SYDNEY NEWS DIGEST

SHUG
PO BOX 149
PENNANT HILLS
2120. N.S.W.

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• AUG '85

SHUG

inside information

The Texas Instruments Home-computer User's Group, known as TISHUG is a non profit, self supportive group of Texas Instruments computer owners and users. Information regarding membership and payment of dues should be directed to the *Secretary*, address below.

DISCLAIMER

The Sydney News Digest (SND) is the official newsletter of TISHUG, and whilst every effort is made to ensure the correctness and accuracy of information contained therein, be it of a general, technical, or programming, nature, no responsibility can be accepted by TISHUG as a result of the applying of such information.

THE NEWSDIGEST—

The SND is published eleven times per year (no January edition), by voluntry staff, from material provided by group members, other user-groups and other related sources.

Contributions and all correspondence (other than membership) should be addressed to the EDITOR, LIBRARIAN, ADVERTISING, etc., and submitted at the group meetings or posted to the appropriate person at the *general* address, below.

Copy for publication may be typed, hand printed, or be on tape or diskette media as files suitable for use with TI-WRITER (ie, DIS/FIX 80 or DIS/VAR 80). Please include sufficient information to enable the files to be read —filename, etc. Persons wishing to contribute on a regular basis should contact the editor who will make available a suitable public domain word processor program. *The copy deadline for an issue is the first Saturday of the month (ie. meetng date) prior to the month of publication.*

Any material, written or electronic, submitted to SND or Library Service is to be considered TISHUG property and to be used at the committee's discretion.

SOFTWARE LIBRARY SERVICE

TISHUG operates a Public Domain Software Library, containing programs written by TISHUG members and from other user groups as well as miscellaneous public domain sources.
These programs are made available to members in two ways:—

1> by monthly issue - a selection of programs is made available at general meetings for a production/media cost fee.
(See TISHUG SHOP column elsewhere for details of releases).

2> as a reward for members contribution to the activities of TISHUG by
(a) submission of an original program (own work) members recieve three programs of their choice, and,
(b) submission to SND, or other activity as the committee may otherwise determine, programs of the contributer's choice will be made available.

As the Library is maintained on a voluntry basis, no individaul requests for software (other than for the above reasons) can be honoured at the present time.

YOUR COMMITTEE

CLUB CO-ORDINATOR:	
Peter Varga	023897025
HON. SECRETARY:	
John Robinson	028480956
TREASURER:	
Terry Phillips	027976313
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Cris Ryan	028480480
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GREG HOPE	(02)6464865
PROGRAMMERS CRISIS LINE:	
Graeme Holliss	02992229
MUSIC CO-ORD:	
Russel Welham	043924000
EDUCATION CO-ORD:	
Peter Lynden	026357841

MEETINGS: At present, will continue to be held at the St.John's Church Hall, Victoria St, Darlinghurst on the first SATURDAY afternoon of each month, except if that week-end is a public holiday, then it moves to the following week-end. The Monthly get-to-gether starts at 2pm and goes through to 4pm.

SEE YOU THERE 'CAUSE WE CARE

COURTESY TO YOUR FELLOW TISHUGERS

When you strike a programming problem, require information, or just want to chat (modem or otherwise) please look at the clock before you pick up the 'phone! And always ask if it is a convenient time for your call.

MON-WED: 10AM-4PM ...OTHERDAYS: 10AM-9PM

HELP!

programmers' Crisis Line 992229

IMPORTANT TISHUG ADDRESSES:—

General address (for all letters except membership)

TISHUG,
PO BOX 595,
MARRICKVILLE,
NSW, AUSRALIA, 2204.

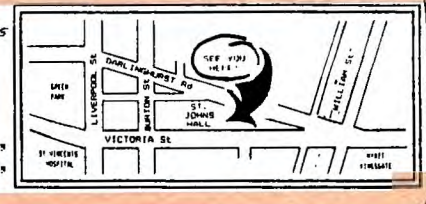
Membership address

The SECRETARY,
TISHUG,
PO BOX 149,
PENNANT HILLS,
NSW, AUSTRALIA, 2120.

Monthly Meetings first Saturday of the month

(2 pm)

St. John's Hall,
Victoria Street,
DARLINGHURST.



T.I.S.H.U.G. REPORT with Terry Phillips

The TI.S.H.U.G Shop is a non-prophet club shop which is taken to the club meetings each month. For those who are unable to attend these meetings, the items listed in this article are available by MAIL-ORDER addressed to: TI.S.H.U.G. SHOP Attention Terry. P.O.Box 595, Marrickville, N.S.W. 2204. They can also be picked up from your local Regional Group meeting by arangement of the local Regional Leader. You can use either BANKCARD, MASTERCARD, Money Order or Cheque. Please don't send cash in the mail. Orders for these items can also be purchased via your MODEM on the TEXPAC-BBS by simply filling out the CREDIT CARD DEDUCTION FORM provided and sending your order to Username:TRELIB If you have a modem but not a Credit Card, you can order the items on the BBS and post your Cheque or Money order to the above address.

Here is the Phillips family at the club Shop...

I'm convinced! No one is closely examining their tapes to find that mystery program at the end that will allow the lucky buyer to claim the prize from the Shop. So far 3 lucky tapes have been sold and no one has claimed any of the prizes. Never mind I will try again this month.

This months tape/disk will be mainly business or home use programs and will be titled TAPE 1985/8. Also a new disk of ADVENTURE programs will be available. The disk contains three adventures - VAMPIRE CASTLE, MISTY HILL & SCHOOL OF DEATH - all of which were converted from other systems by Assistant Librarian, Fred Morris. Fred has done a good job with the conversions and I am sure you will be impressed. Tapes are still $3 at meetings or $4 posted while disks remain at $5 at meetings - $6 posted.

Just received is Home Computer Magazine Volume 5 No. 4. Copies of Volume 5 No. 2 are still outstanding but whould be here very soon. To be quite honest I am not impressed with the contents of the latest issue. Perhaps the one saving grace is what appears an excellent program called RUN-DAY-VIEW which is an electronic date book. Apart from that there is a re-hash of Lost Ruins - a game which appeared in an early edition of the old 99'er Magazine, a game called Mine Over Matter, a trigonometry program called Trig-Trix and precious little else. Not good enough for TI users in my view. Anyway if you want a copy $8 will get you one at the meeting or $9 by post.

At the committee meeting in June it was decided to engage the services of a customs agent to clear imported products from overseas. This will enable importing of sufficient quantities of Cartridge Expanders, Console Writers, DBM Systems etc to meet the demand. An order has been placed and the goods should arrive in time to be on sale at the September meeting. Prices wil need to be determined after all costs have been taken into account.

Further supplies of disks have been ordered from Memorex and the good news is that they will sell for the same price of $25 per box of 10.

Our Music Co-ordinator, Russell Welham, has come to the rescue of members who cannot locate TI Joysticks or the adaptors required to use other joysticks. Russell makes an excellent, very robust adaptor and I currently have three for sale at $25 each. If you want one get in quick. If the demand is there I am sure we can twist Russell's arm to make some more.

Now for a bit of general news. I received from Tenex the latest copy of their Every Thing Book for the TI. Very interesting reading and it is surprising the amount of software and hardware still available in the USA for the TI. A copy of the book will be at the August meeting for members perusal. In the June issue of MICROpendium there is a 3 and a bit page review of GRAPHX which gets an "A" rating. The review is written by Chris Bobbitt one of my correspondents whom you may recall I mentioned in this column a couple of months back and who loudly sang his praises of our SND. In the same issue there is a review of an "A" rated Data Base package from SPC Software, Box 121, Brightwaters NY 11718. Cost is $US29.95. I have a copy of this package and can vouch that it is as described in the review.

Three programs - ACROSS THE TASMAN, TARKONS ESCAPE & TIPTOE-TOM - have been given to the committee to evaluate. All programs as given require 32K memory expansion to run. Provided they are deemed as suitable by the committee they will be available for sale to members.

On other pages there are 2 programs from the library for you to type in. The first is TYPE-MAN in Extended Basic and the second is SPELL-TUTOR in Basic. Speech is available as an option on the second program if you have the TE2 module.

Terry.

Letters to the Editor

The Editor,
TISHUG
Dear Shane,

I am extremely disappointed to note that the Communicators section in the SND is to be discontinued, (ref TEXPAC CBBS Sysop comment July 1985).

I believe that it is essential that the SND should contain a balance of the whole range of topics applicable to all aspects of the computer on which TISHUG and the SND are based. The Communicators, Forth, Assembly, Logo, Extended Basic, Basic, Technical Topics are all equally important as are basic tutorials, reviews of new books, games, new software and hardware, the club shop, editorial and secretary's column, not to forget the younger set who look forward just as much as anyone else to receiving the monthly magazine.

The establishment of a special interest group for the communicators may certainly allow the distribution of special information which may be too detailed or bulky for the SND but the complete removal of the Communicators will, in my opinion, cause an imbalance in the scope and outreach of the SND.

I urge readers to show their support of the committee of TISHUG by responding to the plea for more articles from the membership or assisting with the culling and preparation of material of interest from other sources. The very existance of any club like TISHUG is totally dependant on enthusiastic membership support.

Yours Faithfully,
Ross Mudie.

Jenny's YOUNGER SET under 18's page

Hi kids, well, here we are for another month, with some very interesting letters.
I hope that you will all take the time to enter my latest competition that I spoke of in last months Sydney News Digest.

Here are a couple of programs for you to type in from Younger Set member Wayne Cooper of Armidale. If you would like to exchange ideas and software with him, he can be reached at 22 Wigan Ave, Armidale, 2350...

"OH WHEN THE SAINTS..."

```
10 DATA 300,262,300,330,300,349,900,392,300,
262,300,330,300,349,900,392,300,262,300,330,
300,349

20 DATA 600,392,600,330,600,262,600,330,900,294,
300,330,300,330,300,294,600,262,600,330,600,392

30 DATA 300,392,1200,349,300,330,300,349,600,
392,600,330,600,262,600,294,900,262

40 RESTORE 10::FOR I=1 TO 31::READ X,Y::CALL
SOUND(X,Y,0)::NEXT I
```

Please note that these are in Extended Basic

"ADVANCE AUSTRALIA FAIR"

```
10 DATA 300,392,300,523,300,392,300,330,300,392,
450,523,150,523,300,523,300,659,300,587

20 DATA 300,523,300,494,300,523,900,587,300,392,
300,523,300,392,300,330,300,262,450,392,150,392

30 DATA 300,392,300,659,300,587,300,523,300,494,
300,440,900,342,300,392,450,440,150,494,300,523

40 DATA 300,440,450,392,150,330,300,330,300,392,
300,440,300,523,300,698,300,659,900,587,300,392

50 DATA 450,440,150,494,300,523,300,440,450,392,
150,523,300,523,300,587,450,659,150,523,450,587

60 DATA 150,494,900,523,300,659,300,698,300,659,
300,587,300,523,300,494,300,440,300,392,300,523

70 DATA 450,659,150,523,450,587,150,494,900,523

80 RESTORE 10::FOR I=1 TO 70::READ X,Y::CALL
SOUND(X,Y,0)::NEXT I
```

Thank you for those Wayne, keep them coming.

I received some entries of the Cartoon Competition, possibly held up by Australia Post, which we too late to enter...so I thought that I would share a few of them with you.

These cartoons are from Scott Willock of "Gunyah" Gunnedah N.S.W. 2380. He writes..."My brother and I have drawn up a few acrtoons...""You won 't see us at the meetings because we live about 350 miles from you, but would very much like to attend and meet you some time, that is if possible."

Thank you Scott, I would like to meet you and your brother some day also, but distance doesn't permit it. Keep in touch, and hope to see you when you can come to Sydney.

Because of the shortage of space available in this issue, I am unable to share other late comers with you. Next month, I want to share two cartoons with you from Todd Winterford.

Here's a letter from the runner-up in that Cartoon Competition, Joshua Rust of Kempsey N.S.W....
Dear Jenny, It's me again! This time I'd like to ask if anyone can help me with something. I'd like to know how to SCROLL the screen(like in Parsec or Buckrogers) Since I last wrote, I have aquired many new games, some on tape and 4 on cartridge. I have now got MASH, PARSEC, BUCKROGERS and RETURN TO PIRATES ISLAND. I have received 2 letters from other members thanks to your sugestion.

Anyone out there with Return to Pirates Isle that would like to trade hints, please write to me at LOT 751 Amridale Rd, WILLAWARRIN, KEMPSEY. 2440. Can you tel me about the availability of the PE BOX and how to atach a Disk Drive to it.

Is there any difference between the Grey and black TI's?...is it possible to program machine code without Editor/Assembler? Is it possible to have more than one colour to a charactor or Sprite?

WELL, JOSH, WHAT A LETTER. The only Peripheral Boxes avalable commercially now, are the new COR-COMP ones from IMAGIC(Australia)and the disk drive simply plugs into it. Check with them about details. There are also individuals who sell theirs, like the one in the TI.S.H.U.G CLASSIFIED SECTION of this SND. No, there is no major difference between the Black and Grey TI's othe than to say that the grey one cost TI less to produce. The only difference you should watch out for is the V2.2 model. The V2.2 version won't run some 3rd party modules. If you have got V2.2 on the bottom/right hand side of your TEST PATTERN screen, then programs like HENHOUSE won't work.

BYE for now,
Come on kids lets hear from you soon.
Yours in computing the TI WAY,

Jenny

JENNY.

REGIONAL REPORT: Reports from our Regional Home-group leaders...

"See you there 'cause we care"

REPORT OF GLEBE REGIONAL GROUP JULY MEETING.

the July meeting of the Glebe regional group was held on Tuesday July 9. A small but enthuasiastic group attended and Shane Ferrett gave an impromptu tutorial on TI-FORTH.

Some of the latest software available was demonstrated and discussed. It was felt that TI/990POLY was a great program but that there were errors in the interpretation of some of the rules. this related to Chance or Community Chest cards.

The next meeting will be held on Tuesday August 6 at 8 P.M. at 43 Boyce St. Glebe.

If there is sufficient interest I will give a tutorial on basic LOGO.

Hope to see you there.

MIKE SLATTERY

ILLAWARRA REGIONAL GROUP

The theme for our August meeting is MUSIC & SOUNDS. Topics have been arranged for the remaining meetings for this year.

A social event has been planned for the 26th October. It will be a BBQ-FUN-DAY to be held at Cordeaux Dam. The exact details will be made available at a later date.

NEXT MEETING: 19th August 1985
7:30pm at St.Matthews Church Hall, Philips Cres; Mangerton. Contact:R Montgomery on (042)286463

BANKSTOWN REGIONAL GROUP

Activities in this group are increasing due in no small way to the contributions of Shane Ferret. His monthly visits to share his wealth of knowlege are appreciated by all. Shane also attends two other regional group meetings where I'm sure he is equally welcome.

Bankstown has only one entry in the GRAPHX competition which is disappointing considering all the talent around.

Two of our younger members show promise as programers so hurry up both of you and submit your entrys to the monthly competitions.

Meetings are still held on the third Sunday of the month 7:00 PM. or for downloading club software it is better to come along another evening especially if you only have cassets. Phone David on (02)7084293 or call at 15/479 Chapel Rd. Bankstown.

