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EZQUERY

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DISCLAIMER

CONTENTS

EZQUERY

INTRODUCTION

EZQUERY is a generalized information retrieval and reporting system developed by the Data Processing Services Department to provide a method of accessing and displaying information from common types of data base files. By eliminating the costs and delays associated with coding and debugging special purpose programs, it produces simple reports. It was designed with the user in mind, and may be used by programmers and nonprogrammers to access data base files and obtain reports in a reasonably brief period of time.

The user provides the criteria by which a record in the data base will be selected as a source of data for the report. The data may be obtained directly by reading the file or indirectly by manipulating other data in the record. The user designs the output report to be produced. The report can take various forms. It may be a simple listing of specified data items. It may be a listing with calculated totals or averages that will appear at the end of the report and at the end of each report section (if report breaks are requested). Or, the break totals may constitute the entire report.

The user also describes the layout of the data base, indicating where in this file the user can obtain the information required for the generation of the report. EZQUERY reads and stores this information and then makes a sequential reading of the data base to collect the relevant data in a work file. This file is sorted and sent to an output disk file formatted according to the report specifications.

DATA BASE FILES

The four types of data base files that EZQUERY will handle are:

- Fixed Length Record Card Files
  The card file must be read to disk with an ID card to produce a fixed length record disk file.
- Fixed Length Record Tape Files
  The data base may consist of up to four tape reels. The characters in a logical record need not be divisible by ten. A blocking factor may be specified. Tape label records may be present. The record length cannot be greater than 700 words.
- Fixed Length Record Disk Files
  The file may be of either COBOL type or MONITOR type. The file may consist of a family of files. A disk label may be present. The record length cannot be greater than 700 words.

- Special Format Disk Files

  This disk file consists of a "master" record of fixed length L_1 followed by n "trailer" records of fixed length L_2 with each of the trailer records followed by m "sub-trailer" records of fixed length L_3. L_1, L_2, and L_3 are not necessarily equal. m and n are not necessarily equal and may be 0. The various record types (master, trailer, sub-trailer) are identified by a unique symbol in the first charcter of each record. When posing a query to this type of file, the user specifies:

  - A master symbol only.
    In this case retrieval is only made from the master records; records not having that symbol are by-passed.
  - A master symbol and a trailer symbol.
    In this case retrieval is made from a master-trailer combination record with the master being repeated for each instance of the trailer. Records not having these symbols are by-passed.
  - A master symbol, a trailer symbol, and a sub-trailer symbol.
    In this case retrieval is made from a master-trailer/sub-trailer combination record with the master being repeated for every new trailer/sub-trailer; the trailer is also repeated for every new sub-trailer. Records not having these symbols are by-passed.

As implied in the last paragraph, the file may have more than three different types of records although no more than three may be operated on in any one query. The number of words in any individual record cannot exceed 600. The number of words in any combination record cannot exceed 700. The file may be COBOL or MONITOR. The file may consist of a family of files. A disk label may be present.

EZQUERY INPUT FORMS

Six input forms are available to enter the information required by EZQUERY. The input forms are filled in and keypunched, and the cards are then used to create an input disk file. Or, the forms may be used as a guide when utilizing the EZQ dialect of TRIX (described in a separate section) to create the input disk file. The input forms define 11 input card types. The function of these forms and card types are:

EZQUERY form	Card type	Function of card
1	J	Enter description of a data base residing on tape.
1	K	Enter description of a data base residing on disk.
1	X	Specify general form of output: 1. File names for output 2. Report spacing - single, double or triple. 3. Columns per line (70 or 120) 4. Option to display breakpoint lines only 5. Option to generate a labeler output tape

EZQUERY form	Card type	Function of card
1	Y	Specify general form of output: 1. Sort collating sequence 2. Date in report heading 3. Contents of report heading
1	S	Specify how the report should be sorted.
1	B	Specify how the report should be broken into sections.
2	A	Describe the arrangement of the output on the report.
3	E	Describe the extraction criteria to be used when selecting information from the data base to be included on the report.
4	T	Describe tables used in processing the query. There are two ways in which a table may be used: 1. To define table function 2. To list elements that define an extraction criteria
5	L	Specify the logic for FORTRAN functions.
6	D	Define a dictionary/directory of the data base elements and define new elements as functions of those in the data base.

The EZQUERY input forms were designed so that they generally can be used without reference to this guide. A sample of each form is given in Appendix B.

In general, all entries on the form are left-justified and if a field has a default value the form indicates this by an asterisk above the field. Detailed instructions and explanations for each field of each card follow.

J Card Instructions

General

The J card is only used when the data base being interrogated is on tape.

Vaults

If the data base is on a single reel, the reel No. 1 space is filled with the vault number and the rest are left blank. If the data base is on two reels, the vault numbers are entered in reel No. 1 and reel No. 2. If the data base is on three reels, the vault numbers are entered in reel No. 1, reel No. 2, and reel No. 3.

Characters Per Logical Record

The number of characters per logical data record must be supplied.

Label Present

Enter Y (yes) or N (no) to indicate whether or not a label is present on the tape. The default is yes.

If there is more than one reel and Y is entered, all reels must contain a label record of the same length.

Label Length in Characters

The label length in characters is entered here. The default value is 80.

Density

The density of the tape is indicated here. Codes 0, 1, and 2 are used:

0 - 200 bits per inch
1 - 556 bits per inch
2 - 800 bits per inch

Code 2 is the default value.

Mode

The mode of the tape is entered here. The codes are 0 and 1:

0 - BCD mode
1 - Binary mode

Code 1 is the default value, binary mode.

Blocking Factor

If the data records of the tape are blocked, the number of data records blocked in a single physical record are entered here. The default value is 1.

K Card Instructions

General

The K card is only used when the data base being interrogated is on disk.

File Name

The name of the disk file must be entered here.

File Format

The file format is entered here. The file may be of either the COBOL or Monitor type. The default type is COBOL. The two file types differ in the format of the control word that separates each disk record. The COBOL control word has the address of the next control word in the right-most 24 bits (bits 36 through 59), and the length of the following record in 18 bits stored in bits 18 through 35. The Monitor control word has the length of the following record in 18 bits stored in the right-most

bits 42 through 59. It has the length of the preceding record stored in bits 24 through 41 and a mode indicator (1 - binary, 0 - BCD) in bit 23.

Family of Files

If the data base file consists of a family of files, this is indicated here. In this case the name of the first file in the family is entered under File Name. The default assumption is no family.

