



RESETTING THE RECORD STRAIGHT

By ROBERT SKEGG

There are many myths in Commodore land. The best known of these is that Commodore publications, and notably the Commodore 64 Programmer's Guide can be taken as the gospel truth! Many newcomers to Commodore land have been trapped by these small errors, which always seem to creep into technical publications. The problem even extends to the schematic diagram which is contained in the back of that publication, and has now trapped no less a noteworthy character than Larry Phillips! (See DEBUNKING SOME MYTHS, CCC NEWS, VOL 2, NUMBER 12.)

Since I am probably the local source of the rumour concerning the perils of "reset buttons", I feel that I must explain further....

This problem came to my attention the first time I fitted a reset button on a C64. I happened to check the pull up current on the reset line to see if a pull up resistor might be necessary. The 100 mA FSD meter I was using hit the end-stop hard! After such checking that I had the correct pin on user I/O port, and the schematic, I resorted to carefully tracing the PCB of the C64. The actual circuit is not as shown in the official schematic. What I found is shown in Fig. 1.

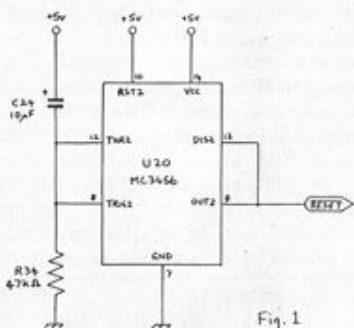


Fig. 1

Note that there is no 7406 open collector driver at all. The reset line is driven directly by two outputs of the 456 power-on-reset timer (U20). One output is an open collector type, the other is a high drive power 'totem pole' type. This kind of output is capable of supplying a large "pull up" current and is responsible for the large current from the reset line to ground that I had observed.

So why are both outputs connected in parallel when just the open collector one would work fine? A clue to this strange arrangement lies in the fact that the connection between the two outputs of U20 is not a track on the PCB, but a jumper wire added between pins 9 and 13. It appears that in the course of some circuit modification, perhaps to use the missing 7406 section elsewhere, the reset line was incorrectly wired to the totem pole output of U20. After the board was put into production, the error may have been noted, and corrected by putting in the extra jumper. The jumper is easily spotted. It is connected to the integrated circuit in the lower left corner of the circuit board, marked "U20". The jumper is about an inch of black wire bent in a U shape.

So what is the significance of all this? It means that when you short the reset line of a C64 to ground, a lot of current will flow through the power-on-clear chip (U20). Since there have been no reported cases of C64s bursting into flames, it seems that this does not produce immediate problems. If you were to short the reset line to ground for an extended period of time, U20 would undoubtedly get quite hot, and may eventually fail. My guess is that it would take at least a few seconds for this to happen.

This situation may be best described as "bad engineering practice" -- a part is being operated outside the manufacturer's specifications. What to do about it? Putting a resistor in series with the external reset button only slightly relieves the problem. If the resistor is large enough to reduce the current to a safe value, then the voltage on the reset line would not drop enough for a reset to take place. Cutting the jumper wire does nothing useful as the PCB track goes directly to the totem-pole output. The easiest fix is to cut leg 9 of U20 right next to the body, but **NOTE: THIS MAY VOID ANY WARRANTY YOU MAY HAVE ON THE EQUIPMENT**. This modification disconnects the high current totem-pole output, but leaves the reset line connected through the jumper to the open collector output. A small sharp nosed pair of side cutters is required to do this. Try NOT to cut flush to the body of the IC as the distortion of the lead as you cut may crack the package seal.

There is now no pull up device on the reset bus. Just to the left of U20 you will see several resistors. The lowest position is marked "R36", and is empty. (With the totem-pole driver there was lots of pull up current -- no resistor necessary.) Solder a 1k-ohm 1/4 watt resistor in this position. To save having to remove the PCB from the case and the lower shield, with care the resistor can be soldered to the pads on the top of the board. This completes the

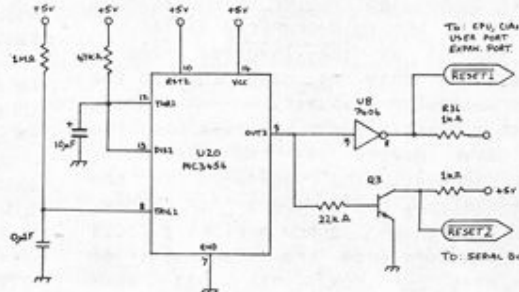


Fig. 2

modification, and you can now reset with impunity. If you want to modify your C64, but do not have the necessary tools or skills, have the job done by an expert.

I thought I had the reset problem licked, until a new C64 arrived on my bench in January. The whole PCB was different -- and now covered with a large metal shield! Upon checking the reset line current I was pleased to note that it was only 5mA! At last they have fixed the circuit, I thought.

Then I noticed that although a reset button connected to the user port reset the C64, it did not reset the disk drive or printer. After more tracing of the PCB, I discovered a new twist -- the reset line is now divided! The new circuit is shown in Fig.2. The power-on-clear timer drives a 7406 section, and resets the CPU, CIAs, VIC, SID, user and expansion ports. An extra transistor (Q3) is also driven by the timer output, and provides the reset signal to the serial bus devices.

Now why should Commodore re-design the circuit this way? The pull-down currents are about 5mA for the CPU etc. reset line, and about 10mA for the serial bus reset line, with a disk drive and a printer connected. In total that's well within the capabilities of either the 7406 or transistor driver. The result of this modification is that a reset button connected to either the user port or the serial bus will not perform a system-wide reset. To correct this problem it is necessary to solder a jumper between the two reset buses. **NOTE: THIS MAY VOID ANY WARRANTY YOU MAY HAVE ON THE EQUIPMENT.** First remove the top shield, which is held in place by screws. Avoid the white thermal grease, it is very difficult to wash off clothes! The jumper is most easily connected between the center leg (collector) of the transistor, which is located in the center of the left edge of the PCB, and pin 8 of U8. Be careful not to over-heat the components, and watch out for solder splashes shorting tracks. Again, if you lack the necessary tools and skills, go to an expert.

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SUMMER SCHEDULE

- WORKSHOP MEETINGS --
- May 7 (Thompson School)
- June 4 (Thompson School)
- June 25 (Thompson School)
- August 6 (Sunset Community Centre, 404 E. 51st)
- Sept. 3 (Thompson School)

- BUSINESS MEETINGS --
- May 21 (Sunset Community Centre)

JUNE, JULY & AUGUST: CANCELLED

All the above are subject to change. Check with the club's answering machine at 738-3311 or BBS (271-1082) for up-to-date info.

CCC GETS TOUGH

Recently it was brought to the attention of the club executive and directors that the frequency of pirating copyrighted software at club meetings was increasing at an alarming rate. As result, the following rules were formulated and are currently in effect:

1. The copying/exchange of proprietary (copyright) software at club meetings is strictly prohibited.

This includes photocopies of books or manuals for proprietary software. The directors of the Club will deal with the problem in the following manner:

Offenders' membership cards will be hole-punched to indicate a warning.

For any second offence the member's card will be punched through the membership number and thus rendered void. There will be no refund of dues to revoked memberships.

