



NEWS DIGEST

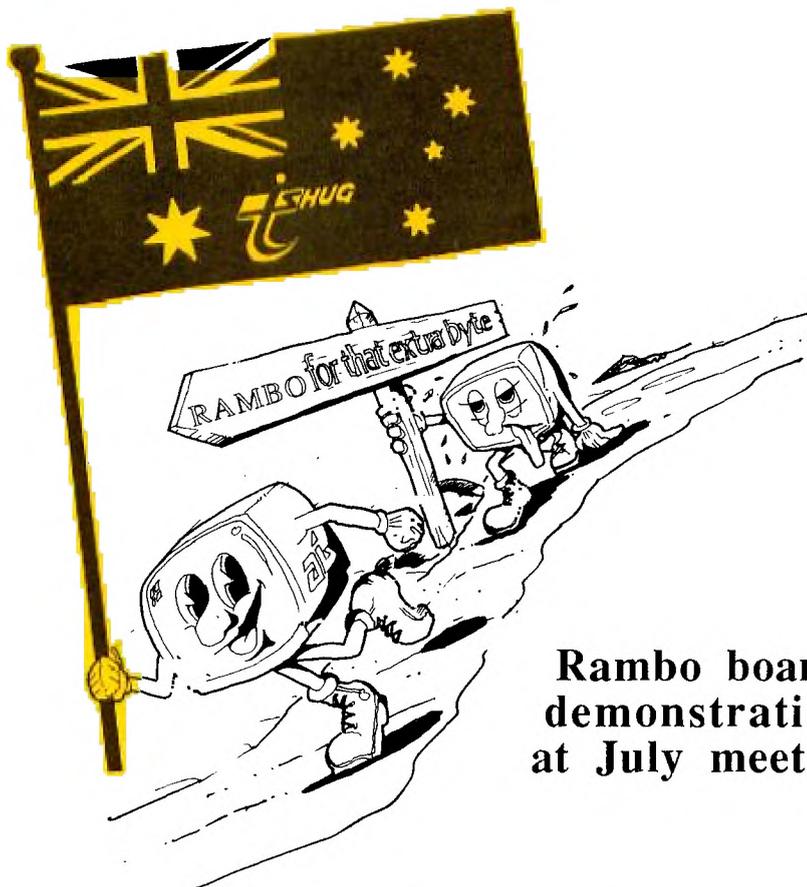
Focusing on the TI99/4A Home Computer

Volume 9, Number 6

July, 1990

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Finding computing an uphill battle?



Rambo board
demonstration
at July meeting

Let TiSHUG make it a downhill run

P.O. Box 214, Redfern, New South Wales, Australia, 2016

\$3

Warning: Reading the TND may be addictive

TIshUG (Australia) Ltd.

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TIshUG News Digest

July 1990

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Membership and Subscriptions

Annual Family Dues \$30.00

Overseas Airmail Dues A\$60.00

TIshUG Sydney Meeting

The next meeting will start at 2.00 pm on 7th of July at Ryde Infant School, Tucker Street, Ryde.

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TIshUG Fairware Author of the Month

The Fairware Author for this month is Jim Peterson for all his Tips from the Tigercub. The shop has disks of all his software and disks of his public domain programs for sale. All Donations collected at the meeting and sent in will be mailed to him.

Editor's Comment

by Bob Relyea

I have the advantage of reading the reports and articles about a month before everybody else and I agree with Dick in his assessment of our computer in comparison with the others on the market today. Most people who buy these sophisticated computers do not have the foggiest idea as to how to use even the tiniest portion of what it is capable of. We have not come to the end of our computer yet so why bother with another? Every year I set goals (within the limits of my budget) for expanding my TI. This year I will be happy if I get my ramdisk fully configured with 512K as it is presently at 256K. On top of this I want to get a few Eproms burned with my favourite utilities on them. Then there are a few pieces of juicy software coming out that I like the looks of, such as The Missing Link. Then, next year - a high resolution monitor with 80 column card? The more I learn about the TI the better I like it. I am looking forward to the up-and-coming meetings and what they promise. How about getting more involved in a regional meeting this year? See you at the July main meeting. o

Co-ordinator's Report

by Dick Warburton

Recently I was talking with Ben Takash, and we reminisced about the early days with the TI. Ben tells me that he initially bought a computer to reduce the burden of sending out 900 letters to members of an association. He devised his own data base, in basic, for 900 entries, and proceeded to load it on to tape. Each tape took at least half an hour to load, and there were at least six of them with 150 names each. No such luxury as a disk drive for the TI in 1979. Imagine the effort and time taken to both load and save long Basic programs. This set me thinking about how far TI users have come in 10 years. By 1983, peripheral expansion boxes were available, equipped with a primitive disk drive by today's standards. Double sided drives emerged, and soon users could access 180 K on disk. Then the double density card, with half height drives, and a capacity of 360 K. But along came the ramdisk, and the TI took another great leap forward. Where will it end? I do not know how I managed before ramdisks were invented. Now with 60 other members, I have a really attractive colour monitor. Perish the thought of going back to a TV. We can now add a hard disk, use an 80 column card with good resolution, run high capacity drives with a Myarc card, and page in large programs with a RAMBO board. We have digitised pictures, music and speech capability, and loads of interesting software. What more could we want? What would you like to see develop next in the TI world? I intend to build up one of the multifunction cards, in a mini expansion system, and use some of the cheap 3.5 inch drives available through the shop, to develop a more portable computer to take to work. One gets the feeling that we can keep on developing the TI for a considerable time yet. The TI presents a fantastic challenge to us. Let us see what our club can contribute this year.

I think that many other computer owners are swayed by smart advertising to put their money into the latest and most up to date powerful machine available. I suspect that many people buy the newest model simply to keep up with their peers, or to be fashionable. With the present rate of computer development, each new model is obsolete by the time it leaves the shop floor. Naturally, second hand prices after two or three years, fall dramatically. The trendy computer user, can look forward to being perpetually broke, trying to keep up, buying new software, the latest technology at the highest prices, and will also find himself on a merry go round trying to master all the new features. Where I work, we have at least 30 PS2 IBM Systems, however the people who use them almost invariably only know how to use one piece of software. What am I saying? It seems to me that many people are buying computers which cost them a small fortune, and which have far too much sophistication for the average user. With all the technology at work, I find very few people who in reality know anything about the actual computer itself. Many users are totally dependent on commercial software, service and maintenance contracts, and trouble free operation. TI users are different, perhaps just a little mad, but different. Many TI users believe in being independent of commercial interests. TI users can generally afford to do all manner of things because they use slightly outmoded technology. TI club members develop skills that surprise other computer users. How many other clubs develop the range of skills we do. I think that an expanded TI with some of the more recent additions will meet the basic needs for most computer users. I think that most of the machines available, are far too complex and unnecessarily powerful for the majority of users. I think that a TI is a sensible choice for most families, or users, where they want to learn about computers, and enjoy what they do.

Obviously, to get the real benefits of club membership, one must contribute to the club's activities. Those who make the effort, soon acquire a measure of confidence and self reliance. The real enjoyment of living to me seems to lie in being

independent. Do people really enjoy being dependent on others. It seems to me that the successful and happier people I meet, are those who can look after themselves in a wide variety of ways. I suspect that because TI Club members are a little different from the general run of computer users, they are an attractive group of people. I find club membership stimulating and interesting. I am developing skills I never suspected that I had. I can even put transistors on a board the right way round now. If I can learn these skills, any member can.

There are some exciting projects ahead. The project group is now well established at Ryde school on the third Monday night after the meeting. The immediate tasks, are the monitor interface cards, and the multifunction cards. If possible, bring a soldering iron, a few tools, and your board. We will work together to help each other. This group is primarily a work group. We have fun, but it comes from doing things together. If you have a project you want to complete, come along. Who knows where 1990 will lead? What is clear, is that this club has a future because of its activities, and the peculiar nature of its members. There is considerable interest in a "think tank" about our future, and hopefully in June we will have considered some of our future options. As soon as we have a range of ideas, we will put them to the membership, and survey your feelings. This is your club, and it will develop as you want it to.

See you at the next meeting.

Dick Warburton.

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Letter to the Editor

Dear Bob,

As members of TISHUG we all, at times, take for granted the efforts of many of our members who are expending a lot of time and using their skills to the benefit of other members of the group. We all forget to tell other members that we really do appreciate their efforts.

I recently received a colour monitor organised by the efforts of quite a few members, who in co-operation arranged the purchase, developed the monitor interface design and instructions to set up the monitor, organised the kit and instructions for the interface and put it into an easily built form. Even quite a bit of organisation and co-operation was needed to get those massive monitor boxes along to the meeting for the rest of us to pick up.

The kit was easily built, adjustment was simple, the instructions to set up the monitor were good and the results just had to be seen to be believed. I did not realise what I had been missing out on for six and a half years or just how good the TI99/4A graphics really are.

Projects like the colour monitors and the interfaces are just what TISHUG is all about, supporting its members with affordable improvements for our TI99/4A systems which really work. To this end I wish to say thank you to all who were involved in bringing the monitor project to fruition and contributed to the greatly enhanced video output that I am enjoying as I write this letter. I would also like to encourage our Directors to continue to support such projects and the members who put in long and often thankless hours to keep up the good work. I must encourage all members who may be able to assist, even in some small way, with new or improved software and hardware for the TI99/4A, orphaned but certainly not abandoned computer.

Yours Sincerely,
Ross Mudie

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Notice of Special General Meeting

A SPECIAL MEETING for members to consider several amendments to our ARTICLES OF ASSOCIATION will be held on Saturday, 4 August, 1990 at the Ryde Infants School, Tucker Street, Ryde NSW, commencing at 2pm.

Members at the AGM held in February will recollect discussion on a recommendation from our auditor to move our financial year from its current calendar year (1/1 to 31/12) to conform with the usual Australian Financial Year (1/7 to 30/6). To enable changes it will be necessary for a two thirds (2/3) majority of members present at the SPECIAL GENERAL MEETING to be in agreement with the proposed changes as outlined hereunder.

In addition to this important change, a couple of other minor changes are proposed. All such changes proposed are outlined hereunder.

If possible, make sure you are in attendance to vote on these issues.

ARTICLES OF ASSOCIATION HAVE NO RELEVANCE TO THE

Powers and Duties of the Directors.

23(b) To make such By-laws rules or regulations not inconsistent with the Memorandum and Articles of Association of the club as in the opinion of the Board are necessary or desirable for the proper control administration and management of the Club's finances affairs interests effects and property and for the convenience comfort and well being of the members of the Club and to amend or rescind from time to time any such By-laws rules and regulations.

24(a) Any By-law rule or regulation made under these Articles shall come into force and effect upon the posting of an appropriate notice containing such By-law rule or regulation in or on any medium used by the Club to disseminate information to the members of the Club or on the notice board used by the Club.

24(b) The Club in general meeting may revoke and disallow any such By-law rule or regulation provided that the notice convening the meeting states that notice has been received as provided for in clause (c) of this Article and also specifies the By-law rule or regulation objected to.

24(c) Without limiting the rights of members elsewhere in these articles any ten (10) members may at any time give to the Secretary notice in writing signed by them that they object to one or more specified by-law rule or regulation and the Secretary shall then include a statement to that effect on the notice convening the next general meeting.

24(d) Neither the revocation or disallowance by the Club in general meeting of any By-law rule or regulation nor the knowledge that it might take place nor its amendment or rescission shall invalidate any act by the board or by an officer or servant of the club prior to such amendment or rescission.

General Meetings:

26 The Annual General Meeting of the Club shall be held if practicable in the month of February in each and every year at such time and place as may be prescribed by the Club in general meeting or in default at such time and place as may be determined by the Board provided always that an Annual General Meeting shall be held at least once in every year.

Proceedings at General Meetings:

32 The business of the Annual General Meeting shall

be to receive and consider the report of the Board the income and expenditure account the balance sheet and the report of the auditor(s) for the Returning Officer to declare the ballot of the annual election of Directors and to elect auditor or auditors and to fix the remuneration payable to such auditor(s) and to transact any other business which under these Articles is to be transacted at an Annual General Meeting and all business transacted at an Extraordinary General Meeting or Special Meeting shall be deemed special business.

Finances and Financial Year:

49(a) The financial year of the Club shall commence on the first day of January and end on the last day of December in each and every year.

Accounts and Audit:

52(a) The Board shall comply with the provisions of section 270 of the Code and once in every year cause to be prepared a balance sheet as at the end of the Club's financial year and an income and expenditure account made up to the end of the financial year which balance sheet and income and expenditure account shall together with the report of the Board and the auditor's report be laid before the Annual General Meeting of the Club as provided for in Article 31 of these Articles.

Alteration of Articles:

57(a) Subject to the Code, these Articles may by special resolution at an Annual General Meeting or a Special Meeting called for that purpose be amended or added to.

57(b) A special resolution altering or adding to the Articles of the Club shall not have any force or effect unless the alteration or addition is passed by a two thirds (2/3) majority of those members present and voting at the meeting where the special resolution is made.

Co-ordinating Committee:

62(h) At all meetings of the Board a quorum of two thirds (2/3) of the members of the Board shall be required to be in attendance to constitute a valid meeting of the board and conduct the business of the Club.

PROPOSED CHANGES TO THE ARTICLES OF ASSOCIATION:

26 The Annual General Meeting of the Club shall be held, if practicable, in the month of DECEMBER in each and every year, at such time and place as may be prescribed by the Club in general meeting, or in default, at such time and place as may be determined by the Board, provided always that an Annual General Meeting shall be held at least once in every year.

COMMENT: The proposed change, allows the AGM to be held in December, in lieu of February, in each and every year.

49(a) The financial year of the Club shall commence on the first day of JULY and end on the last day of JUNE in each and every year.

COMMENT: The proposed change will bring the Club into line with the standard Australian financial year.

52(a) The Board shall comply with the provisions of section 270 of the Code and once in every year cause to be prepared a balance sheet as at the end of the Club's financial year and an income and expenditure account made up to the end of the CLUB'S financial year; which balance sheet and income and expenditure account shall, together with the report of the Board and the auditor's report, be laid before the Annual General Meeting of the Club, as provided for in Article 32 of these Articles.

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Secretary's Notebook

by Terry Phillips

Our first Winter meeting of 1990 was very well attended with upward of 70 members and visitors in attendance. All were treated to various demonstrations and as usual, the shop and the technical corner were kept busy during the afternoon. Was it the lure of the availability of the bargain colour monitors that resulted in such a good turn out?

Meetings for the next four months have now been planned and a brief rundown on what will happen at each is given here:

July - demonstration of V3 of TI-BASE, revival of the G... room for the younger members, demonstration of the RAMBO board and hopefully, a programming clinic conducted by Tony Imbruglia.

August - the special meeting to consider proposed changes to the Articles of Association plus demonstration of Funnelweb 4.3 with 80 column card configuration and demonstration of the faster RAG version of Multiplan.

September - another super BUY SWAP SELL day which seem to be so popular with members.

October - full day workshop tutorials with themes yet to be fully defined.

Our membership is looking a little healthier, however there are still 52 memberships that have expired and not yet been renewed. Reminders have been mailed to country and Interstate members concerned, while Dick Warburton and I are contacting the remainder, who live in the Sydney metropolitan area, by telephone. Hopefully there should be some good news in this department next month. If you know someone who has not yet renewed, why not have a quiet word with them.

All members should be in receipt of a membership card upon which they can write their name and signature. As from the July meeting it would be helpful if members could wear their card so that other members may readily identify them. This should tend to make the meetings that much more friendlier.

Also from the July meeting onwards you will find a container in the coffee room in which we ask you to place a small contribution (assuming you avail of the juice, coffee and biscuits). This will help to defray the cost of providing these items as it adds to a considerable sum over a 12 month period.

Finally, there are 2 new members to give a big welcome to. They are:

Peter Mullins of Carlingford who joined the club at the June meeting after recently moving to Sydney from Melbourne, and,

Mrs Bev Fraser from Port Macquarie who has only just acquired a basic TI system but hopes to expand it within the next 12 months.

