNOT BE RESOLVED**  
No order in which to execute **DEFINES** can be found.
- 13 **ILLEGAL DEFINE IN WHERE CLAUSE**  
**DEFINE** in **WHERE** clause is not a normal define.
- 14 **ERROR IN INPUT WHERE CLAUSE**  
Error for **WHERE** clause input to **PRINT** verb.
- 15 **ATFNDR UNABLE TO SET UP SCHEME**  
User provided insufficient data to set up viable retrieval scheme.
- 16 **LINKUP FAILURE IN DSPMAK**  
Same as above.
- 17 **REPORT DID NOT SELECT ANY RECORDS**  
Either no data was retrieved or data retrieved did not satisfy the **WHERE** clause.

Figure 23. (Part 2 of 2)

## SECTION 8. SAVE AND RESTORE MODULE (SRM)

### 8.1 General Purpose

The purpose of the SRM is to give the user the capability to copy the integrated data base onto tape and to restore the same data base to a previously stored state by reading in such a tape.

Technically, the entire QUICK system may be executed without using the SRM. Practically, this is not recommended.

### 8.2 Input

A SAVE command causes the COP to write the integrated data base onto a magnetic tape. There is no restriction as to when this command may be used. The general command form is:

SAVE [ON UNIT unit number]

The UNIT clause allows the user to change the output unit number which has a default value of 35.

A RESTORE command causes the COP to write the contents of a saved magnetic tape onto a disk file. The general form of the command is:

RESTORE [FROM UNIT unit number]

The UNIT clause allows the user to change the output unit number which has a default of 35.

### 8.3 Output

8.3.1 Standard Output. There is no standard output produced by this module.

8.3.2 Error Messages. As a result of difficulties encountered by this module, the user may receive one of the following system abort message codes:

- BC - Block count error. (Probably bad tape)
- IT - Incorrect Device type. (SAVE output and RESTORE input must be tape)
- NC - Not enough core.
- PM - Parameters mixed. (Contact a maintenance programmer)
- SD - Sequential Disk. (Check JCL)
- ST - Same type. (Sequential unit must be tape)
- TL - Disk too little.

Table 14. BUILD FILE SIDAC Output File Format  
(Part 1 of 2)

<u>Column</u>	<u>Meaning</u>
1-5	Category code, (CATCODE) numeric
6-9	World Area Code (WACNO) alphabetic
10-15	Bomber Encyclopedia Number (BENO) alphabetic
16-20	Blank
21-26	Name (NAME) alphabetic
27-58	Blank
59-64	Major Complex Number (MAJOR) numeric
65-88	Blank
89-94	Minor Compound Number (MINOR) numeric
95-118	Blank
119-125	Latitude (LAT) degrees, minutes, seconds
126-133	Longitude (LONG) degrees, minutes, seconds
134-137	Blank
138-139	Country Location (CNTRYL) alphabetic
140-147	Blank
148-149	County Owner (CNTRYO) alphabetic
150-155	Blank
156-159	Severe vulnerability (VULN1) VNTK
160-163	Moderate vulnerability (VULN2) VNTK
164-167	"03P0"
168-190	Blank
191-198	Capacity (POP*10). This quantity is zero for all non-U/I targets
199-205	Blank
206-208	Radius (RADIUS*10) numeric - tenth of nautical miles. This quantity is zero for all non-U/I targets
209-283	Blank
284-286	SIOP table number
287-288	Blank
289-293	DESIG, alphabetic

Table 14. (Part 2 of 2)

<u>Column</u>	<u>Meaning</u>
294	Blank
295-300	TYPE, alphabetic
301-303	Blank
304-305	ICLASS, numeric
306	1 for Blue targets; 2 for Red targets
307-318	Blank
319	Region (IREG), numeric
320	SAGA region. This quantity is IREG +1 unless country location is US or AK in which case it is IREG
321-335	Blank
336	Record Mark

Table 15. BUILD FILE TABLE Output File Formats  
(Part 1 of 6)

TARGET LIST

<u>Column</u>	<u>Meaning</u>
1-8	'F1TARGET'
9	Side: 1 for Blue; 2 for Red
10-14	Line count, numeric
15	Blank
16-20	DESIG, alphanumeric
21-24	Blank
25-31	Latitude (LAT), degrees, minutes, seconds
32-39	Longitude (LONG), degrees, minutes, seconds
40-45	NAME, alphabetic
46-49	World Area Code (WACNO), alphabetic
50-55	Bomber Encyclopedia Number (BENO), numeric
56-60	Category (CATCODE), numeric
61-62	Country Location (CNTRYL), alphabetic
63-68	Major Complex Number (MAJOR), numeric
69-71	SIOP table number
72-76	Index Number (INDEXNO), numeric
77	Blank
78-80	Complex Number (ICOMPL), numeric
81-90	Blank

Table 15. (Part 2 of 6)

VEHICLE CHARACTERISTICS LIST

<u>Column</u>	<u>Meaning</u>
1-7	'FIVEHIC'
8	Blank
9	Side: 1 for Blue; 2 for Red
10-14	Line count, numeric
15	'1'
16-18	Blank
19-20	SAGA plane type code
21-55	Blank
56-59	CEP in tens of feet
60-69	Blank
70-75	TYPE, alphabetic
76-90	Blank
91-99	Blank
100-109	Blank
110-119	Blank
120-129	Blank
130-139	Blank
140-149	Blank
150-159	Blank
160-169	Blank
170-179	Blank
180-189	Blank
190-199	Blank
200-209	Blank
210-219	Blank
220-229	Blank
230-239	Blank
240-249	Blank
250-259	Blank
260-269	Blank
270-279	Blank
280-289	Blank
290-299	Blank
300-309	Blank
310-319	Blank
320-329	Blank
330-339	Blank
340-349	Blank
350-359	Blank
360-369	Blank
370-379	Blank
380-389	Blank
390-399	Blank
400-409	Blank
410-419	Blank
420-429	Blank
430-439	Blank
440-449	Blank
450-459	Blank
460-469	Blank
470-479	Blank
480-489	Blank
490-499	Blank
500-509	Blank
510-519	Blank
520-529	Blank
530-539	Blank
540-549	Blank
550-559	Blank
560-569	Blank
570-579	Blank
580-589	Blank
590-599	Blank
600-609	Blank
610-619	Blank
620-629	Blank
630-639	Blank
640-649	Blank
650-659	Blank
660-669	Blank
670-679	Blank
680-689	Blank
690-699	Blank
700-709	Blank
710-719	Blank
720-729	Blank
730-739	Blank
740-749	Blank
750-759	Blank
760-769	Blank
770-779	Blank
780-789	Blank
790-799	Blank
800-809	Blank
810-819	Blank
820-829	Blank
830-839	Blank
840-849	Blank
850-859	Blank
860-869	Blank
870-879	Blank
880-889	Blank
890-899	Blank
900-909	Blank
910-919	Blank
920-929	Blank
930-939	Blank
940-949	Blank
950-959	Blank
960-969	Blank
970-979	Blank
980-989	Blank
990-999	Blank

Table 15. (Part 3 of 6)

WEAPON CHARACTERISTICS LIST

<u>Column</u>	<u>Meaning</u>
1-8	'FIWEAPON'
9	Side: 1 for Blue; 2 for Red
10-14	Line count
15-17	Blank
18-19	Warhead type (Line count * 10 plus 1 for ASM; 0 for all others)
20	0 = Bomb, 1 = ASM, 2 = DECOY
21-37	Blank
38-43	Warhead yield in kilotons
44-46	Fission to Fusion percentage (FFRAC*100)
47-90	Blank

Table 15. (Part 4 of 6)

MISSILE BASE LIST

<u>Column</u>	<u>Meaning</u>
1-8	'FIMIBASE'
9	Side: 1 for Blue; 2 for Red
10-14	Line count
15	Blank
16-20	Line count
21	Blank
22-28	Latitude (LAT) degrees, minutes, seconds; S if South, N if North
29-36	Longitude (LONG) degrees, minutes, seconds; E if East, W if West
37	Blank
38-41	Vulnerability Number (VULN1) alphanumeric
42-43	Type Count
44-45	Blank
46-47	'1/'; that is, beginning sortie number (always 1) followed by /
48-49	Number per site (NMPSIT), numeric
50	Blank
51	H if VN greater than or Equal to 20, S otherwise
52	Blank
53	1 if column 51 is H or if 51 is S and NOALER Equal NMPSIT Otherwise = 2
54-59	Blank
60-65	NAME, alphabetic
66-69	Blank
70-71	Country Location (CNTRYL), alphabetic
72-74	Blank
75-80	TYPE, alphabetic
81-84	Blank
85-90	BENO

Table 15. (Part 5 of 6)

