



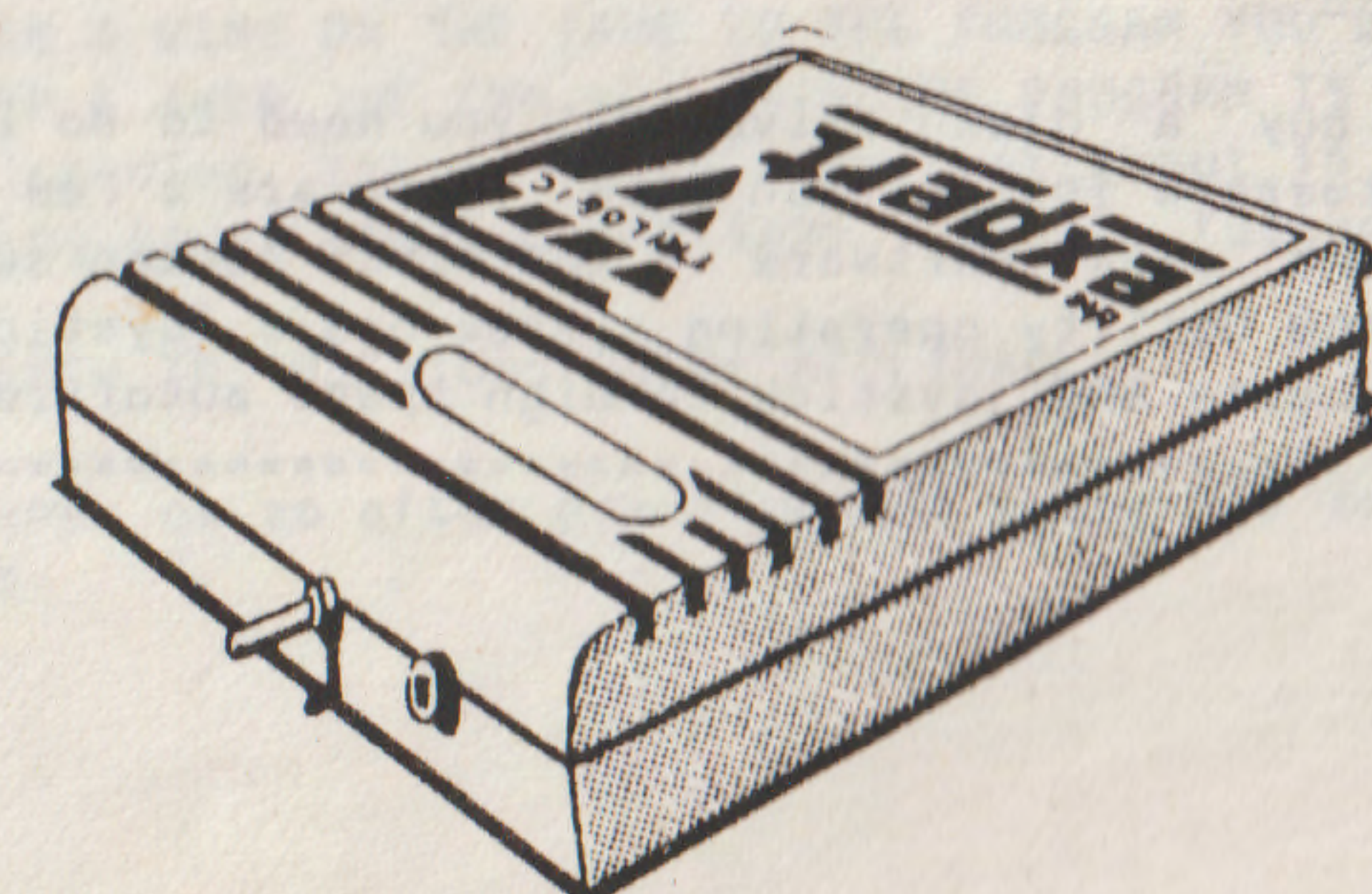
the expert

INSTRUCTIONS



TAPE

**PLEASE READ THIS
BOOKLET BEFORE
USING THE EXPERT CARTRIDGE**



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INTRODUCTION.

Congratulations - you are now a member of an ever increasing band of EXPERT owners throughout the world. From TORONTO TO TIMBUKTOO, REJKAVIK TO RIO, BAGDAD TO BRAZILIA, there are few Commodore 64 owners who haven't heard of the EXPERT - if you come across one - please tell us and we'll be sure to let him or her know what they are missing....

As you've obviously bought an EXPERT (or you wouldn't be reading this), we won't preach to the converted about how the EXPERT is the only user programmable, easily upgradable, unstoppable, most versatile cartridge in the world. In fact so many EXPERTers have told us that the EXPERT is the best thing they have ever bought for their 64 that we are glad Commodore designed the 64 to work with the EXPERT.....

UPGRADING TO DISK

When you buy a disk drive all you need to do is send £3.50 for the EXPERT disk software & instruction book. There are a few additional features exclusive to the disk software - the HIRES screen saver & picture format converters and the Utility operating system has a Joystick autofire mode - this command converts any joystick to high speed autofire with most games.

INSTALLING & PROGRAMMING YOUR EXPERT

IMPORTANT

DO NOT INSERT OR REMOVE THE EXPERT WITHOUT FIRST SWITCHING OFF THE COMPUTER.

1) Insert the EXPERT with the switch in the 'PRG' position and switch on the computer - it should start up in the normal way.

NB Hold down the CBM key on the 128/128D

2) THE EXPERT TAPE

There are six programs recorded in the following order on the tape. The complete sequence is recorded on side two.