LIVERPOOL REGION MEETING

The May meeting was held on 24/5/85 at David Ball's of Seven Hills. Most of the evening members were entertained with some very good programmes that have been coming in from overseas in recent months. The theme for the evening was 'subprograms' and a very good graphic display of Australia(including Tasmania) was provided by Kevin Gardiner. The programme was built up using Kevin's AUTO GRAPHICS.

The opportunity is taken to thank David Ball for the fine contribution that he has made in his support of the Liverpool region group.

The June meeting was held at Hans Zecevic's place the theme being communications with the color VIATEL system having been demonstrated.

The July meeting was held at Vince Cerato's place and the theme for this meeting was ASSEMBLER LANGUAGE presented by KEVIN GARDINER(Author of that great programme AUTO GRAPHICS.

FORTHCOMING MEETINGS:

FRIDAY 9TH AUGUST, 1985 (7 pm)
*** STAN PUCKLE'S ***
*** 15 RICHMOND CRESCENT * Topic: ASSEMBLY LANGUAGE
*** CAMPBELLTOWN * ==========
*** phone 046-256257 ***

SATURDAY 14TH SEPT, 1985(12 noon)
*** ROSS HARDY'S ***
*** 15 EXCELSIOR STREET *** Topic: FILE HANDLING
*** MERRYLANDS *** ==========
*** phone 02-6376772 ***

FRIDAY 11TH OCTOBER, 1985 (7 pm)
*** CYRIL BOHLSEN'S ***
*** 4 MADELINE AVENUE *** Topic: MULTIPLAN
*** NORTHMEAD *** ==========
*** phone 02-6395847 ***

SAT 9th NOVEMBER,1985(12 noon)
*** PHIL RUSSO *** Topic: WORD PROCESSING
*** 52 GOULBURN STREET *** ==========
*** RUSE ***
*** phone 046-259443 ***

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ACCESSING SPEECH WITH THE "COR-COMP"9900

MICRO-EXPANSON SYSTEM

If you are having trouble accessing SPEECH using THE TERMINAL EMULATOR II MODULE (ie. OPTION 2-BASIC on the COR-COMP menu screen).

TO CORRECT THIS ! when the COR-COMP menu is showing on the screen :-
PRESS the SPACE BAR TWICE this will take you through the COLOUR BAR SCREEN to the T.I.SCREEN.
Now select OPTION 1 (BASIC)
LOAD PROGRAM in the usual way and it will work OK.

By C.Bohlsen (Liverpool Regional Group) from imformation given by TRENT of IMAGIC (Sydney).

MORE

REGIONAL REPORT:
Reports from our Regional Home-group leaders...
"See you there 'cause we care"

Interfacing devices to the RS232 card PIO port.

By Geoff Trott, Wollongong Group

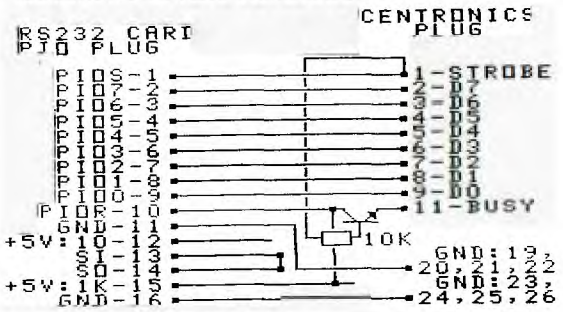
The parallel output port has 8 lines for the byte of data and two lines for handshaking. One of these lines produces a STROBE signal which is used by the printer to load the data, and the second line is a DATA TAKEN signal from the printer, which is used by the program to know when to send the next byte of data. The software in the Device Service Routine (DSR) of the RS232 card uses these signals as follows.

(1) Wait until DATA TAKEN is asserted.
(2) Put the byte of data on the data lines.
(3) Assert the strobe signal.
(4) Wait until the DATA TAKEN signal is not asserted.
(5) De-assert the STROBE signal.
(6) Return to the calling program.

This means that the signal which is fed into the DATA TAKEN line must behave like a BUSY for the printer. This is asserted by the STROBE and is de-asserted when the printer is ready for the next byte of data (with the correct assertion levels of course). Most printers have a BUSY signal, an ACKNOWLEDGE signal as well as expecting a STROBE and 8 bits of data. Some printers use the BUSY as expected by the RS232 DSR, and with the correct assertion levels. However printers like the colour printer/plotter only use the BUSY to indicate that the device is unable to receive any more bytes of data until it has printed (plotted) some. These devices do not use BUSY while bytes are being stored in their internal buffers, until these buffers are full. The ACKNOWLEDGE signal is used to signify the device is ready to receive the next byte of data, but this is only a short pulse (5 microseconds) which the hardware/software of the RS232 card would usually not see.

To overcome this problem, if it is assumed that the printer can accept bytes into its buffer as fast as the RS232 card can send them, then the addition of a resistor and NPN transistor will enable printers of either type to be used. The idea is to OR the STROBE (complemented) and the BUSY to get the signal for DATA TAKEN. The accompanying figure shows the connections for the cable, with the resistor and transistor most easily placed inside the cover of the 36 pin Centronics plug on the printer end of the cable, if this is a solder type plug.

PARALLEL PRINTER MODIFIED
WIRING...G.TROTT..WOLLONGONG



COMMENT by TECHNICAL CO-ORD:
(The above circuit should work on the majority of printers, but not with true 'CENTRONICS' printers. This is because they require a strobe pulse, not just a change in logic level. Also 'CENTRONICS' printers send out only an acknowledge pulse on receipt of data, NO BUSY SIGNAL. A busy pulse is sent out only when the printer goes off line to actually print or act upon receipt of a control code. Next month I will include timing diagrams of a true 'CENTRONICS' printer in the 'TECHO TIME' column.)
ROBERT.

This is Peter Schubert with his own design MODEM-COMMUNICATION CARD for your Peripheral Expansion Box. This is one of a number of products Peter has designed so that we can communicate with each other in the eighties. See his adverts for both the VIATEL-MODEM card and his stand-a-lone 32K expansion box.

TECHO TIME

For those club members who have purchased the TEAC F 55B disk drives but are not sure as to how to configure them to suit the TI system. The details are as follows,

DS0-DS2 ... drive select 1-3 (link desired drive number)

MX ..single/multiple system (leave open)

*HL ... head load on select (link to load head on drive select)

*HM ... head load on motor (link to load head when drive motor turned on)

* drives fitted with one of these options.

In multiple drive systems a resistor termination should be removed from one of the drives (preferably the last drive on the signal cable.

A typical two drive system would be as follows.

DRIVE 1.

DS0 ... linked
HL/HM ... linked
Resistor pack removed.

DRIVE 2.

DS1 ... linked
HL/HM ... linked
Resistor pack fitted.

Refer layout diagram.

* DO NOT ALTER OTHER LINKS.

I have also received word that ISOPROPYL ALCOHOL, (available from chemists) is highly recommended for cleaning electrical contacts. This is because no residue is left to contaminate the contacts.

And Les Traucki of Turramurra asks how to modify a second RS 232 interface card for the expansion box.

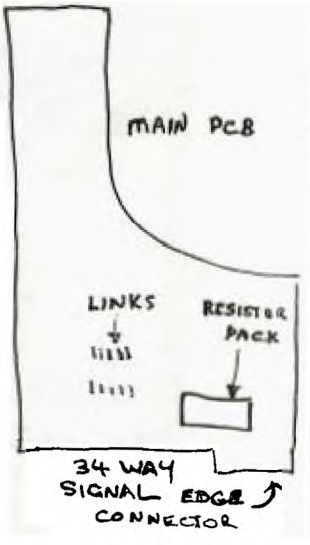
The modification is achieved by moving R5 on the card to a position marked as TH1. This enables the PAL (Programmable Array Logic device) to respond to a second pre-programmed address.

Technical manuals (which include circuits of the computer and expansion system) are available for $15 at club meetings or from the club Librarian (please add $3.50 postage & handling).

If anyone has a technical problem or wishes to contribute technical articles then contact me (ROBERT) on - 602-4168 between 5.00-8.30 PM (PLEASE STICK TO THESE TIMES) or send a letter to

TECHO TIME
P.O. BOX 595
MARRACKVILLE 2204

ANYONE WISHING TO OBTAIN INFORMATION, PLEASE SEND A SELF-ADDRESSED ENVELOPE (WITH SUFFICIENT POSTAGE STAMPS) TO THE ABOVE ADDRESS.



TI.S.H.U.G CLASSIFIEDS

SELL: Buckrogers $25 Munchman $25, Structural Engineering Library $10, Graphics Code Generator - Sprite designing $15. OFFERS TAKEN ON ALL. Contact Greg Vaughan (02)954482 A/H.

SELL: TI PHP1250 No.1 Disk Drive $200 (or nearest offer) TI PHP1700 RS232 Interface (STAND-A-LONE)$120 O.N.O. Contact:D.PAWLEY on 6372522

WANTED TO BUY: TI LOGO Cartridge Phone(047)353915.

SELL:TI 48K PE BOX with Disk Drive, Extended Basic,Mini Memory Module, TI WRITER, MULTIPLAN, STAR DP515 132 column Printer Software and Magazines. Cost $3,000 sell at $2400 o.n.o. Phone Brian 7743223.

SELL: TI Internal Disk Drive, easily adapted for 2nd drive $140. Phone (02)5331310 A/H.

who ya gonna call

THE PROGRAMMER CRISIS LINE

Any Monday to Wednesday 10am-4pm and any other days 10am-9pm. (02)99-2229.

Secretary's Notebook
with JR

Hi! One of the messages which came out of the recent survey was that most members wanted to know more about the workings of your committee. As you know we meet on the third Tuesday of the month, except in January, at Woodstock Hall in Burwood. The meeting opens at 6.30pm and any member may attend to listen to the business being conducted. As we only ever have a handful of members, who attend this meeting it was decided at the June meeting to have the secretary write a summary of the business conducted and include it in this column. So here is the summary:

Peter Varga was unable to attend so in accordance with the constitution yours truly became Acting Chairman. Graeme Sanderson from Computer Resources Pty. Ltd outlined the services and products available from his organisation. We invited Graeme to quote for the supply of consumables such as paper, printer ribbons, and lables. If they are competitive you will be able to order direct from the company and the club will be rewarded with a small rebate.

A letter is to be sent to TI concerning the future level of service and possible maintenance agreements for members' computers. TI has agreed to provide the club with some computers for spare parts for a small nominal charge. Fred Morris and I have been working on new software to improve the mailing list file maintenance. It is expected that the new files will be operational in time for the August mailing of the club magazine. The benefit to members will be an improved service for renewals and change of address notices. The workload for the secretary will be very much reduced as the use of the Report Generator and Personal Record Keeping software has become too unwieldy to manage the clubs database efficiently.

I showed samples of a proposed binding method for newsletters. We believe if we are to implement a library service it will be necessary to make the magazines and newsletters received from overseas more durable.

We intend to produce a special new member package, which will give all new members more information, particularly on how to use the club shop properly and a listing of the club software already issued.

It was agreed that any member who brings in 5 new members will pay only 50% of renewal fee. Non financial members 3 months and over will be given a $6 voucher to spend at the club shop. Promotion to run one month only.

Members renewing within 3 months of the due date be given the same incentive to find new members as previously mentioned.

To shorten the waiting period for some of the overseas purchases the size of any one order be increased up to $3000. The orders will be cleared by a customs agent. At the moment we can only bring in shipments valued at no more than $250. The following purchases were approved:

300 Tapes @ $1.05 each
20 Console Writers @ US$20 each
30 Cartridge Expanders @ US$23 each
6 DBM cartridges @ US$55 each
6 Consolecalc @ US$22.50 each

Keir Wells has been appointed review columnist for the SND.

The main mailing point will be changed from BLACKTOWN to PENNANT HILLS. This has been made necessary as I have changed jobs and will no longer work in Blacktown. We have to nominate a post office as this is one of the conditions imposed by Australia Post in return for a lower postal charge.

MONTHLY SOFTWARE COMPETITION. As the previous months software submitted by members was not of a high enough standard it was decided that no $50 prize be awarded this month. This is the first time we have had to do this. Smaller prizes will be awarded.

CONSTITUTION. Brian Graham will examine the constitution and make recommendations for any changes that may be required to comply with new club legislation. In view of this the constitution will not be reprinted until the membership has approved the changes. We intend to include a code concerning software piracy.

Raymond Hirst phoned from Perth wanting to know if anyone had been able to debug the SNAPCALC program which appeared in the HCM Vol 4 #3 and #5. He believes there is updated version published in a later HCM but hasn't been able to find it. If anyone can help drop a note to Box 149 and I will pass it on to Ray.

I don't have any mail this month as I am writing my June and July column at the same time. I am doing this as I will be away in England during July.

Don't forget to renew your membership if the date on you address lable is AUGUST 1985. I have received a number of renewals with cheques for only $20. Please note the renewal fee is presently $22 and will be increased soon to defray additional costs recently incurred for postage , printing etc.

Russell Welham phoned to advise that Daneva Pty Ltd. is now selling Chinon DS/DD slimline drives for only $139 plus tax. Send your orders to: PO Box 114 Sandringham Victoria 3191.

Running out of memory.....

Happy Computing,

John Robinson.
Hon. Secretary.

