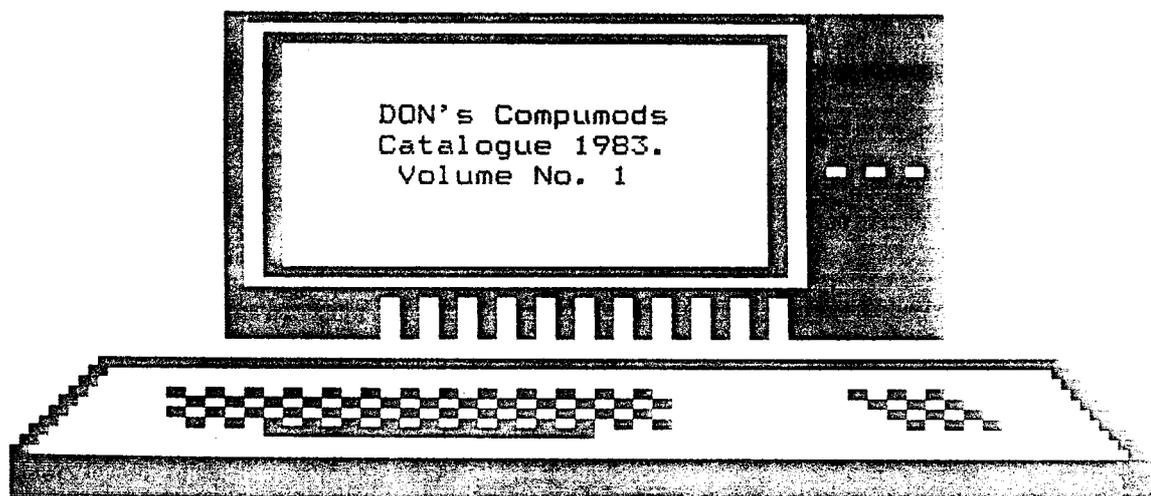


DONMODS



Modifications for SYSTEM 80, TRS 80 Model 1 Level 2, VIDEO GENIE,
P.M.C. 80, TRZ 80 and all other similar type computers.

ADELAIDE MICRO-USER News

Registered by Australia Post -- Publication number SBH 2386

MARCH 1983

NEXT ISSUE'S DEADLINE

20th Mar

POSTAL ADDRESS ----- 36 STURT ST. ADELAIDE 5000

This newsletter is a monthly circular produced by the members of the ADELAIDE MICRO USER Group who are interested in 6809 or Z80 microprocessor based hardware. This includes the TRS-80, SYSTEM-80 (PMC-80) and 6809 Color Computers but we also cater for those with homebrewed equipment and other areas of special interest.

EXPIRED ??? ANNUAL SUBSCRIPTION IS \$10...CHECK LABEL FOR YOUR EXPIRY DATE *****

NEXT GENERAL MEETING.....*****	7.30 pm THURSDAY 3rd MARCH	**** SENIOR CITIZEN CNTR ****
Pre-meeting drinks & 'counter tea'	5.45 pm WAVERLEY HOTEL (25 Unley Rd)	**** 18 ARTHUR ST. UNLEY ****

COLOR COMPUTER	4th TUESDAY	each month at 7.30 pm	meetings at ----->>	**** SERVICE CLUB CENTRE ****
BASIC PROGRAMMING GROUP ...	3rd WEDNESDAY	each month at 7.30 pm	Organiser Rod Stevenson....	**** 49 OXFORD AVE. UNLEY ****
Z80 M/L & ASSEMBLY GROUP ..	1st WEDNESDAY	each month at 7.30 pm	Organiser Rod Stevenson	(at above address)
6809 M/L & ASSEMBLY GROUP .	2nd MONDAY	each month at 7.30 pm	Ken Wagnitz or Richard Newcombe..	(at above address)
'TECH TALK' (m/l.hardware),	3rd THURSDAY	each month at 7.30 pm	Organiser Richard Newcombe.....	(at above address)

committee

Rod Stevenson (secretary)	a.h. 337-6682
	bus. 51-5241
Richard Newcombe (editor)	a.h. 272-3081
Dennis Morath	a.h. 271-7618
Geoff Lane (treasurer)	a.h. 79-3627
Ian Robertson	a.h. 263-0653
EDUCATION	Greg Sharp a.h. 297-1722
SERIOUS GAMERS	Ed Grignonis bus. 25-9813

groups & information

Z80 HARDWARE	Allan Dent	a.h. 276-7233
6809 HARDWARE	Ken Wagnitz	a.h. 47-7481
SYSTEM-80 USERS	John Ross	a.h. 261-8689
TRS-80 MODEL II	Bob Lesiw	a.h. 46-4102
MODEMS & SOFTWARE	Richard Newcombe	a.h. 272-3081
SUPER-80 USERS	Rob Gillespie	a.h. 382-1909
RADIO HAMS	Garry Herden	a.h. 297-4950
COLOR COMPUTER	Steven Eisenberg	a.h. 250-6214
BUSINESS APPLICATIONS ..	Geoff Lane	a.h. 79-3627

**Mr. Don McKenzie,
29 Ellesmere Crescent,
TULLAMARINE. 3043**

Dear Don,

I am pleased that you are happy with our coverage of your hardware and there will be further comment about what John Ross had to say at our last meeting in our next newsletter. I feel most were quite interested not only in the extent of John's modifications to his System 80 but also found the concept of DONMON to be quite an attraction.