Use the tape counter to locate the approximate position of each program - if your tape counter gives widely different readings, make a note of them in the space below.

We recommend that you make a back-up of the programs on the tape using the "SELF SAVE" program - you could save each program on a separate tape if you wish.

TAPE COUNTER READINGS - ENTER THOSE FOR YOUR DECK IN THE 'ACTUAL' COLOUMN

		ACTUAL	PROGRAM NAME	FUNCTION
START	FINISH	START FINISH		
000 - 019	-		EASIFREEZE	SIMPLE BACK-UP MAKER.
020 - 037	-		UTILITY FREEZER	UTILITIES & BACK-UP
038 - 055	-		SPRITE FREEZER	SPRITE VIEWER & SAVER
056 - 071	-		MACHINE MONITOR	FULL M/CODE MONITOR & BACK-UP
072 - 083	-		SPRITE EDITOR	SPRITE EDITOR
084 - 096	-		EXPERT EXPRESS	HIRES PRINTER DUMP
097 - 112	-		SELF SAVER	FOR BACK-UP OF EXPERT TAPE

WHICH OPTION TO SELECT ?

EASIFREEZE is for making a back-up on tape in the simplest possible way, use this one to begin with. Next try UTILITY FREEZER - this is the most versatile EXPERT Operating system so you may wish to use it most of the time.

Please read the relevant section to find out which functions are available in each program.

3) PROGRAMMING THE EXPERT.

SWITCH THE EXPERT TO 'PRG' (SWITCH POINTING TO THE LEFT)

INSERT THE MASTER TAPE & REWIND IT.

RESET THE TAPE COUNTER & WIND ON THE TAPE TO THE PROGRAM YOU WISH TO LOAD. PRESS SHIFT & RUN/STOP & THEN THE CBM KEY WHEN THE PROGRAM IS FOUND.

If the counter reading increases by more that about 15 without the program being found, rewind the tape slightly further and try again.

NOW FOLLOW THE ON-SCREEN INSTRUCTIONS WHERE APPLICABLE.

NB Wait two seconds or so after pressing the space bar for the next instruction to appear.

Each time you program the EXPERT, an 'ident' screen will appear showing which operating system you are using and what commands are available. This screen ONLY appears at this stage and once you press a key, the EXPERT takes over. With programs 2,3, 4 & 7, the screen should now look something like this:-

```
C PC SR XR YR SP L1 QA NV-BOIZC
/ ESCD 22 00 00 0A 37 05 CCSCCSC
```

This is the REGISTERS DISPLAY, typical of all machine-code monitors. Its main purpose here is to show that the EXPERT is in command and an explanation of it is given in the section on the Monitor on page . It is not essential to understand the significance of the register display - it is there for programmers and to show that the EXPERT is active.

Now refer to the section relating to the EXPERT program you wish to use.

PROGRAM 1 - EASIFREEZE

=====

EASIFREEZE is a new operating system which is ideal for beginners - it makes the EXPERT child's play to use. It has only four commands which are assigned to the function keys: -

F1 - SAVE: F3 - RESTART: F5 - CONFIGURE MEMORY: F7 - RESET

THERE ARE ONLY 4 SIMPLE STEPS TO MAKE BACKUPS OF MOST PROGRAMS.

- 1) PROGRAM THE EXPERT AS DESCRIBED EARLIER
- 2) PRESS F7 TO INITIALISE THE COMPUTER.
- 3) LOAD THE PROGRAM YOU WISH TO FREEZE & BACK-UP.
- 4) PRESS RESTORE OR THE ESM BUTTON IF THE LED IS LIT TO FREEZE IT AT THE APPROPRIATE MOMENT.
- 5) PRESS F1 TO COMPACT & SAVE IT YOU WILL BE ASKED TO PRESS PLAY & RECORD AFTER THE PROGRAM HAS BEEN COMPACTED - PLEASE WAIT 30 SECONDS OR SO.
- 6) PRESS F7 AND LOAD THE NEXT GAME. That's all there is to it.

HELP If a program will not load, turn on the EXPERT & press RESET. Now press F5 to configure the memory in a different way and continue from step 3). F3 will restart a program before or after saving it, but note - it does not work with all programs. If the computer crashes when you press F3 press RESET and reload the game.

RELOADING A PROGRAM

=====

Simply press SHIFT & RUN/STOP after rewinding the tape.

PROGRAM 2 - BACK-UP & UTILITY FUNCTIONS.

=====

FUNCTIONS AVAILABLE:-

SPRITE COLLISION KILLER
INFINITE LIVES COMMAND
JOYSTICK PORT SWAP
PRINTER ON/OFF TOGGLE FOR HARDCOPY OF DISASSEMBLY ETC
RESTART & SAVE etc
ALL OTHER MONITOR COMMANDS EXCEPT K, A.

COMMAND SUMMARY.

E - - - - FIND & DISABLE SPRITE TO BACKGROUND COLLISIONS
EB - - - - FIND & DISABLE SPRITE TO SPRITE COLLISIONS
I - - - - SEARCH FOR & DISABLE LIVES COUNTER FOR INFINITE LIVES
J - - - - SWAP THE CURRENT JOYSTICK PORT USED BY GAME
R - - - - RESTART THE GAME
Y - - - - PRINTER TOGGLE.
Z"GAMENAME" - COMPACT & SAVE GAME
SEE MAIN MONITOR SECTION FOR REMAINING COMMANDS.

INITIAL PROGRAMMING.

Before using any of these commands, please reprogram your EXPERT by switching it to 'PRG' and winding tape to about 19. Now press SHIFT & RUN/STOP. Now follow the on-screen instructions.

