Chapter 7

ABRIDGED DATA MANAGEMENT

7.1 INTRODUCTION

This chapter discusses the file types handled by ADM. A list of the file handling instructions supported by ADM and a survey of the Status Word and Return Status values that may be returned by ADM are also included.

7.2 ADM INSTRUCTION SET

The following instructions are supported by ADM:

File Handling Instructions:

OPEN .DOUT	Create a new file and open for direct output
OPEN .EXT	Open and Extend an existing standard file for sequential output
OPEN .IN	Open an existing file for input only
OPEN .INOUT	Open an existing file for input and output
OPEN .SOUT	Create a new standard file and open for sequential output
CLOSE	Close file
CLOSE .DROP	Close and delete file
DSC X'19'	Read File Parameters

Record Handling Instructions

READ .DIR	Read record with specified relative key
WRITE .DIR	Write record with specified relative key
WRITE .SEQ	Write next record to a standard file, using the relative key
REWRITE .DIR	Rewrite record with specified relative key
DISCARD .DIR	Delete record with specified relative key

The status of the records is not checked. The records addressed by Rewrite and Discard instructions are assumed to be "used" and the records addressed by Write instructions are assumed to be "free". A Read Direct instruction can be used to check if the status of a record is "used".

Sharability "Protected" is not supported. Record protection is the responsibility of the application. Sharability "Protected" may be specified for compatibility if required, it will then be treated as a dummy option.

Sharability "Exclusive" is supported and will result in the task's exclusive access to the file.

Transaction control instructions are not supported. Commit instructions may be included in the application for compatibility if required. These will then be treated as dummy instructions.

7.3 FILE TYPES

ADM handles the following file types:

- Standard file
  A Standard file is a file where the records are identified by the relative key. Record length +1 must be a multiple of 256 bytes. The blocing factor must be 1.

- Load file (L file)
  An L file is a file containing a Monitor or application load module. The records are identified by the relative key. The records of an L file have no status byte. The record length is 256 bytes, the blocking factor is 1. L files can not be split into a number of extents.

- Undefined file (X file)
  An undefined file is a file of which the internal structure is not checked by data management. The records are identified by the relative key. The records of an X file have no status byte. The record lenght must be a multiple of 256 bytes, the blocing factor must be 1. X files may consist of a number of file extents and file sections.

ADM may be included in the Monitor on its own or together with SDM or EDM. In that case, S and E files will automatically be handled by SDM or EDM, while the L and X files are handled by ADM.

7.4 FILE CREATION

S, L and X files to be handled by ADM can be created by ADM or by the TOSS utilities.

7.4.1 File Creation under ADM

To create a file under ADM, the file must be opened for Output Direct. For standard files, Open mode Output Sequential is also allowed. The records are written to the file by Write Sequential or Write Direct instructions. When the file is closed the LRN will be written to the VTOC.

The remaining part of the file is not formatted with empty records when the file is closed. The contents of records after the LRN is undefined. For a standard file, the status byte of the records will be set to "free".

7.4.2 File Creation by TOSS Utilities

Creation of a file by the TOSS utility CRF is described in the TOSS Utility Reference Manual module M8A.

The restrictions for record length, blocking factor, number of extents and sections for each file type are found in section 7.3.

7.4.3 Enlarging Files

Standard files are automatically enlarged by ADM if during Sequential Write operations the end of the file is reached and the Growth Factor is not zero. The file is enlarged by adding another extent, the size of which is indicated by the Growth Factor in the File Parameter block. ADM does not allow the user to add new file sections, on another volume, to the files.
File enlargement is further discussed in chapter 2 section 2.6.

7.4.4 Buffer Management

ADM does not contain internal block buffers. All I/O is performed directly to and from the application buffer.

7.5 L AND X FILE HANDLING

L and X files can only be handled by a CREDIT application if Abridged Data Management (ADM) is included in the Monitor. The file handling instructions allowed are:

OPEN .IN	Open the file for read only.
OPEN .DOUT	Create a new file and open for direct output.
OPEN .INOUT	Open the file for input and output.
CLOSE	Close file.
CLOSE .DROP	Close file and delete it from the disk.
DSC	Read file parameters.

The record handling instructions available for L and X files are:

READ .DIR	Read direct
WRITE .DIR	Write direct
REWRITE .DIR	Rewrite direct
DISCARD .DIR	Delete record

To open an L or X file, the File Parameter block must be set up in the same way as for data files. Numeric fields contain a binary value and alphanumeric fields contain ISO-7 characters. The first 66 bytes of the File Parameter block is the same as for data files, with the following fixed data:

- Record length must be 256 for L files or a multiple of 256 for X files.
- Blocking factor must be 1
- File organisation must be 2 for L files or 3 for X files.

The File Parameter block must be extended with a further 22 bytes, filled with binary zeroes, where ADM will store additional information as described in Chapter 5, section 5.3.

Note also, that the binary data item containing the File Parameter block length must contain a value of 88 (X`0058').

7.6 RETURN INFORMATION

This section lists briefly the error messages that can be returned by ADM. A detailed description of the errors indicated by the status word and the return status, and possible remedies, is supplied in Chapter 10, Return Information.

7.6.1 Status Word

In the Status Word, the following bits may be set by ADM:

Bit 0	Request error
2	Boundary violation
3	End of File
7	Retries performed
8	Data Management rule violated. This bit can only be set after an 'Open File' instruction. When it is set, the Return Status may also be obtained.
9	File opened exclusive for other task
10	New volume loaded
12	Incorrect length
13	Data error
14	Throughput error
15	Disk not operable.

7.6.2 Return Status

The Return Status will only have a significant value after the Open File instruction. It may be set to one of the following values:

3	Overflow
4	Illegal file parameter
6	Illegal function option
7	File code already used (illegal file code)
9	File name or volume name unknown.