This is Graeme - GRACE on the BBS busily at work at home on his TI system. Nice set-up you have there Graeme and judging by the picture of you a few "outdoor" activities might be in order when the warmer weather arrives!!!

```
100 REM HERE ARE SOME PROGRAMS FOR YOU TO TYPE IN. TAKE YOUR TIME AND TYPE
110 REM CAREFULLY. THE LISTINGS ARE FROM [illegible] PROGRAMS. SO IF THEY CRASH
120 REM CHECK YOUR TYPING. HAPPY KEYI[illegible] THE PROGRAMS - TISHUG.
130 REM HERE ARE SOME PROGRA[illegible] TAKE YOUR TI[illegible] TYPE
140 REM CAREFULLY. THE L[illegible] ED PROGRAMS[illegible] CRASH
150 REM CHECK YOU[illegible] HUG.
160 REM HER[illegible] TIME AND TYPE
170 R[illegible] SO IF THEY CRASH
180 R[illegible] THE PROGRAMS - TISHUG.
190 RE[illegible] IN. TAKE YOUR TIME AND TYPE
200 REM [illegible] TESTED PROGRAMS. SO IF THEY CRASH
210 REM CHECK YOUR TYPING. HA[illegible] NG. AND ENJOY THE PROGRAMS - TISHUG.
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PROGRAM LISTINGS

