

## 6. CONTROL COMMANDS

### 6.1 Introduction

There are two ways in which the user can communicate with the Monitor: control messages and control commands.

Control messages are only used during the execution of a processor or utility (see chapter 7). Control commands are used at all other times.

Most control commands are used either to handle files and I/O devices or to call into execution processors or utilities. The remainder of the commands are used for general administration e.g. declare new userid (DCU), list catalogue (LIC).

Control commands may be input to the Monitor on any input device. The file code used for control command input is /E0. The default device associated with this file code is TY10, the console typewriter (see file code table in section 4.1). However, file code /E0 may be reassigned to any other input device via the ASG command. For example /E0 could be assigned to a library disk file containing a sequence of control commands. When such an assignment is made control passes immediately from the console typewriter to the assigned device. The last record read on the assigned device must be a reassignment of file code /E0 to the typewriter. When this reassignment occurs control is passed back to the console typewriter and further control commands can be keyed-in.

A string of control commands can also be held on disk in a special format known as a "catalogued procedure". A catalogued procedure can be invoked by simply keying-in the procedure name on the console typewriter. At the end of the procedure, control is automatically handed back to the typewriter. This is a more flexible method of invoking control command because the basic control commands in the catalogued procedure can be automatically modified according to parameters keyed-in by the user. Catalogued procedures are discussed in chapter 10.

Control commands are processed by the Control Command Interpreter (CCI). At the start of each session the CCI types out the prompt S: on the console typewriter. The user may then key-in a control command. If the user calls into execution a processor or utility the copy of the CCI in memory is overwritten. When the processor or utility terminates, the CCI is loaded into memory from disk and again types out the prompt S:. The user can then key-in further control commands.

The general format of a control command is as follows:

command □ [parameter [,parameter] . . . . .]

"command" is a three letter mnemonic which specifies the basic command to be obeyed. This mnemonic may be followed by one or more "parameters". The significance of individual parameters depends upon the command mnemonic used.

Each command entered via the console typewriter must be followed by a carriage return **CR**. It is possible to follow a control command with a comment. This facility will normally only be used in catalogued procedures. The last parameter must be separated from the comment by at least one space.

The syntax of each parameter used in control commands is defined in appendix A.

## 6.2 Summary of Commands

This section comprises a complete list of control commands. Related commands are grouped under generic headings. These groups of commands are discussed in later sections.

- Input commands:
  - RDA — Read data from the specified input device.
  - RDO — Read an object module from the object input device.
  - RDS — Read a source module from the source input device.
- Output commands:
  - PCH — Write a source or undefined module to the specified output device.
  - PLD — Write a load module to the specified output device.
  - POB — Write an object module to the specified output device.
- Userid commands:
  - DCU — Declare new userid.
  - DLU — Delete a userid.
  - LIC — List catalogue of userids.
  - PRC — Print catalogue of userids.
- File code commands:
  - ASG — Assign a file code to an I/O device.
  - LSF — List all assigned file codes and I/O devices.
  - SCR — Scratch files.
- Disk commands:
  - DEL — Delete a file.
  - DUF — Dump a file onto the printer.
  - INC — Include an object module.
  - KPF — Keep file.
  - LSD — List directory.
  - LST — List a file (may also be used for a tape file).
  - MOV — Move a file.
  - PRD — Print directory.
  - PRT — Print a file (may also be used for a tape file).
  - SVD — Save disk onto another disk.
  - SVU — Save user files.
- Magnetic Tape and Cassette Commands:
  - FBS — File backward space.
  - FFS — File forward space.
  - PLB — Print label.
  - RBS — Record backward space.
  - REF — Rewind file (may also be used for a disk file).
  - REW — Rewind tape.
  - RFS — Record forward space.
  - ULD — Switch device to manual.
  - WEF — Write end of file mark (may also be used for a disk file).
  - WEV — Write end of volume mark.
  - WLB — Write label.

- Processor and utility commands :
  - ASM     – Assemble a source module.
  - LED     – Update a source module.
  - LKE     – Link edit object modules.
  - RUN     – Run a utility.
  - TLK     – Convert *CREDIT intermediate object code into object code.*
  - TRA     – Translate a source *CREDIT* module into intermediate object code.
  - UPR     – Call a special version of the Assembler processor.
  - XRF     – Run the XRF utility
- Non Typewriter commands :
  - MES     – Send a message to the console typewriter
  - PSE     – Send a message to the console typewriter and enter a pause state.
- Miscellaneous commands :
  - BYE     – End a session
  - RSU     – Replace supervisor
  - SKF     – Skip forms on the line printer

### 6.3 Input Commands

RDA, RDO and RDS are used to read data from an input device and write the data to disk. The standard input devices are listed in the file code table in section 4.1.

They are:

File Code	Use	Device Name
/E1	Source input	TK0E
/E2	Object input	TK0E

/E1 is the default input file code used for the RDA and RDS commands. /E2 is the default input file code used for the RDO command. However, the user can specify a different input file code in any of these commands if the default value is not suitable.

Alternatively the devices associated with /E1 and /E2 can be changed to any other input device via the ASG command. Normally file code /E1 would be assigned by the user to the card reader, so that the RDS command would read from cards. However, it is also likely that the user would assign file code /E1 to the console typewriter so that a source program could be keyed-in directly.

Source input records must be no more than 80 characters long. Source input records longer than 80 characters are truncated, whereas shorter records are augmented by spaces up to the 80th character. If the input device is the console typewriter each line must be terminated by a **CR**. If a source program is being keyed-in on the console typewriter all field separators in a source statement must be keyed-in as back slash (\) instead of space.

The last record in the input file must be an end of file record. That is the first four characters of the last input record must be :EOF. If the file is being input on the typewriter the last line of input must be :EOF **CR**. If the file is being input on the card reader the last card must contain :EOF in columns 1 to 4. And so on.

The RDO and RDS commands always write the input data to the /O and /S files respectively. The RDA command writes the input data to the disk file specified by the user.

When the :EOF record is encountered during an RDA or RDS command an end of file mark is written at the end of the disk file. A subsequent RDS command or a subsequent RDA command specifying the same disk file code will overwrite the data read during the previous RDS or RDA command.

A subsequent RDO command, however, does not necessarily overwrite data read in by a previous RDO command. When an :EOF record is encountered during an RDO command an end of file mark is **not** written at the end of the /O file. The file is left open so that further RDO commands can be issued to add object modules to the end of the /O file. An end of file mark is only written to the /O file when one of the commands WEF, KPF /O, POB or LKE is issued. When this is done a subsequent RDO command will overwrite the contents of the /O file.

The above rules for writing to the /S and /O files may also apply when a processor writes to these files. If the output file of the Line Editor is the /S file the previous contents of this file will be overwritten. Similarly the Assembler and CREDIT Translator will overwrite the /O file if this file has been closed. If the file is not closed the output of the Assembler and CREDIT Translator will be added to the end of the /O file.

The above rules for writing to the /O file also apply to the INC command. This command selects an object module from a library and includes it in the /O file. Thus the /O file can be built up by a mixture of RDO and INC commands and processor calls. The output of the CREDIT Linker will **always** overwrite the /O file.

#### 6.4 Output Commands

The commands PCH, PLD and POB are used to write a module or file from disk to a specified output device. The default output file code is /3 (standard for cassette).

The resulting module or file can then be read back to disk using the RDA, RDO or RDS command.

These commands are often used when files must be transported between PTS installations. The files are written to cassette in one installation, the cassette is carried to another installation and is then copied back to disk.

The permitted combinations of disk file types and commands is shown below:

File type to be output	Output Control Command	Input Control Command	File type recreated on disk
Object	POB	RDO	Object
Load	PLD	RDO	Object
Source	PCH	RDS/RDA	Source/undefined
Undefined	PCH	RDA/RDS	Undefined/source

Note that a **load** module must be copied back to disk via the RDO command. This means that the resulting object module must be re-link edited to regenerate the load module.

#### 6.5 Userid Commands

DCU and DLU are used to declare and delete userids respectively. LIC and PRC are used to list the catalogue of userids.

These commands may only be issued during a system session.

## 6.6 File Code Commands

These commands are ASG, LSF and SCR.

The ASG command is used to alter the contents of the file code table (described in section 4.1). The command may be used to:

- assign one of the file codes /1—/CF or /E0—/EF to a peripheral unit or disk file
- equate two file codes so that they refer to the same peripheral unit or disk file.

This command will override any previous assignment for the specified file code, including any standard assignments in the file code table.

The user may not assign file codes /D0—/DF and is strongly dissuaded from assigning file code /EE (see section 4.1). The only other restrictions on the use of file codes are ones that are obvious to the user e.g. the line printer should **not** be assigned as an **input** file.

An example of a "standard file code" assignment is as follows:

```
ASG /E1,CR0D
```

This command will change the peripheral unit, associated with file code /E1 from TK0E (cassette unit 1) to CR0D (card reader). /E1 is the source input file code. The result of this change is that when the user issues an RDS (read source) command the source program will be read from cards rather than from cassette.

An example of a "spare file code" assignment is as follows:

```
ASG /A,DK
```

This command will associate a free area of disk on the disk containing the users library with the file code /A. The user may then write a temporary file to this disk area. A later KPF (keep file) command will incorporate this file into the users library.

Note that a device name is not specified when assigning a disk file. Only the characters DK are used. The Monitor enters the disk number of the disk containing the user's library in the file code table. This points to an additional table of files maintained by the Monitor for each disk.

The actual device names used for disk are shown in the table of disk numbers described in section 4.2.

Before writing to the /S, /Ø, or /L file or to a temporary user disk file a file code must be assigned. However, such an assignment need not be made explicitly by the user.

When the user issues a command which results in the creation of a temporary disk file the System automatically assigns the required file code if it is not already assigned.

The commands to which this applies are listed below.

The files which are assigned are also shown. Note that the /S, /Ø and /L files have file codes /D4, /D5 and /D6 respectively; temporary user files may have file codes /1—/CF and /E0—/EF.

Type of file created	Command	File assigned
Source	RDS	/S file
Source	LED	/S or temporary user file
Object	RDO	/Ø file
Object	INC	/Ø file
Object	ASM	/Ø file
Object	TRA	/Ø file
Object	TLK	/Ø file

Type of file created	Command	File assigned
Load	LKE	/L file
Undefined	RDA	temporary user file
Source/load /undefined	MOV	/S, /L or temporary user file

The ASG command may also be used to equate two file codes. One of these file codes must be assigned to a device. The entry in the file code table for the other equated file code will point to the assigned file code. This means that the file codes may be used interchangeably. A reference to either file code will result in a reference to the same I/O device. A maximum of seven file codes can be assigned to a disk file in this way.

