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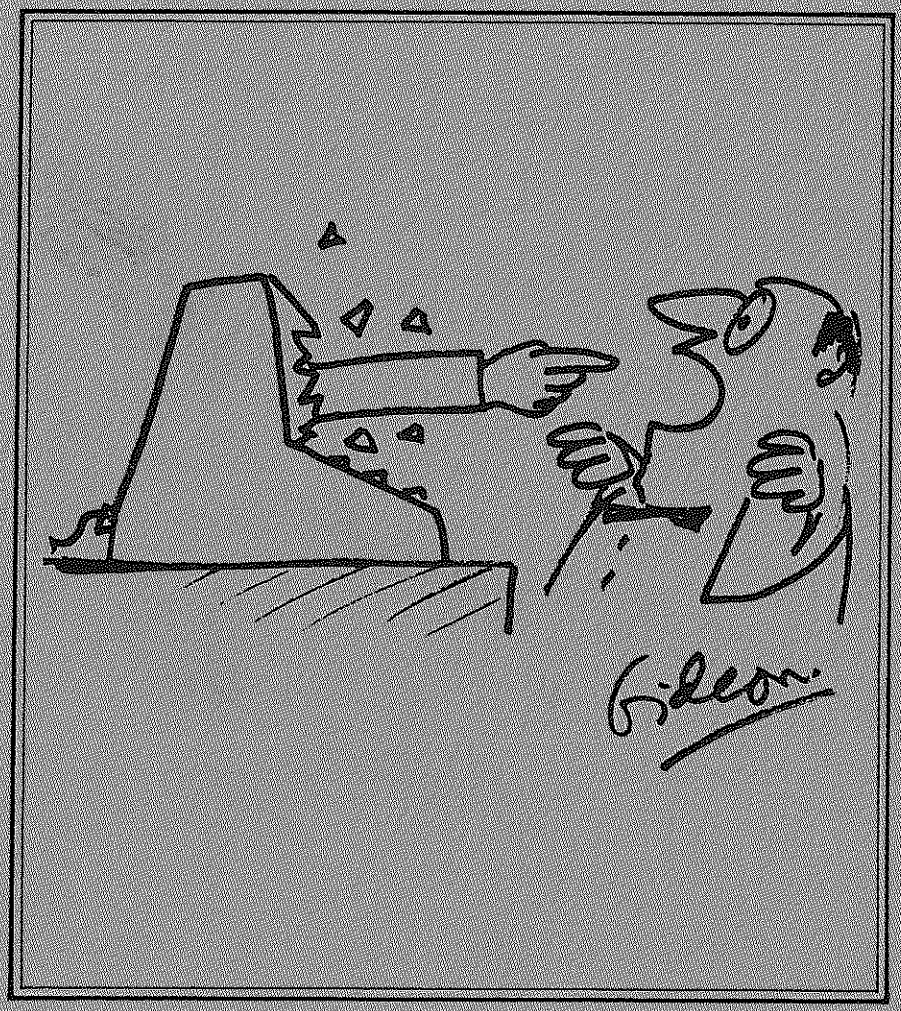

SOFTEX

★ Cure for Lock-up
★ Amust-80DT and P-88 Printers
★ Inventory Control

SOFTEX

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Editorial

For some time now we have been told that this is the year of the personal computer and that it will only be a matter of time before every home will have one. With this technology more people will be able to work from home and not have to go to the office, thereby changing the whole character of society.

Yes, technology and computers can allow the above scenerio to occur BUT in my opinion not to the degree first predicted, because of several reasons.

1. Computer manufacturers have not come to terms with their computers by telling the public what it can do for them, apart from dropping a few well "coined" phrases such as Spreadsheets, Word Processing and the like. The majority of the public do not know what they are talking about, and much more to the point how many really NEED this sophistication anyway?
2. The "Home Computer" has been sold more as a games machine ready to run pre-packaged software. Games, whilst they may attract attention initially do not hold long term interest, and as a result people soon become disillusioned with what computers can do. The impression is left that all the small computers are good for, is to play "Arcade Games" on, when in reality they do not come up to the standard that dedicated games machines can achieve.
3. Most "Home Computers" are not easy to understand or are they "User Friendly" (The TI-99/4A stands above the rest in this regard) so that it is not easy for a person off the street to learn how to program or use the computer for his own peculiar needs. I think this is ultimately where most of the computers, Home and Business, fall down. Why should the "User" be tied to a software company for all his programming needs, when the majority of programs produced DO NOT reflect his real needs. A classic example of this is the system known as Computa Pay used by many companies, that produces tonnes of paper, but leaves certain records such as rates of pay, sick leave, etc., difficult to follow through at a later date. I'm sure that it takes longer to put some records on computers than it would to record the data manually, without having to find space to store tonnes of paper churned out by computers. This particularly applies to situations where repetative actions are not required.
4. The "Home Computer" has to date been sold as a bare computer which is of little use until lots of costly peripherals are attached. How many disillusioned users have bought a computer only to find that the initial purchase was the cheapest part of the system or software. Customers are not the "idiots" that manufacturers and more pointly Advertising agencies believe they are. How does a retailer explain to a customer after spending all his money that in order to run a certain program he has to spend another $100 to $200 for a module consisting of a couple of chips when the computer only cost $300 to $500. I believe it is high time that manufacturers got it "Right" the first time and build in such items as Extended Basic, Speech Synthesizers, RS232, Disk Controllers and extra memory rather than require

add ons costing hundreds of dollars. In most consumers minds these things should have been part of the basic computer, with it being obvious that these can be provided at less cost when part of the basic unit.

5. Consumers are sick and tired of being "Ripped Off", and with the tendency of computer manufacturers setting an inflated price initially, and then reducing this over a period of time, giving credence to this belief. I'm sure a lot of con merchants etc. have entered this field to make a fast buck, with Australia being one country where we have more than our fair share of over pricing, that can not be simply explained away by lame excuses of import duties; currency fluctuations, etc..
6. Very little GOOD software is available, and then only at high cost. Most users do not write their own programs, and with each computer system using their own version of Basic there is no compatibility of programs between different computers. Those users who do write software do so for there own use for their particular interests, eg. who wants a weight and balance program for a Cessna 172RG. Those who do attempt to market commercial software find that after selling a few copies everyone has the program through pirating so that the market dries up, and discourages them to produce more software.
7. The rapid speed at which computer technology is outdated. Like all new fields rapid developments are taking place in this industry which makes the consumer reluctant to shell out his hard earned money only to find that a new model using a different system is coming out.
8. Retailers in general have little knowledge or real interest in the products they are selling. I wonder how many people have inquired about what a computer can do only to be shown some fancy 3 D drawing or something which he has no interest with in the first place.
9. A large amount of the software for sale does not live up to the advertised claims or expectations by the user. This is particularly true regarding Educational software.
10. Press reviews are generally biased on the reviewers experience, or are completed by "experts" out of touch with the common user. Using Machine or Assembly language may present no difficulties to them, but woe betide the poor man on the street.

I have probably not covered many other reasons for problems arising in the computer industry, but one thing that is for sure is that the range of cheaper Home Computers are probably going to disappear off the market, with the larger more expensive IBM compatible models becoming more predominate. I suspect that the lower end of the market will be taken over by the Japanese in the future.

Those of us with TI computers will now have to begin to utilize what we have and pool our resources to help other TI "Users" now that TI have stopped producing the home computer. The reasons leading up to its demise can be seen in all of the above comments, however nearly all the others are in the same boat also. Who is the next to go.?

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Cure for Lock-up on the T1-99/4A

By Doug Thomas.

There is nothing more exasperating than to have spent time typing in Data or a program into the Computer when it suddenly "Locks-up". When a computer really begins to play up you will find it is almost impossible to load extended basic (this module uses more pins than most) and the computer will "die" at any time. The only thing left to do is to switch off and start again.

Initially oily build ups, static and various other causes were thought to be the cause for this. Whilst they can and do at times cause lock-ups, this is not the reason for persistant problems in this area.

Well, I'm pleased to say there is a cure, for what is essentially a design problem. The main culpit is the Module port, which is not rigidily supported inside the computer, and with regular use the contact plug moves and breaks a perfect contact causing lock-up.

The method reported here does cure the lock-up, as I've had to use it on my computer, which reached a stage where it became almost impossible to use. If your computer is under warranty, then take it back to TI. to correct, but if not then try the following on the understanding that Softex P/L takes no responsibility for any damage caused whilst undertaking this. It appears some computers are more susceptible than others. I guess the main precaution to take is to always take out and put new modules in carefully, as if roughly handled then there is a chance of movement being caused.

The cure can be fixed with-in a 15 minute period, with the only tools being required are a small Phillips head screw driver, and a sharp fine pointed knife. If you have some circuit board cleaner handy, then this could be used to clean the contacts, rather than burring them slightly with the knife which gives a better contact. In the course of this exercise you can see how your computer was put to-gether, although you do not uncover the main circuitary. Use the photographs accompanying this article to guide you along with the following detailed steps.

1. Unplug your computer, and take it over to a table/bench that has been covered with a blanket or other non-scratching material. Place the computer upside down, with the front edge (thin one) facing you.

2. Next find the 7 retaining screws that hold the case to-gether, 4 along the front and 3 embeded at the rear. Take a small Phillips head screw driver and remove these scews, being careful not to loose them or place them where they can be mixed up with others removed later.

3. Gently pull the On/off slide switch out by pulling it toward you, then place this down where it will not get lost.

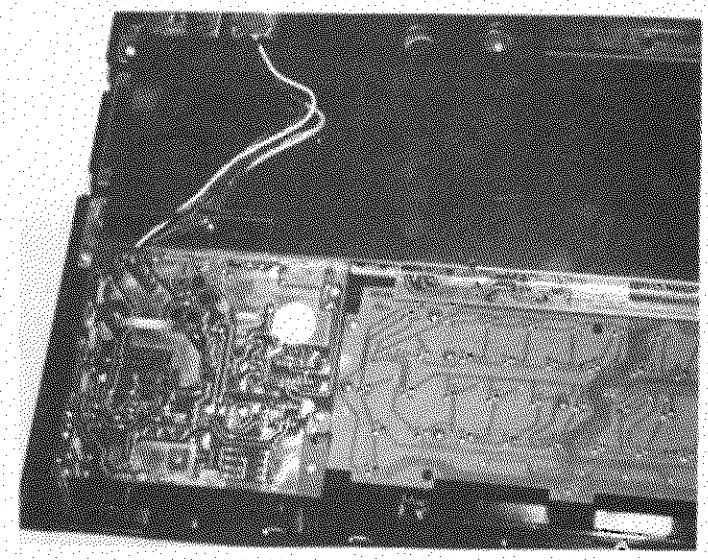


Photo 1.-View showing exposed Circuit Boards

4. Carefully begin lifting the bottom of the computer case off exposing the inside. Take careful note where everything is situated as this is how it is to look before you put it all back together. Take note particularly of the 4 wires running from the power plug to the circuit board exposed on the bottom left corner (power supply board). Photograph No. 1 shows you what you will find on removing the cover, but note that the wires going across the silver metal shielding on the main circuit board should be further to the left.

5. Lift the wires and power socket and place on the left side of the console. Note how the socket sits in place.

6. Locate the 2 screws on the right side of the power circuit board, see sketch, and remove. Carefully lift this board up noting the 2 locating pins (plastic) and place the board to the front and left of the main circuit board, see photograph No. 2.

7. Locate the 3 screws to be removed from the main circuit board (covered in metal shielding) from the sketch, and remove.

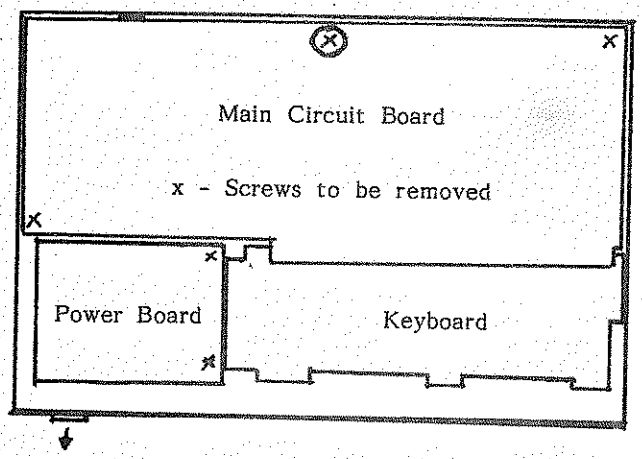


Diagram showing screws to be removed.

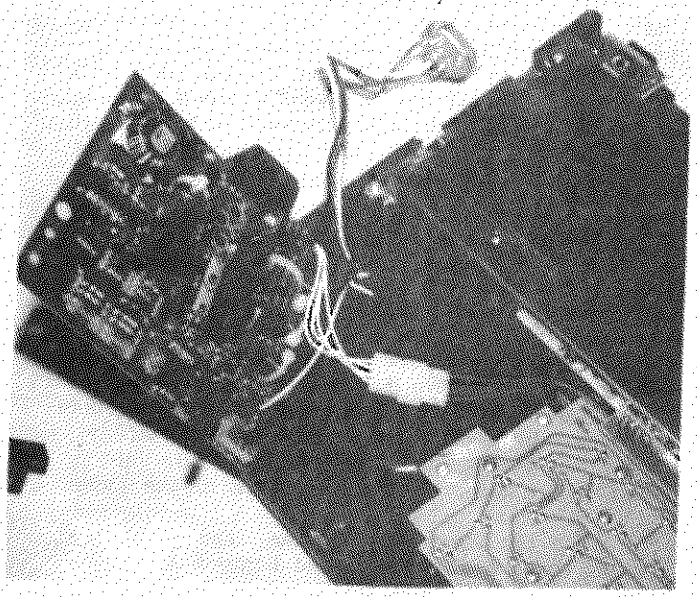


Photo 2.-Power Board removed

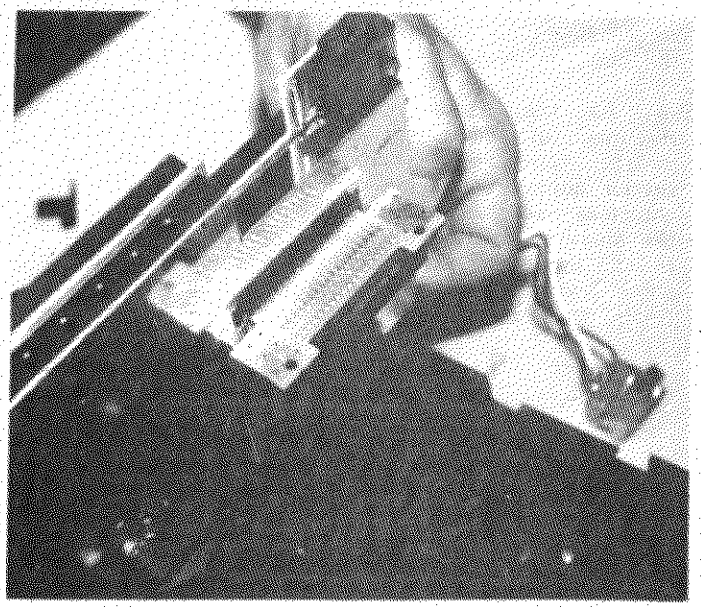


Photo 3.-Module Socket connected to main circuit Board

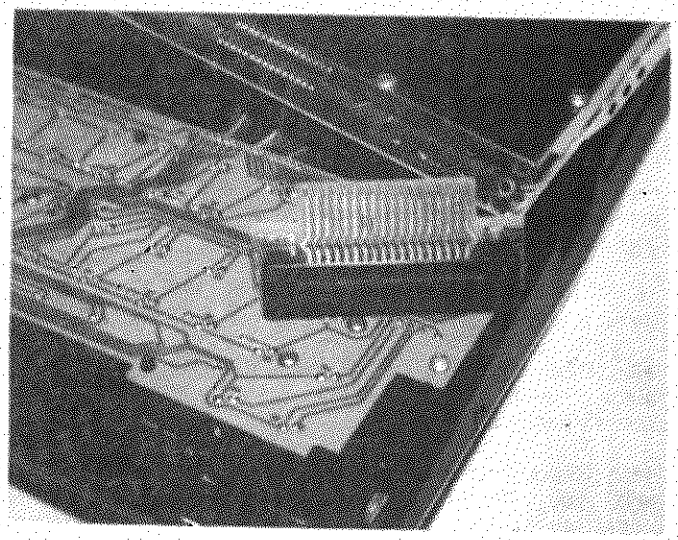


Photo 4.-Module Socket on Keyboard

8. Next lift this board up hanging onto the shielding, carefully noting the locating plastic pins, and turn this up to expose the under-neath as shown in photograph 3. You will see a small circuit board with a plug attached (Module socket) which is the cause of all your problems.