```
100 REM TI BASIC
110 REM SPELLING TUTOR
120 REM FROM CHANNEL 99
130 REM ********************
**********
140 REM * MIKE TOWERS AND BR
ADY GILL *
150 REM ********************
**********
155 REM ENTER CALL FILES(1)
156 REM THEN NEW IF USING
157 REM DISK DRIVES
160 CALL CHAR(136,"00000000F
FFFFFFF")
170 CALL CHAR(137,"3F/F/FFFF
FFFFFFF")
180 CALL CHAR(138,"FFFFFFFFF
FFFFFFF")
190 CALL CHAR(139,"F0F0F0F8F
FFFFFFF")
200 CALL CHAR(140,"00000000F
0F0F0F0")
210 CALL CHAR(141,"0103070F0
F1F1F3F")
220 CALL CHAR(142,"00808080C
0C0E0E")
230 CALL CHAR(143,"03070F1F3
F7FFFFF")
240 CALL CHAR(144,"00C0E0F8F
CFEFFFF")
250 CALL CHAR(152,"0F03")
260 CALL CHAR(153,"FF3330303
0303030")
270 CALL CHAR(154,"C")
280 CALL CHAR(155,"000000000
E0F7F3F")
290 CALL CHAR(156,"000000000
1CFFFFF")
300 CALL CHAR(157,"00000000C
0F0F8F")
310 CALL CHAR(96,"80C0C0E0E0
F0F8FC")
320 CALL CHAR(40,"0F0F0F0F0F
0F0F0F")
330 CALL CHAR(41,"FFEFE7E3C6
F8E")
340 CALL CHAR(42,"FFFFEB81")
350 CALL CHAR(43,"FFFFFFFFFF
7F3F03")
360 CALL CHAR(44,"F0F0F0F0F0
F0F0F")
370 CALL CHAR(45,"00E0F8ECCF
C78FDF")
380 CALL CHAR(46,"0000000000
89FFFF")
390 CALL CHAR(47,"00031F73E3
F1E3F7")
400 CALL CHAR(97,"7E7F7F3F3F
1F1F0F")
410 CALL CHAR(98,"0F0F070703
01")
420 CALL CHAR(99,"C0F8FFFFFF
FFFFF")
430 CALL CHAR(100,"FFFFFFFF7
F0F01")
440 CALL CHAR(101,"000000000
000010F")
450 CALL CHAR(102,"FFFFFFFFF
FFFFFF")
460 CALL CHAR(103,"FFFFFEFCF
8E08")
470 CALL CHAR(104,"7070C0C08
08")
480 CALL CHAR(105,"081818183
87878F")
490 CALL CHAR(112,"000080C0F
0F8FCFF")
500 CALL CHAR(113,"FFFFFFFFF
FFFFFF")
510 CALL CHAR(114,"3F0F07010
")
520 CALL CHAR(115,"0001FFFFF
FFFFFF")
530 CALL CHAR(116,"FFFFFFFFF
FFFFF")
540 CALL CHAR(117,"0103070F3
F7FFFFF")
550 CALL CHAR(118,"FEFCFCF8F
8F0E0C")
560 CALL CHAR(120,"000000000
000183C")
570 CALL CHAR(121,"000080808
08")
580 CALL CHAR(122,"000001010
101")
590 CALL CHAR(123,"3C18")
600 CALL CHAR(124,"18183C3C7
E7EFFFF")
610 CALL CHAR(128,"00183C7E7
E3C18")
620 FOR C=4 TO 8
630 CALL COLOR(C,16,2)
640 NEXT C
650 CALL SCREEN(2)
660 CALL COLOR(3,16,2)
670 CALL COLOR(4,16,2)
680 CALL COLOR(2,6,2)
690 CALL CLEAR
700 GOSUB 2790
710 DIM WORD$(176)
720 DIM NEWW$(100,1)
730 DATA ELEVATOR,RECORDER,C
OMPUTER,CHILDREN,LANGUAGE,IN
STRUMENT,MATTRESS,SOFTWARE,M
AGAZINE,SURVIVE,DUNGEON
740 DATA VOCABULARY,VOLCANO,
HANDICRAFT,SUPPLY,SUPPER,SUP
ER,OBJECT,WILDLIFE,DICTIONAR
Y,EDITION,FRAGILE,CASSETTE
750 DATA TROPHY,PROCESSER,BE
LIEVE,PILLOW,ADVENTURE,TELEP
HONE,TELEVISION,NEIGHBOR,FRI
END,AUTOMATIC,AUTOMOBILE
760 DATA EXPERIENCE,MISSISSI
PPI,WARRANTY,LIMITED,PERFORM
ANCE,IMPORTANT,IMPOSSIBLE,RE
FERENCE,FEBRUARY,DECEMBER
770 DATA CHRISTMAS,PELICAN,P
ROGRAM,PURCHASE,FITNESS,SPEC
IAL,REQUIRE,OBTAIN,POSTAGE,E
XCEED,REGARDE,CUSTOMER,APPLY
780 DATA POSSIBLE,TYPEWRITER
,PATTERN,CARTRIDGE,BLACKBOAR
D,QUILT,ELECTRIC,MUSHROOM,LE
ARNING,KITCHEN,HAMILTON
790 DATA SPEAKER,SYNTHESIZER
,SASKATCHEWAN,TERRITORY,TELE
GRAM,SWEATER,GRAPEFRUIT,GRAM
MAR,CHAPTER,CONTINUE
800 DATA CONSTANT,SQUARE,SQU
IRREL,GUARD,TRIVIA,AMERICA,N
ATION,PUNISHMENT,CHOCOLATE,R
EFRESHMENT,APPLICATION
810 DATA HUNDRED,SOLAR,CALCU
LATOR,OPERATE,MICROSCOPE,SCI
SSORS,FLAGPOLE,MEMORY,FUNCTI
ON,INVASION,BLANKET,CURTAIN
820 DATA ERASE,COLOUR,PROCEE
D,DELETE,INSERT,DIAL,COMPLET
E,INSTRUCTION,SOCCER,PUPPET,
SERIES,OPTION,GUIDE,HUSKIE
830 DATA WINDOW,HEART,PICTUR
E,PRACTICE,INVENTORY,AIRPLAN
E,AGAINST,COMMANDER,PLASTIC,
LIBERAL,FEATURE,DESTROY
840 DATA GIRAFFE,STATUE,ORIG
INAL,TRANSPORT,INCREASE,ELEC
TRICITY,DECISION,INVISABLE,S
YSTEM,VOLUNTEER,GRAPHICS
850 DATA MIRROR,REVERSE,LIGH
TNING,TRUMPET,STEREO,ARCADE,
JUNIOR,SCRAMBLE,PARROT,DOMIN
O,TANGERINE,MASTER,UTILITY
860 DATA PERSONAL,ENGLISH,TH
OUSAND,JERSEY,SUIT,WALLPAPER
,DESIGN,MOUSE,ANIMAL,SNOWFLA
KE,OCEAN,CHANNEL,TICKET
870 DATA OFFICIAL,LEAGUE,MON
TH,MATHEMATICS,NATIVE,MANUAL
,SUPERMARKET,ENCOUNTER,BLOUS
E,JACKET,RESIDENT,SOCIAL
880 CALL CLEAR
890 FOR L=1 TO 176
900 READ WORD$(L)
910 NEXT L
920 RANDOMIZE
930 I=INT(RND*176)+1
940 FOR SET=9 TO 16
950 CALL COLOR(SET,2,2)
960 NEXT SET
970 CALL COLOR(2,2,2)
980 PRINT "SPELL ";WORD$(I)
990 IF TE<>1 THEN 1020
1000 PRINT #2:"SPELL"
1010 PRINT #2:WORD$(I)
1020 FOR D=1 TO 200
1030 NEXT D
1040 CALL CLEAR
1050 GOSUB 1070
1060 GOTO 1630
1070 CALL HCHAR(17,13,96)
1080 CALL HCHAR(18,13,97)
1090 CALL HCHAR(19,13,98)
1100 CALL HCHAR(18,14,112)
1110 CALL HCHAR(19,14,113)
1120 CALL HCHAR(20,14,114)
1130 CALL HCHAR(19,15,99)
1140 CALL HCHAR(20,15,100)
1150 CALL HCHAR(19,16,115)
1160 CALL HCHAR(20,16,116)
1170 CALL HCHAR(18,17,101)
1180 CALL HCHAR(19,17,102)
1190 CALL HCHAR(20,17,103)
1200 CALL HCHAR(18,18,117)
1210 CALL HCHAR(19,18,118)
1220 CALL HCHAR(22,14,40)
1230 CALL HCHAR(17,16,124)
1240 CALL HCHAR(22,15,41)
1250 CALL HCHAR(22,16,42)
1260 CALL HCHAR(22,17,43)
1270 CALL HCHAR(22,18,44)
1280 CALL HCHAR(21,14,40)
1290 CALL HCHAR(21,15,45)
1300 CALL HCHAR(21,16,46)
1310 CALL HCHAR(21,17,47)
1320 CALL HCHAR(21,18,44)
1330 CALL HCHAR(18,19,104)
1340 CALL HCHAR(17,19,105)
1350 CALL HCHAR(15,13,122)
1360 CALL HCHAR(16,14,123)
1370 CALL HCHAR(15,15,121)
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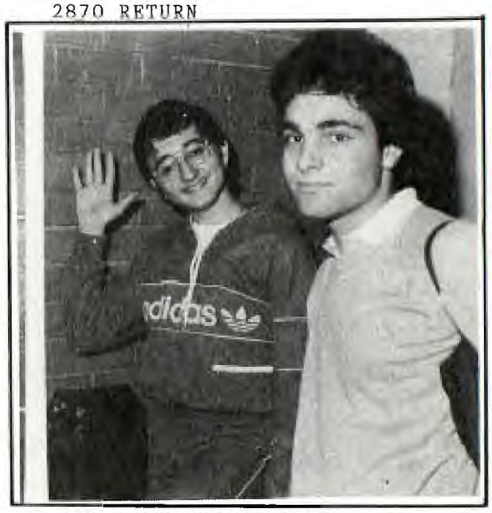
```
1380 CALL HCHAR(14,14,120)
1390 CALL HCHAR(15,14,128)
1400 CALL HCHAR(15,19,121)
1410 CALL HCHAR(16,18,123)
1420 CALL HCHAR(15,17,122)
1430 CALL HCHAR(14,18,120)
1440 CALL HCHAR(11,17,144)
1450 CALL HCHAR(10,15,152)
1460 CALL HCHAR(10,16,153)
1470 CALL HCHAR(10,17,154)
1480 CALL HCHAR(9,15,155)
1490 CALL HCHAR(9,16,156)
1500 CALL HCHAR(9,17,157)
1510 CALL HCHAR(15,18,128)
1520 CALL HCHAR(13,13,136)
1530 CALL HCHAR(13,14,137)
1540 CALL HCHAR(13,15,138,3)
1550 CALL HCHAR(13,18,139)
1560 CALL HCHAR(13,19,140)
1570 CALL HCHAR(12,14,141)
1580 CALL HCHAR(12,15,138,3)
1590 CALL HCHAR(12,18,142)
1600 CALL HCHAR(11,15,143)
1610 CALL HCHAR(11,16,138)
1620 RETURN
1630 PRINT "ENTER HELP FOR I
NSTRUCTIONS": :
1640 INPUT G$
1650 IF G$="MAKE WORDS" THEN
 2510
1660 IF G$<>"HELP" THEN 1690
1670 GOSUB 2720
1680 GOTO 930
1690 IF G$="LOAD WORDS" THEN
 2410
1700 IF G$<>"TE2" THEN 1730
1710 GOSUB 2850
1720 GOTO 930
1730 IF G$<>"END" THEN 1760
1740 CALL CLEAR
1750 STOP
1760 IF G$<>WORD$(I)THEN 179
0
1770 GOSUB 1900
1780 GOTO 930
1790 T=T+1
1800 IF T<>2 THEN 1860
1810 PRINT "THIS IS HOW YOU
SPELL IT": :WORD$(I)
1820 T=0
1830 FOR D=1 TO 700
1840 NEXT D
1850 GOTO 920
1860 PRINT "SORRY, TRY AGAIN
"
1870 FOR D=1 TO 500
1880 NEXT D
1890 GOTO 1020
1900 T=0
1910 PRINT "CORRECT"
1920 CALL COLOR(9,7,2)
1930 CALL COLOR(10,7,2)
1940 CALL COLOR(2,6,2)
1950 CALL COLOR(11,16,2)
1960 CALL COLOR(12,5,2)
1970 CALL COLOR(13,5,2)
1980 CALL COLOR(14,14,2)
1990 CALL COLOR(15,14,2)
2000 CALL COLOR(16,15,2)
2010 FOR V=0 TO 20 STEP 4
2020 FOR FR=217 TO 1400 STEP
 500
2030 CALL SOUND(-500,FR,V,FR
+2,V)
2040 NEXT FR
2050 NEXT V
2060 RETURN
2070 CALL CLEAR
2080 I=INT(RND*NW)+1
2090 FOR SET=9 TO 16
2100 CALL COLOR(SET,2,2)
2110 NEXT SET
2120 CALL COLOR(2,2,2)
2130 PRINT "SPELL ";NEWW$(I,
1)
2140 IF TE<>1 THEN 2170
2150 PRINT #2:"SPELL"
2160 PRINT #1:WORD$(I)
2170 FOR D=1 TO 200
2180 NEXT D
2190 CALL CLEAR
2200 GOSUB 1070
2210 INPUT GU$
2220 IF GU$="LOAD WORDS" THE
N 2410
2230 IF GU$<>"HELP" THEN 226
0
2240 GOSUB 2720
2250 GOTO 2070
2260 IF GU$="MAKE WORDS" THE
N 2510
2270 IF GU$<>"END" THEN 2300
2280 CALL CLEAR
2290 STOP
2300 IF GU$="OLD WORDS" THEN
 930
2310 IF GU$<>"TE2" THEN 2340
2320 GOSUB 2850
2330 GOTO 2080
2340 IF GU$=NEWW$(1,1)THEN 2
390
2350 PRINT "THIS IS HOW YOU
SPELL IT":NEWW$(I,1)
2360 FOR DELAY=1 TO 500
2370 NEXT DELAY
2380 GOTO 2070
2390 GOSUB 1900
2400 GOTO 2070
2410 CALL CLEAR
2420 OPEN #1:"CS1",INPUT ,FI
XED 32
2430 INPUT #1:NW
2440 FOR LOOP=1 TO NW
2450 INPUT #1:NEWW$(NW,1)
2460 NEXT LOOP
2470 CLOSE #1
2480 FOR LOOP=1 TO NW
2490 NEXT LOOP
2500 GOTO 2070
2510 CALL CLEAR
2520 INPUT "NUMBER OF WORDS
1 TO 100    ":NW
2530 FOR LOOP=1 TO NW
2540 INPUT "WORD ":NEWW$(LOO
P,1)
2550 NEXT LOOP
2560 PRINT "DO YOU WANT TO S
AVE THESE   WORDS TO CS1 Y O
R N?"
2570 INPUT SAVE$
2580 IF SAVE$="N" THEN 2070
2590 IF SAVE$<>"Y" THEN 2560
2600 OPEN #1:"CS1",OUTPUT,FI
XED 32
2610 PRINT #1:NW
2620 FOR LOOP=1 TO NW
2630 PRINT #1:NEWW$(LOOP,1)
2640 NEXT LOOP
2650 CLOSE #1
2660 PRINT "DO YOU WANT TO B
E TESTED ON THE WORDS YOU JU
ST ENTERED? Y OR N"
2670 INPUT CHOICE$
2680 IF CHOICE$="N" THEN 930
2690 IF CHOICE$<>"Y" THEN 26
60
2700 GOTO 2070
2710 GOTO 920
2720 CALL CLEAR
2730 PRINT "HELP=INSTRUCTION
S": :"MAKE WORDS=TO MAKE YOU
R OWN LIST OF UP TO 100 WORD
S":"<SAVING IS OPTIOAL>": :"
LOAD WORDS=TO LOAD YOUR OWN
PREVIOUS LIST FROM CS1"
2740 PRINT :"OLD LIST=TO GO
BACK TO THE  BUILT IN WORDS"
: :"END=TO END GAME": :"TE2=
TO MAKE THE COMPUTER SAY"
2750 PRINT "THE WORDS <SPEEC
H             SYNTHESIZER AND
TERMINAL    EMULATOR II REQU
IRED>"
2760 CALL KEY(3,K,S)
2770 IF S=0 THEN 2760
2780 RETURN
2790 PRINT TAB(5);"CHANNEL 9
9 HAMILTON": : :TAB(10);"PRE
SENTS": : :"SPELLING TUTOR A
GES 9 AND 10": : :" (-./,
   BY        (-./,":" ()*+,
              ()*+, ": :
2800 PRINT TAB(9);"MIKE TOWE
RS":TAB(13);"AND":TAB(9);"BR
ADY GILL"
2810 PRINT : : :"C  1984"
2820 CALL KEY(3,K,S)
2830 IF S=0 THEN 2820
2840 RETURN
2850 OPEN #2:"SPEECH",OUTPUT
2860 TE=1
2870 RETURN
```




```
100 ! EXTENDED BASIC
110 ! "TYPE-MAN"
120 ! FROM CHANNEL 99
130 ! BY MIKE TOWERS AND
140 ! STEPHEN JOHNSON
150 ! SND AUGUST 1985
160 CALL CHAR(33,"000000FFFF
")
170 CALL CHAR(36,"000000F0F8
F87838")
180 CALL CHAR(34,"0000000F1F
1F1E1C")
190 CALL CHAR(37,"38E8F8F8F"
)
200 CALL CHAR(35,"1818181818
181818")
210 CALL CHAR(38,"1C1E1F1F0F
")
220 CALL CHAR(96,"81C3E7FFFF
7E3C18")
230 CALL CHAR(100,"8100183C3
C180081")
240 CALL CHAR(104,"3C7EDBDBF
FFF5A5A")
250 CALL CHAR(97,"1F3E7CF8F8
7C3E1F")
260 CALL CHAR(98,"183C7EFFFF
E7C381")
270 CALL CHAR(99,"F87C3E1F1F
3E7CF8")
280 CALL COLOR(1,5,2):: CALL
 COLOR(9,11,2)
290 FOR SET=3 TO 8 :: CALL C
OLOR(SET,16,2):: NEXT SET ::
 CALL COLOR(2,16,2):: CALL C
OLOR(1,16,2)
```

```
300 HSCORE=0
310 GOSUB 1250
320 CALL DELSPRITE(ALL):: CA
LL COLOR(1,5,2)
330 SCORE=3000 :: MAN=97 ::
MEN=3 :: ROW=14 :: COL=16 ::
 RANDOMIZE :: MROW=2 :: MCOL
=2 :: OCOL=COL :: OROW=ROW
340 RESTORE 360
350 FOR L=1 TO 8 :: READ A,B
,C :: DIR(A,B)=C :: NEXT L
360 DATA 0,1,1,0,2,1,1,2,2,2
,2,2,1,3,2,0,3,1,0,4,0,0,4
370 INPUT "HARD 0 TO 99 ":HA
RD
380 CALL CLEAR :: CALL HCHAR
(1,2,33,30):: CALL HCHAR(23,
2,33,30):: CALL HCHAR(1,1,34
):: CALL VCHAR(2,1,35,21)::
CALL VCHAR(2,32,35,21)
390 CALL HCHAR(3,4,33,11)::
CALL HCHAR(3,18,33,12):: CAL
L HCHAR(5,4,33,11):: CALL HC
HAR(5,18,33,12):: CALL HCHAR
(7,4,33,11)
400 CALL HCHAR(7,18,33,12)::
 CALL HCHAR(9,4,33,11):: CAL
L HCHAR(9,18,33,12):: CALL H
CHAR(11,4,33,11):: CALL HCHA
R(11,18,33,12)
410 CALL HCHAR(13,4,33,11)::
 CALL HCHAR(13,18,33,12):: C
ALL HCHAR(15,4,33,11):: CALL
 HCHAR(15,18,33,12):: CALL H
CHAR(17,4,33,11)
420 CALL HCHAR(17,18,33,12):
: CALL HCHAR(19,4,33,11):: C
ALL HCHAR(19,18,33,12):: CAL
L HCHAR(21,4,33,11):: CALL H
CHAR(21,18,33,12)
430 CALL HCHAR(4,3,35):: CAL
L HCHAR(8,3,35):: CALL HCHAR
(12,15,35):: CALL HCHAR(12,1
7,35):: CALL HCHAR(12,30,35)
:: CALL HCHAR(16,15,35)
440 CALL HCHAR(12,3,35):: CA
LL HCHAR(16,17,35):: CALL HC
HAR(16,30,35):: CALL HCHAR(2
0,15,35):: CALL HCHAR(20,17,
35)
450 CALL HCHAR(16,3,35):: CA
LL HCHAR(20,3,35):: CALL HCH
AR(20,30,35)
460 CALL HCHAR(3,3,34):: CAL
L HCHAR(3,17,34):: CALL HCHA
R(7,3,34):: CALL HCHAR(7,17,
34)
470 CALL HCHAR(11,3,34):: CA
LL HCHAR(11,17,34):: CALL HC
HAR(15,3,34):: CALL HCHAR(15
,17,34):: CALL HCHAR(19,3,34
):: CALL HCHAR(19,17,34)
480 CALL HCHAR(1,32,36):: CA
LL HCHAR(23,1,38):: CALL HCH
AR(23,32,37):: CALL HCHAR(3,
15,36):: CALL HCHAR(3,30,36)
:: CALL HCHAR(7,15,36)
490 CALL HCHAR(7,30,36):: CA
LL HCHAR(11,15,36):: CALL HC
HAR(11,30,36):: CALL HCHAR(1
5,15,36):: CALL HCHAR(15,30,
36):: CALL HCHAR(19,15,36)
500 CALL HCHAR(19,30,36):: C
ALL HCHAR(5,3,38):: CALL HCH
AR(5,17,38):: CALL HCHAR(9,3
,38):: CALL HCHAR(9,17,38)::
 CALL HCHAR(13,3,38)
510 CALL HCHAR(13,17,38):: C
ALL HCHAR(17,3,38):: CALL HC
HAR(17,17,38):: CALL HCHAR(2
1,3,38):: CALL HCHAR(21,17,3
8):: CALL HCHAR(5,15,37)
520 CALL HCHAR(5,30,37):: CA
LL HCHAR(9,15,37):: CALL HCH
AR(9,30,37):: CALL HCHAR(13,
15,37):: CALL HCHAR(13,30,37
):: CALL HCHAR(17,15,37)
530 CALL HCHAR(17,30,37):: C
ALL HCHAR(21,15,37):: CALL H
CHAR(21,30,37):: GOSUB 540 :
: GOTO 590
540 DISPLAY AT(4,2):"TOP:" :
: DISPLAY AT(4,6):HSCORE ::
DISPLAY AT(4,16):"SCORE:" ::
 DISPLAY AT(4,22):SCORE :: D
ISPLAY AT(8,2):"SPARE MEN:"
550 DISPLAY AT(8,11):MEN-1
560 CALL HCHAR(4,15,35):: CA
LL HCHAR(4,17,35):: CALL HCH
AR(4,30,35):: CALL HCHAR(8,1
5,35):: CALL HCHAR(8,17,35):
: CALL HCHAR(8,30,35)
570 CALL HCHAR(4,16,INT(RND*
26)+65):: CALL HCHAR(8,16,IN
T(RND*26)+65)
580 RETURN
590 FOR DCOL=2 TO 31
600 CALL HCHAR(2,DCOL,(INT(R
ND*26)+65)):: NEXT DCOL
610 FOR DCOL=2 TO 31 :: CALL
 HCHAR(6,DCOL,(INT(RND*26)+6
5)):: NEXT DCOL
620 FOR DCOL=2 TO 31 :: CALL
 HCHAR(10,DCOL,(INT(RND*26)+
65)):: NEXT DCOL
630 FOR DCOL=2 TO 31 :: CALL
 HCHAR(14,DCOL,(INT(RND*26)+
65)):: NEXT DCOL
640 FOR DCOL=2 TO 31 :: CALL
 HCHAR(18,DCOL,(INT(RND*26)+
65)):: NEXT DCOL
650 FOR DCOL=2 TO 31 :: CALL
 HCHAR(22,DCOL,(INT(RND*26)+
65)):: NEXT DCOL
660 FOR DROW=2 TO 22 :: CALL
 VCHAR(DROW,2,(INT(RND*26)+6
5)):: NEXT DROW
670 FOR DROW=2 TO 22 :: CALL
 HCHAR(DROW,16,(INT(RND*26)+
65)):: NEXT DROW
680 FOR DROW=2 TO 22 :: CALL
 HCHAR(DROW,31,(INT(RND*26)+
65)):: NEXT DROW
690 REM
700 CALL HCHAR(ROW,COL,MAN)
710 CALL SPRITE(#2,104,7,MRO
W*8-7,MCOL*8-7)
720 CALL KEY(0,K,S):: IF S=0
 THEN 700
730 CALL GCHAR(ROW+1,COL,A)::
 CALL GCHAR(ROW-1,COL,B)::
CALL GCHAR(ROW,COL+1,C):: CA
LL GCHAR(ROW,COL-1,D)
740 IF A<>K THEN 800
750 KEYS=0
760 SCORE=SCORE+(K-64)
770 MAN=98
780 OROW=ROW
790 ROW=ROW+1 :: OCOL=COL ::
 CALL HCHAR(OROW,OCOL,(INT(R
ND*26)+65)):: GOTO 1000
800 IF B<>K THEN 890
810 KEYS=0
820 SCORE=SCORE+(K-64)
830 MAN=96
840 OROW=ROW
850 ROW=ROW-1
860 OCOL=COL
870 CALL HCHAR(OROW,OCOL,(IN
T(RND*26)+65))
880 GOTO 1000
890 IF C<>K THEN 940
900 KEYS=0
910 SCORE=SCORE+(K-64)
920 MAN=97
930 OCOL=COL :: COL=COL+1 ::
 OROW=ROW :: CALL HCHAR(OROW
,OCOL,(INT(RND*26)+65))
940 IF D=K THEN 950 ELSE 990
950 KEYS=0
960 SCORE=SCORE+(K-64)
970 MAN=99
980 OCOL=COL :: COL=COL-1 ::
 OROW=ROW :: CALL HCHAR(OROW
,OCOL,(INT(RND*26)+65)):: GO
TO 1000
990 SCORE=SCORE-50 :: IF SCO
RE<1 THEN 1150 :: GOTO 1000
1000 IF INT(RND*100)>HARD TH
EN NDIR=INT(RND*4)+1 ELSE ND
IR=DIR(SGN(ROW-MROW)+1,SGN(C
OL-MCOL)+1):: IF NDIR=0 THEN
 NDIR=3
1010 ON NDIR GOTO 1020,1030,
1040,1050
1020 KEYS=KEYS+1 :: IF KEYS>
3 THEN SCORE=SCORE-10 :: IF
SCORE<1 THEN 1150 :: CALL GC
HAR(MROW-1,MCOL,HW):: IF HW>
64 THEN MROW=MROW-1 :: GOTO
1060
1030 KEYS=KEYS+1 :: IF KEYS>
3 THEN SCORE=SCORE-10 :: IF
SCORE<1 THEN 1150 :: CALL GC
HAR(MROW,MCOL+1,HW):: IF HW>
64 THEN MCOL=MCOL+1 :: GOTO
1060
1040 KEYS=KEYS+1 :: IF KEYS>
3 THEN SCORE=SCORE-10 :: IF
SCORE<1 THEN 1150 :: CALL GC
HAR(MROW+1,MCOL,HW):: IF HW>
64 THEN MROW=MROW+1 :: GOTO
1060
1050 KEYS=KEYS+1 :: IF KEYS>
3 THEN SCORE=SCORE-10 :: IF
SCORE<1 THEN 1150 :: CALL GC
HAR(MROW,MCOL-1,HW):: IF HW>
64 THEN MCOL=MCOL-1 :: GOTO
1060
1060 CALL LOCATE(#2,MROW*8-7
,MCOL*8-7):: IF HW=MAN THEN
1070 ELSE 690
1070 DMAN=96 :: CALL DELSPRI
TE(ALL)
1080 FOR D=1400 TO 1000 STEP
 -20 :: IF DMAN=99 THEN DMAN
=96 ELSE DMAN=DMAN+1 :: CALL
 HCHAR(ROW,COL,DMAN):: CALL
SOUND(-10,0,0)
1090 NEXT D :: CALL HCHAR(RO
W,COL,100):: FOR VO=0 TO 30
STEP 3 :: CALL SOUND(-40,140
0,VO):: NEXT VO
1100 MEN=MEN-1 :: IF MEN=0 T
HEN 1150
1110 SCORE=SCORE+HARD :: CAL
L HCHAR(ROW,COL,INT(RND*26)+
65)
1120 MAN=97 :: ROW=14 :: COL
=16 :: MROW=2 :: MCOL=2 :: O
COL=COL :: OROW=ROW
1130 SCORE=SCORE-HARD
1140 GOSUB 540 :: GOTO 690
1150 IF HSCORE<SCORE THEN HS
CORE=SCORE
1160 MEN=3 :: ROW=14 :: COL=
16 :: MROW=2 :: MCOL=2 :: OC
OL=COL :: OROW=ROW
1170 CALL CLEAR
1180 PRINT "YOUR SCORE WAS "
;SCORE:"DO YOU WISH TO PLAY
AGAIN?  Y OR N"
1190 CALL KEY(0,K,S):: IF S=
0 THEN 1190 :: IF K=89 THEN
1200 :: IF K<>78 THEN 1190 E
LSE END
1200 SCORE=3000
1210 PRINT "DO YOU WISH THE
SAME        HARDNESS LEVEL?
Y OR N"
1220 CALL KEY(0,K,S):: IF S=
0 THEN 1220 :: IF K=89 THEN
380 :: IF K<>78 THEN 1220
```

```
1230 INPUT "HARDNESS 0 TO 99
 ":HARD
1240 GOTO 380
1250 CALL CLEAR
1260 DISPLAY AT(3,3):"CHANNE
L 99 USER'S GROUP" :: DISPLA
Y AT(4,10):"PRESENTS" :: DIS
PLAY AT(6,10):"TYPE MAN" ::
DISPLAY AT(8,13):"BY"
1270 DISPLAY AT(10,9):"MIKE
TOWERS" :: DISPLAY AT(11,13)
:"AND" :: DISPLAY AT(12,7):"
STEPHEN JOHNSON"
1280 DISPLAY AT(1,2):"!!!!!!
!!!!!!!!!!!!!!!!!!!!" :: D
ISPLAY AT(24,1):"!!!!!!!!!!!
!!!!!!!!!!!!!!!!" :: CALL H
CHAR(2,2,34)
1290 DISPLAY AT(23,3):"PRESS
 I FOR INSTRUCTIONS" :: CALL
 HCHAR(24,2,38):: CALL HCHAR
(2,31,36):: CALL HCHAR(24,3
,37)
1300 CALL VCHAR(3,2,35,21)::
 CALL VCHAR(3,31,35,21)
1310 CALL SPRITE(#1,97,11,17
*8-7,16*8-7):: CALL SPRITE(#
2,104,7,17*8-7,10*8-7)
1320 CALL MOTION(#1,0,25)::
CALL MOTION(#2,0,25)
1330 CALL KEY(3,K,S):: IF S=
0 THEN 1330 :: IF K=73 THEN
1340 ELSE RETURN
1340 CALL CLEAR :: DISPLAY A
T(1,1):"THE PURPOSE OF THIS
GAME IS TO IMPROVE YOUR TYPI
NG SPEEDAND TO HAVE FUN WHIL
E DOING "
1350 DISPLAY AT(4,1):"IT.  T
HE OBJECT IS TO GET ASMANY P
OINTS AS POSSIBLE BY  EATING
 LETTERS.  TO EAT A  LETTER
 TYPE IN THE LETTER"
1360 DISPLAY AT(8,1):"YOU WI
SH TO EAT IF IT IS  BESIDE
 YOU.  YOU GET MORE  POINTS
 FOR THE HIGHER THE  LETTER
 IS IN THE ALPHABET"
1370 DISPLAY AT(12,1):"I.E.
A=1 Z=26                YOU L
OSE POINTS FOR TYPING  IN A
LETTER THAT IS NOT  BESID
E  YOU AND FOR TAKING"
1380 DISPLAY AT(16,1):"LONG
TOO TO TYPE THE LETTER."
1390 CALL KEY(0,K,S):: IF S=
0 THEN 1390 :: RETURN
```

Chris Sexton informs us of the following... The JAYCAR chain has once again obtained software for the TI-99/ER The software is the brilliant book and cassette combinations from SAMS Each package come complete with a well written book about 120 pages and a double sided cassette.