Temporary files may also be "scratched" at any time during a session via the SCR control command. The effect of this command, basically, is to nullify the specified disk file code assignments. That is, the relevant entries in the file code table are removed and the associated disk files are lost (unless they have been made part of the library). Individual files may be scratched by specifying /S, /Ø, /L or a file code in the SCR command. If an individual file is not specified then all temporary disk files are scratched. The way in which files are scratched is described in the following table:

File Code	Use	Effect of SCR Command
/A- /CF	Normally assigned to user disk files	File codes are de-assigned. That is the file code is no longer associated with the physical device. The contents of the file are lost and the file must be re-assigned if it is to be used again.
/DO- /DF	Standard file codes assigned by CCI and processors (including /S, /Ø and /L)	
/1, /2, /3 /5, /E0, /E1, /E2, /E4, /E5, /EF	Standard file codes pre-assigned in the file code table	If the user has not assigned the file code to disk the SCR command has no effect.
/4, /6- /9, /E3, /E6- /EE	Spare file codes which are normally unused	If the file code has been assigned to disk it is de-assigned as described above.  An exception to this rule is made for file code /E0. If this file code has been assigned to disk it is equated to file code /1.

Note that the above file code groupings are the same as those used in the summary table at the end of section 4.1.

At the end of a session all temporary files are automatically scratched (BYE command). In addition to the ASG and SCR commands the LSF (list file codes) command may be issued at any time during a session. This produces a listing of all assigned file codes and their associated devices.



## 6.7 Disk Commands

The disk commands enable the user to perform the following disk file maintenance functions:

- Make temporary files permanent (KPF)
- Copy library files (INC and MOV)
- Save library files or complete disks (SVU and SVD)
- Print the contents of files or file directories.  
(DUF, LSD, LST, PRD and PRT)
- Delete files (DEL)

KPF is the only command in the above list that warrants further explanation in this section. To understand the effect of the KPF command it is necessary to understand the way in which library files are used and the relationship between temporary files and library files. These topics are discussed in the remainder of this section.

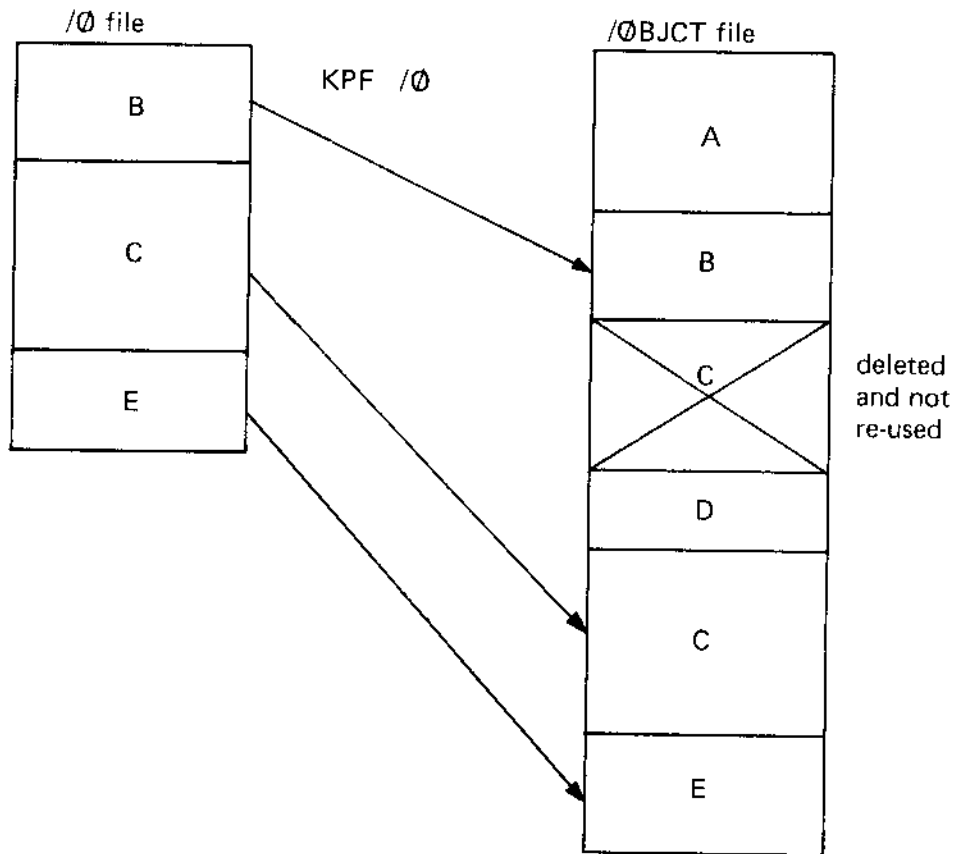
In the case of temporary user files and the /S and /L files the KPF command makes the temporary file permanent by entering the file name in the users file directory. After the KPF command has been carried out the temporary file may still be referenced by using the file code or the /S or /L mnemonics. It may also be referenced by using the file name. These types of reference will both point to the same **physical** area of disk. This is because the file is not physically moved during the KPF process.

However, as soon as an attempt is made to write to the /S or /L file (e.g. by an RDS command) a new area of free disk space will be assigned. Thus a new temporary file may be created without interfering with the file which has been made permanent.

If the file is a temporary user file it may not be written to after a KPF command. If a SCR command is issued for such a file the file code is simply deassigned (explained in section 6.5) and the permanent file is unaffected.

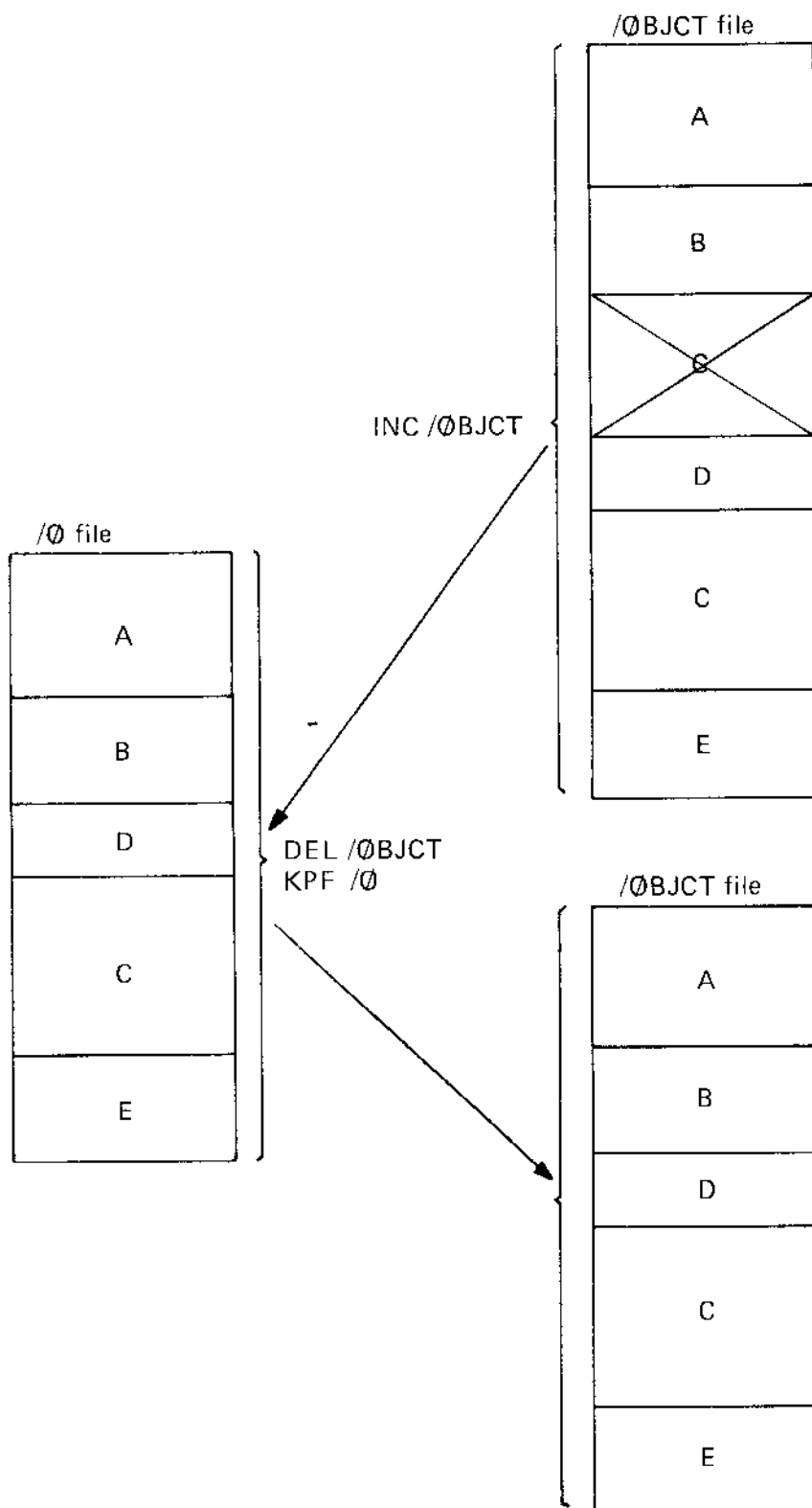
It can be seen from the previous paragraph that **one** permanent file exists for **each** KPF command which specifies a temporary user file or the /S or /L file. This is not the case for the /O file. Only one permanent object file (/OBJCT) exists for each userid. When the /O file is made permanent via a KPF command the object module(s) in the file are physically copied to the users /OBJCT library file. If the /OBJCT file contained object modules prior to the KPF command the new modules will be added to the file after the existing modules. If one of the existing modules has the same name as one of the new modules the existing module is deleted. If possible, the new module is copied into the space that was occupied by the deleted module. If the new module is too large it will be added to the end of the file with the other new modules.

It can be seen that the above process can result in the /OBJCT file containing an increasing amount of unused file space due to the replacement of object modules with larger ones. This situation is depicted in the following diagram:



In the above example the new module B is the same size as the old module B and is thus written over the old module B. The new module C is larger than the old module C so the old module is deleted and the new module is written after the last module in the file. The new module E did not exist in the /ØBJCT file prior to the KPF. It is therefore added at the end of the file.

Periodically the user should reorganise his /ØBJCT file to remove unused space. This can be done by moving the contents of the /ØBJCT file to the /Ø file (INC command), by deleting the /ØBJCT file (DEL command) and by copying the /Ø file back to the /ØBJCT file (KPF command). This is depicted in the following diagram:



## 6.8 Magnetic Tape and Cassette Commands

In this section the term "tape" will be used to refer to both half inch magnetic tape and magnetic tape cassettes.

Commands FBS, FFS, RBS, REF, REW and RFS are used to position the tape. Command REF can also be used with a disk file in which case the "next record pointer" is moved to the beginning of the specified disk file. The file can then be read from the beginning or re-written. The other commands may only be used with tape.

