LM 1/74

Library Computer Programs
Operating Manual

D.J. Dancy

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Introduction

The Library uses the main 4/70 computer to provide a weekly Current Awareness Bulletin, a weekly SDI (Selective Dissemination of Information but labelled current awareness service on the computer output), which is a selection from the Bulletin according to the person's interests, and a retrospective search facility (RIOT).

The "current awareness" suite comprising Input program Bulletin, SDI Internal; SDI External, and various support programmes are written in IMP, a language developed at Edinburgh University which runs on the 4/70 via a SIM package.

RIOT written in Fortran and User code uses as input the cumulation of references written by the current awareness INPUT program.

Further information on the programs etc can be found in the various reports listed at the end of this section.

The various programs are independent and can be run separately, but they are linked in so much as some programs need data from others, and of course they all consume the library's allocation of space and time.

The critical job is the Input since this produces the files used by the Bulletin and SDI programs and adds material to the cumulation file which after reformatting is used by RIOT.

The space used by the programs falls into two groups - private and public. The private space which is the RIOT data base (Vols 25 and 27) should be adequate for several years, at present we are not charged for it and it can be ignored for normal work. The public space is another matter.

Under various user names (AEN, INF,) there is adequate space for the running of RIOT, the creation of result files, and monitor files.

However all other work is done under DJDLIB with an allocation of 1500 space units (approx 3 Kbytes each). Usually some 600 units of this are used up by the cumulation files, 400 + with programs, leaving 400 or less for the new files, and output. The effect of this is that unless care is taken the space can become full and programs will fail.

Hence deletion of old input files (described on page 8) and removal of old cumulation files must be carried out from time to time. (See section on RIOT for fuller details)

SOME facts at March 1974 (all figures approx)

INPUT 8000 titles per year. (150 per week)

BULLETIN 150 items weekly on average. 500 copies distributed

SDI 90 users (15 external) 39,000 notifications annually

RIOT 40,000 references

REFERENCES. relating to library programs

Current Awareness Suite

CLM-LM1/72 General notes on the library Bulletin and SDI programs

(1972 version) for the Culham Library N.E.MARTIN 1972.

CLM-LM5/73 in 4 volumes Program manuals for Computerized Current Awareness Service.

VOL.1. Input Program: LIBRIP

Current Awareness Bulletins: LIBULW and LIBULM VOL.2.

VOL.3. Selective Dissemination Routines: SDIINT and SDIEXT

Supporting Programs: Profiles: Journal List. VOL.4.

N.E.MARTIN 1973.

Imp. Language

Programming in IMP. Edinburgh University: Computer Science EMAP/41.5/0026

Dept:

H.WHITFIELD 1969

E.R.C.C. Report Edinburgh IMP Language Manual No. 13.

M.M. BARRITT et al 1970

(Retrieval of Information by on-line terminal)

CLM-LM2/73 Instruction Manual (revised Oct.73)

CLM-LM1/73 Reference Manual

A.E. NEGUS 1973

CLM-LM9/73 Updating program for the Data Base

D.W. BROWN 1973

CDOUD		
GROUP	DETAILS	FILES INCLUDED
ЈОВ	System 4/70 Job decks setting up SIM and calling approp SIMJCL	LIBRIP(S) PRBUL(S) CRMJN(S) LIBULW(S) PRSDI(S) CRPROF(S) LIBULM(S) PRSTS(S) LIBSDI(S) PRCUM(S)
SIMJCL	SIM job deck to compile and run the specified program	LIBRIP(S) PRBUL(S) CRMJN(S) LIBULW(S) PRSDI(S) CRPROF(S) LIBULM(S) PRSTS(S) LIBSDI(S) PRCUM(S)
SOURCE	Source text of IMP programs OBJECT versions of SOURCE	LIBRIP(S) PRBUL(S) CRMJN(S) LIBULW(S) PRSDI(S) CRPROF(S) LIBULM(S) PRSTS(S) LIBSDI(S) PRCUM(S)
* LIST	Output files used for line printer listings	LIBRIP(S) CRMJN(S) PRBUL(S) LIBULW(S) CRPROF(S) PRSDI(S) LIBULM(S) PRSTS(S) LIBSDI(S) PRCUM(S)
MASTER	Master files created & called by programs	PROFnn(N) JRNTIT(N) USNAnn(N)
DA TA	Data files. Various types of input:	COMWDS(S) CNTLIB(S) NEWJRN(S) CNTBLW(S) PROFnn(S) CNTBLM(S) NJNTIT(S) CNTSDI(S)
FUNGUS	Files under general use during programs cycle: The evergrowing input and cumulation files	BLyyww(N) CUMyy(N) STyyww(N) CMSTyy(N) SDyyww(N)