We have no objection to your reproduction of any of the content of our newsletters and as a fair proportion of our subscribers (approximately 30%) are interstate and we have gained quite pleasing feedback from readers around Australia. We would like to encourage this and would be quite happy if by any means that you have at hand can spread the good word about our newsletter!! Hopefully Australian groups will begin to interact as much as they do in the U.S.A. for the benefit of all.

Regards,

SYSTEM 80'ers (From John Ross)

My System 80 is now running under the control of DONMON 2.2 & BENDON 3 lowercase chr. generator. The 3 line descenders look good & is certainly an improvement, there is also several special characters. which could prove useful & it is possible to program the whole 12 rows of the character matrix. Installing the Donmon took about 3 1/2 hours & worked first time. After switching on, I was presented with a menu & it's from here that complete control is taken over. Each time the RESET is pressed, the menu is presented again, allowing me to edit, inspect, jump or return to any point in memory. Under normal operation, if the RESET is hit, the disk reboots & important information is lost. Under the control of Donmon, I have the choice of rebooting or not, or returning to DOS READY. It is also compatible with a number of DOS systems including LDOS

I haven't had time to put it through all of it's paces yet but first impressions of it are good & it solves the keyboard lockup when your program crashes, so that you can retrieve information which would have otherwise been inaccessible. It will certainly be a permanent fixture in my Sys 80 & I will be demonstrating its capabilities at the next meeting. It can be fitted to any TRS 80 Mod 1 or SYS 80

next meeting

Richard's "quickie" will be the FIX function.

Applied Data Control will be supplying a demonstration of their "little big board".

John Ross will be demonstrating his much-modified System 80, and in particular the "DonMon" hardware mods mentioned in the last two Newsletters. He is An Approved Installer, so has some inside information for those of us who suspect the mods are too cheap & believe one never gets more than one pays for - i.e., "greed doesn't pay". Of course well-known is John's expertise with the necessary mods (hardware & software) to make the System 80 compatible with the vast support of the TRS; he'll be willing to divert to this topic if the need arises.

SYSTEM 80'ers

This modification was provided by Don McKenzie who swears by it as being the only correct modification for the SYSTEM-80 32 character mode, apparently as yet unpublished.

Modification to produce TRS 80 type 32 character mode on SYSTEM 80 type computers.....

Components required :- NIL



All wirings done on interface card.

- (V0) Cut Z29/11 Connect Z29/11 to GND.
- (V1) Cut Z29/2 Connect Z29/2 to Z29/3
- (V2) Cut Z29/14 Connect Z29/14 to Z29/13
- (V3) Cut Z29/5 Connect Z29/5 to Z29/6
- (V4) Cut Z37/14 Connect Z37/14 to Z37/13
- (V5) Cut Z37/11 Connect Z37/11 to Z37/10

- Remove R3 4.7K Resistor. (near Q10)
- Remove R29 4.7K Resistor. (near Z7)

MODSEL SIGNAL

- Connect Z6/6 to Z7/4
- Connect Z7/4 to Z37/1
- Connect Z6/5 to Z5/2



(to Z12/11 on boards that have 2M4 Video Ram. Eg:- MARK II)

OPTIONAL.....

Isolate S1 (video out switch) and pass switch. This will give you two spare switches..

Don McKenzie
29 Ellesmere Cres.
Tullamarine 3043
Phone (03) 888 8888
(AFTER HOURS)

HARDWARE DON'S INSIDE RUNDOWN ON DONMON....and other goodies. (from Don's K'n file)

When I came up with the basic concept of DONMON some eight months ago, I made four main rules that I wanted to stick to.

- (1) The memory used must be the maximum allowed in the empty 3000 hex. area.
- (2) A jump to and from DONMON must be achieved by the press of a single button or key, and any return to a main program must be done without destroying that program.
- (3) DONMON must be completely invisible to any operating software regardless of system configuration and be compatible with System 80 type computers as well as TRS 80 Model I level 2 computers.
- (4) Get the best possible use out of the allowable memory map by sensible field testing with experienced programmers and users.

Rule (1) wasn't all that easy to define. I had to find out how high in memory I could go before running into problems with disks, clocks, RS-232 interfaces etc. After several hot-line phone calls I was able to convince TANDY that their RS-232 interface was really port addressed, not memory mapped at 37DE, 37DF, as DICK SMITH suggested. Thanks to both organizations for their assistance, but please, can't all that type of information be put on a disk file.

BELIEVE ME... 3000 TO 37DF HEX. IS THE USABLE MEMORY MAP...

Rule (2) at one stage looked like bringing my project to a complete halt. The ZILOG Z80 data sheets told me that a NMI (reset) will store the program counter on the stack. This meant that with a couple of simple register save and restore routines, I could interrupt any program, jump to DONMON using the reset button, execute the DONMON commands, and return to the still running program. The theory was good but it didn't work in practice. After many nights of watching the sun come up, re-writing routines, and looking at the pretty pictures on my C.R.O., I had to accept the fact that I had a bad case of reset button bounce on my TRS-80. I then had to design a small circuit to overcome this problem. Using a flip-flop, I was able to set the NMI line, and reset it using a timing loop in DONMON via the IORQ signal with an OUT instruction. If this sounds like mumbo jumbo to you, then you have been spared from the influence of the dreaded "HARDWARE BUG".