9. Take hold on both sides of the circuit board and gently prise this out of the socket going into the shielding. After removing this, lay the shielded board down again roughly in its old position.

10. Now you have the culpit in your hands, this being shown in photograph 4, lying on the keyboard circuit board. The main cause of problems is bad contacts between the circuit board and the socket in the main circuit board. These contacts should be cleaned with circuit cleaner or carefully using a fine pointed knife where the surface of the 36 contacts should be scraped BUT only in the centre and not across the whole surface or there is a danger of lifting the tracks. The idea of the scraping is to burr the edge slightly so that on reassembly better contact will be assured. Those with circuit board cleaner can scrub the surfaces clean.

11. Next use a fine knife point with a piece of rag wrapped around it and then rub this into the socket attached to the circuit board. You will probably find the rag covered in black from the dirt introduced by your modules. After cleaning this socket, you are then ready to reassemble your computer.

12. Replace the socket, making sure it is firmly home and the metal guide on the other side is properly seated.

13. Carefully refit the main circuit board over the locating pins, and replace the 3 screws.

14. Refit the power board similarly, being careful that the wires underneath are not restricted.

15. Now carefully route the power cord and plug across the metal shielding and make sure this is sitting flat. Use a piece of tape if it will not stay in place. Make sure the wire does not restrict the peripheral socket and does not protrude higher than necessary as the backing will not sit in place.

16. Fit the back cover over again, and when you have it sitting correctly refit the 7 screws.

17. Push the slide switch back into its proper place and then check that you have no screws/parts left over.

18. Reset your computer up again and switch on and you should be rewarded with lock-up free operation again.

Hopefully the above will be the last problems you experience with the "Lock-up", but if it re-occurs again after further use, then repeat the above. I personally have experienced the problem 3 times now, the first time TI. repaired the computer, with myself carrying out the above proceedure twice since. Several months of heavy use took place between these occurances, but I'm beginning to think of sending away for one of those "Widgit's" made by Navarone Industries to lesson the chance of module changing causing problems in the future. I must also emphasize that over 3 years this has been the only problem I have experienced with the 99/4 and 99/4A computers.

Don't be frightened to carry out the above if you do have lock-up problems as I can assure you it is heaven again to have reliability.

Lock-ups are a fairly common problem experienced with TI-99/4A's and we would appreciate a note of your experiences with this.

Game Review – Entrapment

Entrapment is a disk-based program in Extended Basic by American Software Design and Distribotion Co.(1982).

It was loaned to me by a friend, and I found it a fascinating game, primarily because it is one you can WIN! After all, with Invaders, Tombstone City, Munchman, etc., no matter how proficient you become, eventually, you must lose, or be eaten, or shot or whatever. With this game, you can win.

The style and type of game could be termed "Invaders" vintage. That simply means that the style is similar, and the graphics and speed are not up to those of "Parsec", but they don't have to be.

The game opens with the top three rows of the screen filled with asterisks, which hatch into "little men",sequentially, in threes. Your "gun" is located at the base of the screen, and is movable from left to right, and only shoots vertically. The object is to shoot the "men" before they reach the base of the screen. If they do, the game is over, and your score is displayed.

When shot, a "man" turns into a green square, which stays in the location at which it was hit. Another asterisk at the top of the screen hatches, and the resultant "man" begins moving down.

It all sounds easy enough, but one must realize that as the asterisks hatch in turn, sooner or later, two will be on the far left and the other on the far right. Some rapid movement is needed by the player.

The green squares are barriers to movement of the men, who have to move to the right or left when they encounter them, so that they may continue their downward path. They do so in a specific pattern, but you can work that out for yourself. Again, to the uninitiated, so what? A little experience shows one that, as the men hatch sequentially, one will be in front of the second which in turn will be ahead of no.3. However, if no.1 has to avoid a green obstacle or two by making the odd sideways movement, then no.2 will catch up to it, and you may often find your gun has two be in two places at once!

Now, the object of the game is for you to build a barrier of green squares across the screen from one side to the other so the men can't reach the bottom.

There are a few further points. The green men can't move upwards, so if you manage to create a "basin" of green squares, and a man descends into it, he will go from side to side a couple of times, and then "die" and turn into a green square also. Hence the name of the game.

When the rows of asterisks are exhausted, another three rows appear, and begin hatching as before. The little men don't always just keep falling vertically to be hit, either. Sometimes they move to the left or right of your bullet, and you find yourself on the other side of the screen lining up another one before you realise the one you've just fired at has avoided you.

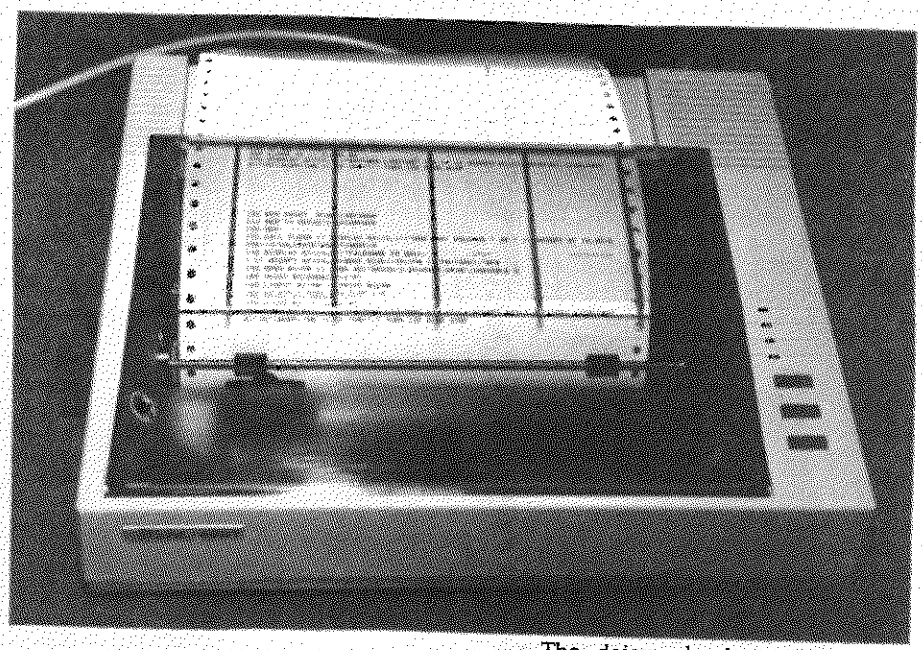
As the game progresses, you will note that the speed of movement of the men increases, making them harder to hit. If you do build a barrier across, the game continues for another complete set of asterisk-hatching. You are in the pleasant position of looking on, not needing to do anything, just watching the men scurrying about trying to find a hole in your barrier, and finally turning into green squares.

After the completion, your score will be displayed.

There are six levels of difficulty, but how anyone could ever play at levels 5 and 6 is beyond me, as the speed of movement of the men is very rapid indeed.

In all, a very enthralling game, one you can win, even if it is a bit dated.

AMUST Dot Matrix Printers



The AMUST 80DT - A Must?

by Wayne Worladge

This article was meant to be a review of the "AMUST 80DT" printer, and so, to some extent, it shall. But, there are only a few things one can say about a printer, so this article shall talk a little about printers in general as well.

Some nine months ago, I decided my faithful 99/4 Thermal Printer was no longer capable of meeting my needs. One of those needs, of course was this publication, but the advent of TI-WRITER opened new horizons for the 99/4A's usefulness.

For those who don't know, one of the stand-alone peripherals made available with the original 99/4 computer was a thermal printer. It was the same size in cross-sectional area as the other peripherals, but was about twice as high. Like them, it plugged into the peripheral port. And a very useful little beast it was too, despite using thermal paper and only extending to 32 columns. After all, what do most Users want from a printer? What they want is to be able to list programs, and perhaps, output results from PRK or one of its near relations. This the thermal printer did very well, and it did not need an RS-232 interface, either. It also had lower case, and you could screendump onto it., Such a printer would still sell well, and the few still around are in strong demand.

I digress. Back to the review. When looking around, I found there were basically two types of printer to choose from - dot-matrix, and daisy wheel. The former has a printing head which forms the letters by "turning on" a number of dots in the head. Thus, each letter is a series of dots, a little like a newspaper photograph.

The daisy wheel printer works more like normal typewriter, in that the letters are all on a wheel, which spins around to the correct position for the letter chosen. The quality of type of daisy wheels is far better than that of dot-matrix, but they are much slower - say 13 characters per second compared to 80 for dot-matrix.

I decided that I was not all that interested in high letter quality printing; I wanted a versatile machine. Besides, the daisy wheels are usually more expensive than the dot-matrix ones.

In looking at the range of dot-matrix printers available, I found a range of types and, of course, a range of prices. The basic models will give you upper and lower case in normal print only, but you are facing only around $400.00.

Then come the great majority of dot-matrix printers, which will allow you to choose a variety of print styles, which can be software switched, so you can change style within a line, if you wish. Finally, there are some dot-matrix printers with "special graphics" modes where you can define the characters- either on the computer, or on the printer itself.

I decided on the AMUST because it had all the capabilities descibed above, and was a very good price.

The AMUST 80DT has the following fonts : Condensed, superscript, Subscript and Expanded (double-width) -all in either normal print style or italics. As well, the Dot-matrix manufacturers have recognized the print-quality problem, and attempt to overcome it by emphasizing the print. The AMUST gives you two choices - "emphasized" or "double-strike". Both methods work by striking the letter twice, but the "emphasized" mode moves the paper up one two hundred and sixteenth of an inch before striking for the second time. This tends to "fill in"

AMUST-80DT

the holes in the dot-matrix, but gives a "furrier" result than double-strike.

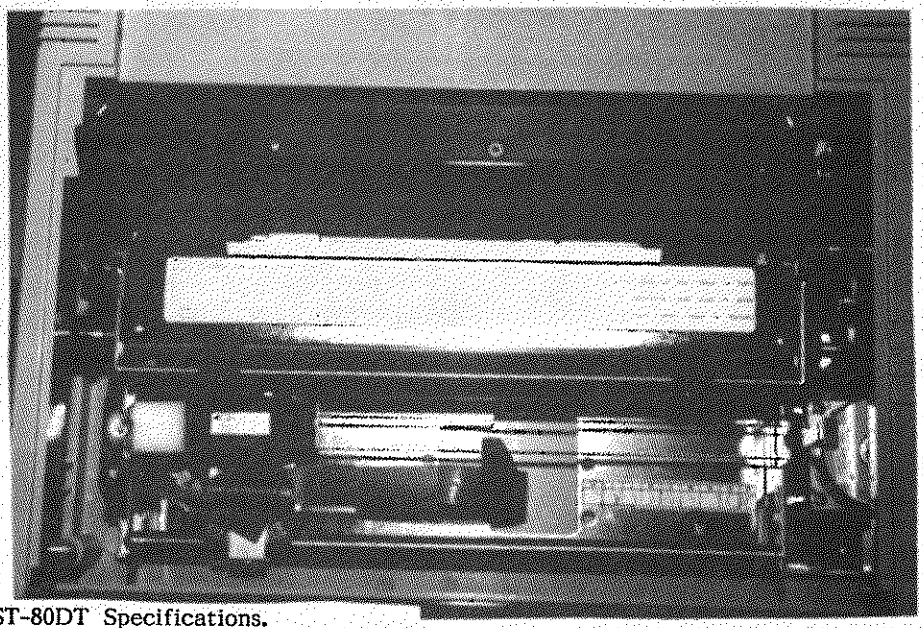
There are a multiplicity of formatting styles available. These cover line spacing, column length, form length, etc., etc.

Finally, there are a few things you should know when out in the printer market. First, make sure you are being quoted an all-up price - is sales tax included?(Usually it's not.)

Most printers come with a parallel interface as standard - if you want to use a serial port from your RS232, the provision of a serial card on the printer may cost up to $125.00.

Is the cable supplied, and have the printer dip-switches been set? These are a set of switches inside the printer which must be set correctly or the printer will print out "garbage". (As I found out!)

Now, I have used my printer very solidly indeed for my wife's M.Ed. theses, and have been through 4 ribbons. The life of a ribbon is supposed to be 3 million characters! All in all, my AMUST has done all it's been asked to do, and I'm very happy with it.



AMUST-80DT Specifications.

by Doug Thomas.

Wayne has given you an insight of a regular user of the 80-DT printer. This printer is well built and is good value for money. As this was their first volume seller there are a few annoying features, that do not detract from the normal useage.

1. The instruction book was written in the best of Japanese-English, and the text is not clearly set out. When one considers that the bulk of users will be first timers this is quite confusing.

2. If you wish to change any of the pre-set Dip switches you have to dismantle the case to get at them.

3. When unpacking the box on receipt you find that a foreign 3 pin plug is fitted, although an Australian plug is there for use. (Any printers sold by Softex have the proper plug connected prior delivery). Most people can wire a plug themselves but there are others who would need to find someone to do this for them.

4. When fitting a RS232 interface (printers) the instructions are poor, and it involves some delicate fixing to get into position (again if ordered from Softex will be fitted prior dispatch).

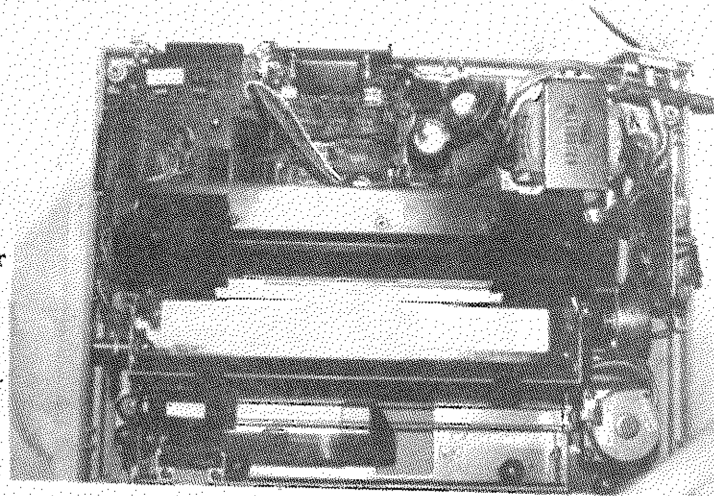
5. The Pica standard print is smaller than that for normal printers.

I know that most of the above complaints are minor ones, but for a newcomer they would be confusing.

Now to the specifications:-

Print System.
9 pins serial dot impact system, comes standard as Centronics 8 bit parallel printer, with RS-232C interface as optional extra.
Character set.
Full 96 character ASCII with descenders plus 8 international character sets.
Print direction.
Text Mode-Bidirection with logic seeking.
Graphic Mode-Single direction (left/right)
Character structure.
Text Mode: 8(W)x9(H).
Graphic Mode: 8(W)x8(H).
Bit Image: User definable.
Print Size.
Condensed: 136 Chars/line.
Condense enlarge: 68 Chars/line.
Pica pitch: 80 Chars/line.
Pica pitch enlarged: 40 Chars/line.
Print Rate: 80 cps(text mode).
Paper Feed.
Platen-friction/tractor feed.

Printing Paper.
Width: 10" max.
Up to 4 sheets of paper, single cut sheet or roll sprocket paper.
Ribbon.
Inked cartridge carbon ribbon (black) manufactured by Amust.
Other features.
Inbuilt Italic mode.
Print head life: 50 million characters.
Fully compatable with TI-99/4A in either Centronics or RS232 versions.
See Samples of print with this article.