* Note: In general these files exist only while the program is running and then until they are printed. They are deleted, after printing, by the print program.

All names are chosen to be easily understood. Hence to run the Library Bulletin. The file \underline{JOB} \underline{LIB} rary \underline{BUL} letin \underline{W} eekly is run, this calls the \underline{SIM} \underline{JCL} file for \underline{LIB} ULW which uses the SOURCE program. LIBULW(S) or for speed the OBJECT program LIBULW(S) and prints its results in the LIST of \underline{LIB} ULW(S).



Data used by the program (apart from the references) is the list of journal titles from the MASTER file Master Journal TITle, which is a processed version of the new DATA file. MJNTIT.

Similarly to update SDI internal profiles the DATA <u>PRofiles INT</u>ernal file is edited, JOB. CReate PRofiles, calls SIMJCL.CRPROF which uses OBJECT. CRPROF(P) to produce MASTER. PRFINT and print the results out in the file LIST. CRPROF.

Space for SIM programs

The SIM programs write the data into blocks of 1024 bytes, each of which will take about 3 references on average. Hence for Input the files have been given the following sizes, which are sufficient for bulletins of up to 300 items.

BULLETIN 1024 x 90 (SPACE =(1024,90))
SDI 1024 x 90
STATISTICS 1024 x 10

For a cumulation the file size needs to be sufficient for 3 - 6 months i.e. 12 - 25 weeks (but average weeks, not max. weeks) hence

CUM - 6 months 1024×1200 .

- 3 months 1024×600

Unfortunately the Space units of the 4/70 (called 'extents') permit only 2 SIM blocks per unit of space. Thus the file size as made will always appear as half the SIM size (plus one for header details)

SIMJCL SPACE = (1024, 90)

4/70 FILE SIZE 46 extents (90/2 + 1)

In addition to Input and Cumulation the other dynamic allocation of space is for output. Bulletin Output is similar in size to the Bulletin file but the SDI output files are much larger since they list the many articles several times - once for each user with the appropriate interest - and this means that a large SDI can occupy 150 extents.

To summarise then: DJDLIB 1500 units
Normally Programs 500
Cumulation 600
Working area 400

From the working area of 400 units it is recommended that 200 units be kept clear for output files, leaving 200 for input files i.e. 2 weeks running. Obviously with some archiving of infrequently used programs and a smaller cumulation (say 3 months instead of 6) it may be possible to clear a few hundred more extents, but this is a matter of individual judgement.

^{*} To archive use ARCHIVE command: See SIN 1/74

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WEEKLY UPDATING: BULLETIN -SDI SUITE

SCHEDULE

All file updating should have been done by the time the weekly input tapes are ready. It should not be started, though, until any computing backlog has been cleared up. It may be necessary, however, if a certain part of the system is way behind schedule, just to update the other files so as to keep them up to date. For instance, if there was a long-running failure on the SDI, just the Input and Bulletin files could be updated.

The system is geared to Wednesday lunchtime which is normally regarded as the time at which we stop adding new journal items to the input. This enables the typist to produce a tape for processing by Thursday afternoon, so that we can have a Bulletin tape by Friday.

Failure to run the Bulletin by Friday causes delay as the computer is not available Monday mornings, and therefore is often extremely busy on Monday afternoon. This means the turn-around time is increased and output will probably not be available until Tuesday.

A Thursday run can also help in cases of a failing input run, where alterations can be made quickly.