Commands WLB and PLB are used respectively to write and print tape labels. If a label is written to a tape it must be printed and checked manually when the tape is read. The CCI does not perform any checks. The label is written as a normal file, terminated by a tape mark. After the PLB command has read the label the tape is positioned at the start of the next file. The layout of the tape label is as follows:

VOLL	Volume serial number	Security code	Reserved	Owner identification
------	----------------------	---------------	----------	----------------------

The remaining commands are WEF, WEV and ULD.

WEF and WEV are used respectively to write an end of file mark and an end of volume mark. ULD is used to switch a tape unit to manual. WEF can also be used with a disk file.

Before reading from a cassette (RDA, RDO and RDS) the tape should be rewound (REW) to ensure that reading will begin from the start of the tape.

## 6.9 Processor and Utility Commands

The Line Editor (LED command) is used to update a source file held in the user's library. The updated file is written to the /S file or to a temporary user disk file.

The Assembler (ASM command) is used to convert source assembly language into object code. The CREDIT Translator (TRA command) is used to convert source CREDIT language into intermediate object code. The Translator and Assembler read source language modules either from the /S file or from a user library file. The output is written to the /O file.

The CREDIT Linker (TLK command) converts intermediate object code into object code. Part of the intermediate code is read from the /O file. All output object code is written back to the /O file overwriting the input code.

The Linkage Editor (LKE) generates a load module from a number of input object modules. Part of the object code input is read from the /O file. All of the output load module is written to the /L file.

The RUN command is used to call a utility into execution.

The UPR command is used to call into execution a special version of the Assembler processor.

## 6.10 Non Typewriter Commands

These commands are used in catalogued procedures and other types of "non typewriter" control command files to communicate with the user. The MES command simply types a message on the console typewriter. The PSE command types a message and enters a pause state. To continue processing the user must issue a restart (RS) control message (see section 7.5).

## 6.11 Examples

### 6.11.1 Introduction

The following examples have been selected because they are typical of the kind of control command sequences used during program development. The commands are not described in detail. The objective of these examples is merely to give the user an impression of the type of control command sequences which he will find useful. A full explanation of each type of command is given in section 6.12.

Each example comprises a control command sequence, an explanation and a flow diagram.

#### 6.11.2 Development of a CREDIT load module

*Control commands:*

```

1  USERID:ABC
2  ASG      /E1,CROD
3  RDS
4  KPF      /S
5  TRA      /S
6  { LED    MOD3,/S
   { !!DL   6
   { !!EN
7  KPF      /S
8  TRA      /S
9  KPF      /Ø
10 SCR      /Ø
11 TRA      MOD1
12 KPF      /Ø
13 TLK      U,M,X
14 LKE      N,M
15 KPF      /L,LØAD
16 $PCAS    A=LØAD
17 BYE

```

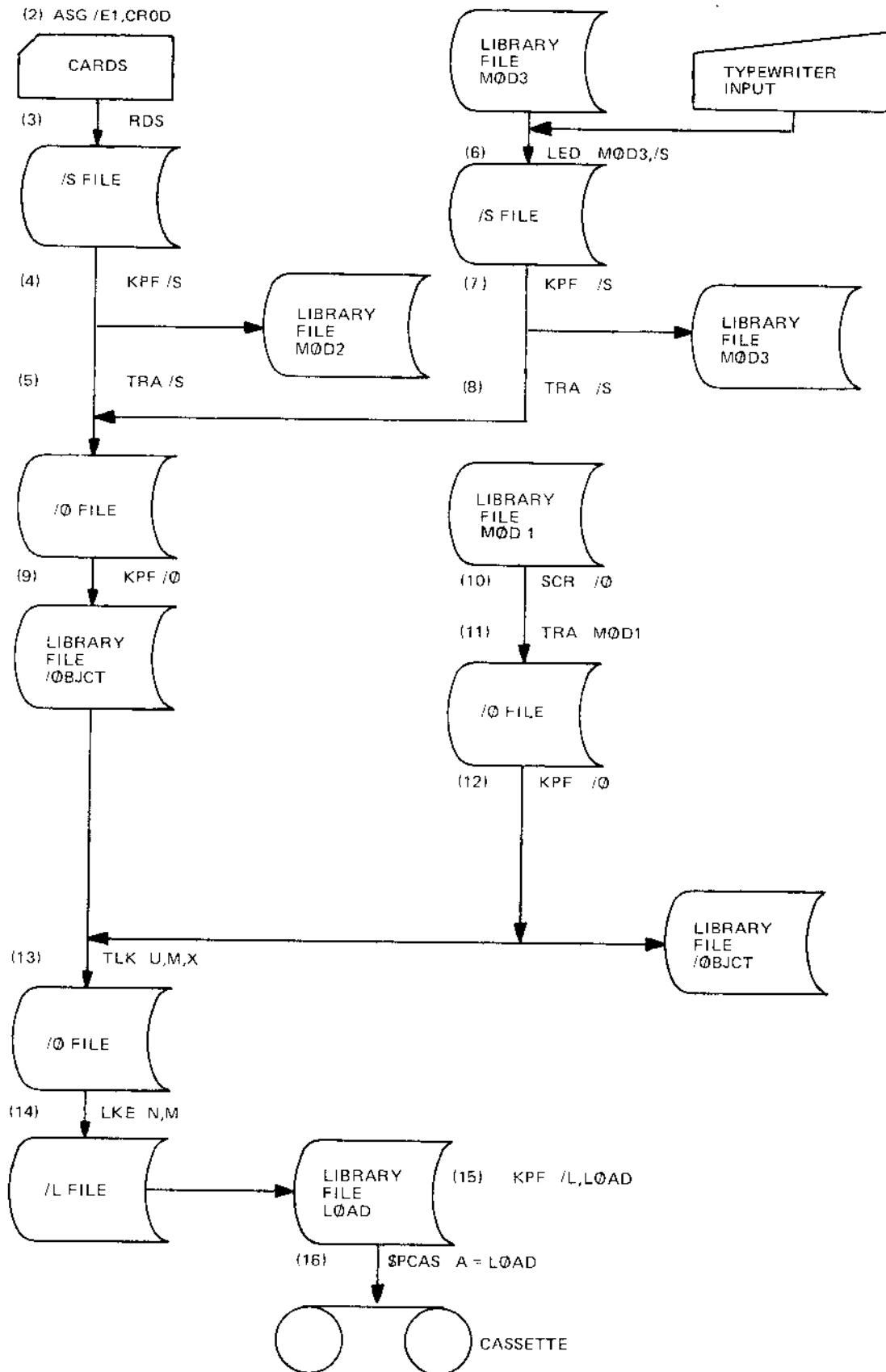
*Explanation:*

- 1 Sign-on
- 2 Assign source input file code (/E1) to card reader (CROD).
- 3 Read source module into /S file.
- 4 Keep source module using the file name specified in the program IDENT (say MOD2).
- 5 Translate source module held in /S file and write object module to /Ø file.
- 6 Edit the next source module, which is held in library file MOD3 and write updated module to /S file. Updates are keyed-in on the typewriter.
- 7 Keep source module using file name MOD3.
- 8 Translate source module in /S file and add object module to /Ø file.
- 9 Keep object modules MOD2 and MOD3 in ØBJCT file.
- 10 Scratch the contents of /Ø file.
- 11 Translate the next source module, which is held in library file MOD1 and write object module to /Ø file. This is the main module of the program which contains the data division.

- 12 Keep object module MØD1 in /ØBJCT file (Note MØD1 has been translated and kept as a separate module to ensure that the Linker processes the modules in the correct sequence).
- 13 Link the intermediate code modules held in the /Ø and /ØBJCT files and write the linked modules to the /Ø file.
- 14 Link edit the modules in the /Ø file and write the resulting load module to the /L file.
- 15 Keep the load module using file name LØAD.
- 16 Copy the load module to cassette.
- 17 Sign off.

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Flow diagram:





### 6.11.3 Catalogued procedure for Link Editing

*Control commands:*

```

1   LED      M:PRØC,/S /file-code
2   !!IL
3   $LINK
4   SCR      /Ø
5   { INC    M1,XYZ
   { INC    M2,XYZ
   { INC    M3,XYZ
   { INC    M4,XYZ
6   LKE      N,M
7   KPF      /L,PRØG
8   END
9   !!EN
10  KPF      /file-code, M:PROC
11  $LINK

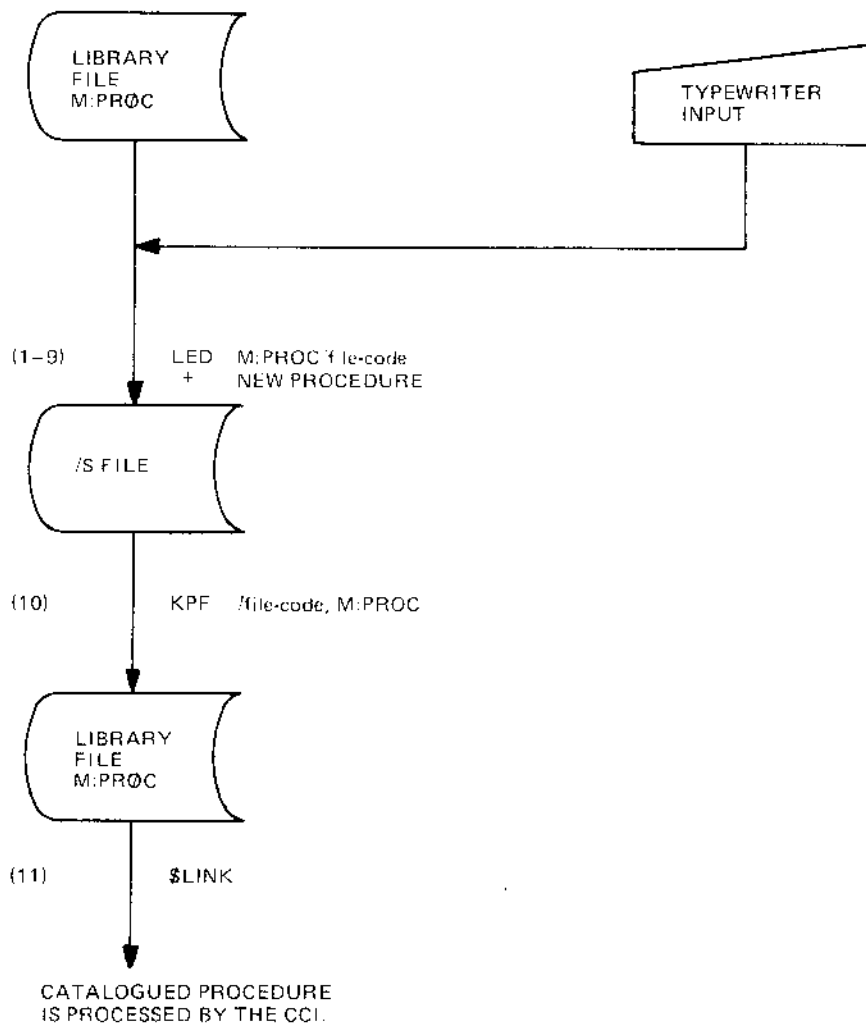
```

*Explanation:*

- 1 Edit catalogued procedure file M:PRØC and write updated file to a temporary user file. Procedure is keyed-in on the typewriter.
- 2 Insert the following lines at the start of the file.
- 3 Name of the catalogued procedure. Note: The following control commands on lines 4 to 7 are used to link edit an assembler program comprising 4 object modules M1, M2, M3 and M4. The control commands will not be obeyed until the catalogued procedure is invoked (line 11). They are merely treated as data by the Line Editor.
- 4 Scratch the contents of the /Ø file.
- 5 Copy the object modules M1, M2, M3 and M4 from the /ØBJCT file of userid XYZ to the /Ø file.
- 6 Link edit the modules in the /Ø file and write the resulting load module into the /L file.
- 7 Keep the load module using the file name PRØG.
- 8 End of catalogued procedure.
- 9 Terminate the Line Editor.
- 10 Keep the new file of catalogued procedures from the temporary file using file name M:PROC (thus overwriting the previous version of M:PROC).
- 11 Invoke the new catalogued procedure \$LINK.

