LOADING INSTRUCTIONS

1. Insert the 'Ultrakit' cassette into your cassette deck and rewind it.
2. Press the RUN-STOP key in conjunction with the SHIFT key.
3. Press 'PLAY' on your cassette deck.

Ultrakit will now automatically turbo-load and start.

USING ULTRAKIT

ULTRAKIT adds nearly 30 commands to the standard Commodore Basic, for use in developing your own programs. It includes commands for debugging BASIC programs, for listing to the printer, for altering and checking blocks of memory, as well as a fully-fledged multicolour Character Editor and Designer.

These commands are not for use in the program themselves, but are to be used in direct mode. Each command starts with the @ character to distinguish it from standard Basic commands, and has its own abbreviation. The obvious advantage Ultrakit has over its competitors is that programs written with Ultrakit's help are totally independent, and will run with or without it in memory.

You should load Ultrakit before starting a BASIC program, as loading Ultrakit will erase all of memory. If you have a BASIC program in memory, and you need to load Ultrakit for some purpose, then 'SAVE' the program to tape or disc; load Ultrakit and re-load your BASIC program.

ULTRAKIT occupies no user available memory, but resides in the 4K block of memory above BASIC Rom and uses some memory under the BASIC Rom itself. Therefore Ultrakit will not be affected by, or affect, even the longest of BASIC programs. It may, however, be affected if the machine is reset. If this is the case, then restart Ultrakit by typing 'SYS 49152' and pressing the [RETURN] key.

Listing BASIC programs is made more convenient by ULTRAKIT as the SHIFT key pauses a listing, and leaving the SHIFT/LOCK key on temporarily halts the listing.

The character editor uses memory between 12288 and 14328 to store the characters being defined. This may corrupt a long BASIC program, so the best way to avoid this is to 'SAVE' your BASIC program before using the Character Editor. When the characters have been defined, they can be moved to another area of memory (using the @MOVE command) before saving them (with the @SAVEMEM command).

U L T R A K I T
Basic Programming Utilities

@RENUMBER base, increment

Will renumber the complete Basic program (including all GOTO's, GOSUB's etc).

Abbreviation : @R
Default : base = 10, increment = 10
Example : @RENUMBER 100,50
[RETURN]

The Basic program will now begin at line 100, with subsequent line numbers at 50 line intervals.

@AUTO increment

Upon entering a program line, the subsequent line numbers will automatically appear, in increments as defined

Abbreviation : @A
Default : increment = 10
Example : @AUTO 20 .... [RETURN]
100 PRINT "TESTING"
[RETURN]

The line-number 120 will automatically appear.

@AUTOFF

Turn off the auto line-numbering facility (see above).

Abbreviation : @AF
Example : @AUTOFF .... [RETURN]

@OLD

Restore a NEW'ed Basic program, and may be used after resetting the computer.

N/B After NEWing a program, do not define any variables, as this will corrupt the program when it is restored.

Abbreviation : @O
Example : @OLD .... [RETURN]

@DELETE start-line, end-line

Deletes all the lines of a program between start-line and end-line (inclusive).

Abbreviation : @DEL
Example : @DELETE 100, 130
[RETURN]

Lines 100 to 130 have been deleted from your program.

@DATA start-address, end-address, start-line, npl

Converts a block of memory from start-address to end-address into Basic DATA statements, starting at start-line, with npl numbers per line.

Abbreviation : @DA
Default : npl = 8
Example : @DATA 40960, 41960, 1000, 10 . [RETURN]

This takes the first 1000 bytes of Basic Rom, and places them in Basic DATA statements starting at line 10000, with 10 numbers per line.

@TRON

Starts a TRACE on the Basic program, when RUN, which the user engages upon depressing the BACK ARROW key (top left of keyboard). The program being RUN is stopped at any time by the SHIFT key, so that the lines being listed to the screen can be examined.

Abbreviation : @T
Example : @TRON ...... [RETURN]
RUN .... [RETURN]

The program will run, and will start Tracing when the BACK ARROW key is depressed.

@TROFF

Cancels the effect of the @TRON command (see above).

Abbreviation : @TF
Example : @TROFF ..... [RETURN]

@LVAR

List the variables currently in use, in the order they were defined.

Abbreviation : @V
Example : @LVAR .... [RETURN]

A = 10 : B$="AMAZING"   C% = 3

SPECIAL FUNCTIONS
@DOKE address, word

Places a 16 bit value (word) into the two consecutive memory locations following the address specified, ie, a double poke.

Abbreviation : @D
Example : Clear the screen and type:-
@DOKE 1024, 513

The letters A and B appear in the top left hand corner of the screen. This is because 1024 is the start address of the text screen. A has code 1, and B has code 2. The number 513 is calculated from 256 x 2 + 1.

@DEEK address

Reads two consecutive memory locations address and address + 1), and expresses the result as a 16 bit value, ie, a double peek.

Abbreviation : @D
Example : @DEEK 43   [RETURN]

This will display the start of the Basic program which is usually set to 2049.

@EVAL number

Converts a decimal number to a hexadecimal number, and vice-versa. Hexadecimal numbers must be preceded by a '$' character.

Abbreviation : @E
Example : @EVAL $23   [RETURN]

The decimal value of 35 will be displayed.