UPDATING

Updating is carried out by means of a teletype. If a line is not available in the library terminal room, one of the teletypes in the F.6. computer room should be used.

Files to change weekly are:

SIMJCL. LIBRIP --- LIBRary InPut

SIMJCL. LIBULW --- LIbrary BULletin Weekly

SIMJCL. SDIINT --- Selective Dissemination of Information to INTernal

SIMJCL. SDIEXT --- SDI to EXTernal users.

SIMJCL is the groupname. The rest of the term is the name of the relevant file in that group. - [SIMJCL = SIM Job Control Language]

(a) To operate the teletype

- (1) Make sure that it is switched on and that it is switched to 'duplex' or Beehive Video on HDX
- (2) Press any key and response will be '// LOGIN'. The reply is 'DJDLIB'.

 If no response press CTRLC. [CONTROL button and C otherwise ETX on

 Beehive]
- (3) The teletype will ask for a password, (JD1066) which should then be typed in although this will not be printed*. After giving details of the time situation, the machine will leave '?//' at which point you may continue with statements.
- (4) Everything typed in to the teletype must be followed by depressing the 'CTRL' and 'C' buttons, or ETX Button on Beehive, for the statement to be passed on.

(b) Looking at files

This is necessary so that you know exactly where and what you are editing. Any command here is useless without a groupname, so GROUP SIMJCL or GROUP DATA should be typed in. The machine will respond with ?//. Now you can look at whichever file you wish to see by typing 'LK' and the filename.

^{*} on Video in HDX (Half Duplex) the password is of course written on the screen.

UPDATING (Cont)

?// GROUP SIMJCL
?// LK SDIINT
00000010 WEEK 7219
00000020 // EXEC IMPS, PARM=NOLIST
00000030 // DAFILE10 DD DSN=MASTER. NJNTIT, DISP=OLD
00000040 // DAFILE20 DD DSN=FUNGUS. SD7219, DISF=OLD
00000050 // DAFILE30 DD DSN=MASTER. PRFINT, DISP=OLD
// A

The machine prints the file, with line numbers. It will stop printing every five lines. You can make it continue by typing CTRL-C (ETX) twice, or you can abandon by typing // A.

You can also look at a particular line by typing such a command as '?// LK LIBRIP,60'.

(c) Editing

Having looked you may now edit the file with whatever you want. This is achieved either by typing 'EDIT' or by using 'MITEM' (see below).

(1) Type 'EDIT'. The machine responds with '?'. Then you type in the format:

? line number. New line entry

e.g. ?60 // DAFILE20 DD DSN=FUNGUS. SD 7228, DISP=OLD

You <u>must</u> remember that you are editing your current active file, i.e. a file in the last group you named. You can check this by typing in CAF.

If you may make a mistake editing, you can delete a character by typing 'Shift-N' which will be printed as 'A'. When you have finished editing a particular file, you type '/*'. after the '?'.

(2) Use MITEM. - (not on current active file - if necessary do LK DUM to change CAF)

Give command ?// MITEM.

the machine responds with job details then:-

EDIT? type filename.

Response is? 1st line of file (for checking) then ?? type XGZ nnnn ZmmmmZ where nnnn is existing week no. mmmm is new week no.

machine responds EOF? type Q for Quit. Machine then prints 3 lines, wait for EOJ

FOR MORE INFORMATION SEE MITEM MANUAL

MITEM: The Culham Implementation D.A. Fox. CLM-PDN 3/72



(a) Space

Old files will be kept and should be deleted roughly every few weeks, so as to keep enough space available. To obtain a list of files which exist - type in 'LISTF' and the particular group e.g.

?// LISTF FUNGUS

The files in FUNGUS will then be printed. NOTE: RUN 'LIST6' for printed list of files.

To delete files that are not needed -

- (1) make sure that you are in the right group
- (2) type in 'NDFDEL' and the filename e.g.
- ?// NDFDEL SD7329(N)
- ?// NDFDEL ST7329(N)
- ?// NDFDEL BL7329(N)
- (3) always make sure the files you are deleting are not needed.

