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SYSTEMS ANALYSIS GUIDE FOR THE
RARE-EARTH INFORMATION CENTER'S
INFORMATION RETRIEVAL SYSTEM
(RICIRS)

(Leonard C. Moon) A

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Date Transmitted: April 1977

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Systems Analysis Guide For The Rare-Earth Information
Center's Information Retrieval System (RICIRS)

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ABSTRACT

The Rare-Earth Information Center Information Retrieval System (RICIRS) is a system of programs written in PL/I and compiled by the PL/I optimizing compiler for an IBM 360-370 environment. It is a key word based retrospective information retrieval system. Conference papers, journal articles, books, and other bibliographic material are abstracted by the Rare-Earth Information Center personnel and placed in the data base.

This report details the programs and their operation with respect to the files built by the Rare-Earth Information Center personnel. It is intended to be a guide for a programmer-analyst to maintaining and upgrading the system.

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Introduction

RICIRS is an acronym which stands for Rare-Earth Information Center Information Retrieval System. It is a key word based retrospective information retrieval system designed to retrieve bibliographic information that has been abstracted from conference papers, journal articles, books, and other bibliographic material. The bibliographic material is abstracted by the Rare-Earth Information Center personnel. They extract the key words which will be used to retrieve the document and put these key words along with the rest of the bibliographic information for the document into the data files so the RICIRS system can access the document.

This report is intended to be used by the programmer-analyst as a guide to maintaining and upgrading the system. It contains three main parts. The first part describes how the data bases are constructed. The second part describes the retrieval process. The third part lists present capabilities, problem areas and possible future expansions.

RICIRS is a spin-off of the Selective Dissemination of Information (SDI) system developed at the Iowa State University Computation Center by James Hoekstra and Nancee Nilsen (4). They adopted many of the ideas incorporated into the SDI system from an earlier SDI system developed by John Jordan and Rowena Sun (1,2,3).

I. Construction of the Data Bases

There are four programs which create files in the system. They are: UPDATE, CITN, TERM, and DUM. UPDATE modifies the master weekly and master monthly files by adding, deleting, and replacing cards and wiping out entire documents on the raw (sorted by document number) bibliographic data (card) files.

There are four types of cards that can be added to the raw data (master) file. They are:

1. Author
2. Title
3. Source
4. Key Word

Each card type can be continued up to nine cards. This means the overall maximum for a document would be 36 cards, but in practice is between 7 and 12 cards. A more complete description of the updating process can be found in Operation and Maintenance of the Rare-Earth Information Center's Information Retrieval System (RICIRS) Version 2 (5).

CITN takes the edited raw bibliographic data files and produces two other files; a citation file which represents much of the raw bibliographic data and a word file which has all of the key words and authors associated with the document, in ordered pairs (document number, key word or author). These ordered pairs are sorted by document number within key word and used as input to the TERM program. The TERM program builds a variable length record for each key word (or author).

This record appears as follows:

KEY WORD	Document No. 1	Document No. 2	✓ Document No. n
----------	----------------	----------------	------------------

where all document numbers are in ascending order,

Document No. 1 < Document No. 2 < Document No. n .

The program DUM creates dummy weekly files. It is only run with the monthly update procedure. These dummy files are needed for the successful running of the retrieval program.

Two other programs are used in the file creating process. The SORT/MERGE utility package and a listing program, PRINTEM. The SORT/MERGE package is used because all files are sorted for ease of handling when creating the files and retrieving information. PRINTEM accesses the term file (produced by TERM) and prints the authors and key words with their associated number of documents.

Figures 1 and 2 show the necessary steps for the updating of the weekly and monthly files.

Figure 1. Weekly Update Operations.

Figure 2. Monthly Update Operations.

Figure 2. Monthly Update Operation (Continued).

The citation files (CITATN and CITWK) are index sequential files using the document number as the index key. These files are basically the raw document coding with added information needed for document retrieval and printing. They are variable blocked files with a record length of 914 and a block size of 7246. These files were set up to be used on a 2314 disk pack, if another type of pack is used, modification of the blocking factor at least should be considered. The record length allows an entire document to be written and read in one operation if that document is less than fifteen cards in length. The structure used for the citation files consists of 2 characters for the status of the document (presently unused), 2 characters for filler (unused), 1 character representing the number of author records, 1 character representing the number of key word records, 3 characters representing the document number, and 15 sixty character descriptors representing the bibliographic data. The sixty characters are taken from the first sixty columns on the raw document cards.

Length	Initial Document Information	Document Card Information #1	#2	#3	---	#15
--------	---------------------------------	---------------------------------	----	----	-----	-----

The term files (INDX and INDXWK) are index sequential files using the key word (author or key word) as the index key. These files are built from the document number, key word or author ordered pairs produced by the CITN program. The TERM program simply takes all of the document numbers associated with the key word and places them in ascending sorted order behind the key word in a variable length record. The file is

variable blocked with a record length of 7230 and block size of 7234.

The records are as follows:

Status		Continuation Character				
Length	Key Word	Doc. No.	Doc. No.	Doc. No.	---	Doc. No.

With this structure 2403 documents can be held on a 2314 disk track.

II. Retrieval Process

The user supplies a request which is a boolean statement. The request consists of three types of cards:

1. a parameter card,
2. a boolean statement of the retrieval request,
3. a limit on the number of citations desired-user ID card.

Only one type 1 card is needed per run of the retrieval program and any number (1 to N) of type 2 and 3 as long as there is a type 3 for every set of type 2 cards.

A parameter card has six 6 character fields starting from the left.

These fields from left to right are:

1. maximum sort array area,
2. area within the sort array devoted to the merging process, this should be approximately 20% of the size of the sort area in the sort array, e.g., if maximum sort array area is 12000 then this should be 2000,
3. the initial index of the sort array area (can be any integer value between -32K and +32K),
4. first yearly stratifier, only documents meeting this qualification will be put into the sort array, 75 → only documents from 1975 will be placed in the sort area,
5. second yearly stratifier, if left blank it takes on the value of the first yearly stratifier,
6. if the sixth field is non-blank the program assumes that the user wants author and key word indexes generated and the appropriate files are generated.

NOTE: All but the sixth field must be right justified.

An example of a parameter card that would generate the flowchart shown in Figure 3 is:

812000882000888881888887888886

This would mean the sort array area would be 12000 words in length with 2000 words of it devoted to the merging process. The initial index is 1 of the sort array area. All documents in the sort array area would be from the 1960's or 1970's.