Label Present

Enter Y (yes) or N (no) to indicate whether or not a label is present on the disk. The default is Yes.

Label Length in Characters

The label length in characters is entered here. The default value is 80.

Special Format

If the disk file is a special format disk file as described under Data Base Files this is indicated by entering a Y here. The default is N (no).

Master Identifier Symbol

The first charcter of the record that is to be treated as the master record is entered here. Please refer to the discussion on special format disk files in the Data Base Files section.

Trailer Identifier Symbol

The first character of the record that is to be treated as a trailer record is entered here. Please refer to the discussion on special format disk files in the Data Base Files section.

Sub-Trailer Identifier Symbol

The first character of the record that is to be treated as a sub-trailer record is entered here. Please refer to the discussion on special format disk files in the Data Base Files section.

X Card Instructions

General

The X card is an optional card because there is a default value for every entry on the card. If the X card is omitted, one will be created with the default values.

Box Number

If either the results or the input list are directed to High-Speed, Printer-1, or Printer-2, then a box number should be entered here. A box number must be entered if automatic output is desired.

Results

The disposition of the query results file is indicated here. The default is K which indicates that the file is to be left on disk. H, L, and P are used to cause the file to be given away to High-Speed, Printer-2, and Printer-1 respectively.

Results File Name

The disk file name for the query results is entered here. The default name is RESULTS.

Input List

The disposition of the input list is indicated here. All input from the Dictionary File (if any) and the Query File is edited and stored in a single input list file. The default is K which indicates that the edited input list file is to be left on disk. H, L, and P are used to cause the file to be given away to High-Speed, Printer-2, and Printer-1 respectively. X destroys the input list unless input edit errors are found. Please refer to Error Handling section.

Input List File Name

The disk file name for the edited input list file is entered here. The default name is INPUTLST.

Report Spacing

The entry here indicates whether the output report in the results file is to be single-spaced, double-spaced, or triple-spaced. This is indicated by entering S, D, or T respectively.

TTY-Sized Output

The letter Y entered in this field will limit the width of the report file to 70 characters - rather than 120 characters. This will allow display of the output on teletype or TMDS. To use this option, of course, the output must fit within 70 columns.

The default here is N which causes the output to be spread out to fill 120 columns.

Display Only Break Points

Sometimes a summary report is desired that consists only of the information printed at the breaks specified by the B card(s). The letter Y is entered here if this is desired. The default is N which causes the complete report to be output.

Output to Labeler Tape

If the output of the query is to be address labels, then a Y is entered here. Please refer to A Card Instructions - Labeler Output to see how the contents of the label are specified. When a Y is entered here the output is a tape that is then processed on the D. P. S. 1401 using either program NEWSPRINT (for Cheshire format) or program LABELS (for gummed-label format). The default is N which means that the output is a report.

Labeler Vault Number

If a Y is entered in Output to Labeler Tape above, then a vault number must be entered here.

Y Card Instructions

General

The Y card is an optional card because there is a default value for every entry that is not optional. If the Y card is omitted, one will be created with the default values.

Sort Collating Sequence

Two sort collating sequences are available to be used with any S cards that are used. An A is entered here if the ASCII sort collating sequence is desired. An U is entered if the USASI sort collating sequence is desired. The default is A, the ASCII sequence.

Date Option

The four ways that a date may be entered for display in the report heading are:

1. On the Y card as 6 digits (MMDDYY). If this option is desired a C is entered here.
2. Via a card (in column 16 through 21 - MMDDYY) that is, the first card in another disk file. If this option is desired, the other disk file is names on the Y card and an F is entered here.
3. From the label of the data base file. In this case, the date must be in columns 41 through 50 (10 digits) of the label in the form MM/DD/YYYY. If this option is desired, an L is entered here.

4. From the operating system. If this option is desired an S is entered here. The default is S (date obtained from the operating system).

Date or File Name for Date

If the date for the report is to be read from the Y card, the date is entered here in the format MMDDYY. If the date is to come from a date-card file, the disk file name that contains the date card is entered here.

Page Heading

If a heading in addition to the date is desired at the top of every report page, the page heading is entered here.

S Card Instructions

General

The S cards are used to specify the way in which the information on the output report is to be sorted. Up to nine sort keys may be specified and each of these may be in either ascending or descending order. The first S card read by EZQUERY is considered to be the major sort key and the last one the most minor key.

Element Reference Symbol

The element reference symbol on which the sort is desired is entered here. The symbol used must have been defined on a D card.

Sort Order

The sort order for the element reference symbol is entered here. Use A for ascending or D for descending. The default is A (ascending sort).

B Card Instructions

General

The B cards are used to specify the way in which information on the output report is to be broken into sections. When the value of a specified Element Reference Symbol changes, a break is made. It is apparent, then, that the way the report is sorted is closely related to the way that breaks should be specified. Up to three breaks may be specified and each of these may have a different printer action at the break. When more than one break is specified, breakpoint action X should only be used with the most minor break. The first B card read by EZQUERY is the major break and the last one is the most minor break.

Element Reference Symbol

The element reference symbol on which the break is desired is entered here. The symbol must have been defined on a D card.

Printer Action

There are five actions that may be specified when a break occurs. If a single space, a double space, a triple space, or a page eject is desired at a break, a S, D, T, or E respectively is entered here. With any of these first four options, the value of the element on which the break is made will be printed at the break. A count of the items included in the break section will be given. If any of the columns are totaled or averaged, values of these are shown at the break.

The fifth breakpoint action option, "insert totals," is specified by entering an X in the field. Instead of the break displays described above, the last detail line that would have been printed is displayed with any column totals inserted in place of the detail values. The insert totals option may only be used under the following conditions:

1. List only breakpoints flag-set to Y on X card.
2. This must be the most minor breakpoint card.
3. At least one output field must be totaled.

This X option was designed primarily for use with special format disk files (see section on Data Base files). With this type of data base file, the X option provides a means of summing-up information on a lower level record and displaying it with the detail of the next high level.

The default printer action is E (page eject).

Explanatory Label

If additional information is to be displayed at the break with printer action D, T, or E; the additional label is entered here. This entry is not applicable with the X printer action option.

A Card Instructions - Report Output

General

The A cards are used to specify the arrangement of the columns on the output report. The data element that is to appear in each column is specified together with any column heading desired. The first A card read by EZQUERY describes the left-most column and the last one the right-most column. The data on the report will be spread evenly over 120 columns unless TTY-sized output is specified on the X card, in which case the data is spread over 70 columns.