In English, if your computer has reset button bounce, then DONMON will not work correctly until the additional circuit as shown in the manual is wired in. Generally speaking, System 80's do not need the debounce circuit, TRS 80's do. A jump row is used to intercept the power up and reset routines. There are three types of jump rows:-

- (a) For TRS 80 three chip set (MEMORY SIZE ?)
- (b) For TRS 80 two chip set (MEM SIZE ?); and
- (c) For System 80 and all other similar type computers.

DONMON

Rule (3) meant that I couldn't "suck about" with ram too much, as any resident program would be destroyed. I have used ram bytes in DONMON that correspond with the same ram usage in basic. My stack has been set to coincide with the input/output buffer. SUPA-UTILITY is the only program found to date, that DONMON will not return to correctly. SUPA-UTILITY will run perfectly with DONMON resident.

Rule (4) I have called the CONTROVERSIAL rule....

You can please some of the people some of the time, but not all of the people all of the time. I have attempted to squeeze as much as possible into a 2K EPROM.

"HEY DON, HOW ABOUT A REMEMBER ROUTINE IN DONMON?" That's the type of question I get quite often, and it's also the reason that I decoded 3900 to 3EFF HEX. If people need other routines, then I can give them these routines without destroying my standard DONMON.

DONMON has been written for both code-hackers and basic programmers, and cassette or disc users, and 4K, 16K, 32K or 48K users, and upper or upper/lower case computers.

(Hey, that's a lot of ands and ors, Don !!)

I like to look at DONMON as a "software window", that is, even at powerup, you can take a walk through memory and examine every byte in exist and know or change any appropriate data. By the way, if you are interested in the CD-ROM version, here is a quick rundown:-

I GET BETTER ONCE
YOU KNOW ME...

ADELAIDE

MICRO USER News

DEC 1982

Display character set, screen print facility, keyboard driver with shift lock, flashing cursor with control, keyboard beeper, control characters, auto repeat on all keys, lower case video driver, rom and ram check, ascii and hex display of memory, edit memory, deposit data byte in full block of memory, goto hex address, move blocks of memory, reset memory size without destroying basic text, overwrite a new command, write a system tape, etc.

Thanks to Technical Officer Kick Gulovsen, Police Sergeant Terry Stephens, and numerous other members of The Northern and Western Suburbs Computer Users Group, DONMON has been kicked into shape.

The first person who wanted to buy DONMON when it was first demonstrated at a users' group meeting came up with this question. "Hey Don, I have a stringy floppy, can you help me?"

OH NO !!!.... More development, and I hadn't started.

(Of course the stringy version is now available for F800 Hex.)

The DONMON SHORT FORM KIT includes 2 EPROMS, a bare printed circuit board, manual, and all fitting instructions, and is available at \$40. The fitting instructions are designed for experienced hobbyists and technicians. I strongly recommend that non-technical persons seek assistance if fitting any of my modifications.

I have that much faith in DONMON that any customer (including authorized modifiers) can return THE SHORT FORM KIT within 90 days for a full refund, if not completely satisfied.

OTHER GOODIES..... All \$12.90 including postage, and full wiring instructions.

Just to straighten out any misunderstandings with my other goodies, the price of PRINDON 779 (was \$21) and GENDON 3 (was \$10.60) are both \$12.90. This has been done to level out the prices of my programmed 2716 EPROMS to a standard \$12.90

GENDON 3..... A three line descender character generator for System 80 and TRS 80 type computers.

The original character generators in these computers was mapped out 5 bits wide by 7 bits high. (8 bits high with a one line descender.) By addressing the generator with an extra address and data line, I was able to map out 6 bits wide by 12 bits high, which is the full available space of one character.

This allowed me to output 3 line descender characters. The latest model System 80's now have 3 line descenders.

PRINDON 779..... A lower case character generator for TANDY LINE PRINTER ONE and CENTRONICS 779 printers.

Having used my old upper case only line printer for some time, I became envious of the new super Japanese plastic printers and their capabilities. I had noticed an ad. in a U.S. mag. for a small kit that added lower case to this type of printer for \$95. At this point of time I was a little cheesed off with U.S. mail order companies, so I decided to have a crack at it myself. I wish I had never undertaken this task, even for myself, as it developed into a real game of adventure. I'm sure CENTRONICS mapped their original rom just to put me off the trail to lower case success. After investing many, many hours into this project, I was able to come up with the full 128 ascii character set, and all those up and down arrows etc. that I had been missing.

NOTE !!! PRINDON 779 will not give you descenders, as this type of printer was built with seven print pins only.

INSTALLATION OF OTHER GOODIES.....

All of my other EPROMS have to be installed in a 24 pin socket, which has previously been mounted on a small matrix board with I.C. solder pads. The matrix board must be jumpered to the main CPU board with two lengths of multi-coloured flat ribbon twelve conductor cable.