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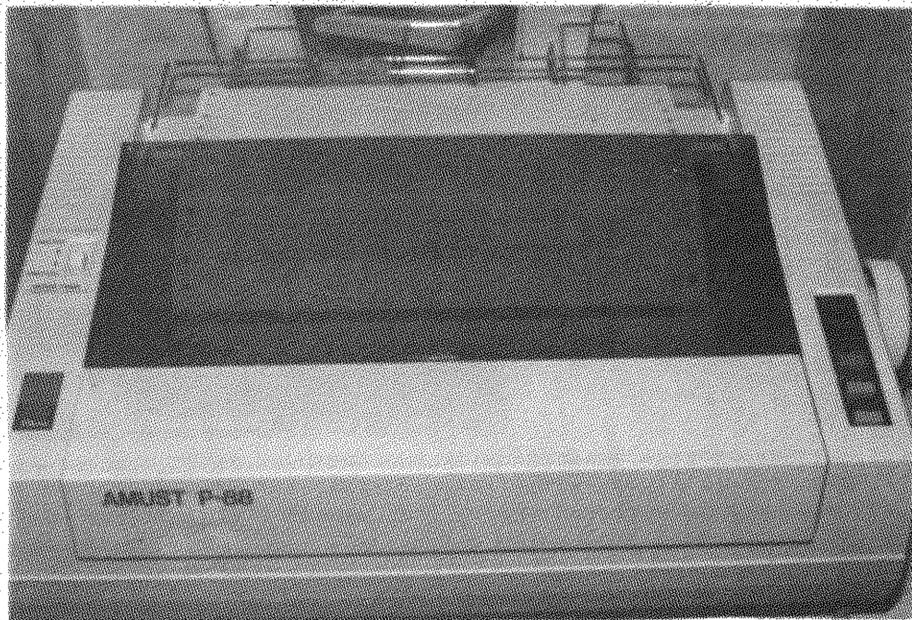
```
100 REM PRINT  DISK LISTINGS
110 REM TO RS232/2 INTERFACE
120 REM
130 CALL CLEAR :: DISPLAY AT(12,1):"HOW MANY COLUMNS ? 28 " :: ACCEPT AT(12,20)S
IZE(-3)VALIDATE(DIGIT)BEEP:N
140 DISPLAY AT(14,1):"FILENAME IS DSK1.          <":"                  ^^^^^^^^^^
" :: ACCEPT AT(14,18)BEEP SIZE(-10):F$ :: F$="DSK1."&F$
150 OPEN #1:F$ :: OPEN #2:"RS232/2.BA=9600.DA=8",VARIABLE N
155 PRINT #2:CHR$(27);"G"
160 LINPUT #1:M$ :: PRINT #2:M$
170 IF EOF(1)THEN 180 ELSE 160
180 CLOSE #1 :: CLOSE #2
190 DISPLAY AT(17,1):"ANOTHER LISTING? Y/N Y" :: ACCEPT AT(17,22)SIZE(-1)VALIDAT
E("YN")BEEP:YN$ :: IF YN$="Y" THEN 130 ELSE STOP
```

AMUST P-88



This printer is a vast improvement on the 80DT printer, where all the minor annoyances in the latter have been rectified. In addition it has better looks, is stronger and should give a better life to the customer in general use. There are some extras with this printer also.

The general looks of this printer are very smart and even the quality of its packing box is better. The instruction book is well laid out and is superior to most I have seen. The Dip switches are now mounted underneath the printer and you do not have to pull the printer to bits to make a change. It has both Pica and Elite print inbuilt, has a double bar and 2 rubber belts for the printer's head tó slide along. All the features of the 80DT are inbuilt together with a font registry command to enable an individual to enter their own unique characters and symbols (up to 62 characters). A new seamless cartridge ribbon is fitted that allows you to re-ink the ribbon once after some 3 million characters. The instruction book also contains a maintaince section for referance. The pin feed drive actually pulls the paper through after passing the printing head instead of driving it before or on the roller. The same foreign 3 pin plug is fitted but it comes with an adapter this time. The print head and other components should have a longer life span than that for the 80DT. Its price is only $20-$30.00 more than that originally for the 80DT.

AMUST P-88 Specifications.

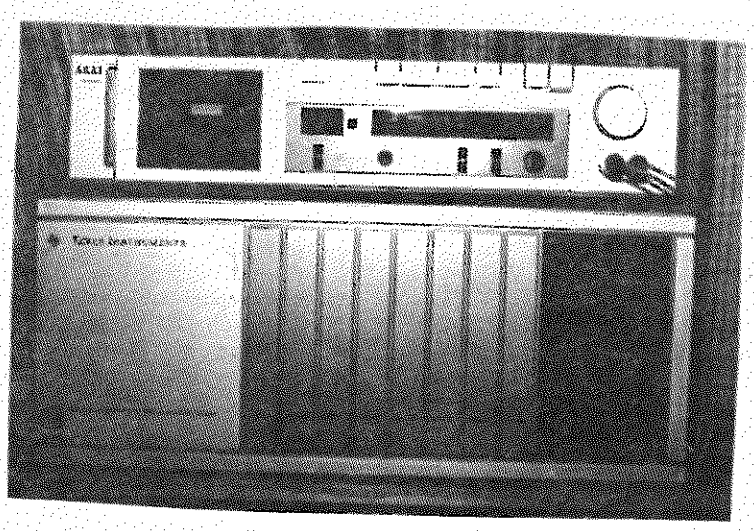
Only those differing from the 80DT listed above are recorded here.

Character set: Pica and Elite
Print speed: 80 cps. Pica, 96 cps. Elite.
Print direction.
Bidirectional with logic seeking/Unidirectional in the bit image mode.
Character types.
95 ASCII chars., 11 semi graphics, 32 international chars..
Character structure: 9x9.
Characters per line.
Ordinary: 80 Pica, 96 Elite.
Double width enlongated: 40 Pica, 48 Elite.
Compressed chàracters: 132 Pica, 158 Elite.
Compressed and Elongated chars.: 66 Pica, 79 Elite.
Superscript/subscript chars.: 80 Pica, 96 Elite.
Printing speed.
80 cps. pica.
96 cps. elite.
Paper used.
Width 4 to 10" continuous paper, 4 to 9" single sheet paper.
See Printer samples with this article.

Both of the two Amust printers are very good, with the P-88 being the better and more expensive printer.

```
 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_'abcdefghijklmno
pqrstuvwxyz{|}~£"''§┌┐├┤┬└┘|─┴┼ !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOP
QRSTUVWXYZ[\]^_'abcdefghijklmnopqrstuvwxyz{/}~ !"#$%&'()*+,-./0123456789:;<=>?@A
BCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_'abcdefghijklmnopqrstuvwxyz{|}~£"''§┌┐├┤┬└┘|─┴┼ !"
#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_'abcdefghijklmnopqr
stuvwxyz{/}~ !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_'abc
defghijklmnopqrstuvwxyz{|}~£"''§┌┐├┤┬└┘|─┴┼ !"#$%&'()*+,-./0123456789:;<=>?@ABCD
EFGHIJKLMNOPQRSTUVWXYZ[\]^_'abcdefghijklmnopqrstuvwxyz{/}~
```

Peripherals – The RS232 Interface



Explanation of Centronics/RS-232 I/F's.

I guess one of the most frequent mis-understandings with people contemplating purchase of a printer is that they do not understand what is meant by parallel (Centronics) or series (RS-232C) interfaces. Wayne has given some details on the TI RS232 card and its uses elsewhere in this issue. I will address my comments here to the printer application.

First, you need a TI RS232 card or one of the stand alone RS232 peripherals made in U.S.A. for the TI-99/4A. With the TI RS232 card you can operate the printer with either a parallel or serial interface, but with the stand alone ones you may be limited to a RS232C (serial) one only. Even with the TI RS232 card you still may decide to go for a serial interface as they usually have a 3 to 5 K buffer inbuilt which makes for quicker transfer time of data from the computer to the printer, saving waiting for the printer to catch up. A RS232 card for the Amust printer sells for about $150.00 recomended retail price so this is not a cheap interface.

Now for you to operate with a RS232 interface you must purchase a separate RS232 card for the printer in addition to the TI RS232 card, as most printers come with a centronics interface as standard. One of the cheapest RS232 interfaces I have come accross is the one for the Brother HR-15 printer reviewed last issue, having a price differance of approx. $50.00.

Providing the correct pins have been connected a centronics interface only requires the following example of instructions to work :-

```
LIST "PIO"
LIST "PIO":230-560
OPEN #1:"PIO" :: PRINT #1:"Hello"
```

With the serial interface there are a series of DIP switches fitted which must be set correctly to work. These include baud rate, number of data bits (7/8), polarity and some other settings. This does give you a greater control over your printing options in the end although usually for special applications only.

With most printers the serial interface is an add on so is not needed initially unless you have some requirement for this. There are some printers that come either serial or parallel with no inter-changeability, eg. Brother HR-15 or HR-25 Daisy Wheel printers.

Wiring diagrams for connecting your printers to the TI RS232 card are shown on the Data page. Components for these cables can be quite expensive, up to $20.00 ea., depending on source of supply.

I hope you are all a little wiser now in regard to printers, but if you have specific questions don't hesitate to write or telephone. Next issue we will follow up with an article with hints of how to use your printer in programming.

WHAT DOES ONE DO WITH THE RS-2?

The RS232 interface card is a transmission/receiving device. It permits your computer to communicate with other devices, which need not necessarily be of TI manufacture - that is, they can be devices made by other people, and that includes other computers.

The most common reason anyone has to get the RS-232 card is to be able to run a printer. Since the original TI thermal printer is no longer available, there is no other way to utilize a printer with your computer than through an interface device.

Now, the RS-232 is really a misnomer, for while it does have two RS-232 (or serial) ports (more about them later), it also has a "parallel" port. It is possible to connect a second RS232 card in your box (has to be modified by TI) allowing you up to 4 RS232 and 2 PIO ports for use at the same time.

Most printers available come with a parallel interface connected as standard. Very few, if any, have a serial interface as standard, though it is available as an extra-cost option. The

Most printers that have serial interfaces also have built in buffer of 3-5 K which allows the transmission of Data at the highest transmision rates (9600 baud) without the printer loosing data to it. This also allows your computer to be freed quicker, so you can go on doing something else whilst the printer is finishing its act.

The next most common use of the RS232 interface is to communicate with other computers, either other TI owners, or databases, such as the "Australian Beginning", "The Source" in the U.S., or bulletin boards such as MICOM in Melbourne.

Most of the articles in this magazine were sent down a phone line to Doug from Ian or I. To be able to do this though you need a modem between your RS232 and your phone socket -(more money outlay!), and of course the TE-II module.

Again, the transmission rate is only 300 baud, and this time there's not a lot you can do about it, as Telecom lines are a bit dicky on higher transmission rates unless you have a data line, which costs more money. As an example, this file took around 8 minutes to transfer. It's still a lot faster than a letter! Unfortunately, even at 300 baud, there can be line problems, and sometimes the TE-II will "bomb-out", and you have to try again.

Nonetheless, the ability to transfer programs and text along phone lines can be an enormous advantage. It saves posting letters, or tapes or disks, and is a mile faster.

The RS232 also allows direct communication between 2 computers using the OLD and SAVE commands. This method does not allow the transfer of data unless your program has this built in, and only transfers the actual program in memory, as distinct from the TE-II which transfers from Disk to Disk automatically once the device and file name is given. Using the TE-II any data on a disk can be transfered.

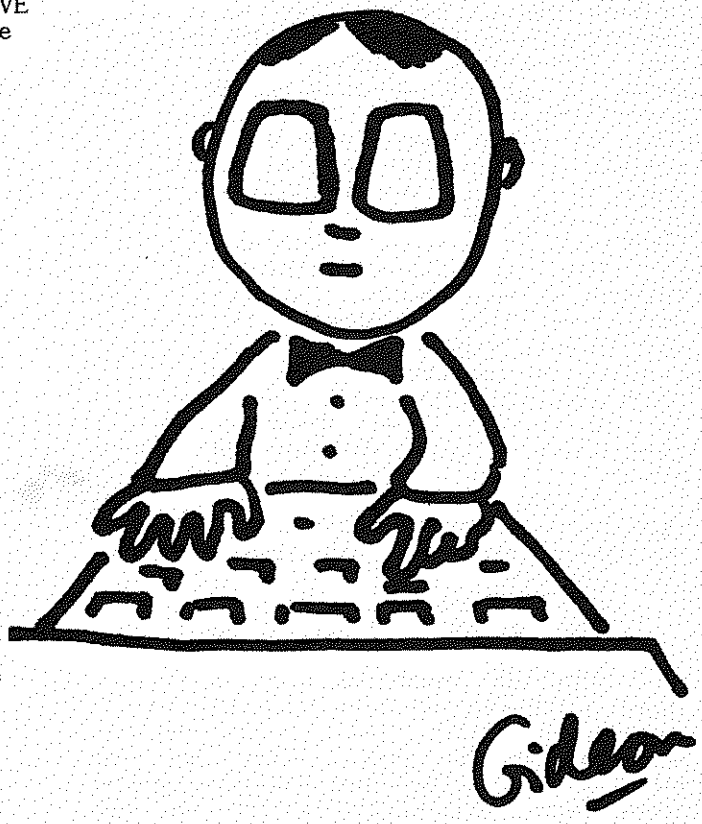
Use of the networks can be very useful, too, again depending upon your need for information, and, in the case of "The Source", the thickness of your wallet (approx. $80.00 per hour for U.S. based networks with Midas charges). User groups frequently get offers from OTC for a free demonstration of networks. If you are curious, ask your local co-ordinator about when a demo can be organised. For Melbourne users with modems, MICOM do allow "visitors" limited acess to their service. Dial 7625800, and press "enter" to respond to the password, and you can get a rough idea of what is offered. The line is very busy, so try during the day, or very late at night.

Other uses include graphic tablets, control of switches around your home or even the transmission of photographs, which can be sent via your computer to anywhere in the world almost instantaneously. A very useful device if used to its full potential.

parallel port allows very high transmission rates, and for both cost and convenience reasons, is the preferable way to go for your printer. Additionally, the parallel port is much easier to address. Its "device-name" is "PIO", whereas the "device-name" for the serial port(s) is "RS232(/2)" at the minimum, if you are using the default values built into the interface.

This means, though, that you have to use a baud rate of 300, which is slower than the printer's printing speed, so you find the printer waiting for data. People who use the serial port invariably get sick of this, and use higher baud rates. This involves resetting the printer dip swithches for the baud rate chosen, and say, for a baud rate of 9600 (the maximum), the device-name becomes "RS232.BA=9600", a bit of a fistful, to say the least, especially for users of TI-Writer for which the device/name has to be "RS232.BA=9600.LF",(or "CR", depending on your printer characteristics). Worse is to come. If you wish to screendump, or handle user-defined characters, the number of data bits has to be increased from the default value of 7 to 8, so the "device-name" becomes (wait for it!) "RS232.BA=9600.DA=8". Not for the fumble--fingered!

Why then, would anyone use the serial port for printer connection? Well, some don't have any choice, (e.g. ME), for the old stand alone RS232 didn't have a parallel port. Other people have had mysterious problems with the parallel port, and use the serial one out of necessity. For all intents and purposes, however, the parallel port is the preferable way to go for your printer.



Computer Hacking

HIGH-TECH HIJINKS

Seven curious teenagers wreak havoc via computer.

Reprinted in full with permission of the Detroit Free Press.

by Colin Covert, Free Press Staff Writer.

Milwaukee -The computer raiders weren't whizz kids. They were Explorer Scouts. The seven technological guerillas who played "War-Games" with more than 50 computers are simply bright adolescents with time on their hands, their parents and lawyers insist. The group, who dubbed themselves "the 414s", after Milwaukee's area code, range in age from 16 to 22.

Over a period of at least a year, they tampered with programs and read sensitive files in major computer installations across the country. Among the systems they entered were those of the atomic weapons research lab of Los Alamos Nuclear Facility, Manhattan's Memorial Sloan- Kettering Cancer Centre, Pacific Security Bank in Los Angeles and scores of other institutions. Their activities were uncovered in June when a Sloan-Kettering computer operator found numerous files destroyed.

Computer trespassing of the sort the 414s committed is a crime in 21 states, including Michigan. According to the FBI, the Milwaukee hackers may also be liable to federal charges of wire fraud (entering a computer via telephone under false identification) and transporting stolen goods across state lines. FBI Special Agent-in-Charge Ernest Woodby said it's unclear whether charges will be pressed against any of the group.

Don Parker, a California Computer Security consultant, said the 414s fit the classic profile of computer bandits:"Young, male, intelligent, highly motivated and energetic."

Dennis Hill, the supervisor of a Milwaukee computer installation damaged by one member of the group, sees the invaders as typical all-American teenagers."(The boy who invaded Hill's system was 15 years old at the time. He had a computer system that was great, and for a 15-year-old, that's almost as challenging as his first car, as exciting as his first experience with girls. I think everybody, when you first can drive, will at least once see how fast the car can go."

The 414s weren't especially knowledge- able about computers. "When I bought Paul a computer, I hoped it'd be educational," said a chagrined John Sundquist, whose 16-year-old son was implicated in the investigation. Paul and another member of the group had joined Milwaukee's Explorer Scout Post 760, sponsored by IBM, to encourage young people interested in careers in data processing.

The technological trespassing they committed is called "hacking". As the name suggests, it's like chipping away at a brick wall until a fissure appears. It can be done by finding an authorised user's password, or entering the log-in program through a loophole that gives access to the computer without a password. the practice has only recently come into the limelight as a result of the movie "WarGames", in which a teenage hacker unwittingly penetrates a Defence Department doomsday computer and starts the world on its way to thermonuclear war. But the 414s admit they were hacking long before the movie appeared.