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Flow diagram:



6.11.4 Creation of a Data Cassette from Typewriter

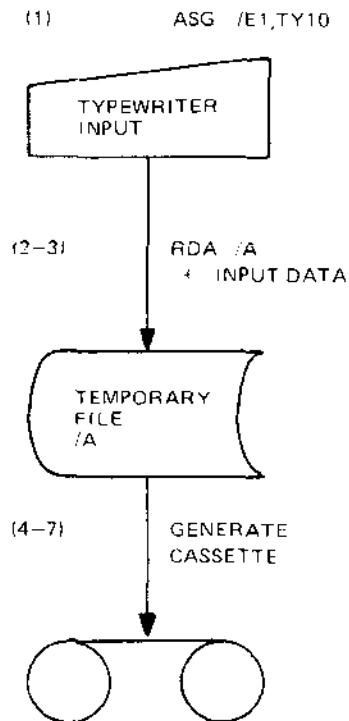
Control commands:

```
1   ASG   /E1,TY10
2   RDA   /A
3   { data
   : EOF
4   WEF   /3
5   PCH   /A
6   WEF   /3,2
7   ULD   /3
```

Explanation:

- 1 Make console typewriter the source input device by assigning file code /E1 to the typewriter (overriding the default device).
- 2 Read data to disk file /A (automatically assigned).  
Input is taken from the typewriter.
- 3 Lines of data, terminated by an :EOF.
- 4 Write end of file mark on cassette.
- 5 Write file /A to cassette.
- 6 Write two end of file marks on cassette.
- 7 Rewind cassette and switch cassette drive to manual.

Flow diagram:



6.11.5 Copying Object Files from Disk to Cassette

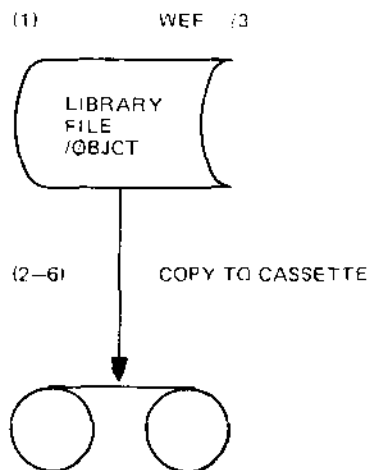
Control commands:

1	WEF	/3
2	PØB	ØB1
3	WEF	/3
4	PØB	ØB2
5	WEF	/3,2
6	ULD	/3

Explanation:

- 1 Write end of file mark on cassette (cassette is default device for file code /3).
- 2 Write object module ØB1 to cassette.
- 3 Write end of file mark on cassette.
- 4 Write object module ØB2 to cassette.
- 5 Write two end of file marks to cassette.
- 6 Rewind cassette and switch cassette drive to manual.

Flow diagram:



### 6.11.6 Copying Object Files from Cassette to Disk

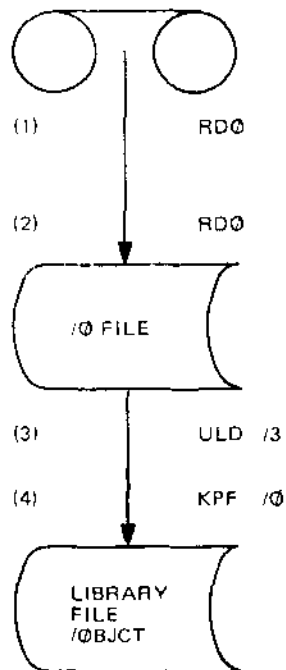
*Control commands:*

```
1   RDØ
2   RDØ
3   ULD  /3
4   KPF  /Ø
```

*Explanation:*

```
1   Read first object module into /Ø file.
2   Read second object module into /Ø file.
3   Rewind cassette and switch cassette drive to manual.
4   Keep /Ø file (i.e. incorporate in /ØBJCT file).
```

*Flow diagram:*



6.11.7 *Creating a special version of the Assembler Processor*

*Control commands:*

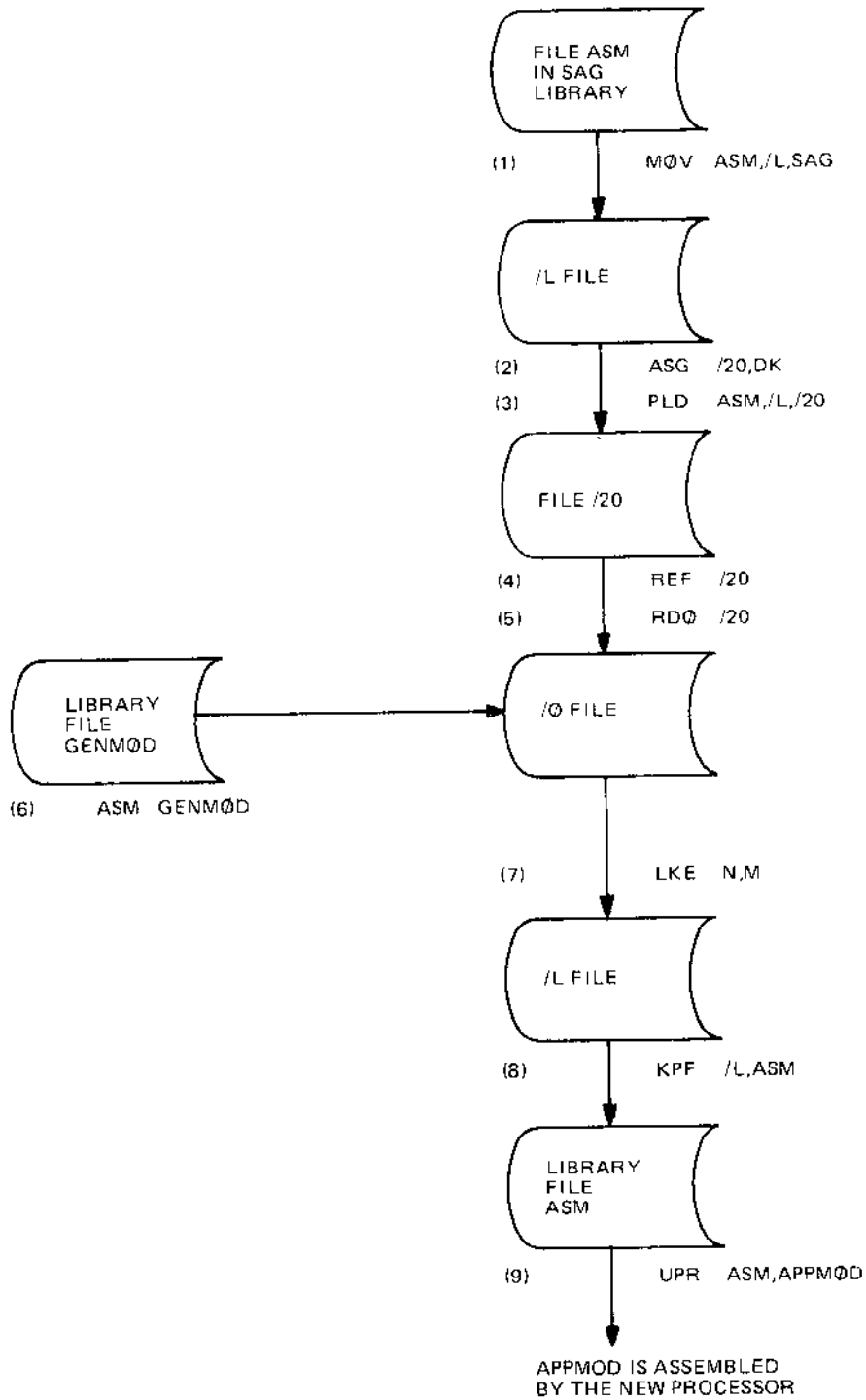
```
1   MØV   ASM,/L,SAG
2   ASG   /20,DK
3   PLD   ASM,/L,/20
4   REF   /20
5   RDØ   /20
6   ASM   GENMØD
7   LKE   N,M
8   KPF   /L,ASM
9   UPR   ASM,APPMØD
```

*Explanation:*

- 1 Copy the load module ASM (i.e. the Assembler processor) from the library with userid SAG (system library) into the /L file.
- 2 Assign file code /20 to disk.
- 3 Copy the load module in the /L file to the disk file /20 converting the file to a single module object file.
- 4 Move next record pointer in file /20 to the beginning of the file.
- 5 Read the object module in file /20 into the /Ø file.
- 6 Assemble the module GENMØD which defines new Assembler instructions (i.e. extending the instruction set, see Assembler PRM module M06 GEN directive). The object module produced by the Assembler is added to the /Ø file.
- 7 Link Edit the Assembler processor containing the new module. The load module produced by the Link Editor is written to the /L file.
- 8 Keep the load module in the /L file (i.e. the new Assembler processor) in the users library.
- 9 Execute the new Assembler processor for the application source module APPMØD.

DOS6800 SYSTEM SOFTWARE

Flow diagram:



## **6.12 Control Command Reference**

This section describes the syntax and use of each control command. The syntax for each parameter in these commands is given in appendix A. The notation conventions are described in section 1.9.

Error reports are listed for each control command.  
Further error reports may be found in appendix B.