2. Visitors are welcome. We encourage two free "visits" before applying for membership. Visitors are not allowed to bring hardware to meetings.

3. In order to ensure the above, we will be hand-stamping everyone at the door: visitors in red, members in blue. Non-members will be required to provide satisfactory I.D. so as to avoid name changes between visits.

To ensure fast entrance at the door please have your membership card ready. Others please have I.D. to show at the visitors desk. Those wishing to join should ask for an application on entry. Return the completed form with payment to the front desk.

4. Those bringing equipment to workshop meetings are asked to sign in at the door and get your hand stamped before bringing in equipment. This will allow quick flow through at the door. Ask if you need help with lifting.

At the April workshop meeting, members noticed an increased amount of "security" as a result of these regulations. One individual was discovered to be carrying a forged membership card which he had allegedly fished out of a garbage can. As a result of this, the directors voted to disallow this individual membership in the club for a period of one year.

QUO VADIS COMMODORE?

By LOUIS BERNHARDT

First, let's get one thing straight. I own two personal computers: a Commodore 64 and an SX64, so I'm obviously sympathetic to Commodore. They are sufficient for my purposes, and after all, I can't afford an IBM PC or clone (and I refuse to buy an overpriced Apple).

Part of my job involves keeping track of what is happening in the microcomputer industry -- knowing what's available for business use, the relative merits of the machines, peripherals, and software in the marketplace, being aware of trends, etc. Although no one seriously looks at Commodore from the standpoint of business micros, it has been interesting to watch its moves in relation to the general flow of the market.

It's hard to believe that in 1982 the market was anybody's. Commodore had the 8032 and Superpet available and was just bringing out the 64. IBM had started shipping the PC and there was no software available. Apple was flogging the II+ and trying to recover from the disastrous III. The most promising direction seemed to be CP/M except for the fact that it was not a very friendly operating system.

What's the situation today? Apple is the only serious non-clone competitor to IBM. The best deal in a computer today is Radio Shack's PC clone. Memory capacities of 640K and above are common, as are fixed disks of 10, 20, and 40 megabytes. What is truly hard to believe is that Commodore has been so static while all this has been going on!

In 1984, a year in which the major players consolidated their gains, the year of Macintosh, Symphony, Framework, the PCjr (well...) and the PC-AT, what did Commodore have to show? Another 64K machine, incompatible with the C64 or its joysticks, unable to run C64 software, unable to perform C64 graphics or sound, with some primitive built-in software and a slightly enhanced BASIC. An enhanced BASIC! I have a degree in Computing Science and I've probably written five BASIC programs on my C64 in the past year! For the past two years Commodore has shown a horribly abysmal lack of understanding of the market, has completely misread the reason people buy computers.

How can I say this when the VIC-20 and C64 have outsold every machine in production? I don't know if Commodore realizes it or intended it, but the C64 is a wonderful example of appropriate technology, especially at its 1984-and-later price. It's not big and fast, but if smaller is better, then can slow be far behind? Besides, a home computer doesn't have to be fast -- no one has that many words to process, or that many stocks to track. The C64 is flexible. You don't have to have memory configured with BASIC -- it can be cleared for machine language use. The list goes on.

The last thing anyone needed was a business version of a C64. People who progress upward from C64's don't rush out and buy 8296's or B128's unless they're stupid. They rush out and buy Zenith 150's and Tandy 1000's and PC's and XT's because they want to run LOTUS, dBASE, and any of several dozen word processing programs. I would doubt that entry-level people would buy Plus-4's, either. Portable Radio Shack 100's offer more function, if you're unconcerned with compatibility with PC's.

Which leads me to the Commodore 128 and the LCD lap computer. When these machines were first announced, I thought to myself, "they've finally done it, they've started listening to a live market analyst!" Well, have they?

The Commodore 128: Early reports indicated that this would be a 128K version of the C64 with CP/M capability. Well, so you have to flip a switch to get CP/M because you need the Z80A. Plus you need the new drive to read standard CP/M-format disks. Plus CP/M is

passee anyway; nobody writes serious software for CP/M any more. What about the 128K? Well, that's only available when you flip a switch. In other words, what we have here is a convenient way for Commodore to 1) gradually obsolete the C64, 2) get rid of all the unused chips developed for their 128K "business" computers (how many people do you know who own 8296's?), and 3) give the appearance that they are right in there competing head-to-head against the Apple IIc (another anachronism, but at least it supports the existing user base).

I think what we wanted was upward-compatibility. A C64 user should be able to run any C64 software on the 128 without necessarily having access to the second 64K. The next step is development of C64/128 software which runs on both machines, making use of the additional 64K, if available, as RAMdisk. This would allow and encourage users to upgrade their equipment at their own convenience. In fact, the upgrade should not require purchase of a new machine, it should only

require a plug-in box which attaches to the C64 UNLESS the feel of the new keyboard has been significantly improved. Ultimately, I think you want a C64 which can access a megabyte of storage. I'm uncomfortable with the Superpet-like idea of switching CPU modes; I think a machine should be integrated. My conclusion about the 128 is to wait and see what sort of software it runs, see how much of it there is, and note if the additional 64K and faster drive make a significant difference to what is already available on the C64. Technologically (and humanistically) is the 128 just as appropriate?

The LCD lap computer: The great advantage of this machine (as well as of the 128) is that you can plug your existing 1541 drive into it. What Commodore doesn't say yet is what existing C64 programs will run on this machine. It comes with an assortment of built-in software, much like a Radio Shack 100, and

(Continued on page 6)

A COMPLETE GUIDE TO MACHINE LANGUAGE PROGRAMMING ON THE PET

By HAROLD BROCHMANN

USING THE WEDGE (9-2)

Locations \$70 to \$87 contain the CHARGET routine. It is used by BASIC to fetch the next character from memory for interpretation. Let us disassemble this routine:

```

0070 E6 77 INC $77
0072 D0 02 BNE $0076
0074 E6 78 INC $78
0076 AD 02 02 LDA $0202
0079 C9 3A CMP #3A
007B 80 0A BCS $0087
007D C9 20 CMP #20
007F F0 EF BEQ $0070
0081 38 SEC
0082 E9 30 SBC #30
0084 38 SEC
0085 E9 D0 SBC #D0
0087 60 RTS

```

The address of the next character to be fetched is located at \$77 and \$78. The contents of this address are therefore placed in the accumulator by instruction at \$0076. The first three instructions increment this address first. At \$007D the accumulator contents are compared with #20 (blank space). If there is a match then the pointer is incremented and the next character fetched. In other words, this part of the routine allows the PET to ignore blank spaces in a BASIC program.

Let us experiment with changing this to #21. This should have the effect of the PET ignoring exclamation marks, but paying attention to blank spaces!

```
007D C9 21 CMP #21
```

This is most easily accomplished with POKE 126,33
10:PRINT!!!!"HELLO GEORGE!!!!"
is now acceptable to BASIC, while:
10 PRINT "HELLO GEORGE"
is not.

Notice that both spaces and exclamation marks are accepted at "face value" when they are inside quotation marks; in other words the test is not performed if we are in "quote mode". Why not?