Their operation was low-budget and their methods unsophisticated, concedes Neal Patrick, a 17-year-old member of the 414s who cracked the computer at Pacific Security bank in Los Angeles. The 414s used inexpensive personal computers to establish connections with the larger machines, Patrick said, and commonly known passwords to get inside them.

The fact that the 414s easily entered scores of computers reveals a level of negligence among operators of multi- million dollar computer systems that would never be tolerated in a night security guard. Each of the firms the intruders hit made it easy to invade their computers. In effect, they left the front door open and put out the welcome mat.

Several factors tempt young computer enthusiasts to try hacking. The first line of defence, the security measures designed into the machines by manufacturers and implemented by users, are frequently ineffective. Computer classes give students the expertise to run powerful machines, but rarely stress the ethics of computer use. And parental supervision of computer use is often lacking, because few adults are familiar with the technology. In the words of Neal Patrick,"I now wish access to these systems weren't so easy."

The 414s didn't even operate in secrecy. Months before the recent rash of break-ins, one of the 414s was known to Milwaukee authorities as a computer vandal. In 1982, Paul Sundquist did nearly $4000 worth of damage by deleting computer files at a Milwaukee technical school, an incident that prompted the Wisconsin Leglislature to enact a tough computer crimes law which includes felony penalties for the worst offences.

The story of that break-in began one night last fall in the Milwaukee School of Engineering's Allen Bradley Hall of Science. The third floor of the tan brick building houses research computers used by the technical school's faculty and 3,000 students. Early in the fall semester, the system began acting up in a most puzzling way.

The heart of the school's $400,000 data processing installation is VAX, an extremely popular computer manufactured by Digital Equipment Corp., a Massachusets computer firm that is America's largest producer of computers after IBM. The VAX is one of Digital Equipment's biggest sellers, used by many corporations and research centers nationwide, said Dennis Hill, director of academic computer services for the Milwaukee engineering school.

The VAX also has a prominent achilles heel. In September, the former computer system manager, who is no longer with the school, began receiving complaints from students and instructors that their computer files had been altered or deleted altogether. Someone "got into our computer and went sightseeing", said Hill. "His actions said,'I'm in now, what's the next step?'. He didn't know what to do. But he tried basic things, using commands that are common to most systems, like "copy", "delete" and "create". The intruder was destroying programs and threatening the entire system, including records of work done by the school's Applied Technology Center for the Department of Defence.

The trespasser had no need for skulldugery, Hill said. "The phone numbers for our computers are public information". Calls for the computer "go straight in", allowing callers to log into the system, he said.

Requesting an account is the next step in getting access to the computer, Hill said. There are standard accounts on the VAX system, identified by numbers. They are, in effect, factory set passwords. It's as if every Corvette produced by General Motors accepted the same ignition key.

"Typing in "1,2" would open up a major system account on this computer", Hill said."That's the computer manufacturer's designation. If they had another computer just like this at another company,"1,2" would still be the system account, unless the owner took the time to change it." The raider gained access to the computer by using such standard VAX account numbers, which are not difficult to uncover with some research, Hill said.

Why didn't the school change its computer access code to foil intruders? Ironically, Hill has learned from extensive surveys of security systems that few computer users get around to devising their own codes.

"In most cases, a customer will get a computer, and he'll be in such a hurry to get it running and show some productivity for his investment that he'll neglect a lot of safeguards. He'll leave a lot of the standard accounts just as they're set up by the manufacturer. They don't bother to check them, they don't bother to change them, or by the time they change them, it's too late," he said.

"Once you have the account, the computer asks you for the password, and if that's incorrect, you'll be logged off," Hill continued. But since inexperienced new users often use such systems, alarms don't automatically sound when several login attempts fail in a row. Patient hackers can program their computers to generate thousands of passwords at random and record those the computers accept. And some user-friendly computers are even easier to enter. They'll disclose detailed log-in instructions when users type H-E-L-P, Hill said.

Breaking into the Milwaukee School of Engineering system was almost that simple. "It was easy to break in. The manager of the system - who's no longer here - had an account on our VAX. The password was his last name," Hill sighed.

Computer passwords are often easy to guess, but some are easier than others. Employing a user's name is equivalent to leaving a key under the welcome mat.

"If you want to get in, it's standard tecnique to try the name of the person running the system," Hill said. Other common ploys are spelling the name backwards, using the person's initials, birthday or phone number.

"Sure enough, when he typed in D-A-V-I-S," Hill said, snapping his fingers, "the intruder had control of the system."

Once inside, he could change other people's files, read their records, create accounts, delete accounts, even crash the system, shutting all computer operations down.

School authorities monitored 24 separate break-ins between September and early November, when they caught the culprit through a phone trace. It was Paul Sundquist, then 15, who used the TRS-80 computer his father had bought for, educational purposes.

"He didn't think he was doing any harm, he just thought he was using the computer like his home computer," said Sundquist's attorney, Jeffrey Reitz. "But once he got in, he juggled up a number of programs, and it took a lot of time to figure what was wrong with them and then to fix them up again."

John Sundquist, the boy's father, says he doesn't know what the boy's motives were. "Maybe it was curiosity and showing off to other kids. He can't rationalize it or make any logic out of it," Sundquist said."He's caught up in the hype of the '80s. With this rapidly changing technology, kids are making the leap into adulthood in one big jump. They can go too far, too fast."

Criminal charges were dropped in exchange for a promise that Paul would not repeat his mischief. In December, his computer was impounded for 60 days by the Milwaukee School of Engineering, and his parents paid a token sum of $500 to cover part of the damage he did to the school's computer.

Paul appeared contrite in his interviews with the school's officials, Reitz said, but "exactly how much repentance a 15-year-old is going to have for something that causes no visible harm, I don't really know. He indicated he would not do something like that again. He understood that all sorts of damage could be caused with no intent, just the slightest manipulations. Maybe he did understand, maybe he didn't, maybe he was just saying that. I really don't know."

Seven months later, a team of FBI agents came to the door of the Sundquist's modest, north Milwaukee home to ask about the 414s and computer raids on Los Alamos, Sloan-Kettering and dozens of other sites.

Paul's uncle, a law clerk who works with Reitz, reacted to the FBI inquiry with a cry of "Oh, no, not this again," Reitz said. Reitz calls this the only case of computer crime recidivism his office has encountered.

The FBI visited Gerald Wondra first. Wondra, 22, a hacker who lives with his mother in the tidy Milwaukee suburb of West Allis, caused the failure of a computer system maintaining billing at Memorial Sloan-Kettering Cancer Center in New York City, according to FBI agent John Sauls.

The computer break-in was discovered in June by Chen Chui, computer system manager at the Cancer Center. Chui said the first unauthorised tap - the first ever for the center - occurred June 3 when "the intruder deleted the user accounting file, thereby causing (the cancer center) to lose approximately $1500 in revenues." In the next few days, unauthorised accounts popped up in the system, as did programs to copy other users' passwords, giving the intruder access to all their records, an FBI affadavit stated. The computer was a Digital Equipment Corp. VAX.

Chui deleted the unauthorised accounts, issued new passwords to affected accounts, and left a warning message on the computer, explaining the hazards of crashing the system and offering to give him a free account if he'd leave the rest of the computer alone. Wondra called Chui and told him he was "curious, he was just having fun" and was trying to make the center's computer talk to his own, according to Sauls.

Chui contacted New York City police, The FBI and New York telephone security officials to put taps on the phone lines the intruder most often used. The calls were traced to Milwaukee and Wondra, Sauls said.

"He was stunned to see the FBI on his doorstep. This is stuff he's only seen in the movies," says attorney Paul Piascoski, who is representing Neal Patrick as legal counsel, and the entire group as an agent in trying to sell the rights to their story in Hollywood.

Piaskoski says his client, who has been given immunity from federal prosecution in exchange for his co-operation, is no crook."Neal is an extremely bright 3.7 student at the toughest school in Milwaukee, Rufus King High School. They call it a magnet school, it's the best school in the system for these kids who show some promise."

But, Piaskoski continues, you don't have to be extremely bright to do what he did. Each of the computers the 414s raided, Patrick said, was a Digital Equipment VAX similar to the one Paul Sundquist cracked at the Milwaukee School of Engineering.

"In this case all they had to do for access was use a commonly known default password to get into the system," Piaskoski said."The system operators never changed it. It would have taken 30 seconds, $2.50 in labor time, and none of these kids in Milwaukee would have been into those computers. I think what he did, under the circumstances, was extremely ordinary. It's no different than putting a push-button phone in front of a five-year-old, taking the phone off the hook, and expecting him not to play with it."

His only motive, Patrick said, was the intellectual challenge of getting on a closed system and then remaining on it as long as he could, undetected.

"It was more curiosity than anything else," Patrick said."It's like a mix between the curiosity and the challenge. It's like knowing a foreign language and being able to read all those signs you couldn't read before. It's the excitement of knowing. I'm sure there are people out there who enjoy destroying, but why wreck the computer when you get the best feeling just by being there?"

The 414s never deliberately destroyed files in the computers they visited, he insisted. He called Wondra's deletion of files at Sloan-Kettering an accident. The group never pulled a prank more serious than creating some accounts called "Joshua", after the password in the film "WarGames". And today, he says in a convincingly exhausted tone, he regrets the whole thing.

WANTED

* GOOD PROGRAMS - Games, business and utility programs.

* USEFUL Programming Tips

* ARTICLES on uses of the computer, feature or tutorials on programming or uses.

* SUGGESTION for future articles.

Send material on Disk/Tape if possible (will be returned) along with any explanatory notes. Prefer formatted on TI-WRITER but if use some other Word Processor send copy in order to read program.
A fee will be paid for material used.

Send to: **SOFTEX P/L.**,
59 Landstrom Quadrant,
Kilsyth. 3137.

The Service Industry.

By Doug Thomas

A few years ago when you purchased a television, radio, stereo or other component you were aware that it was only a matter of time before something needed repairing. This meant a quick dash around the corner to your friendly Radio/T.V. serviceman who fixed your fault for a minimal charge.

Since the advent of the "Chip" servicing is almost unheard of, but what happens when a fault does appear, particularly with one of your non T.I. peripherals such as printers.

Let me share a recent experience I have had where I was played for the "Sucker" when I took my Microline 80 printer along for repairs. If this article in any way saves you falling into the same traps I would be happy. What would make me grateful is for those of you in business who use a service firm would carefully look at whether you are being taken for a ride in the computer service industry. I might add that these companies can charge what ever they like and there is nobody to prevent this.

Now, wouldn't you think that if you took your defective printer or what ever to the manufacturer/importer that they would be the best to handle your problem - WRONG.

As Microline are distributed by A.D.E. (Anderson Digital Equipment P/L) I in my innocence delivered my printer at their premises, thereby hoping to save on labour charges with no service man having to call. The day I delivered this was teaming with rain (some of Sydney's weather blown down here) and on delivery I did not think to ask what were the charges, mistake No.2.

After some 2 weeks passed with still no printer I rang them to find out that the company had been taken over and that all their servicing was being done by Datronics, who now had their former employee's in their service. Some 4 or more days passed again before I received a message that it was finally fixed and ready to be picked up at Datronics.

The paper work showed that in fact Datronics had repaired this on the same day they received the unit, and the service manager told me that the fault was an internal fuse (must be well hidden as I didn't find it) plus 1 Bridge Rectifier, the parts costing about $2.00 to $3.00 only.

What really made me blow my stack was when I was told that the service charge was $100.00, this being for a minimum of 2 hours at $50.00 per hour. Now, any one having a basic knowledge of electronics would know to find faults such as the above (fault being no power) would only take a few minutes to find and fix. Naturally I called them everything under the sun and mentioned that I now know where all the Con men have gone, but apart from suggesting that until the rest of the Industry drop their prices that was the charge.

To add further insult to injury (hip pockets always a bad spot to be hit) when the invoice arrived the cost of spare parts was $30.00. If this is the way that this company operates then it is high time that it is exposed for what it is.

GRIPE CORNER !!#@****

Before writing this article I made a few calls to other companies picked at random from the yellow pages asking them their charges for servicing, where the article was brought in and again Datronics exceeded the others because of the minimum charge of 2 hours, all the others were a minimum of 1 hour.

Sample of Service Charges-Melbourne.

Computer Plus Engineering Services, 5 Walker Rd., Nunawading.
$60.00 per hour + Materials, minimum time not stated.

Digicom Computer Maintaince P/L, 435 Highbury Rd., Burwood E.
$60.00 per hour, minimum 1 hour plus parts.

Hills Telefix (Computer repair section), 407 Plenty Rd., Preston.
$34.00 per hour. First half hour $34.00, with $8.50 per quarter hour after this, plus parts.

Nucleus, Syndal.
$55.00 per hour, no minimum, plus parts.

De Forest Software, 26 Station St., Nunawading.
$35.00 per hour, minimum 1 hour unless something of very minor nature, plus parts.

Now the above are minimums only and anyone can only guess what prices parts are inflated to over and above cost, see my example from Datronics which is in excess of 10 times.
I might add that when I approached most of the above companies it took some skill to really find out what there charges were, so that an ordinary customer would find it almost impossible to be properly imformed in the first place. I believe that these charges are a disgrace, and it is obvious that the companies "couldn't care less about the domestic customer" and are out to milk the business community, giving justification for their charges that the equipment they normally service is worth hundreds of thousands of dollars.
I guess I'm not the first of our readers to be "Ripped Off" or will I be the last. I believe that SOFTEX and other interested parties, eg. Groups, should begin to collate a "HIT LIST" of organisations such as Datronics and more practically publish a list of good service repairers who have reasonable charges that would be in line with the consumer market. De Forest Software is the only company listed above that comes any where near fitting this bill. As a service for readers I would appreciate any comments you may like to add to this subject. More importantly if you can supply the names of any recommended repairer in your neck of the woods, giving name, address, phone no., charges and expertise so that we may be able to publish these in a future issue. Come on, write, don't wait until it is too late.

NOW WE'VE GOT IT,

WHAT ARE WE GOING TO DO WITH IT?

Use of the P.R.K., Statistics & P.R.G. Modules

continued

This is the second article in the series involving the use of the "Personal Record Keeping","Personal Report Generator" and "Statistics" command modules. The articles are supposed to be interactive, so lets have some letters from readers please!!

INTRODUCTION.

Well how did you get on with the file we created in the last article? We didn't get any letters back from readers. I do hope it is the kind of thing that readers will find useful. In this issue I am going to look at the use of the "Personal Report Generator" module.

The equipment required for this article will include:

a) TI 99/4A Console.
b) Periferal Expansion Box.
c) RS 232 Card.
d) Disk Drive Controller Card.
e) Disk Drive. (1 or 2 Drives)
f) Or Cassette Recorder.
g) 80 Column Printer.
h) P.R.K Module.
i) P.R.G.Module.

It has to be said that if your computer is realy going to be a useful peice of home equipment, it will be necessary to connect it to a printer. This can be done by connecting the console to a periferal expansion box fitted with an RS 232 card. The RS 232 card has two Programmable serial interface ports and one parallel Centronics port. It is recomended that the Centronics port is used for your printer since parallel printers are at least $100 cheaper and will print at the maximum rate that the printer can go. The address of the parallel printer is "PIO".

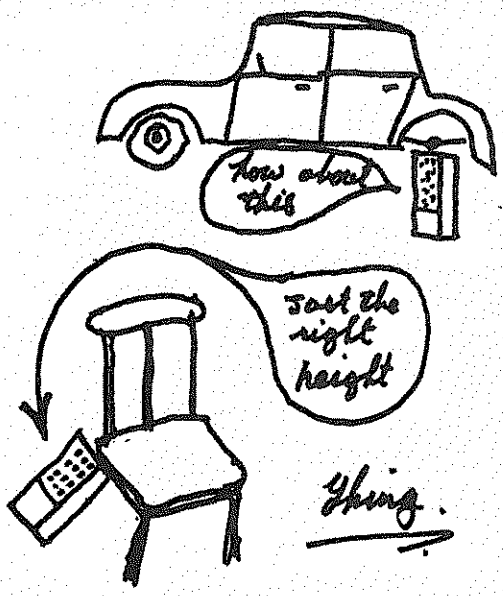
Readers that have a stand alone RS 232 interface will have to use a serial printer because no parallel port was included with the stand alone units.

LETS GO.

Readers will need the cheque file that we put together during the first article. If you tried printing with the PRK module you will have noticed that it prints very slowly and there is only one report format that can be used. This can be overcome by using the PRG module.

The reason that the PRK module is so slow is that the programme stored inside the module is written in TI basic. The programme within the PRG, is written in Assembly Language or it could be machine code and runs very fast.

Plug the PRG into your computer and select it from the menu. You will now see 1 for Data File Management and 2 for Report Management.