That is it for this month. Hope to see as many as possible at the July meeting. ◦

For Sale

Craig Sheehan has a complete system to sell, including a peripheral expansion box, ramdisks, and DS/DD disk drive. Craig is in Melbourne, and has asked me to act for him. If you are interested, give me a ring on 9188132.

Dick Warburton

The Communicators

TISHUG, TO BE EFFECTIVE, NEEDS THE PARTICIPATION OF MANY OF ITS MEMBERS.

SUB-EDITORS who can contribute a NEWS type file to the BBS on a monthly basis are now needed, are YOU willing to give it a go?

The files would hopefully provide information to help other users with aspects of computing with the TI99/4A or the Geneve computers in the areas of a particular language or application programs.

A SUB-EDITOR could provide answers to members questions and the resultant files could be used where applicable in the TND magazine to the benefit of all members.

This is capable of providing a far greater creative challenge than just uploading or downloading programs and will allow a greater number of users to participate in providing the material in the NEWS menu of the BBS.

SUB-EDITORS will be provided with an extra user name which will be the name of their file, eg, LOGO, ASSEMBLER, LINKING, BASIC, X/BASIC, FORTH, PASCAL, RAM DISK, PICASSO, c99, PILOT, GENEVE, TI WRITER. If there is a subject that you would like to do, if it is in my suggestions or not, why not let me know.

SUB-EDITORS can upload or delete their files directly to the NEWS menu without SYSOP intervention using the same techniques as mail, ie, by typing in from a terminal or by sending a file with SENDMAIL. Other users can send mail for questions, ideas etc to the file name used in the NEWS menu.

Are you interested?

Do you have a subject that you would like to see handled by a SUB-EDITOR?

Would YOU be willing to take on a position as a SUB-EDITOR?.

Please advise SYSOP by system mail or see me personally at a meeting.

Ross Mudie...SYSOP, 3rd June 1990. ◦

For Sale

Console
Power Supply & UHF Modulator
Cassette Interface Cable
TI Joysticks
Extended Basic module
4 games modules, including
Invaders and Parsec. All
modules complete with manuals.
All for just \$100
(Several consoles available for sale)
Contact Bob Bunbury:
phone: Work 600 4503
Home 601 8521
BBS: Name BOBAJOB
Number 40

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5) It is a buffered card for extra reliability and compatibility with other commercial PE boards. Also the Ports use TI standard Connectors.

6) All these functions can be provided on one card to save space in your PE box, and keep cost to a minimum. ◦

TISHUG Shop with Percy Harrison

Firstly, I would like to thank all those club members who so patiently waited for the arrival of the coloured Monitors and Monitor Interface Kit. By now most of you will already have received your Monitor and Interface Kit as they were available at the June meeting. Unfortunately there will be no more Monitors available through the club as we have exhausted our supply but anyone still requiring the Monitor Interface Kit should place their order with me as soon as possible so that we know how many more to make up. The price of the Kit is \$25.00.

I note that the Monitors were supplied without any cables and it would appear that we are unable to get them from the supplier. The power cable minus the standard three pin wall plug is available from the shop at \$1.00 but unfortunately you will have to source your own components for the Monitor to Interface and Interface to Console cables.

We have also made up a further batch of MFC Kits for those members who still intend to add a Disk Drive to their System but have not yet taken the plunge. The MFC Board also makes provision for additional electronic components to provide you with 32K Memory expansion and/or PIO Interface and/or RS232 Serial Interface all at a very reasonable price. Please see me for your requirements.

Members who have purchased any of the club Kits and require assistance to assemble them and get them operating are reminded that there is a small group who meet every third monday each month at Top Ryde Infants School at 7.00pm and you are welcome to come with your Kits and we will help you put them together.

Where are all those country members? I would have thought that with Disk Programs now reduced to \$2.00 a Disk the shop would be flooded with mail orders. In the last two months we have only received two - a good indication that we are not getting any worthwhile support from members who are not able to get to our meetings. To keep the club viable I again stress that we need to patronise the shop so why not try a few of our club Disks just to see how good most of the programs being offered are. Can it be that your computers are not being put to good use? Dust off the cobwebs and invest in some of our educational, music, games, utilities and word processing software Disks. What other club offers its members such a good range of programs at this low price?

A Selection of Items Available from the Shop

| | |
|------------------------------------|----------|
| Club Software Program Disks----- | \$2.00 |
| (See TND "Software Column") | |
| 5.25 in. SSDD Disks-Box of 10----- | \$6.50 |
| (will format to DSDD) | |
| 5.25 in. HD Disks-Box of 10----- | \$16.00 |
| 3.5 in. DSDD Disks-Box of 10----- | \$15.00 |
| 3.5 in. Drives SSDD----- | \$20.00 |
| Horizon Ramdisk EProms----- | \$20.00 |
| Multifunction PC Board----- | \$30.00 |
| Multifunction Dsk Controller Kit | \$102.50 |
| Two-way Interface PC Board----- | \$23.00 |
| TI Artist Plus SSSD----- | \$25.00 |
| TI Sort V1.0 SSSD----- | \$15.00 |
| Display Master----- | \$15.00 |
| Monitor Interface Kits----- | \$25.00 |
| Music Kits including PC Board----- | \$65.00 |
| 13V Arlec Transformers----- | \$12.00 |
| 66VA Transformers----- | \$20.00 |
| Adventure Hints Booklet----- | \$2.00 |
| Pro-Mod Booklet----- | \$1.00 |
| TI Writer for Novices----- | \$1.00 |

| | |
|--------------------------------|--------|
| Packaging and Postage Charges: | |
| Up to 2 Disks----- | \$1.60 |
| Over 2 up to 5 Disks----- | \$2.10 |
| Over 5 up to 12 Disks----- | \$3.00 |

Having trouble with your TI Console? We now have an exchange service being operated by the shop whereby you can return your "DEAD" Console and for a fee of \$30.00 we will replace it with a working unit with a 12 month guarantee. It could cost you considerably more to get your own unit repaired, that is, if you can get the necessary parts.

That is all for this month folks. Hope you give some serious thought to supporting your club so as to keep it No.1 in the country. ○

Symphony

from Crusader Electronics

Is this you? Have you lost sight of the purpose of life?? (With apology to Work Study Consultants and Accountants).

A Company Chairman was given a ticket for a performance of Schubert's Unfinished Symphony. Being unable to go, he passed the invitation to the Company's Work Study Consultant. The next morning the Chairman asked him how he enjoyed it and, instead of a few plausible observations, he was handed a memorandum which read as follows:

a. For considerable periods, the oboe players had nothing to do. The number should be reduced, and their work spread over the whole orchestra, thus eliminating peaks of inactivity.

b. All twelve violins were playing identical notes. This seems unnecessary duplication and the staff of this section should be drastically cut. If a large volume of sound is really required, this could be obtained through the use of an amplifier.

c. Much effort was absorbed in the playing of demisemiquavers. This seems an excessive refinement, and it is recommended that all notes should be rounded up to the nearest semiquaver. If this were done, it should be possible to use trainees and low grade operators.

d. No useful purpose is served by repeating with horns the passage that has already been handled by the strings. If all such redundant passages were eliminated, the concert could be reduced from two hours to twenty minutes.

In the light of the above, one can only conclude that had Schubert given attention to these matters, he would probably have had time to finish his Symphony.

A work study of similar symphonies according to these suggestions would permit various concerts each evening. Each second concert hall in the same town would thus be free for other purposes. The resultant energy saving would be an important secondary effect. ○

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COMMENT: The proposed change includes reference to the CLUB'S financial year and the AGM as provided for in Article 32 not Article 31.

62(h) At all meetings of the Board, a quorum of FOUR-FIFTHS (4/5) of the members of the Board shall be required to be in attendance to constitute a valid meeting of the board and conduct the business of the Club.

COMMENT: The current article requires two-thirds (2/3) of members of the Board to be in attendance. As there are five (5) members of the Board, this has been re-worded to reflect that number. ○

TISHUG Software

Column by Rolf Schreiber

I have not yet finished cataloguing all of the new disks that I have received since the beginning of May this year, but they number about 59. Not all the software contained thereon is new to the library, insofar that some of the programs are already available on other library disks, but a significant proportion of this software is "new" and will be made available to members as quickly as possible.

Prior to the June meeting I received about 25 SSSD disks, comprising mainly module-based games, from Mark Nielson, who had just returned from a business trip to the USA. While he was over there he made contact with both the Boston Computer Society and the Chicago Area TI Users Group. As a result of that initial contact I am hopeful that some sort of liaison will be established with both these groups, to our mutual benefit.

At the June meeting I received a total of 35 disks of software for the library. Terry handed me 17 disks that had just arrived from the publishers of Micropendium. Among those disks were two sets of software (each comprising 6 disks), containing all the programs published in Micropendium during the period from April 1988 to March 1990, as well as an index to Micropendium for the period 1984-1989 (two disks). These disks available to members of TISHUG who are subscribers, or used to be subscribers, to Micropendium. If you are interested in any of this software, please direct your enquiries to me personally at any meeting, or else contact me by phone or in writing. My address is:

6 The Parkway
Balgownie, N.S.W. 2519

Also, just arrived from Canada together with the RAMBO board, which will be demonstrated at the July meeting, was an upgrade to the Horizon Ramdisk Operating System. Garry Bowser, the person behind the RAMBO project, describes it as Series 8 software. The version which we received was ROS Version 8.14, dated 1st May 1990, and included modified CONFIG and MENU files. According to the accompanying documentation, the Series 8 software has been designed to operate with a RAMBO-modified Ramdisk, but is also compatible with any standard Ramdisk of any size. However, this new ROS is NOT compatible with any previous versions, and no mix and match is allowed. The Series 8 software will also be demonstrated at the July meeting.

In addition to all this, Tony McGovern, who had come down from Newcastle to collect his colour monitors, gave me 12 disks containing some very interesting software. Included was a copy of the official release of Funnelweb V4.30. TISHUG is the FIRST user group, outside of the HV99's, to receive this latest version from Funnelweb Farm. The major changes have been to the 80 column version of FWB, which now allows the option to load either Diskreview, the FWB menu, or the User List menu on initial boot-up. As well I received the latest upgrade to the Multiplan system files, which R.A. Green from Canada (author of TI-Writer V4.5) has modified to make Multiplan run significantly faster.

Included with the disks from Tony was the latest version of the Myarc HFDC disk manager, MDMS V1.30. The major change over the previous version seems to be an improved hard disk backup feature. You can now backup your hard disk to DSDD, (Ben, please take note!) if your drive(s) is/are capable of DSDD, instead of being restricted to SSSD, no matter what your drive(s) were capable of.

Some of the other disks contained UCSD Pascal, at my request, since I am very interested in this alternative language (and operating system) for the TI. However, a small problem exists with this software. It originated from Sweden, I believe, and all the documentation is in Swedish. So, if any TISHUG member is able to translate from Swedish into English, I would love to hear from you!

Last, but by no means least, was a disk that I received from Tony Imbruglio. Tony, as some of you may recall, wrote some great software for TISHUG before he disappeared from the scene. He has only recently

established contact again, and if his latest programming effort is any indication, has lost none of his skill in writing great software. Since Tony is one of the few TISHUGgers who seem to do any programming at all, it is an event worth commenting on. Let Tony's effort be an inspiration to other TISHUG members to create some more great software that we, as a group, can all be proud of. The piece of software in question is called APL (no, not another programming language), which is an acronym for 'Assembly Program Loader'. The APL software package provides a quick way to run assembly memory image files (E/A option 5 files) out of the Extended Basic environment through the use of a loader which anyone can customize to their particular requirements.

Another article in this month's TND is the Disk Library News from the TIMMES (UK) library, contributed by Stephen Shaw. Many of the programs that Stephen reviews so eloquently are also available in our library, but under a different name or ID number. If any of his software interests you, get in touch with me, and I will try to obtain what you are after.

Disk Library Releases for July.

A374 HCM Vol 4 No. 5 and A379, HCM Vol 5 No. 5, with all the programs from those volumes of Home Computer Magazine.

FWB Version 4.30, both 40 column version and the 80 column version.

ROS, Version 8.14

THORN-EMI Arcade Series, comprising River Rescue, Submarine Commander and Computer War.

Myarc HFDC Disk Manager MDMS Version 1.30

APL by Tony Imbruglio, TISHUG.

Multiplan Upgrade by R.A. Green.

Treasurer's Report

by Geoff Trott

As we approach the end of the financial year (we are going to propose that the financial year should end at the end of June so that the books only need to be done once for taxation and company's audit), we are in a stable position. We have a good inventory of goods in the shop and a healthy bank balance. You all seem to be finding things worth buying in the shop and the membership numbers are not decreasing too fast. We may have to be selective about what we print and make sure that the number of pages does not exceed the budget. It looks good for the next year.

| | |
|--------------------------------------|------------------|
| Current assets at 30/04/90 | \$6686.98 |
| Add deposits in May | <u>\$1896.10</u> |
| | \$8583.08 |
| Less expenses in May | <u>\$2826.37</u> |
| Current assets at 31/05/90 | \$5956.71 |
| Add deposits in June | <u>\$1662.70</u> |
| | \$7619.41 |
| Less expenses in June | <u>\$487.93</u> |
| Estimated current assets at 14/06/90 | \$7131.48 o |

continued from page 22

```

570 PRINT "HERE IS A SAMPLE QUIZ PROGRAM USING THE
IF-THEN-ELSE STATEMENT."
580 PRINT
590 PRINT "10 CALL CLEAR"
600 PRINT "20 PRINT""WHAT IS 1+1?""
610 PRINT "30 INPUT A"
620 PRINT "40 IF A=2 THEN 70 ELSE 50"
630 PRINT "50 PRINT""SORRY, YOU ARE WRONG.""
640 PRINT "60 END"
650 PRINT "70 PRINT""YOU ARE RIGHT""
660 PRINT "80 END"
670 PRINT
680 PRINT
690 PRINT "OF COURSE YOU MAY WISH TO IMPROVE WORDING
AND LAYOUT."
700 PRINT
710 PRINT "MAYBE YOU MAY WISH TO WRITE A SIMILAR PROGRAM
LATER."
720 END

```

Techo Time

by Lou Amadio

The June meeting at Ryde Public School could only be described as a roaring success. This was only the second meeting that I have been able to attend this year due to other commitments. Hardware discussions and problems were very topical, particularly since a number of members are currently involved in building their own hardware devices. The club is very active this way and this saves the members a lot of money as well as giving them the satisfaction of doing it themselves. The main projects at this time are the MFC and the monitor RGB interface.

By the way, I am sure that many members will want to thank Bob Keast for the trouble that he has gone through to obtain the colour monitors and to Rolf for arranging final delivery to the customers.

Stop Press: Another order for RGB monitors is being taken. Contact Rolf Schreiber 042-842980.

Errata: RGB Interface

Eric Ockenden has found a better solution to the rolling horizontal lines seen on some interface systems. The modification consists of a preregulator for the interface. The following contribution from Eric outlines his method of reducing the hum bars which are evident on some systems in conjunction with the Wang colour monitor. Note that three slightly different solutions to the same problem are presented. The one that you should use will depend on which transformer or plugpak that you own. Eric has his favourite circuit as you will see.

Errata: AT Multifunction card

There is still a wrong component value on the published component overlay. It is a capacitor between the 74LS122 and the 74ALS245 which is marked as a .1uF and should be a .01uF.

RAMBO Board

The club has taken delivery of a RAMBO board from Canada. The board has recently been installed on a RAMdisk. Basically what it does is allow partitioning of memory on the RAMdisk between disk space and CPU RAM. This meant that the "32K barrier" has effectively been overcome. Rolf will have more to say on this subject at a later date.

Zeno PCB

The club has purchased a Zeno "Internal Board", from the States. This board is mounted inside a standard console and provides the space to add 32K memory expansion, Extended BASIC, the Speech Synthesiser, time of day clock as well as a number of discrete GROM chips such as Editor Assembler and Disk Manager II, etc. I intend to assemble as many options on the board as possible and show it at one of the meetings. One of the main advantages will be the elimination of lockups caused by worn GROM port contacts with the Extended BASIC module.