Element Reference Symbol

The element reference symbol, the value of which is to be displayed in a column, is entered here. If a column of sequential numbers is desired, 'NUMBR' is entered here. If the user wants to plan his own spacing, the symbol 'SPACE' will define a column of spaces of the width specified under Column Width.

Column Width

This is an optional entry except when used with 'SPACE' as explained in the preceding paragraph. If desired, the width to be assigned to a column is entered here. The minimum allowed width is one greater than the maximum of the heading size or data element size. If the width is not entered or is less than the minimum allowed, it is set to the minimum allowed by default.

Column Heading (First Line)

The column heading is entered here. Leading blanks are significant and may be included. If the column heading (first line) is left blank, the dictionary description will be used as a heading - unless there is no description, in which case the element reference symbol itself will be used.

Column Heading (Second Line)

If desired, a two line column heading may be used for one or more of the columns. If this is the case, an entry is made here in addition to the first line entry.

Total on This Column

If a column is to be totaled, a Y (yes) is entered here. The total of the column will be given at the end of the report and subtotals will be given at any break points requested by B cards.

The default is N (no totals).

Average on This Column

If a column is to be averaged, a Y (yes) is entered here. The average for the column will be given at the end of the report. If the report is broken into sections by breakpoints, the average for each section will be printed.

The default is N (no averages).

Stack Under Previous Heading

Normally, every data element is printed in its own field under its own heading. Thus, a field can be left blank or the default N (no stacking) can be entered. If the user wants to save space by stacking elements in the previous column, he can enter a

Y in this field. The stacking will be done under the last column to the left that has an N for this entry. Stacking will stop when a blank element is encountered.

A Card Instructions - Labeler Output

General

The A cards are used to specify the arrangement of the lines on the label. The data element that is to appear on each line is specified. The first A card read by EZQUERY describes the top-most line and the last one the bottom-most line. Up to five lines may be described and each line may contain up to 30 characters. More than one data element may be entered on a single line by the use of the stacking option described below.

Element Reference Symbol

The element reference symbol, the value of which is to be displayed on a line, is entered here. If the user desires a blank line, 'SPACE' is entered here. The 'NUMBR' option is not applicable for labeler output.

Column Width

This entry is not applicable for labeler output.

Columns Heading (First Line)

This entry is not applicable for labeler output.

Average on this Column

This entry is not applicable for labeler output.

Stack Under Previous Heading

A Y is entered here if it is desired to display the data value to the right on the previous line rather than on its own line. The stacking will be done on the line last defined with an N for the entry. The default is N (no stacking).

E Card Instructions

General

The E cards specify extraction tests that will be made on a record to determine if information from that record is to be included in the output. Each E card specifies a test. If there are no E cards, all records are extracted.

Set Number

'AND' type decisions are made by specifying tests (E cards) with the same set number. 'OR' type decisions are made by specifying tests (E cards) with different set numbers. All extraction tests in a set must be 'met' for the set itself to be considered 'true'. A record is extracted if any of the sets is true. There may be a maximum of 10 E cards with the same set number. The set number must be between 1 and 12.

Element Reference Symbol

The element reference symbol on which the extraction test is to be made is entered here. The value of the element may be tested against a literal, against the value of another data element in the same record, or against a table of values.

Relational Operator

When making a test on the value of an element the following operators may be used:

E - equal to
N - not equal to
G - greater than
L - less than

When testing against a table, only the operators E or N may be used.

Literal Value

If the test is to be made against a literal value, that value is entered here. If the last three fields are blank, the test is made against a literal of spaces.

Table Number

If the test is made against a table of values, the number of the table specified by T cards is entered here. The table number must be between 1 and 20.

Comparison Element Reference Symbol

If the test is to be made against the value of another element in the same record, the other element reference symbol is entered here.

T Card Instructions

General

The T cards are used to specify tables that may be used for one of two purposes described below. Up to 20 tables with 50 entries per table may be specified.

1. A table may list values that are to be tested against the value of an element reference symbol entered on an E card. In this case the Table Function Entry Symbol described below is not used.
2. A table may list values that are to be substituted for the corresponding Table Function Entry Symbol. This type of table is referenced by an element reference symbol that has been declared a T function on a D card. This type of element gets its value as follows: A value is read from the record using an element specified by the T function. This value is then used as a search argument against the list of Table Function Entry Symbols. When a hit is found, the value of the T function element is the corresponding table value. If a hit is not found, the value of the T function element is the value of the search argument. Please refer to the D card instructions for more information on how function type elements are defined.

Table Number

The table number by which the table is referenced must be included on every card in the table.

Table Value

The value of an item in the table is entered here. Please refer to the General Section above for details on how the values are used.

Table Function Entry Symbol

If the table is referenced by a T function element defined on a D card, this entry gives a possible value of the element referred to by the T function element. Please refer to the General Section above for details on how this entry is used. This field can be left blank when the table is used for extraction tests.

L Card Instructions

General

The L cards are used to define the logic for an element reference symbol that has been declared an F function on a D card. Names ID1, ID2, ID3, ID4, ID5, ID6 must be used to reference elements listed in columns 46 through 80 of the D card. If these variables are types A or X they will arrive left-justified as a BCD string. If they are types 9, C, or F, they will arrive right-justified as integers. The answer must be stored in a variable named 'IDANS' either as a left-justified BCD string or as a right-justified integer. Labels used in function 1 must start with A, 2 with B, 3 with C, etc. Subroutine, Return, and End statements must not be used, as these are supplied by EZQUERY. No declarative statements may be used. No calls to library routines are permitted. A statement may not be continued onto a second card.

FORTRAN Function Number

The function number by which the function is referenced must be included on every card of the function. The function number must be between 1 and 15.

Statement Label

Any labels necessary for the FORTRAN Logic Statements are entered here. Labels used in function 1 must start with A, 2 with B, 3 with C, etc.

Comment Card

A Y (yes) is entered here if the entry on the card is a comment. The default is N (no comment).

FORTRAN Logic Statement or Comment

The FORTRAN logic statement or comment is entered here. The sequence of instructions for each function must make sense under the rules of FORTRAN subject to the restrictions contained in the General section above.

D Card Instructions

General

The D cards are used to define the dictionary that describes the data base. Each element of interest in the data base is named and its location and data type specified.

The D cards may also be used to define data elements that are not in the data base. These new elements can be literals or functions of other elements.

