FRDP and FRLD

FASTRAND DUMP

and

FASTRAND LOAD

2.0 GENERAL

Two programs FRDP and FRLD provide utility services to users of the 1050 Fastrand Software System.

These programs may be assembled to run with any of the normal I/O options (IIIA, IIIC, VIC Servos; 80 or 90 col. reader and punch, and 1004 80 or 90 reader, punch and printer), and require a minimum memory of 12K characters.

2.1 Assembly of FRDP and FRLD

FRDP and FRLD are in procedure format on the system tape. At assembly time the parameters of the procedure call define the machine configuration on which the object programs will run.

The following 2 cards should be used for an assembly of FRDP:

```
FRD     BEGIN   0520
        FRDP    p1, p2, p3, p4
        END     START
```

where p1 = 80S, 80R, 80T, 90S, 90R, 90T to describe the card reader which may be 80 or 90 column and serial, row or 1004 type.

p2 = 3A, 3C, 6C or blank - to define the dumping medium. Blank implies dumping to cards.

p3 = Blank or 1004 to define the printer option. Blank is for standard printer.

p4 = 12K or blank to define memory size. Blank implies at least 16K characters.

The following 2 cards should be used for an assembly of FRLD:

```
FRL     BEGIN   0520
        FRLD    p1, p2, p3, p4
        END     START
```

where the parameters are as for FRDP.

The object programs are free-standing and are called in the normal way by a $FRD1 or $FRL1 card.

3.0 FRDP

This program provides Fastrand dumping facilities. The program is assembled so that reloadable output is either on cards or on tape, both possibilities not existing in the same program. In addition, output may occur on the printer. It is expected that tape and printer output will be the normal combination chosen.

A FRDP run is directed by control cards which are described below. A FRDP run is oriented to dumping part or all of a single class. Several classes may be handled in one run by stacking the control cards.

3.1 CLASS Card

The following control card specifies the class to be currently dumped from,

Col.	13	19
	CLASS	p1

where p1 is the 8 character name of the class concerned.

Any succeeding control cards will pertain to this class until the next CLASS card is read. If p1 is blank, then following FDump cards may specify any absolute addresses to be dumped regardless of the existing CLASS hierarchy.

3.2 Two Modes of Dumping

Within a CLASS dumping is possible in two modes:

3.2.1 Dumping to tape, printer or cards of standard data files, non-standard data files, program files or any other contiguous area of drum. Output is unchanged in any way, and output on cards or tape is in a format suitable for subsequent reloading to its original drum location. The control card to achieve this is as follows:

Col.	13	19
	FDUMP	p1, p2, p3

where p1 and p2 define the starting and ending addresses of the area to be dumped.

p3 is present if output is on the printer and may be either A or O to call for alphanumeric or octal format.

p1 and p2 may be one of 3 formats:

Octal number
Decimal number
File name

If p1 is omitted, the dump starts from the beginning of the class.

If p2 is omitted, the dump ends at the highest sector address in the class.

If p2 is a file name, then the dump will include that file.

If p2 is an address n, then the dump terminates at sector n-1. Any number of FDUMP calls may occur in any sequence.

p1 and p2 should not address different drum units.

3.2.2 Dumping of standard data files and other files, in such a way that upon reloading the class will only contain those files dumped, the files having been relocated to the least significant part of the class. The relocation causes the construction of a new directory. Standard format files are relocated in that all absolute control and link addresses are changed. Program files are unchanged in content. Non-standard format data files are unchanged in content.

If such a non-standard file has some chaining or other user's addressing scheme within it, it is suggested that addresses are relative to the file base address. In this way relocation will cause no problem.

Output on the printer will follow chains if the file is in the standard format.

The control card is as follows:

Col.	13	19
	FILE	p1, p2, p3, p4, p5

where p1 = Name of 1st file to be output.

p2 = Name of last file to be output by this command.

p3 = A if alphanumeric output on printer.

O if octal output on printer.

New size if file size is to be changed when dumping to tape or cards.

Blank if old file size is to be retained.

p4 = HEAD to ensure that after relocation the file will start on a new track (head zero).

NOHEAD if the file may now take any position regardless of the previous mode.

Blank if the old mode is to be retained.

p5 = UNPACK to cause a chained file to be unpacked, thereby eliminating redundant sectors caused by file updating.

Blank if this action is not desired.

FILE cards must immediately follow the corresponding CLASS card. Any number of FILE cards may be used but they must be consecutive.

FILE cards may be in any sequence, that sequence being the desired sequence of files in the class upon subsequent reloading.

Files not dumped within the class will be lost after reloading of the class.

The first FILE card should specify the class directory (FLEDIRCT) either by name or by omitting parameter p1.

FILE cards may not be mixed with FDUMP cards for a single class.

If a FILE command is used on a non-standard file then parameter p5 and link addresses are ignored.

If one file only is to be affected then p1 = p2.

The drum address represented by p2 must be $\geq$ than the drum address represented by p1.

If p2 $\neq$ p1, then all other parameters apply to all files from p1 to p2.

If p1 is blank then all files in the class are acted upon to p2.

If p2 is blank then all files in the class are acted upon to the last file of the class.

One FILE card with no parameters causes a general relocation of active files to the low order part of the class. No unpacking within files is performed.

Parameter p5 applies only to chained standard-format data files of the type written by the item-level file control routines, and may be omitted. It should be used only when necessary since the time taken by this function may be considerable.

3.3 Termination of FRDP

Termination of a FRDP run is caused by the following control card - STOP.

The output tapes are rewound with interlock and the load blocks are read from the system tape on Servo 0. To then reload OPR the operator should press 'START' at this time.