An example of a parameter card that would generate the flowchart shown in Figure 4 is:

864000812000-320008887588887688XREF

Figure 3. Retrieval Program Without Author and Key Word Listings.

Figure 4. Retrieval Program With Author and Key Word Listings.

In this example the maximum sort array area is 64000 words and the merging area is 12000 words. The initial index is -32000. Only documents from 1975 and 1976 will be placed in the sort array area. An author and key word index will be generated.

The limits of the sort array area are 64K in length and 32K on either side of zero, therefore to get the 64K desired we must specify the initial index as -32K. Each document that meets the yearly stratification takes 1 word of storage in the sort array area.

The second type of card in the retrieval process is the boolean statement of the request. This is a mixture of operands (key words and authors) and the boolean operators * (AND), + (OR), and $\neg$ (NOT). Every operand and operator must be separated by at least one blank. Parentheses may be used as desired.

Examples of request statements:

1. $A * \neg (B + C)$
2. $A * B + C$
3. $A + (B * C)$
4. $\neg A$

In the first example, A must be present but B or C (or both)¹ can not be present for the program to print-out the document. In the second example, either A and B must be present or C (or both) for the document

¹The OR (+) is the "inclusive" OR. It is true when either or both of the operands is true.

to be printed. In the third example, either B and C or A (or both) must be present for the document to be printed. The fourth example is an invalid case for the program. The $\neg$ condition must be preceded by *, so it becomes $* \neg$ (AND NOT) and is therefore a binary instead of a unary operator.

The program recognizes four special cases (types) of requests and works much faster (cheaper) if the request is of one of the four forms.

They are:

1. Operands connected by all '+'s,
e.g., $A + B + C + D + \dots$.
2. Operand 1 and-ed to a set of
operands connected by '+'s,
e.g., $A * (B + C + D + E + \dots)$.
3. The set operand 1 OR'ed with
operand 2 and then and-ed with
a set of operand connected by '+'s,
e.g., $(A \neq B) \wedge (C + D + E + \dots)$.
4. Each pair of operands and-ed together
and all pairs connected by '+'s, e.g.,
 $(A * B) + (C * D) + (E * F) + \dots$.

There are some limitations on the requests.

They are:

1. Each request begins on a new card.
2. A single request must be contained
on no more than five cards.
3. The total number of terms, operators,
and parentheses in a request must not
exceed 100.

A feature is available which allows a match to occur on a leading substring of a term. When the symbol '#' is the last character of a term the program matches any term in the file which begins with the string preceding the '#'. For example, 'MAGNET#' will cause a match on MAGNET, MAGNETIC, MAGNETIC-SUSCEP, etc.

NOTE: If the request ends in column 80 of the card, another blank card must be added to the request deck for the program to work properly. Also, multiple requests are not allowed when the author and key word indexes are desired.

The third type of card is the request-ID card. It is composed of four fields. Example:

@9999K EVANS-1

If the limit field is set to 8888 the program only lists out the number of documents for each term in the request. No evaluation of the request is done and no citations are printed. If the user wants the key words associated with each document the area on the request-ID card for this must have a "K" in it.

The retrieval program (RICIRS) first analyzes the boolean request string and changes it into a "POLISH" string for ease of operation. It then takes each term (author or key word) and searches the INDX and INDXWK files for the term. If the term is found the 7 character

document numbers associated with this term are brought in and checked to see if they meet the yearly stratification criteria. If they meet the yearly stratification criteria, the position within the "POLISH" string of the term is merged into the document number and this number is then placed in the sort array area. This process of looking up the terms is continued until the "POLISH" string is exhausted.

The documents associated with their position in the "POLISH" string are now sorted and the evaluation process begins. The type of the request is determined to facilitate faster handling of the documents. For example, if our request is of type 2, $A * (B + C + D + \dots)$ then all we have to do is check those document numbers associated with A to see if there is a B or C or D or ... associated with it. Also as soon as the document number is found to be true e.g., $A * B$ true, then the document number can be used to get the citation off of the citation file. The entire string need not be searched everytime with special cases. The other special cases have similar algorithms to evaluate the documents appropriateness.

III. Present Capabilities

The RICIRS data base contains approximately 11,000 documents from 1900 to the present, with approximately 10,000 authors represented and 7,500 different key words. The cost for a "typical" request is \$1.25 to \$1.75. The cost for a monthly update is about \$25.00 and the cost of a weekly update is about \$3.00. Of course, all of these costs are dependent on the amount of cards input and the amount of lines output since the computation center charges directly for these items.

The disk (2314) is about half full so it should be able to hold at least another 10,000 documents before another disk would need to be purchased. At present rate of updating this will probably be at least four years from now. More space could be obtained by placing the master card file on magnetic tape. At present this would yield approximately 40 cylinders of space on the disk.

The RICIRS system has also been modified for use with the dust explosion bibliograph data the Ames Laboratory has been collecting. This data base has about 1000 documents from 1882 to the present.

The RICIRS system was modified for the grain dust explosion project (6). This system contains approximately 1000 documents from 1882 to the present, with approximately 1000 authors and 200 key words.

IV. Possible Future Extensions

At present both the weekly and monthly files are generated in the same way. That is, the citation and term files are destroyed (scratched) and are entirely recreated from either the master monthly or master weekly card files. The weekly files were designed to make it easier and less expensive to update the data base. Possibly a random update scheme for the weekly data base would be much less expensive than the present destroy and re-create scheme used. This random scheme might also make it more convenient to use (less JCL for the user to deal with). This might make the data base more of a current awareness data base than it is at present. To go to a random scheme CITN, TERM and RICIRS would have to be changed in the way they access the files.

V. Acknowledgements

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VI. References

1. Jordan, J. R., Sun, R. P., and Maple, C. G., "A Description of a Batch Operated Retrospective Information Retrieval System", USAEC Report IS-3387, 1974.
2. Jordan, J. R., Sun, R. P., and Maple, C. G., "Data Base Design Considerations for a Key Word Based Retrospective Information Retrieval System", USAEC Report IS-3389, 1974.
3. Jordan, J. R., Sun, R. P., and Maple, C. G., "Operation and Maintenance of the RARE-EARTH Information Center's Information Retrieval System (RICIRS)", USAEC Report IS-3388, 1974.
4. The SDI Retrospective Literature Search System, ISU Computation Center, Users Reference Memo 033.
5. Moon, L. C., "Operation and Maintenance of the Rare-Earth Information Retrieval System (RICIRS) Version 2", USERDA Report IS-4104, 1977.
6. Verkade, M., and Chiotti, P., "Bibliography of Grain Dust Fire and Explosion", Project 400-25-04, IS-EMMRI-5, 1976.