Each D card defines a single data element. There can be up to 500 D cards of which 50 can define literals or functions.

Element Reference Symbol

The element reference symbol which identifies the data element is entered here. Each element must have a unique symbol (string of five alphanumeric characters). The symbols 'NUMBR' and 'SPACE' must not be used because they have special meaning when used on A cards.

Description for Dictionary Display

This is an optional entry. If an entry is made here, the description will be included on the input listing that displays the dictionary. Also, this description may be used as a column heading under a default option on an A card.

Length in Characters

The length of the data element in characters is entered here. A length must be given for every element reference symbol except those which are concatenation or literal functions (type C or L). In these cases, the length is calculated by EZQUERY.

Decimal Point Position (from right) on Output

If it is desired to have a decimal point inserted when displaying a data element value, the position (from the right) is entered here. For example if a value were 52361 and a '2' were entered here the value would display as 523.61. An entry should not be made here unless the Data Type is 9, F, or C. The default is 0 (no decimal point will be shown).

First Character Position

The first character position of the data element is entered here. If the data element is not in the data base, but is a literal or a function of other data elements, 'FUNC' is entered here.

Data Type

The data type is entered here. The five legal data types are:

X - Alphanumeric BCD
A - Alphabetic BCD
9 - Numeric BCD
C - Computational (binary integer)
F - Floating point number

If the data element is in the data base, then the data type describes the form in which it exists within the data base. The data types used to describe the form of data elements are:

X - The data data element is BCD and either alphabetic or numeric.
A - The data element is BCD and all alphabetic.
9 - The data element is BCD and all numeric.
C - The data element is a binary integer.
F - The data element is a floating point number.

If the data element is not in the data base but is a literal or a function of other elements then the following data type restrictions apply to the data type of the element declared a fuction:

If the data element is not in the data base but is a literal or a function of other elements then the following data type restrictions apply:

Functions C, L, and T - only data types X, A, 9 may be used.
Function F - only data types X, A, C may be used.

Function Type

If 'FUNC' is entered under First Character Position, then the function type is entered here. The four legal function types are:

C - concatenation function

F - FORTRAN function

T - Table function

L - Literal

C - Concatenation Function

If the function type is C, then the element reference symbols that form the concatenation are entered starting with ID1. A minimum of two and a maximum of six contiguous entries are made. These entries of element reference symbols may not themselves be functions other than literals (function type L).

The effect of the concatenation function is to take the values of the entries and join them together in a BCD string in the order they are listed from left to right.

An entry is not made in Function or Table Number when declaring a concatenation function.

F - FORTRAN Function

If the function type is F, this means that the data element is some function of a set of listed element reference symbols starting with ID1. A minimum of 1 and a maximum of six contiguous entries are made. These are referred to as ID1, ID2, etc., in a logic function described by L cards. These entries of element reference symbols may not themselves be functions unless they are type F. If any one of them is type F, none of 'its' entries may be any type of function.

The logic specified on the L cards is executed to calculate the value of the FORTRAN function. An element declared a FORTRAN function may only be data types X, A, or C. If X, or A is used, the L card logic must store the answer in a left-justified BCD string. If C is used the L card logic must store the answer as a right-justified binary integer.

The same function number must be used both on the L cards and in the Function or Table Number entry.

T - Table Function

Type T indicates that the output is a table look-up function of the input element specified in ID1. The element in ID1 may not itself be a function unless it is a FORTRAN function. If it is FORTRAN, none of "its" input elements may be a function.

The effect of the table function is to search a table specified on T cards with the value of the element in ID1 and use a corresponding table entry as a value. If no

corresponding value is found, the search argument becomes the value of the function. Only data types X, A, or 9 may be used with an element declared a table function. The same table number must be used both on the T cards and in the Function or Table Number entry.

L - Literal

If the function type is L, then the value of the element is the literal given in ID1. Only data types X, A, or 9 may be used with an element declared a literal. An entry is not made in Function or Table Number when declaring a literal.

Function or Table Number

If the element is a FORTRAN function (type F), the function number (from 1 to 15) is entered here. If it is a table function (type T), the table number (from 1 to 20) is entered here. Otherwise, this entry is left blank.

ID1 or Literal

If the function type is L a literal value is entered here. Otherwise an element reference symbol is entered. The element being defined is some function of the element reference symbol entered in ID1.

ID2, ID3, ID4, ID5, ID6

These are not used for table functions or literals (function types T or L). For concatenations or FORTRAN functions (function types C or F), element reference symbols may be entered here. The element being defined is some function of the element reference symbols entered here.

SYSTEM OPERATION

The EZQUERY program may be run in any one of three basic modes. The run instructions for each of these modes are described separately below.

Operation with CQUERY

This is the usual mode of operation and is best suited for night runs under ORDER using a standard dictionary file.

The following files must exist:

CQUERY	This disk file consists of a single card with the dictionary file name (optional) given left-justified in columns 4 through 13 and the query file name given left-justified in columns 17 through 26.

Dictionary File	This file must exist if named in disk file CQUERY. If a dictionary file is not used, then all necessary D cards must be included in the query file. The dictionary file usually contains only D cards but it may contain the K or J card, L cards and T cards.
Query File	This file must always exist. It contains all the EZQUERY cards required for a query that are not contained in the dictionary file.
Data Base File	This file must exist either on tape or on disk. It is the file from which the data retrieval is made.

The execute line for a mode 1 run is:

EZQUERY / TV

Operation with Teletype

This requires the existence of all files as noted above except the CQUERY file. Under this mode the CQUERY file is created by EZQUERY using teletype responses to questions posed by EZQUERY at the teletype. This mode is best suited for daytime running with a standard dictionary. The execute line for run is:

EZQUERY T / TV

EZQUERY will respond:

ENTER DICTIONARY FILE NAME, IF ANY

The user types the dictionary file name and hits line-feed - or if there is no dictionary file, merely hits line-feed. EZQUERY will respond:

ENTER QUERY FILE NAME

The user types the query file name and hits line-feed. EZQUERY then creates the file CQUERY.

Operation with RUNEZQ

This operation requires only the files RUNEZQ and the data base file. This mode is best suited for special small runs at night under ORDER, or during the day from the teletype when all of the required EZQUERY cards are entered in a single disk file called RUNEZQ. The execute line for this mode run is:

EZQUERY / TV

When EZQUERY cannot find CQUERY and is not asked to create a CQUERY file, it will open file RUNEZQ to get the necessary information for the run.