80 Column Card

A number of members have expressed interest in an 80 column card. (Approximately 70 colour monitors have been purchased by club members.) Those that I spoke to at the June meeting all preferred a PEB version of the card. Remember that, for those without a PEB, the card should also work with the I/O interface project published late last year in the TND. A very rough cost estimate would be about \$150 for a kit. Bear in mind that we need to produce at least 20 kits to make this project worthwhile. If you are interested, please let me know as soon as possible.

RGB Interface Power Supply

by Eric Ockenden

Those enterprising persons who have embarked upon the task of putting together the interface unit required to provide the correct signals from the TI99/4A console to the Wang colour monitor may find that when they finally get a good image on the screen it is marred by broad darker bands with soft edges slowly moving down the screen.

These bands are caused by the interference effects produced by the mixing of the small ripple voltage getting through the power supply filter and the field scanning frequency. The fact that they move so slowly down the screen means that the two frequencies involved are very nearly the same, but not quite (50Hz).

The strength of tone of these bands relative to the main screen depends on the amplitude of the ripple voltage. It seems that the screen image is extremely sensitive to this ripple interference. A scope measurement showed that only a few millivolts of ripple produces an unacceptable pattern.

Normally one would expect that the 1000uf/25v filter capacitor across the +12v bus would be enough to smooth the supply adequately, for other purposes this would be so, but in this case it is not. The steady current of this unit with a video signal only (no audio) being processed is approximately 100ma. This figure varies according to the volume of audio output, with peaks approaching 200ma. Therefore the amplitude of the audio tends to modulate the strength of the bars due to the poor regulation of the power supply.

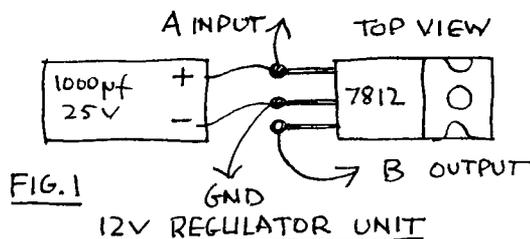
The seriousness of the effect will depend greatly on the type and quality of the plug pack or transformer used to power the unit. Most ordinary DC plug packs have very poor regulation with exaggerated current specifications. Using a discrete transformer of 2amp rating produced some banding when used without a regulator even when the 1000uf cap was increased to 3300uf.

The solution to this filtering problem is based on the use of an adequate transformer or plug pack. For safety reasons the inexperienced constructor would be advised to use a plug pack so that handling the mains connections to the transformer would be avoided, but for those who would prefer to use the transformer (which would be mounted inside the case of the unit) have the mains connections checked before plugging into a power outlet.

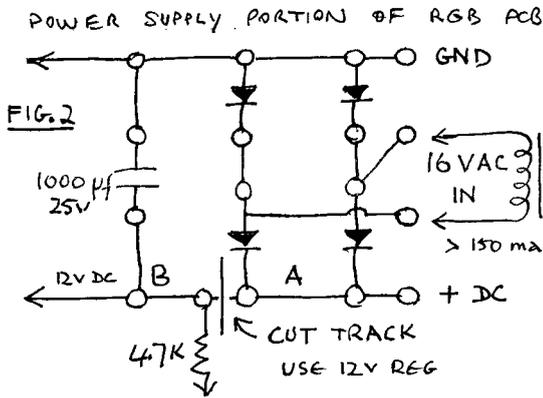
Checking the current suppliers' catalogues, only one suitable plug pack is available. Dick Smith's catalogue no. is M-9567 at \$16.95. This gives 16VAC at 900ma. The 900ma is overgenerous, but there is nothing having 16VAC with a lesser rating (300ma).

With this pack the modification is simple and results certain. Two extra components are required.

1. A 7812 voltage regulator TO220 case.
2. A 1000mf/25v electrolytic capacitor.



See Figure 1 as to how to combine these two items into a single unit with 3 leads attached. (INPUT,GND,OUTPUT). There is one change to the PCB. One track to cut. Figure 2 indicates where to make this cut.



Mounting the regulator is not difficult. The metal tab of the 7812 is as one with the centre common pin and can be bolted directly to the metal housing or other convenient location, and is at GND potential. The three leads can then be soldered to the points indicated in Figure 2.

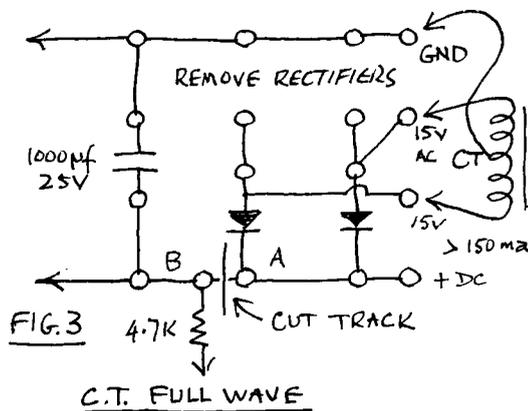
A heat sink is not required as the 7812 is operated at a very low current level.

Voltages less than 15v AC or DC and current ratings less than approximately 300ma will not allow the regulator to keep the ripple to the very low level required. This rules out all of the other advertised plug packs.

A second way to fix the problem is to use a discrete transformer. The smallest transformer suitable for this job is a Dick Smith or JayCar unit DSE 2155 at \$9.95 Catalogue M-2155, rated at 1 amp. with a tapped secondary at 0 to 6.3, 7.5, 8.5, 9.5, 12, 15v. Use the 0 to 15 terminals. This transformer is larger than needed but there is nothing smaller listed.

Note:- 12.6v AC or DC is not suitable to power the 7812.

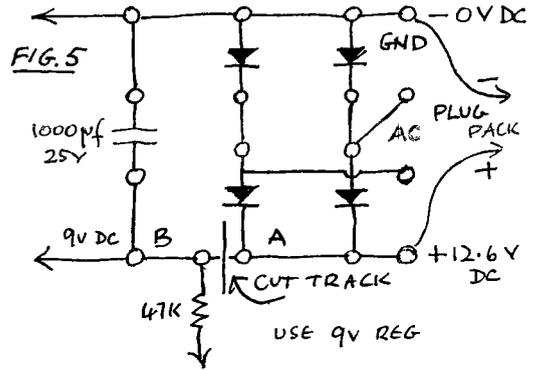
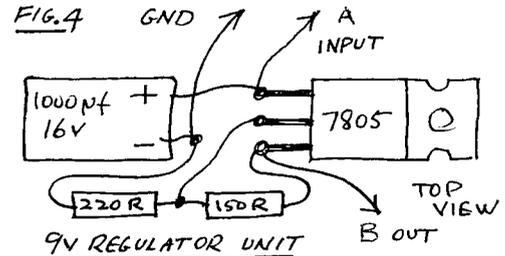
The simplest and most reliable way to go is as outlined above, that is: Use the 16VAC 900ma plug pack with the 7812 regulator. However, for those who might like to explore other approaches the following information is presented.



Jaycar catalogue a small 240vac transformer with suitable ratings, if used according to the full wave centre tapped circuit together with the 12V 7812 regulator. See Figure 3 for details. This transformer gives the required 15VAC input at 150ma and is small enough so that together with the 12v regulator will mount easily inside a suitable box. It is listed at \$8.95 Catalogue MM-2007. Note that the two upper diodes are removed and the centre tap from the transformer is taken to a convenient GND point.

Another approach suggested by Lou Amadio aimed at using the more common 12.6VDC 300ma plug packs by running the interface at 9V regulated DC, and on the assumption that members may already have such packs available. The new price of 12V 300ma packs is around \$15 to \$20 odd dollars, which is more than the 16V 900ma ac pack as recommended above. If you have to purchase a pack, this is not the way for you to go.

There are no 9V positive regulators available so a 7805 in a TO-220 case can be doctored by using two resistors to lift the output to 9V. The input voltage to the regulator must be greater than 12V DC. Details are given in Figure 4.



I have built the RGB Interface and powered it by both the 16VAC plug pack and the full wave centre tap circuit and both gave a bright clean screen. However, I have not been able to check the 9V version in regard to its performance on the screen, but the regulator circuit does output a steady 9V as predicted.

Multi-function Card

Features by Peter Schubert

1) To provide an advanced double density controller more suited to today's modern disk drives and software, developed to run at faster speeds, and including EXTRA CALLS provided by Corcomp and Myarc designs as well as our own enhancements.

2) To provide a source of local RS232 CARDS which have become scarce (many have become faulty and are uneconomical to repair due to use of special IC's), and also to enhance it to meet today's extra needs. Additional commands include VIATEL (PRESTEL) 1200/75 baud, 75/1200, MIDI (31250 baud), RTTY 50 baud, and extra speeds of 50 baud and 19200 baud. The 'PIO' port can also be called PRINT.

3) Memory expansion of 32K eliminates need for separate 32K card in PE box.

4) Only one power supply is required for all functions to work, although the NEG supply is used for RS232. This allows the MULTI-CARD to be used in home-made PE box systems, including the Poormans Disk System featured in earlier TND's.

continued on page 4

Project Round-up

from Lou Amadio

The following hardware projects have appeared in the TND over the past three years. The projects are presented in chronological order. Some were fully built up at the time of the original publication but now may be made available as kits, depending on demand. In some cases the printed circuit board only may be made available, leaving you to source the rest of the components yourself. Photocopies of the original articles will be available only by prior arrangement.

| <u>TND Issue</u> | <u>Project Description</u> | <u>Comments</u> |
|---|--|--|
| Jan 1988 page 25 | Video and Audio Amp for a Monitor | Monochrome video and audio amplifier design. Use with most analogue monitors. |
| Mar 1988 page 5 | Real Time Clock for the TI99/4A | PCB and parts for clock kit mounted inside the Speech Synthesizer box. Article also provides info on other clock card |
| Mar 1988 page 6 Apr 1988 page 3 | AT MultiFunction card | A review of the Peter Schubert MFC currently offered as a kit through club shop. Options include: 1) DD Disk Controller 2) 32K Memory Expansion 3) 2x RS232 Serial Ports 4) PIO Printer Port |
| Feb 1987 page 18 | Interfacing Printers to the TI RS232 card | Both parallel and serial printer connection diag are supplied for Epson compatible printers. |
| Mar 1987 page 5 Apr 1987 page 5 Dec 1987 page 4 Apr 1988 page 3 Apr 1990 page 28 | RAMdisk Project and Tips | Locally produced equiv of the Horizon RAMdisk. Emulates floppy but 25 times faster. Batteries makes storage permanent. Made for PEB or equiv. The most useful device ever produced for the TI99/4A computer. Construction article available from club. |
| Apr 1987 page 16 | Console Tester | Clever device which is used in the diagnosis of faulty consoles. (Contact Geoff Trott) |
| May 1987 page 6 Jun 1989 page 7 | Remedy For Alphalock | Add a diode to the keyboard to allow up motion with joysticks without releasing the alphalock. Use June 1989 for proper location of diode. |
| Jun, 1987 page 20 | PIO Printer Buffer | Z80 based buffer with max RAM capacity of 256K. Allows console to be used while printer is printing. PCB, ROM and RAM sold through shop. |
| Jun 1987 Sep 1987 Nov 1987 Jun 1988 page 11 | Mini PE System | Fully made up locally produced equivalent to CorComp mini expansion system. Available with 32K, RS232, DD floppy controller and RAMdisk. |
| Aug 1987 page 5 | Speech Synthesizer Inside Console | Wiring instructions on fitting the TI speech unit above motherboard inside the console. |
| Sep 1987 page 7 Nov 1987 page 4 | Viatel Module | Module with Viatel prog in EPROM. Requires only RS232 and modem to communicate via phone. |
| Sep 1987 Oct 1987 page 7 | PIO For Mini PE Box | Availability of a true parallel printer interface for mini PE system |
| Sep 1987 page 8 Mar 1989 page 22 | Fix For Excessive PEB PS Voltages | Auto transformer fitted between 240ac and PEB to reduce unregulated power. Should prolong life of PEB cards. |
| Dec 1987 page 4 | Audio Amplifier for Console | Monitors require added circuit to amplify the audio signal out of the console. |
| May 1988 page 9 | RGB Monitor Interface for the TI99/4A | Circuit for analogue RGB monitor to TI interface. Good resolution but need to adjust several inter-dependant pots for right colours. |
| Jul 1988 page 5 Nov 1988 page 7 | Wire Accessory Interface for TI99/4A | Introduction to article on real world interface for the console. Model train controlled by console is described. Full documentation is available from R.Mudie. |
| Aug 1988 page 20 | Extended Basic in the Console | Permanent relocation of the XBasic module inside the console. Eliminates intermittent lockups caused by poor contacts. Errata: 56K resistors connect to pin 34, not to pin 29. Wiring diag is correct. |
| Nov 1988 page 9 | 64K of Memory on the 16 Bit Bus | Installing CPU RAM on the 16 bit bus to speed up the console by eliminating wait states and processing "words" in lieu of "bytes". Added benefits include more "scratch" RAM and 8K of useable "ROM" space. |
| Dec 1988 page 7 | Super Module | How to create a module with Editor Assembler Mini-Memory and 32K RAM memory with battery back up for the programs. |
| Dec 1988 page 8 | Taking the Heat off the TI99/4A | How to reduce the excess heat generated by the power supply board inside the console. |
| Feb 1989 page 28 | AT Music Card | Made for the Mini PE System. Provides 12 tone generators and 4 noise generators using the Forti Music System. |
| Feb 1989 page 31 Mar 1989 page 24 | Controlling a Small Train Set Using the Wire Accessory Interface and TI99/4A | Excellent article on using the console to control a model electric train set. Software from Ross Mudie. See also Jul and Nov 1988. |

| TND Issue | Project Description | Comments | TND Issue | Project Description | Comments |
|--|--|--|--------------------------------|-------------------------------------|---|
| Mar 1989 page 21 | Reliable Load Interrupt Switch | CPU interrupt circuit with switch debouncing to improve reliability. Allows branching to another program for debugging or, for example, a screen dump to printer | Mar 1990 May 1990 page 8 | RAMdisk Data Loss | Problems with data loss on RAMdisks during power down or power up. PCB available from G.Trott. |
| Mar 1989 page 24 | Joytalk - A Low Cost Printer Port for a | Development of joystick printer interface first published in HCM 1983. Software available from Ross Mudie. | Apr 1990 page 6 | PIO, RS232 and 32K on the AT MFC | How to add the remaining options to the Multi Function Card. Check club shop for parts. |
| Apr 1989 page 10 | 32K Console | | May 1990 page 4 | EPROM Burning for RAMdisk | Preliminary article on how to add preprogrammed files to a RAMdisk. Provides the cheapest way to permanently store program files. |
| Apr 1989 page 9 | Power Supply for a Hard Disk | Simple power supply for any hard disk drive. | May 1990 page 8 | 32k Memory Expansion Part 2 | Second article on memory expansion. Uses single 32K memory chip. Some errata notes to come. o |
| Apr 1989 Page 10 | Interfacing to RS232 PIO Port | Modified interface for problems in getting correct operation with some printers. | | | |
| May 1989 Page 4 | Changing to Second RS232/PIO card | How to use two RS232 cards in the PEB. | | | |
| Jun 1989 Page 7 | Console Reset Switch | Handy reset switch which provides the preferred method of restarting the console. | | | |
| Jul 1989 Aug 1989 Sep 1989 Oct 1989 Nov 1989 | Direct I/O Interface | How to interface PEB cards to consoles without a PEB. Allows an inexpensive way to expand to disk drives. See errata Aug 1989 p5, Sep 1989 p5, Apr 1990 p5 | | | |
| Aug 1989 Page 5 | Power your Disk Drive | Simple power supply and box for a floppy drive. | | | |
| Sep 1989 Page 5 | Interface to an IBM Keyboard | How to rewire and interface the TI99/4A to an IBM style keyboard. | | | |
| Sep 1989 Page 6 Jan 1990 | Powering your Hard Disk Drive | Another hard disk power supply - this one for low power drives. | | | |
| Sep 1989 page 6 | RAMdisk Power Up Problems | Modification to the Mini PE system to reduce the possibility of corruption from power up or power down surges. | | | |
| Oct 1989 page 5 | Interfacing Joystick to the TI99/4A | Inexpensive way to interface Atari compatible joysticks. | | | |
| Dec 1989 page 7 | 32K Memory Expansion | Part 1 of 2 part article on memory expansion for the console. Kits for internal 32K should be available from club shop | | | |
| Feb 1990 page 5 | Colour Monitor Interface | High resolution colour monitor interface for the Wang 12" monitor. Kits and instructions available through shop. See errata Mar 1990 p5, Apr 1990 p5. | | | |
| Mar 1990 page 5 | | | | | |
| Jun 1990 page 6 | | | | | |
| July 1990 | | | | | |
| Mar 1990 page 5 | Building the AT Disk Controller | How to build a double density disk controller for the PEB. Kits and corrected parts list with instructions available through club shop. | | | |
| Jun 1990 page 6 | | | | | |
| Mar 1990 page 6 | AT Disk Controller Bug | Fix for hardware bug in the AT disk controller. | | | |

Diagnosing a Simple Fault or How to Waste a Full Day, by Ben Takach

The holidays gave me a chance to make up a stand alone hard drive. It worked just fine when I shut it down for the day. It would not boot up the next morning. The drive was duly taken out of its enclosure, connections checked, connected to the control card and it ran perfectly. Back in its box again - it failed to boot. Tried with a spare 20 way ribbon - no go. I had no spare 34 way ribbon cable, so the 34 way cable was tested by one of the floppy drives. The floppy functioned OK. It would read, write and format normally. Connected up the hard drive again. It booted up and ran well for hours. Finally back in its enclosure again, it would not boot up! After countless out of the box and into the box exercises, I decided to swap the 34 way ribbon cable with that of the floppy drive. Back in the box again and all is well. Both units worked OK. I could not make either of them fail again.