The previous instructions:

```
007B 80 0A BCS $0087
```

branch on carry set causes the check to be skipped if the CARRY FLAG is set. Here the carry flag is used to indicate whether the PET is reading text from inside or outside quotation marks.

Instructions at \$0081 - \$0085 do some other things that we aren't going to go into.

How do we intercept the CHARGET routine? We change the instruction at \$0070 so that execution is diverted to a custom designed CHARGET routine. This new routine checks to see if the character fetched is one which we have specified; and if it is, does something special. Otherwise, execution is resumed normally.

To illustrate this let us decide that the "at" sign (@) from now on is going to convert the screen code. In other words, it will have the same effect as POKE 59468,14 or POKE 59468,12.

First we modify the CHARGET routine so that it starts like this:

```

0070 4C 4B 03 JMP #034B
0073 EA NOP
0074 E6 78 INC $78
0076 AD 02 02 LDA $0202
ETC.

```

NOP means NO OPERATION. We just put it there to make things a little tidier.

This modification can be put in place with the first part of our ML program:

```

033A A9 4C LDA #4C
0330 85 70 STA $70
033E A9 47 LDA #47
0340 85 71 STA $71
0342 A9 03 LDA #03
0344 85 72 STA $72
0346 RTS

```

Obviously we cannot at this point exit to BASIC and SYS 826 because if we do, the PET will crash. We will have to assemble the rest of the wedge first; so we continue with:

```

0347 E6 77 INC $77
0349 D0 02 BNE #034B
034B 20 76 00 JSR #0076
0350 C9 40 CMP #40
0352 F0 03 BEQ #0357
0354 4C 76 00 JMP #0076

```

The first three instructions increment locations \$77 and \$78 just like the original routine at \$0070 - \$0071. Now we use the rest of the CHARGET routine to load the accumulator with the next character to be fetched. This is done at \$034B.

At \$0350 we check to see if this character is the "at" sign or not. If it is, we branch to our special routine, otherwise normal execution continues.

```

0357 A9 02 LDA #02
0359 40 4C E8 EOR #E84C
035C 8D 4C E8 STA #E84C
035F A9 20 LDA #20
0361 4C 47 03 JMP #0347

```

When the code for your wedge is assembled, exit to BASIC and SYS 826. At this point you can, if you wish, re-enter the monitor and disassemble \$0070- to see that all has gone as planned.

Try entering the @ symbol in direct mode. Also use it in a short program.

If you have a copy of the UNIVERSAL WEDGE (DOS) load and activate it. Examine locations \$70, \$71 and \$72 to see where this program resides in memory and do a partial disassembly of it. Realize that the entry point for a ML sequence may not be at its lowest memory address.

BBS SECRETS REVEALED!!

By MR. MIKE

There is a lot of confusion about Uploading and Downloading with Commodore BBSs. In order to do this in the Vancouver area you need a program which has the PUNTER PROTOCOL. There are 2 types of this: old and new. The main difference is that the new one is about twice as fast as the old one.

The old protocol is used on Sprite (588-3255), and the new protocol is used on all other boards, including Commodore Computer Club (271-1002), Montezuma's Revenge (939-4857), Swap Shop (888-2205), B&B's Vic Board (325-8171), Underground Empire (591-5393) and others using the 64 Exchange and Hals BBS programs.

Let me suggest that you get yourself one or both of two really good public domain terminal programs, available free from the Commodore Computer Club's library: First Term (with the accompanying First Dial) or Versa-Term. These both use the NEW Punter Protocol. (Versa-Term also contains the OLD Punter Protocol). VIC 20 owners with a disk drive and at least 8K of memory expansion can make use of the Vic New Proto terminal program, with the accompanying Vic New Proto ML.

When you have them, here's how to perform Uploading, or sending a program to the BBS. After pushing the BBS menu prompt for Uploading -- "U" in the case of the CCC -- you may be given a bit of instructions (depending if you are in the Expert mode) and then asked for Name of File. This is the name you want to call the program you are going to send. This name does NOT have to be the same as the name of the program on your disk. In fact, if you screw things up, you may want to use several different names like BALONEY-1, BALONEY-2, etc.

Assuming the name you have chosen isn't already used on the BBS's disk, you may be asked to input A if

you want to Abort or B to change the Block Size. "Block Size", both here and in the main menu of the terminal programs, refers to the number of characters which the program will accept before performing a check to see that all characters are sent correctly. "Block Size" has NOTHING to do with the size -- in blocks -- of the program you are sending! You can vary this Block Size between 40 and 255 -- using 40 makes for better results sometimes if the lines are poor.

(When Uploading to the CCC BBS, the Push B to Change Block Size prompt does NOT have any effect -- it does during Downloading. If you want to change the Block Size during an Upload to the CCC, then do this in your TERMINAL PROGRAM's main menu. On Hals BBSs, File Transferring -- assuming it is available -- is accessed from the main menu by pushing "F". This will then bring up another menu for which the prompts are Upload, Download, Catalog, Blocks Free, Instructions, Alter Block Size, and Main Menu. The Alter Block Size works for both Uploads and Downloads and can be varied between 40 and 255.)

At this point you will be given a prompt like "Waiting for Signal". This is your clue to go to the main menu of the program. With First Term, this is done with SHIFT and RUN-STOP. With Versa-Term, you hit the HOME key. Now you hit the letter or number which means "Send a Program to the BBS". With First Term, this is 6; with Versa-Term it is the number 2.

First Term will now ask you to choose between Punter and Text -- push "P" no matter which one. (See Note 1 at end.) Then you go to another screen where you are asked for another file name. This is the name of the file on your disk which you are going to send. And you are also asked whether this is a PRG, SEQ or Word Pro file (you DID write this down, didn't you?).

Versa-Term makes things a lot easier. All you are asked for is the name of the file on your disk -- the program then takes care of all the other mumbo-jumbo.

Assuming all goes well, the Upload should now begin -- the red light on your disk drive will come on, and the motor should whirr every 10 seconds or so.

On screen with First Term you will actually see the characters of the program being sent -- with Versa-Term you will get the familiar dashes "----" indicating that things are going OK. If things are NOT going OK -- if you get a bunch of colons "::::" with Versa-Term or Bad Blocks with First Term -- you may choose to abort the Uploading. This is done by pushing either RUN-STOP or the Commodore key. DO NOT push RUN-STOP and RESTORE with First Term or the program will bomb!!! With Versa-Term you may push RUN-STOP and RESTORE, then type RUN and perform an Initialize (I0, not N0) in the Disk Commands section -- prompt 4 from the main menu. Hopefully this should abort the Upload. If it doesn't work, the only alternative is to disconnect and call later. When the Upload is successfully completed, the red light on your disk drive will go out and you will be returned to the terminal mode.

Downloading, or receiving a program from the BBS, strangely enough, is quite similar to Uploading, except that it is done in the opposite direction!

After inputting the BBS menu prompt for Downloading -- D on the main menu in the case of the CCC -- you will get a prompt on the screen asking for a file name. This is the name of the program you want from the BBS's Download disk, which you have previously found on its directory. After entering this file name, hit return, and then you may be asked to hit A to abort or B for the Block Size. Again, this Block Size business has NOTHING to do with the block size of the program you are Downloading.