BOMBER BASE LIST

<u>Column</u>	<u>Meaning</u>
1-6	'FIBASE'
7-8	Blank
9	Side: 1 for Blue; 2 for Red
10	Blank
11-14	Line count
15	Blank
16-20	Index Number (INDEXNO), numeric
21	Blank
22-28	Latitude (LAT), degrees, minutes, seconds
29-36	Longitude (LONG), degrees, minutes, seconds
37	Blank
38	1 for SLBM, 2 for LRA, 3 for TAC, 7 for all others (from FUNCTI)
39	Blank
40	'X'
41-43	Blank
44	'X' for tanker, blank for all others
45-59	Blank
60-65	NAME of base, alphabetic
66-69	Blank
70-71	Country Location (CNTRYL), alphabetic
72-84	Blank
85-90	BENO

Table 15. (Part 6 of 6)

OFFENSIVE RECOVERY BASE LIST

<u>Column</u>	<u>Meaning</u>
1-7	'FIRECBS'
8	Blank
9	Side: 1 for Blue; 2 for Red
10-14	Line count
15	Blank
16-20	DESIG, alphabetic
21-23	Blank
24-30	Latitude (LAT), degrees, minutes, seconds
31-38	Longitude (LONG), degrees, minutes, seconds
39	Blank
40-45	NAME, alphabetic
46-49	World Area Code (WACNO), alphabetic
50-55	Bomber Encyclopedia Number (BENO), alphabetic
56-60	Category Code (CATCODE), numeric
61-62	Country Location (CNTRYL), alphabetic
63-68	Major Complex Number (MAJOR), numeric
69-70	"00"
71-75	Index Number (INDEXNO), numeric
76	Blank
77-90	Capacity (CAPACITY), numeric

- ① MAP = PIC1 SIDE = BLUE SCALE = 5000000.0  
 PLOTS REQUESTED PENCOR DEPCOR REFUEL RECOV  
 ORIGIN 40.00 250.00
- ② PENETRATION CORRIDORS  
 CORNUM = 1 ORLAT = 45.00 ORLONG = 267.00  
 DOGLEG = 10 LAT = 45.00 LONG = 267.00  
 DOGLEG = 20 LAT = 53.00 LONG = 270.00  
 CORNUM = 2 ORLAT = 63.00 ORLONG = 310.00  
 DOGLEG = 10 LAT = 63.00 LONG = 310.00  
 DOGLEG = 20 LAT = 60.00 LONG = 315.00
- ③ DEPENETRATION CORRIDORS  
 CORNUM = 1  
 DOGLEG = 10 LAT = 75.00 LONG = 270.00  
 DOGLEG = 20 LAT = 78.00 LONG = 265.00
- ④ REFUEL POINTS  
 1 LAT = 83.00 LONG = 265.00  
 2 LAT = 50.00 LONG = 310.00
- ⑤ RECOVERY BASES  
 1 LAT = 45.00 LONG = 250.00  
 CORNUM = 1 ORLAT = 75.00 ORLONG = 270.00
- ⑥ THERE WERE 0 POINTS OFF THE GRAPH  
 THERE WERE 12 POINTS ON THE GRAPH

<u>HEADING</u>	<u>MEANING</u>
①	Print of input values including any defaults
②	Penetration corridor point, each corridor is followed by its dogleg
③	Depenetration corridor, corridor symbol is plotted at coordinates of first dogleg
④	Refuel point print including sequential count
⑤	Recovery base print. Corridor is a depenetration corridor and latitude and longitude are those of first dogleg
⑥	Termination message

Figure 25. PLOTDATA Optional Output

- 1 ERROR IN FILE CLAUSE  
FILE clause contains error or is absent
- 2 ERROR IN WHERE CLAUSE  
Attribute is not SIDE (TABLE only)
- 3 ERROR IN SETTING CLAUSE  
Illegal attribute or value (PLOTDATA only)
- 4 POINT (I3) OFF MAP X = (F10.3) Y=10 = (F10.3) - point coordinates exceed plot limits (PLOTDATA and PLOTIT only)
- 5 ERROR IN FORMAT CLAUSE  
Probable cause is illegal special word (OTHER only)
- 6 ERROR IN DEFINE CLAUSE  
DEFINE clause contains an error (OTHER only)
- 7 DEFINES CANNOT BE RESOLVED  
No order can be found in which to properly execute define variable calculations (OTHER only)
- 8 ERROR IN SORT CLAUSE  
Sort parameters illegal, missing or in the wrong order (OTHER only)

Figure 27. EIM Error Messages

APPENDIX A

QUICK ATTRIBUTE NAMES AND DESCRIPTIONS

This appendix lists, in alphabetical order, the attributes used in the CCTC QUICK data base. Also provided are the definition/description of each attribute as it pertains to the QUICK system.

There are three attribute groups: gaming, non-gaming, and text English inputs. Gaming attributes are those elements necessary to define targets, weapons, and geographic data. Non-gaming elements are used to assist in the definition of Integrated Data Base structure. Text English attributes are part of the user input command structure. In this appendix an asterisk (\*) after the attribute name implies a non-gaming attribute; a pound sign (#) implies text English inputs; all other attributes are gaming related.

Attribute Name	Description
AClass*	Class to which type is assigned by Assignment Table
ACTIVE	Value which is set true if a target class is to be processed by the allocation subsystem
ADBLI	ALRTDB probability for initiative attack
ADBLR	ALRTDB probability for retaliatory attack
ADVERBVL*	Adverb's identifying number
ALPLSTVL*	Value in attribute edit check list
ALRTDB	Probability of destruction before launch (DBL) of alert delivery vehicle (missile or bomber)
ALRTDL	Delay of alert vehicle before commencing launch (hours)
ALTDLY	Alert delay
ARRIVE	Time of arrival of assigned weapon
ASGHOB	Height of Burst of assigned weapon
ASIDE	Attacking side
ASNTASK*	Task to which a range of DESIG values is assigned by Assignment Table
ATDEFAULT*	Default value for attribute (in Directory)
ATRNGHI*	Upper limit for attribute (in Directory)
ATRNGLOW*	Lower limit for attribute (in Directory)
ATTINC	Attack increment on which each weapon group attacks
ATTPOS	Attack posture, current increment number
ATTRBTYP*	Value which describes an attribute as to mode-alpha, list, integer, float; and type-single, multiple, control
ATTRCD	Attrition rate prior to corridor
ATTRCO	Attrition parameter for penetration corridor
ATTRIBAD*	Attribute's common block address
ATTRIBN1*	Attribute's name (first half)
ATTRIBN2*	Attribute's name (second half)
ATTRIBNO*	Attribute's identifying number
ATTRLE	Attrition parameter for a penetration corridor dogleg
ATTRPRE1	Attrition parameter for precorridor dogleg 1
ATTRPRE2	Attrition parameter for precorridor dogleg 2
ATTRPRE3	Attrition parameter for precorridor dogleg 3

Attribute Name	Description
ATTRSU	Penetration corridor attrition parameter after defense suppression
ATYPE*	Legal type assignment in Assignment Table
BENO	Bomber Encyclopedia Number
BPENFAC	Multiplier for bomber attrition parameters
CAPACITY	Vehicle capacity for a recovery base
CATCODE	Target category code
CATHI*	Upper limit of category for type assignment
CATLO*	Lower limit of category for type assignment
CCREL	Command and control region reliability
CEP	Circular Error Probable, delivery error applicable to bomber and missile delivered weapons (nautical miles) (for missile - CEP at maximum range)
CEPASM	CEP for an air-to-surface missile at maximum range
CEPMIN	CEP for missile at minimum range (RNGMIN)
CHAINNAM*	Chain name in data structure index
CLASS	Class name assigned to identify various subsets of the data base
CLAUSESW*	Switch that identified verbs that require clauses
CLAUSETY*	Value that identifies an adverb's clause type (Boolean, Sequential, Single or Null)
CLOSE	Determines magnitude of closing force in allocation process
CLOSER	Controls rate of increase in closing force
CMISS	Constant used in missile time-of-flight calculation
CNFLG*	Flag specifying country owner or location restriction in Assignment Table
CNTRYLOC	Country code for country where target is located
CNTRYOWN	Country code for country which owns the target
CORBOMB	Number of nautical miles prior to corridor entry
CORMSL	Fraction of missile flight completed at time zero
CORNUM	Corridor identification number
CORR2	SMAT array multiplier for final allocation evaluation
CORR	SMAT array multiplier
COUNTRY*	Legal country codes in Assignment Table