RICIRS Retrieval Deck

```
//B383LM JOB AC129,MOON
//JCBLIB DD DSN=RIC.PROG,VOL=SER=RICIRS,UNIT=2314,DISP=SHR
//S1 EXEC PGM=SIGAR,PARM='ISA(118K)',REGION=220K,TIME=(0,15)
//SYSPRINT DD SYSOUT=A,DCB=(RECFM=VBA,LRECL=137,BLKSIZE=141)
//CITWK DD UNIT=2314,DISP=SHR,DSN=RIC.CIT.WEEK,
//      DCB=(DSORG=IS,BUFNO=1),VOL=SER=RICIRS
//INDXWK DD UNIT=2314,DISP=SHR,DSN=RIC.TERM.WEEK,
//      DCB=(DSORG=IS,BUFNO=1),VOL=SER=RICIRS
//INDX DD DSN=RIC.TERM.NEW,DCB=(DSORG=IS,BUFNO=1),UNIT=2314,
//      VOL=SER=RICIRS,DISP=SHR
//CITATN DD DSN=RIC.CIT.NEW,DCB=(DSORG=IS,BUFNO=1),UNIT=2314,
//      VOL=SER=RICIRS,DISP=SHR
//LIBRPTR DD SYSOUT=A
//USERPRT DD SYSOUT=A
//PLIDUMP DD SYSOUT=A,DCB=(RECFM=VBA,LRECL=137,BLKSIZE=141,BUFNO=1)
//REQUEST DD *
          12000 2000      1
( LA + LA- ) * ( PR + PR- )
@0001KBE-3
```

VII. Appendix A: JCL Decks for both the RICIRS and the DUST
Information Retrieval Systems

RICIRS Retrieval Deck with Author and Key Word Indexes

```
//B383LM JOB A0129,MOON
//JOB LIB DD DSN=RIC.PROG,VOL=SER=RICIRS,UNIT=2314,DISP=SHR
//S1 EXEC PGM=SIGAR,PARM='ISA(118K)',REGION=220K,TIME=(0,15)
//SYSPRINT DD SYSOUT=A,DCB=(RECFM=VBA,LRECL=137,BLKSIZE=141)
//CITWK DD UNIT=2314,DISP=SHR,DSN=RIC.CIT.WEEK,
//      DCB=(DSORG=IS,BUFNO=1),VOL=SER=RICIRS
//INDEXWK DD UNIT=2314,DISP=SHR,DSN=RIC.TERM.WEEK,
//      DCB=(DSORG=IS,BUFNO=1),VOL=SER=RICIRS
//INDEX DD DSN=RIC.TERM.NEW,DCB=(DSORG=IS,BUFNO=1),UNIT=2314,
//      VOL=SER=RICIRS,DISP=SHR
//CITATN DD DSN=RIC.CIT.NEW,DCB=(DSORG=IS,BUFNO=1),UNIT=2314,
//      VOL=SER=RICIRS,DISP=SHR
//LIBRPTR DD SYSOUT=A
//USERPRT DD SYSOUT=A
//PLIDUMP DD SYSOUT=A,DCB=(RECFM=VBA,_RECL=137,BLKSIZE=141,BUFNO=1)
//REQUEST DD *
12000 2000      1          XREF
@9999KBE-1
//AUTHOR DD DSN=88AUTH,DISP=(NEW,PASS),VOL=SER=SHORT1,UNIT=2314,
//      DCB=(RECFM=FB,LRECL=24,BLKSIZE=1800,BUFNO=1),
//      SPACE=(TRK,(1,1))
//KEYWORD DD DSN=88KEY,DISP=(NEW,PASS),UNIT=SCRTCH,
//      DCB=(RECFM=FB,LRECL=19,BLKSIZE=1805,BUFNO=1),
//      SPACE=(TRK,(3,2))
//S2 EXEC PGM=AUTHPRT,PARM='ISA(4K)',REGION=48K
//OUT DD SYSOUT=A
//PLIDUMP DD SYSOUT=A
//SYSPRINT DD SYSOUT=A
//SORTIN DD DSN=88AUTH,DISP=(OLD,DELETE),VOL=SER=SHORT1,UNIT=2314,
//      DCB=(RECFM=FB,LRECL=24,BLKSIZE=1800)
//SYSOUT DD SYSOUT=A
//SORTLIB DD DISP=SHR,DSN=SYS1.SORTLIB
//SORTWK01 DD UNIT=SCRTCH,SPACE=(TRK,(30),,CONTIG)
//SORTWK02 DD UNIT=SCRTCH,SPACE=(TRK,(30),,CONTIG)
//SORTWK03 DD UNIT=SCRTCH,SPACE=(TRK,(30),,CONTIG)
```

RICIRS Retrieval Deck with Author and Key Word Indexes (Continued)

```
//SORTOUT DD DSN=##TEMP,DISP=(NEW,DELETE),UNIT=SCRATCH,  
// SPACE=(TRK,(1,1)),DCB=(RECFM=FB,LRECL=24,BLKSIZE=1800)  
//S3 EXEC PGM=KEYPRT,PARM='ISA(04K),NR',REGION=48K  
//SYSPRINT DD SYSOUT=A  
//OUT DD SYSOUT=A  
//OUTCARD DD SYSOUT=B  
//SORTIN DD DSN=##KEY,DISP=(OLD,DELETE),UNIT=SCRATCH,  
// DCB=(RECFM=FB,LRECL=19,BLKSIZE=1805)  
//SORTOUT DD DSN=##TEMP2,DISP=(NEW,DELETE),UNIT=SCRATCH,  
// SPACE=(TRK,(3,2)),DCB=(RECFM=FB,LRECL=19,BLKSIZE=1805)  
//SYSOUT DD SYSOUT=A  
//SCRLIB DD DISP=SHR,DSN=SYS1.SCRLIB  
//SORTWK01 DD UNIT=SCRATCH,SPACE=(TRK,(30),,CONTIG)  
//SORTWK02 DD UNIT=SCRATCH,SPACE=(TRK,(30),,CONTIG)  
//SORTWK03 DD UNIT=SCRATCH,SPACE=(TRK,(30),,CONTIG)
```