Select 2 and the following Menu will be displayed.

1) Load Data File.
2) Load Report File.
3) Save Report File.
4) Define Report.
5) Modify Report.
6) Test Report.
7) Execute Report.
8) Exit This Section.

The Report Generator Module cannot be used unless a data file is loaded in, so now load in your data file from cassette or disk that you recorded for the last article and then select item 4 on the menu, "Define Report".

This next stage requires that we define each detail of the report that has to be printed. This has only to be done once as the file parameters will be recorded and they can be used over and over again.

The first prompt that you are asked to provide is the printer name. If you are using a centronics printer, type PIO. If you are using an RS232 printer, type RS232.DA=?.BA=?.CR? etc. depending on the dip switch settings of your printer.

The next prompt you will be asked to provide is "Printer Width", type 80 if you are using an 80 column printer. Those of you who have a TI thermal printer should type 32.

The next prompt is "Lines/Page". There are a number of things to consider at this stage. If your report has, lets say 55 lines of data, add 4 to this number and enter 59. The reason for this is becausee the module sums each

Continued on Page 22

SOFTEX GOODIES

SOFTEX PTY. LTD. proudly offers subscribers the following merchandise at

DISCOUNT PRICES

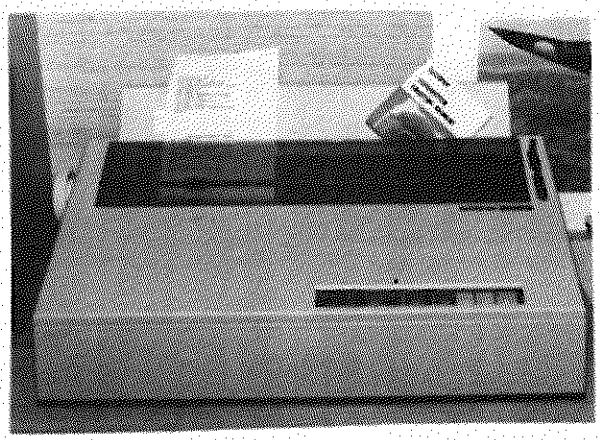
Brother HR-15 Daisy Wheel Printer

Excellent, ready to go Daisy Wheel Printer, used to prepare this magazine, see article "Quality Printing for the TI-99/4A.

Special Price: **$770.00** (C. I/F)
RS232 version $810.00

Also new model Brother HR-25, same features as HR-15, except speed is 25 cps.

Softex Price: **$1220.00** (C. I/F)
$1270.00 (RS232 version)



Disks

5 1/4 inch, single sided, double density disks, Verex brand.

$35.00 per box of 10, includes postage.

Tapes

C-62 Cassette tapes, reputable brand.

$1.20 ea., discount for large orders. Postage extra.

Amust 80DT Printer

Centronics with optional RS232C Interface. Bi-directional, 80 cps., Tractor and friction feed. Max. width 10". Chars/line 40,68,80,136. Fonts include expanded print, condensed, superscript, subscript, emphasized or double strike print in ordinary or italics mode.

Special Price February **$400.00** (C. I/F)

RS232 card extra $125.00 for printers.

Amust P-88 Printer

All the features of the 80-DT with some extras, better built, one of the best Matrix printers made. Possibly in short supply due demand. See article in this issue for more details.

Price: $500.00 Centronics version

Cables to suit both the above Printers are **$40.00** ea.

Also agents for:

Two Amust Daisy Wheel and C-itoh M8510 and M1550 printers.

Phone or write to us about prices - we're hard to beat!

All Printers sold will be checked prior shipping, allowing use immediately on receipt.

Watch for more goods coming soon.

NOTE: **Freight/Postage extra.**

Order by mail or telephone;

Also stock Cables, RS232C and Centronics for printers, Carbon Ribbons, etc..

All Prices include Tax.

SOFTEX GOODIES

BOOKS

We stock the following titles:

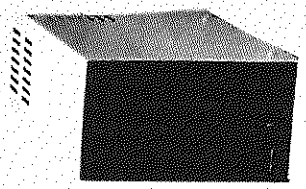
"Programs for the TI Home Computer"
Contains 50 programs for you to type in.
$24.00 plus $2.00 post/packaging.

"Introduction to Assembly Language for the TI Home Computer"

Takes the reader from Basic to the Editor/Assemnler manual.
$25.00 plus $2.00 post/packaging.

If not in stock at time of ordering, order will be filled on receipt of next shipment, usually within 2 weeks.

Tandon Disk Drives
MPI Disk Drives



Tandon and MPI Brands, Double Sided/Double Density Drives. Both fully compatible with the TI-99/4A Expansion System. Can be mounted in Expansion Box, no Modifications necessary. (Double Density at moment not available using Disk Controller Card). Drives can also be supplied with independant power supplies for second or third Disk Drive on system. Slimline Drives coming next month, but modifications are required to power supply in Expansion System Box.

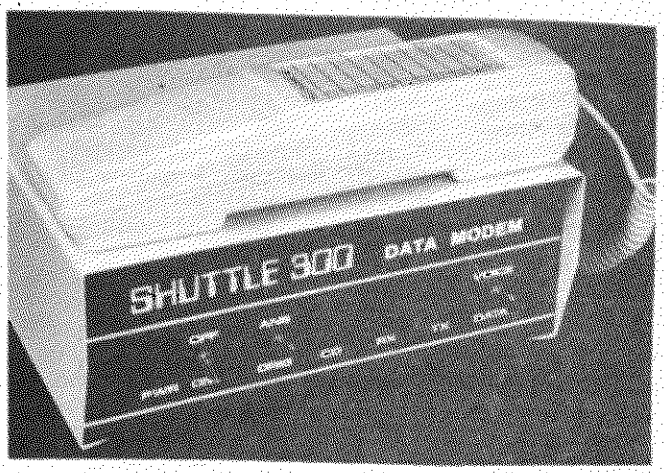
Softex Prices:
$386.00 for full size DS/DD Drives.
$510.00 for DS/DD Drive, external power supply plus cable for 2rd. drive. (Cable with provision for 3 Drives $15.00 extra.).

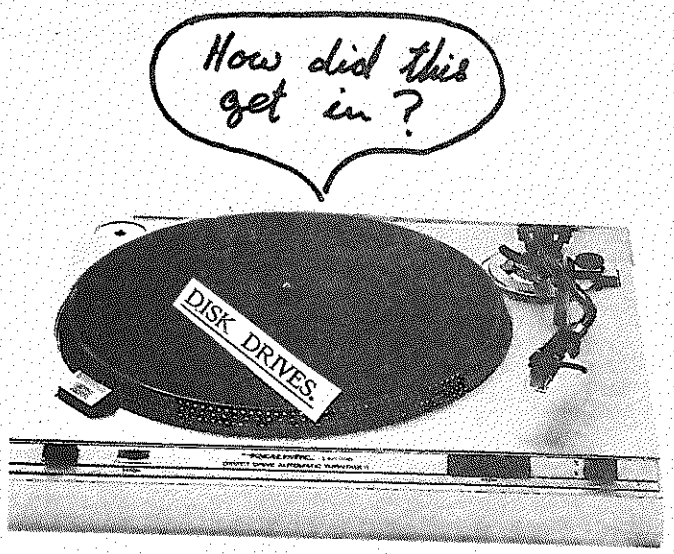
Check for Slimline prices/availability.

Softex has 1 Disk Controller Card in stock for $100.00 for first order where TI refuses to supply Controller Card with-out their Drive (SS-DD).

Shuttle 300 Data Modem

A Telecom approved Modem including an approved Digitial telephone with auto redail and mute button. Can be plugged into any standard telephone wall socket, ready to go.
Price $266.00.





SOFTEX P/L

59 Landstrom Quadrant
Kilsyth. 3137.
Tel: (03) 7258178

numerical column and prints the total at the bottom of the report. This is why we defined some numerical data as "characters" in our data file so that they would not be summed by the module. I doubt that anybody would wish to add up cheque serial numbers. Using the example data file that I used last time which had 24 lines of data I entered 28 in answer to this question. This allows for a blank line before the summed data is printed at the bottom of the page.

The next prompt is "Blank Lines". Enter 0 to this question.

The next prompt is "Title?". For this exercise I entered "Personal Expenses" but you should enter whatever you wish to call your file such as "Cheque Account" or whatever you like.

The next prompt is "Page Header?". This will insert the text titles above each column of data forming part of the report. For the report we are designing here, follow the next steps exactly. Press the space bar 16 times. Type "NO" and another 4 spaces. Type "CHEQUE NO" and then six spaces. Type "PAYEE" and then 8 spaces. Type "AMOUNT" and then 3 spaces. Type "RECONCILE" and then press enter.

The next prompt is "Starting Column?". Enter 16 in answer to this question.

Now we come to defining the actual elements of the data file that we want to print. Since data for our file may only be added say once per month or every two or three months, if the period expenditure is to be examined the month and the day columns will not be needed in the report. They are included in the data file to permitt sorting of the file into date order. Similarly the category column was included to permit sorting in order of the categories selected. For the purpose of this exercise the above columns will not be included in the report. The report file we are making up can be used to print out our file in date order if this is the way it has been sorted with the PRK module. However I have sorted my file in order of categories. Please follow the following steps exactly.

The next prompt is "Define Report Line" with the following menu.

"Characters Used"
"Characters Left"
1 ITEM.
2 SPACES.
3 STRING.
4 COLUMN VALUE.
5 END OF LINE.
6 END OF REPORT.

Press 1 for "Item" and enter 0.
Press 2 for "Spaces" and enter 3.
Press 1 for "Item" and enter 1.
Press 2 for "Spaces" and enter 3.
Press 1 for "Item" and enter 2.
Press 2 for "Spaces" and enter 3.
Press 1 for "Item" and enter 7.
Press 2 for "Spaces" and enter 5.
Press 1 for "Item" and enter 6.
Press 6 for "End of Report".

The main menu should now be displayed. It will be as well at this stage to save the report file, so enter 3 on the menu and save the file on cassette or disk if you have one. Now lets print the report. Make sure that your printer is switched on, and select 6 "Test Report". Now select 1 on the next menu and see what the printer produces. The title should be properly centered and the column headings should be central above the columns which have been represented by -s. If all is well, select 7 "Execute Report". In the case of my example file, there is now the figure 1 with a flashing cursor under it. Under the 1 is the figure 24 which is the number of lines of my file. Both numbers may be modified to print any lines within the confines of the length of the data file. If less than the number of total lines are to be printed the report "Lines/Page" prompt should be altered to be equal to the number of lines to be printed +4.

For this example I wish to print the whole file so I press enter for 1 and 24.

You can if you wish, print the number of lines that contain each category of expense. Change the report file "Lines/Page" to be equal to the number of lines to be printed +4. The module will print the lines of data and total the amount at the bottom. With a large data file the "Reconcile" column is useful because it will total the number of reconciled cheques. By comparing this number with the line number you can see how many cheques have not been reconciled.The report prints out as shown. The PRK file format is included again for reference.

The PRG module has many powerful features which I will go further into in the next issue. In the meantime readers please let me have some letters on your particular interest. Play around with the module yourselves and find out what happens when you change the report format.

By Ian Streete.

READERS MART

Free advertising up to a maximum of 3 lines available to subscribers only.

Non subscribers and in excess of 3 lines (Max. 42 Chars. ea.) at $2.00 per line.

* MICROLINE 80 PRINTER - as new condition. RS232 printer output. $380.00.

* PRENTICE STAR ACCOUSTIC COUPLER - Ready to connect to any telephone headset. $170.00.

* CHAIR - Moulded shape, high backed green vinyl, cloth cushioned, swivel office chair. Good Condition, $25.00.

CONTACT: Doug Thomas, (03) 7258178.

* To sell:Editor/Assembler Manual, ideal for Mini Memory $20.00

CONTACT: Bruce Carew, (03) 5989161.

PERSONAL EXPENSES

NO	CHEQUE NO	PAYEE	AMOUNT	RECONCILE
1				
2				

PERSONAL EXPENSES

LINE: 1

NO	CHEQUE NO	PAYEE	AMOUNT	RECONCILE
1				

PERSONAL EXPENSES

NO	CHEQUE NO	PAYEE	AMOUNT	RECONCILE
1	336846	SEC	111.53	1
2	336849	GAS&FUEL	63.39	1
3	336829	GAS&FUEL	27.89	1
4	336850	CSH	200.00	1
5	336843	CSH	200.00	1
6	336832	CSH	100.00	1
7	336847	CSH	200.00	1
8	336834	CSH	200.00	1
9	336838	CSH	55.35	1
10	336836	CSH	200.00	1
11	336837	HILLSIDE	24.00	1
12	336835	PADOVAN	50.00	0
13	336831	WEST BNK CD	110.00	1
14	336848	CAGA	86.00	1
15	336830	CAGA	86.00	1
16	336840	NAT BNK CD	70.00	1
17	336827	NAT BNK CD	70.00	1
18	336839	PRM CTY	225.00	1
19	336842	DR HOCKING	40.00	1
20	336841	FRN TRE MITSU	79.80	1
21	336828	NRE WRN PROD	275.00	1
22	336833	KELSO	150.00	1
23	336844	OCC HLTH SOC	15.00	1
24	336845	SHER VET CLIN	80.00	1

RECONCILE 23
AMOUNT. 2718.96

News Briefs

Texas Instruments, Lubbock have advised that because of changes made to the TI-99/4A computer, cartridges (Third Party ones) that do not include an auto-incrementing memory may not work. This applies to the more recently manufactured computers, but color, serial number and packaging will not indentify which computers are effected.
The way to tell whether your computer is effected is to observe the bottom right hand corner of your screen when the color bar screen is displayed.
If the bottom line says
"c 1983 TEXAS INSTRUMENTS V2.2"
then only cartridges containing an auto-incrementing memory will work. This means that cartridges made by most third party manufacturers will not play.
If the bottom line says
"c 1981 TEXAS INSTRUMENTS"
then third party cartridges will probably work.

TI FORTH has been distributed to all registered Groups with TI Lubbock. This system has been placed in the Public Domain "as is", and TI will not support this in any shape or form. TI FORTH has not undergone the testing and evaluation normally given to new products, and so has been supplied to groups to use and distribute as they please. No documentation will be available from TI so anyone wishing to use TI-FORTH should contact their nearest Group.

TI-FORTH requires the full system, an Editor/Assembler module along with a 200 page manual and 1 Program Diskette. Forth is a fast language, and one of its features is to support a 64 character Editor-interesting.

The Melbourne Users Group plan to make this package available for $30.00 (plus Postage) so if you are interested and your nearest Group do not have this available write to the TI-99/4 Users Group Melbourne (see address in Users Group section).

INVENTORY CONTROL

By Doug Thomas

At some time we all need to take stock, whether only to keep stock of what goods we have in our house and its total worth for curiousity or Insurances purposes. This program has been designed primarily for business use but would need little or no modifications for home use, eg. change headings.

This program was originally built for Disk operation where everything is automatically written to disk as each stage is finished (less chance of forgetting) but we have included the few changes for those without disks. This is also a program that uses a printer to get a hard copy, but there is enough screen display to operate without one.

A sample print out gives you an example of how the details are listed. On Running the program you are first asked for a file name (cassette version-uses name for headings) and whether this is a new file or not. If it is a new file the program automatically takes you to the add items area, otherwise it reads the old file and goes to the main menu.

The options in the menu are:-

1. - List Inventory
2. - Add new names
3. - Print Inventory
4. - Query & Update
5. - Save New Inventory
6. - Delete Item
7. - End Program

List Inventory

Gives screen listing of Item No's and Items in groups, with the option of continuing the search, Printing the list displayed, or returning back to the menu.

Add New Names

Allows additions to inventory, with protection if same item no is used twice. The information requested is as follows:-

Item No: up to 4 digit code, numerical or alphabetical.
Item Description: Up to 24 characters.
No. of Items on hand: up to 3 digits long.
Item Cost: up to 10 digits.
Location Code: up to 4 digits.
Inventory Class Code: up to 5 digits.
Item selling price: up to 10 digits.

After filling in the details you are then asked if there is any more to add, otherwise the details are saved (Disk version only) before going back to the menu.

Print Inventory

Gives a hard copy of total Inventory.

Query and Update

Allows on screen editing of all items for one Item No., except for the No. and Description. On completing the new data is saved prior to returning to the Menu.

Save New Inventory

Not needed for Disk based version, but only way of saving/ updating Inventory file for tape.

Delete Item

Allows the deletion of Items by Item No., but has confirmation option inbuilt.

End Program

On selection checks that file has been saved before quitting.

