

## Multiface two

### INTRODUCTION.

MULTIFACE 2 is a true MULTIpurpose InterFACE for the CPC range with:

- 1) Fully automatic back up of any program once loaded into RAM
- 2) 8K RAM extension - for software such as our INSIDER, or as a buffer, etc.
- 3) MULTI TOOLKIT to study/modify/develop programs, POKE infinite lives, etc.
- 4) TRUE RESET BUTTON which clears the first 64K CPC RAM.

### CONNECTING THE MULTIFACE.

The CPC MUST be switched OFF before attaching/removing the Multiface. Multiface is best plugged directly on to the CPC edge connector; it has a through connector to allow you to connect any other peripherals. Check all connections carefully **before** switching the CPC ON, or else **serious damage may occur** and your **guarantee will be VOID**.

A proper attachment is vital for the functioning of the Multiface - and a bad contact is the cause of 99% of all problems. If attaching/using the Multiface brings random coloured squares or other garbage on the screen, clean the edge connector with an ink eraser and re-connect the Multiface. If your system and the Multiface should still not work, switch the CPC OFF, remove any add-ons except the Multiface, and re-read these instructions carefully. Should you really not succeed, please phone us on **081-200 8870** or write to us, but do **NOT** return the Multiface until we ask you to. In such case, please use the original packing, state your name, address, phone number, and describe the problem and the whole equipment used. Please read the **guarantee** conditions as well.

### USING THE INVISIBILITY SWITCH.

Multiface has a **software switch** to make it (in)visible, to prevent possible clashes with other hardware/software. Multiface can **ALWAYS** be activated, irrespective if previously set ON or OFF - a program can **ALWAYS** be frozen, even with the Multiface set OFF. Upon powering up the CPC, or after pressing the Multiface reset button, the Multiface is set to ON. To set the Multiface OFF, just press the stop button, and press **r** to return. If a program fails to load with the Multiface attached, simply make the Multiface invisible.

### USING THE MULTIFACE.

Multiface works on the CPC 464/664/6128. It can be used at any point, immaterial of what is currently in the computer at the time, be it loaded from tape, disc or typed in.). Multiface doesn't save programs as such, but computer contents (compressed RAM image). Upon returning from the Multiface, programs **continue as if never frozen**.

To use the Multiface :

- 1) LOAD and RUN the program you wish to save/inspect in the normal way
- 2) Push the STOP button to activate Multiface and obtain the MAIN MENU  
**r**eturn **s**ave **t**ool **j**ump **c**lear (6128 only)
- 3) Select the required option from the menu by pressing its relevant key - it is always shown in **inverse** and it is usually the first letter (such as **r** for return).

### PIRACY IS ILLEGAL!

**MULTIFACE 2 is NOT designed to encourage piracy!**  
Please note that you must not use it to copy, reproduce or infringe in any way any copyright material without the clear permission of the copyright owner. ROMANTIC ROBOT neither condones nor authorises the use of Multiface for the reproduction of copyright material - to do so is illegal!

### SAVING WITH THE MULTIFACE.

Multiface automatically compresses the contents of the computer before saving and 6128 users can further limit the amount of bytes to be saved and speed up loading by clearing the extra 64K RAM block, provided it is not used by a program to be saved! The CPC original 64K RAM may contain code/garbage from a previous program or after a power-up. It is good practice to reset the Multiface before each loading, as this is the only safe way to fully clear the original RAM (remember you may need to press the STOP button and then return to make the Multiface invisible after resetting it!). If you are certain that a program does **NOT** use the extra 64K, you can press **c** to clear it before saving.

Having loaded a program, pushed the STOP button and possibly having cleared, you can proceed to save a program (or just a screen) by pressing **s**. Multiface will first ask you to input the name of the program/screen to be saved with up to 7 characters (or just press **ENTER** to input RUN automatically as a default).

Filenames can only be letters or digits, with all letters automatically being converted to uppercase. The usual rules for filenames apply, only extensions cannot be used. These are all legal filenames:

DISK NEVER12 WRIGGLE

These are not:

DISK.BIN (no extensions allowed)

WRIGGLER (Too long)

NEVER M (no spaces allowed)

MY,PROG (No punctuation marks allowed)

If you suddenly decide not to save, pressing **ESC** will take you back to the MAIN MENU.

### SAVING (contd.)

Once you have chosen the Filename, press **ENTER** (464) or **RETURN** (664/6128). The display will change to:

**<ESC>** **h**ypertape **d**isc **s**creen **p**rogram

Pressing **p** or **s** toggles between saving the whole program or screen only. The whole program is saved by default. As from any menu, you can back out with **ESC**.

If saving to disc, press **d**; please ensure the disc is formatted and has sufficient space: theoretically up to 128K on the 6128 with all banks active, but the automatic compression should always reduce this.

Multiface has a full error-trapping combined with on-screen prompts - thus, for instance, **DISC MISSING** will be displayed if the disc is not formatted or inserted, **DISC FULL** if there isn't enough space for the program to be saved. You can abort or just swap discs.