Weekly Update for RICIRS

```
//A245GSUP JOB A0129, EVANS, MSGLEVEL=(1,1)
//*JCBPARM LINES=30
//JOB LIB DD DSN=RIC.PROG, UNIT=2314, VOL=SER=RICIRS, DISP=SHR
//SC EXEC PGM=IEFBRI4, REGION=32K
//DD3 DD DISP=(CLD,DELETE), UNIT=2314, VCL=SER=SHORT1, DSN=RIC.WORD
//DD4 DD DSN=RIC.SORTWD, VOL=SER=SHORT1, UNIT=2314, DISP=(OLD,DELETE)
//DD5 DD DISP=(CLD,DELETE), UNIT=2314, VOL=SER=RICIRS, DSN=RIC.CIT.WEEK
//DD6 DD DISP=(CLD,DELETE), UNIT=2314, VOL=SER=RICIRS, DSN=RIC.TERM.WEEK
//DD7 DD DISP=(CLD,DELETE), UNIT=2314, VOL=SER=RICIRS, DSN=RIC.WEEK.OLD
//S0 EXEC MOD, PACK=RICIRS
  RENAME CSNAME=RIC.WEEK.NEW, VOL=2314=RICIRS, NEWNAME=RIC.WEEK.OLD
//S1 EXEC PRCC=SORTD, TIME=(1,30)
//SORTIN DD *
//SCRTOUT DD UNIT=SCRTCH, DISP=(NEW,PASS), DSN=SCRTCH,
//      DCB=(RECFM=FB, LRECL=80, BLKSIZE=3520),
//      SPACE=(CYL,(15,5), RLSE)
//SORTWK01 DD UNIT=SCRTCH, SPACE=(CYL,(20),,CONTIG)
//SORTWK02 DD UNIT=SCRTCH, SPACE=(CYL,(20),,CONTIG)
//SORTWK03 DD UNIT=SCRTCH, SPACE=(CYL,(20),,CONTIG)
//SYSIN DD *
  SORT FIELDS=(62,9,CH,A,75,1,CH,A,74,1,CH,A)
//S2 EXEC PGM=UPDAT2, REGION=76K, PARM='ISASIZE(4K)', COND=(9,LT), TIME=2
//SYSPRINT DD SYSOUT=A
//PLIDUMP DD SYSOUT=A
//TRANS DD DSN=SCRTCH, UNIT=SCRTCH, DISP=(CLD,PASS)
//MASTER2 DD DSN=RIC.WEEK.NEW, UNIT=2314, VOL=SER=RICIRS,
//      DISP=(NEW,KEEP), SPACE=(CYL,(1,1)),
//      DCB=(RECFM=FB, LRECL=80, BLKSIZE=7280, BUFNO=1)
//MASTER1 DD DSN=RIC.WEEK.OLD, UNIT=2314, VOL=SER=RICIRS,
//      DISP=(CLD,KEEP), DCB=BUFNO=1
//WEEK DD *
//S1 EXEC PGM=CITN, PARM='ISA(6K)', REGION=72K, COND=(9,LT)
//PLIDUMP DD SYSOUT=A, DCB=(RECFM=VBA, LRECL=137, BLKSIZE=141)
//SYSPRINT DD SYSOUT=A, DCB=(RECFM=VBA, LRECL=137, BLKSIZE=141)
//DATAIN DD DSN=RIC.WEEK.NEW, DISP=SHR, VOL=SER=RICIRS, UNIT=2314,
```


Weekly Update for RICIRS (Continued)

```
// DCB=BUFNO=1
//CITATN DD DSN=RIC.CIT.WEEK,DISP=(NEW,KEEP),UNIT=2314,VOL=SER=RICIRS,
// SPACE=(CYL,(6)),DCB=(CYLOFL=0,CPTCD=U,DSORG=IS)
//WORD DD DSN=RIC.WORD,VOL=SER=SHORT1,UNIT=2314,DISP=(NEW,KEEP),
// SPACE=(CYL,(15,5)),DCB=(RECFM=FB,LRECL=18,BLKSIZE=7290)
//MSGPRT DD SYSCUT=A
//SORTCD DD DSN=SSORTCARD,UNIT=SCRTCH,DISP=(NEW,PASS),SPACE=(TRK,1)
//S2 EXEC SYMSORT,TRACKS=500,TIME=2
//SYSIN DD DSN=SSORTCARD,DISP=(OLD,DELETE)
//SCRTIN DD DSN=RIC.WORD,DISP=(OLD,KEEP),VOL=SER=SHORT1,UNIT=2314,
// DCB=(RECFM=FB,LRECL=18,BLKSIZE=7290)
//SORTOUT DD DSN=RIC.SORTWD,UNIT=2314,VOL=SER=SHORT1,DISP=(NEW,KEEP),
// DCB=(RECFM=FB,LRECL=18,BLKSIZE=7290),
// SPACE=(CYL,(15,5))
//S4 EXEC PGM=TERM,PARM='ISA(16K)',REGION=72K,CCND=(9,LT)
//SYSPRINT DD SYSOUT=A,DCB=(RECFM=VBA,LRECL=137,BLKSIZE=141)
//PLIDUMP DD SYSOUT=A,DCB=(RECFM=VBA,LRECL=137,BLKSIZE=141)
//TERMOUT DD DSN=RIC.TERM.WEEK,UNIT=2314,VOL=SER=RICIRS,
// DISP=(NEW,KEEP),
// DCB=(CYLOFL=0,OPTCD=U,DSORG=IS),SPACE=(CYL,(3))
//DCCWORD DD DSN=RIC.SORTWD,DISP=(OLD,KEEP),UNIT=2314,VOL=SER=SHORT1
//MSGPRT DD SYSCUT=A
//BWDPRF DD SYSCUT=A
//S1 EXEC PGM=PRINTEM,PARM='ISASIZE(36K),NR',REGION=86K
//ALTHOR DD SYSCUT=A
//KEYWORD DD SYSOUT=A
//TERM DD DSN=RIC.TERM.WEEK,VOL=SER=RICIRS,UNIT=2314,DISP=SHR
//SE1 EXEC LIST,PACK=RICIRS,COND=(9,LT)
LISTVTCC FORMAT,VOL=2314=RICIRS
LISTPDS VOL=2314=RICIRS,DSNAME=RIC.PROG
```