PROGRAM NOTES

Different colors are used for screen backgrounds for clarity purposes. The printer instructions are "RS232", with line No. 1190 and 1340 needing change if your printer is different.

Some of the lines are very long and on trying to type some of these in you will not be able to finish the complete line on first go. In cases like this, enter what you can, then go into Edit mode, which allows you another line of programming.

As stated above a Cassette based version has been included, with the lines to be altered given separately.

SOFTEX INVENTORY

Item	Item Description	No.	Item Cost $	Loc.	Inv.	Selling Price $
		0	.00			.00
0002	Wigit, standard	23	567.89	St.	Goods	1234.56
0003	Small Wigit	12	7893.45	St.	Goods	12345.91
0001	Medium Wigit	23	7629.45	St.	Goods	14342.67

Total Value of Inventory at Cost $ 283260.22
Total Retail Value of Inventory $ 506427.21

```
100 REM  INVENTORY CONTROL
110 REM  SOFTEX MAGAZINE XB.
12.83
120 CALL SCREEN(15)
130 X2$="________________
_____"
140 CALL CLEAR
150 DIM I9$(200),D9$(200),L9
$(200),O(200),V(200),P(200),
C9$(200)
160 DISPLAY AT(10,6):"INVENT
ORY CONTROL" :: DISPLAY AT(1
5,6):"by SOFTEX Magazine " :
: FOR Z=1 TO 250 :: NEXT Z
170 DISPLAY AT(20,2)BEEP:"En
ter File Name :" :: ACCEPT A
T(20,19):F$ :: DISPLAY AT(22
,1)BEEP:"Is this a new File?
 Y/N :N"
180 ACCEPT AT(22,27)VALIDATE
("YNyn")SIZE(-1):A$ :: IF A$
="N" OR A$="n" THEN 190 ELSE
 530
190 GOSUB 330
200 CALL CLEAR :: CALL SCREE
N(15):: DISPLAY AT(1,6):"INV
ENTORY CONTROL"
210 DISPLAY AT(3,4):"File Na
me :";F$ :: DISPLAY AT(4,5):
"Contains ";R;"Items."
220 DISPLAY AT(5,2):X2$ :: D
ISPLAY AT(7,1):"Options:"
230 DISPLAY AT(8,4):"1 - Lis
t Inventory" :: DISPLAY AT(1
0,4):"2 - Add New Items" ::
DISPLAY AT(12,4):"3 - Print
Inventory"
240 DISPLAY AT(14,4):"4 - Qu
ery  Update" :: DISPLAY AT(
16,4):"5 - Save New Inventor
y" :: DISPLAY AT(18,4):"6 -
Delete Item"
250 DISPLAY AT(20,4):"7 - En
d Program" :: DISPLAY AT(22,
2)BEEP:"Press Option Require
d:"
260 CALL KEY(0,K,S):: IF S=0
 THEN 260
270 IF K=49 THEN 1050 :: IF
K=50 THEN 530 :: IF K=51 THE
N 1180
280 IF K=52 THEN 770 :: IF K
=53 THEN 410 :: IF K=54 THEN
1470 :: IF K=55 THEN 290 ::
IF K<1 OR K>7 THEN 260
290 CALL CLEAR :: DISPLAY AT
(10,6):"INVENTORY CONTROL" :
: DISPLAY AT(15,10):"COMPLET
E" :: DISPLAY AT(20,3)BEEP:"
Is Data Saved? Y/N :N"
300 ACCEPT AT(20,24)VALIDATE
("YNyn")SIZE(-1):T$ :: IF T$
="N" OR T$="n" THEN 200
310 FOR Z=1 TO 200 :: NEXT Z
 :: END
320 REM OPEN  READ OLD FILE
330 OPEN #1:"DSK1."&F$,SEQUE
NTIAL,INTERNAL,UPDATE
340 INPUT #1:R
350 FOR I=1 TO R
360 INPUT #1:I9$(I),D9$(I),O
(I),V(I),L9$(I),C9$(I),P(I)
370 NEXT I
380 CLOSE #1
390 GOTO 200
400 REM STORE INV. ON DISK
410 CALL SCREEN(11):: OPEN #
1:"DSK1."&F$,SEQUENTIAL,INTE
RNAL,OUTPUT
420 PRINT #1:R
430 FOR I=1 TO R
440 PRINT #1:I9$(I),D9$(I),O
(I),V(I),L9$(I),C9$(I),P(I)
450 NEXT I
460 CLOSE #1
470 CALL CLEAR
480 DISPLAY AT(11,2):"INVENT
ORY HAS BEEN STORED "
490 FOR TIME=1 TO 500
500 NEXT TIME
510 GOTO 200
520 REM      ADD NEW ITEMS
530 CALL CLEAR :: IF K>=200
THEN 540 ELSE 580
540 CALL SCREEN(7):: DISPLAY
 AT(11,7):"INVENTORY FULL"
550 FOR DELAY=1 TO 500
560 NEXT DELAY
570 GOTO 200
580 CALL CLEAR :: CALL SCREE
N(13)
590 R=R+1
600 FOR K=R TO 200 :: CALL C
LEAR :: DISPLAY AT(3,8):"ADD
 NEW ITEMS" :: DISPLAY AT(5,
1):"Record #";K
610 DISPLAY AT(8,1):"Enter I
tem Number :" :: ACCEPT AT(8
,20)SIZE(-4):NN$
620 FOR I=1 TO R :: IF NN$=I
9$(I)THEN 640
630 NEXT I :: I9$(K)=NN$ ::
GOTO 650
640 DISPLAY AT(8,1)BEEP:"Thi
s number is already used" ::
 FOR ZZ=1 TO 200 :: NEXT ZZ
:: GOTO 610
650 DISPLAY AT(9,1):"Enter I
tem Description" :: ACCEPT A
T(10,4):D9$(K)
660 DISPLAY AT(12,1):"Enter
Amount on Hand" :: ACCEPT AT
(12,23)SIZE(-3):O(K)
670 DISPLAY AT(14,1):"Enter
Item Cost  $" :: ACCEPT AT(1
4,19):V(K)
680 DISPLAY AT(16,1):"Enter
Location Code " :: ACCEPT AT
(16,22)SIZE(-4):L9$(K)
690 DISPLAY AT(18,1):"Enter
Inv. Class Code :" :: ACCEPT
 AT(18,24):C9$(K)
700 DISPLAY AT(20,1):"Enter
Sell Price $" :: ACCEPT AT(2
0,19):P(K)
710 DISPLAY AT(22,1):"Add Mo
re Items ? (Y/N) : N" :: ACC
EPT AT(22,26)SIZE(-1):A$
720 IF A$="N" OR A$="n" THEN
 740
730 NEXT K
740 R=K
750 GOTO 410
760 REM  QUERY  UPDATE
770 CALL CLEAR :: CALL SCREE
N(6)
780 DISPLAY AT(3,3)BEEP:"Que
ry and Update Records" :: DI
SPLAY AT(4,1):X2$ :: DISPLAY
 AT(22,1):"Enter [ STOP ] to
 Finish"
790 DISPLAY AT(6,1)BEEP:"Ent
er Item No.:" :: ACCEPT AT(6
,18)SIZE(-5):XX$ :: IF XX$="
STOP" OR XX$="stop" THEN 410
800 FOR I=1 TO R :: IF XX$=I
9$(I)THEN 840
810 NEXT I
820 DISPLAY AT(15,3)BEEP:"It
em not in Inventory" :: FOR
ZZ=1 TO 250 :: NEXT ZZ :: DI
SPLAY AT(15,3):"     " :: GO
TO 790
830 REM DISPLAY ROUTINE
840 CALL CLEAR
850 DISPLAY AT(2,1):"Descrip
tion" :: DISPLAY AT(2,17):"S
tk. #";I9$(I):: DISPLAY AT(4
,1):D9$(I)
860 DISPLAY AT(6,1):"Quantit
y held :";O(I):: DISPLAY AT(
8,1):"Cost $";V(I):: DISPLAY
 AT(10,1):"Selling Price $";
P(I)
870 DISPLAY AT(12,1):"Locati
on :";L9$(I):: DISPLAY AT(13
,1):"Inv. Clas. :";C9$(I)
880 DISPLAY AT(19,1)BEEP:"OP
TIONS:" :: DISPLAY AT(20,1):
" 1 - Update Inventory" :: D
ISPLAY AT(21,1):" 2 - See an
other Item"
890 DISPLAY AT(22,1):" 3 - R
eturn to Index"
900 CALL KEY(0,KEY,STATUS)::
 IF STATUS=0 THEN 900
910 IF KEY=49 THEN 940 :: IF
 KEY=50 THEN 770 :: IF KEY=5
1 THEN 410
920 IF K<1 OR K>3 THEN 900
930 REM CORRECT ROUTINE
940 DISPLAY AT(19,1)BEEP:"Up
date Which Item?" :: DISPLAY
 AT(20,1):"1- Quantity    2-
 Inv. Clas."
950 DISPLAY AT(21,1):"3- Cos
t Price  4- Sell Price" :: D
ISPLAY AT(22,1):"5- Location
"
960 CALL KEY(0,K,S):: IF S=0
 THEN 960
970 IF K=49 THEN 990 :: IF K
=50 THEN 1000 :: IF K=51 THE
N 1010 :: IF K=52 THEN 1020
:: IF K=53 THEN 1030
980 IF K<1 OR K>5 THEN 960
990 ACCEPT AT(6,16)SIZE(-3):
O(I):: GOTO 880
1000 ACCEPT AT(13,13)SIZE(-5
):C9$(I):: GOTO 880
1010 ACCEPT AT(8,7):V(I):: G
OTO 880
1020 ACCEPT AT(10,16):P(I)::
 GOTO 880
1030 ACCEPT AT(12,11)SIZE(-4
):L9$(I):: GOTO 880
```

```
1040 REM     LIST W/NUMBERS
1050 CALL CLEAR :: CALL SCRE
EN(16):: DISPLAY AT(1,5)BEEP
:"Inventory Directory"
1060 DISPLAY AT(3,1):"Item
   Description" :: AA=0 :: B
B$=" "
1070 READ Z,Z1
1080 FOR X=Z TO Z1
1090 DISPLAY AT(4+AA,1):I9$(
X);BB$;D9$(X):: AA=AA+1
1100 NEXT X
1110 DISPLAY AT(21,1):"1- Co
n. List  2- Print List" :: D
ISPLAY AT(22,1):"3- Return t
o Index"
1120 CALL KEY(0,K,S):: IF S=
0 THEN 1120
1130 IF K=49 THEN 1050 :: IF
 K=50 THEN 1340 :: IF K=51 T
HEN 1160
1140 IF K<1 OR K>3 THEN 1120
1150 DATA 1,15,16,30,31,45,4
6,60,61,75,76,90,91,105,106,
120,121,135,136,150,151,165,
166,180,181,195,196,200
1160 RESTORE :: GOTO 200
1170 REM PRINTER ROUTINE
1180 CALL CLEAR :: DISPLAY A
T(11,11):"Printing"
1190 OPEN #2:"RS232" :: PRIN
T #2:TAB(32);F$;" INVENTORY"
 :: PRINT #2:TAB(20);"------
------------------------------
------"
1200 PRINT #2:" Item      Ite
m Description       No.  Item
 Cost $    Loc.  Inv.  Sellin
g Price $"
1210 PRINT #2:" ----      ---
-------------       ---  ----
-------    ----  ----  ------
---------" :: TV=0 :: TP=0
1220 FOR I=1 TO R :: Z$=" "
1230 PRINT #2,USING "#":Z$;:
: PRINT #2,USING "#####":I9$
(I);
1240 PRINT #2,USING "#######
#################":D9$(I);::
 PRINT #2,USING "####":O (I)
;
1250 PRINT #2,USING "#######
##.##":V(I);:: PRINT #2,USIN
G "######":Z$;
1260 PRINT #2,USING "#######
":L9$(I);
1270 PRINT #2,USING "######"
:C9$(I);
1280 PRINT #2,USING "######.
##":P(I)
1290 GV=O(I)*V(I):: TV=GV+TV
 :: GP=O(I)*P(I):: TP=GP+TP.
:: NEXT I
1300 PRINT #2 :: PRINT #2
1310 PRINT #2,USING "
   Total Value of Inventory
at Cost  $########.##":TV
1320 PRINT #2,USING "
   Total Retail Value of Inv
entory   $########.##":TP
1330 CLOSE #2 :: GOTO 200
1340 OPEN #3:"RS232" :: DISP
LAY AT(21,1):"           Pri
nting" :: DISPLAY AT(22,1):"
 " :: IF Z=1 THEN 1350 ELSE
1380
1350 PRINT #3:TAB(32);F$;" I
NVENTORY" :: PRINT #3:TAB(20
);"------------------------
---------------"
1360 PRINT #3:" Item      Ite
m Description       No.  Item
 Cost $    Loc.  Inv.  Sellin
g Price $"
1370 PRINT #3:" ----      ---
-------------       ---  ----
-------    ----  ----  ------
---------"
1380 FOR X=Z TO Z1
1390 PRINT #3,USING "#":Z$;:
: PRINT #3,USING "#####":I9$
(X);
1400 PRINT #3,USING "#######
#################":D9$(X);::
 PRINT #3,USING "####":O(X);
1410 PRINT #3,USING "#######
##.##":V(X);:: PRINT #3,USIN
G "######":Z$;
1420 PRINT #3,USING "#######
":L9$(X);
1430 PRINT #3,USING "######"
:C9$(X);
1440 PRINT #3,USING "######.
##":P(X)
1450 NEXT X :: CLOSE #3 :: G
OTO 1110
1460 REM   DELETE ITEM
1470 CALL CLEAR :: CALL SCRE
EN(7):: DISPLAY AT(22,1):"En
ter [STOP] to Finish" :: DIS
PLAY AT(3,1):"Item No to Del
ete" :: ACCEPT AT(3,21)SIZE(
-5):M$ :: Z$=" "
1480 FOR I=1 TO R :: IF M$=I
9$(I)THEN 1500
1490 NEXT I :: IF M$="STOP"
OR M$="stop" THEN 410 :: GOT
O 1470
1500 DISPLAY AT(5,1)BEEP:"Is
 this the Item? Y/N :Y" :: D
ISPLAY AT(7,1):I9$(I);Z$;D9$
(I)
1510 ACCEPT AT(5,24)SIZE(-1)
:CC$ :: IF CC$="Y" OR CC$="y
" THEN 1520 ELSE 200
1520 I9$(I)=" " :: D9$(I)="
 " :: O(I)=0 :: V(I)=0 :: L9
$(I)=" " :: C9$(I)=" " :: P(
I)=0 :: R=R-1
1530 GOTO 410
```

Cassette Version

```
330 OPEN #1:"CS1",SEQUENTIAL
,INTERNAL,INPUT ,FIXED 80

400 REM STORE INV. ON CASSET
TE
410 CALL SCREEN(11):: OPEN #
1:"CS1",SEQUENTIAL,INTERNAL,
OUTPUT,FIXED 80

750 GOTO 200

790 DISPLAY AT(6,1)BEEP:"Ent
er Item No.:" :: ACCEPT AT(6
,18)SIZE(-5):XX$ :: IF XX$="
STOP" OR XX$="stop" THEN 200

910 IF KEY=49 THEN 940 :: IF
 KEY=50 THEN 770 :: IF KEY=5
1 THEN 200

1490 NEXT I :: IF M$="STOP"
M$="stop" THEN 200 :: GOTO 1
470

1530 GOTO 200
```

NEXT MONTHS

* ADDING DISK DRIVES TO YOUR COMPUTER.
* UNDERSTANDING HOW TO TALK TO YOUR PRINTER
* REVIEW SHUTTLE MODEM
* USE OF THE TI-WRITER
* MAIL LABEL PROGRAM
* LOTS, LOTS MORE.

All You Wanted To Know About Loans

Loans and Interest

By Doug Thomas.

The other night I received a form from the MMBW after enquiring about their Interest rate for a loan to connect sewerage to my house. I had heard that originally this had been a good scheme, however following the coming of the Labour Party Government, Interest rates rose from below 10% to 15.6%. The first thing I noted about the details sent was that the Quarterly payments reduced throughout the 10 year life of the loan, but details sent only covered the first 10 payments with a maximum loan amount of $1500.00.

This chart did not help me greatly to really examine which was the best scheme to borrow money from as I needed near $2000.00. Having designed my own mortage and Rule of 78 programs some time ago I took an interest in the figures supplied to try and determine how they set up their scheme. I soon found that this had been achieved by maintaining a constant amount off the principal payments each time, and then reducing the amount for interest and payments accordingly

Of course like all programmers I set too at 10.00pm. and worked out a program for the printer to produce the figures required. I then realised that my mortgage loan program was only good for monthly payments so why not redesign this for any payment frequency required. As a outcome I finished up with 3 separate programs, 2 of which were indentical in most respects.