LOADING A GAME

When the two lines of the register display appear showing that the EXPERT is ready, press N (return) to initialise the computer. When the computer has reset back to the Commodore start-up screen, switch the EXPERT to 'OFF'. Now load & run the game according to its instructions.

FREEZING A GAME

When you wish to freeze the game., switch the EXPERT on & press RESTORE or press the ESM button if the led is lit.

The screen should clear to show the registers - the game is now frozen in the computer memory and the EXPERT is in control.

SAVING A BACK-UP OF THE GAME.

Replace the EXPERT master tape with a blank high quality rewound one. Saving is done using the Z command - type: Z"GAMENAME" (RETURN) The game is first compacted to speed up saving & reloading - this takes 30 seconds or more, then you will be prompted to press PLAY & RECORD. The cursor will reappear when saving is complete.

RESTARTING A GAME

You can restart a game before or after saving it, and after entering any of the other monitor commands including those described below.

To do this type: R (RETURN) - some games will not restart - see below.

THE SPRITE COLLISION KILLER. - (Press RETURN after each command)

After freezing a game:-

TYPE: EB TO FIND & DISABLE THE SPRITE TO SPRITE COLLISIONS

TYPE: E TO FIND & DISABLE THE SPRITE TO BACKGROUND COLLISIONS.

The border will flash whilst a search for the sprite collision routines is made. If any are found -and please note, many games do not use them - the addresses are listed and the collision detection disabled.

INFINITE LIVES.

LOAD & RUN THE GAME OF YOUR CHOICE

FREEZE THE GAME WHEN YOU HAVE TWO LIVES LEFT.

TYPE: I

Restart the game to check out whether the command has worked;

JOYSTICK PORT SWAPPER.

After freezing a game:-

TYPE: J

Now a search will be made for the routines which read the joystick port used, these will then be changed so that the other port will be read when the game is restarted.

NOW SAVE OR RESTART THE GAME.

TYPE: J AGAIN TO SWAP BACK TO THE ORIGINAL PORT.

NB This feature will not work on all games.

THE MONITOR PRINTER.

After freezing a game:-

TYPE: Y

This will turn on the printer (CBM Serial type only) and then type the command eg D 1000 2000 will produce a printout of the disassembly of memory from 1000 to 2000

TYPE Y again to turn off the printer.

LOADING ANOTHER GAME

If you wish to erase the current game & load in another one, type: N (RETURN) to go back to Basic. Now you can repeat the steps from 'LOADING A GAME'.

RESTART FAILURE If a game crashes when you attempt to RESTART it, save it first using the Z command & then type: R (RETURN). Or if you've already saved it, just type: - Z"" (omit the filename - this will compact it without saving it) and then type: R when it has finished compacting.

=====

PROGRAM 3 - THE SPRITE VIEWER & SAVER

=====

This version of the operating system enables you to freeze a program, display the sprites (if any), view the sprite animation, and save them on disk for later editing or customising. You can then insert them into other games in place of the existing ones. Many of the other monitor commands are available too, so you can restart or save or 'look' through the memory as well as view the sprites.

But what are sprites ? Almost all games have moving objects - space ships, missiles etc and changing their shape and moving them about on the screen would be a slow, tedious process if it was not for a special feature of the Commodore video chip. This feature allows objects (ie sprites) which we want to move about to be predefined in the computers memory, and then moved as a whole by simply instructing the video chip where to move them. We can also have the video chip detect sprite to sprite collisions and sprite to character collisions for us.

Sprite animation is an illusion produced by defining several sprites each slightly changed. For example, to give the effect of rotating a space ship, many sprites would be defined in the memory, each based on a different 'view' of the space ship as it would appear if rotated in steps. Displaying them in turn therefore gives the illusion of rotation - the faster the rate of displaying the sprites, the faster the rotation.

There can be upto 8 sprites on the screen at any one time, but there could actually be dozens of sprites defined in the memory ready to be displayed as the game progresses. There are 4 blocks of 16K where sprites can be found - all are accessible with this utility, although not all blocks may actually be used in any one game.

COMMAND SUMMARY

Y Displays sprites.

F1 Scans forward through the sprite memory - this has the effect of showing the stages in the animation of sprites.

F7 AS F1 but scans in reverse - back through the memory.

B Change video bank. (press B return, on the 5th press you will be back to the first bank again)

KL "SPRITENAME" Loads a sprite in position 1.

K0 Turns sprites off & restores STOP key function - DISK VERSION ONLY

KS "SPRITENAME" Saves sprite No.1 (the leftmost one)

+nm Changes the sprite colours.

n i s0 to 7 to change the first colour of sprites 1 to 8.

n is 8 to change the second colour of the last 4 sprites.

n is 9 to change the third colour of the last 4 sprites.

m defines the colour - in the range 0 to F.

NB The last four sprites are in multicolour mode & have three colour options.

NB The sprites will be restored to their original colour when you restart the game.

R - RESTARTS

Z "PROGRAMNAME" - Compacts & saves the game on tape.

THE FOLLOWING MONITOR COMMANDS ARE NOT AVAILABLE: A,D,B,Y,@

NB If you use the M command, the STOP key will NOT halt the scrolling so tap RESTORE to do this.

INITIAL PROGRAMMING.

Before using any of these commands, please reprogram your EXPERT by switching it to 'PRG' and winding tape to about 36. Now press SHIFT & RUN/STOP. Type: RUN (return) when 'SPRITE FREEZER' has loaded and follow the on-screen instructions.