ERROR HANDLING

The errors that may be encountered during an EZQUERY run may be divided into

- Input edit errors
- System I/O errors
- Processing parameter limits exceeded
- Trouble with EZQUERY logic

Action by EZQUERY for each of these four error types is described below.

Input Edit Errors

If an error is detected on an input card, an asterisk is printed directly below the offending field and an appropriate message displayed to the right of the card image. The list of all input cards is sent to an output file specified on the X card (default INPUTLST). If any errors, including errors in compiling L cards, are detected, no further processing is done. The user should correct the errors shown in the file listing the input and re-run the job.

System I/O Errors

If this type of error is encountered an appropriate message is displayed in the output file and the user is advised to re-run the job.

Processing Parameter Limits Exceeded

If this type of error is detected during processing, the limit exceeded is indicated in the output file. EZQUERY cannot handle a run that exceeds its limits.

Trouble with EZQUERY Logic

This type of error should rarely occur, but if it does the problem is shown in the output file with a request that the DPS programmer maintaining EZQUERY be notified.

INPUT VIA THE EZQ DIALECT OF TRIX[1]

A dialect of the TRIX editor called EZQ can be used to create EZQUERY input cards from the teletype. The main advantage of using EZQ is that the user won't have to count spaces between the fields when he enters card data from the teletype. Instead, he separates each card field by a comma, and EZQ will create the card with the data in the proper columns.

[1] TRIX editor is described in UCID-30040.

Field Edits

EZQ will also edit the fields to be inserted in the new card and return an error message if it detects an illegal entry. The card won't be created if an error is discovered. The three types of edits performed are:

- Maximum length of the field not exceeded
- Data type restrictions not violated (e.g., an alphabetic character in a field which should be numeric)
- Value given for all fields which don't have a default option

Operating Instructions

The TRIX command to load the EZQ dialect is "RD(EZQ, EZQUERY)". After this is done, you will enter the EZQ dialect whenever you issue a line replacement command (RL, AL, or BL). You can also load EZQ at the time you initiate TRIX by typing the execute line "TRIX EZQ EZQUERY / TV".

When EZQ has been loaded and a line replacement command issued, TRIX will send the prompt "CARD TYPE?". The user must then type a letter representing the EZQUERY card he wants to create. (For example he would type "A" to generate an A card.) If it was a valid letter, TRIX will type out a list of the fields for that card and return the carriage. The user can then input values for the fields separated by commas. To leave a field blank he should type two commas. To stop creating a card type he should enter a LINEFEED. EZQ will then ask for the next card type. He can then enter a letter specifying the next card type, or another LINEFEED to re-enter TRIX AC. An example follows.

APPENDIX A. EXAMPLE USING TRIX EZQ

TRIX EZQ EZQUERY / 1 .1	Initiate TRIX and load EZQ
.C(RUNEZQ)	Create the file RUNEZQ
.BL1	Insert before line 1
CARD TYPE? T	Create 1 or more T cards
TABLE#, VALUE, ENTRY-SYMBOL	
T: 1, EACH, EA	First T card
T: 1, GRAMS, GM	Second T card
T: B, POUNDS, LB	Third T card
INVALID FIELD TYPE FOR FIELD #1.	Error found, TABLE # should be numeric
T: 1, POUNDS, LB	
T:	Linefeed for no more T cards
CARD TYPE? S	Create S cards
ERS, SORT-ORDER	
S: , A	First S card
GIVE VALUE FOR FIELD #1	No default allowed for ERS
RETYPE CARD INPUT	
S: TAG, A	
S: FISYRR, A	Second S card
FIELD #1 IS TOO LONG	ERS limited to five characters
RETYPE CARD INPUT	
S: FISYR, A	
S:	LINEFEED for no more S cards
CARDTYPE?	LINEFEED to stop input
.END	End TRIX

APPENDIX B. A SAMPLE QUERY

The sample query described here shows how EZQUERY handles the following problem.

1. Interrogate the Site 300 Explosive Storage File.
2. List all items consigned in fiscal years 1961 and 1962.
3. Sort by fiscal year, then by tag number.
4. Calculate the cost for each item and total these costs.
5. Provide breaks and subtotals at each fiscal year.
6. Show whole words for unit-of-issue rather than abbreviations.
7. Show the following column headings.
   a. Item description
   b. Price
   c. Quantity
   d. U Issue
   e. Mag
   f. Tag No.
   g. FYR
   h. Total cost
8. Use the data base disk file EMAST1.

Listed below are the documents that describe the processing of this problem by EZQUERY.

1. A complete set of forms, properly filled-out.
2. A list of necessary files that were on disk before executing EZQUERY for the sample problem.
3. A listing of the dictionary disk file.
4. A listing of the query disk file.
5. An anotated teletype listing of the computer run.
6. A listing of the output file, LISTING (two pages).
7. A listing of the output file, REPORT.

These documents are shown on the following pages in the order they are listed above.

EZQUERY - FORM I

DATA PROCESSING SERVICES

CONTROL INFORMATION

ALL ENTRIES LEFT JUSTIFIED. * INDICATES DEFAULT VALUE.

BY: _____ DATE: _____ PAGE ___ OF ___

TAPE

CARD CODE	VAULTS REEL # 1	VAULTS REEL # 2	VAULTS REEL # 3	REEL # 4	CHARACTERS PER LOGICAL RECORD	LABEL PRESENT N-NO *Y-YES	CHARACTERS LABEL LENGTH *80	DENSITY 0-200 1-556 *2-800	MODE 0-BCD *1-BINARY	BLOCKING FACTOR (NO LOGICAL RECORDS PER PHYS. RECORD) *1
J										
1	3-7	9-13	15-19	21-25	27-31	33	35-38	42	44	46-48

DISK

USE CARD APPROPRIATE TO DATA BASE.