4.0 FASTRAND Load (FRLD)

This program will load the Fastrand from either tape or cards. The data to be loaded must be in the format of FRDP output.

The data to be loaded contains its own Fastrand sector addresses. This data is relocated during loading if the entire class base address has been shifted. This will happen only if an IDMS run has changed the SD since the dump time.

The program is assembled to accept either tape or card data input, not both.

Col.	13	19
	LOAD	p1

where p1 = Name of class to which data is to be loaded. If

p1 = Blank then the data will be loaded to the Fastrand with no check on whether the SD has been changed in the meantime.

If data is on tape, that tape is mounted on Servo 1.

If data is on cards, the cards follow the LOAD card.

FRLD will check labe' the input d' to ensure that the CLASS
'name' agrees w param ›l of the I' card. If p1 is blank this
precautionary c : is o1 .

Data will cont to be ied un' ier an end-of-file sentinel
on tape or an of-fi ırd is The next card to be read is
then either a er LC ·rd or a ard. The STOP card terminates
the run with same on as for

APPENDIX I

Printouts

In addition to normal printing by print command cards, incorrect directive cards are listed. Incorrect cards will normally be of some mispunched format but may result from a FILE card requesting too much reduction in file-size (at all times address 4 of a file directory item must remain not less than address 3). Other errors are: FILE cards not preceded by a: CLASS p1 = class name; FILE cards naming a file not within the designated class; and class names which cannot be found in the SD.

When dumping the drum, all FILE cards are read for a class before the first is executed. Then follows the printing of the old directory and an intermediate directory, and then the execution of the FILE commands for that class. The operator should then examine the intermediate directory to ensure that all desired files are present and correctly sequenced, etc. The intermediate directory will be incorrect in respect to address 4 for those files which are to be unpacked. When the FILE card processing is complete, therefore, the new directory is printed and is correct in all respects.

Because of the catastrophic effects an error could produce, a check is also provided for the operator when reloading a class. Prior to loading, all the file names on the drum within a class will be listed, along with the files which are going to be loaded into that class. This is the point of no return.

APPENDIX II

When dumping to tape the following format conventions apply:

a. Header block

Char.	
0	Octal 3
1-3	Block number (binary) (1st block = 1)
4-16	FASTRAND DMP
17-19	Reel no '000'
20-23	Class starting address (binary)
24-27	Class ending address 1
28-35	Class name

b. Data block

Char.	
0	Octal 4
1-3	Block number
4-5	Data character count (binary, counts from character 6)
6-7	Sector counter (binary, 8 msb)
7	Relocation indicator (2 lsb) 0 = Load address-relocatable 1 = Link-relocatable 2 = Control address-relocatable
8-11	Address 1st Fastrand sector (binary)
12	Data

c. End of Tape (Reel) block

Char.	
0	Octal 6
1-3	Block number
4	Unused

d. End of File block

Char.	
0	Octal 7
1-3	Block number
4	Unused

APPENDIX III

When dumping to cards the following format conventions apply:

a. Header card

Char.	
0	Octal 3
1-3	Sequence number (binary)
4-16	FASTRAND DMP
17-19	Unused
20-23	Class starting address (binary)
24-27	Class ending address
28-35	Class name

b. Data cards

A sector is punched on to 2 cards

i.

Char.	
0	Relocation indicator (2 msb), value and meaning as per tape
0-3	Sequence number (16 lsb)
4-7	Fastrand sector address
8-89	Data (82 characters)

ii.

Char.	
0-3	Sequence number
4-89	Data (86 characters)

c. End of File card

Char.	
0	Octal 7.
1-3	Card number
4	Unused

APPENDIX IV

Tape Utilization

In a FRDP run the first tape written will be on Servo 1. Servo swapping will occur thereafter using servos 1 and 2. A CLASS card, except for the first, will cause the current output servo to rewind with interlock, and output for the new class to start on Servo 1 with the reel number reset to zero.

Similarly in a FRLD run the first tape read will be Servo 1. Swapping occurs then between Servos 1 and 2. A new LOAD card causes the associated data to be loaded starting again with Servo 1.

APPENDIX V

Display Stops

In addition to the standard I/O display stops the following pertain to FRDP and FRLD:

FRDP

Display	Cause and Action
064001	Start of program. Press 'START'
064002	SDD not in sector 040, run IDMS
064003	Class 'name' not in SD, run IDMS
064005	First card not class card, reload cards correctly and START
064006	Illegal 'Op' code, START to read next card
064007	File named by FILE or FDUMP card not found, check cards and restart
064010	Fdd not found, run IDMS
064011	FDump and FILE cards mixed within run for 1 class. Separate cards and restart
064012	First FILE card does not specify directory, check cards and restart
064013	No scratch entry in SD. Run IDMS to create
064014	Scratch area overflow. Run IDMS to increase size
064015	In FDump or FILE card, p2 < p1. Check cards and restart
064016	FDump addresses invalid (not within class range). Check cards and restart

FRLD

Displays will be released when available.

APPENDIX VI

Examples:

1. Dump entire class for recovery purposes.

```
CLASS  AAAAAAAA
FDump
STOP
```

2. A class contains files A, B, C.....

   Dump for subsequent reloading such that only files A, C, D, F are present, relocated but otherwise unchanged in content and size.

```
CLASS  XXXXXXXX
FILE   FLEDIRCT, A
FILE   C, D
FILE   F, F
STOP
```

3. Print in alphanumeric format the sectors 01000 through 02000

```
CLASS
FDump  01000, 02000, A
STOP
```

4. The SD may occupy drum sectors 030 through 077. Dump the SD without relocation, and dump the class XXXXXXXX with general relocation of active files.

```
CLASS
FDump   030, 0100
CLASS   XXXXXXXX
FILE
STOP
```