LOADING A GAME

When the two lines of the register display appear showing that the EXPERT is ready, press N (return) to initialise the computer. When the computer has reset back to the Commodore start-up screen, switch the EXPERT to 'OFF'. Now load & run the game according to its instructions.

FREEZING A GAME

When you wish to freeze the game., switch the EXPERT on & press RESTORE or press the ESM button if the led is lit.

The screen should clear to show the registers - the game is now frozen in the computer memory and the EXPERT is in control.

VIEWING SPRITES.

TYPE: Y (RETURN) TO DISPLAY THE SPRITES.

You will see up to 8 sprites on the screen; the leftmost one is sprite No.1 from the video bank which was in use when you stopped the game. The first 4 (left to right) are in two colour HIRES mode and the remaining 4 are in multicolour mode. Sprites can be in one or more video banks, of which there are four, so F1 together with the B command enables you to view all the sprites in a game. NB Not all sprite positions are used so some sprites will appear to be made up of random characters.

SAVING A SPRITE

INSERT A BLANK TAPE INTO THE DATASETTE.

USE F1 OR F7 TO MOVE THE SPRITE INTO POSITION 1 (ie the leftmost position on the screen).

TYPE: KS"SPRITE NAME"

DO NOT TOUCH THE KEYBOARD UNTIL THE CURSOR REAPPEARS.

LOADING IN OR REPLACING A SPRITE

PROGRAM THE EXPERT AS ABOVE.

LOAD & RUN THE GAME WHOSE SPRITES YOU WISH TO REPLACE.

FREEZE THE GAME WHEN THE SPRITE TO BE REPLACED APPEARS.

TYPE: Y TO DISPLAY THE SPRITE.

USE F1/F7 TO LOCATE THE SPRITE IN POSITION 1.

INSERT YOUR SPRITE TAPE INTO THE DATASETTE.

TYPE: KL"SPRITENAME"

You can omit the sprite name when loading from tape - JUST TYPE: L This will load in the first sprite found and insert it into position one. Otherwise specify the spritename if it is not the first one on the tape. You can use sprites from another game, or ones that you have edited or designed from scratch using the SPRITE EDITOR.

SAVING A BACK-UP OF THE GAME.

Replace the EXPERT master tape with a blank high quality rewind one. Saving is done using the Z command - type: Z"GAMENAME" (RETURN) The game is first compacted to speed up saving & reloading - this takes 30 seconds or more, then you will be prompted to press PLAY & RECORD. The cursor will reappear when saving is complete.

RESTARTING A GAME

You can restart a game before or after saving it, and after entering any of the other monitor commands including those described below. To do this type: R (RETURN) - NOT ALL GAMES CAN BE SUCCESSFULLY RESTARTED

PROGRAM 5 - THE SPRITE EDITOR

LOADING THE SPRITE EDITOR. - EXPERT NOT REQUIRED.

First save the sprites you wish to edit on tape using the SPRITE VIEWER & SAVER described above.

TYPE: N TO EXIT FROM THE EXPERT.

WIND ON THE TAPE TO ABOUT 70 & PRESS SHIFT & RUN/STOP.

TYPE: RUN when 'SPRITE EDITOR' has loaded

The screen will show a box in which the sprite to be edited is loaded.

You can of course design a sprite from scratch if you wish.

SPECIAL EDITING COMMANDS.

COMMAND

FUNCTION

F1 followed by the sprite name will load in the sprite.
F3 followed by the sprite name will save the sprite on disk.
CURSOR KEYS move the editing cursor within the box.

M toggles between HIRES & MULTICOLOUR mode.
I inverse video.
R scroll right (wraps around)
L scroll left (wraps around)
U scroll up
D scroll down

X horizontal mirror image.
Y vertical mirror image.

SHIFTED 1 changes sprite colour 1 - hold down the keys to show them
SHIFTED 2 changes sprite colour 2 " " "
SHIFTED 3 changes sprite colour 3 " " "
SHIFTED 4 changes the border/text colour.
SHIFTED 5 changes the background colour.

The current colours are shown by 'indicators' below the bottom right corner of the box - an arrow shows which is in use at any instant.

1 selects pixel colour 1
2 selects pixel colour 2
3 selects pixel colour 3 (only operates in multicolour mode)
* inserts a pixel at current cursor position.

EDITING A SPRITE

Load in a sprite already saved - it will be shown in the box. Now move the editing cursor (a pixel sized 'window'). Press * when you want to insert a new pixel, or space if you want to delete one. The pixel will appear in the one of the current colours; the arrow pointing at one of three 'indicators'

below the bottom right corner of the box shows which colour is in use. SHIFTED 1, 2 or 3 will change each of the colours (hold down the shift & number key until your choice of colour is shown). Pressing 1, 2 or 3 will move the arrow and select the actual pixel colour. NB These colours are for editing ONLY - when you insert a sprite into a game, the colours will be reset to those used in the game - this is unavoidable since the sprite colours are defined as the game progresses. NB In multicolour mode the resolution is half that of HIRES mode. When you are satisfied with the alterations, press F3, enter the sprite name and the sprite will be saved.

PROGRAM 4 - CODE INTERROGATOR & MACHINE CODE MONITOR

=====

INTRODUCTION

The Monitor software, which is part of the EXPERT CARTRIDGE TAPE TO DISK SYSTEM is a very powerful tool with several unique features. The Monitor is completely invisible to the user and can be used over the whole of the 64K ram. It can be used to access both Basic & Kernal roms and the \$0000 input output block registers and ram under the roms and under this block.