For further information on any of my products contact:-

Don McKENZIE
29 Ellesmere Cres., Tullamarine 3043.

or in the Adelaide area:-

John Ross
12 Lindley Rd., Greenacres S.A. 5096 Phone (08) 261 6689



DONMON

ADELAIDE MICRO-USER News

Registered by Australia Post -- Publication number SBH 2386

FEBRUARY 1983

**NEXT
ISSUE'S
DEADLINE**

13th FEB.

POSTAL ADDRESS ----- 36 STURT ST. ADELAIDE 5000

This newsletter is a monthly circular produced by the members of the ADELAIDE MICRO USER Group who are interested in 6809 or 280 microprocessor based hardware. This includes the TRS-80, SYSTEM-80 (PMC-80) and 6809 Color Computers but we also cater for those with homebrewed equipment and other areas of special interest.

ANNUAL SUBSCRIPTION IS \$10...CHECK LABEL FOR YOUR EXPIRY DATE ****

Last Meeting

John Ross gave a demonstration of his much-modified System 80 and the DonMon mod, together with a detailed explanation of same. He stressed that the mods are not a kit in the normal sense of the term, and the instructions need "interpreting" - it took him more than 4 hours to install it.

Keep in mind too that John is intimately familiar with the insides of his machine! So certainly there is a LOT of electronic knowledge required: even for the lower-case mod. And even with that necessary knowledge, at least one of our expert hardwarriors prefers to buy the "proper" kit from Micro 80. But of course to the true "hacker", efficiency & a guaranteed simple task is no challenge! John did give us a very comprehensive run-down of the facilities of DonMon, & avows that it has allowed him to do some things he'd be otherwise stumped by. But he did admit that he'd found bugs with the epron & has communicated with Don about a cure. The DonMon mod is switchable.

Apart from the DonMon demonstration, John showed how he has made his System 80 more like a TRS, with true double-width characters, and various other switches & modifications. Of intrigue to most was his sliding drawer underneath to take epron. This led to an explanation of his epron programmer, and the offer to program others' epron.

SYSTEM 80 & PMC 80 (from John Ross)

Welcome all new members and users to 1983. This year starts with good news & bad news. The good news... At the December meeting I demonstrated the capabilities of DONMON. One question asked was - can Donmon be entered during Disk I/O. The answer is YES. Hitting the Reset button whilst Disk I/O operations are in progress (disk is still revolving), places you under Donmon control, after which you can return to Disk I/O operations by hitting the 'R' key.

The availability of the Dick Smith MODEM & simple Software for the Sys 80, allowing RS 232 Serial communications via the telephone lines & between computers, will see more people gradually availing themselves of this mode of operation. Other commercial programs are also available for the TRS 80 from different sources, & have been for some time - some of which are very good.

Now for the bad news... Incompatibility exists between the TRS 80 & SYS 80/PMC 80 with respect to the RS 232 serial communications ports, therefore TRS 80 programs will not run successfully in our machines. The TRS 80 uses 4 ports, E8 & E9, EA & EB. The SYS 80 uses 2 ports F8 & F9, and the baud rate is switch selected. The software is complicated & the port routines appear many times throughout the programs. The data at each port, aside from the transmitted & received data, also sets & tests the status of the UART (the chip that converts the serial data to parallel & vice versa), therefore, changing the port addresses & bit assignments for that port would be a long job.

I am currently collating all the relevant information with a view to developing a hardware modification. This seems the best & most logical solution, as all the programs will then run. Information has been offered from various sources, including mods already tried, so the project has started & I will report on the progress made.

helpful hint from Ray Barrington

Many TRS-80 and System-80 owners are probably reading about low-cost methods of getting lower case or 'piggy-backing' a RAK chip. Having tried this I agree that it works, PROVIDED your existing character-generator has L.C. characters installed. Most "B" boards are said to have these so I fired ahead and was faced with complete failure! I had a "B" board without the necessary L.C. characters! There had to be some way of finding out about this BEFORE "hacking". And there is!

Take a look at your Serial no. (TRS-80 - dunno about others). If this ends in "11" then your generator has L.C. characters ain't and you might as well forget it unless you are prepared to spend some more money having your generator replaced as well. I had to do just that. It was well replaced with a "Board 1" from the same source. This board has the features one of the first that I had ever encountered available. It's a good one for the price. It's a good one for the price otherwise EXCELLENT.

For info. on Serial no. - Thomas Jones...

DON BRINGS THE COST OF PROGRAMMED EPROMS DOWN TO AN AFFORDABLE LEVEL FOR COMPUTER AND ELECTRONIC HOBBYISTS.....

There is not much sense in purchasing expensive Eprom Burners and erasers for a few odd burns that you may need:

I will supply, burn, and post to you anywhere in Australia, a 2716 EPROM for an all inclusive cost of \$12.90

A 2716 is known as a 2K EPROM. It has 800 HEX. locations or 2048 DECIMAL locations.

I can copy from one 2716 EPROM to another, or If you wish to, you can send a TRS 80, or SYSTEM 80 "SYSTEM FORMAT TAPE" which I can also copy from.

I can copy from a system tape that starts at any address.

All tapes and eproms posted to me will be returned.

The popular memory map for custom programs are 3000 to 37DF Hex. and F800 to FFFF Hex. for the above computers. I have also worked out a decode circuit for 3900 to 3BFF Hex. This is normally used for the keyboard matrix, but with the addition of two TTL chips, an extra 300 Hex. or 768 decimal bytes can be used for extra rom or ram usage.