Once you have input the name of the file you want to receive, then you will get a prompt like "Waiting for Signal". At this point, you should return to the main menu of your terminal program (see instructions above). Then you should hit whichever number or letter is designated for "Receive File" -- 3 in the case of Versa-Term, H for First Term.

After doing this, you will get another prompt which asks for file name. This is the file name which you want to call the Downloaded program when it is saved on your own disk. This does NOT have to be the same as the file name on the BBS's directory! Again, you may want to save it under several different names until you get it correct. You may also be asked at this point to input P for Program File or S for Sequential File.

At this point, if all is OK, then the red light on your drive should come on, and the Download should proceed. When it is finished, the red light will go out and you will be returned to the terminal mode. If nothing happens, try hitting the Commodore key or Shift A to abort. If that doesn't work, try hitting RUN/STOP and RESTORE and RUN (with First Term use RUN/STOP only), then go to the Disk Commands and perform an Initialize (I0, NOT N0). This should break the connection. If you can't return to the terminal mode, the only solution may be to terminate the connection and call again.

(Note 1: On some Commodore BBSs and Terminal Programs, you may see prompts for Word Pro Files or a choice for Text. Most word processing files are either PRG or SEQ files, and I have sent them to and received them back from BBSs without any change in the material. One theory about why these prompts are included is that they are a bit of free advertising for the originator of the Punter protocol, Steve Punter, who also wrote the well-known word processing program, Word Pro.)

(Note 2: 64 Exchange is a public domain program which acts as a very simple BBS program for Uploading and Downloading, with the option of leaving messages on the Sysop's printer. This program is usually accessed with a password which is...hold your breath..."password". The menu is obtained by hitting a question mark, and the prompts for Up and Downloading are UPL and DOW. The transfer procedure is very similar to the ones described above.)

Why is CONTI known as "the commodore store"?

- Home of the largest Commodore service center west of Toronto
- Authorized warranty and non-warranty repairs to all Commodore products
- We service and support what we sell.

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VANCOUVER
734-0606



.....WORD PROCESSING.....

By MIKE QUIGLEY

I recently received five word processors for review. Although none of them is good enough to take the place of Paperclip, one of the most popular word processors among CCC members or even Cardco's Write Now! which I use for creating the newsletter, some of them have interesting capabilities, as well as a few oddities.

All of them are disk-based, and all but one are in machine language. TexEd is the only one not protected, while Textomat 64 has some fancy DOS routines which make it impossible to use with the Epyx Fastload cartridge. The others contain the now-archaic, 1541-destroying errors which cause knocking like when formatting a disk.

TEXTOMAT 64

Textomat 64 comes from Abacus Software, the same people who brought us all those nifty books like *The Anatomy of the 1541 Disk Drive*, wretchedly translated from German. Textomat seems to have come from the same factory, but there need be no xenophobia caused by its 185-page, three-ring binder manual which is logically organized and almost completely free of spelling, grammatical and translation problems.

Unfortunately, the ease of use of the manual does not apply to the program. While the overlying design concept is a good one, there are a lot of annoying little idiosyncracies. For one thing, you have to hit Shifted RETURN at the end of a paragraph. And the delete key doesn't work normally -- you have to put it on the character you want to delete, instead of deleting the character before the cursor. The manual says this is "more convenient, since most of the time the cursor is positioned at beginning [sic] of the unwanted text so you don't have to move to the end to delete it." Uh...sure...

The program performs most of its functions with menus and prompts, many of which appear at the bottom of the screen. These are accessed with the cursor keys and the F1 key, which is used along with the F2 key to jump back and forth to the main text area or "Write Mode". The CONTROL key is used to enter the "Command Mode" in which one can edit and move through the document. One problem with many of these menus is that you really have to think in advance about what you are doing. For example, when you want to Search and Replace, you cannot see your text, and when you want to Rename a file, you cannot see the directory.

The part of this program which I really disliked was customizing Textomat for any particular printer, an

ancient Gemini 10 with Cardco "A" interface. (The program is written for use with a 1525, 1526 or MPS 801, for which no such modification is necessary.) This involves two things: converting the ENTIRE ALPHABET (upper and lower case) to the corresponding ASCII codes of the printer, and defining control characters to produce things like sub- and superscript and bold type -- in hexadecimal! I tried to do this, with little success on printout. Considering Paperclip includes set-up files for just about every printer on the market, I don't see why Textomat couldn't at least include some for the popular makes of printers. (Two of the other programs under review here -- The Whole Bit and Word Commander 64 -- do just that.)

Textomat does have some interesting features, like the ability to make calculations in the text and print foreign language characters. However, in light of the printer hassles I encountered, I find it very hard to give it any kind of a recommendation.

(Abacus Software, P.O. Box 7211, Grand Rapids, Mich. 49510, U.S.A. \$39.95)

THE WHOLE BIT

One thing turned me off The Whole Bit from the beginning -- the word "its" is continually misspelled in its manual and even in a sample text file on the disk! If one can overcome this and other illiteracies like "keystroke entries", the program itself is not all that bad, though its not without its' share of little peculiarities.

Editing is literally of the full-screen variety -- if you want to go beyond the boundaries of the screen, you have to use the function keys to scroll. The function keys have different ... er ... functions depending whether you are in 40-column or 80 column mode (the latter scrolling text from left to right). Pushing RETURN while typing in text makes a double space, while the Up Arrow is used for a single return at the end of a paragraph.

The speed of the cursor has been increased, which makes manipulating it easy when editing text. However, in other parts of the program where you are supposed to place the cursor on something (like a file name to LOAD it in the directory), this can be a disadvantage, especially when coupled with the fact that the cursor only moves down in this kind of situation.

One of the major characteristics of The Whole Bit, which is either annoying or reassuring depending on your viewpoint, is that most of the prompts are double-checked -- the "Are you sure?" syndrome, which is no guarantee that mistakes will not be made. One nice touch is that a shifted RUN/STOP will get you out of virtually any situation back to the main menu.

DOS commands are limited to New, Scratch, Rename, Save and Load. Each file is saved along with various parameters such as margins, tab settings, lines per page, justification, etc. as a "master file". In order to merge one file into another, you have to save the parts to be merged as a "non-master file", which means devoid of this information. You can also copy or chain together up to four files and save them under a new file name.

Eight printer functions are supported -- bold face, double strike, italics, compressed, underlining, wide type, super- and sub-scripts, and there are another 6 user-definable keys, which have to be entered as hex numbers.

On the whole, The Whole Bit seems well designed and relatively easy to use. (One major oversight is that if you hit RUN/STOP and RESTORE, it's bye-bye to everything.) The manual for the program, in a three-ring binder, is very good aside from all those (shudder) "its".

(Applied Technologies, Inc., Computer Products Div. Kittery, Re. 03904, U.S.A. \$39.95)

BANK STREET WRITER

Bank Street Writer seems to have been designed for someone who is terrified of word processing or even using a computer.

Text is created in the Write Mode. If you want to edit it, you have to enter the Edit Mode which allows you to move the cursor around. Then you have to return to the Write Mode to actually make the corrections. The Transfer Mode allows you to do various DOS operations such as New, Rename, Scratch, Load and Save. File names can be a maximum of 8 characters long, since the remaining letters are for an optional "password" to prevent others from accessing the material. (I'm sure that examining the material would be a relatively easy task for someone who really wanted to see it.)