CARD CODE	FILE NAME	FILE FORMAT *C-COBOL M-MONITOR	FAMILY OF FILES Y-YES *N-NO	LABEL PRESENT N-NO *Y-YES	CHARACTERS LABEL LENGTH *80	SPECIAL FORMAT Y-YES *N-NO	SPECIAL FORMAT FILES ONLY: MASTER IDENTIFIER SYMBOL	TRAILER IDENTIFIER SYMBOL	SUB-TRAILER IDENTIFIER SYMBOL
K	EMAST1	M		N					
1	3-12	14	16	18	20-23	27	29	31	33

CARD CODE	BOX NUMBER	RESULTS *K-KEEP ON DISK H-HSP L-PRINTER 2 P-PRINTER 1	RESULTS FILE NAME *RESULTS	INPUT LIST *K-KEEP ON DISK H-HSP L-PRINTER-2 P-PRINTER X-DESTROY	INPUT LIST FILE NAME *INPUTLST	REPORT SPACING *S-SINGLE D-DOUBLE T-TRIPLE	TTY-SIZED OUTPUT MAX. 70 PRINT COLS. Y-YES *N-NO	DISPLAY ONLY BREAK POINTS Y-YES *N-NO	LABELER TAPES ONLY: OUTPUT TO LABELER TAPE *N-NO Y-YES	LABELER VAULT NO.
X			REPORT		LISTING	D	Y			
1	3-5	7	9-16	18	20-27	29	33	35	37	39-44

CARD CODE	SORT COLLATING SEQUENCE *A-ASCII U-USASI	DATE OPTION C-FROM THIS CARD F-FROM FILE NAMED L-FROM DATA BASE LABEL *S-FROM SYSTEM	DATE (MMDDYY) OR FILE NAME FOR DATE	PAGE HEADING (OPTIONAL)
Y				SITE 300 EXPLOSIVE STORAGE
1	3	5	7-16	18-67

"S" CARDS — SORTS OF OUTPUT LISTINGS

CARD CODE	ELEMENT REFERENCE SYMBOL (FROM D CARD)	SORT ORDER *A-ASCENDING D-DECENDING
S	FISYR	A
	TAG	A
1	3-7	9

"B" CARDS — BREAKS IN OUTPUT LISTINGS

CARD CODE	ELEMENT REFERENCE SYMBOL (FROM D CARD)	PRINTER ACTION X-INSERT TOTALS D-DOUBLE SPACE T-TRIPLE SPACE *E-PAGE EJECT	EXPLANATORY LABEL (OPTIONAL)
B	FISYR	E	
1	3-7	9	11-30

NOTE: THE VALUE OF THE ELEMENT ON WHICH THE BREAK IS MADE WILL LABEL THE BREAK.
A COUNT OF THE ITEMS INCLUDED IN THE BREAK WILL ALWAYS BE GIVEN.
IF ANY COLUMNS ARE TOTALED OR AVERAGED, VALUES OF THESE WILL BE GIVEN AT THE BREAK.

4595 10.73 ~

EZQUERY - FORM 2
DATA PROCESSING SERVICES

ARRANGEMENT OF OUTPUT

BY: _____ DATE: _____ PAGE ___ OF _____

ALL ENTRIES LEFT JUSTIFIED.
* INDICATES DEFAULT VALUE.

CARD CODE	ELEMENT REFERENCE SYMBOL (SEE NOTE 1)	COLUMN WIDTH IN CHARACTERS *FOR DEFAULT SEE NOTE 2	COLUMN HEADING 1ST LINE * DICTIONARY DESCRIPTION (IF IT EXISTS), OTHERWISE ELEMENT REFERENCE SYMBOL	COLUMN HEADING 2ND LINE (OPTIONAL)	TOTAL ON THIS COLUMN Y-YES *N-NO	AVERAGE ON THIS COLUMN Y-YES *N-NO	STACK UNDER PREVIOUS HEADING Y-YES *N-NO
1	3-7	9-10	17 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52	54	56	58
A	DESC		ITEM DESCRIPTION				
	PRICE		PRICE				
	QUANT		QUANT				
	UNITT		U ISSUE				
	MAG		MAG				
	TAG		TAG NO				
	FISYR		FYR				
	TCOST		TOTAL COST		Y		

NOTE 1: SPECIAL NAME "SPACE" WILL GIVE A COLUMN OF SPACES (SIZE IN COLUMNS 9-10).
SPECIAL NAME "NUMBR" WILL GIVE A COLUMN OF SEQUENTIAL NUMBERS (SIZE IN COLUMNS 9-10).

NOTE 2: IF THE SIZE GIVEN IS LESS THAN THE MINIMUM REQUIRED, THE MINIMUM REQUIRED SIZE IS SUPPLIED BY DEFAULT.

4595-1 10.73 ~

EZ.QUERY – FORM 3
DATA PROCESSING SERVICES

EXTRACTION DECISIONS

BY: _____ DATE: _____ PAGE ___ OF ___

ALL ENTRIES LEFT JUSTIFIED. IF ALL TESTS WITH THE SAME SET NUMBER ARE TRUE, EXTRACTION WILL BE MADE.

← USE ONLY ONE OF THESE THREE FIELDS PER CARD. DEFAULT ENTRY IS A BLANK LITERAL OF THE SAME LENGTH AS THE ELEMENT BEING TESTED. →

CARD CODE	SET NUMBER (MAX.10 LINES PER SET NO.; MAX.12 SETS)	ELEMENT REFERENCE SYMBOL	RELATIONAL OPERATOR E-EQUAL TO N-NOT EQUAL TO G-GREATER THAN L-LESS THAN	LITERAL VALUE	TABLE NUMBER (OPERATOR MUST BE E OR N)	COMPARISON ELEMENT REFERENCE SYMBOL
1	3-4	6-10	12	14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43	45-46	48-52
E	1	FISYR	E		1	

4595-2 10-73 ~

EZQUERY - FORM 4 TABLES BY: _____ DATE: _____ PAGE ___ OF ___

DATA PROCESSING SERVICES

ALL ENTRIES LEFT JUSTIFIED.

CARD CODE 1	TABLE NUMBER 3-4	TABLE VALUE 6-35	TABLE FUNCTION ENTRY SYMBOL (OPTIONAL) 37-42
T	1	61	
	1	62	
	2	POUNDS	LB
	2	EACH	EA
	2	GRAMS	GM

EZQUERY - FORM 5
DATA PROCESSING SERVICES

LOGIC FOR FORTRAN FUNCTIONS

ALL ENTRIES LEFT JUSTIFIED. * INDICATES DEFAULT VALUE.

