CHAPTER 3
DISCOVERING YOUR UTILITIES DISK

These utilities have been provided to assist you in using your Sinclair QL Disk Drives and the QL Microdrives. They include:

BACKUP_X	For copying multiple files
EXCHANGE_X	To replace characters in a file
DEL_FILES_X	Will delete multiple files
EX_DIR_X	An extensive directory utility
INSPECT_X	Will allow file inspection
SPOOL_X	A general file spooling utility
COPY_X	For selective file copying
REDIRECT_X	A powerful file transfer utility
REPOS_BAS	A window manipulation utility
COLPRINT	A colour screen dump program for the CANON PJ1080A
DAME	Disk and Memory Editor

All the utilities ending with _X are executable jobs and can therefore be run concurrently with each other and / or any Superbasic programs (subject to memory available). They also include powerful window manipulation facilities, which help you keep your screen clean and tidy. To load one of the _X utilities, type:

```
          EXEC filename
eg.       EXEC FDK1_EX_DIR_X
```

By pressing CTL+C, the cursor can be moved between jobs (which includes BASIC of course). Any utility can be removed and its associated memory freed by pressing SHIFT+ESC.

The remaining three utilities are, at least in part, Superbasic programs. They can be loaded in the same way as any other Superbasic program by typing:

```
          LRUN filename
eg.       LRUN FDK1_REPOS_BAS
```

Both REPOS_BAS and COLPRINT will attempt to load a machine code program into the QL resident procedure area. They assume that their respective machine code programs can be found on the device called "FDK1_". If the utilities disk is not in drive 1, or microdrive emulate mode has been entered, then these programs will not be found and an error message will result. It is vital that these situations are avoided.

An error condition will occur if the QL has already allocated memory before the RESPR statement in the BASIC program is reached (RESPR allocates memory in the resident procedure area). If this situation arises, the error message NOT COMPLETE will result, informing you that memory in this area cannot be allocated. The QL will have to be reset and the program re-run.

The remainder of this chapter describes in detail how to fully use these utilities.

THE X UTILITIES

Each of the _X utilities may be run as an independent, executable job. In other words, as many copies of the same routine can be run concurrently as memory permits. Alternatively several different jobs can be run concurrently. Each job has associated with it a "window". This is an area of the QL screen which acts as the command console for that particular job. The _X utilities all include a special facility for manipulating that job's associated windows. In some of the programs, pressing '?' will enter the 'Window Menu'. In others, pressing 'F2' will perform the same function. Once in the 'Window Menu', the function keys operate as follows:

F1 (Upper/Lower screen)

F1 will move the screen window to the top or bottom half of the screen. You will find this key very useful for positioning the screen.

F2 (Move screen)

This key allows you to move the screen window. F1 selects fine or coarse movement of the screen window. Use the cursor keys to move the window to the desired position.
F5 will display the current screen size and position.
Press Enter to confirm the screen position and return to the source device prompt.

F3 (Clear screen)

Will clear the whole display except for the current screen and then return to the source device prompt.

F4 (Change screen size)

Use CTRL and cursor keys to make the screen larger.
Use ALT and cursor keys to make the screen smaller.
F1 selects fine or coarse movement.

F5 (Screen Info)

F5 will give the values for the screen position and size.

For all the _X utilities, typing SHIFT+ESC and ENTER will remove the job and and release it's associated memory. CTRL+C will move the cursor between jobs and will sometimes need to be typed after a job has been removed.

All the descriptions below assume that the utilities disk is in drive 'FDK1_'. If it is not, or the drive device has been renamed, then the appropriate substitutions should be made.

BACKUP_X

This is a multi-tasking routine to copy files from one media to another (either disk or microdrive). It will allow selective copying and overwrite.

Backup_X is loaded by typing: `EXEC FDK1_BACKUP_X`

You will notice the backup screen appear. The first prompt is for the name of the source device. Type the device name:
eg. MDV1_

You will then be prompted to enter the name of the destination device. Type the device name:
eg. FDK2_

The next prompt is for an extension. BACKUP_X will use this extension as a search key. Any file ending with this extension will be copied across and all other files will be ignored. If no extension is given, then all files will be copied regardless of their name. Typing 'TEST_BAS' will for example only copy files ending with 'TEST_BAS'. You can use this facility to copy individual files of course. Typing '_Q' will copy all files ending with '_Q'.