Compared to many other word processors, Bank Street Writer is strictly "meat and potatoes". Block manipulation is limited to 15 lines of text at a time and no printer tricks like italics, condensed print, and so forth are supported. There isn't even a character to indicate where paragraphs end!

Although prior to printing you can establish such parameters as the number of characters per line, pagination, spaces between lines, page heading, pause between pages, and ejecting the last page, there are other things which can only be changed in the Utility Program. These include lines per page, the top and bottom margin, printer device number and secondary address, screen colors, line and form feeds and an audible clicking when keys are pressed. You cannot make use of the Utility Program when Bank Street Writer is running -- instead, you have to access it while the main program is loading by pushing the left arrow key.

Personally, I don't like Bank Street Writer, especially the business of jumping back and forth between the Write and Edit modes constantly. I can see, however, where it would be well-suited to educational applications. The program is extensively menu-driven and crash-proof. It comes with a lengthy tutorial on the disk where the user is instructed in the fundamentals of word processing, at least according to Bank Street Writer. And the manual for the program is excellent.

(Broderbund Software, 17 Paul Drive, San Rafael, CA 94903, U.S.A. \$49.95 -- contains two copies of the program disk)

WORD COMMANDER 64

One of the first things I try to do with a new word processor is to "bust it". Before anyone gets hysterical, this means "make it screw up". One of the nice things about Word Commander 64 is that it's easy to access many printer features like underlining and boldface by using CONTROL with a single letter -- for example, U for Underline -- before and after the section you want to change. So I threw in everything but the kitchen sink, and Word Commander performed without a moment's hesitation -- even when mixing double-wide and normal print in justified columns!

While there are many aspects of Word Commander like this one which I like, including the ability to move the cursor all over the place, there are quite a few which are disappointing, starting with the knock-knock noise while the program loads.


While there is full screen editing, the cursor is in the "eternal insert" mode, and there is no way to correct words by typing over them. The cursor color is the same as the border, and while you are allowed a wide range of choices, I found it difficult to get satisfactory color combinations.

DOS commands, aside from Save and Load, are limited to New, Scratch and Directory, and if you save a program under a file name which already exists, the previous one is replaced without warning, which you may not want to do. File names are limited to 10 characters. You can't merge a file on disk with one in memory -- instead you have to "chain" them together while printing.

I wrote to the manufacturer about these problems, and they sent me back a reply (at least give them points for customer support) saying that most of the complaints were "design features". To this, I can only

(Continued on page 6)

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FOCUS ON . . . ADVENTURE GAMES

-- MASQUERADE --

By MIKE BUCKLEY

After being abruptly introduced to the butt end of your trusty .44 magnum, Ivan Tupickewoff, notorious hit man, is taking a brief nap on the floor of a cheap hotel room. A quick search reveals, amongst other things, a rubber mask, a cryptic telegram, and a small metal box with a button on it.

Elsewhere in the hotel, you discover a bomb that ticks and a phone that rings. Following the advice of the caller, you begin an adventure that takes you from an exploding hotel to a zoo and to a theater, where your detective career is likely to be curtailed in mid-snoop by any one of an alarming variety of methods.

This is "Masquerade", an illustrated adventure game written a couple of years ago by Dale Johnson for the Apple II and recently translated by Mike Clark and John O'Fallon for the Commodore 64. There is nothing innovative here. You enter your commands in the classic one or two word format as you move from place to place searching, taking, and dropping the things you find.

The authors pay homage to the original Adventure game, a cut-back version of which is in the club library under the name "ADVENTURE-64". There is a bird in a cage -- and there is a snake -- but the bird doesn't look like a Norwegian blue and whether or not it will chase away the snake is up to you to discover.

There are less than a hundred areas to investigate but each has been brought to life through the graphic talents of Rick Incrocci in a series of cartoon drawings that, while they add no information, are entertaining and well executed. The picture of yourself in the washroom mirror is particularly complimentary.

However, "the slowest disk drive in the west" takes time to load each picture so you might like to use the TEXT mode when you're in familiar territory -- or the MIXED mode where you can toggle between TEXT and PICTURE by pressing (RETURN) alone.

Of course you can SAVE GAME any time, an option to consider whenever you're far into the adventure and about to confront some new person, place, or thing. You can become deceased far too easily in "Masquerade", after which everything is initialized, so it's handy to be able to RESTORE GAME and try something less lethal. Up to seven games may be saved -- on a separate disk -- but you'd better save them from TEXT mode or the screen will go crazy and the disk drive will angrily flash its red light at you.

Conceptually, "Masquerade" is in the same general mold as the Scott Adams Graphic Adventures -- but

harder. Our testing team, after much effort and many dead ends, achieved a score of 120 out of a possible 250 before moving on to less frustrating pursuits. The game is rated "Class 5 (expert)" by American Eagle who will provide a map or a specific hint upon request (and proof of purchase).

(American Eagle Software, P.O. Box 46000, Lincolnwood, IL 60466 U.S.A. -- \$34.95)

-- BELOW THE ROOT --

By LARRY PHILLIPS

Every once in a while a game shows up that really captures my attention. The reasons for it are as varied as the programs themselves. In the case of Wyndham Classics' "Below the Root", the reasons are many. The game is well done in both conception and execution. Based upon Zylpha Heatley Snyder's "Green Sky" trilogy, it takes place in Green Sky, where you may choose your character from a cast of five. Each character has slightly different characteristics, but any character may triumph if the player is careful to act according to the strengths and weaknesses chosen.

After choosing your player, you find yourself in the bedroom of your home. You may pick up objects, such as tokens for purchases, a "shuba" for gliding from place to place, and food. Leaving your house and exploring, you will find people to speak with, objects to pick up or purchase, and a variety of small animals among the tree branches of Green Sky. Not everyone is friendly toward you, some being indifferent, greedy, devious or fanatical. It's up to you to develop your powers of the spirit in order to judge those who offer you rest or sustenance. In your travels, people will give you hints in what to look for in order to find Raamo, the Spirit God of Green Sky, who has been kidnapped and hidden. Paying close attention to these clues and making use of all objects found will eventually lead you to the solution. When in a house, you may only take an object that has been offered to you, which to my mind is a good lesson to teach.

The play is somewhat reminiscent of a "fantasy role playing game", but not quite. For one thing, you will never have any need to fight with anyone, nor will you be killed. The worst that can happen is that you will fall into the water, be kidnapped, or run out of food. You will then find yourself back in your bed, with the loss of a day in your quest. You have fifty days to complete the game, ample time to have a lot of fun whether or not you are successful in your quest.

Playability aside, the game has extremely well done graphics, as you move from screen to screen, the scene changes rapidly, due to the programmable character graphics used for all the scenery. The use of

programmable characters is not as obvious as you might expect, and must be seen to be appreciated. The player and the people you meet are sprites, and are well animated. Add to this the sound of the footsteps of your player and the music that rewards you at certain key points, and you have a game that will capture your imagination. One small nice touch... as you enter the houses of Green Sky, you will occasionally find an empty one with a variety of objects in it. This puzzled me for a while, until I realized that they are the houses of the other characters that may be chosen. They, of course are not home, and are probably out questing like yourself.