The title are TI-99/4A BASIC PROGRAMS The titles are as follows(1)TI-99/4A BASIC PROGRAMS (2)BASIC TRICKS FOR THE TI-99/4A (3)TI-99/4A GRAPHICS AND SOUNDS (4)TI-99/4A 24 BASIC PROGRAMS (5)ENTERTAINMENT GAMES IN TI-BASIC AND EXTENDED BASIC (6)51 FUN AND EDUCATIONAL PROGRAMS The cost of each package is $29.95 Anyway visit your nearest JAYCAR STORE and tell them your saw it advertised in the Texas Instruments Club Magazine on this BBS TEXPAC.

****
REVIEW COLUMN by Keir Wells (KEIRLALOR)
****

I wonder how many of us wish that at times we could simply walk away from the hassles of everyday life and do something different. Realy different. Like dealing with a paranoid android on a golden spaceship or meeting a man who has had an extra head added purely to be fashionable. These are only two characters that may be encountered on some incredible computer adventures.

For those of you who have the TI Adventure module with the adventures written by Scott Adams then you well know the frustrations and anxieties that one goes through to manouevre a "puppet" along a maze of tunnels or across a burning desert in search of hidden treasure.

But along with the hair pulling fits of fury over getting past a simple statue or trying to unlock a door comes a feeling of being with your "puppet" and totally disconnected with the real world.

For those of you who have not yet been introduced to the world of computer adventures then I shall briefly explain the basic concepts that are involved.

An adventure starts off with the computer informing you that you are now controlling a "puppet" who will be your eyes and ears for the duration of the adventure. Once you have settled yourself down your puppet will tell you where YOU are, what items can be seen and the possible directions of travel. For example, you might be informed that you are in the middle of a desert and all that you can see is a pole in the sand and a pool of water. Then comes the start.....

WHAT SHALL I DO?

Through a series of two word commands you guide your puppet through untold hazards with every move bringing you closer to your goal or disaster!

You may have read in previous editions of our Sydney News Digest about the interactive adventures that have been produced by an Americal company by the name of INFOCOM. Unfortunately these programmes are not for sale in Australia but for those adventure enthusiasts who are prepared to send overseas for software then read on.

Firstly let me explain that these are not adventures of the Scott Adams genre but a refreshing concept in the way of "armchair adventures". Instead of giving only simple two word commands the computer will accept full sentences!

As well, instead of being given a basic scenario of your surroundings the details that you are presented with are impressive to say the least. Along with these details a story starts to unfold which is where the interactive part comes in. Basically the whole adventure IS a story but the outcome depends entirely upon you and the decisions that you make.

I'm sure that most people have heard of The Hitchhikers Guide to the Galaxy either through reading the book, watching it on television or listening to it on the radio. Well this is one of the adventures that INFOCOM have produced. It's the one that I myself have pondered over for many hours and I know of several other members of our club who have done likewise.

Some of the other titles are Suspended, Planetfall, Infidel, Sorcerer, Starcross and Zork 1. I have not had a chance to involve myself in all of these adventures but of the ones that I have participated in words of praise are not enough.

All of the adventures from INFOCOM run on Extended Basic and come on two diskettes. One disk contains the auto boot and main story while the other holds all of the information for your directions.

Unfortunately though, these programmes will only run on disk but even for those who do not own an expanded system but can at least gain access to one, then these are well worth while obtaining.

Overall I have found the INFOCOM adventures to be amongst the best software that I have yet come across and strongly recommend them to all would be adventurers.

* For those of you who are not games players and I presume that there must be at least two in our club then please do not feel that your requirements are being ignored by this column. In the next few months I will be reviewing such software as Navarone's Data Base Management, Disk Fixer and other business oriented programmes.

Please remember also that unfortunately I do not have immediate access to all the software for our computer and I have to borrow from other club members in order to do a review. Even then I have to find the time to actually become well acquainted with it before I feel justified in reviewing it in this column. Also on this note it would be much appreciated if those people who have software belonging to Shane would return it. You could well have a programme that I need to review.

** If you wish to have a particular programme or book reviewed in this column please notify me by either leaving a message on our BBS for KEIRLALOR or writing to:- REVIEW COLUMN, PO BOX 595, MARRICKVILLE, NSW, 2204.

[][][][][][][][][][][][][][][][][][]
[] []
[] C O M M E N T S from the SysOp []
[] (Shane) []
[][][][][][][][]>August'85 <[][][][][][][]

Because of a general poor committment on the part of financial members of our group to assist its elected Committee members carry out functions of this group,the work load was becoming almost over bearing. The demands placed on the few Committee members to produce more activities,tutorials,and software etc without offering to help,seemed to be increasing.

In some cases,its a case of THE MORE ONE DOES,THE MORE YOU ARE EXPECTED TO DO. Now with the returns of a small amount of SURVEYs just received,members ask your Committee to do more for its other members,but seem not to have the time themselves to offer assistance. However, some very interesting things have come out of those surveys.

(1)The need for a Publications LIBRARY; which is now being established by Username: ZULU (Fred Morris) will offer some interesting changes. If you can type,and you want to help make our SYDNEY NEWS DIGEST an even better publication...get intouch with Fred. He has taken over the Editors Files and all publications received from other groups will be checked for articles,reviews, programs and hints etc which can be re- directed to the Editor of the SND as disk files for future issues.

(2)Too much space is taken up in the SND by The Communicators Section;
Even though we have a large group of members and it is hoped that this will increase,the Communicators section will be decreased from the SND to make room for the hopeful flood of information from the new PUBLICATION LIBRARY. The COMUNICATORS GROUP will become a SPECIAL INTEREST GROUP and meetings or Parties will be held every SIX months,plus the COMMUNICATORS SIG NEWS SHEET will be posted prior to those gatherings,as has been done with the July News Sheet and PARTY.

It is up to YOU to come on-line more often,if you want to be kept informed.
It is also up to YOU to become more involved in your group and make the effort to help those who you elected to look after the running of YOUR group. Without YOUR HELP,your Committee will not be able to maintain its strength and Committment.

DISK TALK

Information on TI-DOS and the TI DISK the TI Disk. To get the most out of this article, you should have access to a program that allows you to read a disk sector - by - sector. NAVORONE'S DISK-FIXER is the most popular. TI also released a similar program called DISKO or D-PATCH/O to user groups.

The Mysterious Sector #0

By now, quite a few of us have in our possesion some type of "disk-fixing" program that allows us to go deep into the caverns of even the most protected disk we own. However, even with this valuable tool, few of us really know what to look for when we read those mysterious sectors >0 to >21.
This article is intended to give a short description of one of the most important sectors on the TI disk; Sector >0 and it's Disk Bit Map.

TI DISK CAPACITY

Before jumping into the hard stuff, let's first get a look at the capacity of the TI disk.
A single-sided, single-density TI disk is capable of holding 92160 bytes. this can be broken down as follows:

92160	Bytes per side
360	Sectors per side
40	Tracks per side
9	Sectors per track
256	Bytes per sector

As we all know, a disk initialized with TI's Disk Manager, is not capable of utilizing all 360 sectors for programs and files. A number of the first sectors (>0 to >21) are reserved for the operating system. These sectors hold the information that allows TI BASIC, Asssembly Language to locate and retrieve data from the disk.
FORTH, however, uses a different disk operating system! It is for this reason that you cannot always copy a FORTH disk with the Disk Manager module. Although this fact may seem to be an annoyance every time you want to back up your FORTH disk, it is also a valuable lesson:
You don't HAVE to use TI's DOS - you can invent your OWN.
That is, you can if you know what you're doing! For now let's find out how the TI DOS works.

PHYSICAL LAYOUT

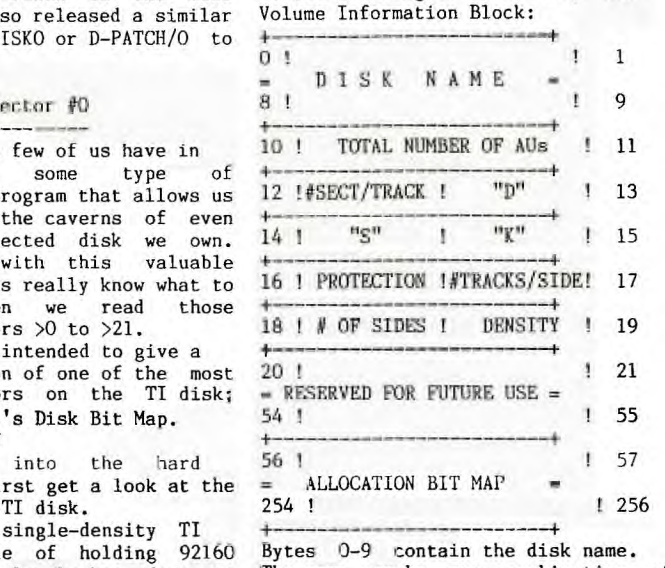
The TI disk is divided into blocks called Allocatable Units (AUs). On the present TI system one AU is equal to one sector of 256 bytes. The maximum number of AUs per disk is 4096 (for a double-sided, double-density format). The AUs are numbered starting from 0.
AU #0 contains the Volume Information BLock (VIB). This AU contains vital information on the disk itself including:

* Disk Name
* Number of AUs per disk
* Number of Sectors per track
* Number of sides
* Allocation Bit Map

AU #1 contains an alphabetical index of all the files on the disk. It is used to quickly access any file or program requested.
AU #2-359 contain File Descriptor Blocks and data blocks. A file descriptor Block is similar to the VIB except that it refers to a specific file. More on these in another article.

THE VIB AND THE BIT MAP

Below is a diagram of AU #0, The Volume Information Block:



Bytes 0-9 contain the disk name. The name can be any combination of ten ASCII characters except for the space or period (".") or the null character (ASCII 0). If the name is less than 10 charcters, spaces are filled to the right.
Bytes 10-11 give the total number of allocation units on the disk.
Byte 12 indicates the number of sectors per track.
Bytes 13-15 contain the ASCII characters "DSK". The TI Disk Manager checks to see if these three letters are present. If they are not, the disk is assumed to be uninitialized.
Byte 16 contains the ASCII code for "P" (>50) if the disk is protected. If it is not, this byte contains a space character (>20).
Byte 17 indicates the number of tracks per side.
Byte 18 shows how many sides have been formatted.
Byte 19 indicates the density of the disk.
Bytes 20-55 are reserved for future use. In the current version of TI-DOS, they are set to zero.
Bytes 56-255 contain the allocation bit map. This 200 byte map can keep track of up to 1600 256-byte records, or around 400K - enough to be able to handle double-sided, double-density formatting. Each bit represents a sector on the disk. If a sector is in use, the bit is set to one. If the sector is not currrently in use, the bit is set to zero.

SO NOW WHAT?

Now that you have some idea what kind of information is SUPPOSED to be on Sector >0, get out a new disk and start experimenting. Initialize the disk and then go in took look around with your "disk-fixing" program. Inspect each of the locations shown in the diagram. Now add a file or program. Notice how the Bit Map is updated. Set the PROTECT byte (#16) and try to copy the disk. Remove the "DSK" in bytes 13-15. Can you still load the file? Can you copy the disk? The best way to learn is to EXPERIMENT.
In the next installment we will look at the File Descriptor Blocks (FIBs) and learn how TI-DOS distiguishes between FIXED or VARIABLE, RELATIVE or SEQUENTIAL, PROGRAM or DATA, and ASCII or BINARY files.

THE FILE DESCRIPTOR BLOCK

RECAP

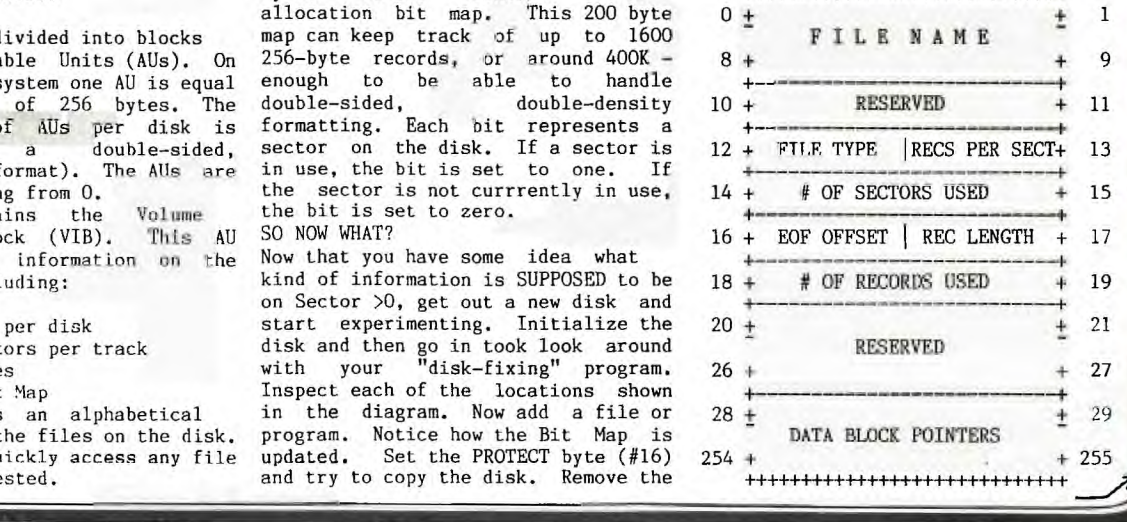
In the last issue we learned the layout of sector 0 - the Volume Information Block (VIB). This first sector holds info on the disk status including diskname, # of sides, track density, and the # of free tracks on the disk. Lastly, sector 0 contains the infamous "disk bit map" which indicates exactly which sectors are used and which are empty. Any changes (deletions or additions) to any file must be recorded on sector 0 in order for TI-DOS to be able to locate the data in the future.