If saving to tape, make sure you are using a long enough tape, and that it is in position. You can choose between the normal tape (1000 baud) and hypertape save (2000 baud). Press Play & Record on your tape recorder, and then any key on the computer as usual.

When saving on the Multiface is complete you will be returned to the MAIN MENU and you can either return to continue the program or use any other function of the Multiface.

### RELOADING.

#### Reloading programs.

To reload a program saved by the Multiface, ensure the Multiface is switched ON (you can always press the RESET button to switch it ON), and then type: RUN "[filename]".

#### Reloading screens.

To reload a screen you need to type in and RUN the following:-

```
10 MEMORY 16384
20 LOAD "[filename]"
30 CALL 32768
40 WHILE INKEY$ < > " ": WEND
50 MODE 1
```

Irrespective of what screen mode you are in (0,1,2), the saved screen will appear properly with all parameters, colours, etc., because the CRTC chip is set correctly by the special code saved along with screen and called by CALL 32768. The CRTC and the firmware may not agree over which screen mode they are in, hence line 50.

If you want print the screen to a printer, using your own special print routines, you have to load them into a convenient memory location outside the range 16384 to 33000. You could then modify line 40 to call the print routine.



## THE JUMP COMMAND.

You can **jump** to execute code at any address in *CPC* ROM/RAM or *Multiface* ROM/RAM. You can do so either from the **MAIN MENU** - we call this **INDIRECT JUMP** - or by setting the *Multiface* to **JUMP DIRECTLY** upon pressing the **STOP** button and thus by-pass the *Multiface* **MAIN MENU** completely. The use of **JUMP** requires a GOOD knowledge of *m/c*!

### INDIRECT JUMP.

The **address** to **jump** to is poked into **&2000** (the **low** byte) and **&2001** (the **high** byte). A value **&80** - **&8E** is poked into **&2002** to set the **screen mode** and **ROM setting** - please refer to **Info (Byte 19)** on Page 5. On a 6128, poke **&2003** with a value **&C0** - **&C7** (please see **gel** on Page 5) to select which **bank of RAM** you wish to jump to. Address **&2004** can be ignored. To use any operating system calls, the *Multiface* must be **paged out** by instructions **LD, BC 65258** and **OUT (C),C**. To **page in**, use **LD BC, 65256** and **OUT (C),C**. Having set up these values, pressing **j** from the **MAIN MENU** will cause the code to **execute from the address selected** with all parameters as set up.

### DIRECT JUMP.

If you wish the *Multiface* to jump *directly* upon pressing the **STOP** button, **POKE** all the parameters described for the *indirect jump* plus the keyword **RUN (&52, &55, &4E)** into **&2005-7**. To disable the *direct jump*, press *any* key **while** pressing the **STOP** button.

## THE MULTI-TOOLKIT.

Pressing **t** from the main menu produces the following menu:

**<ESC>** **<RET>**poke **<SPC>**addr **r**eg **h**ex **w**in **p**al **i**nfo **s**el

**ESC** - pressing **ESCAPE** returns you to the **MAIN MENU**.

**RETURN** (464 **ENTER** key) - to **PEEK & scroll** through the addresses, or to **POKE**.

If you type in a *number* (**0-255 Decimal**, **&00-&FF Hex**), **RETURN** will **POKE** it into the current address. If you wish to **PEEK** only, do **NOT** input any number, just press **RETURN**; by **RETURNing** repeatedly you can *step through* successive addresses.

**SPACE** - to enter a **new address**, in *decimal* or *hexadecimal*.

**hex** - to toggle between **hexadecimal** and **decimal**.

**reg** - to point to the **Z80 registers** as they were when the program was *frozen*.

They start from the *IY Register* (low, hi) and can be changed.

**window** - to open a 56 byte **window** with *full on screen editing* using cursor keys.

The *left/right* cursor keys move the cursor as you would expect; the *up/down* keys move the display up & down through memory, keeping the cursor in the middle line. The address of the cursor is automatically reflected in the bottom line. The window can be closed by pressing **w** again.

**pal** - to point to the palette. The colours are the *hardware* colour numbers and are stored in 17 consecutive bytes. If you wish to make a permanent change to your colours, and altering the palette directly is ineffective you will have to alter either the program, or the system variables which control ink colours - a complex task... If you can't work out for yourself how to change the colours of a particular program, please **do not contact Romantic Robot** as we will not be able to help you.

## MULTI-TOOLKIT (contd.)

\* - The toolkit can only look at 64K of RAM at a time. By default the first 64K CPC RAM is available, except for **&2000-3FFF** being replaced by the *Multiface* own 8K RAM. The original CPC 8K block **&2000-3FFF** can be paged in instead by toggling \*

**sel** - to select - on CPC 6128 only - which RAM configuration (0-7) will be in the TOOLKIT. The numbers 0-7 follow the CPC hardware design and may appear slightly illogical.