The frustrating fault remained a mystery until the shops opened up again, and I was able to stock up with 34 way edge connectors. A new harness was made up and the original 34 way connectors were taken apart. Then everything became crystal clear. The first wire was cut through by the sharp edge of the top moulding. This was connected to the first terminal on the even side eg. terminal 2. The continuity was maintained if the lead was flat, but it showed an open circuit if it was bent close to the connector. The fault would not show up on the floppy drive, because wire number 2 (or terminal number 2) is not used. It is however used for head select on the hard drive.

Although I made some unholy remarks after the discovery, it still puzzles me, how could one detect such a fault, which even the continuity tester can not find.

I was relieved that the hard drive had no intermittent fault, on the other hand the frustration and the lost day made me angry. Well there ought to be some moral to this story, but I am dashed if I can think of one. o

For Sale

Keith de Haan (Telephone 02-4513032) has the following for sale:

- 1 RS232 PEB CARD AT \$125.00
- 2 DISK DRIVE CONTROLLER CARDS AT \$60 EACH
(Keith has not said which type they are)
- 2 DISK DRIVES SSSD NATIONAL BRAND AT \$30 EACH.

G Language

Sample programs from Stephen Shaw, England

The G language is really quite interesting, especially in its remarkably clever error handling, which makes it possible to do things which would be very difficult in any other language we have. G is in the Disk Library and requires 32k and ExBasic. It operates from DV80 command files, and below you will find three of these to try out. They originate from the magazine of the Dutch user group:

```
REM APESOFT DEMO
:START
I=0
N=30
FOR Z=1 TO 4 N=N+28
SET N N
FOR D=5 TO 50 STEP 5
DRAW D
I=I+90 ANGLE I
NEXT D
NEXT Z
FOR I=1 TO 700 NEXT I CLS
:CIRCLE
FOR R=2 TO 42 STEP 2
ARC 64 60 R R 0 360
NEXT R
FOR I=1 TO 500 NEXT I CLS
:PYRAMD
ANGLE 45
SET 100 100
FOR A=1 TO 36 STEP 2
BOX 100+A 100+A A A
BOX 100-A 100-A A -A
NEXT A
FOR I=1 TO 700 NEXT I CLS
:OKTAGN
D=2 Y=0 Z=0
FOR S=28 TO 108 STEP 4
SET S 42
Y=Y+90 ANGLE Y
D=D+2
FOR I=1 TO 8
Z=Z+45 ANGLE Z
DRAW D
NEXT I
NEXT S
FOR I=1 TO 500 NEXT I CLS
:ZYLIND
FOR Y=120 TO 40 STEP -3
ARC 100 Y 48 24 0 361
NEXT Y
FOR R=48 TO 2 STEP -2
ARC 100 Y R R/2 0 360
NEXT R
FOR I=1 TO 500 NEXT I CLS
:LEAF
FOR P=0 TO 90 STEP 5
SET 100 100
ANGLE P
DRAW P
NEXT P
FOR I=1 TO 800 NEXT I CLS
:THREAD
D=2 Z=125 T=128
FOR S=1 TO 126 STEP 5
Z=Z-5
T=T-D
SET S 120 TO T Z
NEXT S
Z=125 T=1
FOR S=126 TO 1 STEP -5
Z=Z-5 T=T+D
SET S 120 TO T Z
NEXT S
FOR I=1 TO 800 NEXT I CLS
GOTO :START
```

```
REM CIRCLE 2
SCREEN 3 COLOR 1
```

```
FOR I=0 TO 4 FOR X=1 TO 170 STEP 5
ARC 128 96 X X 0 360 NEXT X
FOR I=1 TO 500 NEXT I
FOR I=1 TO 500 NEXT I CLS
REM CIRCLE 3
FOR N=0 TO 200 STEP 4
ARC N N N N 0 360
NEXT N
FOR I=1 TO 500 NEXT I CLS
REM KLEURLIJN
FOR I=1 TO 25
RND 1 Z RND 13 A
A=A+2 RND 200 X
COLOR A SET X X TO X+X X+X
NEXT I
FOR I=1 TO 500 NEXT I CLS
REM LIJNFIGUUR
R=3 S=3 P=12 Q=12
FOR A=1 TO 241 P=P+R Q=Q+S
SET 128 96 TO P Q
IF P>249 THEN R=-3
IF Q>190 THEN S=-3
IF P<6 THEN R=3
IF Q<10 THEN S=3
NEXT A
FOR I=1 TO 500 NEXT I CLS
REM LINES
FOR N=1 TO 9
FOR I=1 TO 25
RND 14 C RND 191 Y RND 250 X
COLOR C
SET X Y TO Y 65
NEXT I
CLS
NEXT N
FOR I=1 TO 500 NEXT I CLS
REM SATURN
COLOR 2
FOR I=1 TO 30 STEP 4
ARC 125 84 I 25 0 360
NEXT I
FOR I=8 TO 20 STEP 7
ARC 125 84 40 I 45 317
NEXT I
FOR I=1 TO 192 STEP 8
SET 0 0 TO I 192
SET 255 0 TO I+62 192
NEXT I
FOR I=1 TO 210 STEP 12
SET 0 0 TO I 56
SET 255 0 TO I+42 56
NEXT I
FOR I=1 TO 500 NEXT I CLS
REM SCHILLEN
RND 10 P P=P+10
FOR I=P TO 106 STEP 10
RND 15 K RND 15 L C=C+1
COLOR C
ARC 127 106 I I 0 360
ARC 127 106 I-10 I-10 0 360
NEXT I
FOR I=1 TO 500 NEXT I CLS
STOP
```

```
:START
REM KLOK
ARC 43 60 38 38 0 360
ARC 120 60 38 38 0 360
ARC 197 60 38 38 0 360
I=270
FOR N=1 TO 75
I=I+5
IF I=360 THEN I=0
TRACE 1
SET 43 60 ANGLE I DRAW 36
TRACE 0
SET 43 60 ANGLE I DRAW 36
TRACE 1
SET 120 60 ANGLE I DRAW 36
TRACE 0
SET 120 60 ANGLE I DRAW 36
TRACE 1
SET 197 60 ANGLE I DRAW 36
TRACE 0
```

continued on page 12

TI-Base Files to DV80

by Bob Relyea

This is adapted from an article in the April issue of the LA 99ers by Fred Moore. It gives instructions on how to change TI-Base files into DV/80 files for use by the TI-Writer/Fnlweb editor.

There is a 'casual' reference to this procedure in the TI-Base manual on page 3-18 of version 2.01. I spent an entire evening to no avail trying to work out how to do this so I was happy to see this article as it solved most of my problems. The steps as presented in the article are as follow:

1. Initialize a blank disk SSSD, DSSD OR DSDD.
2. Boot up TI-Base.
3. Load your data base. (Use filename)
4. Put initialised disk into drive 2.
5. Type SET RECNUM OFF
SET TALK OFF
SET HEADING OFF
SET PRINTER DSK2,filename1
6. PRINT ALL NO,NA,DI (NO = #, NA = name, DI=distributor). N.B. I was not able to get a response when I tried this so I simply typed in PRINT ALL <ENTER> and the file was then created. Maybe somebody can explain why it did not work. ED

It is now possible to use the FORMATTER to print the file straight from disk. It was given both carriage return and line feed symbols when the file was created so take this into account when setting your parameters.

I had trouble, however, loading it into the editor as it locked up the computer. I was able to view the text using the <v> of Show Directory but I could not call up the file. When discussing the problem with George Meldrum and suggesting that it might have something to do with the control characters he suggested that I try calling it up on the Editor of the Editor Assembler Cartridge. Many of you probably know that this procedure strips the file of the control characters. I did this and it worked!

I have tried other ways of creating the file without generating the double control characters but have been unsuccessful. Perhaps somebody out there can enlighten me. Anyway, even though it was a bit round-about, I managed to get the job done. Trust that this is of some use to somebody who uses TI-Base. ◦

Bases in c99

by Clint Pulley, Canada

This is a function originally in the source code for RUNOFF by Clint Pulley that allows you to convert an integer to any base you want. This function can be found in the file RUNOFF;C on the c99 rel2B diskette.

Example of use:

```
main()
{char s[20]; int n; n=20; puts("20 in base 8 is: ");
 itoneb(n,s,8); puts(s); puts("\n\n20 in base 16 is: ");
 itoneb(n,s,16); puts(s);}
```

Convert unsigned n to chars in s using base b

```
Itoneb(n,s,b) int n,b; char *s;
```

```
#asm
ITONEB MOV @2(14),7 BASE
MOV @6(14),2 N
LI 6,BUF# WORK BUFFER
CLR 5 DIGIT COUNTER
ITONB1 CLR 1
DIV 7,1 N/BASE, REM IN 2
AI 2,48 MAKE CHAR
CI 2,58
JL ITONB2 IF REM<2
AI 2,7
```

```
ITONB2 SWPB 2
MOV 2,*6+ TO BUF
INC 5 COUNT
MOV 1,2 QUOTIENT
JNE ITONB1 IF MORE DIGITS
MOV @4(14),7 S
ITONB3 DEC 6 STORE IN REVERSE
MOVB *6,*7+
DEC 5
JNE ITONB3 IF MORE
SB *7,*7 ZERO BYTE
B
*
BUF# BSS 8
#endasm
```

continued from page 11

```
SET 197 60 ANGLE I DRAW 36
NEXT N
FOR I=1 TO 700 NEXT I CLS
REM SCHERM
CLS Y=-3
FOR X=0 TO 600 STEP 10
Y=Y+3 SET X 0 TO 600 Y
SET X 180 TO 600 180-Y
SET 0 Y TO 600-X 0
SET 0 180-Y TO 600-X 180
NEXT X
Y=103
FOR X=0 TO 300 STEP 10
Y=Y-3
SET X 90 TO 300 Y
SET X 90 TO 300 180-Y
SET 300 Y TO 600-X 90
SET 300 180-Y TO 600-X 90
NEXT X
FOR I=1 TO 600 NEXT I CLS
REM VLINDER
R=3 S=3 P=12 Q=12
FOR A=1 TO 241
C=C+1 P=P+R Q=Q+S
SET 128 96 TO P Q
IF P>249 THEN R=-3
IF Q>190 THEN S=-9
IF P<6 THEN R=6
IF Q<10 THEN S=9
NEXT A
FOR I=1 TO 900 NEXT I CLS
GOTO :START
```

That is enough of G for now! Do not forget to send me ANY graphics you produce, using any TI language or program - or indeed, send me any programs you produce. Must be someone else out there programming, huh?

This is a JBM103/TI XB version of one of the above routines, much modified to make up for the lack of equivalent error handling- JBM103 is available from the group disk library.

```
100 CALL LOAD(-31890,56,0)::CALL LOAD(-31964,56,0)
110 CALL LINK("CLEAR") :: CALL LINK("SCR2")
120 REM SCHERM
130 Y=0
140 FOR X=0 TO 190 STEP 3 :: Y=Y+1
150 CALL LINE(X,0,190,Y)
160 CALL LINE(X,60,190,60-Y)
170 CALL LINE(0,Y,190-X,0)
180 CALL LINE(0,60-Y,190-X,60)
190 NEXT X
200 Y=34
210 FOR X=0 TO 100 STEP 3 :: Y=Y-1
220 CALL LINE(X,30,100,Y)
230 CALL LINE(X,30,100,60-Y)
240 CALL LINE(100,Y,190-X,30)
250 CALL LINE(100,60-Y,190-X,30)
260 NEXT X
270 GOTO 270
280 SUB LINE(A,Y,C,Z)
290 B=Y*3+30 :: D=Z*3+30
300 CALL LINK("LIGNE",16,A,B,C,D)
310 SUBEND
320 END
```

Disk Library News

from the TI*MES library, by Stephen Shaw, England

All disks are SSSD. We have a huge collection of superb software of all types (except USCD Pascal) at very low prices. At a copying cost of just one pound per disk you can afford to amass a huge collection! There is a flat one pound per order charge for carriage, packaging etc. If you do not wish to send blank disks, disks can be supplied for an extra one pound each. (Overseas extra by quotation!)

Our disk catalogue at the time of writing is still on two disks. There has been only a short period since last copydate, and this has occurred at a quiet period for new disks. It is likely however that the next major parcel of inward disks will push the catalogue onto 3 disks. All we ask is that you send 3 blank disks and return postage and the catalogue is yours to look at in the privacy of your own home (hang on?), so why not write in and see what goodies we have!

Disk library address is:
Stephen Shaw
10 Alstone Road,
STOCKPORT, Cheshire, SK4 5AH.

New disks received since last issue are:

J Sebastian Bach's 2 Part Inventions from Harrison Software (with permission). Some beautiful music encoded in machine code pretending to be Extended BASIC. See how many you recognise!

J Sebastian Bach's Anna Magdalenas Notebook (20 pieces), more beautiful music from the same talented programmer.

This software company hopes to bring out a disk a month, so be sure to let me know soon if you like the idea of adding these disks to the library!

ADDED TO UTIL-20 is Instance Printer Version 2.0, which allows you to print a TI Artist Instance to an Epson or ProWriter printer or compatibles, in perfect proportion (circles looking like circles) and very very dense. A full screen instance prints as full width on 80 column paper.

Added to UTIL-21 is Boardmaker Version 6.0, dated 1.1.88, by Bill and Jim Reiss, which enables you to edit the screens on your (backup copy of) TI Runner.

Reminder: TI Runner is available from this library, under paid licence from the copyright holder.

Dutch Graphics is deleted, having been replaced by a much superior program doing the same thing:

>SPECTRUM 1 contains a utility to pick up the Graphics from the start of a Spectrum tape, plus a utility to change the picture format, from the compact version used on these disks, to and from TI Artist. These pictures have Spectrum standard color graphics. This disk has title screens from: Cookie, Mugsy, Ad Astra, Jack and the Beanstalk, Combat Zone, Chequered Flag, Mr Wimpy, The Hobbit, Harrier Attack, Auto Mania, Pyjamerama.

>SPECTRUM 2: Screens from Horace and the Spiders, Nightshade, Spy Hunter, Bruce Lee, Saboteur, Daley Thompson's Super Test, Odin, Sam Fox Strip Poker, Molecule Man, Merlin Rack, Gladiator, Rambo 2.