SO WHERE ARE THE FILES?

Each file stored on disk is referenced by a File Descriptor Record (FDR). It is this FDR that tells TI-DOS what sector the file is stored at, whether it is a program or a data file, and whether the file is stored in one block or in several non-contiguous blocks. The FDR's are located on tracks 2-34(>22) and are entered in the order they are created (not alphabetically!).
TI-DOS uses sector 1 as an alphabetical index of all the file names currently on disk. Sector 1 is the File Descriptor Index Record (FDIR). The index consists of sector numbers. Each number refers to the FDR for that file. When a new file is created, the FDRs are scanned, sorted and then their sector numbers are reprinted onto sector 1 in the NEW alphabetical order. This indexing helps to speed up file access and cut down on wasted disk space.

WHAT DOES IT LOOK LIKE?

Below is a diagram of the FDR.
As you can see, it looks much like the VIB. We will describe each of the sections later in the article.



Byte DESCRIPTION
Bytes 0-9 contain the filename (up to ten ASCII characters - padded if necessary)
Bytes 10-11 are reserved for future expansion.
Byte 12 contains the file type flag. The bits are set according to the file attributes in TI-BASIC (Internal, Display, Fixed, Variable, etc) and can be interpreted as follows:

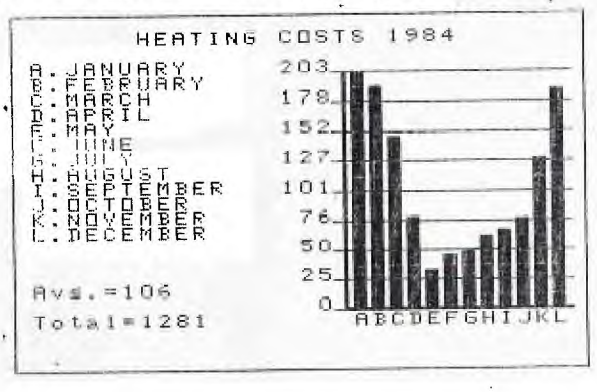
BIT	MEANING
0	0=Data file
	1=Program file
1	0=DISPLAY format
	1=INTERNAL format
2	RESERVED
3	0=Unprotected file
	1=Protected file
4-6	RESERVED
7	0=Fixed length recs
	1=Variable length recs

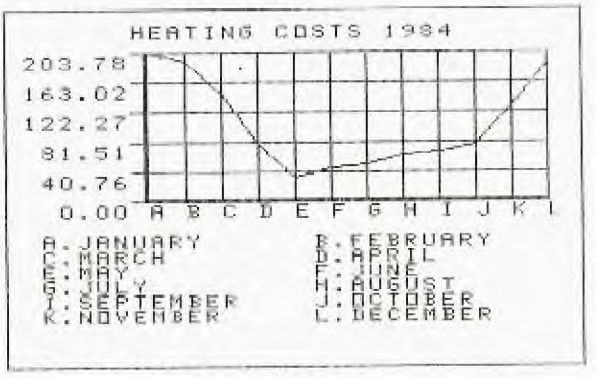
For example; if byte 12 contained >07 (b00000101) then you'd know that the file was a protected program file. If byte 12 contained >80 (b10000000) you'd know it was a Display / Variable data file.
Byte 13 contains the number of records per sector. For example, if the file was a DIS/VAR 80 file then byte 13 would contain >03 (3=240). Note that TI-DOS automatically takes care of any "blocking factors" that may be needed. TI-DOS accesses the disk in 256 byte blocks. This means it does not "split" any records between sectors. In other words, any record more then 128 bytes long takes up an entire sector for storage! Keep that in mind next time you plan your data files!
Byte 14-15 contain the number of sectors used by the file.

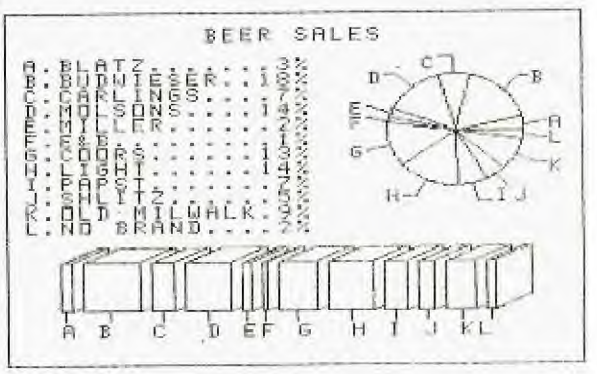
Byte 16 contains the EOF Offset for the last sector in the file. Since the DOS accesses in 256 byte blocks, this value is used to locate the last byte in the file. This prevents reading past the end of the file. This is only used for variable length data files and for program files.
Byte 17 contains the record length. If the file is 80 bytes long, byte 17 contains >50. If the file is variable in length, this value is the maximum length allowed.
Bytes 18-19 contain the number of records allocated for the file. This is either the number of records presently on file or the number of records the file was initially "opened for" in the TI-BASIC OPEN statement. If the file is VARIABLE-type, this value is the same as the value in bytes 14-15, but in REVERSE ORDER!
Bytes 20-27 are RESERVED and set to 0.
Bytes 28-255 contain the data pointers. When the file must be "broken up" due to its size, a reference to the next record of the file is entered in the pointer area. This tells TI-DOS where on the disk to find the next block of records for this file. Each data chain pointer consists of two THREE byte entries. The first entry contains the sector number of the START of the new data block. The second entry contains the "EOF offset" of THAT block (not necessarily the EOF of the FILE!). To make matters worse, the three bytes are stored in a rather awkward manner. See the diagram below:
Start Sector: |S3|S2|S1|
Block "EOF" : |B3|B2|B1|
Note that the bytes are stored in "reverse" order or right to left. Now the two sets of three bytes are stored in a 6 byte segment as follows:
v v
|S2|S1|B1|S3|B3|B2|
Note the location of bytes S3 and B1!
As each new block is created, a six-byte entry is added to the data chain pointer area. The pointer area can handle up to 76 different blocks for the same file.

LETTING IT SINK IN
Now get out your disk-reading program and start looking at the FDRs. What are the file attributes? Experiment with changing the protection bit, or the record length and see what happens. Can you figure out a way to read a program file like a data file? see if your data files have any data chain pointers. If so, follow them down and find the next starting sector. After you get comfortable with the information contained in the FDRs you will be ready to do a little file-handling of your own including recovering already deleted files, and restoring "blown directories." You will even be able to retrieve those DIS/FIX 0 files you ended up with when you downloaded from SF99 with TE-II and forgot to close the file!

As mentioned in last months Sydney News Digest there was insufficient room to show the graphs produced by the Extended Business Graphs software package. Well here they are this month. The three types produced by EBG are shown - Bar Graphs, XY Charts and Pie Charts. Due to "rounding off" effects in the program it will be noted that the percentages in the Pie Chart do not add up to 100%. This is a minor flaw and in no way detracts from this excellent business package.







FORTY COLUMN DISPLAY.

The next two programs come to us from our friend Ed York of the CIN-DAY User Group. Credit for the programs belongs to Roy T. Tamashiro. Ed, in turn acknowledges his source as being the St. Louis 99'ers newsletter called "Computer Bridge". (Quite a complex arrangement!)

Roy's program will allow you to use a forty column screen in Extended Basic. In order to activate the forty column mode you will need to use the command CALL LINK("FORTY"). However, this program does not allow you to use sprites while in the forty column mode. You may use most of the normal Extended Basic commands, but make the following substitutions:-

Configuration Required: 32K card, Extended Basic.

1. CALL CLEAR becomes CALL LINK("CLS")

2. Replace the INPUT, LINPUT or ACCEPT AT commands with CALL LINK("INPUT",ROW#{1 to 24},COLUMN#{1 to 40},STRING)

3. Replace the PRINT or DISPLAY AT commands with CALL LINK("DISPL",ROW#{1 to 24},COLUMN#{1 to 40},STRING)

4. Replace the CALL COLOR AND CALL SCREEN commands with CALL COLORS(FOREGROUND,BACKGROUND)

5. Some Extended Basic commands such as CALL HCHAR, CALL VCHAR, and CALL GCHAR work, but since they are orientated to the normal thirty-two column screen rather that the forty column screen, the locations are confusing.

In order to switch back to the normal thirty-two column screen in Extended Basic, use the command CALL LINK("BSCRN"). Remember to include this particular CALL LINK command when you exit the Extended Basic program, otherwise your program will not be visible on the screen.

Also, remember to RUN the program called "FORTY COLUMN SCREEN", then load and RUN the sample program.

NOTE: Do not include CALL INIT in your program since it has already been included in the "FORTY COLUMN SCREEN" program.

The sample program is the shorter of the two!

```
100 !########################
110 !## SAMPLE PROGRAM FOR #
120 !##       USING THE     #
130 !##FORTY COLUMN SCREEN #
140 !## Make sure of your  #
150 !## error trapping or  #
160 !## else your display  #
170 !## will go WILD!!!    #
180 !########################
190 CALL LINK("FORTY"):: CALL LINK("CLS"):: CALL LINK("DISPL",2,11,"FORTY COLUMN
 DISPLAY"):: CALL LINK("DISPL",8,1,"ENTER A FOREGROUND COLOUR")
200 CALL LINK("INPUT",8,27,A$):: A=VAL(A$):: CALL LINK("DISPL",10,1,"ENTER A BAC
KGROUND COLOUR:"):: CALL LINK("INPUT",10,27,B$):: B=VAL(B$)
210 CALL COLORS(A,B):: CALL LINK("DISPL",14,1,"ENTER"):: CALL LINK("DISPL",16,3,
"1 TO REPEAT"):: CALL LINK("DISPL",18,3,"2 TO END")
220 CALL LINK("DISPL",20,1,"ENTER YOUR CHOICE:"):: CALL LINK("INPUT",20,20,C$)::
 IF C$="1" THEN 190 ELSE IF C$="2" THEN CALL LINK("BSCRN")
230 END
240 !
250 !***********************
260 !Subprogram to change       !the Text/Screen colour
270 !***********************
280 !
290 SUB COLORS(A,B):: CALL LOAD(12350,16*(A-1)+(B-1)):: SUBEND
```

```
100 !########################
110 !## SAMPLE PROGRAM FOR #
120 !##       USING THE     #
130 !##FORTY COLUMN SCREEN #
140 !## Make sure of your  #
150 !## error trapping or  #
160 !## else your display  #
170 !## will go WILD!!!    #
180 !########################
190 CALL LINK("FORTY"):: CALL LINK("CLS"):: CALL LINK("DISPL",2,11,"FORTY COLUMN
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280 !
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```
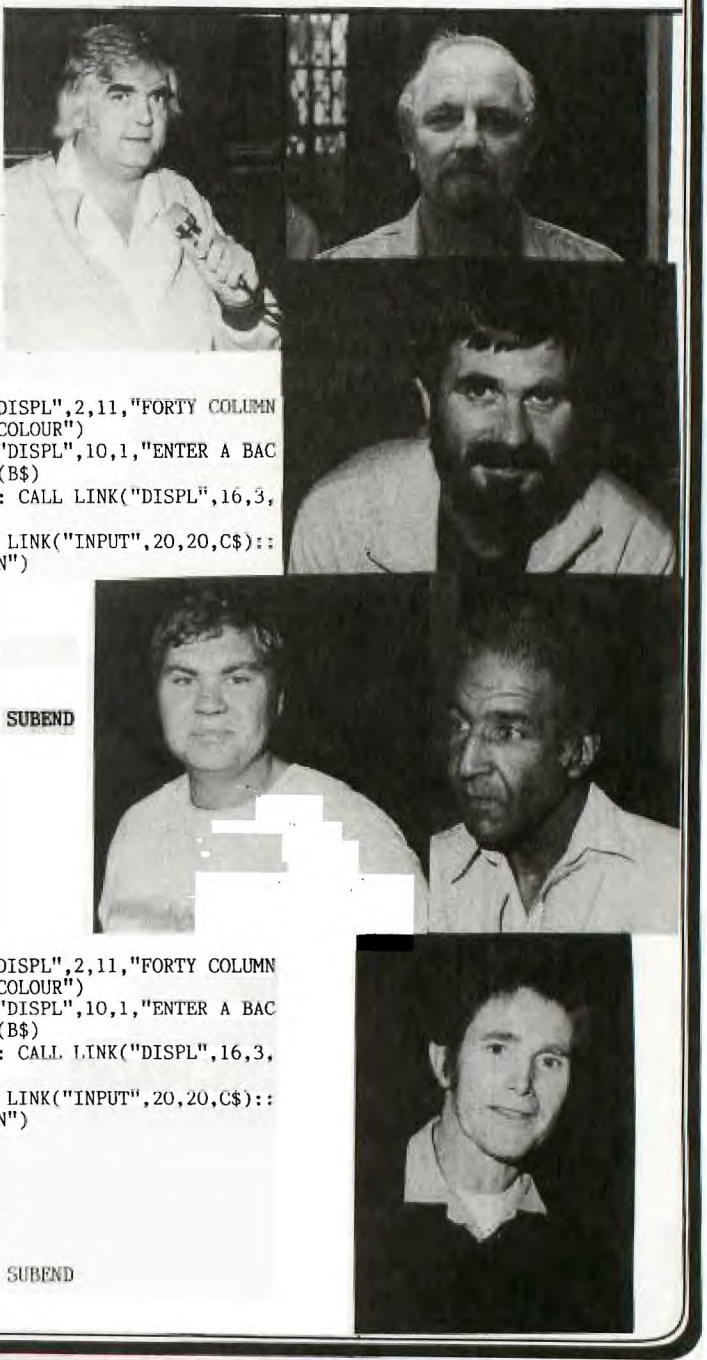



OOPS!OOPS!OOPS!OOPS!OOPS!

I made a mistake ...

Please turn to page 16, and you will find that I have left out the following very important program for the "FORTY COLUMN" Routines.

I printed the mini program twice and left out this one...

SHANE(EDITOR)