Monthly Update for RICIRS

```
//A245GSUP JOB A0129, EVANS, MSGLEVEL=(1,1)
/*JCBPARM LINES=30
//JCLIB DD DSN=RIC.PROG, UNIT=2314, VOL=SER=RICIRS, DISP=SHR
//SO EXEC PGM=IEFBRI4, REGION=32K
//DD1 DD DISP=(CLD,DELETE), UNIT=2314, VOL=SER=RICIRS, DSN=RIC.CIT.NEW
//DC2 DD DISP=(CLD,DELETE), UNIT=2314, VOL=SER=RICIRS, DSN=RIC.TERM.NEW
//DD3 DD DISP=(CLD,DELETE), UNIT=2314, VOL=SER=SHORT1, DSN=RIC.WORD
//DC4 DD DSN=RIC.SORTWD, VOL=SER=SHORT1, UNIT=2314, DISP=(CLD,DELETE)
//DC5 DD DISP=(CLD,DELETE), UNIT=2314, VOL=SER=RICIRS, DSN=RIC.CIT.WEEK
//DC6 DD DISP=(CLD,DELETE), UNIT=2314, VOL=SER=RICIRS, DSN=RIC.TERM.WEEK
//DC7 DD DISP=(CLD,DELETE), UNIT=2314, VOL=SER=RICIRS, DSN=RIC.WEEK.OLC
//DC8 DD DISP=(CLD,DELETE), UNIT=2314, VOL=SER=RICIRS, DSN=RIC.MASTER.OLD
//SO EXEC MCD, PACK=RICIRS
  RENAME CSNAME=RIC.MASTER.NEW, VOL=2314=RICIRS, NEWNAME=RIC.MASTER.OLD
//S1 EXEC PROC=SORTD, TIME=(1,30)
//SORTIN DC *
/*
//SCRTOUT DD UNIT=2314, DISP=(NEW,KEEP), DSN=TRANS,
// VOL=SER=SHORT1,
// DCE=(RECFM=FB, LRECL=80, BLKSIZE=3520),
// SPACE=(CYL,(15,5), RLSE)
//SORTWK01 DD UNIT=SCRTCH, SPACE=(CYL,(20),,CONTIG)
//SORTWK02 DD UNIT=SCRTCH, SPACE=(CYL,(20),,CONTIG)
//SORTWK03 DD UNIT=SCRTCH, SPACE=(CYL,(20),,CONTIG)
//SYSIN DD *
  SORT FIELDS=(62,9,CH,A,75,1,CH,A,74,1,CH,A)
/*
//S2 EXEC PGM=UPDATE, REGION=66K, PARM='ISA(4K)', COND=(9,LT), TIME=2
//OUT DD SYSOUT=A
//PLIDUMP DD SYSOUT=A
//TRANS DD DSN=TRANS, UNIT=2314, DISP=(OLD,KEEP), VOL=SER=SHORT1
//MASTER2 DD DSN=RIC.MASTER.NEW, UNIT=2314, VOL=SER=RICIRS,
// DISP=(NEW,KEEP), SPACE=(CYL,(28,2)),
// DCB=(RECFM=FB, LRECL=80, BLKSIZE=7280, BUFNO=1)
//MASTER1 DD DSN=RIC.MASTER.OLD, UNIT=2314, VOL=SER=RICIRS,
```

Monthly Update for RICIRS (Continued)

```
// DISP=(OLD,KEEP),DCB=BUFNO=1
//WEEK DD DSN=RIC.WEEK.NEW,VOL=SER=RICIRS,UNIT=2314,DISP=SHR
//S1 EXEC PGM=CITN,PARM='ISA(6K)',REGION=72K,COND=(9,LT)
//PLIDUMP DD SYSOUT=A,DCB=(RECFM=VBA,LRECL=137,BLKSIZE=141)
//SYSPRINT DD SYSOUT=A,DCB=(RECFM=VBA,LRECL=137,BLKSIZE=141)
//DATAIN DD DSN=RIC.MASTER.NEW,DISP=SHR,VOL=SER=RICIRS,UNIT=2314,
// DCB=BUFNO=1
//CITATN DD DSN=RIC.CIT.NEW,DISP=(NEW,KEEP),UNIT=2314,VOL=SER=RICIRS,
// SPACE=(CYL,(40)),DCB=(CYLCFL=0,OPTCD=U,DSORG=IS)
//WORD DD DSN=RIC.WORD,VOL=SER=SHORT1,UNIT=2314,DISP=(NEW,KEEP),
// SPACE=(CYL,(15,5)),DCB=(RECFM=FB,LRECL=18,BLKSIZE=7290)
//MSGPRT DD SYSCUT=A
//SORTCD DD DSN=88SORTCARD,UNIT=SCRTCH,DISP=(NEW,FASS),SPACE=(TRK,1)
//S2 EXEC SYMSCRT,TRACKS=500,TIME=2
//SYSIN DD DSN=88SORTCARD,DISP=(OLD,DELETE)
//SORTIN DD DSN=RIC.WORD,DISP=(OLD,KEEP),VOL=SER=SHORT1,UNIT=2314,
// DCB=(RECFM=FB,LRECL=18,BLKSIZE=7290)
//SORTOUT DD DSN=RIC.SCRTWD,UNIT=2314,VOL=SER=SHORT1,DISP=(NEW,KEEP),
// DCB=(RECFM=FB,LRECL=18,BLKSIZE=7290),
// SPACE=(CYL,(15,5))
//S4 EXEC PGM=TERM,PARM='ISA(16K)',REGION=72K,COND=(9,LT)
//SYSPRINT DD SYSOUT=A,DCB=(RECFM=VBA,LRECL=137,BLKSIZE=141)
//PLIDUMP DD SYSOUT=A,DCB=(RECFM=VBA,LRECL=137,BLKSIZE=141)
//TERMOUT DD DSN=RIC.TERM.NEW,UNIT=2314,VOL=SER=RICIRS,
// DISP=(NEW,KEEP),
// DCB=(CYLCFL=0,OPTCD=U,DSORG=IS),SPACE=(CYL,(10))
//DCCWORD DD DSN=RIC.SORTWD,DISP=(OLD,KEEP),UNIT=2314,VOL=SER=SHORT1
//MSGPRT DD SYSOUT=A
//BWDPRD DD SYSCUT=A
//S EXEC PGM=IEFBR14,COND=(9,LT),REGION=32K
//DD1 DD DSN=RIC.WEEK.NEW,VOL=SER=RICIRS,UNIT=2314,DISP=(OLD,DELETE)
//S25 EXEC PGM=DUM,PARM='ISASIZE(6K)',REGION=76K,COND=(9,LT)
//PLIDUMP DD SYSOUT=A
//CITWK DD DSN=RIC.CIT.WEEK,VOL=SER=RICIRS,DISP=(NEW,KEEP),UNIT=2314,
// DCB=(DSORG=IS,OPTCD=U,CYLOFL=0,BUFNO=1),SPACE=(CYL,(1))
```