<u>Attribute Name</u>	<u>Description</u>
CPASMZRO	CEP for air-to-surface missile at zero range
DEFDIST1	Length of precorridor dogleg 1
DEFDIST2	Length of precorridor dogleg 2
DEFDIST3	Length of precorridor dogleg 3
DEFRAN	Typical range of interceptors at defense bases near a corridor (nautical miles)
DELTVL	Maximum fractional difference in value allowed in allocators time-of-arrival cells
DESIG	Target designator code
DESIGA2*	Alpha portion of assignable DESIG in Assignment Table
DGZLAT	Offset distance from target latitude of weapon assignment
DGZLONG	Offset distance from target longitude of weapon assignment
DISPNAM1*	REPORT display name (first half)
DISPNAM2*	REPORT display name (second half)
DISTANCE	General distance attribute
DISTDF	Distance from target to end of depenetration corridor
DOGLEG	Corridor dogleg identification number
DSIDE	Defending side
ELEMNTY*	For adverbs with element phrases -- type of element (e.g., operator, special word, etc.)
ELEMNTVL*	For ELEMNTY of operator or special word, the exact operator or special word allowed
ERRCLOS	Controls termination of allocation processing
EXNBOMB	Number of vehicle 'loads' of weapons to be added to each bomber group
EXNMIRV	Same as EXNBOMB but for MIRVs
EXNMISG	Same as EXNBOMB but for single shot missiles
EXPASM	Fraction of bomber groups weapons which are ASMs
FACMIRV	Modifies SMAT array for MIRV systems
FFRAC	Fission fraction (fission yield/total yield)
FIXED	Switch to indicate if weapon assignment was user fixed
FIXOPT	Fixed assignment option

Attribute Name	Description
FLAG	Numeric code (1 through 99) used to impose allocation restrictions
FLMULT	Assignment range for weapon assignment to multiple targets
FSALVO	Salvo number of weapon assignment
FSNSTVTY	Controls sensitivity of multiplier adjustment during later part of allocation
FULL1*	Flag set when KOUNT1 is at its maximum
FULL2*	Flag set when KOUNT2 is at its maximum
FULL3*	Flag set when KOUNT3 is at its maximum
FULL4*	Flag set when KOUNT4 is at its maximum
FULL5*	Flag set when KOUNT5 is at its maximum
FUNCTI	Operational application code for a weapon system (e.g., ICBM)
FVALT1	Fraction of target value remaining at T1, T2, T3, T4, and T5, respectively
FVALT2	
FVALT3	
FVALT4	
FVALT5	
FVULN1	Fraction of value of target in first hardness component
GBASE	Number of launch bases in weapon group
GFRASM	Fraction of weapons in group which are ASMs
GLAT	Latitude of group centroid
GLONG	Longitude of group centroid
GNVEH	Number of vehicles in group
GNWPNADJ	Number of weapons in group to be allocated (includes any overallocation)
GNWPNS	Number of weapons in group
GPKNAV	Single shot kill probability of weapon group against a naval target
GREFCODE	Group refuel code
GREFTIME	Group refuel time
GROUP	Group identification number
GSBL	Probability of group's survival before launch
GSBLREAL	Same as GSBL but not adjusted for overallocation

<u>Attribute Name</u>	<u>Description</u>
GSTART	Starting weapon index
GTYPE	Group weapon type
GTYPREFC	Reference code of group's weapon type record
GYIELD	Group yield (megatons)
HAZ	Lethal radius for air burst for first hardness component
HAZ2	Same as HAZ but for second hardness component
HGZ	Same as HAZ but for ground burst
HGZ2	Same as HZ2 but for ground burst
HIGHFAC	Upper estimate of terminal ballistic missile capability
HILOAT	The ratio of the low altitude attrition rate to the high altitude attrition rate
IALERT	Alert status; 1 = alert, 2 = nonalert
ICLASS	Class index assigned for game
ICOMPL	Complex index
IDHOB	Preferred height of burst indicator
IGIW	Indices of General Industrial Worth (dollars)
IMATCH	Controls method used to determine if a weapon allocation has met the required minimum destruction fraction specified by MINKILL
INDEXNO	Index of a target used during processing to identify the target
INITSTRK	Side initiating attack
IPENMO	Penetration mode; 1 = aircraft uses penetration corridor, 0 = penetration corridor not used
IRECMO	Recovery mode; 1 = aircraft recovery planned, 0 = aircraft recovery not planned
IREFUEL	Bomber refueling code
IREG	Index to identify geographic region
IREP	Reprogramming index (capability of missile squadron)
ISITE	Site number
IVERIFY	Controls operation of allocator after final allocation
KORR	Corridor used by assigned weapon
KORSTY	Parameter to adjust mode of corridor penetration

<u>Attribute Name</u>	<u>Description</u>
KOUNT1 *	Highest numeric value for a unique DESIGA2 in region 1
KOUNT2 *	Highest numeric value for a unique DESIGA2 in region 2
KOUNT3 *	Highest numeric value for a unique DESIGA2 in region 3
KOUNT4 *	Highest numeric value for a unique DESIGA2 in region 4
KOUNT5 *	Highest numeric value for a unique DESIGA2 in region 5
LABEL #	Input; plot label selection switch
LAT	Latitude (degrees)
LAW	Specifies form of damage law used for area targets
LMBREF	Reference code of last bomber sortie record
LCHINT	Time between successive vehicle launches from the same base (missile or bomber) subject to the simultaneous launch condition
LINELENGTH #	Input; length of report print line
LMSLREF	Reference code of last missile sortie record
LONG	Longitude (degree)
LOWFAC	Lower estimate of terminal ballistic missile capability
MAJOR	Target major complex number
MAP #	Input; map type selection
MASDETNM *	Master or Detail Name in data structure index
MASDETNO *	Master or Detail Number in data structure index
MAXFRA	Maximum value of weapon resources to be used relative to target value
MAXKILL	Desired maximum damage expected for a target
MAXSAL	Maximum number of salvos
MINCAP *	Lowest acceptable JAD capacity for type in Assignment Table
MINDAMAG	Minimum fraction of target value which must be destroyed by each weapon allocated
MINKILL	The required minimum damage established for a target
MINOR	Target minor compound number
MISDEF	Target ballistic missile defense
MYRECOV1	Depenetration corridor recovery base 1 (DESIG)
MYRECOV2	Depenetration corridor recovery base 2 (DESIG)
MYRECOV3	Depenetration corridor recovery base 3 (DESIG)

<u>Attribute Name</u>	<u>Description</u>
MYRECOV4	Depenetration corridor recovery base 4 (DESIG)
NADBLI	NLRTDB for initiative attack
NADBLR	NLRTDB for retaliatory attack
NALERT	Same as spelling NOALER
NALTDLY	Nonalert delay
NAME	Alphanumeric descriptor for any item in the data base
NAREADEC	Number of decoys per independent reentry vehicle for area BMD
NASMTYP	Number of distinct types of ASMs
NBASES	Total number of launch bases
NCCREG	Number of command and control regions
NCMS	Number of counter measures carried by vehicle
NCOMPLX	Number of target complexes
NDCNTYCD	Number of distinct country codes
NDECOYS	Number of decoys on a bomber or number of decoys per independent reentry vehicle for terminal BMD
NDEPCRD	Number of depenetration corridors
NFIXES	Number of fixed weapon assignments for group
NHRDCOMP	Number of hardness components
NLRTDB	Delay of nonalert vehicle before commencing launch (hours)
NLRTDL	Probability of destruction before launch (DBL) of nonalert vehicle
NMPSIT	Number of missiles per site
NOALER	Number of vehicles on alert status (also spelled NALERT)
NOINCO	Number of delivery vehicles on commission
NOPERSQ	Number of weapon vehicles per squadron
NPAYLOD	Number of payload tables
NPENCRD	Number of penetration corridors
NPNCRTY	Number of penetration corridor types
NPRCRDEF	Number of precorridor defense doglegs
NPRSQ1	Number per squadron - scenario 1
NPRSQ2	Number per squadron - scenario 2

<u>Attribute Name</u>	<u>Description</u>
NPRSQ3	Number per squadron - scenario 3
NPRSQ4	Number per squadron - scenario 4
NRECOVB	Number of recovery bases
NREFUEL	Number of refuel points
NSAL1	Number of weapons in salvo for salvaged weapon type (numbers are packed eight per word)
NSAL2	
NSAL3	
NSFIX1	Number of fixed assignments in salvo (numbers are packed eight per word)
NSFIX2	
NSFIX3	
NTANKERB	Number of tanker bases
NTARGETS	Number of targets as seen by the allocator
NTIMCOMP	Number of time components
NTINT	Number of terminal BMD interceptors at target
NUMALOC	Number of assignments by allocator
NUMDBL	Number of aircraft destroyed before launch
NUMLOAD	Number of warheads of a type in payload table
NWEPGRP	Number of weapon groups
NWEPTYP	Number of weapon types selected by user
NWHS	Number of warheads per independent reentry vehicle (missile)
OFFLAT	Latitude of DGZ after offsets
OFFLONG	Longitude of DGZ after offset
ORLAT	Penetration corridor orientation point latitude
ORLONG	Penetration corridor orientation point longitude
PAGELNGTH <sup>#</sup>	Input; length of report print page (lines)
PAYALT	Bomber payload release altitude
PAYNAME	Payload table name (used in payload-weapon linking)
PAYBLNM	Payload table name
PCTIW <sup>#</sup>	Scaling factor for IGIW calculations
PCTPOP <sup>#</sup>	Scaling factor for POP calculations
PDES	Probability that launch failure destroys missile
PDUD	Probability that warhead will fail to detonate
PEN	Penetration probability of assigned weapon