Typical uses are: interrogating/inspecting a program, (M and D commands), altering a program (M command), list any Basic parts of a program (B command), write a machine code program (A command), convert numbers from decimal to hex and vice versa (U & ? commands), search for addresses, data or text (H command).

Whenever you tap the RESTORE key (or press the ESM button where necessary), the screen will clear and the EXPERT's machine code monitor will be activated. It is from within this monitor that all the functions of the EXPERT are controlled. The screen will display the registers & will look typically like this:-

```
C PC SR AC XR YR SP L1 QA NV-BDIZC
/ 2677 C3 22 44 56 FB 37 05 CCSCCSCC
```

The top line lists the various important registers and below are the actual values held in the registers at the instant the game was stopped.

C = THIS TELLS YOU WHICH MENU OPTION WAS CHOSEN TO PROGRAM THE EXPERT

PC = PROGRAM COUNTER

SR = STATUS REGISTER

AC = ACCUMULATOR

XR = X REGISTER

YR = Y REGISTER

SP = STACK POINTER

L1 = LOCATION 0001

QA = THIS IS THE CURRENT Q VALUE.

NV-BDIZC THIS SHOWS THE STATUS OF THE FLAGS. S = SET, C = CLEARED

You can change the contents of all the registers by directly overtyping the current value with a new one. You can change any of the flags by altering the SR value.

THE MONITOR COMMANDS.

All of the commands below are accessible when your EXPERT is programmed with EXPERT program 4 - MACHINE MONITOR operating system. Many of the commands are also available in the other operating systems - 2,3, & 7. However, some may be omitted or the functions changed for more specialised uses.

Type the command followed one or more parameters. A ? will appear if you omit a obligatory parameter or if a command is not implemented in the current operating system you happen to be using. Each command is followed by an example. Hexadecimal notation is used.

COMMAND	PARAMETER(S)	FUNCTION
A 1000	LXD \$00	ASSEMBLES

Starts assembly at \$1000. in this example the X register is loaded with the value in location \$00. You will then be prompted for the next instruction address. Press RETURN to terminate the assembly.

IIP: When using the A command to write a short machine code program use the \$C000 area where possible. This will avoid affecting any Basic programs in memory. Also, to execute the program, type W (return) to exit the monitor

and then do a SYS to the start of the program. Eg A C000 LDA f\$60 (return) and so on assembles at C000. Then SYS 49152 (C000 in decimal) to execute it. Don't use the G command unless you know what you are doing °

B BASIC LIST

This produces a listing of the BASIC part of any program similar to typing LIST in Basic. All anti-listing techniques are bypassed.

C 1000 2000 3000 COMPARES

Compares the block from \$1000 to \$2000 with the block at \$3000 to \$4000. The address of any location which differs is displayed.

D 1000. DISASSEMBLES

Disassembles one line of code starting from location \$1000. If you omit the final . the disassembly will continue until you press the STOP key, or pause it with the SPACE BAR. This command has been changed in that you can now directly alter the disassembled code by using the cursor keys to locate the characters to be overwritten. Instructions, addresses and data can be altered as necessary. Press return to enter the changes.

D 1000 2000 DISASSEMBLES

As above but disassembles between the two addresses specified.

E 2000 2FFF 45 EXCLUSIVE OR

This command EXCLUSIVELY ORs the memory between the start and end addresses given with the byte specified in this case, \$45.

F 1000 2000 XY FILLS

Fills memory from \$1000 to \$2000 with a value, where XY can be any number from \$00 to \$FF.

G 1000 GOES TO (JUMPS)

Starts executing a program from location \$1000 using the current register values.

H 1000 2000 A9 00 FD HUNTS

Hunts through the memory between \$1000 & \$2000 for the sequence of bytes - in this case A9 00 FD and displays the addresses if any, where they were found.

H 1000 2000 'HELLO' HUNTS

Hunts between \$1000 & \$2000 for text string "HELLO" (in ASCII) and displays the addresses if found.

H 1000 2000 "TEST" HUNTS

Hunts between \$1000 & \$2000 for the screen value of the text string "TEST" (the ASCII sequence found with the previous H command would be 54 45 53 54 whereas the screen sequence given by this command would be 14 05 13 14

I 4000 5087 C0 INCREMENTS

Increments the area from 4000 to 5087 by C0.

K 4000 4FFF 0277 SEARCHES

Searches between the specified addresses for any references to the location \$0277 including branches.

K 4000 4FFF 0277 0350 SEARCHES

Searches between the specified addresses for any references to the memory block between \$0277 and \$0350.

K 4000 4FFF 3000 3FFF 70000 SEARCHES

Searches between the specified addresses for any references to the memory block between \$3000 & \$3FFF and change them to point to the area from \$7000 onwards.

L "PROGRAM NAME" LOADS

Loads a program to the address from where it was saved.

M 1000. MODIFIES

Displays the contents of one line of memory (8 consecutive locations)

starting at address \$1000, with the ASCII form on the right of the screen. You can alter the contents of any location with this command. Use the cursor keys to locate the byte you wish to overtype. Enter the new value and press return. The new value will appear in place of the old one unless you are trying to "poke" into a rom location, when the old value will reappear. If you omit the final . the listing will continue until you press the STOP key or pause it with the SPACE BAR.

M 1000 2000 MODIFIES
As above but displays all memory between the specified addresses.

N NEW
Fills the 64k ram with the current fill byte & Resets back to Basic.

N XY NEW
Fills the 64k ram with the byte XY (XY lies within the range 00 to FF)

O REGISTERS
Redisplays the current registers.

P SPECIAL NEW
Fills the memory with occasional random bytes and RESETS back to Basic.