Fast, pleasant and non-violent, it is truly a game for children of all ages. One young fellow I know does not seem to be particularly interested in winning, but finds hours of enjoyment in just exploring, meeting people, and finding things to pick up.

Program: Below the Root
Publisher: Wyndham Classics
Price: \$40-\$55 (shop around)
Rating: Excellent in all respects.

-- LUCIFER'S REALM --

By DAVE NEW

There are two attitudes toward fantasy adventure games: some people consider them a waste of time, and others think they are great. Lucifer's Realm holds no interest to those who dislike the adventure as a genre, but to others -- keep reading.

The basic premise of the game is you are sent to Hell. Finding a notice stating that the person who stops Adolf Hitler from overthrowing Satan will be released, you set out to do just that.

As is the case with another game by Lucifer's authors Jyys and Robyn Pearson -- Institute -- the graphics done by Rick Incrocci are excellent; the pictures are well-drawn and match the descriptions. The descriptions themselves, however, leave a lot to be desired. The parser is only one-word (i.e., "open chest," "open door," "open jgboxn," and "open" are all the same) unless the verb "look" is used, in which case the parser is two-word. The vocabulary is not as complete as most adventure games, the only words known being the ones used in the solution, and the room descriptions and responses both are very unsatisfying. In one example, it takes three moves to determine that there is a chain in the water which is visible in the first place.

The game play is rather simplistic, as one wrong

(Continued on page 7)

Published by The Commodore Computer Club, Box 23396, Vancouver, B.C. V7B 1W1. Editor: Mike Quigley
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PAPERCLIP TIPS

By BRUCE DUNN

Don't forget that you can issue disk commands from Paperclip (manual, page 6.3). To "new" a disk press CTRL > then type n:disk name, id and press return. Files can be scratched with CTRL > then s0:filename. If you happen to have Paperclip running, this is considerably easier than the business of opening and closing channel 15 to the disk drive. If the red light on the disk drive flashes while you are using Paperclip, don't despair. You can retrieve the disk error message by typing CTRL < (manual, page 6.4). Note: distinguish between the ">" and the "<" above.

§ § § § §

Once you are working with a screen line length that matches the printed line length, tabbing and the creation of columns of data become very easy. If you don't have enough space to put all the columns you need across the page and you are working with a dot matrix printer capable of compressed print, learn how to use the "(checkmark)pt" command to call up 15 or 17 characters to the inch printing (manual, page 7.13). Gemini owners please note: Gemini compressed print is 17 characters per inch. However, to get this, use a "pt15" command, not "pt17".

§ § § § §

Paperclip has the fantastically useful ability to add up a column or row of numbers. The next time you are setting up an expense sheet or similar document, put the numbers you will eventually need added in a vertical column using numeric tabs (manual, page 11.1). Then "set" the column, using the cursor control keys to highlight what you want added up (manual, page 12.1). When the column is set, move the cursor to where you want the sum printed, and press CTRL = (manual, page 12.4). The sum will appear with its decimal place in the position of the cursor. This sounds harder than it really is, and it sure beats repetitively adding up the figures with a pocket calculator until you get a consistent result.

§ § § § §

As Paperclip prints out, it keeps a running total of how many words have been printed, and displays this on the screen. If you want to quickly find out how many words are in a document without printing it, ask Paperclip to print out the document starting at page "99" (or some other very high number). The program will zip through the text without printing it, totaling up words as it tries to work its way to page 99. Since there is no page 99, you will not get any printing, but in a few seconds will know how much you have written.

§ § § § §

It is a total pain to have to type out the information for page formatting each time you create a document. To save repetitive typing, create a file

called "format" which contains the formatting instructions that you most commonly use. When starting a document, load "format" and the dirty work is done for you. My version of "format" is as follows:

```
(checkmark)cm:file=
(checkmark)l10:rm70:sp2:pp66:pg55
(checkmark)hd2:~<->
```

This gives me a left margin of 10, a right margin of 70, double spacing, a total page length of 66 lines (11 inches at 6 lines per inch, and 55 printed lines on the page. The top and bottom margins together total 11 lines (66-55), with the distribution set by the way I position the paper in the printer. "hd2" and the symbols following it give automatic page numbering (page 1 is labelled "-1-" at the top center etc.). "(checkmark)cm" gives a comment line (similar to a REM statement in BASIC). After "file=" type the name of the document that you are creating.

§ § § § §

Paperclip can sort lines in alphabetical order. Since a line can be set to be up to 250 characters long using the CTRL (shift) L command, this feature can be used to keep track of references, the names and addresses of people, or whatever else you can imagine (sort of an el cheapo data base). As an example, say you want to keep an alphabetical list of people with their home addresses and phone numbers. If all the information pertaining to one person is kept on one screen line, then sorting the lines according to name also sorts the entire record. For a demonstration, do the following:

- set the line length to 165 columns, with tabs at 40, 80, 120, and 165
- type in a name, with the last name first, followed by a comma and first names
- hit the tab key (run/stop) to go to the tab at column 40, and type the street address.
- hit the tab to go to column 80, and type the city
- hit the tab to go to column 120, and type the phone number
- hit the tab to go to column 165, and press return
- repeat the above operations for as many names as you wish, each time starting the name at column 1, the address at column 40, the city at column 80, and the phone number at column 120
- sort the lines according to the alphabetical order of the last names, using the sort function (manual, pages 14.1 and 14.2)
- print out the list using a paper line length of 40 (example left margin 10, right margin 50). The information that you have placed on the screen line in blocks of 40 characters using the tab function now appears as separate 40 column wide lines. The purpose of the return symbol out at column 165 is to force a blank line to be printed out between records.

--- WORD PROCESSING ---
(Continued from page 4)

say "too bad", since in Word Commander 64 there are the makings of a really first-class word processor.

(NMG Micro Software, P.O. Box 131, Marlboro, NJ 07746, U.S.A. \$49.95)

TEXED

In its ads, TexEd is described as a "powerful text editor for document processing and program design" which allows you to "create, modify, and save cassette data files and disk SEQUENTIAL files" and "convert program files to and from SEQUENTIAL files". Among its features are a "line image editor using simple commands", "full screen editor (uses cursor control keys)" and a "print command with indentation and margins (which) supports COMMODORE printers."

Sounds pretty good, eh? Well, I got the shock of my life when I received TexEd for review. The program is written in BASIC! This means that it's slower than molasses. I tried compiling it, which improved matters slightly, but in doing so I found an error -- an ONGOTO a line which didn't exist!

To make things worse, the documentation for the program is unusually bad, written in a style reminiscent of bibliographical footnotes, and full of peculiar phraseology which the program's author seems to have invented to make life more complicated. Consider the following: "A file is a bounded text which is written on tape or disk" and "By default, TexED uses the line-image editing mode. Line-image commands are instructions to TexED which direct the program to carry out some operation, such as LOADING some file into a buffer." Terrible! Terrible! And then there are commands like ".n addresses the nth line after the current line", ".-n addresses the nth line before the current line" and "#-n addresses the nth line before the last line". As Charlie Brown would say: "Good Grief!"