A screen prompt requesting whether you wish to overwrite will be displayed. Typing 'N' will not copy files which already exist on the destination device. If you type 'Y', then files which already exist on the destination device, will be overwritten by the new file.

Type 'Y' in response to the 'Ready?' prompt to commence backing up files.

If you respond to the prompt for a source device by typing '?', you will enter the Window Menu. The function keys will operate as described in the beginning of this section.

To remove the job, type SHIFT+ESC and ENTER.

EXCHANGE_X

This is a multi-tasking routine which will replace all occurrences of an ASCII string in a file with another ASCII string of the same length. For example, replace 'MDV' with 'FDK'. Exchange_X is loaded by typing: `EXEC FDK1_EXCHANGE_X`

You will notice the Exchange screen appeear.

In response to the source prompt, type the full filename eg. 'MDVI_TEST_CODE'

Then type the characters you want to replace, eg. 'TEST', then the new characters, eg. 'DEMO'. Press ENTER after each selection.

To remove the job, type SHIFT+ESC and ENTER.

Pressing '?' in response to the prompt for the source device name, will enter the Window Menu as usual. The function keys will then operate as described in the beginning of this section.

DEL_FILES_X

This is a multi-tasking routine which will delete files from a disk or Microdrive. Multiple deletions may be performed in one go. Del_files_X is loaded by typing:

```
EXEC FDK1_DEL_FILES_X
```

You will notice the Delete screen appear.

Type the number of the device you wish to use. For example, if FDK_? is shown in the top left corner, and you type 1 (DO NOT PRESS ENTER), a numbered directory of the device FDK1_ with file sizes will appear followed by the word DELETE.

To delete files, type their line numbers separated by spaces. The deletion will take place when you type a non-numeric character and press ENTER. If there are more than three columns of files, use ENTER to scroll down. The directory will remain open until you reach the end.

Be very careful not to delete wanted files!

F1 will toggle the source device between MDV to FDK.

F2 will enter the Window Menu (as described at the beginning of this section).

F4 – Auto screen size: This will toggle automatic window sizing On and Off. With automatic screen sizing On, the size of the window will be adjusted to suit the number of files which are to be displayed.

F5 – Auto Update. This will toggle the automatic updating of the directory. When this mode is On, the directory on the screen will be periodically updated. Any changes to the directory of the disk will be reflected on the screen as it is updated. This automatic update will continue in the background even when you are performing other tasks.

EX_DIR_X

This is a multi-tasking routine which will list the directory of a Disk or Microdrive to screen (including the length of the file in bytes). Ex_dir_X is loaded by typing:

```
EXEC FDK1_EX_DIR_X
```

You will notice the Ex_dir_X window appear. Enter the drive number you wish to look at. The directory will appear, also giving the size of each file. The function keys operate as described below.

F1 will toggle the source device between MDV to FDK.

F2 will enter the Window Menu (as described at the beginning of this section).

F4 – Auto screen size: This will toggle automatic window sizing On and Off. With automatic screen sizing On, the size of the window will be adjusted to suit the number of files which are to be displayed.

F5 – Auto Update. This will toggle the automatic updating of the directory. When this mode is On, the directory on the screen will be periodically updated. Any changes to the directory of the disk will be reflected on the screen as it is updated. This automatic update will continue in background mode when you are performing other tasks.

INSPECT_X

This is a multi-tasking routine which will allow you to inspect a Microdrive or Disk file, including the header. The output can be displayed on screen or directed to a printer. The routine allows you to scroll backwards and forwards through the file. It will display ASCII characters as normal and "unprintable" characters in hexadecimal. Inspect_X is loaded by typing:

```
EXEC FDK1_INSPECT_X
```

You will notice the Inspect screen appear. The first prompt will be for a source file. Enter the full file name.

```
FDK1_TEST_BAS
```

You will then be prompted for the destination. Enter the device name.

```
FDK2_SAVE or SCR_ or SER1_
```

which will copy the file, list it to the screen, or to the printer respectively. Press ENTER after each selection.