Monthly Update for RICIRS (Continued)

```
//INDEXWK DD DSN=RIC.TERM.WEEK,VOL=SER=RICIRS,DISP=(NEW,KEEP),UNIT=2314,  
// DCB=(DSORG=IS,OPTCD=U,CYLCFL=0,BUFNC=1),SPACE=(CYL,(1))  
//MASTER DD DSN=RIC.WEEK.NEW,DISP=(NEW,KEEP),VOL=SER=RICIRS,UNIT=2314,  
// SPACE=(TRK,(1,1)),DCB=(RECFM=FB,LRECL=80,BLKSIZE=7280)  
//S1 EXEC PGM=PRINTM,PARM='ISASIZE(36K),NR',REGION=86K  
//AUTHOR DD SYSCUT=A  
//KEYWORD DD SYSOUT=A  
//TERM DD DSN=RIC.TERM.NEW,VOL=SER=RICIRS,UNIT=2314,DISP=SHR  
//SE1      EXEC LIST,PACK=RICIRS,COND=(9,LT)  
            LISTVTCC FORMAT,VOL=2314=RICIRS  
            LISTPDS VCL=2314=RICIRS,DSNAME=RIC.PROG
```

Edited Key Word Index Card Printing JCL

```
//B383LM JOB AC129,MOON
//S1 EXEC PGM=CARDPRT,PARM='ISA(4K)',REGION=36K
//STEPLIB DD DSN=RIC.PROG,VOL=SER=RICIRS,UNIT=2314,DISP=SHR
//OUT DD SYSOUT=A
//PLIDUMP DD SYSOUT=A
//IN DD *
BINARY          974009721,999999999,999999999,999999999,
                  974009721
CRYSTAL-STRUC    973009880
ETCHING          973009880
GDFO3           973009880,974009720
LAFE03          974009720
LATTICE-PARAM    973009880
PREPARATION      973009880,974009720,974009721
SINGLE-CRYSTAL    973009880,974009720,974009721
SMFO3           973009880,974009720,974009721
SYSTEM          974009721
TBFO3           973009880,974009720,974009721
```

DUST Update JCL

```
//B383LM2 JOB AC129,MOCN,MSGLEVEL=(1,1)
/*JCBPARM LINES=30
//JOB LIB DD DSN=RIC.PROG,UNIT=2314,VOL=SER=RICIRS,DISP=SHR
//S0 EXEC PGM=IEFBR14,REGION=32K
//DD1 DD DISP=(CLD,DELETE),UNIT=2314,VOL=SER=SHCRT1,DSN=DUST.CIT.NEW
//DD2 DD DISP=(CLD,DELETE),UNIT=2314,VOL=SER=SHCRT1,DSN=DUST.TERM.NEW
//DD3 DD DISP=(CLD,DELETE),UNIT=2314,VOL=SER=SHORT1,DSN=RIC.WORD
//DD4 DD DSN=RIC.SORTWD,VOL=SER=SHORT1,UNIT=2314,DISP=(OLD,DELETE)
//DD5 DD DISP=(CLD,DELETE),UNIT=2314,VOL=SER=SHCRT1,DSN=DUST.CIT.WEEK
//DD6 DD DISP=(CLD,DELETE),UNIT=2314,VOL=SER=SHCRT1,DSN=DUST.TERM.WEEK
//DD7 DD DISP=(CLD,DELETE),UNIT=2314,VOL=SER=SHCRT1,DSN=DUST.WEEK.OLD
//DD8 DD DSN=DUST.MASTER.NEW,UNIT=2314,VOL=SER=SHCRT1,DISP=(CLD,DELETE)
//S1 EXEC PRCC=SORTD,TIME=(1,30)
//SORTIN DD *
/*
//SCRTOUT DD UNIT=SCRTCH,DISP=(NEW,PASS),DSN=88TRANS,
//      DCB=(RECFM=FB,LRECL=80,BLKSIZE=3520),
//      SPACE=(CYL,(15,5),RLSE)
//SCRTWK01 DD UNIT=SCRTCH,SPACE=(CYL,(20),,CENTIG)
//SCRTWK02 DD UNIT=SCRTCH,SPACE=(CYL,(20),,CENTIG)
//SCRTWK03 DD UNIT=SCRTCH,SPACE=(CYL,(20),,CENTIG)
//SYSIN DD *
      SORT FIELDS=(62,9,CH,A,75,1,CH,A,74,1,CH,A)
/*
//S1 EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSIN DD DUMMY
//SYSUT1 DD UNIT=(2400,,DEFER),DISP=(OLD,KEEP),LABEL=(1,SL),
//      DSN=DUST.MASTER.NEW,VOL=SER=DUST01
//SYSUT2 DD DSN=DUST.MASTER.OLD,UNIT=2314,VOL=SER=SHORT1,
//      DISP=(NEW,KEEP),SPACE=(CYL,(2,2))
//S2 EXEC PGM=UPDAT2,REGION=76K,PARM='ISASIZE(4K)',COND=(9,LT),TIME=2
//SYSPRINT DD SYSOUT=A
//PLIDUMP DD SYSOUT=A
//TRANS DD DSN=88TRANS,UNIT=SCRTCH,DISP=(CLD,PASS)
```