My programming never starts with a flow chart etc., as I normally begin with the "guts" and get this working, and only then put in the finishing touches such as beginnings and endings. This usually means several resequences and in the case of the first 2 programs here a complete revision using Programming Aids 111 (a disk based program that allows block deletions etc.) to eventually finish up with the program following.

There is space left in this program for further editions later on, such as loans with 1 lump payment, interest paid ½ yearly etc., or if you have some different variations you may like to submit these for consideration and publication in future issues.

Loans-Reducing Interest.

This program is based on the mortgage principle where at set periods the interest is charged on the amount outstanding at the time, which means that the amount of interest charged reduces with each payment. This program asks for the Loan amount, ie. actual amount required, your periodic payment, the Interest rate applicable per annum and the number of payments made per year. The program then prints out a statement for each periodic payment, showing the amount outstanding prior to the payment, the amount of Interest due, the amount paid off the principal with the payment and the new amount outstanding at the end of the period. It also totals the amounts for Interest, Principal and Payments which is printed at the end of the loan period along with the effective interest charged based over the complete period of the loan rather than on a yearly basis.

LOAN - REDUCING PAYMENTS

```
Loan Amount    :$     1209.34
First Payment  :$      234.67
Interest Rate  :        18.0%
  12  Payments pa.
```

Outstanding	Interest	Principal	Payments	Balance	No
1209.34	18.14	216.53	234.67	992.81	1
992.81	14.89	216.53	231.42	776.28	2
776.28	11.64	216.53	228.17	559.75	3
559.75	8.40	216.53	224.93	343.22	4
343.22	5.15	216.53	221.68	126.69	5
126.69	1.90	216.53	218.43	-89.84	6
Totals:$	60.12	1299.18	1359.30	Eff. Interest	5.0%.

LOAN - REDUCING INTEREST

```
Loan Amount    :$     1209.34
Reg. Payment   :$      234.67
Interest Rate  :        18.0%
  12  Payments pa.
```

Outstanding	Interest	Principal	Payments	Balance	No
1209.34	18.14	216.53	234.67	992.81	1
992.81	14.89	219.78	234.67	773.03	2
773.03	11.60	223.07	234.67	549.96	3
549.96	8.25	226.42	234.67	323.54	4
323.54	4.85	229.82	234.67	93.72	5
93.72	1.41	233.26	234.67	-139.54	6
Totals:$	59.14	1348.88	1408.02 Eff. Interest		4.9%.

Loan-Reducing Payments.

This is one that started the whole ball rolling, where each payment reduces throughout the period of the loan, with the amount being paid off the principal from each payment remaining the same. The method of calculation is still the same as the above with the amounts for payments and interest reducing with each payment. The program prints a similar table as above, with the amount for the loan , the first payment amount, interest rate pa. and the number of payments per year being required.

RULE OF 78

```
Loan Amount $    1209.34

   6 Monthly Payments of $  234.67

Total Amount $   1408.02
```

Month No	Outstanding	Factor	Pay Out	Total Paid	Interest Paid	E. Int.
1	1408.02	.7142857	1266.11	1266.11	56.77	56.3%
2	1173.35	.4761905	1078.74	1313.41	104.07	51.6%
3	938.68	.2857143	881.91	1351.25	141.91	46.9%
4	704.01	.1428571	675.63	1379.64	170.30	42.2%
5	469.34	.0476190	459.88	1398.56	189.22	37.6%
6	234.67	.0000000	234.67	1408.02	198.68	32.9%

DWT 3/82.

Rule of 78.

This program gives you an early payout figure for each payment, and you can see if it is really the wisest thing to pay out a loan early. If you play with this program it soon becomes obvious that it does not pay to pay out a loan early once it has run more than about a third of the time span, as by then you have already paid out the greatest proportion of the interest involved, and it would be better for you to put your money aside and earn interest rather than pay out the loan and effectively give the loan company a higher effective interest rate on their money.

This program requires the insertion of the loan amount, the number of total payments and the amount of each payment. The program then calculates the total amount you will pay for the complete period of the loan, and then gives a periodical statement of the amount outstanding, the factor used to determine the amount for payout, the amount required at that time to pay out the loan, the total amount that would have been paid out at that time, the running total of the amount paid in interest, together with the effective interest rate for the period of the loan.

This program has been modified to run and display results on the screen for those of you who do not have printers, and if you take note of the methods used this could be repeated to the first 2 programs.

I trust these programs will enlighten you on money matters in the future.

```
100 CALL CLEAR :: DISPLAY AT
(5,5):"LOAN AND INTEREST" ::
 DISPLAY AT(7,10):"PROGRAMS"
110 DISPLAY AT(13,7):"By Dou
g Thomas" :: FOR ZZ=1 TO 250
 :: NEXT ZZ
120 CALL CLEAR :: DISPLAY AT
(3,3):"Select Option"
130 DISPLAY AT(5,1):"1 - Loa
n, Reducing Interest" :: DIS
PLAY AT(7,1):"2 - Loan, Redu
cing Payments"
140 DISPLAY AT(9,1):"3 - Rul
e of 78" :: DISPLAY AT(22,1)
:"E - Exit"
150 CALL KEY(0,K,S):: IF S=0
 THEN 150
160 IF K=69 THEN END
170 IF K=49 THEN 190 :: IF K
=50 THEN 330 :: IF K=51 THEN
770
180 GOTO 150
190 CALL CLEAR :: L$="Loan A
mount    :$" :: K$="Reg. Paym
ent :$" :: I$="Interest Rate
 : " :: H$="Payments pa."
200 OPEN #1:"RS232" :: PRINT
 #1:TAB(19);"LOAN - REDUCING
INTEREST" :: PRINT #1 :: PRI
NT #1 :: S=0 :: N=0 :: P=0
210 GOSUB 470
220 AA=(A/100)/B
230 BB=X*AA :: P=Y-BB :: N=N
+1
240 GOSUB 630
250 S=S+BB :: Q=Q+P :: IF T>
(Y-(T*A))THEN 260 ELSE 270
260 X=T :: GOTO 230
270 V=Y*N :: O$="Totals:" ::
 F$="  "
280 GOSUB 710
290 PRINT #1,USING "########
.##":V;:: EI=(S/LOAN)*100
300 PRINT #1,USING " Eff. In
terest ###.#%.":EI
310 PRINT #1:"
 =======   ========    =====
=="
320 CLOSE #1 :: GOTO 120
330 CALL CLEAR :: L$="Loan A
mount    :$" :: K$="First Pay
ment :$" :: I$="Interest Rat
e : " :: H$="Payments pa."
340 OPEN #1:"RS232" :: PRINT
 #1:TAB(19);"LOAN - REDUCING
 PAYMENTS" :: PRINT #1 : : P
RINT #1 :: S=0 :: N=0 :: P=0
350 GOSUB 470
360 AA=(A/100)/B :: BB=X*AA
:: P=Y-BB
370 BB=X*AA :: N=N+1 :: Y=BB
+P
380 GOSUB 630
390 S=S+BB :: Q=Q+P :: Z=Z+Y
 :: IF T>(Y-(T*A))THEN 400 E
LSE 410
400 X=T :: GOTO 370
410 O$="Totals:" :: F$="  "
420 GOSUB 710
430 PRINT #1,USING "########
.##":Z;:: EI=(S/LOAN)*100
440 PRINT #1,USING " Eff. In
terest ###.#%.":EI
450 PRINT #1:"
 =======   ========    =====
=="
460 CLOSE #1 :: GOTO 120
470 CALL CLEAR
480 INPUT "LOAN AMOUNT  $":X
 :: LOAN=X
490 PRINT #1,USING "########
########":L$;
500 PRINT #1,USING "########
.##":X
510 INPUT "LOAN PAYMENT  $":
Y
520 PRINT #1,USING "########
########":K$;
530 PRINT #1,USING "########
.##":Y
540 INPUT "INTEREST   :":A
550 PRINT #1,USING "########
########":I$;
560 PRINT #1,USING "########
.#%":A
570 INPUT "NO OF PAYMENTS PA
.  :":B
580 PRINT #1,USING "####":B;
590 PRINT #1,USING "  ######
##########":H$ :: PRINT #1 :
: PRINT #1
600 PRINT #1:"Outstanding
Interest  Principal   Paymen
ts       Balance     No"
610 PRINT #1:"----------
--------  ---------   ------
--   -------     --"
620 RETURN
630 T=X+BB-Y
640 PRINT #1,USING "########
.##":X;
650 PRINT #1,USING "########
.##":BB;
660 PRINT #1,USING "########
.##":P;
670 PRINT #1,USING "########
.##":Y;
680 PRINT #1,USING "########
##.##":T;
690 PRINT #1,USING "#######"
:N
700 RETURN
710 PRINT #1:"
 -------   --------    -----
--"
720 PRINT #1,USING "####":F$
;
730 PRINT #1,USING "#######"
:O$;
740 PRINT #1,USING "$#######
.##":S;
750 PRINT #1,USING "########
.##":Q;
760 RETURN
770 K=0 :: H=0
780 CALL CLEAR
790 DISPLAY AT(5,10)BEEP:"RU
LE OF 78"
800 DISPLAY AT(6,10):"------
----"
810 DISPLAY AT(13,8)BEEP:"LO
AN AMOUNT $"
820 ACCEPT AT(13,21):A
830 DISPLAY AT(15,4)BEEP:"MO
NTHLY PAYMENT $"
840 ACCEPT AT(15,22):B
850 DISPLAY AT(17,5)BEEP:"NO
 OF PAYMENTS :"
860 ACCEPT AT(17,22):E
870 DISPLAY AT(20,6):"For Sc
reen Only"
880 DISPLAY AT(21,2):"Displa
y Press <S> Otherwise"
890 DISPLAY AT(22,2):"Press
any other Key."
900 DISPLAY AT(8,2)BEEP:"Pre
ss >H< to Halt Screen"
910 CALL KEY(0,ZZ,SS):: IF S
S=0 THEN 910 :: IF ZZ=83 THE
N 920 ELSE 930
920 SC=1 :: DISPLAY AT(24,2)
BEEP:"Press >P< to Print Scr
een" :: FOR DELAY=1 TO 999 :
: NEXT DELAY :: GOTO 1020
930 OPEN #1:"RS232"
940 PRINT #1:TAB(35);"RULE O
F 78" :: PRINT #1:TAB(35);"-
---------"
950 PRINT #1 :: PRINT #1 ::
PRINT #1
960 PRINT #1,USING "  Loan A
mount $#######.##":A :: PRIN
T #1
970 PRINT #1,USING "######":
E;:: PRINT #1,USING " Monthl
y Payments of $#####.##":B :
: PRINT #1
980 C=E*B :: PRINT #1,USING
"  Total Amount $#######.##"
:C :: PRINT #1 :: D=C-A
990 PRINT #1:TAB(3);"Month N
o   Outstanding      Factor
   Pay Out  Total Paid Inter
est Paid E. Int."
1000 PRINT #1:TAB(3);"------
--   -----------      ------
    -------  ---------- ----
--------- -------"
1010 GOTO 1050
1020 CALL CLEAR :: PRINT TAB
(11);"RULE OF 78." :: PRINT
:: PRINT :: PRINT USING "Loa
n Amount $#######.##":A :: P
RINT
1030 PRINT USING "####":E;::
 PRINT USING " Payments of $
#####.##":B :: PRINT
1040 C=E*B :: PRINT USING "T
otal Loan $#######.##":C ::
D=C-A
1050 FOR O=1 TO E :: K=K+1 :
: L=E-K :: H=(L*(L+1))/(E*(E
+1)):: I=D*H :: G=C-(B*(K-1)
):: J=(C-(B*K)-I)+B
1060 P=K-1 :: Q=P*B :: R=J+Q
 :: Z=R-A
1070 IF SC=1 THEN 1220
1080 PRINT #1,USING "#######
":K;
1090 PRINT #1,USING "#######
#####.##":G;
1100 PRINT #1,USING "####.##
#####":H;
1110 PRINT #1,USING "#######
##.##":J;
1120 PRINT #1,USING "#######
```

```
##.##":R;
1130 PRINT #1,USING "#######
####.##":Z;:: MM=K/12 :: EI=
((Z/A)*100/MM)
1140 PRINT #1,USING "#####.#
%":EI
1150 IF K=43 THEN 1340 ELSE
1160
1160 IF K=99 THEN 1350 ELSE
1170
1170 IF K=155 THEN 1350 ELSE
 1180
1180 IF K=211 THEN 1350 ELSE
 1190
1190 IF K=267 THEN 1350 ELSE
 1200
1200 IF K=323 THEN 1350 ELSE
 1210
1210 IF K=E THEN 1400 ELSE 1
220
1220 PRINT TAB(2);"Mth. Amou
nt Pay Out Int Paid"
1230 PRINT TAB(2);"----- ----
-- ------- --------"
1240 PRINT USING "##":K;
1250 PRINT USING "######.##"
:G;
1260 PRINT USING "#####.##":
J;
1270 PRINT USING "######.##"
:Z
1280 IF K=E THEN 1290 ELSE 1
300
1290 PRINT "All Done"
1300 CALL KEY(0,CR,BF):: IF
CR=80 THEN GOSUB 1420
1310 IF CR=72 THEN GOSUB 144
0
1320 NEXT O
1330 GOTO 120
1340 T=1
1350 T=T+1 :: PRINT #1 :: PR
INT #1:TAB(74);T;"/." :: PRI
NT #1:CHR$(10)&CHR$(10)&CHR$
(10)
1360 PRINT #1:TAB(36);"Page
";T :: PRINT #1
1370 PRINT #1:TAB(3);"Month
No   Outstanding      Factor
     Pay Out  Total Paid Inte
rest Paid E. Int."
1380 PRINT #1:TAB(3);"------
--   ----------     ------
     -------  ---------- ----
--------- -------"
1390 GOTO 1210
1400 PRINT #1 :: PRINT #1:TA
B(70);"DWT 3/82." :: CLOSE #
1
1410 GOTO 1330
1420 OPEN #99:"RS232",OUTPUT
,VARIABLE 32 :: FOR ROW=1 TO
 24 :: FOR COL=1 TO 32
1430 CALL GCHAR(ROW,COL,X)::
 PRINT #99:CHR$(X);:: NEXT C
OL :: NEXT ROW :: CLOSE #99
:: RETURN
1440 PRINT :: PRINT "PRESS S
PACE BAR TO CONTINUE"
1450 CALL KEY(0,FG,LK):: IF
LK=0 THEN 1450 :: IF FG=32 T
HEN 1460 ELSE 1450
1460 RETURN
```

Program Notes.

Line No's 200, 340, 930 and 1420 contain printer set up statements, alter according to your printer.

Since printing out the program a small bug was found so please add the following to the end of Lines 200 and 340 - :: Q=0

Some samples of the print outs are given at the end of the program.

Cheque Sorting

SORTING THOSE CHEQUES!

In issue No.1, Ian Streete began his article on the use of PRK, using cheque sorting as an example of its uses.

Not everyone has PRK, and hence this program. I developed this for my own use - to wit, for sorting of cheques for submission to my tax accountant.

There are, however, many other resons for sorting cheques into categories - you may be the Treasurer of some organization or another, and have to prepare reports -you may wish to sort out personal cheques to establish your own spending patterns. Whatever the reason, this program shall enable you to categorise them, and will give you a printout and total for, each category.

Initially, I developed the program in BASIC, to be used with a cassette. (This version shall be published in a future issue.) Gradually, I developed the program into Extended Basic, and adapted it for a disk system.

The program gives you the option of having 8 different categories to classify the data into. Enter your categories in lines 100-170.

The program uses an internal file called "CHQREC". The program uses the term "APPEND" in the "OPEN" statement, so new records are added to ones existing, not on top of them. If you wish to restart the file, delete "CHQREC", using Disk Manager, and you are ready to start again.

The program gives three options on commencement: 1. Input records;
2. Review/Print Results;
3. End

If you choose 1., your chosen categories are shown on the screen, as a reminder, and you are prompted five times for each cheque. The prompts, and the allowable entries are as follows:

a) category; a number from 1 to 9 (8 categories, with 9 to finish.)
b) date; three characters (I used abbreviations for the month.)
c) cheque number; Three numbers.
d) details; ten characters.
e) amount; up to $9999.99.

The reason for the somewhat restricted allowances is to get a complete cheque description on the screen in one line - Oh for an 80-column display!

You will also note that after you type in the details for each cheque, they are displayed for your approval. The data is only entered on the file when you respond "Y" in answer to the

"SAVE ON FILE(Y/N)" prompt.