I can't see much use for TexEd except for someone who wants to study how a word processor works prior to writing their own. At least it comes on a high quality Maxell disk.

(TexEd, APCAD, P.O. Box 83, Saline MI 48176, U.S.A. VIC 20 or C-64 versions on disk or tape, \$19.95)

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--- QUO VADIS, COMMODORE? ---
(Continued from page 2)

some of it is even integrated -- the communications program will autodial numbers stored in the address program. But can you save files created on the word processor onto 1541 diskettes and read the result on your C64 using Paperclip? Can you do the same with the built-in spreadsheet's files and Multiplan? If so, then this may be a more significant machine than the 128, especially if Commodore decides to price it against the Radio Shack 100. Indeed, this was the sort of machine that could have made an impact on the market one year ago. Why buy a Radio Shack 100, then have to buy its own drives and related peripherals, when you could buy the same sort of machine and plug it into your existing drive and printer? But all this is academic. I doubt that the LCD is C64-compatible, and I would be surprised if it was C128-compatible. Commodore has shown that it just doesn't work that way.

I think we're in a period of consolidation. All the standards have been developed and it will be very difficult to introduce new machine architectures. IBM did it with the PC-AT, but they gave you a method of upgrading. Apple did it with Lisa and Macintosh, but they are complete departures from the II series. It will be difficult for Commodore to move people from C64's to C128's and the related consumption required, especially if I reflect the type of person who generally buys C64's in preference to PC's. Would you scrap your 1702 (required), C64 (required), and 1541 (optional) for an additional 64K and 80 columns, both of which are unavailable in C64 mode? Maybe next year, if software is plentiful and the price is below \$300. And this is a rule to keep in mind: No matter how bad the machine, there is always some price which is low enough to make it attractive. How about \$49.95 for the Plus-4?

§ THE RASTER INTERRUPT §

It was an urgent interrupt,
It could be one of three;
"Collision", "raster", "CIA" --
the choice would "raster" be.

Computer reads the opcodes next --
And does just what they say:
Like changing sprite coordinates,
And border to light gray!

Computer uses RTI.
To get back once again,
To where the Vic-chip rudely claimed:
"Interrupt again!"

Every time a raster beam
Comes down the TV set,
The Vic-chip knows it's time to act:
A special flag is set.

The interrupt is done at last:
Computer must return;
To where Computer was before
The raster flag said was turned.

Computer does, however, have
A few tricks up his arm:
A flag must previously be set,
Before the chip does harm.

Computer finds the flag that's set;
The others must reject.
It checks what's in Oh-Three-Fourteen,
And jumps there indirect.

To do this complex-sounding feat
A simple thing is done:
Computer uses place called stack;
And finds it in page one.

To programmers who know their stuff,
Interrupts do fit.
But only if you use them right;
your game will be a hit.

At indirect Oh-Three-Fourteen
Computer shouts like this:
"Collision, raster, CIA --
What interrupt is this?"

It uses opcode sixty-four,
(in decimal, to show
that using hexadecimal
it does make "hex Four-Oh".)

The moral of the ballad is:
That interrupts are great.
(just whether we exist or not
is not in this debate...)

Computer peeks Dee-Oh-One-Nine,
To see which flags are set;
And finds that only one is set:
The raster flag is set!

This opcode numbered hex Four-Oh,
Your memory must sort.
"Return from Interrupt", it means;
RTI, for short.

The Devil (Johan Thornton)

STILL MORE REVIEWS: GAMES & EDUCATIONAL

- MAIL ORDER MONSTERS -

By JAMES LUNDIE

Mail Order Monsters is a new semi-role playing combat game by Electronic Arts.

The object is to make your monster from scratch, add any accessories you want and then test it in combat against either a computer- or player-controlled opponent. You have a choice of three different levels, free trial, rental and tournament. You must earn any accessories in combat by beating the opponent in any of the three modes, combat, capture the flags or battle against the horde. You can choose to have either 1, 3, 5 or 7 battles to be won before the end of the set, and the more battles, the more points.

After you have finished making a suitable monster, you have the option of saving him for later, or testing him in mortal combat. The combat phase is like Archon except for the large scale map that you start out on. On the map are a number of urban defenders who will attack all who come near, which can be used to your advantage by luring your opponent into one to weaken him. When you go into combat mode the map enlarges to fill the entire screen like Archon but the difference is that you can scroll the screen and run away if the need arises. The fighting is almost identical to Archon, in which you use the joystick to maneuver your character and press the fire button to attack with the weapon in hand.

There is an on-screen menu at all times in the combat mode in which you can change weapons, use devices, pause and surrender. The graphics are nice and colorful and the monster animation is well done, with good sound effects and music. The program is well documented and comes with the new Commodore fast load built in. People who liked the combat phase of Archon, and those who enjoy sci-fi combat/role playing will enjoy this game. I rate it a "B".

- DINOSAUR DIG -

By MIKE QUIGLEY

Dinosaur Dig -- subtitled "enlightening adventures into the prehistoric age" -- is an interesting educational package for the Commodore 64. It consists of two disks, a high-quality 16-page booklet and a "keyboard overlay". This overlay, made out of heavy vinyl, slips over the 64's keyboard and contains the names of 32 dinosaurs ranging from Allosaurus to Tyrannosaurus and other information necessary for use

BITS 'N PIECES

This is the last issue of the newsletter until September. Our next one will coincide with the Pacific Coast Computer Fair, at which the CCC will again be a participant ... The club now has a new mailing address, Box 23396, Vancouver V7B 1W1. This address, which is actually located in Richmond, will eventually replace the old one in West Vancouver, which was originally the mailing address of the Vancouver Pet Users' Group, the CCC's precursor ... Scheduled release date in the stores for the C-128 computer is now the end of June, according to Greg Harder, manager of Conti Computers on Main. The moment it arrives in town, we've been assured by another Conti representative, it will be displayed at a CCC workshop meeting ... the newsletter is now being sent to a large number of Commodore user groups in Western Canada, as well as to several members who live out of town. It is also being sent to the Midnight Gazette, an independent publication put out by Jim Strasma, well-known Commodore authority who contributes a regular column called Commodore Clinic to Run magazine. In a letter to the editor, he commented, "Thanks for sending your news to us -- it's quite well done." ... There are a limited number of back issues available of older newsletters, though many of them are "sold out". Watch for their appearance at one of the upcoming workshop meetings, and quickly grab the ones you don't have -- after that, they'll be gone forever!

in the program, thus making it easy to select options and answers to questions.

Both disks make use of high-res graphics as well as text. The first of them is an "electronic book" which traces the history of dinosaurs, often relying on animation-like effects.

The second contains five games which cleverly use the same basic material. Dino Discovery displays facts like the dinosaur's name, size, weight, diet and time period. Dino Dig reveals these facts one at a time, challenging you to identify a particular beast. Dino Flash shows a picture of a particular dinosaur or reptile, and again asks for identification, allowing up to 15 guesses. Fact or Fable wants to know if two different dinosaurs lived in the same time period, while Who's Biggest? challenges your skill at knowing which of three dinosaurs was the heaviest.