With the addition of a resistor and one switch, a rom can be mapped for two groups of 300 Hex bytes, giving 600 Hex bytes in all.

I will provide circuits for these address decodes with any order if requested.

BE WARNED..... These circuits are designed for experienced technicians and hobbyists. Chips can be piggy-backed, or built up on a small matrix board. The circuits have only gate logic and chip types, not constructional details. I strongly recommend that non-technical persons seek assistance if fitting extra EPROMS.

I intend to build up a library of popular EPROM burns.

THIS WILL BE KNOWN AS DON'S FIRMWARE LIBRARY.....

See attached list for my firmware library.

By the time you read this, I may have the program that you need in my library.

Remember, when writing your ROM based programs, that you can't alter Rom locations, so don't do things like

```
LD    (3320H),A
```

Please specify TRS 80 or SYSTEM 80 when requesting an address decode circuit.

CUSTOM PROGRAMMERS.....

Please let me know your assembly parameters. eg:- start, end, entry points. This will assist me in overcoming any burning problems, and allow me to check the last burn address. With 3900 burns, I have to start 100 Hex. bytes from the 2K boundary of 3800 Hex., so I must know if you have assembled at 3900 Hex. To use the "PHANTOM" 300 Hex. bytes, I have to start at 500 Hex. bytes into the EPROM.

Your custom program remains your property. I will add it to my firmware library only with your written consent. Sorry, at the prices I charge for programmed EPROMS, I can't pay royalties, but I can put your name in the credits.

DON'S FIRMWARE LIBRARY.....ALL THE FOLLOWING 2716 EPROMS ARE \$12.98 INCLUDING POSTAGE...

TC-8 Cassette operating software:-

Initialised by SYSTEM, ENTER, /64006, ENTER.

Memory Size doesn't need to be set. This is a universal version that checks to see if a DONMON is resident at address 3000 Hex. and configures itself to operate using normal Level 2 basic, or patches itself for the DONMON keyboard and video drivers. The F800 to FFFF Hex. decode circuit must be used. For System 80 and TRS 80 users. Includes circuit.

PRINDON 779 EPROM to convert TANDY line printer one, or Centronics 779 model printer to lower case. Includes circuit. Hardware and software by Don MCKENZIE.

GENDON 3 STANDARD

3 line descender character generator to suit TRS 80, and System 80 type computers, with block cursor.

Hardware and software by Don MCKENZIE.

GENDON 3 DASH

As above, but with an underline cursor on the eighth line down, and six dots wide.

Jack Decker, of 1804 West 18th Street Lot # 155 Sault Ste. Marie, Michigan 49783, is the editor of the Northern Bytes Newsletter, published by Microcomputer Users International. He also writes frequently for the Alternative Source. Jack has kindly allowed me to include in my firmware library, the following items:-

0S83000.....

An improved operating system for the JPC Products TC-8 High Speed Cassette system. It is strongly recommended that you add lowercase capability to your computer for this firmware, as lowercase will be incorrectly echoed to the video display. Jack has written a small manual on the improved, and extended functions of his OS8 system. The manual is too large to reproduce here, so I will list only some of the features.

Shift Lock using Shift Zero for upper/lower case, Auto key repeat, Keyboard Debounce, Shift down arrow for Control characters, Screen Print function, Lowercase video driver, User definable Blinking Block Cursor, Protection of up to eight video lines from scrolling off the screen, New Line Printer functions, Tab Statement Fix, and numerous improvements to the TC-8 operating system itself.

A hardware hackers circuit is included for installation of this EPROM at 3000 to 37DF Hex.

0S8F800.....

As above, but assembled at F800 Hex.

A hardware hackers circuit is included for installation of this EPROM at F800 to FFDF Hex.

The "Decker" version JACKGEN 3

Jack's re-hash of my GENDON 3. Rather than attempt to explain this, I will quote from one of Jack's letters.

"QUOTE" 1) The "e" character has been redefined to look a bit less "boxy" and more like the character used on the MODEL III. 2) The "_" (underline) character has been changed to a full-length underline, so that printing a series of them forms a continuous solid line rather than a series of broken dashes. Again, this follows the pattern of the MODEL III. 3) The "¨" (grave accent) character used by most printers for ASCII character 60H has been restored, but modified so that it is the mirror image of the apostrophe ("'") character. 4) The "¡" (rule) character has been restored. 5) The "¨" (sine wave ??) character has been restored. I moved it up one line after publication of the newsletter article when I found it actually did sit up there in the original character set. 6) I changed the 7FH character to a +/- symbol, to match the MODEL III character at that position (this one I wavered on. I was very tempted to restore the "polka-dot" graphics character originally found there, because my printer considers 7FH as a "no-op" character. However, I decided to go for MOD III compatibility here, even though I didn't change the arrow characters. I'll just claim personal preference on this one. 7) After a comment from an interested friend, I removed one dot from the lowercase "p" and "q" characters so that they no longer look like a circle laying next to a stick (the description used by my friend). I also changed the lowercase "s" to conform to this same pattern. Finally, I retained your design for the lowercase "j" but moved it over one dot so that it appears more nearly centered.

You may think that some of the above changes a bit picky and admittedly, some of them probably are. Nevertheless, I now have a pattern I am satisfied with. "UNQUOTE".