You can use the cursor keys to scroll up and down the file. You will notice that the file header will remain at the top of the display screen, and has the usual format. Pressing ENTER will return to the main menu and close the file. The function keys are used as follows:

F1 – Ascii/Hex. This is used to select whether the file is displayed in Hexadecimal or ASCII format.

F2 – Send to printer. This will direct the output to a printer connected to the serial port SER1.

F3 – Clear screen. This will clear the displayed file from the screen window.

F4 – Screen Size. This key will toggle the display window size between full and half height.

F5 – Auto Update. This will toggle the automatic updating of the screen display. When this mode is On, the file on the screen will be periodically updated. Any changes to the file will be reflected on the screen as it is updated. This automatic update will continue in background mode when you are performing other tasks.

To enter the Window Menu, type '?' in response to the prompt for the source device name. Type SHIFT+ESC and ENTER to remove the job.

SPOOL_X

This utility will allow you to output a file to screen, printer or disk. Its use is primarily in the fact that it is a multi-tasking utility. A file can be printed in background mode whilst you are running another job. Spool_X is loaded by typing:

```
EXEC FDK1_SPOOL_X
```

You will be prompted for a Source device/filename, followed by a Destination device/filename. All characters and control codes are sent without modification. To halt the output you must use CTRL+F5 as you would normally do to halt a listing. Unlike Inspect this utility does not output the file header. You will have to wait for the file output to be completed before selecting a new file or ending the program.

Pressing '?' in response to the prompt for the source device name will enter the Window Menu as described earlier. SHIFT+ESC and ENTER will remove the job as usual.

COPY_X

This utility is used to copy files from Microdrive or Disk. It is useful when several files need to be copied from one device to another, because the selection is by a line number rather than the full filenames. Copy_X is loaded by typing:

```
EXEC FDK1_COPY_X
```

Type in the device number to be read, do NOT press ENTER.The directory will appear in the screen window and you will see that each file has been given a number. You will now be asked which file(s) you wish to copy. Type in the relevant numbers, separated by spaces and then the device name where you wish them to be copied to; eg 'FDK2_' and press ENTER.

F1 will toggle the source device between MDV to FDK.

F2 will enter the Window Menu (as described at the beginning of this section).

F4 – Auto screen size: This will toggle automatic window sizing On and Off. With automatic screen sizing On, the size of the window will be adjusted to suit the number of files which are to be displayed.

F5 – Auto Update. This will toggle the automatic updating of the directory. When this mode is On, the directory on the screen will be periodically updated. Any changes to the directory of the disk will be reflected on the screen as it is updated. This automatic update will continue in background mode when you are performing other tasks.

REDIRECT_X

This utility will allow you to output all files with a particular extension to screen, printer or disk. All characters and control codes are sent without modification. To halt the output you must use CTRL+F5 as you would normally do to halt a listing. Unlike Inspect this utility does not output the file header. You will have to wait for the file output to be completed before selecting a new file or ending the program. Redirect_X is loaded by typing: `EXEC FDK1_REDIRECT_X`

This utility could, for example, be used to obtain a printout of Superbasic programs from a Disk or Microdrive.

Answer the prompts for a Source device, Destination device and extension in the same way as you would for Backup_X. If you press ENTER in reply to the prompt for the file extension, then all the files will be redirected.

Typing '?' in response to the prompt for a Source device will enter the Window Menu as usual. Type SHIFT+ESC and RETURN to remove the job.

Hints and tips

Read the instructions, experiment using the safe routines eg.

```
EX_DIR_X, INSPECT_X, SPOOL_X
```

Move the windows about, load several routines and experiment switching between them using CTRL+C. Practice quitting them using SHIFT+ESC. After a short time you will find these utilities second nature and an invaluable aid to file or program generation.

If a routine fails to load you have probably run out of memory. Delete routines you are not using and reload.

If a routine fails it will abort and quit itself – Type CTRL+C.

REPOS BAS

This is a Superbasic Procedure which enables you to change the size and location of up to 9 windows. REPOS_BAS is loaded by placing the utilities disk in drive 1 and typing: `LRUN FDK1_REPOS_BAS`

This will then load an assembler program called REPOS_CODE from FDK1 into the Superbasic RESPR area.

It is used as a normal Superbasic procedure by typing: `REPOS #X`

Where X is between 1 and 9, and specifies the screen window to be repositioned.