DUST Update JCL (Continued)

```
//MASTER2 DD DSN=DUST.MASTER.NEW,UNIT=2314,VOL=SER=SHORT1,
// DISP=(NEW,KEEP),SPACE=(CYL,(2,2)),
// DCB=(RECFM=FB,LRECL=80,BLKSIZE=7280,BUFNO=1)
//MASTER1 DD DSN=DUST.MASTER.OLD,UNIT=2314,VOL=SER=SHORT1,DISP=SHR,
// DCB=BUFNO=1
//WEEK DC *
//S1 EXEC PGM=CITN,PARM='ISA(6K)',REGION=72K,COND=(9,LT)
//PLIDUMP DD SYSOUT=A,DCB=(RECFM=VBA,LRECL=137,BLKSIZE=141)
//SYSPRINT DD SYSOUT=A,DCB=(RECFM=VBA,LRECL=137,BLKSIZE=141)
//DATAIN DD DSN=DUST.MASTER.NEW,DISP=SHR,VOL=SER=SHORT1,UNIT=2314,
// DCB=BUFNO=1
//CITATN DD DSN=DUST.CIT.NEW,DISP=(NEW,KEEP),UNIT=2314,VOL=SER=SHORT1,
// SPACE=(CYL,(4)),DCB=(CYLOFL=0,CPTCD=U,DSORG=IS)
//WORD DD DSN=RIC.WORD,VOL=SER=SHORT1,UNIT=2314,DISP=(NEW,KEEP),
// SPACE=(CYL,(15,5)),DCB=(RECFM=FB,LRECL=18,BLKSIZE=7290)
//MSGPRT DD SYSCUT=A
//SORTCD DD DSN=88SORTCARD,UNIT=SCRTCH,DISP=(NEW,PASS),SPACE=(TRK,1)
//S2 EXEC SYMSORT,TRACKS=500,TIME=2
//SYSIN DD DSN=88SORTCARD,DISP=(OLD,DELETE)
//SORTIN DD DSN=RIC.WORD,DISP=(OLD,KEEP),VOL=SER=SHORT1,UNIT=2314,
// DCB=(RECFM=FE,LRECL=18,BLKSIZE=7290)
//SCRTOUT DD DSN=RIC.SORTWD,UNIT=2314,VOL=SER=SHORT1,DISP=(NEW,KEEP),
// DCB=(RECFM=FE,LRECL=18,BLKSIZE=7290),
// SPACE=(CYL,(15,5))
//S4 EXEC PGM=TERM,PARM='ISA(16K)',REGION=72K,COND=(9,LT)
//SYSPRINT DD SYSOUT=A,DCB=(RECFM=VBA,LRECL=137,BLKSIZE=141)
//PLIDUMP DD SYSOUT=A,DCB=(RECFM=VBA,LRECL=137,BLKSIZE=141)
//TERMOUT DC DSN=DUST.TERM.NEW,UNIT=2314,VOL=SER=SHORT1,
// DISP=(NEW,KEEP),
// DCB=(CYLOFL=0,OPTCD=U,DSORG=IS),SPACE=(CYL,(2))
//DCCWORD DD DSN=RIC.SORTWD,DISP=(OLD,KEEP),UNIT=2314,VOL=SER=SHORT1
//MSGPRT DD SYSCUT=A
//BWDPRD DD SYSCUT=A
//S EXEC PGM=IEFBR14,COND=(9,LT),REGION=32K
//DD1 DD DSN=DUST.WEEK.NEW,VOL=SER=SHORT1,UNIT=2314,DISP=(OLD,DELETE)
```

DUST Update JCL (Continued)

```
//S25 EXEC PGM=DUM,PARM='ISASIZE(6K)',REGION=76K,COND=(S,LT)
//CITWK DD DSN=DUST.CIT.WEEK,VOL=SER=SHORT1,DISP=(NEW,KEEP),UNIT=2314,
// DCB=(DSORG=IS,OPTCD=U,CYLOFL=0,BUFNC=1),SPACE=(CYL,(1))
//INDXWK DD DSN=DUST.TERM.WEEK,VOL=SER=SHORT1,DISP=(NEW,KEEP),
// UNIT=2314,
// DCB=(DSORG=IS,OPTCD=U,CYLCFL=0,BUFNC=1),SPACE=(CYL,(1))
//MASTER DD DSN=DUST.WEEK.NEW,DISP=(NEW,KEEP),VOL=SER=SHORT1,UNIT=2314,
// SPACE=(TRK,(1,1)),DCB=(RECFM=FB,LRECL=80,BLKSIZE=7280)
//PLIDUMP DD SYSOUT=A
//S1 EXEC PGM=PRINTEM,PARM='ISASIZE(35K),NR',REGION=86K
//AUTHOR DD SYSOUT=A
//KEYWORD DD SYSOUT=A
//TERM DD DSN=DUST.TERM.NEW,VOL=SER=SHORT1,UNIT=2314,DISP=SHR
//S2 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=RIC.PROG,VOL=SER=RICIRS,UNIT=2314,DISP=SHR
//SYSUT2 DD DSN=DUST.PROG,UNIT=2314,VOL=SER=SHORT1,DISP=(NEW,KEEP),
// SPACE=(TRK,(8,2,2))
//SYSIN DD *
COPY OUTDD=SYSUT2,INDD=SYSUT1
SELECT MEMBER=(SIGAR,KEYPRT,AUTHPRT)
```