Memory Manipulation Commands

@FILL start-address, end-address, byte

Fills a block of memory, between start-address and end-address with a byte (number between 0 and 255). Care must be taken when using this command, as filling certain areas of memory will cause the computer to crash, e.g. zero page.
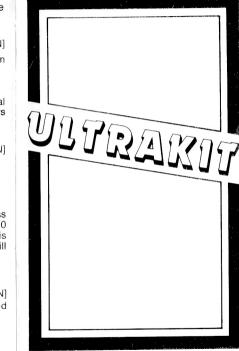
Abbreviation : @F
Example : @FILL 1024, 1104, 1
[RETURN]

The two top lines of the screen will be filled with character 1, which is the letter 'A'.

@MOVE start-address, end-address, destination address

Moves a block of memory from start-address to end-address to a destination-address. Care must be taken when using this command, as with the @FILL command.

Abbreviation : @M
Example : @MOVE 0, 255, 1024

Zero-page memory (0-255), will be displayed on the upper portion screen (1024-1279).

@COMPARE start-address, end-address, compare-address

Compares two blocks of memory, and reports on any differences.

Abbreviation : @C
Example : @COMPARE 1024, 1063, 1064 [RETURN]

Any differences between the top two lines will be reported.

@HUNT start-address, end-address, byte

Searches between start-address and end-address for any occurrences of a byte (number between 0 and 255), and displays any addresses which contain that byte.

Abbreviation : @H
Example : Clear the screen, and type:

@HUNT 1024, 2023, 8 [RETURN]

Any locations on the screen containing byte 8 (character 'H'), will be displayed.

Input / Output commands

@SAVEMEM "Name" X, start-address, end-address, Y

Saves a block of memory between start-address and end-address, with name "Name", to device X, and a secondary address of Y. The Commodore 64 User manual gives details on these, but to save to tape, use device 1, and to disk, use device 8. A secondary address of 1 forces the load into the area of memory it was saved from, whereas a secondary address of 0 allows it to be loaded anywhere in memory.

Abbreviation : @S
Default : Secondary address = 1, ie, forced load
Example : @SAVEMEM "Screen"1, 1024, 2023, 1 [RETURN]

The screen will be saved to tape with name "Screen". To load the screen, rewind the tape and press the RUN/STOP key along with the SHIFT key. The screen will load automatically into addresses 1024,2023, ie, the screen memory.

@DUMP

Produces a hard copy of the screen on to a printer.

Example: List a program, and type:-

@DUMP [RETURN]

The portion of the program that was on the screen will be displayed on the printer.
N/B. The printer must of course be switched on and connected, ready for use.

@PRON

Turns the printer on, so that any successive printing to the screen will instead be directed to the printer. To produce a hard-copy of a run, a 'GOTO' the first line number should be used instead of 'RUN' as 'RUN' always turns the printer off.

Example : @PRON [RETURN]
LIST [RETURN]

The program will be listed to the printer.

@PROFF

Turns the printer off. The printer must always be turned off when it is finished with.

Example : @PROFF [RETURN]

The printer will be turned off, and any successive printing will be to the screen.

Miscellaneous Commands

@HELP

Displays a list of all the commands with their abbreviations.

@BORDER colour

Sets the border of the screen to the colour specified.

Abbreviation : @B
Example : @BORDER 0 [RETURN]

The border will now be black, because 0 is the colour code for black. For a full list of colour codes, consult your Commodore manual.

@PAPER colour

Same as @BORDER, except it changes the actual screen colour.

Abbreviation : @P
Example : @PAPER 1 [RETURN]

The screen colour will now be white.

@INK colour

Sets the colour for all further characters to appear on the screen.

Abbreviation : @1
Example : @INK 2 [RETURN]

The 'Ready' prompt is in red ink, as will any further characters typed to the screen.

@RON

Makes all keys on the keyboard auto-repeat.

Example : @RON [RETURN]

If you now press any key, it will continue printing to the screen until the key is released.

@ROFF

Turns off the above command, so that only the CURSOR keys and SPACE bar repeat (default when computer is switched on).

Example : @ROFF [RETURN]

@EDITOR

This command enters the Character Designer from Basic, where graphics or new character sets can be designed. See below for full details.

Example : @EDITOR [RETURN]

You will enter the Character Editor.

Character Editor Commands

The following commands can only be used from within the Character Editor which is entered from Basic with the @EDITOR command. Use the cursor keys to move the cursor around the grid. Plot a pixel by pressing any character obtainable on the keyboard except the SPACE or Full-stop. Unplot a pixel using the Space-bar or full-stop. The character in the grid will only be placed in memory when the @ command is executed (see below). When you wish to use any of these commands, place the cursor below the grid in the special space provided and type the command.

@R

This command puts the ROM CHARACTERS into memory between 12288 and 14328. It will erase any previously designed characters. Use this command when you wish to start off with a fresh set of characters.

@C x

Changes the character being edited. Character x is displayed in the grid on the screen, ready to be altered.

@W

Wipes the grid clean, destroying any character in the grid. This command does not touch any area of character memory, only the screen.

@M x

Switches character Multicolour mode on or off according to the value of 'x'. A value of 1 switches it on, 0 switches it off.

@B

Returns the user to BASIC. To re-start Ultrakit, type 'SYS 49152' and press [RETURN]. To restore a BASIC program, you will need to use the '@OLD' command.

@

Places the character on the grid into its respective place in memory.

@E

Restarts the Editor without affecting characters already defined.

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ULTRAKIT