Attribute Name	Description
PENPROB	Penetration probability for group formed using module DATAMAKE
PEXBOMB	Fractional number of bomber weapons to be added by PLANSET
PEXMIRV	Same as PEXBOMB but for MIRVs
PEXMISS	Same as PEXBOMB but for single shot missiles
PFIW <sup>#</sup>	Scaling factor for IGIW calculations
PPFF	Probability of failure during powered flight
PFPOP	Scaling factor for POP calculations
PHRASETY <sup>*</sup>	Value that identifies an adverb's phrase type (relational, Equal or Like, Elemental)
PINC	Probability that a missile is in commission
PKNAV	Single shot kill probability of a weapon against a naval target (a value greater than zero restricts weapon use to naval targets)
PKTX	Probability of warhead kill by terminal BMD
PLABT	Probability of launch abort
PLOT <sup>#</sup>	Plot selection for PLOTDATA and PLOTIT
POP	Population value for U/I target (thousands)
PRABT	Probability of refuel abort
PRM	Controls value of quadratic premium
PROBHIGH	Probability that terminal defense is modified by HIGHFAC
PROBLOW	Probability that terminal defense is modified by LOWFAC
QUALITY	Controls extent to which STALL will attempt to refine allocation
RADIUS	Size descriptor for area targets (nautical miles)
RADPX	Probability of warhead kill by area BMD
RANGE	Vehicle range (nautical miles)
RANGEASM	Range of ASM
RANGEDEC	Range decrement for low altitude aircraft flight (high range/low range)
RANGEMOD <sup>#</sup>	Adjusted weapon group range
RANGEREF	Range of bomber with refueling
RATIOINT	Ratio of longest integration period used to theoretical

Attribute Name	Description
REGION*	Region assigned to country in Assignment table
REL	Reliability - probability that weapon system will arrive at target given successful launch
RELASM	ASM reliability
REPORTCODE*	Input; report code for REPORT module output
RETARGET#	Input parameter specifying missile may retarget
RINTPRD	Approximate ratio between rate of change of target weights between different integration periods
RNGMIN	Minimum range (nautical miles) for the missile type, used in computing flight times
RVAL	Relative value of weapon assignment
SALVO#	Input; salvo number for fixed assignment
SCALE#	Input; map scale
SCENARIO#	DBMOD input scenario selection
SCHANGE	Alphanumeric indicator for a changed sortie
SCUMSURV	Cumulative survival probability for sortie event
SDAMEXP	Damage expected as a result of sortie event
SDELAY	Delay time for sortie
SDELTIME	Time change during sortie event
SDEPEN	Depenetration corridor used by sortie
SETTLE	Control the number of passes at PROGRESS = .75
SEVCODE	Sortie event code. Identified type of event
SIDE	Item side name
SIMLUN	Maximum number of vehicle launches which can occur simultaneously from one base
SINDEXNO	Sortie launch base index number
SLAT	Sortie launch base latitude
SLOCATTR	Local attrition rate for sortie event
SLONG	Sortie launch base longitude
SLOW	} Available low distance for bomber sortie
SLOW1	
SLOW2	
SLOW3	
SNSTVTY	Controls sensitivity of multiplier adjustment during early phases

Attribute Name	Description
SORTNO	Sortie identifier code number
SPDLO	Speed at low altitude (knots)
SPEED	Speed (knots)
SPEEDASM	Speed of ASM (knots)
SPLACE	Used with SEVCODE as modifier
SREFUEL	IREFUEL code for sortie
STALADJ	Determines extent to which STALL favors high unit profit versus efficiency in selecting weapons
STARFAC	Multiplier level of bomber defense for sortie
SVEHNUM	Sortie vehicle number
T1	} Times of departure of first through the fifth value components of a target
T2	
T3	
T4	
T5	
TABCHAR*	Dictionary tab character
TARDEF <sup>#</sup>	Level of target defense
TARDEFHI	Level of local bomber defenses at high altitude
TARDEFLO	Level of local bomber defenses at low altitude
TARFAC	Multiplier level of terminal bomber defenses
TASK	SIOP table number
TGTMULT	Target multiple number
TGTNUMB	Target index in target list as given to the allocator
TGTREFCD	Target IBS internal Reference Code (used in target list)
TINTFAC	Multiplier level of terminal BMD
TOFMIN	Minimum flight time (minutes) for missile types used in computing flight time
TTOS	Total time on station (for a tanker) (hours)
TYPE	Alphanumeric designator (type name) to identify sets in the data base
VAL	Relative value of an item within its CLASS as established in the data base by the user (also spelled VALUE)
VERBVAL*	Verb's identifying number
VONBASE	Number of launch bases plus index of starting vehicle

<u>Attribute Name</u>	<u>Description</u>
VOZ	Normalized target value
VULN1	First hardness component of a target
VULN2	Second hardness component of a target
WACNO	Target World Area Code Number
WEPNAME	Subset of weapon type
WHOB	Preset HOB for weapon
WORDSTR1*	First half of word in dictionary
WORDSTR2*	Second half of word in dictionary
WORDTYPE*	Identifies dictionary word as to type (i.e., Attribute, Verb, etc.)
WORDVAL*	Dictionary word identifying number within type
YIELD	Yield (Megatons)

## APPENDIX B

## QUICK DATA BASE DIRECTORY

The QUICK data base directory consists of a list of all the attributes which can be used to describe the data items defined in the integrated data base. The information contained in the directory for each attribute includes:

- a. The name of the attribute plus an indicator that defines the attribute as belonging to a logical collection. If the name appears alone it is a gaming attribute; if an asterisk (\*) follows the name it is a non-gaming attribute; if a pound sign (#) follows it is text English input.
- b. The type of the attribute may be:
  - o Single - appears only within one record type. Input values are either LIST, INTGER, ALPHA, or FLOAT depending on the mode.
  - o Multiple - appears within more than one record type. Input values are either MLTLST, MLTIINT, MLTALP, or MLTFLT depending on the mode.
  - o Control - same as multiple, plus is used as a match key for internal structure definition. Input values are either CNTLST, CNTINT, CNTALP, or CNTFLT depending on the mode.
- c. The modes, or input/output conversions. These are standard FORTRAN formats plus a list which specifies a list of alphabetic entries.
- d. The default value to be assigned the attribute when it is not defined for an item.
- e. The attribute lower limit
- f. The attribute upper limit

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<u>Attribute Name</u>	<u>Type</u>	<u>Mode</u>	<u>Default</u>	<u>Lower Limit</u>	<u>Upper Limit</u>
AClass*	Single	List	Other	-	-
ACTIVE	Single	Integer	0	0	0
ADBLI	Single	Float	0	0	1
ADBLR	Single	Float	0	0	1
ADVERBVL*	Control	Integer	0	0	0
ALPLSTVL*	Single	Alpha	-	-	-
ALRTDB	Single	Float	0	0	1
ALRTDL	Single	Float	0	0	168
ALTDLY	Single	Float	0	0	99
ARRIVE	Single	Float	0	0	99
ASGHOB	Single	Integer	1	0	1
ASIDE	Single	Alpha	-	-	-
ASNTASK*	Single	Alpha	ZZ	-	-
ATDEFAULT*	Single	Alpha	--	-	-
ATRNCHI*	Single	Alpha	999999	-	-
ATRNGLOW*	Single	Alpha	0	-	-
ATTINC	Single	Integer	0	0	9
ATTPOS	Single	Integer	0	0	9
ATTRBTYP*	Multiple	Integer	0	0	0
ATTRCD	Single	Float	0	0	1
ATTRCO	Single	Float	0	0	1
ATTRIBAD*	Multiple	Integer	0	0	0
ATTRIBN1*	Control	Alpha	-	-	-
ATTRIBN2*	Control	Alpha	-	-	-
ATTRIBNO*	Multiple	Integer	0	0	331
ATTRLE	Single	Float	0	0	1
ATTRPRE1	Single	Float	0	0	1
ATTRPRE2	Single	Float	0	0	1
ATTRPRE3	Single	Float	0	0	1
ATTRSU	Single	Float	0	0	1
ATYPE*	Single	Alpha	-	-	-
BENO	Single	Alpha	-	-	-
BPENFAC	Single	Float	1	0	0
CAPACITY	Single	Integer	0	0	9999