DUST Retrieval Program with Key Word Indexes and No Key Word Index Card Output

```
//B383DUST JOB A0129,VERKACE
//JOB LIB DD DSN=DUST.PROG,VOL=SER=SHORT1,UNIT=2314,DISP=SHR
//S1 EXEC PGM=SIGAR,PARM='ISA(118K)',REGION=220K
//SYSPRINT DD SYSOUT=A,DCB=(RECFM=VBA,LRECL=137,BLKSIZE=141)
//CITWK DD UNIT=2314,DISP=SHR,DSN=DUST.CIT.WEEK,
//      DCB=(DSORG=IS,BUFNO=1),VOL=SER=SHORT1
//INDXWK DD UNIT=2314,DISP=SHR,DSN=DUST.TERM.WEEK,
//      DCB=(DSORG=IS,BUFNO=1),VOL=SER=SHORT1
//INDX DD DSN=DUST.TERM.NEW,DCB=(DSORG=IS,BUFNO=1),UNIT=2314,
//      VOL=SER=SHORT1,DISP=SHR
//CITATN DD DSN=DUST.CIT.NEW,DCB=(DSORG=IS,BUFNO=1),UNIT=2314,
//      VOL=SER=SHORT1,DISP=SHR
//LIBRPTR DD SYSOUT=A
//USERPRT DC SYSCUT=A
//PLIDUMP DD SYSOUT=A,DCB=(RECFM=VBA,LRECL=137,BLKSIZE=141,BUFNO=1)
//REQUEST DC *
      12000 2000      1      XREF
FIRE * CONTROL * ( GRAIN + AGRICULTURAL + SUGAR + FLOUR + STARCH ) * - EXPLOSION
```

```
@9999KBE-1
//AUTHOR DD DSN=##AUTH,DISP=(NEW,PASS),VOL=SER=SHORT1,UNIT=2314,
//      DCB=(RECFM=FB,LRECL=24,BLKSIZE=1800,BUFNO=1),
//      SPACE=(TRK,(1,1))
//KEYWORD DD DSN=##KEY,DISP=(NEW,PASS),UNIT=SCRTCH,
//      DCB=(RECFM=FB,LRECL=19,BLKSIZE=1805,BUFNO=1),
//      SPACE=(TRK,(3,2))
//S3 EXEC PGM=KEYPRT,PARM='ISA(04K),NR',REGION=48K
//SYSPRINT DD SYSOUT=A
//OUT DD SYSOUT=A
//OUTCARD DD DUMMY
//SORTIN DD DSN=##KEY,DISP=(OLD,DELETE),UNIT=SCRTCH,
//      DCB=(RECFM=FB,LRECL=19,BLKSIZE=1805)
//SORTOUT DD DSN=##TEMP2,DISP=(NEW,DELETE),UNIT=SCRTCH,
//      SPACE=(TRK,(3,2)),DCB=(RECFM=FB,LRECL=19,BLKSIZE=1805)
//SYSOUT DD SYSCUT=A
```

DUST Retrieval Program with Key Word Indexes and No Key Word Index Card Output (Continued)

```
//SCRTLIB DD DISP=SHR,DSN=SYS1.SORTLIB  
//SORTWK01 DD UNIT=SCRCH,SPACE=(TRK,(30),,CONTIG)  
//SCRTWK02 DD UNIT=SCRCH,SPACE=(TRK,(30),,CONTIG)  
//SORTWK03 DD UNIT=SCRCH,SPACE=(TRK,(30),,CONTIG)
```

Recreate DUST Files and Programs on SHORT1

```
//DUSTDUMP JOB A0129,MOON,MSGLEVEL=(1,1)
//JOB LIB DD DSN=RIC.PROG,UNIT=2314,VOL=SER=RICIRS,DISP=SHR
//S1 EXEC MOD,PACK=SHORT1
  SCRATCH VOL=2314=SHORT1,DSNAME=DUST.CIT.WEEK
  SCRATCH VOL=2314=SHORT1,DSNAME=DUST.TERM.WEEK
  SCRATCH VOL=2314=SHORT1,DSNAME=DUST.WEEK.NEW
  SCRATCH VOL=2314=SHORT1,DSNAME=DUST.PROG
  SCRATCH VOL=2314=SHORT1,DSNAME=DUST.CIT.NEW
  SCRATCH VOL=2314=SHORT1,DSNAME=DUST.TERM.NEW
//LCAD1 EXEC PGM=IEBISAM,PARM=LOAD
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD UNIT=(TAPE,,DEFER),VOL=SER=DUST01,DISP=(OLD,PASS),
// LABEL=(2,SL),DCB=(RECFM=FB,LRECL=80,BLKSIZE=640),
// DSN=DUST.CIT.NEW
//SYSUT2 DD UNIT=2314,VOL=SER=SHORT1,DISP=(NEW,KEEP),DCB=(DSORG=IS),
// SPACE=(CYL,(5,5)),DSN=DUST.CIT.NEW
//UNLOAD2 EXEC PGM=IEBISAM,PARM=LCAD
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD UNIT=(TAPE,,DEFER),VOL=SER=DUST01,DISP=(CLD,PASS),
// LABEL=(3,SL),DCB=(RECFM=FB,LRECL=80,BLKSIZE=640),
// DSN=DUST.TERM.NEW
//SYSUT2 DD UNIT=2314,VOL=SER=SHORT1,DISP=(NEW,KEEP),DCB=(DSORG=IS),
// SPACE=(CYL,(5,5)),DSN=DUST.TERM.NEW
//S25 EXEC PGM=DUM,PARM=*ISASIZE(6K)*,REGION=76K,COND=(9,LT)
//PLIDUMP DD SYSCUT=A
//CITWK DD DSN=DUST.CIT.WEEK,VOL=SER=SHORT1,DISP=(NEW,KEEP),
// DCB=(RECFM=VB,LRECL=912,BLKSIZE=916,DSORG=IS,KEYLEN=4,RKP=8,
// OPTCD=U,BUFNO=1,CYLOFL=0),SPACE=(CYL,(1,1)),UNIT=2314
//INDEXWK DD DSN=DUST.TERM.WEEK,VOL=SER=SHORT1,DISP=(NEW,KEEP),
// UNIT=2314,DCB=(RECFM=VB,LRECL=7220,BLKSIZE=7233,KEYLEN=15,RKP=5,
// DSORG=IS,OPTCD=U,CYLOFL=0,BUFNO=1),SPACE=(CYL,(1,1))
//MASTER DD DSN=DUST.WEEK.NEW,DISP=(NEW,KEEP),VOL=SER=SHORT1,UNIT=2314,
// SPACE=(TRK,(1,1)),DCB=(RECFM=FB,LRECL=80,BLKSIZE=7280)
//S2 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=A
```

Recreate DUST Files and Programs on SHORT1 (Continued)

```
//SYSUT1 DD DSN=RIC.PROG,VOL=SER=RICIRS,UNIT=2314,DISP=SHR
//SYSUT2 DD DSN=DUST.PROG,UNIT=2314,VOL=SER=SHORT1,DISP=(NEW,KEEP),
// SPACE=(TRK,(8,2,2))
//SYSIN DD *
COPY OUTDD=SYSUT2,INDD=SYSUT1
SELECT MEMBER=(SIGAR,KEYPRT,AUTHPRT)
```

VIII. Appendix B: RICIRS Flowchart

RICIRS Flowchart (Continued).

RICIRS Flowchart (Continued).

RICIRS Flowchart (Continued).

RICIRS Flowchart (Continued).

RICIRS Flowchart (Continued).

RICIRS Flowchart (Continued).