Space must be provided for job output. Files created in group LIST will normally be deleted after printing. However, with a daytime run of SDI not all the file will be printed - a print limit stop of 2500 lines operates*. Thus the file will not have been deleted, and the next run (of SDI program) will fail without error messages as the output file already exists.

Check this by typing ?// LISTF LIST which will list the files in group LIST. then ?// NDFDEL LIST. SDIINT etc.

NOTE: ?// LISTF without a group name will list all groups but not their contents.

(b) New Journals (less than 72 columns total): See also p.12

These should be inserted, and a record mede, when editing in the data for Bulletin program between 'CHECK' and 'END' and after 'END' e.g.

?// LK
00000010 WEEK 7220
00000020 CHECK
00000025 NEW=1
00000040 END
00004160 349002-1 <NRC>D ULLETIN

***END

This only adds to MASTER.MJNTIT to add to DATA. MJNTIT must edit DATA file.

^{*} To print the whole file give command ?// PRINT LIST. SDIINT /D/2 and the file will be printed when Queue 2 is switched on, and then deleted.



WEEKLY CHANGES

```
These are the items which should be changed weekly.
  (items to be changed underlined)
  ?// GROUP SIMJCL
  ?// LK LIBRIP
  GGGGGGGG //DJDLIBG3 JCB (GGGG,,,50), LIBRARY INPUT
  GGGGG2GG // EXEC SIMRUN
 GGGGGGGG //LINKIN DD DSH=OBJECT.LIBRIP, DISP=OLD
 GGGGGGGGG //DAFILE16 DD DSN=FUNGUS.BL7416.DISP=(NEW.KEEP).SPACE=(1624.96)
 GGGGGGGG //DAFILE26 DD DSN=FUNGUS.SD7416.DI SP=(NEW.KEEP).SPACE=(1624.96)
 GGGGGGGG //DAFILE3G DD DSN=FUNGUS.ST7416, DISP=(NEW, KEEP), SPACE=(1624, 16)
 OGGGGGGG //DAFILE46 DD DSN=FUNGUS.CUM74.DISP=OLD
 GGGGGGGG //DAFILE5G DD DSN=MASTER.MJNTIT.DISP=OLD
 COCCOSO //SYSIN
                     DD *
 00001000 WEEK 7416
                                                         LK DATA . CNTLIB
                                                          00000100 WEEK 7405
 00001100 RUN 1
                           COULD BE A DATA FILE.
                                                          00000200 RUN 1
 OCCC12CO ENDDATA
                                                          OUUUUUU ENDDATA
 00001300 //
 *** END
 ?// LK LIBULW
 OGGGGGGG //DJDLIBG4 J CB (GGGG,,,20), WEEKLY BULLETIN.
 6666266 // EXEC SIMRUN
 GGGGGGGG / ALINKIN DD DSN=OBJECT.LIBULW, DISP=OLD
 GGGGGGGGG //DAFILE1G DD DSN=FUNGUS.BL7416, DISP=OLD
 GGGGGGGG //DAFILE3G DD DSN=MASTER.MJNTIT, DISP=OLD
 OGGGGGGG //SYSIN DD #
 00000700 WEEK 7416
 GOGGGGGG END
000000000 //
*** EN D
 ?// LK SDIINT
GGGGGGGG //DJDLIBGG JOB (GGGG,,,56), "INTERNAL SDI"
GGGGGSGG // EXEC SIMRUN
GGGGGGGG //LINKIN DD DSN=OBJECT.LIBSDI, DISP=OLD
GGGGGGGG //DAFILE1G DD DSN=MASTER.MJNTIT, DISP=OLD
GGGGGGGG //DAFILE2G DD DSN=FUNGUS.SD7416, DISP=OLD
GGGGGGG //DAFILE3G DD DSN=MASTER.PRFINT, DISP=OLD
OGGGGGGG //DAFILE4G DD DSN=FUNGUS.ST7416, DISP=OLD
GGGGGGG //DAFILESG DD DSN=MASTER.UNAINT, DISP=OLD
GGGGGGG //DAFILEGG DD DSN=FUNGUS.CMSTIN.DISP=OLD
GGGGIGGG //STREAMG7 DD DSN=DATA.COMWDS, DISP=OLD
GGGG11GG //SYSIN
                    DD *
00001200 WEEK 7416
GGGG13GG CHECK
00001400 END
00001500 //
*** FND
```