Keys used

F1 – Fine/Coarse movement: F1 will toggle between fine and coarse movement of the screen position or screen size.

Cursor keys: Use the cursor keys to move the current window.

CTRL+Cursor keys: Hold down CTRL and use cursor keys to increase the window size.

ALT+Cursor keys: Hold down ALT and use cursor keys to decrease the current window size.

ENTER: Press ENTER to leave the window in its new position. At this time the coordinates of the new window position will be displayed in the top left hand corner.

COLPRINT

This program will enable you to 'Dump' a high resolution MODE 4 screen from the QL to a suitable colour printer, eg. Micro Peripherals' CANON PJ-1080A.

To load this program proceed as follows:

1) Place Utilities disk in Drive 1.
2) Type: LRUN FDK1_COLPRINT.
3) Follow the screen prompts thereafter.

Colprint assumes that the printer is connected to the SER 1 serial port.

This utility also provides a range of printer control abbreviations (only while COLPRINT is in Basic memory) which will simplify operating the printer. The commands are as follows:

	DESCRIPTION	COMMAND	COMMENT
	PRint PRepare	PR	Sets channel 5 to printer, gives init code, sets **BOLD** mode.
Print head positions	Carriage Return	CR	Carriage returns to line start.
	New Line	NL	LF and CR performed.
Page parameters	Page length	INCHES n	Set length to n inches (norm. 11).
	Page length	LINES n	Set length to n lines (norm. 66).
	Form Feed	FF	Print buffer, next top of page.
	SKIP perforations	SKIP n	Paper fed n lines at page end. (n=0 gives no skip).
Layout	Horizontal Tab	HT	Move to next tab (every 8 chars).
	Vertical Tab	VT	Move to next tab (every 8 chars).
	Line SPACE	SPACE n	When n=1, gap.
Character properties	Character Colours	CC n	QL colours 0 to 7.
	Background Colours	CB n	QL colours 0 to 7.
	Solarised Mode	SM n	n=1: reverse B&W. n=0: normal.
	Enlarged Size	ES n	n=1: enlarged. n=0: normal.
	Bold Mode	BM n	n=1: Bold chars. n=0: normal.
	Underline Mode	UM n	n=1: underline on. n=0: off.
Printer Controls	CANcel	CAN	CANcels last line in buffer.
	Printer Reset	CLR	Reset to power up conditions.
	Printer Select	PS n	If n=0: Off line. n=1: On Line.
Listing	Program Listing	LLIST n1, n2	Lists lines n1 through to n2 onto printer

DISK AND MEMORY EDITOR. (D.A.M.E.)

This program is provided on the utility disk to enable the more advanced user to load and display a disk sector onto the screen, edit it and then save it back to the disk. It will also allow you to display and directly edit the QL's memory. It must be stressed that random editing of either the QL's memory or the disk could produce unexpected or fatal results.

The program is run by placing your Utilities Disk into Drive 1 and typing **LRUN FDK1_DAME.**

The function keys F1-F4 are used as follows:

F1 – Edit Mode (Hex, Ascii, Dec)

This will allow you to make changes in Hex Ascii or Decimal.You will see the mode indicated in the top left of the screen.

F2 – Source (Disk, Memory)

You can select whether you wish to display memory or a sector from the disk and you will see the memory address or the sector address indicated in the top right of the screen.

Memory mode: This will allow you to view and amend the QL's memory directly.

Press F3 to change the memory address and hit enter to confirm the new address. You will see the memory displayed on screen and any changes you make to this will be made directly to the QL's memory. Use the four cursor keys to move to the byte or bytes that you wish to change.

Please note that some addresses correspond to **ROM** and therefore the changes will not take place.

Disk mode: This mode will allow you to read any sector from your disk, change it and write it back to the disk.

Press F3 to change the sector address, use the left and right cursor keys to move to the parameter that you wish to change and press enter to display the selected sector.

SECTOR	(1-9)
SIDE	(0-1)
TRACK	(0-79)
DRIVE	(1-4)

Use the four cursor keys to move to the byte or bytes to be changed. If you press F1 or F2 you will be given the option to save the amended sector back to disk if you have made changes to the sector.

F4 – Print

In both disk and memory mode this key will produce a hard copy of the sector or section of memory displayed on a printer connected to the serial port SER1.