P XY SPECIAL NEW
Fills the memory with XY (XY can range from 00 to FF) plus occasional random bytes followed by a RESET back to Basic.

Q COMPACTOR WORK BLOCK
This command will try to find a block of memory suitable for use as explained in section 5 paragraph 2. This command is executed automatically when you enter the EXPERT by tapping RESTORE.

Q 02 SETS COMPACTOR WORK BLOCK
This sets the Q value to 02 ie the block used starts at 0200 to approximately 02E1.

R RESTARTS
Restarts the program you halted by tapping the restore key. Can also be used after compacting and saving the program with the Z command.

S "PROGRAM NAME" 1000 2000 SAVES
Saves memory from \$1000 to \$1FFF to tape.

T 1000 2000 3000 TRANSFERS
Transfers the contents of the memory between \$1000 & \$2000 to \$3000 & \$4000. This is an improved T command. It will transfer between blocks which overlap. eg T 2000 4000 3000

U UNHEX
Converts a number from HEX to decimal. (opposite of ? command)

W WARM START
Causes a warm start similar to pressing RUN/STOP RESTORE.

X EXCHANGES
Toggling this key selects the memory map that the monitor is working in. The current map is indicated as either 00 which is all 64k ram or FF which is the normal CBM64 default memory map.

Z "PROGRAM NAME" SPECIAL SAVE
Saves the program in a crunched or compacted form on tape.

? This converts a number from decimal to HEX.

/ 1000 SET RESTART ADDRESS
Alters the restart address, in this case to \$1000.

+ nnn SETS SCREEN COLOURS
This command allows you to change the screen colours. The digits (in HEX) set the colours in the order: border background text.

* SETS SEARCH COMMAND PARAMETERS.
This command sets the parameters used by the search and hunt commands - (K & H). For example, typing: * 1000 8000 (return) and then K* 20 (return) is the same as typing: K 1000 8000 20 (return). It is a useful time saver if you want to search the same block for particular bytes or sequences of bytes.

PROGRAM 6 - EXPERT EXPRESS SCREEN PRINTER DUMP

When you press RESET as instructed, the computer will go back to Basic. The function keys are used as follows:- F1 - EXIT F3 - HARDCOPY OF SCREEN: F7 - INSTRUCTIONS. (F5 - the disk turbo - will not function.)

TO PRINT OUT THE SCREEN (CBM SERIAL PRINTERS ONLY)

Press F1 to go back to Basic.

Load the program so that the screen you wish to printout (hi or lo res) is displayed. Now tap RESTORE and press F3 to make a hardcopy.

PROGRAM 7 - SELF SAVER

This operating system enables you to save any EXPERT operating system or file or any Basic program resident in the computer onto tape in uncompact form so that it will turbo-reload.

Program the EXPERT by switching to 'PRG' position, winding the master tape on to about 95 & pressing SHIFT & RUN/STOP. Run the program when it has loaded & follow the on-screen instructions.

Next type: N to go back to Basic & then load BUT DO NOT RUN the program you wish to transfer to tape.

For example if you wished to put EASIFREEZE on tape for a friend, then load it in by rewinding the MASTER tape & entering: LOAD"EASIFREEZE" (RETURN) When 'READY' and the cursor reappears press RESTORE and type: Y"EASIFREEZE" (RETURN) Press PLAY & RECORD on tape when instructed.

To reload the program from tape just press SHIFT & RUN/STOP

If you find the tape does not load, your datasette may not be in alignment in which case you can still transfer the files to tape using the command: SAVE"PROGRAMNAME" (RETURN) from Basic.

SAVING A BASIC PROGRAM

Program the EXPERT as above and type: N to go back to Basic. Now load in or type in directly, the Basic program you wish to 'EXPERT'. Before you run it, press Restore to activate the EXPERT and type: Y"PROGRAMNAME" (RETURN). Don't forget to insert a blank rewind tape.

When it has been saved you can type: R (RETURN) to go back to Basic and then run your program. DO NOT TYPE N UNLESS YOU WISH TO ERASE IT.

If your program crashed the computer because there was a bad mistake in it, simply tap Restore to activate the EXPERT and type: W (RETURN) to go back to Basic. Now you can list the program and find the mistake.

CHEATS & POKES.

Program the EXPERT program 2,3, or 4 operating systems.

ENTERING EXPERT CHEATS.

The principle is usually to 'list' a line of the games machine code with the D command and then alter the code by overtyping with the cheat data. In most cases EA is inserted in place of whatever was there - this is interpreted as a NOP instruction. NOP stands for No Operation and has no effect - it is used here as a safe way of deleting the original instruction or data.

The F command can also be used to fill one or more locations with EA - this has the same effect as using D as above. Similarly, M can be used - just overtype the specified locations with EA and press return.

Some games require changes to be made before the game is saved or the back-up will not run.

CONVERTING BASIC CHEATS INTO MACHINE-CODE ONES

Many cheats have been published in the Commodore magazines which are written in Basic using the POKE command. The actual 'pokes' are entered in DATA statements. Following the example below, you can easily enter these cheats using the EXPERT's machine code monitor.

eg. A Basic cheat might look something like this....

POKE 12758,32

POKE 57982,248

POKE 23,200

What happens is that the number after the comma is put into the memory location specified by the number preceeding the comma. Both groups of digits are in decimal and have to be converted into Hex before being entered using the EXPERT's machine-code monitor. Fortunately, the EXPERT's ? command converts decimal into HEX (The U command does the reverse).

First load & run the game and then freeze it. Next, convert the groups of digits using the ? command thus...

?12758 should result in 3106

? 32 should result in 20 - ignore any leading zeros.