AS SDIINT

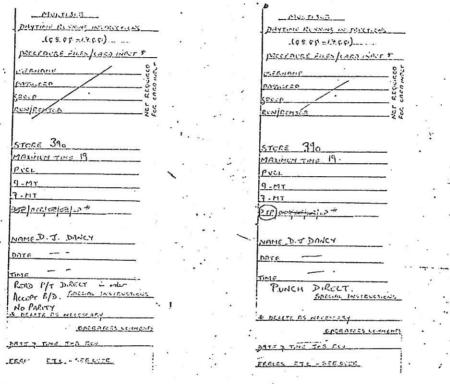
?// LK SDI EXT

RUNNING THE JOBS

All jobs can be run from cards or teletype - but for convenience the Input (paper tape) is run from cards. SDI (Internal and External) and Bulletin are run on-line from a teletype (or VDU).

(a) Input

Papertapes, the input deck and accompanying job slip should be placed in the MULTIJOB tray in F.6. Output, with the deck. Tapes will later be found (if run) in the drawer marked DJDLIB.



job slips

a. Input

b. Bulletin

(b) Bulletin

Bulletin may also be run on-line, through the teletype, by issuing the command REMJOB JOB.LIBULW(S).A message should be typed in first though to say that papertape output is expected.

?// MSG

? JOB. SIM11 WILL NEED P/P DIRECT.

(c) SDT

These jobs are run by typing in the commands:

REMJOB JOB. SDIINT(S)

REMJOB JOB.SDIEXT(S)

To make sure these are in the queue to run, a 'status' report may be obtained by typing in:

?// ST..... with the qualifier which can be found in the schedule card of whichever job you enquire about, (i.e. 2nd line in file JOB.....)

i

Updating Profiles: FILE DATA. PRFINT or PRFEXT.

The SDI system is a comprehensive sorting system which can pick items on the basis of journal, author or subject. In practice only author and subject matches are used. Truncation is allowed as matching is character by character. If a term is multi-word then it should be enclosed written @------@

(a) Author match

The card (image) should contain an A in column 1 followed by a space and then the surname of the author, followed by initials, then a space (or spaces) and the next author.

e.g. GABRIEL, AH HEARN, AG

Omission of the initials will give matching on all authors of that name

Omission of the initials and comma will give a match on the stem Continuation author cards have a blank in column $1\,$

(b) Subject match

The matching process uses the normal AND/OR/NOT logic to select a reference, hence this is provided for in the profile writing.

A group of terms begins with a Z in column 1 followed by a space then the first term. Truncation of a word is indicated by a *. Spaces separate different terms and all terms following a Z are considered as OR terms.

e.g. Z CRYOG* HE HELIU* @ LOW TEMP*@

will look for:- All terms beginning CRYOG for example CRYOGENIC

- $\underline{\text{OR}}$ The term HE (which should only find the chemical symbol for Helium)
- OR All words beginning HELIU (probably only HELIUM but fewer characters to match)

OR All terms containing the characters LOW + Space + TEMP.

The AND group is indicated by a + sign in column 1 terms being 'OR'd by spaces

The NOT group begins with N in column 1

Continuations in all cases are with blanks in column 1 of the following line (or card)

- e.g. Z LASE* LASER or LASERS but NOT DIAGNOSTICS
 - Z REACTO*
 + FUSION THERMO*

 FUSION REACTOR OF REACTORS
 THERMONUCLEAR REACTOR(S)

Note here the THERMO* might match on THERMODYNAMIC but as this would most probably not have Reactor in the Title little is wasted.



New Users

% sign in column 1 to indicate Name, blank start to any continuation card. All the above applies to the DATA file. This must be converted to a form suitable for the SDI program by running the program CRPROF. Procedure file JOB.CRPROF; job control SIMJCL.CRPROF which will produce the MASTER file. Time approx 9 etu. In the LIST produced it will be seen that there are subtle differences in the symbols used. These are listed below.