>SPECTRUM 3: Screens from: Bomb Jack, Cobra, ?, Spitfire 40, Asterix, Slap Fight, FTL Gargoyle, Wonder Boy, Hulk, Magic Land, Jet Pac, Scuba Dive.

Over the last three months, the disk library has been used by 26 members (out of over 90 with disk drives), who have taken a total of 316 disks. The numbers of disks taken in each category were:

Utilities: 138 disks. 66 different titles. 106 disks on offer.
Modules etc: 74 disks. 41 different titles. 66 disks on offer.
Adventures: 25 disks. 19 different titles. 37 disks on offer.
Games: 25 disks. 16 titles. 41 disks on offer.
Music: 24 disks. 20 titles. 30 disks on offer.
Text: 12 disks. 9 different titles. 23 disks on offer.
TI specials: 8 disks. 3 different titles. 5 disks on offer.
Educational: 4 disks. 3 different titles. 9 on offer.
RLE graphics: 3 disks. 3 titles. 26 disks on offer.
Forth: 2 disks. Two titles. 14 on offer.
Amnion (IUG library): 1 disk. One title! 24 on offer.
LOGO: 0 disks. 0 titles. 8 disks on offer.

The most popular title:

Funlweb leads by a long way (14 copies) and for many users these would be upgrades!

Util 21 with 7 copies was the most recent Util series disk and should have been the most popular Util disk! It contains the latest version of the Archiver utility.

Utilities 16 made 6 copies, largely I suspect for the excellent M-Copy by Mike Dodd, which makes disk use so much easier. Mike tells me no-one has written to him. This one is Fairware chaps!

COMIC SHOW version 4 made six copies, suggesting a lively graphics interest- still waiting for someone to send me some results!

Five copies each of: 5EDAS-AB1, MCA-1, Neatlist. And less than five copies for all other titles!

NEW ITEMS in the disk library for your consideration:

J Sebastian Bach's 3 part inventions. Nutcracker Suite. Timeline: a text data base containing the TI99/4A history. Morse Generator, which can operate a transmitter via the cassette port. JET's MS Adventure Series formerly sold for US\$60! An 80 column FUNLWEB editor for use with Mechatronic or Digt cards, or Geneve. >5EDAS-KLM4 has added MANCALA which will run now without extra module RAM! Load with Extended BASIC or Editor Assembler; some documentation added by me. Lovely program.

>CATCOM. As the name may imply, this program by Marty Kroll is a companion to his CATLIB which you will need to use it (CATLIB is available from the library). This companion data base allows you to add several comment fields to the disk catalogues.

>MACFLIX1. This disk requires the use of the commercial program MACFLIX. It contains three screens of clip-art and one girly picture.

>Joe Nollan utility disk containing a good selection of powerful loading and menu routines, not the first but probably the best. Includes full character reset when moving from one Extended BASIC program to another! Nice disk.

>ADTEXT1. Walk through solutions to the new Infocom adventures: Lurking Horror, Leather Goddesses of Phobos, and Moonmist.

>ADTEXT2. Walk through solutions to the new Infocom adventures: Cut Throats, Hollywood Hijinx, and Stationfall. Includes partial Stationfall map in the form of two RLE pictures.

>ADTEXT3. Walk through solutions to the new Infocom adventures: Spellbreaker and Sorcerer. Assumes some experience with Enchanter.

>QUICK RUN DEMO DISK 1. This is the official

demonstration disk, demonstrating how much faster a program loads when you use the commercial program QUICK RUN, which is not required to use this disk. Five demonstration programs, which you can use!

>QUICK RUN DEMO DISK 2. This is my demonstration, which is better than those above! Includes an original TI BASIC music program, Fiddler On The Roof, modified to work with Extended BASIC, and a second version, saved using QUICK RUN. Spot the difference!

>UTIL22. 275 sectors used so far. A program to print cassette labels; a sector editor/utility by Guy Boudreault which has some interesting features such as sector move/copy; KWIKFONT by Wayne Stith, which is a machine code character definition program, together with a utility to move Kwikfont data files into a CHARAL program file; a disk speed tester for Myarc controllers only, and two LOGO utilities: One allows you to dump to PIO a picture of the definitions of tiles and characters (uses 8x8 or 16x16 printer characters); and when you load a LOGO procedure, ever wondered what to type to make it go? Now a utility to make your LOGO files self-starting! And a machine code utility to use in your Extended BASIC programs, two LINKs to quickly restore lower case letters and to define upper case letters as the big title screen character set. You can also use the separate GPL/DSRLNK routines in your own machine code utilities for Extended BASIC.

>DEMO DISK. An animated space scene; Speech from several modules at the touch of a key; a LOGO type program in machine code, written in c99 originally; a program to print an 8x10 Mona Lisa; and programs similar to the MiniMemory LINES program, called LINES, TRIANGLES, and RECTANGLES. These programs do not really do anything, but they are kind of fun anyway!

>FUNLWEB Version 4.13...two disks... Only slight modifications this time, to make it more usable with HRD and AVPC cards, and a neater printout through SD. If your present version is 4.0 or earlier, get this one!!

>Special 80 column FUNLWEB Editor files to be used with the Mechatronic or Diji 80 column cards or with the Geneve.

>J C BACH OPUS XVII - six sonatas on two disks with a total playing time of 90 minutes, from Harrison Software, with permission. (If you are French, you may know this work as Opus XII, c'est la vie!). Request: Bruce and Lori would like to contact anyone in the UK or France (they speak French) who can supply any information on J C Bach, especially his last three years, and on the political activity in France, the UK and Germany (especially Hamburg) at that time. They are near the Library of Congress so book details are fine! Drop me a line if you can help and I can expand on the request a bit!

>MAZE OF GROG/KAZMER... this is the TI Basic program on disk GAMES 19, modified to run from Extended BASIC, and with the option of keyboard or joystick control. Ray Kazmer has also modified the players character into Woodstock! It is a nice game.

Forthcoming and available by the time this is printed: many more graphics for Macflx, and some excellent programs from Holland including a small but extremely clever TI-Artist picture size reduction program which makes the American commercial equivalents look extremely silly indeed!!! Keep in touch, and remember, the update list is sent out by post to anyone who has sent in an SAE, every time the NEW/DISKS file is zeroised!!!

Library disks are available to all members for a copying fee of one pound per disk, all disks are SSSD unless otherwise listed, and there is a one pound per order extra for packaging, postage etc. That is if you send in blank disks! If you prefer, disks can be supplied for an extra one pound each. They are not too expensive now! Try a few! And remember to support Fairware authors; the library will accept sterling

donations to pass on in currency, just send the amount and name the author. (Overseas members please note postage costs are higher; please add four pounds for airmail or two pounds for sea mail. Europe, for large overseas orders insurance is a good idea and costs an additional pound. Overseas payments by sterling draft or money order drawn on London only please, or your local currency may be sent in notes at your risk; allow for a 5% exchange rate fluctuation when calculating!).

>TI BASE TIMES INDEX. My own quirky index to the first 26 issues of TI*MES- around 1000 entries and it FILLS a single sided disk! Requires TI Base. SORTED BY SUBJECT.

>UK PUBLICATIONS INDEX. All UK TI99/4A publications to Nov 89, except TI*MES, except last 2 Parco mags, except first volume from EAR. REQUIRES TI BASE. MENU /C file allows rapid access to data sorted by Subject, Type or Source.

>BALLS. Three of them- global fractal animations produced using COMIC SHOW 4.0 showing a planet rotating in two planes; ditto plus approaching planet, ditto plus leaving planet. 8 frames, 11 frames, 11 frames. With sample COMIC SHOW 4.0 command file, and also EX BAS/JBM103 program that produced the frames. Sort of a demo disk/graphic tutorial.

>MCOPI has added an interesting PING PONG game for one player (breakout without the bricks).

>TI MANUAL 1: Text files: Functional Specifications (for the TIB user) and GPL Interface Specs, both for the Disk Peripheral, 1980, Vn 2 1983. Plus interesting information on the hardware aspects of the SPEECH SYNTH which you should read before taking the PCB out of the unit! including tips on repair.

>TI MANUAL 2: Text files: Software specification for the disk peripheral, 1980/1983- rom contents access explained. Useful for m/code programmers.

>MCKJ1 addition is a machine code version of Crazy Koala, aka Koala Hop- formerly an XB game!

HARRISON SOFTWARE have supplied three new music disks-as previously, this group has consent to copy, which does not pass to those we supply!

>NANNERL'S NOTEBOOK is music by Leopold Mozart.

>WOLFY AT 8 is music written by Wolfgang Amadeus Mozart when a lad of 8 living in London.

>REMEMBRANCE-THE AMERICAN REVOLUTION is an assortment of military style music (with snare drum) from the era when amidst much bloodshed one of our Colonies declared independence.

>3D WORLD. While this has come in several times, with a painfully slow load and NO docs, I have been reluctant to offer it. However as COMIC SHOW 4.0 has a utility for it, I have persevered and now offer it with a faster load (old load also retained) and with limited English documentation on a read me file. First you specify points where lines start/stop/join. Then you specify how the points are joined. This gives a structure which can be moved and rotated in 3 dimensions. Originally sold by Amerisoft- but no ads or reviews seen in Micropendium.

>TETRIS (HULPKE)- at last a MACHINE CODE version of this new classic game, with smooth sprite operation, nine speeds (fast is FAST), and the opportunity- within the time available- to select the next shape to fall. Uses number keys for control to rotate the shape, drop it, move it left or right, change the next shape, or to pause. No high score feature so write your scores down. Good habituating game. Might be worth trying the ExBas versions in the library first as they are a little slower!

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Rambles

by Stephen Shaw, England

Welcome to another Rambles, which includes bits and pieces for all owners. Even a bit that at first sight you may feel is not appropriate to you is still worth a quick scan...

Contact me at:

10 Alstone Road, STOCKPORT, Cheshire, SK4 5AH. An SAE is always useful! Please allow 7-10 days for a reply! If you have not heard from me within 3 weeks, I have not received your letter!

We are starting this issue with a test which is valid in any language and that includes CONSOLE ONLY OWNERS. I have an answer to this test in Basic and know it can be done. It is an interesting test for programmers in other languages, and is certainly suitable for c99 and Pascal.

Here we go...

If I write 7^2 , that means SEVEN SQUARED, or put another way, SEVEN TO THE POWER OF TWO, also $7 * 7$. Equally 7^3 is SEVEN TO THE POWER OF THREE or $7 * 7 * 7$. Get the idea? OK. Your test is to write a program, in any language, which will determine the first power of seven which has a result containing six sevens in succession-eg "777777". Clue: The result has MORE than 15 digits! To make checking easy, your program should print the result:

"SEVEN TO THE POWER OF N IS" where of course N is the first power that gives a result matching our requirements, and also of course giving the actual result. Programmers in the faster languages may wish to determine if there is a second power of seven with six consecutive sevens in it- and will need to adjust their algorithm slightly to avoid an error message...

Acknowledgement to ACE magazine for this excellent programming test. As ever no prizes but please submit your entries to me for possible publication.

Old timers who remember a reviewer of TI programs who signed with the initials PB who had trouble with an intriguing software house may sympathise with ACE magazine who were said to have faced a possible injunction to prevent publication of their January issue; loss of advertising worth thousands, and a potential claim for damages for loss of income- eg they got learnt on REAL heavy by a large UK software company who did NOT appreciate a review suggesting their BIG GAME for Christmas was only going to be played for a month...

continued from page 14

EIGHTY COLUMN CARD OWNERS:

The following programs are for 80 column cards only, and should work with Mechatronics and Diji cards as well as the Geneve. I do NOT have such a card and am not able to tell if these programs work! If they do not please tell me and I will remove them from the list!

>FUNLWEB 4.2 80 COLUMN. THREE DISKS. Lots of additions and variations including a double tab which you can switch between, and a modified assembly editor which puts assembly labels and commands in capitals and comments in lower case without having to use the shift key! Lots lots more.

>XHi...TWO DISKS...EX BAS HI RES GRAPHICS SUPPORT VN 3.6 by A Hulpke.

Allows use in ExBas of graphics modes 6 (212x512 x6col) and 7 (212x256 x256 colours) by means of CALL LINKS. Includes SAVE and LOAD which is compatible with MYART files without conversion, and a utility to load TI ARTIST into this format. Plus magnify and reduce, print utility, draw commands, etc etc. Note: The print utility is stated to be usable without an 80 column card but does not work on my system. This disk ALSO has an 80 column INFOCOM adventure loader. Documentation in original German plus English translation.

Educational Modules

review by Stephen Shaw, England

Trying to decide which educational modules to buy is made a little difficult as the US educational system differs from ours a little (what is 5th grade?) and also some modules cover a very wide age range.

The following is indicative only, and in general ages quoted are POSSIBLY a little older than they might be. For reading titles, a fairly basic grasp of reading is required, and the starting age will vary from child to child, perhaps more so than for the math titles.

UP to age FIVE, you can start with EARLY LEARNING FUN and EARLY LOGO LEARNING FUN. For the second module- which requires no expansion and no Logo, you will find it useful to make up some "cue cards". If you have or can find the MBX Expansion unit, three other modules are suitable, but these REQUIRE the MBX Unit- Terry Turtles Adventures, I'm Hiding, and Honey Hunt. If you can find it, Super Sketch goes down well, and to a lesser extent in this age range, TI ARTIST(Disk).

From Age FIVE:

EARLY READING, READING FUN(Requires speech synthesiser), READING RAINBOWS, STORY MACHINE, and SOUND TRACK TROLLEY(Requires MBX Unit). HANGMAN, SPEAK AND SPELL(not a module, a disk,requires speech synthesiser). NUMBER READINESS, NUMBER MAGIC, NUMERATION 1, ADDITION AND SUBTRACTION 1 AND 2, ALIEN ADDITION. LOGO II (Requires 32k ram). VIDEO GRAPHS, PICTURE PARTS, FACE MAKER. STORY MACHINE. TI Artist (Disk) is also highly suitable, as is Super Sketch if you can find it. A-MAZE-ING is popular in the game range.

From Age EIGHT:

BEGINNING GRAMMER, READING ROUNDUP, READING ON, READING TRAIL, SCHOLASTIC SPELLING 3 AND 4, MULTIPLICATION 1, ALLIGATOR MIX, METEOR MULTIPLICATION, MINUS MISSION (last three could be used earlier).

From Age TEN:

READING RALLY, READING CHEERS, READING POWER, READING ADVENTURES, READING FLIGHT, READING WONDERS, SCHOLASTIC SPELLING 5 6, WORD RADAR, WORD INVASION, DIVISION 1, DEMOLITION DIVISION, NUMERATION 2, FRACTIONS 2, DRAGON MIX, PYRAMID PUZZLER, STAR MAZE, NUMBER BOWLING, SPACE JOURNEY. MUSIC MAKER. BEGINNERS BASIC TUTOR. Most of these could probably be used earlier.

From Age 14 (or much earlier!):

VIDEO CHESS; TOUCH TYPING TUTOR; PHYSICAL FITNESS (Not before 12); WEIGHT CONTROL AND NUTRITION; TEACH YOURSELF BASIC, TEACH YOURSELF EXTENDED BASIC.

For most ages- say 5-14 or so:

ADDISON WESLEY COMPUTER MATH GAMES 2 AND 6. (There were no others!). ALL MILLIKEN MATH SERIES: Percents,Decimals(req speech);Addition,Subtraction, Laws of Arithmetic, Multiplication, Equations, Numeration, Division, Fractions, Measurement Formulas, Integers - NOTE: A lot of these titles are VERY similar to other TI titles listed above! but are QUITE different.

Some of the READING ... titles were released privately by the company that wrote them, AFTER TI pulled out, and are thus very hard to get hold of. The MBX Unit similarly was released after the pull out and is fairly hard to obtain. Contact Mike Goddard, Gordon Pitt or Frances Parrish for speech synthesiser, 32k ram, expansion boxes and disk drives; ; Contact Edward Shaw or Frances Parrish for modules. Contact Stephen Shaw for disks.