DON'T YOU DARE
TAKE MY PICTURE!

POWER UP OF DONMON VER. 2.0 © by Don McKenzie. July 1982(C)

29 Ellesmere Cres., Tullamarine Australia. 3043

Phone (03) 338 6286

Donmon lives at 3000 to 370F Hex. It needs a simple hardware or software mod. to power up to 3000 and reset to 3066.

Ascii	Boot	Cold	Dos
Edit	Fill	Goto	Hex
Init	Flow	Hex	Punch
Return	System	Test	User
Warn	Xit	1.77mhz	2.66mhz

How would you like this menu on the screen of your TRS 80 Model 1, or SYSTEM 80 from power up?

How would you like to be able to hit the reset button while running any basic or machine language program, jump to this menu, execute the DONMON commands, then return to the program at exactly the point that it was interrupted?

DONMON also has a screen print facility, keyboard driver with shift-lock, flashing cursor with control, keyboard beeper, control characters, auto repeat on all keys, lower case video driver, Rom and Ram check, and even a Strinsky Floppy version at address F800 HEX.

It can't be done in a 2K rom!! RUBBISH !!!!!!!!!!!

I have only just started. It also has..... SORRY, not every thing about DONMON can be explained in a one page ad.

INTERESTED? Ring me at home (after hours only) for a short tour of DONMON, or send \$2 to help cover the cost of the DONMON manual and postage, which will be deducted from the total cost of the DONMON SHORT FORM KIT if purchased later on.

The DONMON SHORT FORM KIT consists of :-

Two eproms and a bare printed circuit board, with full wiring instructions, and is available at \$40 including postage.

You supply all other parts and labour. Current cost of other parts is approx. \$5

BE WARNED.... Fitting DONMON is not an easy job. The installation instructions are designed for experienced technicians and hobbyists. I strongly recommend that non-technical persons seek assistance if fitting any of my modifications.

I have that much faith in DONMON that any customer (including authorized modifiers) can return the SHORT FORM KIT within 90 days for a full refund, if not completely satisfied.

My authorized modifiers are currently fitting DONMON in TRS 80's and System 80's for an all inclusive cost of \$70

DONMON

\$90

DON'S NOTES AND ERRATA:-

SYSTEM 80 type computers.....

A new version of this board has appeared on the market recently. Some later model VIDEO GENIES, SYSTEM 80's, and PMC 80's have been fitted with two 2114 video ram chips, instead of the old seven 2102's. They may also have an extra rom decoded at 3000 to 35FF hex. The fitting of the 2114 chips, is a trick that the Japanese produced TRS 80 Model one also utilized. If you encounter one of these boards, then a few minor alterations to my wiring instructions need to be done.

Fitting of extra ROM's.....

EG:- DONMON, 3900 keyboard decoder, F800 TC8 etc. All references to Z21 pins 12 and 13 are to be reversed. ie. Z21/12 becomes Z21/13. Z21/13 becomes Z21/12.

Fitting of GENDON 3.....

If your character generator is an MMS2116, and is fitted in socket Z25, then GENDON 3 is much easier to fit. Remove the old chip, and install GENDON 3 in the same socket. Cut the tracks from Z25 pins 13,14,15,16, and 17. Connect the followings jumpers:- Z25/9 to Z24/4, Z25/10 to Z24/5, Z25/11 to Z24/10, Z25/13 to Z24/11, Z25/14 to Z24/12, Z25/15 to Z24/14. The original ground still needs to be cut from Z24/14. (under board) Cut the track from Z11/13, and connect the isolated track to ground. This gives a true data bit six.

Fitting 64K memory chips.....

The address decoding has been done slightly differently, and an alteration needs to be done to enable the MEM#, and CAS# signals. Instead of removing the wire link at pins 13 and 4 of X1, cut the track from Z25/11. The track that leads away from this cut is the CAS# and MEM# enable, and Z25/11 is the old 4000 to 7FFF decode. Your new 4000 to FFFF decode from P22/12 will connect to the isolated track. The changeover switch may be wired in at this point, so that you can switch from a 48K to a 16K computer.

Japanese produced TRS 80 Model one.....

I have not completed my full wiring instructions for this type of computer, however if anyone wishes to fit one of my mods., then I will give you my full support to overcome any problems as soon as possible.

NOTE ### Fitting of the 64K chips into this board is a little more difficult, as you must remove the existings soldered in 4116 rams, and install sockets for your new chips.

DONMON 1.77MHZ and 2.66MHZ.....

I will again point out that DONMON is not a speed up kit. It simply controls the settings and clearing of data bit zero, port 254. Additional chips need to be either piggybacked, or built up on a small matrix board to make full use of this command. A circuit is available upon request, with any DONMON order.

A speed of 3.54MHZ can be achieved using this circuit, in conjunction with my 48K memory mod., 200ns chips, and a Z80A. Z80A's and Z80B's are pin for pin compatible with Z80's.

WHEN PLACING AN ORDER, PLEASE SPECIFY TYPE OF COMPUTER EG:- TRS-80, SYS-80, TYPE OF BOARD

EG:- SYS-80 BLUE LABEL WITH 2114 VIDEO RAM CHIPS, TRS-80 JAPANESE BOARD, TYPE OF ROM SET

EG:- TRS-80 2 CHIP SET, 3 CHIP SET, TYPE OF EPROM REQUIRED EG:- GENDON3 STANDARD, DASH, JACKGEN.