DATA FILE		MASTER (LIST) FILE	
Z with AND or NOT group		Z	36
Z simply 'OR's		X	
+ with second + or N		+	2 8
+ (No. following groupings)		*	
N @ @	y ²	N	
G @		blankblank.	NAC CONTROL INVESTIGATION
New Journals	***		number of terms in a line is indicated)
(1)			

(1) Current Awareness List

New journals can best be added by typing into file DATA.MJNTIT using the appropriate journal number and indicating by the -1. -2 the number of lines taken by the journal at this point. Continuation is indicated by a C in column 73 of the previous line, and a -2, -3 after the number.

A modulus II check digit is employed by the system so the journal number should be chosen from a list held by the Information Officer.

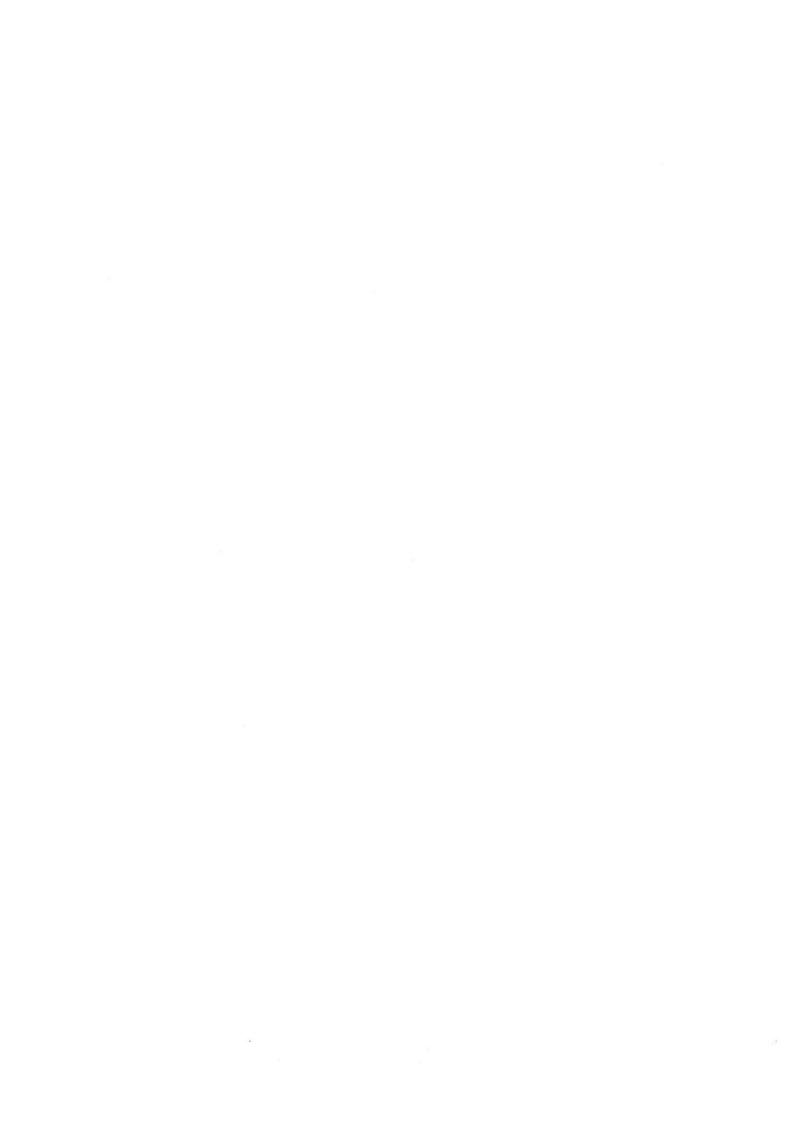
ALMI ZKSIDIO ZOSHIA	E>LEKTRONIKA<, I>N <r>USSIAN ERSITY<, N>EHOIRS OF THE <f>ACULTY ERIES OF <a>STROPHYSICS, <g>EDPHYSI</g></f></r>	OF CS AND

Having modified the DATA file. the new MASTER file is produced by running the CRMJN program.