ASG

## ASSIGN A FILE CODE

ASG

- Syntax : ASG□/file-code-1,  $\left\{ \begin{array}{l} \text{NO} \\ \text{/file-code-2} \\ \text{device name} \\ \text{DK} \end{array} \right\} [ , \text{file-name} [ , \text{userid} [ , / \text{disk-number} ] [ , \text{NP} ] ] ]$
- Use : This command is used to assign a file code to a peripheral unit or a disk file or to equate two file codes so that they refer to the same peripheral unit or disk file. Further information concerning the ASG command may be found in section 6.6.
- /file-code-1 : File code which is to be assigned. Only file codes /1—/CF and /E0—/EF may be used in an ASG command.
- NO : If this parameter is used, no device will be assigned and I/O operations on this file will be ignored by the Monitor.
- /file-code-2 : If this parameter is used, it is equated to file-code-1. This means that the file codes may be used interchangeably. A reference to either file code will result in a reference to the same peripheral unit or disk file. A maximum of seven file codes can be assigned to a disk file in this way.
- device-name : If this parameter is used, file-code-1 is assigned to the peripheral unit specified here by two alphabetic characters for the unit type and two hexadecimal digits for the unit address. If the device is the disk, only DK need be specified, without address.
- file name : This parameter is used only when DK is specified for device name. It specifies the name of the library file to which the file code must be assigned. (Such an assignment is made if CCI input is to be taken from a disk file.) If DK is used without this parameter, the file code will be assigned to a temporary disk area.
- userid,  
disk-number,  
NP : These parameters are used only when name is specified. They enable a user to assign a file code to a file in another user's library on the disk specified. The file will be set to write-protected, unless the parameter NP is specified, in which case it will not be protected, to allow writing on a file of a different userid.
- Errors : FILE CODE ERROR (1st parameter)  
2ND FILE CODE ERROR  
DEVICE UNKNOWN  
TOO MANY PARAM  
DEVICE NAME MISSING (2nd parameter)  
FILE CODE NOT ASSIGNED (2nd file code)  
FCT OVERFLOW (file code table overflow)  
FILE CODE ABSENT  
FILE NAME ERROR  
USERID ERROR  
INVALID FILE CODE  
USERID UNKNOWN  
DEVICE NAME ERROR  
DEVICE ADDRESS ERROR  
I/O ERROR (encountered during a read/write to/from disk)  
LFT OVERFLOW (disk logical file description table overflow)  
FILE NAME UNKNOWN  
DISK OVERFLOW (no free granule available to allocate to temporary disk file)  
TOO MANY FILE CODE EQU (more than 7 file codes have been assigned to the same disk file)

ASM

## ASSEMBLER PROCESSOR

ASM

- Syntax : `ASM □ { /S  
file name } [,NL]`
- Use : This command is used to assemble a source program from the /S file or from a library file. The object code is written to the /O file. If a fatal error occurs during assembly the /O file will be deleted. Further information concerning the Assembler may be found in the Assembler PRM (M06).
- /S : The source program must be assembled from the /S file.
- file-name : The source program to be assembled can be found in the library file specified by file-name.
- NL : If specified, no listing will be provided of the assembled program. Otherwise, the listing is output on the print unit. Any error messages will be output on the console typewriter as well.
- Errors : FILE NAME ERROR  
FILE NAME MISSING  
/S EMPTY (no temporary source file exists)  
/S ASSIGN ERROR (it is impossible to assign the file code /D4 to the catalogued source file. A message will follow to explain the error)  
/O ASSIGN ERROR (an attempt to assign the temporary object file /O is refused. A message will follow to explain the error)  
NL OPTION ERROR (NL has been declared more than once in the command)  
PROCESSOR NOT CATALOGUED (a segment of assembler has not been catalogued)  
INVALID PARAM

**BYE**

**TERMINATE SESSION**

**BYE**

- Syntax : BYE
- Use : This command is used to terminate a session. All temporary files will be automatically scratched and the CCI will type out USERID: so that a new session may be started.

DCU

## DECLARE NEW USERID

DCU

- Syntax : DCU *userid* /*disk-number*
- Use : The DCU command enables a user to declare a new userid. This command may only be used during a system session. The new userid is added to the userid catalogue of the disk specified. The format of the userid is defined in appendix A. It may be up to eight characters long. A directory granule is allocated to this user and initialized with /FFFF (the last entry in a directory is always followed by a word containing the value /FFFF) and the granule allocation table is updated.
- Errors :
- INVALID USERID (the user identification does not start with a letter)
  - USERID ABSENT (no parameter is given in the command)
  - INVALID FILE CODE (the disk number is not in the range from /F0 to /FF).
  - DISK FILE CODE ABSENT (the disk number is not present in the command)
  - DISK NOT OPERATIONAL (the disk is not ready)
  - USERID ALREADY CATALOGUED (the userid specified has already been catalogued previously on the disk specified)
  - CATALOG OVERFLOW (too many userids have been catalogued on the disk specified)
  - DISK I/O ERROR (an I/O error has been detected during a read/write operation to/from disk)
  - DISK OVERFLOW (no free granule is available to be allocated to the userid directory)
  - TOO MANY PARAM (an illegal parameter follows the disk number)
  - COMMAND NOT ALLOWED (the current session is not a system session)
  - DISK FILE CODE UNKNOWN

DEL

DELETE LIBRARY FILE

DEL

- Syntax : DELL { file-name  
                  module-name } [ { /S }  
                  /ØB ] [ { /Ø }  
                          /L ]
- Use : This command is used to delete a file or object module from a library.
- file-name : Indicate the name of the file or module
- module-name
- /ØB : Indicates that the whole object file must be deleted. If /ØB is used, /S, /Ø or /L may not be specified.
- /S, /Ø, /L : Specify the type of library file (source, object or load). When file-name or module-name is used as the first parameter and no second parameter is specified, the file type is assumed to be un-defined.
- Errors : PARAM ERROR  
          INVALID PARAMETER  
          MISSING PARAMETER  
          FILE NOT CATALOGUED  
          I/O ERROR  
          TOO MANY PARAM  
          ERROR ASSIGN  
          PROGRAM NOT CATALOGUED

DLU

DELETE USERID

DLU

- Syntax : DLU userid,/disk-number
- Use : This command can only be used in a system session. It is used to delete the specified userid from the userid catalogue. The corresponding file directory granule and all the granules of the library files are released and the allocation table of the disk is updated. The DLU command may not be used to delete the first user on the disk with disk number /F0 (SAG).
- Errors : COMMAND NOT ALLOWED (the current session is not a system session)  
USERID ERROR (the first parameter is not a userid)  
USERID MISSING (no parameter is given)  
DISK FILE CODE ERROR (the second parameter is not numeric)  
DISK FILE CODE MISSING (no disk address specified in the command)  
INVALID DISK FILE CODE (the value of the second parameter is not in the range from /F0 to /FF)  
DISK FILE CODE UNKNOWN (the on-line system does not contain the specified disk)  
DISK NOT OPERATIONAL (the disk is not ready)  
TOO MANY PARAM (more than two parameters specified in the command)  
USERID NOT CATALOGUED (the specified userid has not been catalogued on the disk specified)  
I/O ERROR IN CATALOG (an I/O error has been detected during a read or write operation in the catalogue)  
DISK I/O ERROR (an I/O error has been detected during the de-allocation of the user files).

**DUMP FILE**

Syntax : DUF □  $\left. \begin{array}{l} /file-code \\ /0 \\ /L \\ /disk-number \\ file-name \end{array} \right\} [,/decimal-number-1$   
 $[,/decimal-number-2]$

Use : This command is used to get a hexadecimal dump, on the print unit, of a library file, a temporary file or a whole disk. Users must be careful about the position of the file after a DUF command. They must rewind it before using it again. This means that the following command sequence will give an error.

```
ASM □ /S
DUF □ /0
LKE
```

After assembly, the /0 file is positioned to the next free sector of the file, but when a DUF command is executed it is positioned to the last dumped sector. This means that the EOF record written by the system when the LKE command is encountered does not immediately follow the object code and the result will not be correct. The command sequence should be as follows:

```
ASM □ /S or ASM □ /S
LKE          KPF □ /0
DUF □ /0     DUF □ /0
LKE
```

The DUF command must normally be performed only after the completion of execution of a job step.

/file-code : Specifies the file which must be dumped.  
file-name : Name of a library file which must be dumped. This is a file of undefined type.

/0, /L : Cause dumping of the /0 and /L files respectively. This is mainly useful for system debugging purposes.

/decimal-number-1 : It is also possible to get a selective dump by specifying two decimal sector numbers for the beginning and ending sectors of the dump. A dump is made up to an EOF mark, up to end-of-volume (last granule) or up to decimal-number-2. The sector number is a disk sector logical address.

Errors : FILE NAME ERROR  
FILE NAME MISSING  
FILE CODE ERROR  
INPUT FILE ASSIGN ERROR (followed by a message giving the reason for the error)  
FILE CODE NOT ASSIGNED  
DISK NOT OPERATIONAL  
TOO MANY PARAM  
PARAM ERROR (error in sector number)  
I/O ERROR (an I/O error has been encountered while reading the disk file)  
SECTOR DELETED

FBS

## FILE BACKWARD SPACE

FBS

- Syntax : FBSL /file-code[,decimal-number]
- Use : This command may only be used with magnetic tape or cassette units. It is used to move the tape backwards across the specified number of tape marks.  
The default number of tape marks is one.
- Errors : FILE CODE MISSING (no file code specified)  
FILE CODE ERROR  
INVALID FILE CODE  
FILE CODE UNKNOWN  
PARAM ERROR (error in the second parameter)  
PARAM MISSING  
TOO MANY PARAM  
I/O ERROR





INC

INCLUDE OBJECT MODULE

INC

Syntax : INCL { /OBJCT  
          module-name } [userid [,/disk-number]]

Use : By means of this command it is possible to select an object module from the library of the current userid or another userid and to copy it into the /Ø file. After an INC command has been issued no command other than INC may be used to write to the current /Ø file.

module-name : Is the name of the object module which is to be included.

/OBJCT : If this is specified, the whole object library will be copied into the /Ø file.

userid : Is to be used only if this object module is held in the library of a user other than the current one.

/disk-number : Disk on which the specified userid is present.