THIS WILL SAVE BOTH YOU AND ME TIME AND MONEY EXCHANGING PARTS. I SPEAK TO MANY PEOPLE ON THE PHONE ABOUT A LARGE VARIETY OF MODS. I CAN'T REMEMBER EVERYTHING SAID, SO PLEASE PUT IT DOWN IN WRITING WITH YOUR ORDER, AS A REMINDER TO ME.

CUSTOMER FEEDBACK.....

I need customer feedback on wiring instructions in order to overcome any fitting problems. I don't want people throwing chips aside, and saying "No wonder it didn't work, it was too cheap!". All of my circuits do work, but it can be hard to keep up with all the variables that have been introduced due to new version P.C. boards. This after all, is the main reason that this "NOTES AND ERRATA" article was written.

DONMON VERSION 2.3 ## Released 1 March 1983(C)

The following offer is for legitimate owners of previous versions DONMON:-

Send \$6 for the DONMON 2.3 rom. If you call in for a chat, with your DONMON in your hand, make that \$5. I will then post you the DONMON 2.3 rom. Your Jump rom doesn't need to be changed. When you are satisfied with the changeover, post your old DONMON rom back to me. If you purchased your DONMON from an authorized modifier, please state modifiers name, and purchase date.

What extra features does DONMON 2.3 offer?

Shift Z :- Zero all ram from 4000 to FFFF hex.

Shift F :- Set all ram to FF, from 4000 to FFFF hex.

In the Hex mode :-

Enter/Newline increments the display rounded off to 1000 hex bytes. eg:- A000, ENTER, B000, ENTER, C000, etc. Any other key decrements the display rounded off to 1000 hex bytes. eg:- A000, SPACE-BAR, 9000, SPACE-BAR, 8000, SPACE-BAR, 7000, etc. All other Hex commands remain the same.

J :- Jump to 3900 hex. This is my 3900 rom decoded area for custom programs. By using one switch and one resistor, this map can be doubled to 600 hex bytes, in two groups of 300 hex bytes.

Punch Command :- Now has 1 to 6 alpha-numeric digit input for user definable filename. ENTER/NEWLINE will default filename to DONMON, the same as previous versions.

Several minor DONBUGS(C) have also been removed in Version 2.3

These include a clean up of the Edit Command, and the removal of "THE CURSE OF THE DONMON CURSOR".

The DONMON cursor had an annoying habit of upsetting some screen displays under certain conditions. This was due to the interaction of the DONMON keyboard driver and the cursor on/off flag at location 4822H.

OVERSEAS ORDERS . . .

ADDITIONAL OVERSEAS RATES. (AUSTRALIAN DOLLARS.)

ZONE ONE.	EG:- NEW ZEALAND, PAPUA NEW GUINEA	ADD \$2.60
ZONE TWO.	EG:- INDONESIA, MALAYSIA	ADD \$2.95
ZONE THREE	EG:- INDIA, JAPAN	ADD \$3.35
ZONE FOUR	EG:- U.S.A., CANADA	ADD \$4.10
ZONE FIVE	EG:- U.K., EUROPE	ADD \$4.35

Add up the cost of the items you wish to order in Australian Dollars, then add the ADDITIONAL OVERSEAS RATE for your country. This covers return Air Mail, foreign currency exchange, and stamp duty. As all mail contains my catalogue, and other bits of information, you will find that it becomes a rather bulky package.

With the aid of your local bank, convert the total cost in Australian Dollars to local currency, then send a bank cheque for that amount, payable to DON MCKENZIE.

All orders received, I will turnaround within 48 hours. A person sending an Air Mail order from U.S.A. will find that the total turnaround time should be approx. 3 weeks. (depends on the efficiency of your local postal service.)

The only delay that I can introduce is in the problem area of printed circuit boards. Most boards, I have in stock. If I have a run on a particular board, and am out of stock, then a 2 week delay could be expected. I am afraid that I can't order boards in large quantities to gain the benefits of very cheap prices, and stock at all times.

CUSTOM DUTY becomes your problem. All items are marked "PRINTED MATTER ONLY AND COMPUTER PART(S).

Past experience indicates that the duty on these types of items is either very small, or NO DUTY PAYABLE.

SYDTRUG NEWS

december 1982 / january 1983

A HIGH QUALITY CHARACTER SET by Michael Cooper

474 Bourke St, SURRY HILLS N.S.W. 2010

Most high quality video terminals use a three line descender in their character sets to improve the readability and help to avoid some smear. The main obstacle to a three line descender in the TRS-80 or SYSTEM-80 is the video output section because the hardware blanks this row from the display. However, a hobbyist from Melbourne has worked out how to modify the video output to allow for a three line descender. For only \$12-90, Don McKenzie will supply a 2716 EPROM with the character set burnt in and instructions on how to fit it. I sent away my cheque, and four days later my GENDON 3 chip arrived. The instructions consist of 2 pages, the first one dealing with the addition of the extra memory chip to enable bit 6 of video RAM, the second covers the modifications to the video output section for either the Model 1 or SYSTEM 80.