BY: _____ DATE: _____ PAGE ___ OF ___

Notes:
1. LABELS IN FUNCTION 1 MUST START WITH A, 2 WITH B, 3 WITH C, ETC.
2. NAMES ID1, ID2, ID3, ID4, ID5, ID6 MUST BE USED TO REFERENCE ELEMENTS REFERENCED IN COLUMNS 48-80 OF D CARD.
3. IF THE ABOVE VARIABLES ARE TYPE A OR X THEY WILL ARRIVE LEFT JUSTIFIED; IF TYPE 9, C, OR F THEY WILL ARRIVE RIGHT JUSTIFIED AS INTEGERS.
4. THE ANSWER MUST BE STORED IN "IDANS" EITHER AS A LEFT JUSTIFIED BCD STRING OR AS A RIGHT JUSTIFIED INTEGER.
5. SUBROUTINE, RETURN, AND END STATEMENTS MUST NOT BE USED, AS THESE ARE SUPPLIED BY THE SYSTEM.
6. NO DECLARATIVE STATEMENTS MAY BE USED. NO CALLS TO LIBRARY ROUTINES ARE PERMITTED.
7. A STATEMENT MAY NOT BE CONTINUED ONTO A SECOND CARD.

CARD CODE (1)	FORTRAN FUNCTION NUMBER (3-4)	STATEMENT LABEL (6-9)	COMMENT CARD Y-YES *N-NO (11)	FORTRAN LOGIC STATEMENT OR COMMENT (USE STANDARD FORTRAN RULES) (13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68)
L	1		Y	FUNCTION ONE CALCULATES TOTAL COST
	1			IDANS = ((ID1 * 100) + ID2) * ID3
	2		Y	FUNCTION TWO CALCULATES THE FISCAL YEAR
	2			IDANS = ID2
	2			IF (ID1.LT.7) GO TO 86
	2			IDANS = IDANS + 1
	2	86		CONTINUE

4595-4 10-73 ~

EZQUERY - FORM 6
DATA PROCESSING SERVICES

DATA BASE DICTIONARY

BY: _____ DATE: _____ PAGE ___ OF ___

ALL ENTRIES LEFT JUSTIFIED.

* INDICATES DEFAULT VALUE.

CARD CODE	ELEMENT REFERENCE SYMBOL	DESCRIPTION FOR DICTIONARY DISPLAY (OPTIONAL)	LENGTH IN CHARACTERS *FOR DEFAULT SEE NOTE 1 BELOW.	DECIMAL POINT POSITION (FROM RIGHT) ON OUTPUT * 0	FIRST CHARACTER POSITION OR ENTER "FUNC" IF FUNCTION	DATA TYPE 9-NUMERIC BCD F-FLOATING POINT X-ALPHANUMERIC A-ALPHABETIC C-COMPUTATIONAL SEE NOTE 2 BELOW.	FUNCTION TYPE C-CONCATENATION F-FORTRAN T-TABLE L-LITERAL	FUNCTION OR TABLE NO.	LITERAL OR ID1	ID2	ID3	ID4	ID5	ID6
1	3-7	8 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27	28-31	33	35-36	40	42	43-44	48-50	52-56	58-62	64-68	70-74	76-80
D	UNIT	UNIT OF ISSUE	2		15	X								
	MAG	MAGAZINE LOCATION	2		21	X								
	DESC	DESCRIPTION	16		28	X								
	DOLAR	UNIT PRICE DOLLARS	7		60	9								
	CENTS	UNIT PRICE CENTS	2		68	9								
	PRICE	UNIT PRICE		2	FUNC	9	C		DOLAR	CENTS				
	QUANT	QUANTITY	6		70	9								
	TAG	TAG NUMBER	5		76	X								
	FISYR	FISCAL YEAR	2		FUNC	C	F	2	MCONS	YCONS				
	TCOST	TOTAL COST	10	2	FUNC	C	F	1	DOLAR	CENTS	QUANT			
	MCONS	MONTH CONSIGNED	2		23	9								
	YCONS	YEAR CONSIGNED	2		25	9								
	UNITT	UNIT ISSUE TABLE	6		FUNC	X	T	2	UNIT					

COLUMNS 42 - 80 ARE USED FOR ELEMENTS THAT ARE LITERALS OR FUNCTIONS OF OTHER ELEMENTS.

ENTER THE SYMBOLS OF THESE OTHER ELEMENTS HERE.

NOTE 1: LENGTHS FOR FUNCTION TYPES C AND L WILL BE SUPPLIED BY DEFAULT. IN ALL OTHER CASES, A LENGTH MUST BE SUPPLIED BY THE USER.

NOTE 2: FUNCTIONS HAVE RESTRICTED DATA TYPES AS FOLLOWS:
FUNCTIONS C, T, L - DATA TYPES 9, X, A ONLY.
FUNCTION F - DATA TYPES X, A, C ONLY.
FUNCTION T - DATA TYPES X, A ONLY.

4695-5 10-73

Listing of Output File LISTING - First Page

```
D UNIT     UNIT OF ISSUE          2      0 15    X
                                         D
D MAG      MAGAZINE LOCATION      2      0 21    X
                                         D
D DESC     DESCRIPTION           16      0 28    X
                                         D
D DOLAR    UNIT PRICE DOLLARS     7      0 60    9
                                         D
D CENTS    UNIT PRICE CENTS       2      0 68    9
                                         D
D QUANT    QUANTITY               6      0 70    9
                                         D
D TAG      TAG NUMBER             5      0 76    X
                                         D
D MCONS    MONTH CONSIGNED        2      0 23    9
                                         D
D YCONS    YEAR CONSIGNED         2      0 25    9
                                         D
D PRICE    UNIT PRICE             9      2 FUNC  9  C  DOLAR CENTS
                                  D
D FISYR    FISYR                  2      0 FUNC  C  F2 MCONS YCONS
                                         D
D TCOST    TOTAL COST            10      2 FUNC  C  F1 DOLAR CENTS QUANT
D UNITT    UNIT ISSUE TABLE       6      0 FUNC  X  12 UNIT
                                         D
X W15      K REPORT K LISTING     D      Y  N N
  D        D        D                      D D
Y A S 061573    SITE 300 EXPLOSIVE STORAGE
  D D D
K EMAST1        M N N   N
                  D     D
S FISYR    A
S TAG      A
B FISYR    E
A DESC     17 ITEM DESCRIPTION                          N N N
           D                                            D D D
A PRICE    11 PRICE                                     N N N
           D                                            D D D
```