Overall, this package is imaginatively designed and educational in the ultimate sense of the word. But I found it had a few problems.

What I least liked was the redesigned alphabet which my kids found hard to read -- the 64's built-in one would have been quite sufficient. The program also was slow when loading in simultaneous high-res screens and waiting for prompts. Using the Epyx Fastload made things move much quicker.

The keyboard overlay is tough and flexible, but does not look like it would stand up to such abuse. Parental guidance may be necessary here. It doesn't fit over the 64's function keys, and when I hit a function key in response to a "push any key" prompt, the program crashed.

While it's possible to easily jump from one game to another on the second disk, it isn't possible to go directly from the first disk to the second one. Instead, you have to turn off the computer and start from scratch. There is a key which is supposed to turn off the sound, but it merely turns off the music, still allowing beep-like noises which act as prompts to proceed to the next screen.

Finally, I thought the "history" disk would have a shorter span of use than the second, especially after all its facts were absorbed.

Still, none of these problems should detract from the fact that this is an exceptionally good package, but one which is perhaps better suited to use in an educational setting than at home.

(CBS Software, One Fawcett Place, Greenwich, CT 06836, U.S.A. \$39.95 U.S.)

- RACING DESTRUCTION SET -

By JAMES LUNDIE

If you enjoy racing games like Pitstop II, you're going to love Racing Destruction Set by Electronic Arts. It's two sides of action packed driving that'll keep you playing for a long time. Even if you aren't particularly thrilled by driving games, it's a good bet you'll still like this one.

This program uses Commodore-donated fast disk routines to speed loading which is a nice feature. The game allows the player to control all aspects of the race, such as track, car type, number of laps, racing or destruction mode, computer skill, course difficulty, and more. There are nine different cars to choose from, and you can pick the tires, engine size, arcure thickness, and weapons.

One of the best features is the ability to change the gravity to one of 14 possible settings, ranging from the moon to Jupiter. You can choose from fifty different tracks, made of pavement, dirt, and ice, or a combination of all three. Most of the pre-made tracks are of famous tracks, such as Daytona and Monaco. You can also build and modify tracks any way you want -- jumps, ice, tight curves, crossovers and more are all at your command. You won't get bored with the same tracks all the time in this game, and you can save your cars and custom tracks to disk.

The graphics are similar to Pitstop II, as it uses the same split screen idea for the two players, you on top, the computer on the bottom. The view of the track and your cars is Isaxon-like, offering a 3-D perspective. The controls are kept simple: forward for

gas, back for brakes, left and right turn the car, while the fire button drops mines and oil slicks.

The manual is short (nine pages), to the point and well written. It lets you start a race right away without having to make a lot of choices. The whole program is user friendly with on-screen menus throughout, all of them joystick controlled. Out of seven people that have played it, all of them enjoyed it very much. I give it an "A+"

-- ADVENTURE GAMES -- (Continued from page 5)

move results in either being killed or nothing at all. There is no such thing as a false lead, as the only way through is the right way.

Only diehard adventure game fans will truly enjoy this program. It is a well-conceived idea, but the writing job is slapshot, and too hastily put together. It is really too bad that the imaginations of these people could not be affixed to better programs.

It should be noted, by the way, that the disk itself has some unusual copy protection which makes it impossible to load with the newer brown-colored 1541 drives. It seems to work on the older Rom 3 drives, many of which have a white outer casing.

(American Eagle Software, P.O. Box 46000, Lincolnwood, IL 60466 U.S.A. -- \$39.95)

CCC BBS: 271-1082

----- Main Menu -----

- Blocks Free for Upload Disk
- <C> Commodore Club Info.
- <D> Down load a file
- <E> Enter a Message
- <F> Feedback to Sysop
- <G> Good Bye.
- <H> Help - Reprint Menu -
- <I> Info. on this system
- <K> Kill a Message
- <L> Line Feeds Off/On
- <M> Electronic Mail Box
- <N> New Messages on system
- <P> Page The Sysop
- <R> Read Messages
- <S> Seq. file reader
- <T> Time on system
- <U> Up Load a file
- <X> Expert Mode
- <#> List Down Load Disk Files
- <?> Reprint This Menu

----- Message Base Menu -----

- <Q> Quit-Return to Main Menu
- <F> Forward read Messages
- <N> New Messages on the system
- <S> Scan Titles of Messages
- <#> Read one Message
- OR just enter a Number to read
- OR # + number to start Scan at ??

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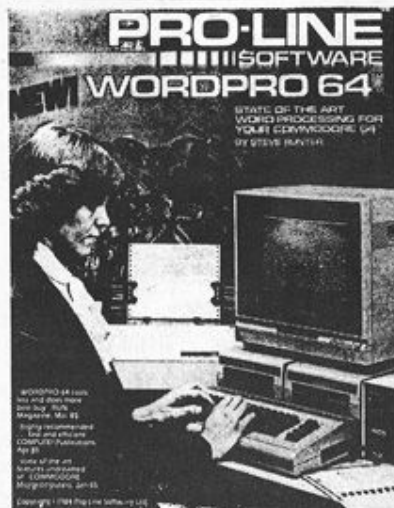
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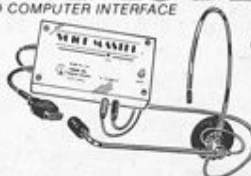
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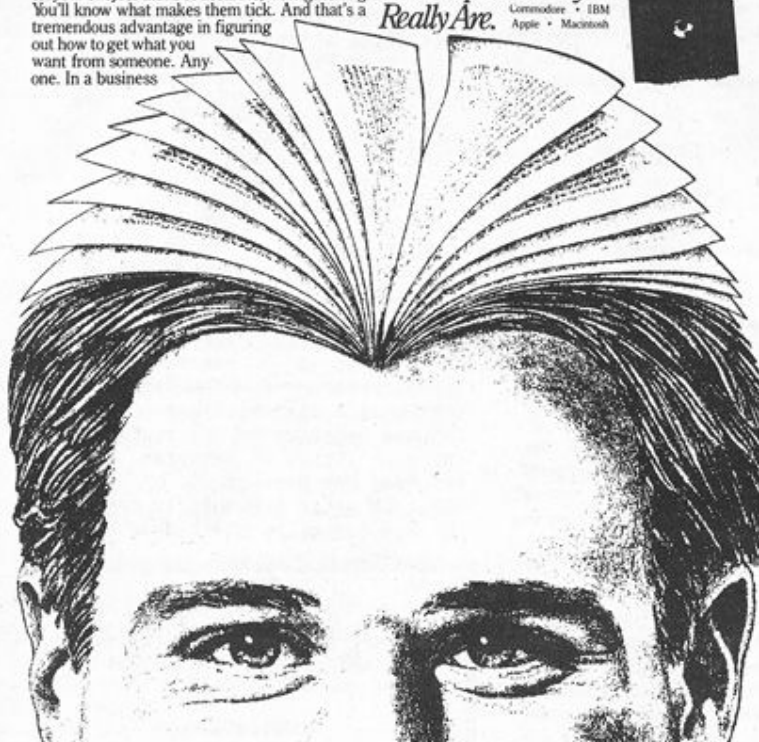
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