<u>Attribute Name</u>	<u>Type</u>	<u>Mode</u>	<u>Default</u>	<u>Lower Limit</u>	<u>Upper Limit</u>
CATCODE	Single	Integer	75100	1	99999
CATHI*	Single	Integer	0	1	99999
CATLO*	Single	Integer	0	1	99999
CCREL	Single	Float	1	0	1
CEP	Single	Float	1	0	100
CEPASM	Single	Float	1	0	100
CEPMIN	Single	Float	1	0	100
CHAINNAM*	Multiple	Alpha	--	--	--
CLASS	Multiple	Alpha	INDEX	--	--
CLAUSESW*	Single	Integer	0	0	1
CLAUSETY*	Single	Integer	2	1	4
CLOSE	Single	Float	1.05	0	0
CLOSER	Single	Float	4	0	0
CMISS	Single	Float	1	0	1
CNFLG*	Single	Integer	0	0	0
CNTRYLOC	Single	Alpha	--	--	--
CNTRYOWN	Single	Alpha	--	--	--
CORBOMB	Single	Float	0	0	0
CORMSL	Single	Float	0	0	0
CORNUM	Multiple	Integer	1	0	0
CORR	Single	Float	.5	0	0
CORR2	Single	Float	0	0	0
COUNTRY*	Single	Alpha	--	--	--
CPASMZRO	Single	Float	1	0	100
DEFDIST1	Single	Float	0	0	0
DEFDIST2	Single	Float	0	0	0
DEFDIST3	Single	Float	0	0	0
DEFRAN	Single	Float	0	0	0
DELTVL	Single	Float	.005	0	0
DESIG	Control	Alpha	ZZ999	--	--
DESIGA2	Multiple	Alpha	ZZ999	--	--
DGZLAT	Single	Float	0	-90	90
DGZLONG	Single	Float	0	0	360
DISPNAM1*	Single	Alpha	4-	--	--

<u>Attribute Name</u>	<u>Type</u>	<u>Mode</u>	<u>Default</u>	<u>Lower Limit</u>	<u>Upper Limit</u>
DISPNAM2*	Single	Alpha	--	--	--
DISTANCE	Multiple	Float	0	0	0
DISTDF	Single	Float	0	0	0
DOGLEG	Multiple	Integer	1	0	0
DSIDE	Single	Alpha	--	--	--
ELEMNTTY*	Single	Integer	0	0	10
ELEMNTVL*	Single	Integer	0	0	999
ERRCLOS	Single	Float	.001	0	0
EXNBOMB	Single	Float	0	0	0
EXNMIRV	Single	Float	0	0	0
EXNMISS	Single	Float	0	0	0
EXPASM	Single	Float	0	0	0
FACMIRV	Single	Float	0	0	0
FFRAC	Single	Float	1	0	1
FIXED	Single	Integer	0	0	0
FIXOPT	Single	List	TRUE	--	--
FLAG	Multiple	Integer	0	0	99
FLMULT	Single	Integer	0	0	0
FSALVO	Single	Integer	1	1	24
FSNSTVTY	Single	Float	1	0	0
FULL1*	Single	Integer	0	0	0
FULL2*	Single	Integer	0	0	0
FULL3*	Single	Integer	0	0	0
FULL4*	Single	Integer	0	0	0
FULL5*	Single	Integer	0	0	0
FUNCTI	Single	List	--	--	--
FVALT1	Multiple	Float	1	0	1
FVALT2	Multiple	Float	1	0	1
FVALT3	Multiple	Float	1	0	1
FVALT4	Multiple	Float	1	0	1
FVALT5	Multiple	Float	1	0	1
FVULN1	Multiple	Float	1	0	1

<u>Attribute Name</u>	<u>Type</u>	<u>Mode</u>	<u>Default</u>	<u>Lower Limit</u>	<u>Upper Limit</u>
GBASE	Single	Integer	0	0	0
GFRASM	Single	Float	0	0	1
GLAT	Single	Float	0	-90	90
GLONG	Single	Float	0	0	360
GNVEH	Single	Integer	1	1	999
GNWPNADJ	Single	Integer	1	1	999
GNWPNS	Single	Integer	1	1	999
GPKNAV	Single	Float	0	0	0
GREFCODE	Single	Integer	1	0	1
GREFTIME	Single	Float	1	0	1
GROUP	Control	Integer	0	0	999
GSBL	Single	Float	0	0	0
GSBLREAL	Single	Float	0	0	0
GSTART	Single	Integer	0	0	0
GTYPE	Single	Alpha	--	--	--
GTYPREFC	Single	Integer	0	0	0
GYIELD	Single	Float	0	0	99
HAZ	Multiple	Float	0	0	0
HAZ2	Multiple	Float	0	0	0
HGZ	Multiple	Float	0	0	0
HGZ2	Multiple	Float	0	0	0
HIGHFAC	Single	Float	0	0	0
HILOAT	Single	Float	.1	0	1
IAlert	Single	Integer	0	0	0
ICLASS	Single	Integer	1	1	15
ICOMPL	Control	Integer	0	1	9999
IDHOB	Multiple	Integer	0	0	0
IGIW	Single	Integer	0	0	99999
IMATCH	Single	Integer	0	0	0
INDEXNO	Multiple	Integer	1	1	99999
INITSTRK	Single	Integer	2	1	2
IPENMO	Single	Integer	1	0	1
IREFCMO	Single	Integer	1	-1	1

<u>Attribute Name</u>	<u>Type</u>	<u>Mode</u>	<u>Default</u>	<u>Lower Limit</u>	<u>Upper Limit</u>
IREFUEL	Single	Integer	0	-5	20
IREG	Control	Integer	0	0	20
IREF	Single	Integer	0	0	5
ISITE	Single	Integer	0	-100	100
IVERIFY	Single	Integer	0	0	254
KORR	Single	Integer	0	1	999
KORSTY	Single	Integer	0	0	109
KOUNT1*	Single	Integer	0	0	999
KOUNT2*	Single	Integer	0	0	999
KOUNT3*	Single	Integer	0	0	999
KOUNT4*	Single	Integer	0	0	999
KOUNT5*	Single	Integer	0	0	999
LABEL#	Single	Alpha	--	--	--
LAT	Multiple	Float	0	-90	90
LAW	Single	List	POWER	--	--
LMBREF	Single	Integer	0	0	0
LCHINT	Single	Float	0	0	999
LINELENGTH#	Single	Integer	120	0	0
LMSLREF	Single	Integer	0	0	0
LONG	Multiple	Float	0	0	360
LOWFAC	Single	Float	0	0	0
MAJOR	Single	Integer	0	1	999999
MAP#	Single	Alpha	--	--	--
MASDETNM*	Multiple	Alpha	--	--	--
MASDETNO*	Multiple	Integer	0	0	0
MAXFRA	Multiple	Float	10	0	10
MAXKILL	Multiple	Float	1	0	1
MAXSAL	Single	Integer	0	0	0
MINCAP*	Single	Integer	0	0	0
MINDAMAG	Single	Float	0	0	0
MINKILL	Multiple	Float	0	0	1
MINOR	Single	Integer	0	0	999999

<u>Attribute Name</u>	<u>Type</u>	<u>Mode</u>	<u>Default</u>	<u>Lower Limit</u>	<u>Upper Limit</u>
PENPROB	Single	Float	1	0	1
PEXBOMB	Single	Float	0	0	0
PEXMIRV	Single	Float	0	0	0
PEXMISS	Single	Float	0	0	0
PFIW <sup>#</sup>	Single	Float	0	0	0
PFFP	Single	Float	0	0	1
PFPOP	Single	Float	0	0	0
PHRASETY <sup>*</sup>	Single	Integer	1	1	3
PINC	Single	Float	0	0	1
PKNAV	Single	Float	0	0	1
PKTX	Single	Float	0	0	0
PLABT	Single	Float	0	0	1
PLOT <sup>#</sup>	Single	Alpha	--	--	--
POP	Single	Float	0	0	30000
PRABT	Single	Float	0	0	1
PRM	Single	Float	.5	0	0
PROBHIGH	Single	Float	0	0	0
PROBLOW	Single	Float	0	0	0
QUALITY	Single	Float	.5	0	0
RADIUS	Multiple	Float	0	0	50
RADPX	Single	Float	0	0	0
RANGE	Single	Float	0	0	20000
RANGEASM	Single	Float	0	0	20000
RANGEDEC	Single	Float	1.0001	0	10
RANGEMOD <sup>#</sup>	Single	Float	0	0	0
RANGEREF	Single	Float	0	0	20000
RATIOINT	Single	Float	2	0	0
REGION <sup>*</sup>	Single	Integer	1	1	4
REL	Single	Float	1	0	1
RELASM	Single	Float	1	0	1
REPORTCODE <sup>#</sup>	Single	Integer	42	0	0
RETARGET <sup>#</sup>	Single	Alpha	--	--	--
RINTPRD	Single	Float	2	0	0

<u>Attribute Name</u>	<u>Type</u>	<u>Mode</u>	<u>Default</u>	<u>Lower Limit</u>	<u>Upper Limit</u>
RNGMIN	Single	Float	0	0	20000
RVAL	Single	Float	0	0	0
SALVO#	Single	Integer	0	0	24
SCALE#	Single	Float	0	0	0
SCENARIO#	Single	List	INDIA	--	--
SCHANGE	Multiple	Alpha	--	--	--
SCUMSURV	Multiple	Float	0	0	0
SDAMEXP	Multiple	Float	0	0	0
SDELAY	Single	Float	0	0	0
SDELTIME	Multiple	Float	0	0	0
SDEPEN	Single	Integer	0	0	30
SETTLE	Single	Float	1	0	0
SEVCODE	Multiple	Integer	0	0	99
SIDE	Multiple	List	RED	--	--
SIMLUN	Single	Integer	1	1	50
SINDEXNO	Single	Integer	1	1	99999
SLAT	Single	Float	0	-90	90
SLOCATTR	Multiple	Float	0	0	1
SLONG	Single	Float	0	0	360
SLOW	Single	Float	0	0	0
SLOW1	Single	Float	0	0	0
SLOW2	Single	Float	0	0	0
SLOW3	Single	Float	0	0	0
SNSTVTY	Single	Float	.1	0	0
SORTNO	Single	Integer	0	0	9999
SPDLO	Single	Float	0	0	10000
SPEED	Single	Float	0	0	30000
SPEEDASM	Single	Float	0	0	30000
SPLACE	Multiple	Integer	0	0	9999
SREFUEL	Single	Integer	0	-5	20
STALADJ	Single	Float	.5	0	0
STARFAC	Single	Float	.1	0	1
SVEHNUM	Single	Integer	0	0	999
T1	Multiple	Float	1000	0	1000