Good games of strategy are Yahtzee, Mancala(Disk), Othello, Connect Four.

Programs that write programs, #6

by Jim Peterson, Tigercub Software, USA

The first five parts of this series were written long ago, but since then I have found a new method to write programs that really do write programs. I must give Karl Romstedt credit for this idea.

To illustrate this technique, I will use a program which writes an auto-loader to display a diskfull of programs by their complete name rather than the abbreviated filename. This is the LOAD program which I put on all my TI-PD disks.

First, we key in the part which will always be a part of the LOAD program. Do not change the line numbers because there is a reason for them, and leave that REM in line 11 because something else will be plugged in there later.

```
10 CALL CLEAR :: DIM M$(127) :: CALL SCREEN(5):: FOR S=0
  TO 14 :: CALL COLOR(S,2,8):: NEXT S :: CALL PEEK
  (8198,A) :: IF A<>170 THEN CALL INIT
11 REM
12 ON WARNING NEXT
13 X=X+1 :: READ M$(X):: IF M$(X)<>"END" THEN 13
14 R=3 :: FOR J=1 TO X-1 :: READ X$ :: DISPLAY AT(R,1):S
  TR$(J);TAB(4);X$ :: R=R+1 :: IF R<23 THEN 17
15 DISPLAY AT(24,1):"Choice? or 0 to continue 0" ::
  ACCEPT AT(24,26)VALIDATE(DIGIT)SIZE(-3):N
  :: IF N>X-1 THEN 15
16 IF N<>0 THEN 19 :: R=3
17 NEXT J
18 DISPLAY AT(24,1):"Choice? " :: ACCEPT AT(24,9)VALIDATE
  (DIGIT):N :: IF N=0 OR N>X-1 THEN 18
19 CALL CHARSET :: CALL CLEAR :: CALL SCREEN(8):: CALL
  PEEK(-31952,A,B):: CALL PEEK(A*256+B-65534,A,B)
  :: C=A*256 +B-65534 :: A$="DSK1."&M$(N)
  :: CALL LOAD(C,LEN(A$))
20 FOR J=1 TO LEN(A$):: CALL LOAD(C+J,ASC(SEG$(A$,J,1)))
  :: NEXT J :: CALL LOAD(C+J,0) :: GOTO 10000
10000 RUN "DSK1.1234567890"
```

Now, save that "source code" by SAVE DSK1.CAT/S,MERGE. Then key in this "assembler" which will convert the "source code" into an "object code."

```
100 OPEN #1:"DSK1.CAT/S",VARIABLE 163,INPUT
110 OPEN #2:"DSK1.CAT/O",VARIABLE 163,OUTPUT
120 FOR J=10 TO 21 :: LINPUT #1:M$ :: PRINT #2:CHR$(0)&
  CHR$(J)&CHR$(156)&CHR$(253)&CHR$(200)&CHR$(1)&"2"&
  CHR$(181)&CHR$(199)&CHR$(LEN(M$))&M$&CHR$(0)::
  NEXT J
130 PRINT #2:CHR$(255)&CHR$(255):: CLOSE #1 :: CLOSE #2
```

Note what this routine does. It reads in each line of the tokenised CAT/S and prints it back out to CAT/O preceded by line numbers 10 to 21 in tokenised two-byte format followed by the tokens for PRINT #2, the tokens for a quoted string followed by the CAT/S record and the CHR\$(0) end-of-line indicator. Then it prints the double-255 end-of-file indicator and closes the files.

Now key in the CATWRITER program.

```
1 CALL CLEAR :: CALL TITLE(16,"CATWRITER"):: CALL CHAR
  (127,"3C4299A1A199423C"):: DISPLAY AT(2,10):
  Tigercub Software"
2 DISPLAY AT(15,1):"For free:"distribution":"but no
  price or":"copying fee":"to be charged."
  :: FOR D=1 TO 500 :: NEXT D :: CALL DELSPRITE(ALL)
3 DISPLAY AT(2,3)ERASE ALL:" TIGERCUB CATWRITER V.1.4"
  :: Will read a disk directory,":"request an
  actual program":"name for each program-type"
4 DISPLAY AT(7,1):"filename, and create a merg-":"able
  Quickloader which dis-":"plays full program names
  and":"runs a selected program."
5 DISPLAY AT(12,1):" Place disk to be catalogued
  ":"in drive 1 and press any key" :: CALL
  KEY(O,K,S):: IF S=0 THEN 5
9 OPEN #2:"DSK1.CAT",VARIABLE 163,OUTPUT
```

```
100 OPEN #1:"DSK1.",INPUT,RELATIVE,INTERNAL :: INPUT #1
  :N$,A,J,K :: LN=1000 :: FN=1100
110 DISPLAY AT(12,1):"Disk name?":N$ :: ACCEPT AT
  (14,1)SIZE(-28):N$ :: LX$=STR$(14
  -LEN(N$)/2):: LXLEN=LEN(LX$)
120 PR$=CHR$(0)&CHR$(11)&CHR$(162)&CHR$(240)&CHR$(183)
  &CHR$(200)&CHR$(1)&"1"&CHR$(179)
  &CHR$(200)&CHR$(LXLEN)&LX$
130 PR$=PR$&CHR$(182)&CHR$(181)&CHR$(199)&CHR$(LEN(N$))&
  N$&CHR$(0)
140 PRINT #2:PR$
145 DISPLAY AT(23,1):"To omit a file, press Enter"
150 X=X+1 :: INPUT #1:P$,A,J,B :: IF LEN(P$)=0 THEN 190
  :: IF ABS(A)=5 OR ABS(A)=4 AND B=254 THEN 160 ELSE
  X=X-1:: GOTO 150
160 DISPLAY AT(12,1):P$;"PROGRAM NAME?" :: ACCEPT AT
  (14,1)SIZE(25):F$ :: IF F$="" THEN X=X-1 :: GOTO 150
170 PRINT #2:CHR$(INT(FN/256))&CHR$(FN-256*INT(FN/256))&
  CHR$(147)&CHR$(200)&CHR$(LEN(F$))&F$&CHR$(0)::
  FN=FN+1
180 M$=M$&CHR$(200)&CHR$(LEN(P$))&P$&CHR$(179):: IF X<11
  THEN 150
190 IF M$="" THEN 210
200 PRINT #2:CHR$(INT(LN/256))&CHR$(LN-256*INT(LN/256))&
  CHR$(147)&SEG$(M$,1,LEN(M$)-1)&CHR$(0):: LN=LN+1 ::
  M$="" :: X=0 :: IF LEN(P$)<0 THEN 150
210 PRINT #2:CHR$(INT(LN/256))&CHR$(LN-256*INT(LN/256))&
  CHR$(147)&CHR$(200)&CHR$(3)&"END"&CHR$(0)
220 PRINT #2:CHR$(255)&CHR$(255):: CLOSE #1 :: CLOSE #2
230 DISPLAY AT(8,1)ERASE ALL:"Enter -":" NEW":":
  MERGE DSK1.CAT":": DELETE ""
  DSK1.CAT"":: SAVE DSK1.LOAD"
240 SUB TITLE(S,T$)
250 CALL SCREEN(S):: L=LEN(T$):: CALL MAGNIFY(2)
260 FOR J=1 TO L :: CALL SPRITE(#J,ASC(SEG$(T$,J,1)),J+1
  -(J+1=S)+(J+1=S+13)+(J>14)*13,J*(170/L),10+J*(200/L
  ))::NEXT J
270 SUBEND
```

Next, enter MERGE DSK1.CAT/O and that "object code" will pop into place right after line 9. If you list it, it will look like a blown file, because most of the token codes are unprintable, but do not worry. Save the program as CAT-WRITER.

When you run the program, it will open an output MERGE format file called CAT and write those merged lines from CAT/O in MERGE format. Then it will open the disk you are cataloguing, read the directory sector, and ask you for a disk name with the existing diskname as default. You can select any disk name you want to title the menu screen, up to 28 characters long. Line 110 computes the position to center the title, and lines 120-140 write to the CAT file a tokenized line 11 (overwriting that REM line) to display your title at the top of the screen.

Line 150 reads each filename from the disk directory, skipping over anything that is not a program (no one yet has been able to tell me how to distinguish an assembly image "program!"). For each filename, it will ask you for a complete program name. If you do not want a program on the menu (such as an XB program that is run from another program, or an image file), just press Enter. Otherwise the program name you select will be printed as DATA by line 170, in tokenised format in lines starting with 1100 (note the FN=1100 in line 100) and incremented by 1. Lines 180-200 assemble the filenames into DATA lines of up to ten names, and tokenize them in lines beginning with 1000.

When the last filename has been read, line 210 prints one last DATA item "END" to signal line 13 to stop reading, and then prints the double-255 end-of-file. Then you are given instructions to clear memory with NEW, merge in the CAT file, delete it because you do not need it anymore, and save it back as LOAD. When you list the LOAD program, you will find the original CAT/S restored in lines 10-19 and 1000, the line to display the title in line 11, the filenames in DATA lines starting with 1000 and the program names in DATA lines starting at 1100.

continued on page 18

Tips from the Tigercub #59

by Jim Peterson, Tigercub Software, USA

Tigercub Software
156 Collingwood Ave.
Columbus OH 43213

I am still offering over 120 original and unique entertainment, educational and utility programs at just \$1.00 each, or on collection disks at \$5.00 per disk.

The contents of the first 52 issues of this newsletter are available as ready-to-run programs on 5 Disks REDUCED TO \$5 each!

My three Nuts Bolts Disks, ARE NOW REDUCED TO JUST \$10 EACH. Each contains over 100 subprograms for you to merge into your own programs to do all kinds of wonderful things.

My catalogue is available for \$1, deductible from your first order (specify TIGERCUB catalogue).

TI-PD LIBRARY

I have selected public domain programs, by category, to fill NOW OVER 300!! disks, as full as possible if I had enough programs of the category, with all the Basic-only programs converted to XBasic, with an E/A loader provided for assembly programs if possible, instructions added and any obvious bugs corrected, and with an auto-loader by full program name on each disk. These are available as a copying service for just \$1.50 post-paid in U.S. and Canada. No fairware will be offered without the author's permission. Send SASE for list or \$1, refundable for NEW 11-page catalog listing all titles and authors. Be sure to specify TI-PD catalogue.

The first few disks that I distributed of my Tips #58 had a poor version of my Datawriter program. Those which are titled TIPS #58.1 have the correct version. If you received the bad one, please ask me for another.

In Tips #42 I published this algorithm and asked why I could not get C to equal 9 or 12 or 99.

```
100 CALL CLEAR
110 DISPLAY AT(18,1):"A? " :: ACCEPT AT(18,4):A :: DISPL
AY AT(20,1):"B? " :: ACCEPT AT(20,4):B
120 IF A=2 THEN IF B=2 THEN C=4 ELSE IF A=2 THEN IF B=3
THEN C=6 ELSE IF A=3 THEN IF B=3 THEN C=9 ELSE
IF A=3 THEN IF B=4 THEN C=12 ELSE C=99
130 DISPLAY AT(22,1):"C=";C :: GOTO 110
```

A couple of programmers wrote to tell me the error I was making. This way it will work -

```
120 IF A=2 THEN IF B=2 THEN C=4 ELSE IF B=3 THEN C=6
ELSE C=99 ELSE IF A=3 THEN IF B =3 THEN C=9
ELSE IF B=4 THEN C=12 ELSE C=99 ELSE C=99
```

If an IF is not true, the program execution jumps to the first ELSE which is not already paired with an IF. If there is no such unpaired ELSE, execution jumps to the next program line. In the correct example, IF B=2 is paired with ELSE IF B=3, and IF B=3 is paired with the first ELSE C=99, so if A=2 is not true then execution jumps to ELSE IF A=3. The second IF B=3 is paired with ELSE IF B=4 and IF B=4 is paired with the second ELSE C=99, so if A=3 is not true, execution jumps to the final ELSE C=99.

Here is a bit of a new idea in a spelling program. If your word has the correct number of letters but some are wrong, it shows you the wrong ones.

```
100 DISPLAY AT(3,11)ERASE ALL:"SPELLIT" !by Jim Peterson
110 DATA HIPPOPOTAMUS,CRITIQUE,KHAKI,IRIDESCENT,ARCHAIC,
PNEUMONIA
120 !add as many DATA statements as you want
```

```
130 FOR CH=97 TO 122 :: CALL CHARPAT(CH-32,CH$):: CALL
CHAR(CH,CH$):: NEXT CH :: CALL COLOR(9,8,2,10,8,2,11
,8,2,12,8,2)
140 DATA END
150 READ M$ :: T=100 :: IF M$="END" THEN CALL CLEAR ::
STOP
160 GOSUB 230 :: ACCEPT AT(12,1)SIZE(-28)BEEP:Q$
170 IF Q$=M$ THEN CALL SOUND(100,392,5):: CALL SOUND(200
,523,5):: DISPLAY AT(12,1):"" :: GOTO 150
180 FOR J=1 TO LEN(Q$):: IF SEG$(Q$,J,1)=SEG$(M$,J,1)
THEN 210
190 DISPLAY AT(12,J):CHR$(ASC(SEG$(Q$,J,1))+32);
200 T=T+50 :: IF LEN(Q$)=LEN(M$)THEN GOSUB 230 :: GOTO
210 ELSE DISPLAY AT(12,J+1):" " :: J=LEN(Q$)
:: GOTO 160
210 NEXT J
220 T=T+50 :: GOTO 160
230 DISPLAY AT(10,1):M$ :: FOR D=1 TO T :: NEXT D ::
DISPLAY AT(10,1):"" :: RETURN
```

When I am not writing programs, I like to write songs but the only way I can get anyone to listen to my music is to program it. Lucie Dorais of the Ottawa UG made this neat routine to program waltz music, and I plugged one of my songs into it.

```
100 CALL CLEAR :: CALL SCREEN(2):: FOR X=4 TO 12 :: CALL
COLOR(X,16,2):: NEXT X
110 CALL CHARPAT(39,A$,44,B$,38,C$):: CALL CHAR(61,A$,
96,B$,64,C$)
120 DISPLAY AT(2,7):"SEDUCTION WALTZ":"":"Words @ music
Program by:""by Jim Peterson Lucie Dorais"
130 FOR D=1 TO 700 :: NEXT D
140 CALL CLEAR :: CALL START(95,23,95,199)
150 LB=123 :: LC=131 :: LD=147 :: LE=165 :: LF=175 ::
LG=196 :: LA=220 :: B=494 :: C=523 :: D=587 ::
E=659 :: F=698 :: G=784 :: A=880
160 HB=988 :: HC=1047 :: RV=5 :: CV=9
170 DIM M$(16):: FOR J=1 TO 16 :: READ M$(J):: NEXT J
180 GOTO 190 :: A$,TIME,X,Y :: CALL DELSPRITE :: !@P-
190 FOR TIME=1 TO 4
200 Y=Y+1 :: DISPLAY AT(1,1):M$(Y):: CALL BAR(RV,CV,
-RV,-CV,G,C,C,LC,LE,LG)
210 CALL BAR(0,CV,0,-CV,C,D,D,LC,LE,LG)
220 CALL BAR(-RV,CV,RV,-CV,C,E,E,LC,LE,LG)
230 CALL BAR(-RV,0,RV,0,E,E,E,LC,LE,LG)
240 Y=Y+1 :: DISPLAY AT(1,1):M$(Y):: CALL BAR(-RV,-CV,
RV,CV,G,C,C,LC,LE,LG)
250 CALL BAR(0,-CV,0,CV,C,D,D,LC,LE,LG)
260 CALL BAR(RV,-CV,-RV,CV,C,E,E,LC,LE,LG)
270 CALL BAR(RV,0,-RV,0,E,E,E,LC,LE,LG)
280 Y=Y+1 :: DISPLAY AT(1,1):M$(Y):: CALL BAR(-RV,CV,
RV,-CV,G,A,A,LF,LA,LC)
290 CALL BAR(0,CV,0,-CV,A,F,G,LF,LA,LC)
300 CALL BAR(RV,CV,-RV,-CV,A,G,A,LF,LC,LA)
310 CALL BAR(RV,0,-RV,0,G,E,E,LC,LE,LG)
320 Y=Y+1 :: DISPLAY AT(1,1):M$(Y):: CALL BAR(RV,-CV,
-RV,CV,G,G,D,LG,LB,LD)
330 CALL BAR(0,-CV,0,CV,F,E,B,LG,LB,LD)
340 CALL BAR(-RV,-CV,RV,CV,D,C,C,LC,LE,LG)
350 CALL BAR(-RV,0,RV,0,C,C,C,LC,LE,LG)
360 CALL PATTERN(#1,132,#2,128):: CALL MOTION(#1,0,0,
#2,0,0)
370 NEXT TIME
380 CALL BAR(RV,0,RV,0,G,G,D,LG,LB,LD)
390 CALL BAR(RV,0,RV,0,F,E,HC,LG,LB,LD)
400 CALL BAR(RV,0,RV,0,HB,HC,HC,LC,LE,LG)
410 CALL DELSPRITE(ALL)
420 CALL BAR(RV,0,RV,0,HC,HC,HC,LC,LE,LG)
430 DISPLAY AT(24,11):"AGAIN? Y" :: ACCEPT AT(24,18)SIZE
(-1)VALIDATE("YN"):A$
440 IF A$="N" THEN END ELSE DISPLAY AT(24,11):"" :: Y=0
:: CALL START(95,23,95,199):: GOTO 190
450 !@P+
460 DATA Dance with me by the light of the moon, And
sway to the throbbing guitars, The love that we
feel is a love that is real
470 DATA And it's witnessed by only the stars, Is it
wrong to love and be loved?, Is it wrong to kiss
and caress?, Is it wrong to rest in the arms`
480 DATA Of the one you love the best?, What's the
difference what others may say?, Does it matter who
is to blame?
```


Fixing Blown disks

Using Navarone Disk Fixer, by Howard Massey, USA

NOTE: This is an adaptation of a file that originally appeared on the TI-Source BBS (author unknown). While the original was informative and useful, I found, while actually using the Navarone Disk Fixer cartridge, a few additional shortcuts to repairing disks with blown sectors 0 and/or 1, and I thought I would present this updated version in order to include these new tips.