Errors : MISSING PARAMETER  
          PARAM ERROR  
          ERROR ASSIGN  
          UNKNOWN USERID  
          NO OBJECT LIBRARY  
          INVALID NAME  
          PROGRAM NOT CATALOGUED  
          I/O ERROR

KPF

KEEP FILE

KPF

- Syntax : KPF LJ  $\left\{ \begin{array}{l} /S \\ /O \\ /L \\ /file-code \end{array} \right\} \left[ \left[ \left\{ \begin{array}{l} file-name \\ module-name \end{array} \right\} \right] \right]$
- Use : This command is used to incorporate into the library a file or module, which has been created as a temporary file, i.e. to make this file or object module permanent. Further information concerning the KPF command may be found in section 6.7.
- /S, /O, /L : Specify the type of the file which is to be kept.
- /file-code : Is the file code of the file which is to be kept.
- file-name : Are the names which are to be given to this file or module in the library and which will be placed in the file directory. If the first parameter is /S, the file will be of the type source. If file-name is not specified, /S is assumed to contain a source program of which the file-name can be found in its IDENT statement. Otherwise the name specified is taken as the file name. If the first parameter is /L or file-code, file-name must be specified. If the first parameter is /O, module-name is optional. If it is not specified, all object modules of the /O file are kept in the user library, otherwise only the module named will be kept.
- Errors : PARAM ERROR  
 INVALID PARAMETER  
 MISSING PARAMETER  
 DIRECTORY OVERFLOW  
 FILE EMPTY  
 I/O ERROR  
 IDENT MISSING  
 FILE CODE NOT ASSIGNED  
 FILE ALREADY CATALOGUED  
 MODULE UNKNOWN  
 DISK OVERFLOW  
 FILE OVERFLOW  
 ASSIGN ERROR

LED

## LINE EDITOR PROCESSOR

LED

- Syntax : LED  $\square$  file-name [ , { /file-code-1 } { /S } { /file-code-2 } { ,XX } ]
- Use : This command is used to line edit a source file held in the library. The updated source file is written to the /S file or to the file specified by file-code. A detailed description of the Line Editor is given in section 8.2.
- file-name : Is the name of the source file.
- /file-code-1 : Is the output file code. If specified the file is written as a file of undefined type.
- /file-code-2 : Specifies the input command file from which the control commands are entered. Default value: /EO.  
If this file code is assigned to a typewriter, the Line Editor prints L: before reading a record.
- XX : Are two alphabetic characters, specified if the user wants command control characters other than !!
- Errors : FILE NAME ERROR  
FILE NAME MISSING  
INPUT FILE CANNOT BE ASSIGNED (followed by message explaining the error)  
/S CANNOT BE ASSIGNED (followed by message explaining the error)  
INVALID FILE CODE  
FILE CODE NOT ASSIGNED  
TOO MANY PARAM  
DSK INPUT ERR, UPD ABORTED  
DSK OUTPUT ERR, UPD ABORTED  
UNKNOWN COMMAND, TRY AGAIN  
I/O ERR ON LAST RECORD, TRY AGAIN  
SEQUENCE ERR, TRY AGAIN  
SYNTAX ERR, TRY AGAIN  
EOF, UPD TERMINATED (the EOF mark has been encountered on the input source file before reaching the specified line, thus terminating the update process)  
AUX. INPUT CANNOT BE ASSIGNED, TRY AGAIN (auxiliary file used in JN command cannot be assigned)  
CMND NOT ALLOWED IN EXE MODE, TRY AGAIN (definition mode command)  
TABLE O'FLOW, TRY AGAIN (character string table is overflowing)  
EOF IN AUXI INPUT (JN command is terminated but operation continues).

LIC

LIST CATALOGUE

LIC

- Syntax : LIC □ /disk-number
- Use : This command can only be used in a system session. It enables the user to print out the userid catalogue of the specified disk on the typewriter.
- Errors : SYSTEM SESSION COMMAND  
PARAM MISSING  
PARAM ERROR  
FILE CODE NOT ASSIGNED

LKE

## LINKAGE EDITOR PROCESSOR

LKE

- Syntax : LKE [N|S|U] [,M] [,label]
- Use : This command is used to link edit a set of object modules. The object modules may be held in the /O file, the system /OBJCT file and the user /OBJCT file. The output load module is written to the /L file. If a fatal error occurs during link editing the /L file will be deleted. Further information concerning the Linkage Editor may be found in section 8.3.
- N : The system or user /OBJCT file need not be scanned.
- S : Only the system /OBJCT file has to be scanned.
- U : Only the user /OBJCT file has to be scanned.  
Default value: both /OBJCT files will be scanned.  
The user /OBJCT file will be scanned first, then the system /OBJCT file and then the user /OBJCT file again.
- M : A print-out of the map and symbol table is required.
- Label : This label identifies the start point of the program. It must be defined as an entry point in one of the modules in the /O file; it may be upto eight characters long. The label must not be N, S, U, M, DE or DS. If label is not specified the last start address encountered in the /O file will be used.
- Errors : INVALID PARAMETER  
COMMON VALUE REDUNDANT  
LIBRARY OPTION REDUNDANT  
DEBUG OPTION REDUNDANT  
MAP OPTION REDUNDANT  
START ADDR. REDUNDANT  
USER LIB ASSIGN ERROR:  
SYSTEM LIB ASSIGN ERROR  
/L ASSIGN ERROR:  
/O EMPTY  
/O CLOSE ERROR  
PROCESSOR NOT CATALOGUED  
INV. IDT (IDENT name larger than 6 characters)

LSD

LIST DIRECTORY

LSD

- Syntax : LSD LJ [/OB]  
Use : This command provides for a listing of the file directory of the user library on the typewriter. If /OB is specified, only the names of the modules of the object file are listed.  
Errors : PARAM ERROR  
NO OBJECT FILE CATALOGUED

LSF

LIST FILE CODES

LSF

Syntax

: LSF

Use

: When this command is given, a list is output on file code /1 of all the assigned file codes and the devices corresponding to them. The disk numbers /F0–/F3 are also listed.



LST

LIST FILE

LST

Syntax : LST  $\left\{ \begin{array}{l} /file-code \\ /S \\ /S, file-name \\ file-name \end{array} \right\} [,line-number-1 [,line-number-2]]$

Use : This command causes a listing of the specified disk or tape file on the console typewriter. If a record is longer than a print line it will be printed on several lines. The maximum record size allowed is 80 characters. Records which are longer will be truncated. Non-printable record characters will be replaced by spaces and trailing blanks will be removed. The listing will stop when either line-number-2, an EOF or End-Of-Volume (the last granule of the file) is reached. End-Of-Volume occurs when no EOF has been written for this file. After the listing, the file is positioned at the last record listed.

*/S, file-name* : a library source file.

*file-name* : a library undefined file.

*/file-code* : a temporary undefined file.

*/S* : the */S* file.

*line-number-1* : if specified these provide for a listing of the file from line-number-1

*line-number-2* : to line-number-2.

Errors : FILE NAME ERROR (the first parameter is neither */S* nor file-code nor a character string)  
 FILE NAME MISSING  
 LINE NUMBER ERROR  
 TOO MANY PARAM  
 INPUT FILE I/O ERROR  
 OUTPUT FILE I/O ERROR  
 FILE CODE ERROR  
 OUTPUT NOT ASSIGNED (*/1* is assigned to NO device or has not been assigned at all)  
 INPUT FILE CANNOT BE ASSIGNED (the system has to assign a temporary work file to the file which must be listed but this turns out to be impossible. A message will follow explaining the error).  
 EOF ON INPUT FILE, MOUNT NEW TAPE THEN RESTART (the input file code is assigned to a magnetic or cassette tape and its end-of-volume is encountered before the whole file has been listed. To continue the operation, the operator must mount the next tape or turn over the cassette and restart the program. The EOF mark is not considered as a record, so it is not listed).

MES

SEND MESSAGE

MES

Syntax : MES | alphanumeric-character . . . .

Use : This command is used, especially in catalogued procedures, to have the message specified typed out to the operator.

MOV	<b>MOVE A FILE</b>	MOV
Syntax	: MOV _ file-name, $\left\{ \begin{array}{l} /S \\ /L \\ /file-code \end{array} \right\}$ [,userid [,/disk-number]]	
Use	: This command is used to copy a file from a library (generally of another user) to the /S or /L file or to a file indicated by a file code. Only source or load files respectively may be moved to the /S and /L file. Any type of file may be moved to an undefined file specified by file-code.	
file-name	: Is the name of the library file which is to be moved.	
/S	: The file must be moved to the /S file.	
/L	: The file must be moved to the /L file.	
/file-code	: File code of the temporary file to which the file must be moved.	
userid	: User identification of the user whose file must be moved (if the file belongs to a user other than the current one).	
/disk-number	: Disk on which the userid is present.	
Errors	: FILE TYPE MISSING (the second parameter is absent) FILE TYPE ERROR (the second parameter is neither a file code, nor /S, nor /L) USERID ERROR USERID UNKNOWN TOO MANY PARAM INPUT FILE ASSIGN ERROR OUTPUT FILE ASSIGN ERROR (these messages are followed by another one specifying the cause of the error) I/O ERROR (an I/O error has been encountered during the read or write operation and the file is not copied. A new MOV command has to be given).	

PCH

## WRITE A SOURCE OR UNDEFINED FILE

PCH

Syntax : PCH  $\left\{ \begin{array}{l} /file-code-1 \\ /S \\ file-name \\ file-name, /S \end{array} \right\} [./file-code-2]$

Use : This command is used to have a disk source or undefined file written to the specified output device. The maximum record length must be 132 characters. If any records of over 132 characters are encountered in the file, they are truncated. The file must be closed by an EOF record, otherwise the file will be punched up to the End-Of-Volume, where the last record of the last granule may be wrong. Further information concerning the PCH command may be found in section 6.8.

/file-code-1 : File code of a temporary user file which must be output.

/S : The temporary source file must be output.

file-name : Name of a catalogued user data file which must be output.

file-name,/S : Name of a catalogued source program which must be output.

/file-code-2 : Output file code. Default value is /3.