<u>Attribute Name</u>	<u>Type</u>	<u>Mode</u>	<u>Default</u>	<u>Lower Limit</u>	<u>Upper Limit</u>
T2	Multiple	Float	1000	0	1000
T3	Multiple	Float	1000	0	1000
T4	Multiple	Float	1000	0	1000
T5	Multiple	Float	1000	0	1000
TABCHAR*	Single	Alpha	--	--	--
TARDEF#	Single	List	--	--	--
TARDEFHI	Multiple	Integer	0	0	7
TARDEFLO	Multiple	Integer	0	0	7
TARFAC	Single	Float	.1	0	0
TASK	Multiple	Alpha	--	--	--
TGTMULT	Single	Integer	0	0	0
TGTNUMB	Control	Integer	0	0	0
TGTREFCO	Single	Integer	0	0	0
TINTFAC	Single	Float	1	0	0
TOFMIN	Single	Float	0	0	1000
TTOS	Single	Float	0	0	100
TYPE	Multiple	Alpha	--	--	--
VALUE	Multiple	Float	.01	0	99999
VERBVAL*	Control	Integer	0	0	0
VONBASE	Single	Integer	0	0	0
VOZ	Multiple	Float	0	0	0
VULN1	Single	Alpha	--	--	--
VULN2	Single	Alpha	--	--	--
WACNO	Single	Alpha	--	--	--
WEPNAME	Single	Alpha	--	--	--
WHOB	Single	Alpha	--	--	--
WORDSTR1	Single	Alpha	--	--	--
WORDSTR2	Single	Alpha	--	--	--
WORDTYPE	Single	Integer	0	0	11
WORDVAL	Single	Integer	0	0	0
YIELD	Single	Float	0	0	9999

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<u>ATTRIBUTE NUMBER</u>	<u>ATTRIBUTE NAME</u>	<u>ATTRIBUTE COMMON BLOCK ADDRESS</u>
91	ICOMPL	109
92	LAT	110
93	LONG	111
94	HGZ	112
95	HGZ2	113
96	HAZ	114
97	HAZ2	115
98	MAXKILL	116
99	MINKILL	117
100	MAXFRA	118
101	INDEXNO	119
102	RADIUS	120
103	TASK	121
104	VAL	122
105	VOZ	123
106	IDHOB	124
107	TARDEFHI	125
108	TARDEFLO	126
109	MISDEF	127
110	NTINT	128
111	NAME	129
112	CCREL	133
113	PAYTBLNM	135
114	YIELD	137
115	FFRAC	138
116	PDUD	139
117	SPEEDASM	140
118	NWHS	140
119	RELASM	141
120	RANGEASM	142

<u>ATTRIBUTE NUMBER</u>	<u>ATTRIBUTE NAME</u>	<u>ATTRIBUTE COMMON LOCK ADDRESS</u>
121	CEPASM	143
122	CEP	145
123	SPEED	146
124	NMPSIT	147
125	RANGE	148
126	ALTDLY	149
127	NALTDLY	150
128	FUNCTI	151
129	LCHINT	152
130	SIMLUN	153
131	MAXSAL	254
132	ACTIVE	155
133	IREP	157
134	PRABT	158
135	PLABT	159
136	RNGMIN	160
137	TOFMIN	161
138	CMISS	162
139	PDES	163
140	PFPE	164
141	SPDLO	157
142	RANGEDEC	158
143	RANGEREF	159
144	REL	156
145	IRECMO	160
146	IPENMO	161
147	NOINCO	188
148	TTOS	157
149	NUMALOC	58
150	STARFAC	166

<u>ATTRIBUTE NUMBER</u>	<u>ATTRIBUTE NAME</u>	<u>ATTRIBUTE COMMON BLOCK ADDRESS</u>
151	CATCODE	169
152	MAJOR	170
153	MINOR	171
154	WACNO	172
155	BENO	173
156	IGIW	174
157	ISITE	175
158	POP	176
159	DOGLEG	177
160	ATTRLE	178
161	DISTANCE	179
162	NUMLOAD	183
163	SALVO	0
164	ARRIVE	186
165	NOPERSQ	187
166	GSTART	92
167	VONBASE	189
168	NOALER	190
169	ADBLI	191
170	ADBLR	192
171	ALRTDB	193
172	ALRTDL	194
173	NADBLI	195
174	NADBLR	196
175	NLRTDB	197
176	NLRTDL	198
177	PKNAV	199
178	IREFUEL	200
179	NPRSQ1	201
180	NPRSQ2	202

<u>ATTRIBUTE NUMBER</u>	<u>ATTRIBUTE NAME</u>	<u>ATTRIBUTE COMMON BLOCK ADDRESS</u>
181	NPRSQ3	203
182	NPRSQ4	204
183	NUMDBL	205
184	CAPACITY	207
185	MYRECOV1	105
186	MYRECOV2	106
187	MYRECOV3	107
188	MYRECOV4	108
189	TGTNUMB	209
190	TGTREFCO	210
191	ASIDE	211
192	NASMTYP	213
193	NBASES	214
194	NCCREG	215
195	NDCNTYCD	216
196	NDEPCRD	217
197	NPAYLOD	218
198	NPENCRD	219
199	NPNCRTY	220
200	NRECOVB	221
201	NREFUEL	222
202	NTANKERB	223
203	NTARGETS	224
204	NCOMPLX	225
205	NWEPGRP	226
206	NWEPTYP	227
207	CORBOMB #	230
208	CORMSL #	229
209	EXNBOMB #	234
210	EXNMIRV #	235

<u>ATTRIBUTE NUMBER</u>	<u>ATTRIBUTE NAME</u>	<u>ATTRIBUTE COMMON BLOCK ADDRESS</u>
271	CLOSE	261
272	CLOSER	262
273	CORR	263
274	CORR2	264
275	DELTVAL	265
276	ERRCLOS	266
277	FACMIRV	267
278	FIXOPT	268
279	FSNSTVTY	269
280	HIGHFAC	270
281	IMATCH	271
282	IVERIFY	272
283	LAW	273
284	LOWFAC	274
285	MINDAMAG	275
286	PKTX	276
287	PRM	277
288	PROBHIGH	278
289	PROBLOW	279
290	QUALITY	280
291	RADPX	281
292	RATIOINT	282
293	RINTPRD	283
294	SETTLE	284
295	SNSTVTY	285
296	STALADJ	286
297	TARFAC	287
298	TINTFAC	288
299	FIXED	183
300	ASGHOB	208

<u>ATTRIBUTE NUMBER</u>	<u>ATTRIBUTE NAME</u>	<u>ATTRIBUTE COMMON BLOCK ADDRESS</u>
301	FSALVO	185
302	WEPNAME	135
303	SLAT	290
304	SLONG	291
305	SREFUEL	292
306	SDELAY	293
307	SDEPEN	294
308	SVEHNUM	295
309	SLOW	296
310	SLOW1	297
311	SLOW2	298
312	SLOW3	299
313	SLOCATTR	300
314	SCUMSURV	301
315	SDELTIME	302
316	SDAMEXP	303
317	SFVCODE	304
318	SPLACE	305
319	SCHANGE	306
320	LMSLREF	167
321	LEMBREF	168
322	SORTNO	289
323	SINDEXNO	206
326	CEPMIN	144
327	PENPROB	87
328	ATTPOS	44
329	ATTINC	46
331	CPASMZRO	132

<u>DICTIONARY WORD</u>	<u>IDENTIFICATION NUMBER</u>	<u>GRAMMATICAL GROUP</u>
SELECT	17	Verb
ASTERISK	18	Verb
ALLOCATE	19	Verb
DGZSELECT	20	Verb
EVALUATE	21	Verb
FOOTPRNT	22	Verb
PLANOUT	23	Verb
PLOTIT	24	Verb
POSTALOC	25	Verb
DATAMAKE	26	Verb
ALPHAS	1	Adverb
RECALC	2	Adverb
ATTACKERS	3	Adverb
DEFENDERS	4	Adverb
DEFINE	5	Adverb
DISPLAY	6	Adverb
FIELDS	7	Adverb
FILE	8	Adverb
FIX	9	Adverb
FORMAT	10	Adverb
ONPRINTS	11	Adverb
OMITTING	12	Adverb
PLAYERS	13	Adverb
PRIORITY	14	Adverb
REPLACING	15	Adverb
SAME	16	Adverb
SETTING	17	Adverb
SORT	18	Adverb
SUPRESSING	19	Adverb
UNIT	20	Adverb
USING	21	Adverb
WHERE	22	Adverb
WITH	23	Adverb