```
100 !######################
110 !##FORTY COLUMN SCREEN#
120 !## by  ROY TAMISHIRO #
130 !##from  CIN-DAY U.G. #
140 !## via  ST.LOUIS 99er#
150 !######################
160 CALL INIT
170 CALL LOAD(8196,63,216)::
 CALL LOAD(16344,66,83,67,82
,78,32,50,108,68,73,83,80,76
,32,48,190)
180 CALL LOAD(16360,73,78,80
,85,84,32,49,36,67,76,83,32,
32,32,48,78,70,79,82,84,89,3
2,48,38)
190 CALL LOAD(12288,8,31,16,
0,50,190,0,0,0,0,1,108,51,18
8,0,0,0,0,0,0,2,12,50,116)
200 CALL LOAD(12312,215,32,4
7,190,215,32,47,191,13,0,1,1
08,2,107,2,224,131,224,2,1,2
40,129,216,1)
210 CALL LOAD(12336,131,212,
216,1,140,2,6,193,216,1,140,
2,2,1,245,135,216,1,140,2,6,
193,216,1)
220 CALL LOAD(12360,140,2,4,
96,48,86,2,224,48,0,6,160,48
,98,4,224,131,124,2,224,131,
224,4,96)
230 CALL LOAD(12384,0,112,4,
192,2,1,128,0,4,32,32,32,5,1
28,2,128,3,192,22,250,4,91,2
,1)
240 CALL LOAD(12408,0,1,4,19
2,4,32,32,12,200,32,131,74,4
8,36,192,224,48,36,2,67,0,25
5,2,2)
250 CALL LOAD(12432,255,216,
2,34,0,40,6,3,22,252,200,2,4
8,34,2,1,0,2,4,192,4,32,32,1
2)
260 CALL LOAD(12456,200,32,1
31,74,48,36,192,96,48,36,2,6
5,0,255,6,1,168,1,48,34,4,91
,2,224)
270 CALL LOAD(12480,48,0,6,1
60,48,118,2,1,255,0,216,1,50
,189,2,1,0,3,4,192,2,2,50,18
9)
280 CALL LOAD(12504,4,32,32,
20,4,197,209,96,50,189,6,197
,2,6,50,190,192,32,48,34,6,1
60,49,28)
290 CALL LOAD(12528,4,193,19
2,86,2,33,96,0,4,32,32,32,5,
128,6,160,49,28,6,5,19,9,6,1
93)
300 CALL LOAD(12552,2,33,96,
0,4,32,32,32,5,198,5,128,6,5
,22,236,4,96,48,86,2,128,3,1
92)
310 CALL LOAD(12576,21,251,4
,91,2,224,48,0,2,2,1,0,2,1,3
2,0,216,129,50,190,6,2,22,25
2)
320 CALL LOAD(12600,6,160,48
,118,2,1,0,255,192,32,48,34,
160,64,2,129,3,192,18,2,2,1,
3,192)
330 CALL LOAD(12624,200,1,48
,36,4,196,193,64,2,1,32,0,21
7,1,50,191,2,1,126,0,4,32,32
,32)
340 CALL LOAD(12648,2,1,5,0,
216,1,131,116,6,160,50,34,21
6,32,131,117,48,32,4,193,208
,96,131,117)
350 CALL LOAD(12672,192,5,2,
129,13,0,22,18,2,1,128,0,4,3
2,32,32,4,224,131,124,4,192,
2,1)
360 CALL LOAD(12696,0,3,6,19
6,216,4,50,190,2,2,50,190,4,
32,32,16,4,96,48,86,2,129,7,
0)
370 CALL LOAD(12720,22,13,2,
1,32,0,217,1,50,191,2,33,96,
0,4,32,32,32,6,0,6,4,22,245)
380 CALL LOAD(12744,4,96,49,
36,2,129,8,0,22,17,2,1,32,0,
217,1,50,191,2,33,96,0,4,32)
390 CALL LOAD(12768,32,32,6,
0,6,4,128,32,48,34,18,181,5,
132,5,128,4,96,49,86,2,129,9
,0)
400 CALL LOAD(12792,22,2,2,1
,32,0,2,129,32,0,17,169,217,
1,50,191,2,33,96,0,4,32,32,3
2)
410 CALL LOAD(12816,5,132,5,
128,136,0,48,36,18,158,6,0,6
,4,4,96,49,86,4,193,2,0,32,0
)
420 CALL LOAD(12840,2,2,255,
0,4,32,32,28,144,32,131,124,
19,26,144,160,131,117,19,243
,2,3,0,5)
430 CALL LOAD(12864,6,3,2,1,
9,192,6,1,22,254,4,32,32,28,
144,32,131,124,19,11,144,160
,131,117)
440 CALL LOAD(12888,19,228,4
,32,32,28,192,195,22,239,152
,32,48,32,131,117,22,220,4,9
1,2,224,48,0)
450 CALL LOAD(12912,6,160,48
,98,2,0,3,0,4,193,4,32,32,32
,5,128,2,128,3,192,22,250,2,
0)
460 CALL LOAD(12936,224,1,21
6,0,131,212,6,192,4,32,32,48
,2,0,3,32,4,32,32,48,2,0,7,2
3)
470 CALL LOAD(12960,4,32,32,
48,2,0,8,0,2,1,16,0,4,32,32,
32,5,128,2,128,8,31,22,250)
480 CALL LOAD(12984,4,96,48,
86,0,255,0,32,32)
```

Since I have to prepare a special LIFT-OUT SHEET, I thought that I might as well fill it with other goodies. So, here goes...

Jenny mentioned the letter from Joshua Rush on her page for the"YOUNGER SET", regarding a scrolling screen. Here you are Josh! I found this little program in the Adelaide TI User Group Magazine which may help...

```
100 REM SCROLLING ROAD
110 REM By Andrew Zeuner
120 REM from A.T.I.C.C.
130 REM
140 CALL CLEAR
150 CALL CHAR(60,"FFFFFFFFFFFFFFFF")
160 CALL CHAR(61,"")
170 CALL CHAR(62,"3C3C3C3C3C3C3C3C")
180 CALL COLOR(4,16,2)
190 CALL SCREEN(2)
200 FOR X=1 TO 4
210 PRINT TAB(5);"<=========>=========<"
220 NEXT X
230 FOR X=1 TO 5
240 PRINT TAB(5);"<==================<"
250 NEXT X
260 GOTO 200
```

****
OPEN LETTER from a member!
****

Dear Shane,
Why only 40 replies to the survey? What is wrong with us members? They survey asked a lot of questions about helping at meetings or with articles. This may have frightened a lot of people off. I said 'no' to most of these requests to help as I have other commitments in other areas. The Committee reasises most members cannot actively help but I am sure tey would greatly apreciate the passive support indicated by a reurned survey sheet. I apreciate the efforts made by the Committee as I am sure most other members do, but apathy seems to prevent us giving any feedback.

To the Committee I say PLEASE KEEP UP THE GOOD WORK - WE ARE HERE. To the rest of us members I say - LET THEM KNOW WE ARE HERE. SEND BACK THE SURVEY SHEETS.

Regards
JOHN McDONALL.

CARLINGFORD REGIONAL GROUP

The newly reformed Carlingford Regional Group held its first meeting on 17 June. 10 members attended and participated in a lively meeting. Demonstrations of VIATEL in colour, and the STARS data base (accessed through the ACI Network) were given. Approximately half the group have expanded systems, and regularly use Multiplan, TI-Writer and database type programmes.

The majority of members expressed a desire to increase their knowledge of the TI and particularly learn something of Assembly Language.

Members were advised Compute Magazine has now published a booklet on Assembly Language for the TI. It is available from Dymocks Bookshop.

The next meeting will be held at 79 Jenkins Road, Carlingford commencing 7.30pm. Theme for the meeting is Databases. A demonstration of the new Navarone database will be provided. New members are welcome. (Chris Buttner)

THE FUTURE OF FLOPPY DISKS

The following items are taken from a paper delivered in 1983 by Dr. Geoffrey BATE, Senior Vice-President, Research and Development, Verbatim Corporation, Sunnyvale, California. A full copy of the article is available from the club library. Although now 2 years old, much of the information is still relevant and the predictions made now fact.

In 1987 the ratios of disks sold are expected to be in the proportion 8":5.25":3.5" = 3:5:3. The data capacity of a 5.25" disk has increased from 125K Bytes to 2 megabytes in the last 6 years, (a compound increase in data density of 58%). For a given disk diameter the usable area is 20% greater for flexible disks than for rigid disks.

The number of data bits per inch of track (a function of flux changes per inch of track) is higher for flexible disks. Another advantage of the flexible disk which permits "contact" recording, is that it permits the use of magnetic coatings of higher coercivity. This gives rise to the present "thin film" technology found on some premium disks and has made feasible the use of magnetic particles that are capable of supporting magnetisation perpendicular to the plane of the coating (as opposed to longitudinal recording as used in our TI). Small particles of cobalt-doped iron oxide are capable of being magnetised in any one of 6 or 8 directions!

The increase in data density rates is shown in the following table:-

ACHIEVABLE BIT DENSITIES
IN MAGNETIC RECORDING

	Longitudinal	Perpendicular
Patriculate	50,000	150,000
Thin Film	100,000	200,000

Turning now to the question of track density, the problem of working with narrow tracks is not how to read and write a narrow track but rather how to find and follow it. This ACHIEVEMENT is dependant upon the precision of the head access mechanism (and on its repeatability from drive to drive) and on the predictability of the dimensions of the disk in the face of changes in temperature and humidity. A further problem involves mistracking due to uncertainty in centering the disk on the drive spindle.

These problems are being overcome by (1) the use of metal or plastic hub rings; (2) improvements in the formulation of the blank disk base material; and (3) the use of track following servos (as used successfully on rigid disks.

The inprovements in track densities are easilly listed:-

Before 1981 48 tpi
After 1981 96 tpi
1985 300 tpi

Break-throughs in thin-film media and servo techniques could, and probably will increase estimates of this areal density by perhaps another factor of 5 by 1993. One more trend in flexible disk drives deserves mention even though drive related. This is the use of more heads per surface (or even per track) as the cost of heads, arms and actuators is reduced. The effect will be to reduce the time taken to gain access to the data.

Premium flexible disks have raw-error rates approaching or below 1 in 45000000. If the disk is to remain true during its life, precautions must be taken to avoid damage e.g. by creasing or contamination (by fingerprints or by air-borne contaminants). Not only the disks but also the drives must be kept scrupulously clean.

At high temperatures (as happens within the drive) distortions can occur in the jacket and the substrate which may cause errors by introducing an additional head-medium separation. One solution is the use of chlorinated PVC or polycarbonate in place of PVC for the jacket.

Durability failure, at least in the best modern drives, occurs only after extreme prolonged use involving many millions of revolutions. It is permanent and is characterised by (1) loss of lubricant on the disk surface; (2) local cohesive failure of the coating followed quickly by (3) massive cohesive and adhesive failure. Factors EFFECTING durability are:-

(1) The type of drive (yes they differ widely in AGGRESSIVENESS)
(2) The type of head (button heads as found in single sided drives give longer disk life)
(3) The force pushing the head and disk together
(4) Temperature
(5) The liner material (polyester liners do not soak up lubricant from the disk like others but rayon or nylon are
better at removing surface debri.
(6) The use of "enhancers" e.g. non-magnetic particles.

The best modern disks operating in well-designed and constructed drives may have a life expectancy in excess of 100 million revolutions! In a single track wear test this means that the disk is rotating under the head 24 hours a day for about 30 weeks. Under actual operating conditions, assuming the disk is in the drive for 8 hours a day 5 days a week, 50 weeks a year and that there are 40 tracks used with equal probability, and a durability of 100 million revolutions, the disk would last over 100 years! Odds are the disk will reach the end of its life because it has coffee spilled over it or gets walked on while on the floor or crease during insertion by a maladroit user.

The bottom line is floppy disks will be around for many years to come because they provide:-
(1) storage capacity
(2) reliability
(3) durability
(4) convenience, and
(5) are cost effective.

As with so many other consumer products, you generally get what you pay for. Any benefits won't necessarily be evident when you buy the disk.

WANT TO EXCHANGE NEWSLETTERS WITH FELLOW TI'ERS IN ENGLAND? OR PERHAPS YOU MIGHT LIKE TO ALSO BE A MEMBER OF OUR ENGLISH CARTERPART? Well, why not. Make some New overseas friends and help yourself at the same time.

Its the largest TI-99/4A USER GROUP in Great Britain and they are called the TI99/4A EXCHANGE UK TI USER GROUP. They can be reached at 40 BARRHILL, PATCHAM, BRIGHTON, BN1 8UF, or telephone (0273)503968. Ask them about a subscription and how you can be put intouch with their members with the view to exchange software and programming hints etc.

You'll find them very supportive, as we have.

Here is a little bit of information received from Daniel Harris of Hurstville.
It's not without some humour too! He advises as follows:-

RESPRECTED FELLOW MEMBERS OF TI.S.H.U.G.

I do not wish to claim to know everything, but I do know members and their National Panasonics. The best loader of a TI program is an old cheap, preferably, jumble sale machine with the lowest fidelity possible.

I was trying to load a professional advertising machine into another man's TI for about an hour one Saturday using a nice machine with plenty of tone and volume control. I was walking out to get one of my Soul Pattison $19-$25 machines - ($30 if you buy Alkaline cells) when he asked what the trouble was. I told him that his machine had too much fidelity! I asked him for a machine 'cheap and nasty' enough to do the job and he got one out of stock. The program went in like it was posted!

The moral is that a Hi-Fi machine picks up all the clicks and whistles of a cheap tape and rattly drive and tells them to computer as snobbish anecdotes which the computer can't fathom like most innuendoes told by pendants.

The cheap machine says " she's right mate " and stuffs it in!

The National Panasonic has control voltages just right for the TI but little else to commend it.

The Tempest TE 228 from Soul Pattinson will do for $20 what the National Panasonic does for $50 - be a mechanical snob. It also loads National Panasonic and vice-versa.

The Tandy Cassette recorders have s special governer that keeps the frequency in a computer compatible waveband and gives excellent inter-loadability for programs. I have never got anybody to load my programs on a National Panasonic trouble free unless I was there to midwife the birth into the new computer environment.

My general comment to most members is not to give up if a top range cassette recorder will not load the program but get a cheap machine with less fidelity and put the volume on full and relax the twitching fingers for that missing (and mischief making) tone control.

Digital communication is by regularly sized ups and downs and the capacity to reproduce all notes in the William Tell Overture may mean certain Data Error messages.

Respectfully, D. N. HARRIS.

Comment: DANIEL, THANKS FOR YOUR CONTRIBUTION. READING BETWEEN THE LINES IT WOULD APPEAR THAT OUR TI.99/4A IS PROBABLY THE MOST TOLERANT AND "SEXY" FRIEND WE HAVE! A COUPLE OF MY MATES ARE FOR EVER TRYING TO "MAKE MUSIC" WITH THEIR MACHINES TOO! -ED.

Daniel also has provided this program.