Errors : /S EMPTY  
 FILE NAME ERROR  
 FILE NAME MISSING  
 INVALID FILE CODE  
 FILE CODE NOT ASSIGNED  
 TOO MANY PARAM  
 INPUT I/O ERROR  
 OUTPUT I/O ERROR  
 FILE TYPE ERROR (the parameter following file-name is not /S)  
 INPUT FILE CANNOT BE ASSIGNED (it is impossible for the system to assign a work file code to the input file. A message will follow explaining the cause of the error).  
 EOF ON OUTPUT FILE, MOUNT NEW TAPE THEN RESTART (an end-of-volume has been encountered on magnetic or cassette tape output device. The operator must mount a new tape or turn over the cassette and restart the program to continue the output operation).  
 OUTPUT FILE CODE ERROR

PLB

## PRINT LABEL

PLB

- Syntax : PLB [ ] /file-code
- Use : This command is used to print a magnetic tape or cassette label on the console typewriter. The tape is positioned at the first record of the file following the label. If the label is absent and a tape mark is *encountered at the start of the tape* the message NO LABEL is printed. Further information concerning tape labels may be found in section 6.8.
- Errors : FILE CODE MISSING (no file code specified)  
FILE CODE ERROR  
INVALID FILE CODE  
FILE CODE UNKNOWN  
PARAM MISSING  
TOO MANY PARAM  
I/O ERROR

**PLD**

**WRITE A LOAD FILE**

**PLD**

- Syntax : PLD □ file-name  $\left[ \left\{ \begin{array}{l} /L \\ /file-code \\ /L,/file-code \end{array} \right\} \right]$
- Use : This command is used to have a disk load file written to the specified output device. The file will be output in object code format and must be read back to disk via the RDO command. Further information concerning the PLD command may be found in section 6.8.
- file-name : Name of a load file in a library. If /L is specified the /L file will be  
 /L : punched with IDENT record built from the name specified in the command, if this name is different from the IDENT name of the program.
- /file-code : Output file code. Default value is /3.
- Errors : PARAM ERROR  
 FILE CODE NOT ASSIGNED  
 PARAM ABSENT  
 FILE NAME NOT CATALOGUED  
 NO LOAD MODULE  
 OUTPUT FILE CODE ERROR

POB

## WRITE AN OBJECT MODULE

POB

- Syntax : POB  $\square$   $\left[ \begin{array}{l} \text{module-name} \\ \text{/file-code} \\ \text{module-name,/file-code} \end{array} \right]$
- Use : This command is used to have a disk object module or file written to the specified output device. Further information concerning the POB command may be found in section 6.8.
- module-name : Is the name of the library object module which must be output. If no name is specified, the whole /Ø file will be punched. When the /Ø file must be output and no EOF has yet been written after it, the EOF mark is written before the file is rewound and output.
- /file-code : Output file code. Default value is /3.
- Errors : OBJECT MODULE NAME ERROR  
 /Ø EMPTY  
 /Ø CLOSE ERROR (error detected during writing of EOF and rewinding of /Ø file)  
 /Ø INPUT ERROR (error detected during reading of /Ø file)  
 OUTPUT I/O ERROR (I/O error encountered during the output operation)  
 INPUT I/O ERROR (error detected during reading of module which is to be output)  
 ILLEGAL EOS IN INPUT FILE (the first record of a module is an EOS)  
 OBJECT MODULE NOT CATALOGUED  
 IDENT MISSING (the first record of a module in the object library is not an IDENT)  
 OBJECT LIBRARY ASSIGN ERROR (it is impossible for the system to assign a work file to the user object library. A following message will explain the cause of the error)  
 EOVS ON OUTPUT FILE, MOUNT NEW TAPE THEN RESTART (an end-of-volume has been encountered on a magnetic or cassette tape output device. The operator must mount a new tape or turn over the cassette and restart the program to continue the output operation).  
 OUTPUT FILE CODE ERROR.

PRC

## PRINT CATALOGUE

PRC

- Syntax : PRC *LI* /disk-number
- Use : This command can only be used in a system session. It enables the user to print out on the print unit the userid catalogue contained on the disk specified.
- Errors : SYSTEM SESSION COMMAND (the current session is not a system session)  
PARAM MISSING  
PARAM ERROR  
FILE CODE NOT ASSIGNED



**PRD**

**PRINT DIRECTORY**

**PRD**

- Syntax : PRD □ [/OB]
- Use : This command causes a print-out of the user's file directory on the print unit. If /OB is specified, only the names of the object modules in the object file are printed, including any comments in the IDENT statements.
- Errors : PARAM ERROR  
NO OBJECT FILE CATALOGUED

PRT

PRINT FILE

PRT

Syntax : PRT  $\left\{ \begin{array}{l} /file-code \\ /S \\ /S,file-name \\ file-name \end{array} \right\} [,line-number-1 [,line-number-2]]$

Use : This command causes a listing of the specified disk or tape file on the print unit. If a record is longer than a print line it will be printed on several lines. The maximum record size allowed is 132 characters. Records which are longer will be truncated. Non-printable record characters will be replaced by spaces and trailing blanks will be removed. The listing will stop when either line-number-2, an EOF or End-Of-Volume (the last granule of the file) is reached. End-Of-Volume occurs when no EOF has been written for this file. After the printing, the file is positioned at the last record printed.

/S,file-name : A library source file

file-name : A library undefined file

/file-code : A temporary undefined file

/S : The /S file

line-number-1 : If specified, these provide for a listing of the file from line-number-1

line-number-2 : to line-number-2.

Errors : FILE NAME ERROR (the first parameter is neither /S nor a file code nor a character string)  
 FILE NAME MISSING  
 LINE NUMBER ERROR  
 TOO MANY PARAM  
 INPUT FILE I/O ERROR  
 OUTPUT FILE I/O ERROR  
 FILE CODE ERROR  
 OUTPUT NOT ASSIGNED (/2 is assigned to NO device or has not been assigned at all)  
 INPUT FILE CAN NOT BE ASSIGNED (the system has to assign a temporary work file to the file which must be printed but this turns out to be impossible. A message will follow explaining the error).  
 EOF ON INPUT FILE, MOUNT NEW TAPE THEN RESTART (the input file code is assigned to a magnetic or cassette tape and its end-of-volume is encountered before the whole file has been printed. To continue the operation, the operator must mount the next tape or turn over the cassette and restart the program. The EOF mark is not considered as a record, so it is not printed).

PSE

PAUSE

PSE

Syntax : PSE □ [alphanumeric-character . . .]

Use : This command is used, especially in catalogued procedures, to put the machine in a pause state and have the specified message typed out for the operator. The operator must restart the program to have the next command read, via the control message RS.

RBS

## RECORD BACKWARD SPACE

RBS

- Syntax : RBS □ /file-code[,decimal-number]
- Use : This command may only be used on magnetic tape or cassette units. It is used to move the tape backwards over the specified number of records. The default number of records is one.
- Errors : FILE CODE MISSING (no file code specified)  
FILE CODE ERROR  
INVALID FILE CODE  
FILE CODE UNKNOWN  
PARAM ERROR (error in the second parameter)  
PARAM MISSING  
TOO MANY PARAM  
I/O ERROR

RDA

READ DATA

RDA

- Syntax : RDA [ ] /file-code-1 [ , /file-code-2 ]
- Use : This command is used to read data from an input device and write the data to disk. The data will be read until an :EOF is encountered. Further information concerning the RDA command may be found in sections 6.3 and 6.8.
- /file-code-1 : Specifies the disk file to which the data must be written. This file code does not have to be assigned by the user; an assignment will automatically be made by the CCI.
- /file-code-2 : File code from which the data are read. Default value is /E1. The standard assignment for this file code is to TKOE (cassette).
- Errors : DISK FILE CODE MISSING  
 DISK FILE CODE ERROR  
 INVALID DISK FILE CODE  
 INVALID PARAMETER (the file code is not a numeric value in the range from /1 to /EF)  
 FILE CODE NOT ASSIGNED (the file code is assigned to NO device or has not been assigned at all)  
 TOO MANY PARAM  
 DISK ASSIGN ERROR (the System is unable to assign a disk temporary work file. A message will follow giving the cause of the error)  
 INPUT I/O ERROR  
 OUTPUT I/O ERROR (an error has been detected during the last read operation from the sequential file or during the last write operation to the disk temporary file).

RDO	READ OBJECT	RDO
Syntax	: RDO L: [/file-code]	
Use	: This command is used to read an object module from an input device and write the module to the /Q file. Further information concerning the RDO command may be found in sections 6.3 and 6.8.	
/file-code	: File code from which the module will be read. Default value is /E2. The standard assignment for this file code is TKOE (cassette).	
Errors	: INVALID PARAMETER (the file code is not a numeric value in the range from /1 to /EF) FILE CODE NOT ASSIGNED (the file code is assigned to NO device or has not yet been assigned at all) TOO MANY PARAM DISK ASSIGN ERROR (the System is unable to assign the disk temporary file. A message will follow giving the cause of the error) INPUT I/O ERROR OUTPUT I/O ERROR (an error has been detected during the last read operation from the sequential file or during the last write operation to the disk temporary file).	

RDS

READ SOURCE

RDS

- Syntax : RDS □ [/file-code]
- Use : This command is used to read a source module from an input device and write the module to the /S file. Further information concerning the RDS command may be found in sections 6.3 and 6.8.
- /file-code : File code from which the module will be read. Default value is /E1. The standard assignment for this file-code is TKOE (cassette).
- Errors : INVALID PARAMETER (the file code is not a numeric value in the range from /1 to /EF)  
FILE CODE NOT ASSIGNED (the file code is assigned to NO device or has not yet been assigned at all)  
TOO MANY PARAM  
DISK ASSIGN ERROR (the System is unable to assign the disk temporary file. A message will follow giving the cause of the error)  
INPUT I/O ERROR (an error has been found during the last read operation from the sequential file or during the last write operation to the disk temporary file).  
EOV ON INPUT FILE, MOUNT NEW TAPE THEN RESTART (the input file is a magnetic or cassette tape and the end-of-volume has been encountered before the end-of-file mark. The operator has to mount the next reel of tape or turn over the cassette and restart the program).

REF

REWIND FILE

REF

- Syntax : REF □ /file-code
- Use : This command is used to position the specified file at the first record in the file. It may be used with magnetic tape, cassette and disk.
- Errors : FILE CODE MISSING (no file code specified)  
FILE CODE ERROR  
INVALID FILE CODE  
FILE CODE UNKNOWN  
PARAM MISSING  
TOO MANY PARAM  
I/O ERROR



REW

REWIND TAPE

REW

- Syntax : REW  /file-code
- Use : This command may only be used with magnetic tape or cassette units.  
It is used to rewind the tape on the device to which the specified file code has been assigned.
- Errors : FILE CODE MISSING (no file code specified)  
FILE CODE ERROR  
INVALID FILE CODE  
FILE CODE UNKNOWN  
PARAM MISSING  
TOO MANY PARAM  
I/O ERROR

RFS

RECORD FORWARD SPACE

RFS

- Syntax : RFS □ /file-code [,decimal-number]
- Use : This command may only be used on magnetic tape or cassette units. It is used to move the device indicated by file-code forward over the specified number of records. The default number of records is one.
- Errors : FILE CODE MISSING (no file code specified)  
FILE CODE ERROR  
INVALID FILE CODE  
FILE CODE UNKNOWN  
PARAM ERROR (error in the second parameter)  
PARAM MISSING  
TOO MANY PARAM  
I/O ERROR

RSU

REPLACE SUPERVISOR

RSU

Syntax : RSU  /disk-number

Use : This command may only be used during a system session. The command is used to replace the Supervisor (resident part of the Monitor) on a system disk. The load file containing the new Supervisor is taken from the /L file. It is copied to the disk specified by /disk-number starting from sector number 18 (sector 16 and 17 are occupied by the file header and GRANTB).