Those of you who may have installed the early lowercase conversions for the TRS-80 display will be well aware of the limitations in the lowercase set. The character generator chip used, whilst perfectly adequate for the standard uppercase display, revealed a number of faults in the remainder of the character set. Firstly, there was the weird assortment of symbols occupying ASCII codes 0 to 31, then there was the infamous raised "a", and lastly there was the lack of descenders on the lowercase characters "g,j,p,q,r". To overcome these limitations a number of conversion kits appeared on the market, all containing a replacement character generator. These kits were little more than a switch, one \$2.50 memory chip and the character generator. Tandy themselves changed to a new type of character generator, which had single line descenders. This was available as a spare part for something like \$40. This same chip was available in the U.S. from outside suppliers for \$15, however all supplies of this generator soon dried up leaving the Tandy supplied chip as the only direct pin to pin replacement. Soon hobbyists began to program their own EPROM's to contain a suitable character set. These used a two line descender for the "g,j,p,q,r", but because of the design of the video output stage in the Model 1 it was necessary to move the character set dot matrix up by one row. This is the current state of the art, with both Tandy and Dick Smith using this principle.

To achieve a three line descender, Don has needed to redesign the video output to allow for a change from a five by eight dot matrix to a six by twelve. This is accomplished by isolating Z10 pin 14 and cutting the trace from Z27 pin 11 to Z26 pin 12. Z26 pin 12 is then bridged to Z26 pin 13, and the isolated Z10 pin 14 and Z12 pin 11 are connected to the new character generator EPROM. Well, that all looked simple enough in theory, but how would I do in practice. The first problem was removing the original character generator chip, which Tandy had thoughtfully soldered to the board. Out came the old solder sucker, and soon I had a bunch of 18 empty holes on the main logic board. I then mounted a 24 pin socket on a small piece of matrix board and soldered a wire to each pin except 16,17,18,20 & 21. Pins 18 & 20 were both bridged to pin 12 (GND), and pin 21 was bridged to pin 24 (+5V). I then attached the matrix board to the main logic board, just below the two filter capacitors, using some double sided tape. The rest was easy, soldering each wire to one of the empty holes left by the old character generator chip, with the exception of pin 5 which goes to Z12 pin 11 and pin 15 which goes to Z10 pin 14. The whole job took about an hour to complete.

The end result has left me with a pleasant and much cleaner video display at an all up price of \$16. The shape of the character set is better because of the greater matrix used, my only reservation being the underline character which Don has substituted with a small graphic block. This looks great in Level 2, but some users may prefer the original character as it is used to display input field lengths in some software. I am going to approach Don to see if this can be changed. If you are handy with a soldering iron and wish to improve the quality of your character set then I feel the GENDON 3 modification is the best available, despite the cheap price. Interested members can write to Don McKenzie at 29 Ellesmere Crescent, Tullamarine 3043 or phone him after hours on (03) 338 6286

"SYDTRUG" USERS GROUP IS SITUATED AT:-
1120 Borang Rd Borang N.S.W. 2019
Of course, I burnt Michael a special GENDON 3 DASH
Version.

DONMON

Don McKENZIE
29 Ellesmere Cres.,
Tullamarine 3043.
Phone (03) 338 6286
(AFTER HOURS)

As I am only interested in writing software, I am not installing any of my mods., but I am making up a list of people who are prepared to carry out this work. I will however give all assistance with any misunderstanding of wiring instructions.

I am a bit short on modifiers.

If you are interested in fitting GENDON 3 or DONMON at my recommended installed price, and are capable of fixing any fault that you may introduce whilst fitting one of my mods., please write to me, (or ring) giving a broad outline of your work experience in this area. I will only consider persons I feel are fully qualified either as hardware hobbyists or technicians.

As I am not prepared to let any customer down, my list of authorized modifiers will be amended as necessary.

PAGE 1

DON'S AUTHORIZED MODIFIERS.

<u>NAME</u>	<u>ADDRESS</u>	<u>PHONE</u>	<u>COMPANY</u>
BARRINGTON RAY	17 GORDON ST BEGA 2550	0649 22267	SOU/EAST COMPUTER SERVICE
COOPER MICHAEL	474 BOURKE ST SURRY HILLS 2810	NONE	CONTACT SYDTRUG USERS GROUP 1120 BOTANY RD BOTANY
GULOVSEN NICK	14 SUTHERLAND ST GLENROY 3846	03 3593559	
MCALLISTER ROB	24 JACANA AVE LOWER TEMPLESTONE 3107	03 8585229	
MCHINN STUART	16 CROWLEY CRT PASCOE VALE 3844	03 3863464	
NIELSEN C.	PO BOX 68 ASPLEY QUEENSLAND 4034	07 2698573	COMPUTER CLINIC
PAKENHAM KEITH	20 NICHOLAS ST KEYSBOROUGH 3173	03 7986162	
RICH PETER	5 ARGYLE AVE RYDE 2112	02 885493	
ROSS JOHN	12 LINDLEY RD GREENACRES 5886	08 2618689	SMALL COMPUTER SERVICE
STRONACH EWART	119 ALT ST ASHFIELD NSW 2131	02 7979673	
WESTERN JOHN	81 GILES AVE PADDURY WA 6025	09 4812733	J.&T. COMPUTER SERVICES