? 57982 = D27E

?248 = 48

?23 = 17

?200 = C8

Next, type: M 3106. This gives a line of 8 two digit HEX numbers. The first pair represents the data in memory location 3106 which you have to change by overtyping it with the new value - 20 in this case. Now type: M D27E. and change the first pair of digits to 48 (return) Lastly, type: M 0023. and change the first pair to C8 (RETURN). Don't forget to press RETURN after altering each or it won't record the change. That's all there is to it. Now you can restart the game or to be on the safe side, Z it first - the restart command doesn't work with all games. Obviously, a cheat for one game won't work in another, and you have to load the game in & freeze it before entering the cheat.

For more complex cheat such as the one shown below, the principle is the same except that here you are 'poking' 10 different numbers (on line 50) into 10 consecutive memory locations starting from 32768 inclusively.

10 FOR J= 0 TO 10

10 = 0A

20 READ N

30 POKE 32768 + J,N

32768 = 8000

40 NEXT

50 DATA 23,56,34,128,200,2,48,196,255,112 = 17,38,22,80,C8,02,30,C4,FF,70

Note - numbers from 0 to 15 should have a zero added to them to make them a two digit HEX number eg 10 = 0A NOT just A alone.

Next type: M8000 800A this will list the 10 memory location commencing from 8000. Now go along each pair in turn and overtype with the new value - 17 into the first pair, 38 into the next pair and so on. Don't forget to press RETURN at the end of each line. Now you can save the game and then restart it to try out the cheat.

TIPS FOR PROGRAMMERS

1) RECOVERY FROM CRASHES.

If the computer hangs due to a programming error - Basic or m/code then press Restore to activate the EXPERT. The program counter (PC in the register display) will show where in memory the computer was accessing at the instant you pressed RESTORE. So you can follow your programming back from this point using the D & M commands until you find the error. You can then use W or R to exit the EXPERT. Be careful NOT to use N or you will erase your program.

If Restore does not work, then press RESET as a last resort. This will also activate the EXPERT but you will NOT be able to restart the program since certain registers are reset. (The contents of all the registers are saved when you press RESTORE so that they can be saved when you use the Z command or put back when you use the R command).

HELP

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** PLEASE READ THIS. **

The EXPERT and associated software has been tried & tested extensively so if you are experiencing difficulties trying to use your EXPERT, please re-read this instruction book to check that you are doing everything correctly. Next read this section and if you are still having no luck contact us - we will be only too pleased to help if we can.

1) PROGRAM WILL NOT RUN.

Some programs will not run if a disk drive is connected although they will load normally. If this happens, switch off the drive until you are ready to save the program. Eg Green Beret.

3) EXPERT ACTIVATED UNEXPECTEDLY.

Some programs generate NMIs which activate the cartridge unexpectedly. By leaving the switch in the off position until just prior to pressing the RESTORE key to stop the program, this problem can be overcome in most cases. Eg Spiky Harold & Iridis Alpha.

4) PROGRAM WILL NOT LOAD.

Some programs will not load, apparently detecting that the EXPERT is connected even though it may be turned off. They are in fact simply detecting that the memory has been altered from what it would have been had the computer just been powered up.

Type P (return) instead of N return if this happens. This will reset the machine in a slightly different way. Also try W (return) - this will perform a 'warm' start, and finally, as a last resort, after going back to Basic with N (return), switch off the EXPERT and press the RESET button.

5) OTHER CAUSES OF PROBLEMS.

The RESTORE key is seldom used, and in some cases, does not work. If tapping it with the EXPERT programmed & switched on, does not cause the monitor prompt to appear, then a fault with this key & associated circuitry is probable. Try this test: hold down the RUN/STOP key and tap RESTORE with the EXPERT switched off or unplugged. The screen should clear and 'READY' be displayed on the top line. If not, then your computer requires attention. If this test is passed, then a fault within the EXPERT is indicated.

Faulty EXPERT software, cartridge or computer can make it impossible to program the EXPERT. If a blackscreen remains on power up even with the EXPERT switched off, then suspect the EXPERT or your power unit. (Commodore power units are notoriously unreliable and the slight extra current taken by a cartridge can make them fail unpredictably).

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THE INTERNATIONAL EXPERT USER CLUB.

The EXPERT USER CLUB is a truly international club for especially formed for EXPERT owners throughout the world.

The club newsletter - "EXPERTISE" is published monthly or bimonthly and includes hints & tips, cheats, pokes for problem games, penpals page, features on how to program the EXPERT yourself & Machine-code for beginners, news, reviews and a letters page etc etc.

Eventually, the newsletter will be supplied on disk or tape and you will be invited to return the disk after adding to it any letters, queries, cheats tips or any or contributions which may be of interest to other members. The disk/tape will contain a program to make it easy to read, printout & add your own comments as listed above. If you have any hints, tips, programs or have written an article which has some relevance to the EXPERT, then don't be shy - send it in - we'll do our best to include it in a future issue of EXPERTISE.

New members are welcome - the subscription fee is £5.75 for 6 months or £9.75 for 12 months. For overseas members, the subscriptions are £2.00 more to cover the increased postage charges.

To join, fill out the form below & send to:

THE EXPERT USER CLUB,
66A HAROLD STREET,
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S. HUMBERSIDE.

Please allow 14-21 days for your newsletter & membership card to arrive.

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THE EXPERT CHEAT SHEET.

We are indebted to the EXPERT USER CLUB for allowing us to include some cheats from past issues of 'EXPERTISE' - their monthly newsletter.

1) KRAKOUT - infinite lives.