```
100 REM ********************
110 REM **  DEVISED BY    **
120 REM **  D.N.HARRIS    **
130 REM ** GREEK LETTERS **
140 REM **   LOWER CASE  **
150 REM ** PHONETIC KEYS **
160 REM ** SUBSTITUTIONS **
170 REM **  W for OMEGA   **
180 REM **  H for THETA   **
190 REM **  j for CHI     **
200 REM ********************
210 REM **CTRL Z BEEPLESS**
220 REM ** not sleepless **
230 REM ********************
240 REM LOWER CASE=GREEK LET
TERS
250 PRINT "CTRL Z BEEPLESS E
ND"
260 PRINT "CTRL C CLEARS SCR
EEN"
270 PRINT "MUST USE LOWER CA
SE LETTERS SO ALPHA LOCK UP!
"
280 CALL CHAR(97,"314A448484
4A3100")
290 CALL CHAR(98,"3028283028
283820")
300 CALL CHAR(103,"412122242
8302020")
310 CALL CHAR(100,"182442201
824423C")
320 CALL CHAR(101,"000030486
0404830")
330 CALL CHAR(122,"1C2014081
0201020")
340 CALL CHAR(121,"483424242
4040404")
350 CALL CHAR(104,"1824427E7
E422418")
360 CALL CHAR(105,"000808101
0202830")
370 CALL CHAR(107,"002428302
8240000")
380 CALL CHAR(108,"0000C0201
0284483")
390 CALL CHAR(109,"444444446
9564040")
400 CALL CHAR(110,"662624242
8283830")
410 CALL CHAR(120,"302018201
8201838")
420 CALL CHAR(111,"000000102
8442810")
430 CALL CHAR(112,"0000007E2
4242424")
440 CALL CHAR(114,"081412222
4382020")
450 CALL CHAR(115,"0000003F4
4824438")
460 CALL CHAR(116,"00003C501
0101030")
470 CALL CHAR(117,"000023539
3121418")
480 CALL CHAR(102,"08081C2A2
A1C0808")
490 CALL CHAR(106,"612214081
0284483")
500 CALL CHAR(113,"08086B2A2
A3E0808")
510 REM PSI IS Q
520 CALL CHAR(119,"0000D692A
AAAAA44")
530 REM OMEGA IS W
540 CALL KEY(0,KEY,STATUS)
550 IF KEY<32 THEN 540
560 IF KEY=154 THEN 610 ELSE
570
570 IF KEY=131 THEN 620 ELSE
580
580 IF STATUS<1 THEN 540
590 PRINT CHR$(KEY);
600 GOTO 540
610 END
620 CALL CLEAR
630 GOTO 540
```

NEWS RELEASE. Tuesday, May 21st. 1985.

SOFTEX TO CONTINUE, BUT THE MAGAZINE TO STOP

The Directors of Softex Pty. Ltd. today annouced that they had decided to cease publication of their magazine SOFTEX.

This course of action is deeply regretted, but resubscriptions had not been at a sufficient level to ensure that costs were met.

ALL SUBSCRIBERS WHO HAVE PREPAID THEIR SUBSCRIPTIONS WILL HAVE THEIR MONEY REFUNDED IN FULL BEFORE THE END OF JUNE.

The directors wish to assure their customers that they intend to continue to support the TI 99/4A, and will do all they can to acquire hardware and software for enthusiasts.

Subscribers to the magazine and other customers shall be kept informed of news, products and stock availability per medium of a free periodical information bulletin, the first of which shall be mailed during June.

The Directors wish to thank all their subscribers over the past eighteen months for their support, and hope that the all-to-brief life of their magazine has assisted 99/4A Users in the better utilization of their quite remarkable computers.

Mary Thomas, Doug Thomas, Ian Streete, Wayne Worladge.

Another, this time from a member thanking us for our assistance. Note, this is a country member who looks to us for help. What is more he ASKS for it.

****

Dear Fred,

I am going to try and write this letter while I'm travelling in a car. We're headed to S.A. My sister-in-law arrived from the U.S.A. Also take note of a change of address.

Thanks for the TMS5220A SPEECH PROCESSOR DATA MANUAL. I'm not too technically mined either but there is a bit of information in it that will be useful. Once I am finished with it I'll return it for the library.

That article by Stephen Shaw is good. I haven't done much work lately with moving and an overseas visitor, also the computer is in the spare room. Hopefully by Christmas I'll have a drum machine controlling the computer and various sounds produced by speech linked to the synthesizer to produce sound of speech to music. If we produce anything worth while and get things synchronized, I'll be happy to write an article for SND.

Thanks for all the help. It would be nice if professional organisations around could have an attitude to their jobs like the members of TI.SHUG. I'm the only TI. user in my area (a couple around used for games only) and it's nice to know I have a few friends who i've never met.

Thanks,

TERRY HOUGE. Yallourn, Victoria.

Comment: TERRY, I HOPE YOU DON'T MIND ME PUBLISHING YOUR LETTER. MY REASON FOR DOING SO IS TO DEMONSTRATE TO OUR COUNTRY MEMBERS THAT ALL THEY NEED TO TO IS "ASK" AND "IT" SHALL BE PROVIDED - OFCOURSE IF "IT" IS POSSIBLE! YOU CERTAINLY SEEM TO HAVE SET YOURSELF AN INTERESTING TASK! I WONDER IF ANY OF OUR MEMBERS OUT THERE ARE ALSO EXPERIMENTING, AS TERRY IS, AND CAN OFFER SOME HELP? IF SO, LET US KNOW SO WE CAN PUT YOU IN TOUCH WITH EACH OTHER. LASTLY, THANK YOU FOR YOUR KIND WORDS. SO SELDOM DO WE GET THE PRAISE THAT WE BELIEVE WE DESERVE?????? -ED.

PS. If any are wondering who Fred is - he is the Committee's first reserve! Helping John Robinson and Terry Phillips and is now charged with setting up the TI.SHUG Literature Library. More on this later.

****

MINI-MEMORY SOUND
by Stephen Shaw
from TI*TIMES.

Thery first this time. As you saw with the previous article on speech, we make our computer do some interesting things by loading a sequence of bytes into one memory location.

For sound we use location -31744.

To use tone, two bytes are passed. To use a noise or to set volume, one byte is passed. Each byte has to be looked at as 8 bits, as follows:-

NOISE.
The 8 bits are as follows:-

BIT 1=Always 1
BIT 2=Operation
BIT 3= " "
BIT 4= " "
BIT 5=Always 0
BIT 6=Type
BIT 7=Shift rate
BIT 8= " "

TONES: First byte

BIT 1=Always 1
BIT 2=Operation
BIT 3= " "
BIT 4= " "
BIT 5=Frequency: 4 **L.S.B.**
BIT 6= " " " "
BIT 7= " " " "
BIT 8= " " " "

TONES: Second byte

BIT 1=Always 0
BIT 2= " "
BIT 3=Frequency: 6 M.S.B.
BIT 4= " " " "
BIT 5= " " " "
BIT 6= " " " "
BIT 7= " " " "
BIT 8= " " " "

VOLUME:

BIT 1=Always 1
BIT 2=Operation
BIT 3= " "
BIT 4= " "
BIT 5=Attenuation: 4 M.S.B.
BIT 6= " " " "
BIT 7= " " " "
BIT 8= " " " "

DON'T PANIC!
This will become much clearer when we do a **worked** example.

(M.S.B. = Most significant bits)
(L.S.B. = Least significant bits)

Operation Bits.

The values placed in these three bits determine what you are doing and to which of the three tone generators.

000=FREQUENCY OF TONE 1
101=FREQUENCY OF TONE 2
100=FREQUENCY OF TONE 3

001=VOLUME OF TONE 1
011=VOLUME OF TONE 2
101=VOLUME OF TONE 3

110=NOISE GENERATOR
111=NOISE VOLUME

Frequency.

The actual frequency is held in ten bits, which is split between the two tone bytes and is determined as follows:-

What frequency do you want? Say 110 cycles per second

We find out how many times the frequency will go into 111860.8 (a strange number, but that is how the computer works!). Thus, 111860.8/110=1017. Now turn this into a binary number: 1111111001 and split it into the 6 left most bits and the 4 right most bits:

6msb=111111.....4lsb=1001

These values go into the tone bytes as shown previously.

Noise.

Noise types are as follows:

0=periodic noise
1=white noise.

Shift rate: if set at 11, the sound varies with the frequency of tone 3.

Volume.

Sixteen levels are available from full volume (0000) to silence (1111). The sound varies by 2db between levels.

Time.

Notice that there is no time input! To switch off the tone, load the relevant generator with a zero volume. This means that timing is external. ie. You have to do it.

Worked example.

Tone one set at 110Hz., 2db volume, with white noise, shift rate 00, volume 20db.

Tone 1: Byte 1:
1..0..0..0..1..0..0..1
(1001=4lsb as shown above)

Tone 1: Byte 2:
0..0..1..1..1..1..1..1
(111111=6msb as above)

Tone 1: Volume:
1..0..0..1..0..0..0..1

Noise Type:
1..1..1..0..0..1..0..0

Noise Volume:
1..1..1..1..1..0..1..0

To use CALL LOAD we have to transfer these 8 bit bytes into a decimal value. The right most bit has a value of 1 if set, the second from the right has a value of 2, then 4,8,16,32,64 and 128.

From which we can work out:-

10001001=137
00111111=63
10010001=145
11100100=228
11111010=250

Now the program to set the sound in motion is:-

```
10 CALL INIT
20 S=-31744
30 CALL LOAD(S,137,"",S,63,"
",S,145,"",S,228,"",S,250)
40 GOTO 40
```

To end the sound, set tone 1 and noise volume to zero.. or use a negative call sound... CALL SOUND(-1,110,0).

Note.

1. You can change the frequency while the tone is still sounding. It takes two bytes so it is not as smooth as it could be.
2. You can change the volume while the sound is still present. This method is faster that using several negative CALL SOUNDS, making it possible to do some envelope shaping, as we can see in the first of our example programs.

Sample 1: A sort of bell sound.

```
100 CALL INIT
110 S=-31744
120 CALL LOAD(S,137,"",S,63,
"",S,171,"",S,26)
130 FOR A=0 TO 15
140 CALL LOAD(S,144+A,"",S,1
76+A)
150 NEXT A
160 CALL LOAD(S,159,"",S,191
)
170 GOTO 120
```

Line 160 turns the sound off, what happens if we omit it?

Let the program run for a long time. What happens when 'garbage collection' takes place?

Try an experiment, change line 130 to read:

130 FOR A=1 TO 14 STEP 2

Notice the change?

In using this next program we will be using the keyboard as a Music Player, and using the direct sound facility to do some simple envelope shaping.

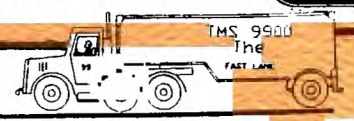
```
100 M=-31744
110 FOR X=1 TO 10
120 READ R,S,T
130 L1(X)=R
140 L2(X)=S
150 A(X)=T
160 NEXT X
170 E=159
180 DATA 137,63,144,141,56,1
46
190 DATA 134,53,148,137,47,1
50
200 DATA 134,42,152,143,39,1
53
210 DATA 139,35,154,140,31,1
55
220 DATA 133,28,156,139,26,1
57
230 CALL CLEAR
240 CALL INIT
250 CALL SOUND(40,500,9)
260 PRINT "PRESS KEYS 1 TO C
TO PLAY"
270 PRINT "HOLD KEY DOWN TO
SUSTAIN"
280 PRINT "OR HOLD SPACE BAR
DOWN TO ACTAS A SUSTAIN PEDA
L."
290 PRINT "YOU MAY PRESS NUM
BER KEYS ATSAME TIME AS HOLD
ING SPACE  BAR DOWN!"
300 CALL LOAD(M,E)
310 CALL KEY(3,K,S)
320 IF S=-1 THEN 310
330 IF S=0 THEN 300
340 P=POS("1234567890",CHR$(
K),1)
350 IF P<1 THEN 310
360 REM
370 CALL LOAD(M,L1(P),"",M,L
2(P))
380 REM NOW WAVEFORM
390 REM A(1)=LOUD A(2)=QUIET
400 REM TRY: FOR T=1 TO 10 S
TEP 2
410 REM OR TRY FOR T=10 TO 5
STEP -1
420 FOR T=10 TO 5 STEP -5
430 CALL LOAD(M,A(T))
440 NEXT T
450 GOTO 310
```

You may find the sound a little rough still, as each CALL LOAD is done through a loop, which takes time. Try instead:-

```
420 REM
430 CALL LOAD(M,A(10),"",M,A
(9),"",M,A(8),"",M,A(7),"",M
,A(6),"",M,A(5),"",M,A(4))
440 REM
```

The Fast Lane

EDITED BY
IAIN JOHNSON



FREQUENCY SAMPLER

by Don Cook

This program illustrates the way the TI99/4A uses the CRU to sample the output of the cassette recorder. When the program is run and the cassette recorder is on, characters will be displayed on the screen which change position with a change in the frequency of the recorder audio output. 16 frequency samples are taken at a time. The time the signal is on is displayed as "0" on the screen. Character position varies with the frequency. The higher frequencies move the character further down the screen. The cursor symbol shows the time the signal is off. The difference between time on and time off is indicated by the "" character.

```
       DEF  FREQCY
MYWS   BSS  32          Workspace
SCREEN BSS  768         Screen values storage location
FREQCY LWPI MYWS
FREQ   CLR  R12         Set for CRU addressing
       LI   R0,>4000    Set for VDP write starting at >0000
       LI   R5,>4F1E    ASCII values >4F(O) and >1E(cursor)
       LI   R8,768      768 (24 x 32) screen positions
       LI   R6,>2020    ASCII value >20 (space)
SFREQ  LI   R9,16       Set to take 16 samples
NFREQ  MOV  R8,R10
       MOV  R8,R4
       MOV  R8,R7
OSOUND DEC  R10
       JEQ  SHWSCR      No sound for 768 loops?
       TB   27          Test for cassette output
       JNE  OSOUND      Any sound?
       MOV  R8,R10      Reset to 768
NSOUND DEC  R10
       JEQ  SHWSCR      Sound on for 768 loops?
       TB   27          Test for cassette output
       JEQ  NSOUND      Sound still off?
TSOUND DEC  R4          (. '' for . ' ; "' on
       JEQ  SHWSCR      Sound on for maximum of 768 loops?
       TB   27          Test for cassette output
       JNE  TSOUND      Sound on?
XSOUND DEC  R7          Count for time sound off
       JEQ  SHWSCR      Sound off for maximum of 768 loops?
       TB   27          Test for cassette output
       JEQ  XSOUND      Sound still off?
       MOVB R5,@SCREEN(R4)  Store "0" ASCII value
       SWPB R5          Change to cursor ASCII value MSB
       S    R7,R4       Calculate (time on - time off)
       ABS  R4          ABS(time on - time off)
       MOVB R0,@SCREEN(R4)  Store "@" ASCII value
       MOVB R5,@SCREEN(R7)  Store cursor ASCII value
       SWPB R5          Change to "0" ASCII value in MSB
FSOUND DEC  R9
       JNE  NFREQ       16 samples yet?
SHWSCR SWPB R0          /
       MOVB R0,@>8C02   ¶
       SWPB R0          ¶ Display 16 samples each of :
       MOVB R0,@>8C02   ¶   time sound off  (cursor symbol)
       LI   R1,SCREEN   ¶   time sound on   (0)
       MOV  R8,R10      ¶   difference      (@
NXTCHR MOVB *R1+,@>8C00 ¶
       DEC  R10         ¶
       JNE  NXTCHR      ½
       LI   R1,SCREEN   /
       LI   R10,384     ¶
NXTWRD MOV  R6,*R1+     ¶ Set SCREEN storage to blanks
       DEC  R10         ¶
       JNE  NXTWRD      ½
       TB   7           Test for FCTN key
       JEQ  SFREQ       FCTN key pressed?
       BLWP @>0000      QUIT
       END  FREQCY
```

END