Listing of Output File LISTING - Second Page

```
A QUANT 7 QUANT.                                          N N N
        D                                                 D D D

A UNITT 8 U ISSUE                                         N N N
        D                                                 D D D

A MAG   4 MAG                                             N N N
        D                                                 D D D

A TAG   7 TAG NO                                          N N N
        D                                                 D D D

A FISYR 4 FYR                                             N N N
        D                                                 D D D

A TCOST 12 TOTAL COST                                     Y N N
         D                                                  D D

E 1  FISYR  E                                        1

T 1  61

T 1  62

T 2  POUNDS                                  LB

T 2  EACH                                    EA

T 2  GRAMS                                   GM

L 1        Y FUNCTION ONE CALCULATES TOTAL COST

L 1        N IDANS = ((ID1 * 100) + ID2) * ID3
           D

L 2        Y FUNCTION TWO CALCULATES THE FISCAL YEAR

L 2        N IDANS = ID2
           D

L 2        N IF( ID1.LT.7) GO TO B6
           D

L 2        N IDANS = IDANS + 1
           D

L 2  B6    N CONTINUE
           D
```

FUNCTIONS COMPILED NORMALLY

Listing of Output File REPORT

1

DATE- 06/15/73 SITE 300 EXPLOSIVE STORAGE PAGE- 1

ITEM DESCRIPTION	PRICE	QUANT.	U	ISSUE	MAG TAG NO	FYR	TOTAL COST
A-DIOL	.43	1102	GRAMS	37	00002	61	473.86
DET K	3.00	714	EACH	01	00055	61	2142.00
RDX POWDER A033	2.00	957	POUNDS	32	00272	61	1914.00
/ 3 / SUBTOTAL	61						4529.86

1

DATE- 06/15/73 SITE 300 EXPLOSIVE STORAGE PAGE- 2

ITEM DESCRIPTION	PRICE	QUANT.	U	ISSUE	MAG TAG NO	FYR	TOTAL COST
DET 1E23	50.00	3450	EACH	01	00045	62	172500.00
DNPN A060	200.00	5	POUNDS	70	00072	62	1000.00
HMX POWDER A070	4.12	280	POUNDS	32	00101	62	1153.60
HMX POWDER A133	2.93	120	POUNDS	32	00102	62	351.60
PETN POWDER A136	1589.00	50	POUNDS	32	00225	62	79450.00
/ 5 / SUBTOTAL	62						254455.20
/ 8 / TOTAL							258985.06

Dump of the First Five Records in Data File

```
? OCT 0
00000 00000 00000 00010
OK
? BCD 1 10
000001     0171FINGER    M    GM9810      370661XA-D     IOL
000005                                        .430     0110200002
OK
? OCT 1
00000 00000 00100 00010
OK
? BCD 12 21
000012     0966FINGER    M    LB9810      700863XBDN     PA-F  A296
000016                                      10.000     0000300007
OK
? OCT 22
00000 00000 00100 00010
OK
? BCD 23 32
000023     0000FINGER    M    LB9810      700264XBDN     PF  A324
000027                                      12.500     0001000008
OK
? OCT 33
00000 00000 00100 00010
OK
? BCD 34 43
000034     0567SWANSO  N S    EA9771      040566DBLA     STING CAP
000040     DUPONT E94                        1.210     0007000009
OK
```

List of Necessary Files That Were on Disk Before Executing EZQUERY for the Sample Problem

Disk file name	Description
EMASTI	The Data Base file that contains information on Site 300 explosives.
CQUERY	A one card control file that names the query file and any separate dictionary file. In the case of the problem these were named 'QUERY' and 'DBASE' respectively.
DBASE	The name given to the dictionary of the Site 300 explosive data base.
QUERY	The name given to the file which describes: 1. Extraction decisions 2. Arrangement of output 3. Sorts 4. Breaks 5. Control information

Listing of the Dictionary Disk File

```
D UNIT     UNIT OF ISSUE          2        15    X
D MAG      MAGAZINE LOCATION      2        21    X
D DESC     DESCRIPTION           16        28    X
D DOLAR    UNIT PRICE DOLLARS     7        60    9
D CENTS    UNIT PRICE CENTS       2        68    9
D PRICE    UNIT PRICE                  2  FUNC  9    C   DOLAR CENTS
D QUANT    QUANTITY               6        70    9
D TAG      TAG NUMBER             5        76    X
D FISYR    FISYR                  2        FUNC  C    F2  MCONS YCONS
D TCOST    TOTAL COST            10     2  FUNC  C    F1  DOLAR CENTS QUANT
D MCONS    MONTH CONSIGNED        2        23    9
D YCONS    YEAR CONSIGNED         2        25    9
D UNITT    UNIT ISSUE TABLE       6        FUNC  X    T2  UNIT
```

Listing of the Query Disk File

```
K EMAST1          M    N
X          REPORT       LISTING D    Y
Y                       SITE 300 EXPLOSIVE STORAGE
S FISYR   A
S TAG     A
B FISYR   E
A DESC       ITEM DESCRIPTION
A PRICE      PRICE
A QUANT      QUANT.
A UNITT      U ISSUE
A MAG        MAG
A TAG        TAG NO
A FISYR      FYR
A TCOST      TOTAL COST                                          Y
E 1   FISYR E                                                1
T 1   61
T 1   62
T 2   POUNDS                                  LB
T 2   EACH                                    EA
T 2   GRAMS                                   GM
L 1           Y  FUNCTION ONE CALCULATES TOTAL COST
L 1              IDANS = ((ID1 * 100) + ID2) * ID3
L 2           Y  FUNCTION TWO CALCULATES THE FISCAL YEAR
L 2              IDANS = ID2
L 2              IF( ID1.LT.7) GO TO B6
L 2              IDANS - IDANS + 1
L 2   B6         CONTINUE
```

Teletype Listing of Computer Run

```
→ IDG 495475 A 456DRA
  0002.21856     0012
→ RDFILES BV621 EMAST1 END / 3 .3
```

Read in EZQUERY and data base file from tape.

```
  ALL DONE
→ FILES / 1 .1
       100    CQUERY
       204    DBASE
     56448R   EMAST1
       402    QUERY
```

Files needed for QUERY

```
  ALL DONE
→ EZQUERY / 1 .5
```

Run EZQUERY

```
  ALL DONE
→ FILES / 1 .1
       100    CQUERY
       204    DBASE
     56448R   EMAST1
     72460R   LISTING
      1004    REPORT
       402    QUERY
```

Output files generated by EZQUERY

```
  ALL DONE
→ ALLOUT PRINTER2 LISTING REPORT / 1 .1
  BOX  ID?
→ BOX W08  EZQUERY REPORTS
```

Send files to printer

```
  ALL DONE
  BYE
```

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