Errors : COMMAND NOT ALLOWED  
PARAM ERROR (the parameter must be numeric)  
DISK ADDRESS MISSING  
INVALID DISK ADDRESS  
TOO MANY PARAM  
DISK UNKNOWN  
DISK NOT OPERATIONAL  
/L EMPTY  
DISK I/O ERROR (an I/O error has been detected during the reading of the /L file or during the writing to the specified disk).  
/FX NOT A SYSTEM DISK  
/L TOO BIG

**RUN**

**RUN A UTILITY**

**RUN**

Syntax : RUN  utility-name  
Use : This command is used to call into execution a DOS6800 utility.  
Errors : PROGRAM NAME ERROR  
/L EMPTY  
PROGRAM NOT CATALOGUED  
TOO MANY PARAM

SCR

**SCRATCH FILES**

SCR

Syntax : SCR □  $\left\{ \begin{array}{l} /S \\ /Ø \\ /L \\ /file-code \end{array} \right\}$

Use : The effect of this command, basically, is to nullify the specified disk file code assignments. That is, the relevant entries in the file code table are removed and the associated disk files are lost (unless they have been made part of the library). The SCR command works in the following way:

**File codes    Effect of SCR command**

**/A- /DF**    File codes are de-assigned. That is the file code is no longer associated with the physical device. The contents of the file are lost and the file must be re-assigned if it is to be used again.

**/1- /9 and**    If the user has not assigned the file code to disk the SCR command has no effect.

**/E0- /EF**    If the file code has been assigned to disk it is de-assigned as described above.

An exception to this rule is made for file code /E0. If this file code has been assigned to disk it is equated to file code /1.

Further information concerning the SCR command may be found in section 6.6.

**/S, /Ø, /L, /file-code** : If specified this parameter indicates the file to be scratched. If not specified all temporary disk files are scratched.

Errors : INVALID PARAM  
INVALID FILE CODE  
I/O ERROR (an I/O error has been detected during the loading of the allocation table).

SKF

## SKIP FORM

SKF

Syntax

: SKF *L* [*decimal-number*]

Use

: By means of this command, the specified number of pages may be skipped on file code /2. The standard assignment for this file code is LPOF (line printer). The default number of pages is one.

SVD

SAVE DISK ONTO ANOTHER DISK

SVD

Syntax

: SVD [ ] /disk-number-1, /disk-number-2 ,

Use

: This command can only be used in a system session. It is used to copy the contents of one disk onto another one. All allocated granules of the disk specified by disk-number-1 are copied onto the disk specified by disk-number-2. If the capacity of the disks is different, only as many sectors will be duplicated as the smaller disk contains. The disks are assumed not to contain any defective tracks, for the copying is done sector per sector, sequentially. Disk-number-2 may not be the current system disk (i.e. /F0). The volume label of disk-number-2 is not destroyed.

Errors

: COMMAND NOT ALLOWED (the current session is not a system session)  
FIRST FILE CODE MISSING  
SECOND FILE CODE MISSING  
FIRST FILE CODE UNKNOWN  
SECOND FILE CODE UNKNOWN  
FIRST FILE CODE ERROR  
SECOND FILE CODE ERROR  
TOO MANY PARAM  
INPUT I/O ERROR  
OUTPUT I/O ERROR  
INVALID DISK TYPE (the disk to which one of the two file codes is assigned, is not supported by the system).

SVU

## SAVE USER LIBRARY

SVU

- Syntax** : SVU  $\square$  userid,/disk-number
- Use** : This command is used to copy all the files of the user library specified, contained on the disk specified, into the library of the current session user. This may be the same user as the one specified by userid.  
The files will be copied one at a time, up to 'end of medium'.  
The new file will be kept in the directory of the current user under the same name and type. If the name has already been kept previously in the directory, the old file is scratched and replaced by the new one. All the sectors of the file are copied, one at a time, except for the deleted sectors of the object library file. The files are copied in the same order as they appear in the directory of the user specified by userid.
- Errors** :
- INVALID USERID (the first parameter is not a character string)
  - DISK FILE CODE ERROR (the second parameter must be a binary value)
  - USERID MISSING (the command contains no parameter)
  - DISK FILE CODE MISSING (the second parameter specifying the disk file code is not specified in the command)
  - INVALID DISK FILE CODE (the second parameter is numeric but not in the range from /F0 to /FF)
  - DISK FILE CODE UNKNOWN
  - DISK NOT OPERATIONAL (the disk to which the file code has been assigned, is not operational. If it has just become ready, a retry is possible, otherwise the error must be corrected)
  - TOO MANY PARAM
  - USERID NOT CATALOGUED (the userid given in the command does not exist on the disk specified)
  - INPUT DISK I/O ERROR (an I/O error has been detected during a read operation from the disk specified in the command)
  - OUTPUT DISK I/O ERROR (an I/O error has been encountered during a read/write operation from or to the disk used in the current session)
  - INPUT FILE ASSIGN ERROR
  - OUTPUT FILE ASSIGN ERROR (in order to save all the files of the user specified, the system assigns a temporary work file code to a file of this user and another one to the disk file of the current session. This may be impossible, in which case a message will follow explaining the cause of the error)
  - DIRECTORY OVERFLOW ON XXXXXXFT (there is an overflow of the directory of the user of the current session, while the file with the name XXXXXX and the type FT is being catalogued).  
The file type is SC for source files,  $\emptyset$ B for object files, LM for load modules and UF for undefined files. This file cannot be catalogued. The user may give a PRD command to find out which files have been copied so far, since all files are copied in the order in which they appear in the directory of the user specified by userid.



TLK

CREDIT LINKER PROCESSOR

TLK

- Syntax : TLK [N|S|U] [,M] [,X]
- Use : This command must be used to call the CREDIT Linker. It converts the intermediate object code to the object code which can be processed by the Linkage Editor. Further information concerning the CREDIT Linker may be found in the CREDIT PRM (M04).
- N : The system or user /OBJCT files do not need to be scanned.
- S : Only the system /OBJCT file has to be scanned.
- U : Only the user /OBJCT file has to be scanned.  
Default value: Both /OBJCT files will be scanned. The user /OBJCT file will be scanned first, then the system /OBJCT file and then the user /OBJCT file again.
- M : The listing of the map, which consists of a listing of the module names and their loading address, and an alphabetical list of all entry points and common blocks together with their value, must be printed.
- X : Indicates that a cross reference listing is required.
- Errors : INVALID PARAMETER  
COMMON VALUE REDUNDANT  
LIBRARY OPTION REDUNDANT  
MAP OPTION REDUNDANT  
START ADR. REDUNDANT  
USER LIB. ASSIGN ERROR  
/Ø EMPTY  
/Ø CLOSE ERROR  
PROCESSOR NOT CATALOGUED

TRA	<b>CREDIT TRANSLATOR PROCESSOR</b>	TRA
Syntax	: TRA □ { /S file-name } [,NL]	
Use	: This command is used to translate a source module from a library or from the /S file. The intermediate object code is written to the /Ø file. If a fatal error occurs during translation the /Ø file will be deleted. Further information concerning the CREDIT Translator may be found in the CREDIT PRM (M04).	
/S	: The source program must be translated from the /S file.	
file-name	: Indicates the name of a library source module or program to be translated.	
NL	: If this parameter is specified the Translator will produce no listing of the translated program. If NL is omitted a listing is produced on the print unit. Error messages, however, will always be listed.	
Errors	: FILE NAME ERROR FILE NAME MISSING INVALID PARAM /S EMPTY (no temporary source file exists) /S ASSIGN ERROR (it is impossible to assign the file code /D4 to the catalogued source file. A message will follow to explain the error). /Ø ASSIGN ERROR (an attempt to assign the /Ø file is refused. A message will follow to explain the error). NL OPTION ERROR (NL has been declared more than once in the command). PROCESSOR NOT CATALOGUED (a segment of the Translator has not been catalogued).	

ULD

SWITCH TAPE UNIT TO MANUAL

ULD

- Syntax : ULD □ /file-code
- Use : This command may only be used with magnetic tape or cassette units. It is used to switch the device indicated by file-code to manual. The device is automatically rewound.
- Errors : FILE CODE MISSING (no file code specified)  
FILE CODE ERROR  
INVALID FILE CODE  
FILE CODE UNKNOWN  
PARAM MISSING  
TOO MANY PARAM  
I/O ERROR

UPR

### CALL USER PROCESSOR

UPR

Syntax : UPR [ ] module-name, { /S  
file-name } [,NL]

Use : This command enables the user to call into execution a special version of the Assembler processor from the user library. Module-name is the name of the load module containing the special processor. The other parameters have the same meaning as under ASM. This command is useful in conjunction with the Assembler directive GEN which enables the creation of special Assemblers with predefined mnemonics (FORM) or symbols (equivalence tables) without affecting the standard Assembler in the System. Further information concerning the GEN directive can be found in the Assembler PRM (M06). An example of the control command sequence needed to generate a special Assembler is given in section 6.11.7.

WEF

WRITE END OF FILE

WEF

- Syntax : WEF □ /file-code [,decimal-number]
- Use : This command is used to write the specified number of end of file marks on the device specified by file-code. The default number of file marks is one. This command may be used on magnetic tape, cassette or disk.
- Errors : FILE CODE MISSING (no file code specified)  
FILE CODE ERROR  
INVALID FILE CODE  
FILE CODE UNKNOWN  
PARAM ERROR (error in the second parameter)  
PARAM MISSING  
TOO MANY PARAM  
I/O ERROR

**WEV**

**WRITE END OF VOLUME**

**WEV**

- Syntax** : WEV □ /file-code
- Use** : This command may only be used with magnetic tape or cassette units.  
It is used to write an end of volume mark on the device indicated by  
file-code.
- Errors** : FILE CODE MISSING (no file code specified)  
FILE CODE ERROR  
INVALID FILE CODE  
FILE CODE UNKNOWN  
PARAM MISSING  
TOO MANY PARAM  
I/O ERROR

WLB

WRITE LABEL

WLB

- Syntax : WLB [ ] /file-code, decimal-number, hexadecimal-digit, alphanumeric-character . . . .
- Use : This command may only be used with magnetic tape or cassette units. It is used to write a volume label on the device indicated by file-code. The label is followed by a tape mark. Further information concerning tape labels may be found in section 6.8.
- decimal-number: This is the volume serial number comprising upto six digits.
- hexadecimal-digit : This is the security code. If the value of this code is "NO", no volume label will be written. A tape mark will be written instead.
- alphanumeric-character : This is the owner. It comprises upto 39 characters including blanks and commas.
- Errors : FILE CODE MISSING (no file code specified)  
FILE CODE ERROR  
INVALID FILE CODE  
FILE CODE UNKNOWN  
PARAM ERROR (error in the second parameter)  
PARAM MISSING  
TOO MANY PARAM  
I/O ERROR