<u>DICTIONARY WORD</u>	<u>IDENTIFICATION NUMBER</u>	<u>GRAMMATICAL GROUP</u>
VNOPTION	24	Adverb
KEEPING	25	Adverb
ORDER	26	Adverb
UICLASSES	27	Adverb
FLAGREST	28	Adverb
LOCREST	29	Adverb
MINRANGE	30	Adverb
MIRVREST	31	Adverb
PUNCH	32	Adverb
MODRANGE	33	Adverb
READMUL	34	Adverb
SMAT	35	Adverb
ABTAPE	36	Adverb
ACARD	37	Adverb
CCARD	38	Adverb
COUNTRIES	39	Adverb
FINDMIN	40	Adverb
EQUATE	41	Adverb
FUNCOM	42	Adverb
GAMETIME	43	Adverb
ICARD	44	Adverb
IF	45	Adverb
PLANE	46	Adverb
REEQUATE	47	Adverb
STRIKE	48	Adverb
TGTMOD	49	Adverb
WPNMOD	50	Adverb
MISTME	51	Adverb
MSLCOR	52	Adverb
A	1	Special Word
ASCENDING	1	Special Word
AFTER	2	Special Word
D	3	Special Word

<u>DICTIONARY WORD</u>	<u>IDENTIFICATION NUMBER</u>	<u>GRAMMATICAL GROUP</u>
DESCENDING	3	Special Word
HEADER	4	Special Word
IN	5	Special Word
LINE	6	Special Word
TABLE	7	Special Word
NEW	8	Special Word
OLD	9	Special Word
OTHER	10	Special Word
PAGE	11	Special Word
REMOVE	12	Special Word
REPLACE	13	Special Word
SIDAC	14	Special Word
SPACES	15	Special Word
X	15	Special Word
TRAILER	16	Special Word
ALL	17	Special Word
OWNED	18	Special Word
PAGENO	19	Special Word
ACOS	20	Special Word
ACOT	21	Special Word
ASIN	22	Special Word
ATAN	23	Special Word
C	25	Special Word
COS	26	Special Word
COT	27	Special Word
EXP	28	Special Word

DICTIONARY  
WORD

IDENTIFICATION  
NUMBER

GRAMMATICAL  
GROUP

G	29	Special Word
HHR	30	Special Word
KDAY	31	Special Word
KMON	32	Special Word
KYEAR	33	Special Word
N	34	Special Word
SIN	35	Special Word
UPDATE	36	Special Word
INCLUDE	37	Special Word
EXCLUDE	38	Special Word
TAN	39	Special Word

Table 17. Attributes Required for All Target Classes  
(Part 1 of 2)

<u>ATTRIBUTE NAME</u>	<u>COMMENT</u>
BENO	Set by JLM
CATCODE	Set by JLM
CNTRYLOC	Set by JLM
CNTRYOWN	Set by JLM
DESIG	Set by JLM
FLAG	Set by user*
FVALT1	Set by user*
FVALT2	Set by user*
FVALT3	Set by user*
FVALT4	Set by user*
FVALT5	Set by user
FVULN1	Set by user
HAZ	Set by PLANSET
HAZ2	Set by PLANSET
HGZ	Set by PLANSET
HGZ2	Set by PLANSET
ICOMPL	Set by INDEXER
IDHOB	Set by user
IGIW	Set by JLM
INDEXNO	Set by INDEXER
IREG	Set by JLM
LAT	Set by JLM
LONG	Set by JLM
MAJOR	Set by JLM
MAXFRA	Set by user
MAXKILL	Set by user
MINKILL	Set by user
MINOR	Set by JLM
MISDEF	Set by user
NAME	Set by JLM
NHRDCOMP	Set by user
NTIMCOMP	Set by PLANSET
NTINT	Set by user
POP	Set by JLM
RADIUS	Set by JLM
SIDE	Set by JLM
TARDEFHI	Set by JLM, DBMOD or user
TARDEFLO	Set by JLM, DBMOD or user
TASK	Set by JLM
TYPE	Set by JLM*
T1	Set by user

\* Set by INDEXER for class MISSIL and BOMBER.

Table 17. (Part 2 of 2)

<u>ATTRIBUTE NAME</u>	<u>COMMENT</u>
T2	Set by user*
T3	Set by user*
T4	Set by user*
T5	Set by user
VAL	Set by user (DBMOD sets classes named in UICLASSES clause)
VOZ	Set by PLANSET
VULN1	Set by JLM
VULN2	Set by JLM
WACNO	Set by JLM

\* Set by INDEXER for class MISSIL and BOMBER.

Table 18. Attributes Required for MISSIL, BOMBER,  
and TANKER Target Classes

ALL

<u>ATTRIBUTE NAME</u>	<u>COMMENT</u>
ADBLI	Set by user
ADBLR	Set by user
ALRTDB	Set by DBMOD
ALRTDL	Set by user
GROUP	Set by PLANSET
IREFUEL	Set by user
ISITE	Set by user
NADBLI	Set by user
NADBLR	Set by user
NLRTDB	Set by DBMOD
NLRTDL	Set by user
NOALER	Set by DBMOD
NOINCO	Set by DBMOD
NOPERSQ	Set by DBMOD
NPRSQ1	Set by user
NPRSQ2	Set by user
NPRSQ3	Set by user
NPRSQ4	Set by user
NUMDBL	Set by user
PKNAV	Set by user
VONBASE	Set by PLANSET
WEPNAME	Set by user

needed attributes as outlined in table 19 . This requires a CHANGE verb and examples of exact input are:

```

CHANGE WHERE CLASS=TNKWEP & SIDE=BLUE & TYPE='KC-135'
  SETTING TTOS=3
CHANGE WHERE CLASS=MSLWEP & SIDE=BLUE &
  TYPE='MM-1A' & 'MM-1B' & 'MM-111' & 'MM-11' & TITAN
  SETTING FUNCTI=ICBM ALTDLY=0 NALTDLY=0 NMPSIT=1 SPEED=12000
  (CEP,IREP,LCHINT,PDES,PPFF,PINC,PLABT,RANGE,REL,SIMLUN)=
  ( 1,1,1,1,.08,.85, .1,4700,.70,5) &
  (.8,2,0,1,.07,.90, .1,5500,.75,1) &
  (.6,4,1,1,.05,.90,.08,6300,.79,5) &
  (.6,4,0,1,.05,.90,.08,6300,.79,1) &
  ( 1,2,0,2,.16,.80,.17,7200,.56,1)
CHANGE WHERE CLASS=MSLWEP & SIDE=BLUE &
  TYPE='POL-A2' & 'POL-A3' & POSEID
  SETTING ALTDLY=1 FUNCTI=SLBM NALTDLY=0 NMPSIT=16
  PDES=0 SIMLUN=1
  (CEP,IREP,LCHINT,PPFF,PINC,PLABT,RANGE,REL,SPEED) =
  ( 1,4,1,10,.86,.12,1500,.6,6000) &
  ( 1,4,0,10,.86,.12,2500,.7,8000) &
  (.7,5,0,10,.83,.15,2500,.8,10000)

```

WARHEAD and PAYLOAD Classes. The linkage of weapon systems to payloads and warheads is very precise and the order of creation should be as outlined. Warhead characteristics are defined according to the attributes shown in table 20. Class entries are defined as:

- o BOMB - gravity bombs
- o ASM - air-to-surface missile
- o RV - single shot reentry vehicle
- o MRV - multiple reentry vehicle
- o MIRV - multiple independent reentry vehicle
- o FACTOR - auxiliary loading factors

Command examples that create new warhead records are:

```

CREATE SETTING CLASS=BOMB (TYPE,YIELD,PDUD,FFRAC) = ('MK-5',1,.02,.7) &
('MK-7',2,.02,.7) AND ('MK-18',4,.02,.7) SIDE=BLUE
SETTING CLASS = ASM (TYPE,YIELD,PDUD,FFRAC,RANGEASM,RELASM,CEPASM,
SPEEDASM) = (MNDDOG,1.5,.02,.7,200,.9,1,.600.) SIDE=BLUE
SETTING CLASS= RV (TYPE,YIELD,PDUD,FFRAC) = ('MK-5',1,.02,.7) AND
('MK-18',4,.02,.7) SIDE=BLUE
SETTING CLASS=MRV(TYPE,YIELD,PDUD,FFRAC) = ('MK-12',2,.02,.7)
SIDE=BLUE
SETTING CLASS=MIRV (TYPE,YIELD,PDUD,FFRAC,NMHDS) = ('MK-17',.1,02,.7,3)
AND ('MK-20',.05,.02,.7,10) SIDE=BLUE
CREATE SETTING CLASS=FACTOR (TYPE,NCNS,PAYALT,NDECOYS,NAREDEC)=
(FACT1,0,HIVAL,0,0)&(FACT2,1,HIVAL,0,0)&(FACT3,1,HIGH,0,0)&
(FACT4,2,LOW,2,0)&(FACT5,1,HIVAL,2,0)&(FACT6,0,'',2,2)
SIDE=BLUE