Turn off the EXPERT until the ESM light glows, then switch on. It will jump into the monitor when loaded. Now type:- D AD64. (ret) and change it to read .. AD64 EA EA EA (ret) Now save it in the normal way. Keep the Expert Off when reloading. The Restart function will not work with this game - it keeps jumping back into the monitor.

2) MUTANTS - infinite lives.

Switch on the EXPERT when loaded and tap Restore, then type:- D 2439. (ret) and change the line to read: .. 2439 EA EA EA (ret) Alter the restart address to \$1000 (type: /1000 (ret)). Now save/restart as per usual.

3) SANXION - infinite lives.

Turn on the EXPERT when ESM light glows. When loaded, press ESM button and then type:- D 373E. (ret) and change the line to read: .. 373E EA EA EA (ret). Save/restart as per usual.

4) SPIKY HAROLD - sprite collision disabled.

Leave the EXPERT on, it will jump into monitor when loaded. Now type:- D 950D. and change it to read .. 950D A9 00 EA (return). Now type:- G FCE2 (return) to reset the computer, switch off the EXPERT and enter SYS 28672 (return) to restart the game.

5) KRONIS RIFT - immortality.

Stop the game and type:- F 083E 0840 EA (return)

6) EIDOLON - infinite energy

Stop the game & type:- F 5CEE 5CEE AD (return)

7) ELIDON - unlimited sets of wings.

Stop the game and type:- D 0B0F. and alter the line to read:- 0B0F EA EA EA DEC \$ 0421

8) BOULDERDASH 3 - infinite lives.

Stop the game & type:- D 876E and change the line to read: D 876E EA EA Alter the Restart address to 8D67. (/8D67)

9) PSYCASTRIA - infinite lives.

type: D 4F52. and change the line to read: D 45F2 EA EA Restart address is 4000

10) 1942 - infinite lives.

Stop the game and type: D 16AE. now change the line to read:- D 16AE EA EA EA DEC \$6F

11) NODES OF YESOD.

Type: D 801A and change it to read: D 801A EA EA EA LDA \$ 001E Type: R (return) to restart it.

12) FIST 2 - see what happens ?

Load and run FIST 2, stop the game and type:-

A 2556 LDA \$00 (return)

A 2558 LDA STA \$ 0478 (return)

A 2558 NOP (return)

Restart the game (R return)

13) DROPZONE - infinite lives.

Load & run the game, press Restore to stop it and type: M 0BF4.

change the line from: 0BF4 CE B4 88 20 90 A9 A9 00

to: 0BF4 EA EA EA 20 90 A9 A9 00 (return twice)

14) CRAZY COMETS - unlimited lives

Type: D 9DAA. (return) and change the line to:- 9DAA EA EA EA NOP (return twice). R to restart.

15) WARHAWK - for unlimited energy type: D 69D2. and change to:- .69D2 A9 00 E7 LDAI\$00 (return twice).

16) PARADROID. for infinite energy type: D 143E and change the line to: 143E EA EA EA (return twice)

16) INFILTRATOR

for infinite bombs type: F 1C54 1C54 EA (return)

for infinite spray type: F 0D09 0D0B EA (return)

for infinite time type: F 24A7 24A9 EA (return)

and F 2498 249A EA (return)

and F 2442 2444 EA (return)

and finally, R (return) to restart the game.

TRICKY GAMES - you need to do make a few changes to the following games before you save them.

1) DELTA.

When it has loaded, switch on the EXPERT and press the ESM button. On the register display, you will see one called SP above a two digit number. Locate the cursor over this number and type FF (return). Now type:- /1770 to set the restart address to \$1770. You can now save the game in the normal way.

2) KRAKOUT Use the ESM to stop the game. Now type:- X (return), then:- F DC75 DC75 19 (return). You can now save the game as usual.

3) TOMAHAWK - After stopping the game, type: X (return) and then: / 048A (ret). Now you can save the game.

4) SCOOBY DO. Load the game, and then turn on the EXPERT when loaded. It will jump into the monitor. Now type: F 30C0 30C0 EA (return) and then save it.

5) URIDIUM 2 and PARADROID 2. Stop the game with RESTORE and then type:- X (return) then: F DC67 DC67 00 (return) and now save it.

6) YIE AR KUNG FU 2. Switch on when loaded, type: X (return), F DC04 DC04 E8 then: / CBE4 (ret) and then save. (Q = 44 for earlier operating systems)

7) BAZOOKA BILL. Load the game, when loaded press F7 twice to go back to the title screen. Now tap RESTORE, and save it. (Q = 2E for earlier o/systems)

8) DRAGON'S LAIR. disk version. To back-up this disk version, switch off the EXPERT and press RESET before loading the game. It will now load and run and can be stopped and saved part by part without any problem.

9) TERRA CRESTA. Turn EXPERT off until the light glows. Now switch it on, it will jump into the monitor when loaded. Now type: X (return) and save out

10) DRAGON'S LAIR. It seems that it is necessary to stop the game on the the hi-score table where it says press Fire. You can change the number of lives by altering location 0027. (Use M 0027.) Switch off the Expert after using the R command. Save in several parts as it is a multi-part game.

11) LEGEND OF KAGE. Load the game with the EXPERT off. Switch on and tap Restore when loaded and then type: X (return).., followed by: - F DC04 DC04 E8 (return) then: / 0900 (return) now save as per usual.

Why not try to find some cheats yourself - you cannot damage the computer or EXPERT - at worst the game will hang up and you'll have to reload it. There are no hard & fast rules for finding cheats - its something you can only get better at with practice - good luck.

the **expert**



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MASTER TAPE