[procedure file JOB.CRMJN job control SIMJCL.CRMJN etc]
Time about 7 etu.

(2) RIOT

When an update of references to RIOT is done, any new journals used in that time should be appended to the RIOT journal list. The procedure is that laid down in LM9/73 p45 and p53 the program AENOLI: UPDATE. CREATE., operating on UPDATE. JNLS. which as can be seen has many similarities to DATA.MJNTIT.



Trouble Shooting

Symptom

Possible fault

- 1. Job fails no errors, nothing
- System fault, run again.
- Job crashes but no failure apparent. EOJ Dump
- (a) no space see 3.
- apparent. EOJ Dump

 (b) time expired. Time should be adequate as set. BUL 19, SDIEXT 59, SDIINT 99. It is possible to run over: Increase time.
 - (c) System fault. Try again.

Incomplete output

- File ran out of space for listing: Run job again with more space.
- Job runs but last weeks output (LIST file)
- Forgot to delete last weeks file. Job runs up to stage of output then finds that the output exists, so stops: Delete file, run again.
- 5. Rubbish in item on input (or Bulletin listing)
- Somewhere the record directory has been overwritten. Either the 500 character total has been exceeded, or something is in the wrong field and therefore is too big. e.g. Title in date field.
- 6. Bulletin paper tape output incomplete
- Ran out of tape during punching, unfortunately program does not pause while fresh tape is loaded so items missed. Run again: warn operators.
- 7. Rubbish on paper tape
- Not punched in <u>direct</u> mode: Tell operators. Run again.

RIOT Maintenance

RIOT requires little maintenance, the main efforts necessary being concerned with updating approx every 3 months.

The only day-to-day effort necessary is to print out the monitor file occasionally to prevent the space filling up.

?// PRINT RIOT. MONIT (S) /D will print the file and delete it leaving room free for fresh work.

Occasionally too the results may not be printed (for example a print queue-crash then the appropriate file can be printed

?// PRINT $\begin{cases} RIOT. & RESULT /D \\ RIOT. & RSLT27 /D \end{cases}$



Updating: se also note 2 on page 12

(1) Adding the latest cumulation file to the data base.

This is done by running the file. AENOLI: UPDATE. UPDATE(S) having first set the variables contained within it, these are

- (a) The name of the cumulation file to be reformatted FILE. FILE, RA, DJDLIB: FUNGUS. filename
- (b) the name and size chosen for the new files i.e. a reference file and a keyword file. For convenience and ease of memory these have to date been simply labelled: type + number. file + disc number e.g. REFS 2:FILE 27(Z) is the 2nd reference file on VOL 27. its 'twin is KEYS 2:FILE 27(Z) for the required size see appendix E of the Update manual LM9/73.

Having reformulated the cumulation and produced KEYS/REFS files for retrieval, the on-line program must be 'informed' of the fact. Fresh file data must be added to the SEARCH programs procedure file SEARCH. RIOT27(S) as

IFILnn, RA, AENOLI: KEYSx.FILE 27(Z) nn, x are numbers IFILnn+1, RA, AENOLI: REFSx.FILE 27(Z) chosen to suit and the DIALOG file must have the number of new references inserted in the first line of UPDATE. DIALOG, which the last 5 numbers refer to the number of references in the (up to) 5 reference files

Note a maximum of 5 reference files can be used by the RIOT search program after which the files (and key files) should be added to form one larger file (see section 2). This speeds the program by reducing the number of files to be opened and closed, and reduces the number of questions/statements to be put to the users (Do you want to search earlier data bases? etc).

When there are less than 5 files the appropriate entry in the DIALOG file is zero.

(2) Adding files already in use by RIOT

To add files the programs

AENOLI: UIO: UKEYS AENOLI: UIO: UREFS

must be run for the appropriate files. Full details of the necessary procedures can be found in the Update manual LM9/73. in the Support program section pp.48,49. [NOTE: The three file limitation is an error].