```

Table 19. Weapon Attributes (Part 1 of 2)

<u>ATTRIBUTE NAME</u>	<u>ALL</u>	<u>COMMENT</u>
ACTIVE		Set by user
ALTDLY		Set by user
CEP		Set by user
FUNCTI		Set by user
LCHINT		Set by user
NALTDLY		Set by user
NMPSIT		Set by user
RANGE		Set by user
REL		Set by user
SIDE		Set by user
SIMLUN		Set by user
SPEED		Set by user
TYPE		Set by user
	<u>MSLWEP</u>	
CMISS		Set by PLANSET from user inputs
CEPMIN		Set by user
IREP		Set by user
PDES		Set by user
PFPF		Set by user
PINC		Set by user
PLABT		Set by user
PRABT		Set by user
RNGMIN		Set by user
TOFMIN		Set by user
	<u>BMBWEP</u>	
IPENMO		Set by user
IREFMO		Set by user
RANGEDEC		Set by user
RANGREF		Set by user
SPDLO		Set by user

Table 19. (Part 2 of 2)

TNKWEP

ATTRIBUTE NAME

COMMENT

TTOS

Set by user

Table 20. Warhead Attributes

BOMB, ASM, RV, MRV, and MIRV

<u>ATTRIBUTE NAME</u>	<u>COMMENT</u>
FFRAC	Set by user
PDUD	Set by user
SIDE	Set by user
TYPE	Set by user
YIELD	Set by user

ASM

CEPASM	Set by user
CPASMZRO	Set by user
RANGEASM	Set by user
RELASM	Set by user
SPEEDASM	Set by user

MIRV

NWHDS	Set by user
-------	-------------

FACTOR

NAREADDEC	Set by user
NCMS	Set by user
NDECOYS*	Set by user
PAYALT	Set by user
TYPE	Set by user

\*

\*The range of decoys at low and high altitude is data set to 200 and 400 nautical miles respectively.

A payload table contains its name (attribute PAYTBLNM), the type(s) (attribute TYPE) of warhead(s) within the table and the number of times each warhead appears in the payload table (attribute NUMLOAD) as well as a side definition (attribute SIDE).

Each new weapon type created by JLM has a weapon subtype attached to it with the WEPNAME attribute containing a value equal to the TYPE attribute. This subtype is in turn linked to a payload table where the PAYTBLNM attribute is assigned a value equal to the TYPE attribute. However, the user needs to create new payload tables for those cases where a given type has more than one payload. These extra payload tables are created by specifying values for attribute PAYTBLNM. An example is:

```
CREATE SETTING CLASS=PAYLOD PAYTBLNM='B-47A'&'B-47B'&'B-47C'&
      B52GH1&B52GH2&'B-52E1'&'B-52E2'&'B-58'&
      'MM-11'&'MM-1B'&'MM-1A'&'TITAN'&
      POSEID&'POL-A2'&'POL-A3' SIDE=BLUE
```

Now the user links each payload table to its warheads. Examples are:

```
CREATE SETTING CLASS=BOMB (PAYTBLNM,TYPE,NUMLOAD)=
      ('B-47A','MK-5',2)&('B-47B','MK-7',2)&
      ('B-47C','MK-18',1)&(B52GH1,'MK-5',4)&
      (B52GH2,'MK-18',2)&('B-52E1','MK-7',2)&
      ('B-52E2','MK-7',2)&('B-58','MK-18',1)&
      ('B-58','MK-5',3) SIDE=BLUE
CREATE SETTING CLASS=ASM TYPE=HNDDOG NUMLOAD=2
      SIDE=BLUE PAYTBLNM=B52GH1&B52GH2&'B-52E2'
      SETTING CLASS=RV SIDE=BLUE (PAYTBLNM,TYPE,NUMLOAD)=
      ('MM-1B','MK-5',1)&('MM-1A','MK-5',1)&
      (TITAN,'MK-18',1)
```

Weapon Base to Payload Link. JLM links all weapon bases to the weapon subtype with the same WEPNAME as the type name (TYPE). For cases where the user wishes to have more than one payload table for a type he must create a new weapon subtype and then relink the appropriate bases to the new weapon subtype. The first step is to create new subtypes. The connection is through attribute WEPNAME which is first linked to payloads and then defined for individual bases. To properly identify the appropriate payload tables for this process, the attribute PAYNAME is used instead of PAYTBLNM. Commands to create the new subtype, properly linked to the appropriate payload tables could be:

Table 22. Batch-mode JCL File Utilization

<u>Unit File Code</u>	<u>Comment</u>
H*	Must be included; contains system loadable COP modules.
QD	Must be included; contains the COP IDS data base file
02	TGTFIL used by IIM
08	BASFIL used by IIM
15	Weapon data file for ALOC
18	BTB Tape, JAD output (ASTERISK option)
19	TARFIL used by IIM
20	JAD input unit. Used by JLM
21	} Internal sort files. Used by: JLM, REPORT, EIM, EVALUATE, PLANSET
22	
23	
24	
25	Random storage file used in concert with sort: JLM, REPORT, EIM, INDEXER
30	Directory file, used by IIM
31	Spill tape, used by IIM
32	Tape with IDS data base for SAVE or RESTORE (SRM)
35	} Output tape files, used by EIM
36	

SYSTEM ?  
➤ RUNY 631IDPXO/RUNCOP

The user now is interacting with a YFORT TSS subsystem program. The YFORT program will signal its desire for a response by outputting an equal sign (=) to which the user responds accordingly.

After the system outputs an equal sign, the user has multiple responses in some cases. In order to assist the user, a response of HELP may be entered and the system will respond with all the possible replies. Permissible use of the HELP command is outlined below.

The first question asked is whether or not output is to be displayed at a terminal. The following message is displayed:

DO YOU WANT THE OUTPUT DIRECTED TO JOUT? (YES OR NO)

A YES response will permit the use of SYSTEM JOUT. Otherwise all output will be directed to the printer.

Step 2. Mode Selection. The YFORT program is asking if the user desires to execute the COP, update the source, or both by displaying the command:

ENTER MODE (RUN, COMPILE)  
=

If a run only is desired enter RUN and skip to step 4. If modules are to be recompiled first, enter

➤ COMPILE

Two other modes also exist, INITIALIZE and OBJECT. INITIALIZE will cause the IDS data file to be reinitialized before the current run. The MODD question is repeated. OBJECT will permit the user to execute using only object decks and a temporary H\*.

Step 3. Compiling an Updated COP. The user is compiling module(s) and the program asks which one(s) by displaying:

WHICH MODULES?

The names of the modules should be separated by commas with no imbedded blanks. HELP will produce a list of the legal modules and a repeat of the question.

A possible response would be:

➤ DATA, JLM

Step 7. Executing the COP. The constructed job may now be submitted which must be done within the CARDIN subsystem of HIS. The following is displayed:

```
                                COMPILE COP
THE JOB HAS BEEN BUILT TO RUN COP
                                COMPILE AND RUN COP
AND DIRECT THE OUTPUT TO JOUT
TO EXECUTE ENTER-
RUN THE JOB

READY
*
▶ RUN THE JOB

SNUMB # XXXXX
*
```

The job has now been entered, the user should note the SNUMB.

Preparing an IDS File for COP

The COP must run on an IDS file. When the user wishes to restore onto a previously unused file or build a QUICK data base from scratch, he must use a file specially prepared for IDS. The creation of such a file has two steps. First, the user must create the file using the File Management Subsystem (FMS). Besides the usual options employed to create a random file, the following additional options are used:

```
BASIZE/N/      - N defines the maximum number of pages in the IDS
                data file

RNG/r1,r2/     - Defines the page range (for QUICK applications
                set r1=1 and r2=N: as above)

LINESPERPAGE/m/ - m defines the number of lines on an IDS page (for
                QUICK applications set m=21)
```

An example of an appropriate FCREATE directive would be:

```
FCREATE/IDS/ MYFILE, BASIZE/401/,RNG/1,401/,LINESPERPAGE/21/,
SIZE/102/,MODE/RAND/,FCLASS/UZZ/,ABORT/OFF/
```

Following the creation of the IDS file, the user must initialize the file by utilizing an IDS utility called QUTI. This utility has a single input card that specifies the page range to be initialized. An example of an appropriate QUTI activity would be:

§ PROGRAM QUTI  
§ PRMFL A1,R/W,R,631IDP00/MYFILE  
IDS INITIAL 1,401

If the user needs any further assistance, consult Honeywell Reference DC53A, Rev.0 #I-D-S/I USER'S GUIDE.