Did you ever try to catalog a disk and find out the Disk Controller thinks the disk is NOT initialized? But you know better! What do you usually do with the problem disk? Most people just delete the file giving them the problem, and that will work, but it also gets rid of that file forever! A better solution is to use DISK FIXER by Navarone Industries.

The DISK FIXER enables one to examine and change the contents of any disk on a sector-by-sector basis. I think it is worth its forty-dollar list price. It is available from some TI retailers or directly from Navarone Industries.

Here is the process to fix a blown disk...

First acquire a DISKFIXER from a friend or buy one, it is worth it. Before you start, have a blank, initialized disk handy as you will certainly be needing it during the course of the "surgery". Now we have to determine if the problem with your bad disk lies with either Sector 0 or Sector 1, or both. If it is a "blown" sector - which means the sector is physically OK, but the information contained in it has somehow been partially or totally erased, no problem - DISK FIXER can fix it!

Sector 0 contains the information concerning the disk name and number of sectors used/free on the disk. If this sector is completely blown, attempting to catalog your disk will always result in a "DISK NOT INITIALIZED" error message, EVEN THOUGH YOUR DATA IS ACTUALLY PRESENT ON THE DISK. If partially blown, attempting to catalog the disk may show you used/free sector information that is obviously in error (as when more or less than 358 sectors are used + available for a SS/SD disk). The DISK FIXER can easily confirm for you if the problem is in your Sector 0.

Put the DISK FIXER cartridge in the slot, turn on your computer and select 2 from the master menu screen. Put your bad disk in drive 1, and then type in the following:

R 0,1 [ENTER]. This command means Read Sector 0 from drive 1.

If you get an error message, you know that Sector 0 is blown. The easiest way to fix this is to copy a good Sector 0 from another disk to the blown disk. Here is how to do that:

- 1) Insert a good disk in drive 1.
- 2) Read Sector 0 of that disk: R 0,1 [ENTER]
- 3) Put the blown disk in drive 1.
- 4) Write good Sector 0 to disk: W 0,1 [ENTER]

If you now leave the DISK FIXER, and use a program to catalog the bad disk, you will see that the diskname and the used/free information is the same as the good disk, but do not let that alarm you - we did that to fool the Disk Controller into letting us at least catalog the bad disk - even inaccurately!

The next step is to find out if Sector 1 has been damaged also. The easiest way is to simply look at your catalog and see if all the files you believed were on the disk are still there - if you are sure that they are

and that none are missing, then you have - almost - fixed your disk. If this is the case, then all you now need to do is to MAKE A COPY of your bad disk - FILE BY FILE - to a blank, initialized disk. The reason you MUST do this is that since the Sector 0 information on the "fixed" disk is inaccurate, the first time you try to add or delete a file to or from this bad disk, you will run into serious trouble! So put a write-protect tab on it, and back it up onto a fresh initialized disk, one file at a time. DO NOT USE a bulk copying program, either bit map or sector by sector, as the object disk will then end up with the same inaccurate Sector 0 data. By copying a file at a time (using, for example the "C" command in the DM1000 File Copy/Rename/Delete/Change option), your controller will create a new, completely accurate Sector 0 on your back-up disk. When you have done that, you can either file away the original for your archives or simply erase and re-use it.

On the other hand, suppose the catalog shows that some or all of the files you believed to be on that disk are missing? Have no fear - they are probably still there, they just are not showing up to your disk controller because Sector 1 has been blown as well. In order to fix up this sector, we need to know precisely what files are actually on the disk. We can obtain a current catalog of the files present by using DISK FIXER to peek into sectors >2h - >2lh (that is sectors 2 through 33 in decimal). As the DISK FIXER manual points out, TI DOS uses Sector 1 for a Directory Link Map - essentially a "road map" for the controller to look up the various File Directories. Even if this map has been damaged or erased, the directories themselves as well as the actual file data probably still exists on the other sectors, so it is no tragedy. TI DOS uses sectors >2h through >2lh to store the actual File Directories, containing the file names, types, and sector locations. The data itself is stored on sectors >22h on up (and the very first file you write onto a new disk is ALWAYS stored on Sector >22h, so that is a good way to quickly determine if a disk is actually blank or not). Therefore, all we really need to do is read sectors >2h through >2lh in order to get a list of the file names on our bad disk.

When DISK FIXER reads a sector, the data is displayed on your screen in hex, which you must then convert to ASCII in order to actually read the information in English. Fortunately, the "M" command allows us to inspect the buffer RAM and in doing so automatically does this hex-to-ASCII conversion. So that is how we get a list of the files on our bad disk:

1) Type R 2,1 [ENTER]. The screen will fill with hex code. There is no need to see it all, so instead of pressing the space bar after the first lot, press any other key to abort.

2) Now type M 1000V,100CV [ENTER]. On the right side of your screen, you will see the first three lines of Sector 2 in ASCII. These lines will contain the file name. Get a piece of paper and WRITE THIS NAME down, along with the SECTOR #, as follows:

Sector 2: {filename}

(If at any time you want to see the whole screen and not just the first three lines in ASCII, type M 1000V,10FFV - you can press the space bar to stop the scrolling).

3) Now just type R [ENTER]. DISK FIXER will automatically advance to the next sector (Sector 3). Follow the same procedure as in step 2 above and make sure you WRITE DOWN on a piece of paper the sector # and the filename.

4) Continue as above until eventually you come to a sector filled with E5 data in every address. This usually means you have reached the end of your search. If you still think there are more files missing, keep looking until you reach Sector >22h, which will definitely contain only file data. If you are ever unsure of which sector DISK FIXER is currently reading, use the "C" command in order to find out the current sector.

At the end of this procedure, you should now have a complete list of all the files on your disk, along with their sector #s. The next step is to alphabetise this list. If you are unsure about how to alphabetise when dealing with funny characters, etc., TI DOS alphabetises by lower to higher ASCII values. These values can be found on your TI Basic reference card, or in the manual. Suppose, for example, you ended up with the following list of files on your bad disk:

| SECTOR # | FILENAME |
|----------|----------|
| 2 | CAT |
| 3 | HELLO |
| 4 | ART |
| 5 | PLOT |
| 6 | LOGO |
| 7 | LOAD |
| 8 | PICTURES |
| 9 | LINES1 |
| A | LOGO2 |
| B | DUMP |
| C | LINES2 |

If we alphabetise them, we end up with this list:

| FILENAME | SECTOR # |
|----------|----------|
| ART | 4 |
| CAT | 2 |
| DUMP | B |
| HELLO | 3 |
| LINES1 | 9 |
| LINES2 | C |
| LOAD | 7 |
| LOGO | 6 |
| LOGO2 | A |
| PICTURES | 8 |
| PLOT | 5 |

Now you are ready to fix Sector 1. Start by reading Sector 1 from your blank, initialized disk, since this will contain all zeroes in all addresses:

1) Put the blank disk in drive 1 and type in the following: R 1,1 [ENTER].

2) Put the bad disk in drive 1 and type: W 1,1 [ENTER]. We have now written a completely blank Sector 1 to our bad disk. THIS IS IMPORTANT since the controller MUST find all zeroes following the last File Directory entry.

3) The next step is to Alter this data in the DISK FIXER's buffer and then rewrite it back onto the bad disk: Get out your alphabetised list of files (as above) and type the following: A O [ENTER]. Now all you need to do is to type in the alphabetised list sector #s, in order, PRESSING THE SPACE BAR, NOT [ENTER] AFTER EACH ENTRY. So if we were using the list above, here would be the routine:

```
type: 4 [SPACE]
      2 [SPACE]
      B [SPACE]
      3 [SPACE]
      9 [SPACE]
      C [SPACE]
      7 [SPACE]
      6 [SPACE]
      A [SPACE]
      8 [SPACE]
      5 [SPACE]
      [ENTER]
```

After each [SPACE], the DISK FIXER will advance one line - just type in each number one at a time, with a [SPACE] in between each entry and be careful not to hit [ENTER] till after the last entry. If you make a mistake, do not worry. Just press [ENTER], retype A O, and DISK FIXER will let you start all over.

4) The last step is to write this altered data onto Sector 1 of your bad disk. Make sure the bad disk is

still in drive 1, type W 1,1 [ENTER], and you are all done, except for the necessary step, as above, of COPYING the bad disk, FILE BY FILE, onto your blank. As before, DON'T just put the "fixed" disk back into your active file, because the first time you try to add or delete a file, you will be in for problems.

And that is about all there is to it! Happy fixing!

Cracked!

by Cracker Jack

Another disk is slipped into my hot little hands, this time a bunch of Extended BASIC programs. Some good, some bad and what looks to be an interesting graphics program. But this graphics program has no help screen to show what keys to press. No problem, we will LIST the program and look for the INPUT, ACCEPT and CALL KEY statements. So LIST and <enter>, but now something terrible happens. What we get is a wiz bang multi-coloured display followed by a computer lock-up. This is no electronic quirk, no accidental folly, but rather a deliberate attempt by the software author to suppress extortion. To stifle LIST is to fondle a pirate. Looks like a job for C-R-A-C-K-E-R J-A-C-K.

First thing to do is to power up the computer again and reload the graphics program. This time a memory editor program is used to inspect the graphics program in memory to see why it will not list. Sure enough, the values for the length of each BASIC line has been set to zero. [Refer to Tips from the Tigercub #58 by Jim Peterson (original item from Tidewater Newsletter - routine by Ken Woodcock) TISHUG News Digest, October 1989]. This simple routine at the beginning of a BASIC program will reset line length values causing it impossible to LIST or edit.

```
1 CALL INIT :: CALL PEEK(-31952,A,B,C,D) ::
  SL=C*256+D-65539 :: EL=A*256+B-65536
2 FOR X=SL TO EL STEP -4 :: CALL PEEK(X+2,G,H) ::
  CALL LOAD(G*256+H-65537,0) :: NEXT X
```

Fortunately, if you just wish to view the program listing, then it is very easily done by poking large line length values back into the program. To do this type in in immediate mode (i.e. without the line numbers) the two multi-statements above however change the CALL LOAD statement to CALL LOAD(G*256+H-65537,255). Now we have a program that will list but cannot be edited. For example if we were to try and delete a line then we would delete 255 bytes of BASIC code even though in reality that line was much shorter. This is clearly not good enough. Also my vanity insists that I am able to edit in a line such as DISPLAY "Program Cracked by ... etc."

The last stage, hence, is to rebuild the line length values to their correct values. For this we require a short assembly language routine. After typing in the following code and assembling it (I suggest an object code file name "MATEY") go back to Extended BASIC. Load that offensive BASIC program that causes your computer to lock-up when you try to list it. Then type CALL INIT :: CALL LOAD("DSK1.MATEY") <enter>. Next we only need to execute the machine code routine by typing CALL LINK("MATEY") <enter>. When the cursor re-appears on the screen you will be able to LIST or edit the program to your hearts content. I suggest you look at the start of the program to see if those few lines listed earlier are still there. If so then delete these lines before you re-save the program otherwise it will reset line length values each time you run the program.

I guess it has been remiss of me to not mention that 32K memory expansion is essential and cassette users would require a disk user to assemble the following code to disk then copy it to cassette. The machine code expects the program to be loaded into expansion memory by Extended BASIC and so Mini-Memory use is of no help to cassette users.

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From the Service Bench

by Geoff Trott

I have had a number of consoles to repair recently, along with a number of disk controllers and disk drives. A lot of these had processor problems which is a bit of a worry, but what I would like to talk about are some of the interesting ones I have seen. I have also been asked to give some clues on how to trouble-shoot consoles which I will talk about as well.

I have learned to run consoles after repair for a number of hours to make sure that there are no further problems. I usually do this with a diagnostic module which runs through a number of tests of the console operations. I was doing that to a console in which I had replaced a VDP memory chip, when I noticed that there were errors in the LOG function. I could not think what would cause that except perhaps something in the GROMs or ROMs. A check with the console tester showed no problems and so since the problem was heat related in that all was well when the console was allowed to cool down and first turned on, I decided that the best way to find out was to use the cooling spray on the suspect ICs. So, with the circuit board exposed on the bench and a program running in BASIC to continuously print out the values of LOG(I) and EXP(LDG(I)) I waited for the errors to occur. This they did, slowly. Then I sprayed various components like GROM, ROMs, RAMs, VDP processor and nothing happened. In desperation I sprayed the processor and, magically, the answers came right again. After a time the errors came back and then a spray and all correct again. What was causing problems just with the LOG function I have no idea. The processor does not do anything special for the LOG function that I can think of as against the SIN or COS functions for example. Nevertheless, changing the processor solved the problem and it then ran for an hour or more.

Another console that caused problems originally had a bad processor with 2 address lines not working correctly. After changing the processor I was running the console using the BASIC program mentioned above when I noticed that the program had stopped running. The screen had just frozen. On turning off and on again there was the dreaded black screen and noise. At least when the console tester was tried, the lights started doing the right thing, which meant that the processor was OK, and when the screen came up it showed a VDP memory error and a problem with the low byte system ROM. The ROM would have caused the failure while the VDP memory may have been bad all along as it was not obvious on the screen. Identifying and changing the two chips fixed the console and I am glad that I did a long test as you can imagine how pleased the owner would have been to get back a console from repair which only worked for about an hour.

While fixing the last console, I decided to give some more information which should help to determine from the behaviour of the console tester which chip should be changed. This applies particularly to the RAM chips. Perhaps I should start at the beginning. You have a console which does not work. If it makes a steady noise and the screen does not change to a cyan colour then you need to gain access to a console tester. If there is no noise and the screen goes cyan with or without other characters showing, then the processor is working and the system ROMs are also all right while the system GROM is probably OK. The problem is probably in the video side. The more that is on the screen, the easier it is to determine what is wrong. The console tester can be used to identify which chip is bad. If the processor is working, the console tester should give sufficient information to find the problem, particularly if the screen gives a display.