- 1 puts the additional RAM Bank 4 in place of the original RAM Bank 4 at **&C000-FFFF**
- 2 puts the entire additional 64K RAM in place of the original 64K RAM (see \* above, though!)
- 3 puts the additional Bank 4 at **&C000-FFFF** and moves the original Bank 4 down to **&4000** instead
- 4 puts the additional Ram Bank 1 at **&4000-7FFF** leaving the remaining original RAM intact
- 5 puts the additional Ram Bank 2 at **&4000-7FFF** leaving the remaining original RAM intact
- 6 puts the additional Ram Bank 3 at **&4000-7FFF** leaving the remaining original RAM intact
- 7 puts the additional Ram Bank 4 at **&4000-7FFF** leaving the remaining original RAM intact
- 0 restores the default set-up with the entire original 64K RAM being shown (see \* above, though)

Press **g** followed by a number. Beneath the display on the bottom line, you will see the number of the currently selected *RAM configuration*.

**info** - to display a series of bytes relating to the status of the computer at the moment the **STOP** button was pressed. You can find out crucial information about the CRTC and some system variables. 23 bytes contain the information and the first 16 of these show the contents of registers R0 to R15 of the 6845 as follows:

- |         |   |
|---------|---|
| R0      | Total number of horizontal spaces available (0-255)   |
| R1      | Number of characters displayed horizontally (0-255)   |
| R2      | Horizontal sync position (0-255)  |
| R3      | Length of synchronisation (0-15)  |
| R4      | Total number of rows available (0-127)  |
| R5      | Vertical sync (0-31)  |
| R6      | Number of characters displayed vertically (0-127)   |
| R7      | Vertical sync position (0-127)  |
| R8      | Interlace mode (0-3)  |
| R9      | Scanning (0-31)   |
| R10     | Start line of cursor scan (0-31)  |
| R11     | End line of cursor scan (0-31)  |
| R12     | Most significant byte of starting address of video RAM, offset from 16383 (0-16383)   |
| R13     | Least significant byte of starting address of video RAM, offset from 16383 (0-16383)  |
| R14     | Most significant byte of cursor position  |
| R15     | Least significant byte of cursor position   |
| Byte 17 | Screen start address in the system variables (LSB)  |
| Byte 18 | Screen start address as above (MSB)   |
| Byte 19 | Mode/Rom setting. This is bitwise information with bit 7 always set, bits 6-4 should always be reset, bit 3 controls the selection (0) or de-selection (1) of upper ROM, bit 2 as bit 3 but for lower ROM and Bits 1 & 0 being mode control bits. |

bit 1	bit 0	Mode
0	0	0
0	1	1
1	0	2
1	1	Illegal

- |         |   |
|---------|---|
| Byte 20 | Information as to RAM page selected (C0-C7) |
| Byte 21 | Interrupt mode (0-2)                        |
| Byte 22 | Interrupts enabled (1) or disabled (0).     |
| Byte 23 | Basic ROM type.                             |

## POKING INFINITE LIVES.

To start with, please ensure that you are not *infringing copyright*. To **POKE**, say, **31000,0**: First *load* and **RUN** a program as usual. Then *push* the *Multiface* **STOP** button and select the toolkit by pressing **t**. When the toolkit menu appears, press **SPACE** and type **31000**. Once you type **5** digits (address is *always* 5 digits in decimal), the cursor automatically moves to the **value** (no need to press **RETURN**), so type **0** (value is 1-3 digits long) and this time press **RETURN**. Finally press **q** to **quit** the toolkit and **r** to **return** to the program.

## SOFTWARE AND HARDWARE COLOUR NUMBERS.

Colour	Soft	Hard	Colour	Soft	Hard
Black	0	20	Blue	1	4
Bright Blue	2	21	Red	3	28
Magenta	4	24	Mauve	5	29
Bright Red	6	12	Purple	7	5
Bright Magenta	8	13	Green	9	22
Cyan	10	6	Sky Blue	11	23
Yellow	12	30	White	13	0
Pastel Blue	14	31	Orange	15	14
Pink	16	7	Pastel Magenta	17	15
Bright Green	18	18	Sea Green	19	2
Bright Cyan	20	19	Lime	21	26
Pastel Green	22	25	Pastel Cyan	23	27
Bright Yellow	24	10	Pastel Yellow	25	3
Bright White	26	11			

## GUARANTEE.

This guarantee is in addition to and does not affect any statutory rights of consumers or purchasers. **ROMANTIC ROBOT** guarantee that if within **6 MONTHS** of the date of purchase the *Multiface* proves to be defective by reason of faulty design, workmanship or materials, it will be repaired or replaced **free** of charge provided that:

- 1) It has not been in any way misused, used with unsuitable equipment or subjected to deliberate accidental or consequential damage..
- 2) No unauthorised modifications, repairs or adjustments were made to the *Multiface*
- 3) A dated proof of purchase will be provided to confirm that the *Multiface* is still under guarantee; for units ordered directly from us, please supply details of the original order instead.

The purchaser's sole and exclusive remedy under this guarantee is the *Multiface* repair or replacement. No other remedy, including but not limited to, incidental or consequential damage or loss of whatsoever nature shall be available to the purchaser.

Designed and manufactured by **ROMANTIC ROBOT UK Ltd.**  
54 Deanscroft Avenue, London NW9 8EN. Tel. 081-200 8870.

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