Consoles with no positive response on power up require more work. Attach a console tester (user groups generally have one, or someone in the group will) to the console (before taking it apart is the best) and turn on

the power. Press the button on the console tester while watching the 6 LEDs on the console tester. If the pattern on the lights does not change or if the pattern does not become all green LEDs off, two red LEDs on and one flashing at about 4 per second, then you need to get into the console for more information. If the pattern is correct (3 green off, 2 red on and 1 red flashing) then allow the tester to run until the screen comes alive. This then will show what is wrong if you can interpret the display. For example, the third line will show the message "System RAM D.K." if those chips check out. The left most green LED will also be on and the corresponding red LED will be off. If the system RAM has errors the left most red LED will be on and the corresponding green LED will be off and the message will be changed to "System RAM has errors xy", where "x" will be a character which says if the high byte has an error, and "y" will be a character which says if the low byte has an error. The character in the bottom right corner of the screen is the NULL character whose ASCII code has a value of zero (0). If the RAM IC has no errors, then this character will appear for "x" or "y". If the RAM IC has errors, then any of the other characters will be used for the "x" or "y". If "x" is not the NULL character then the IC with problems is U608, which is the right most 6810 (I will give directions with the video connector at far left corner, that is with the console circuit board oriented as it sits in normal use). If "y" is not the NULL character, then U609 has problems, being the left most 6810 IC.

The next line should read "VDP RAM O.K.", and the middle LEDs will have the green one on and the red one off. If there are VDP memory chips with errors then the middle LEDs will have the green one off and the red one on, while the message will be "VDP RAM has errors z", where "z" will be a character which can be used to determine which IC is in trouble. The VDP memory is made up of 8 of 16K by 1 bit dynamic RAMs. This means that the most likely error is one IC no good and the same bit of every byte with problems. Of course, if the IC is always giving out a 1 then those bytes will be OK that want a 1 in that position. Similarly with a constant 0. Where the output is floating then the value of that bit will depend on a lot of other things and the display may well not be stable. The VDP memory stores the colour and other information required by the VDP processor so that very strange effects can occur with VDP memory problems. If more than one chip is causing errors this complicates the problem enormously. In order to determine which chip is the problem it is necessary to analyse the screen display carefully in regard to the characters on display. As an aid to this, the console tester displays all 256 characters on the screen in their ASCII code order starting from the bottom right hand corner and working across from right to left, bottom to top. There are 32 (20h) characters on each line and 8 lines. The ASCII code of the character on the right hand end of the lines is then a multiple of 32, namely, 0, 20h, 40h, 60h, 80h, A0h, C0h, E0h. The character set only uses 128 different shapes with the background colour changing for codes above 128 (80h). Non printing characters are shown using those in TI-Writer (0 to 31 and 127). If there was one VDP memory chip in error, the character shown on the error line of the console tester would be one of the following:

| ASCII code | Character | IC | position |
|------------|------------------|------|---------------|
| 1 | dot and small 1 | U102 | left most one |
| 2 | dot and small 2 | U104 | 3rd from left |
| 4 | dot and small 4 | U108 | 7th from left |
| 8 | dot and small 8 | U103 | 2nd from left |
| 16 | small 1, small 0 | U105 | 4th from left |
| 32 | space | U106 | 5th from left |
| 64 | @ | U107 | 6th from left |
| 128 | red background | U109 | 8th from left |

Of course it is not quite that simple, as if the whole chip is in error then at least half the characters will not be their correct shapes, and all of them and all the colours may also be affected. You need then to try and match the error character on the line with a character in the character set and from the character's

position and any other supporting evidence work out which bit is in error. Note that the space character is one of the possible error characters, so that if you get a line which says that there is an error but no apparent error character then space is the error character and U106 the damaged chip! This happened in the second console mentioned above. VDP memory problems are the easiest to see at first where the problem is (VDP memory!), but the trickiest to determine exactly which of the 8 chips is at fault.

The next few lines give the checksums for the two system ROMs and the three GROMs in the console plus any GROMs in modules plugged into the cartridge port. These checksums are given in characters again to use the minimum amount of screen space. You can work out their hexadecimal values if you like, using the character set at the bottom, but the main thing is to recognise if they are different from the correct characters. The system GROM may show a different value first time through as I did not initialize the GROM address first, when I wrote the program. The second time through it should stabilise to the correct value. The values should not change as the program loops around. If the first 3 characters of the system ROM are not correct then the high byte ROM is in error (U610), which is located to the right of the 9900 and facing the same way as the 9900 (at right angles to the other chips). The second 3 characters relate to the low byte system ROM (U611), which is to the left of the two 6810s (system RAM ICs). The system GROM has two versions and is the 16 pin IC in a socket named CD2155. The BASIC GROMs are also in sockets along side the system GROM and are named CD2156 and CD2157. The fourth IC in a socket along side the GROMs is the sound chip and must be placed in the right most socket. The GROMs can be put in any order into the other 3 sockets (or even on top of each other into one socket, but that was the subject of another article). Problems in any of these ROMs or GROMs are usually easy to diagnose with the console tester before taking the console apart.

Now the difficult problems, where the console tester does not work. For these the console needs to be taken apart to expose the components on the console circuit board. Keep the video connector to the top left so that the board lies in its normal orientation. You do not need to attach the keyboard. Remove all the GROMs and sound chip from their sockets above the 9900. Try the console tester again and if it now works let it run to show what problems are there. If the console tester works now then one of the four chips removed is holding the processor in a wait state by not releasing the READY line. This could be because there is no clock for the GROMs (see the VDP chip) or perhaps a GROM in trouble. For testing at this level an oscilloscope (CRO) is required to look at the signals. If you look at the pins on the 9900 starting at pin 3 you should see the following:

| pin | signal | comments |
|----------|-----------------------|---|
| 1 | Vbb | -5 volts |
| 2 | Vcc | +5 volts |
| 3 | WAIT(H) | out-low, high if in wait state |
| 4 | LOAD(L) | in-high, low when console tester starts |
| 5 | HOLDA(H) | out-low |
| 6 | RESET(L) | in-high, low on reset and power up |
| 7 | IAQ(H) | out-low, pulses with each instruction |
| 8 | PHASE1 | in-clock 12 volts, 3MHz |
| 9 | PHASE2 | in-clock 12 volts, 3MHz |
| 64 | HOLD(L) | in-high |
| 63 | MEMEN(L) | out-high, pulses on each memory access |
| 62 | READY(H) | in-low, high for wait |
| 61 | WE(L) | out-high, pulses on each write |
| 60 | CRUCLK | out-low, pulses on CRU activity |
| 59 | Vcc | +5 volts |
| 10 to 24 | address lines all out | |

Check pins 8 and 9 for the clock. The processor must have a 4 phase clock of which these two are the first two phases. Check that pin 4 (LOAD) and 6 (RESET) are both high. If pin 3 is high always then look at pin 62. This should be pulsing or low if the GROMs and sound chip have been removed. If READY is low and WAIT is high with everything else working the processor must

be bad. If WAIT is low then IAQ should be pulsing and the console tester lights should change when the button is pressed. Check all the address lines to make sure that they are all either at a high or low level or switching between them. Any which are at an intermediate level probably indicate a faulty processor. If all the signals coming out of the processor seem to be all right then the problem is in some other IC. Start by looking at the outputs of the 74LS138 address decoders near the I/O port to see if the correct devices are being addressed. It is starting to get into the realm of the expert diagnostician here, as there are so many ways to go chasing problems. I shall leave it here and wait for feedback or ideas to hit me. ◦

Jenny's Younger Set

Dear Jenny,

Here is another program. This is a teaching quiz program. It attempts to show a person how to write a basic quiz program, giving a workable example. I hope it will come in useful for those learning quiz programs.

VINCENT MAKER

```

100 CALL CLEAR
110 REM THE TEACHING
120 REM QUIZ PROGRAM
130 REM
140 REM BY VINCENT MAKER.
150 REM ESPECIALLY FOR
160 REM MELANIE.
170 PRINT "THIS IS A PROGRAM THAT WILL ATTEMPT TO SHOW
    YOU HOW TO WRITE QUIZ PROGRAMS."
180 PRINT
190 PRINT
200 INPUT "PRESS ENTER TO START.":DFG$
210 CALL CLEAR
220 PRINT "THE FIRST THING YOU NEED TO DO IS THINK UP A
    QUESTION."
230 PRINT
240 PRINT "EG. WHAT IS 2+2?"
250 PRINT
260 PRINT "TO ANSWER THIS...YOU COULD HAVE AN INPUT
    STATEMENT."
270 INPUT "PRESS ENTER TO GO ON.":GHJ$
280 CALL CLEAR
290 PRINT "TO USE AN INPUT STATEMENT WHAT YOU NEED TO
    DO IS PLACE IT IN THE PROGRAM AS SUCH."
300 PRINT
310 INPUT "WHAT IS 2+2?":ANS
320 PRINT
330 PRINT "THE TECHNIQUE IS TO HAVE IT LIKE THIS
    10 PRINT""WHAT IS"
340 PRINT "          2+2?""          20 INPUT A"
350 PRINT
360 IF ANS=4 THEN 390
370 PRINT "THEN YOU HAVE THE COMPUTER PRINT WRONG BY
    AN IF-THEN-ELSE STATEMENT."
380 GOTO 400
390 PRINT "THEN YOU HAVE THE COMPUTER PRINT RIGHT BY AN
    IF-THEN-ELSE STATEMENT."
400 PRINT
410 INPUT "PRESS ENTER TO GO ON.":GHJ$
420 CALL CLEAR
430 PRINT " WITH AN IF-THEN-ELSE STATEMENT"
440 PRINT
450 PRINT "THE COMPUTER WILL GO TO A SPECIFIED LINE
    NUMBER IF A VARIABLE EQUALS A SPECIFIED STRING
    OR VALUE."
460 PRINT
470 PRINT
480 PRINT "EG. IF A=6 THEN 200"
490 PRINT
500 PRINT "IF,IN OUR EXAMPLE, A DOES NOT EQUAL 6 AND YOU
    WANTED IT TO GO TO ANOTHER LINE NUMBER, SAY
    400, YOU"
510 PRINT "WOULD TYPE THIS."
520 PRINT
530 PRINT
540 PRINT "IF A=6 THEN 200 ELSE 400"
550 INPUT "PRESS ENTER TO GO ON.":RTY$
560 CALL CLEAR

```

continued on page 6

Regional Group Reports

Meeting Summary For JULY

| | | |
|------------------|----------|-------------|
| Banana Coast | 08/07/90 | Sawtell |
| Carlingford | 18/07/90 | Carlingford |
| Central Coast | 14/07/90 | Saratoga |
| Glebe | 12/07/90 | Glebe |
| Illawarra | 09/07/90 | Keiraville |
| Liverpool | 13/07/90 | |
| Northern Suburbs | 26/07/90 | |
| Sutherland | 20/07/90 | Jannali |

BANANA COAST Regional Group (Coffs Harbour area)

Regular meetings are held in the Sawtell Tennis Club on the second Sunday of the month at 2 pm sharp. For information on meetings of the Banana Coast group, contact Kevin Cox at 7 Dewing Close, Bayldon, telephone (066)53 2649, or John Ryan of Mullaway via the BBS, user name SARA, or telephone (066)54 1451.

CARLINGFORD Regional Group

Regular meetings are normally on the third Wednesday of each month at 7.30pm. Contact Chris Buttner, 79 Jenkins Rd, Carlingford, (02)871 7753, for more information.

CENTRAL COAST Regional Group

Regular meetings are now normally held on the second Saturday of each month, 6.30pm at the home of John Goulton, 34 Mimosa Ave., Saratoga, (043)69 3990. Contact Russell Welham (043)92 4000.

GLEBE Regional Group

Regular meetings are normally on the Thursday evening following the first Saturday of the month, at 8pm at 43 Boyce St, Glebe. Contact Mike Slattery, (02)692 0559.

ILLAWARRA Regional Group

Regular meetings are normally on the second Monday of each month, except January, at 7.30pm, Keiraville Public School, Gipps Rd, Keiraville, opposite the Keiraville shopping centre. A variety of activities accompany our meetings. In MAY, Rolf introduced us to a program called 'Root' which is used as a sub-directory for Ramdisk menus. We also worked out a way of switching back to the main menu. Contact Lou Amadio on (042)28 4906 for more information.

LIVERPOOL Regional Group

Regular meeting date is the Friday following the TISHUG Sydney meeting at 7.30 pm. Contact Larry Saunders (02)644 7377 (home) or (02)642 7418 (work) for more information. The proposed activities for the coming months are as follows:

13th July 1990 - Using TI-Base and its utilities

10th August 1990 - The Missing Link (Hopefully)

7th September 1990 - Getting the best out of word processors and their utilities.

All Welcome. Larry Saunders

NORTHERN SUBURBS Regional Group

Regular meetings are held on the fourth Thursday of the month. If you want any information please ring Dennis Norman on (02)452 3920, or Dick Warburton on (02)918 8132.

Come and join in our fun. Dick Warburton.

SUTHERLAND Regional Group

Regular meetings are held on the third Friday of each month at the home of Peter Young, 51 Jannali Avenue, Jannali at 7.30pm. Group co-ordinator is Peter Young, (02) 528 8775. BBS Contact is Gary Wilson, user name VK2YGW on this BBS. The format of each meeting is quite informal, with topics ranging from software reviews to hardware modifications with a fair sprinkling of purely social chatter in between.

Peter Young Regional Co-ordinator

TIshUG in Sydney

Monthly meetings start promptly at 2pm (except for full day tutorials) on the first Saturday of the month that is not part of a long weekend. They are now held at the RYDE INFANTS SCHOOL, Tucker Street (Post Office end), Ryde. Regular items include news from the directors, the publications library, the shop, and demonstrations of monthly software. The meeting this month will involve a demonstration of Version 3 of TI-Base, a demonstration of the RAMBO board and, hopefully, a programming clinic conducted by Tony Imbruglia. A games room with Shane will be revived for the younger set.

Other meeting dates for 1990 will be as follows.

AUGUST 4
SEPTEMBER 1
OCTOBER 6
NOVEMBER 3
DECEMBER 1

See Secretary's Notes in this issue for information regarding the topics to be presented.

The cut-off dates for submitting articles to the Editor for the TND are:

| | |
|-----------|-------------|
| August | 8 July |
| September | 12 August |
| October | 9 September |
| November | 7 October |
| December | 11 November |

Russell Welham (Meeting coordinator).

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If you have begun to have problems with the resulting LOAD program or with my previous Tigercub Menuloader which used the same CALL LOADs, I have finally found out the cause. When my Horizon RamDisk is on, any program containing those CALL LOADs will lock up the second time it is run!

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```

* This program re-enters the          LI  R5,>FFE8
* line length values within          AGAIN MOV @BUFLEN,R3
* a BASIC program.                   LI  R2,ZERO
*                                     LI  R1,BUFF
*                                     DECT R1
* For use when a program is          *
* corrupted or protected by          NEXT INCT R1
* having false line length           C   *R1,*R2
* values.                             JL  SKIP
*                                     MOV R1,R2
*                                     SKIP DEC R3
*                                     JNE NEXT
*                                     *
MATEY LWPI USRWS                       MOV *R2,R6
MOV @>8330,R1                          MOV *R1,*R2
MOV @>8332,R2                          S   R6,R5
C   R1,R2                              DEC  R5
JHE FIN                               SWPB R5
*                                     MOVB R5,*R6
*                                     MOV  R6,R5
*                                     DEC  @BUFLEN
*                                     JNE  AGAIN
*                                     *
*                                     FIN  LWPI >83E0
*                                     CLR  R0
*                                     MOVB R0,@>837C
*                                     RT
*                                     *
*                                     *
LOOP  MOVB *R1+,*R4+                   USRWS BSS 32
MOV  *R1+,*R4                         BUFLEN BSS 2
DEC  R4                               ZERO DATA >0000
DEC  *R4                              BUFMAX EQU >1800
INCT R4                              BUFF BSS BUFMAX
INCT R1                               *
DEC  R2                               *
JNE  LOOP                             END

```