When you are finished entering cheque details, type "9" in response to "CATEGORY" and the file shall close.

REVIEW/PRINT RESULTS gives you the choice of reviewing on the screen any or all categories. Only 16 cheques are reviewed at a time, and you proceed by pressing the space bar, whereupon another 16 are presented. At the end of the category you have chosen, the total is shown.

For printing of results, choose that option, and you will receive a printed copy. (CAUTION: Ensure line 450 is appropriate for your printer.)

```
100 ITEM$(1)="******"
110 ITEM$(2)="******"
120 ITEM$(3)="******"
130 ITEM$(4)="******"
140 ITEM$(5)="******"
150 ITEM$(6)="******"
160 ITEM$(7)="******"
170 ITEM$(8)="******"
180 ITEM$(9)="END"
190 TITLE$(1)="CHEQUE SORTIN
G PROGRAM"
200 TITLE$(2)="BY WAYNE M.WO
RLADGE"
210 DISPLAY AT(12,3)ERASE AL
L:TITLE$(1)
220 DISPLAY AT(14,3):TITLE$(
2)
230 DISPLAY AT(19,3):"USE EX
TENDED BASIC MODULE"
240 FOR DELAY=1 TO 400 :: NE
XT DELAY
250 CALL CLEAR
260 DISPLAY AT(5,3):"OPTIONS
":" -------": : :" 1.INPUT
RECORDS": : :" 2.REVIEW/PRIN
T RESULTS": : :" 3.END."
270 CALL KEY(0,K,S)
280 IF S=0 THEN 270
290 IF K<49 OR K>51 THEN DIS
PLAY AT(20,3):"WRONG KEY, TR
Y AGAIN" :: GOSUB 810 :: GOT
O 250
300 IF K=50 THEN 340
310 IF K=49 THEN GOSUB 880 E
LSE 1070
320 GOTO 250
330 FOR DELAY=1 TO 400 :: NE
XT DELAY
340 OPEN #2:"DSK1.TXREC",INT
ERNAL,INPUT
350 CALL CLEAR
360 FOR I=1 TO 9 :: DISPLAY
AT(4+I,1):I;".";ITEM$(I):: N
EXT I
370 DISPLAY AT(15,1):"CATEGO
RY?"
380 ACCEPT AT(15,12):C
390 IF C>9 THEN 360
400 IF C=9 THEN CLOSE #2 ::
GOTO 250
410 DISPLAY AT(17,1):"PRINT
RESULTS?(Y/N)"
420 ACCEPT AT(17,22):P$
430 IF P$="N" THEN 470
440 IF P$="Y" THEN 450 ELSE
410
450 OPEN #1:"RS232.BA=9600",
OUTPUT
460 GOTO 520
470 CALL CLEAR
480 DISPLAY AT(2,1):C;".";IT
EM$(C):RPT$("-",28)
490 DISPLAY AT(4,1):USING 86
0:"MTH","CHQ","DETAILS","AMO
UNT"
500 DISPLAY AT(5,1):RPT$("-"
,28)
510 GOTO 570
520 CALL CLEAR
530 PRINT #1:C;".";ITEM$(C)
540 PRINT #1:RPT$("-",28)
550 PRINT #1,USING 860:"MTH"
,"CHQ","DETAILS","AMOUNT"
560 PRINT #1:RPT$("-",28)
570 INPUT #2:AA$,M$,CHQ$,DD$
,ZZ$
580 IF EOF(2)THEN IF P$="Y"
THEN 720 ELSE 700
590 A=VAL(AA$):: Z=VAL(ZZ$)
600 IF A<>C THEN 570
610 COUNT=COUNT+1
620 TOTAL=TOTAL+Z
630 IF P$="N" THEN 660
640 PRINT #1,USING 860:M$,CH
Q$,DD$,Z
650 GOTO 570
660 DISPLAY AT(5+COUNT,1):US
ING 860:M$,CHQ$,DD$,Z
670 IF COUNT=16 THEN 680 ELS
E 570
680 GOSUB 810
690 COUNT=0 :: GOTO 470
700 DISPLAY AT(22,15):USING
870:"TOTAL",TOTAL
710 GOTO 730
720 PRINT #1,USING 870:"TOTA
L",TOTAL
730 IF P$="N" THEN 750
740 CLOSE #1
750 GOSUB 810
760 DISPLAY AT(5,1):"ANOTHER
CATEGORY?Y/N "
770 ACCEPT AT(5,25):Y$
780 IF Y$="N" THEN CLOSE #2
:: GOTO 250
790 RESTORE #2
800 COUNT=0 :: TOTAL=0 :: GO
TO 360
810 DISPLAY AT(24,1):"PRESS
ANY KEY TO CONTINUE"
820 CALL KEY(0,K,S)
830 IF S=0 THEN 820
840 CALL CLEAR
850 RETURN
860 IMAGE ### ### ##########
# $####.##
870 IMAGE ##### $####.##
880 CALL CLEAR :: OPEN #1:"D
SK1.TXREC",INTERNAL,APPEND
890 DISPLAY AT(2,1):"CHEQUE
INPUT PROGRAM":"------------
---------"
900 FOR I=1 TO 9 :: DISPLAY
AT(4+I,1):I;".";ITEM$(I):: N
EXT I
910 CAT$(1)="CATEGORY" :: CA
T$(2)="MONTH" :: CAT$(3)="CH
EQUE NO." :: CAT$(4)="DETAIL
S" :: CAT$(5)="AMOUNT"
920 FOR I=1 TO 5
930 DISPLAY AT(17,1):CAT$(I)
940 ACCEPT AT(17,12):D$(I)
950 IF I=1 AND D$(I)="9" THE
N 1060
960 IF I=1 THEN IF LEN(D$(I)
)>1 THEN D$(I)="" :: GOTO 94
0
970 IF I=2 OR I=3 THEN IF LE
N(D$(I))>3 THEN D$(I)="" ::
GOTO 940
980 IF I=4 THEN IF LEN(D$(I)
)>10 THEN D$(I)="" :: GOTO 9
40
990 NEXT I
1000 DISPLAY AT(19,1):USING
1050:D$(1),D$(2),D$(3),D$(4)
,D$(5)
1010 DISPLAY AT(21,1):"SAVE
ON FILE?(Y/N)"
1020 CALL KEY(0,K,S):: IF S=
0 THEN 1020 :: IF K=89 THEN
1030 :: IF K=78 THEN 920 ::
IF (K<>89)+(K<>78)=-2 THEN 1
010
1030 PRINT #1:D$(1),D$(2),D$
(3),D$(4),D$(5)
1040 GOTO 920
1050 IMAGE # ### ### #######
### $####.##
1060 CLOSE #1 :: RETURN
1070 CALL CLEAR
1080 END
```

"Sir, Pac Man just ate flight 463!"

The Other Side of the Fence

IBM PCjr Computer

In this issue we are going to look at a new Computer on the market, the IBM PCjr., known initially as "Peanut".

Released in November 1983 this computer is not overly different from other computers on the market, except for a remote cordless keyboard.

There are two basic models, one cassette based, the other disk orientated.

Entry Model

64 K RAM with 64 K of ROM - includes built in Microsoft Basic; Basic Input/Output System; self diagnostic program activated at "power on", with program "Keyboard Adventure" using graphics for tutorial instruction.

Limited to 40 column video display, can be connected to TV by external RF Modulator ($30.00 extra). Cassette cord $30.00 extra, with transfer rate of 600 baud.

Cost: $660.00 US.

Can be upgraded to Expanded Model by adding 64 K RAM/80 Col. Video Board ($140.00) and Disk Drive ($480.00).

Expanded Model

128 K RAM, switchable 40/80 Col. Video Display (Moniter required for 80 Col.), 1 DS/DD 5¼" Slim Line Disk Drive storing 360 K per Disk.

Uses DOS 2.1 ($65.00 extra), comes with 2 Disks, "Exploring the PCjr" - Tutorial, and "Your IBM PCjr Sampler" - collection of sample home application programs.

Cost: $1269.00 US.

System Layout

Both models resemble the full size IBM PC, uses fundamentally same keyboard functions, same DOS and Disk format, compatable Basic, and 16 Bit Intel 8088 CPU chip. IBM has limited CPU to max. of 128 K of addressable RAM, with 16 K being subtracted for Video Display. Programs up to 112 K for the IBM PC should run on the jr.. Provision for 1 Disk only, has a System Unit and separate remote cordless keyboard linked by an Infrared beam allowing the keyboard to operate up to 20 feet away from the System Unit within a 60 degree arc. If the link is interrupted sounds a beeper. The keyboard weighs 25 ozs. only, operates using 4 AA Penlight Cells - last 4 months normal use.

Has 62 small, flat, plastic, calculator style keys, with all lettering on keyboard surface between keys, allowing customised keyboard overlays to be used. Entire keyboard is redefinable, with special function keys being combined with numeric keys.

System Unit has 2 front facing slots for plug in program cartridges.

Other features: internal slot for direct connect 300 baud modem card ($199.00), a serial port to which an RS232-C peripheral can be attached using an adapter cord ($25.00), has 2 connections for analog-type joysticks ($80.00 pair), a light pen input, audio output jack, outputs for both Composite Video or RGB Direct Drive Video Moniters.

To add a parallel printer port a snap-on interface is attached to the side of the System Unit ($99.00). Internally in the system unit provision has been made for 3 boards, although in the expanded model only 1 is available (Modem Card).

Color, Graphics and Sound

Additional color graphics modes and sound capabilities obtained using a Extended Basic Microsoft Basic Cartridge - 32 K ($75.00).

Without Extended Cartridge has two high resolution graphic modes:-

320 x 200 pixels-4 colors

640 x 200 pixels-2 colors, requires moniter for legible resolution.

Using Extended Basic Cartridge in Entry Model has medium resolution graphics:-

160 x 200 pixels-16 colors

Sound-3 tone generators covering 7 octaves plus white noise for sound effects with 16 volume settings.

Using Expanded Model and the Extended Basic Cartridge graphics are:-

320 x 200 pixels-16 colors

640 x 200 pixels-4 colors.

No Sprites are available.

Built in Basic 32 K ROM.

Entry Model without Extended Basic Cartridge has max. 45 K bytes free available for programming.

Expanded Model with Extended Basic Cartidge has max. 60130 bytes free.

By the time the IBM PCjr reaches Australia its price will be considerably higher and with it being packaged as a basic unit with all items needed being optional extras.

Dispite several drawbacks this computer will sell if not for any other reason than IBM being the manufacturer.

Advanced Use of Basic

One should never underestimate the programming power available in BASIC. All too often, new owners buy Extended Basic immediately, without working on Basic to find out its strengths, and its weaknesses. After all, it does actually have some advantages over XBasic. For a start, there are two extra series of user definable characters, and of course two extra colours.(Sprites in XBasic take up those characters.)

Secondly, until someone works out a way to use two modules simultaneously, if you write a program which has a requirement for a lot of speech, and the words in the Xbasic vocabulary don't suit, then you must use Basic with the TEII module.

The program which follows is quite good fun as a game - it is, however, also a good demonstration of what ordinary old basic can do.

There have been any number of reports to Basic users on how to locate characters onto the screen in a fixed position - for those who don't know, the method is to insert the text required to be displayed as data statements, and use the SEG$ command and CALL HCHAR inside a loop to locate the letters in the desired position on the screen. This program, however, has a modification to this technique, in that the Row and Column positions for the start of the string are given in the data statements, and read together with the text.(see subroutine 3000-3060)

When text is needed to be used in the program, the RESTORE statement sets the line number of the commencing DATA statement, and the number of items of data read is set by the number of loops around the READ statement.(see lines 170-190, for example.)

The logic of the evaluation of your guesses is more difficult than would first be thought. Each number guessed has to be tested first to see if it is in the same location and has the same value as each number in the answer. Then, a value has to be given to the number of correct guesses which are in the correct location.

Secondly, each number in the guess has to be compared to each number NOT in the same location in the answer to give the number of guessed numbers which are right, but in the wrong place. Look at the logic displayed in lines 440-780.

What this program demonstrates is that it is possible to prepare a good program with BASIC, though it is necessarily longer than its Extended Basic equivalent.

```
100 CALL CLEAR
110 CALL SCREEN(3)
120 FOR C=1 TO 8
130 CALL COLOR(C,2,16)
140 NEXT C
150 REM  SCREEN TITLES
160 RESTORE
170 FOR I=1 TO 5
180 GOSUB 3000
190 NEXT I
200 CALL KEY(0,K,S)
210 IF S=0 THEN 200
220 IF K<>89 THEN 310
230 REM  INSTRUCTIONS
240 CALL CLEAR
250 RESTORE 8020
260 FOR I=1 TO 10
270 GOSUB 3000
280 NEXT I
290 CALL KEY(0,K,S)
300 IF S=0 THEN 290
310 REM  SET SCREEN PATTERN
320 CALL CLEAR
330 R1=0
340 R2=0
350 RESTORE 8110
360 FOR I=1 TO 13
370 GOSUB 3000
380 NEXT I
390 REM  GENERATE RANDOM NUM
BERS
400 RANDOMIZE
410 FOR I=1 TO 5
420 A(I)=INT(RND)
430 NEXT I
440 REM  SCORING LOOP
450 FOR TRY=1 TO 15
460 IF TRY>=10 THEN 500
470 TRY$=STR$(TRY)
480 CALL HCHAR(6+TRY,5,ASC(T
RY$))
490 GOTO 530
500 CALL HCHAR(6+TRY,4,49)
510 TR$=STR$(TRY-10)
520 CALL HCHAR(6+TRY,5,ASC(T
R$))
530 CALL SOUND(100,294,2)
540 FOR I=1 TO 5
550 CALL KEY(0,K,S)
560 IF S=0 THEN 550
561 IF K=71 THEN 790
565 IF K<48 THEN 550
566 IF K>58 THEN 550
570 CALL HCHAR(6+TRY,8+I,K)
580 B(I)=VAL(CHR$(K))
590 NEXT I
600 FOR M=1 TO 5
610 IF A(M)<>B(M)THEN 630
620 R1=R1+1
630 FOR O=1 TO 5
640 IF M=O THEN 690
650 IF A(M)<>B(O)THEN 690
660 IF A(M)=B(M)THEN 700
670 R2=R2+1
680 GOTO 700
690 NEXT O
700 NEXT M
710 R1$=STR$(R1)
720 CALL HCHAR(6+TRY,17,ASC(
R1$))
730 R2$=STR$(R2)
740 CALL HCHAR(6+TRY,24,ASC(
R2$))
750 IF R1=5 THEN 960
760 R1=0
770 R2=0
780 NEXT TRY
790 RESTORE 8160
800 GOSUB 3000
810 FOR I=1 TO 5
820 AI$=STR$(A(I))
830 CALL HCHAR(22,19+I,ASC(A
I$))
840 NEXT I
850 RESTORE 8140
860 GOSUB 3000
870 CALL KEY(0,K,S)
880 IF S=0 THEN 870
890 IF K<>89 THEN 920
900 CALL CLEAR
910 GOTO 320
920 RESTORE 8170
930 CALL CLEAR
940 GOSUB 3000
950 GOTO 990
960 RESTORE 8150
970 GOSUB 3000
980 GOTO 850
990 END
3000 REM  SCREEN PRINT SUBRO
UTINE
3010 READ R,C,A$
3020 FOR X=1 TO LEN(A$)
3030 W=ASC(SEG$(A$,X,1))
3040 CALL HCHAR(R,C+X,W)
3050 NEXT X
3060 RETURN
8000 DATA 9,9,MASTERCODE,11,
14,BY,13,7,W.M.WORLADGE
8010 DATA 19,5,NEED INSTRUCT
IONS?
```

Continued on Page 35

Around the Groups

Throughout Australia active groups of users have banded together to form part of an international link to spread tips, knowledge, programs and the latest news amongst each other. About 2 years ago Shane Anderson from Sydney began the task of trying to find other users of the TI-99/4. Gradually small groups began across Australia, until today there are in excess of 1000 members, without counting the spouses, children, relations and friends who also have some contact with the groups. If you are not a member of a group, then I strongly advise you to join one NOW as it will be up to the groups to find support and developments in the future with T.I. now out of the home computer market.

In Australia all groups have kept together and shared news amongst themselves, so it is not an advantage to belong to one group in preferance to another, although logically the nearest one to you should be the one you join. All groups have newsletters, program libraries, numerous overseas contacts etc.. However they each operate in different ways according to size, membership and assets. Following below are details, contacts, costs and services provided by the groups. It is our intention to publish meeting dates and news in further issues to keep you informed of the activities. In addition to the Capital City groups there are regional ones springing up across the country, eg. Newcastle, Mt. Gambier, who are affiliated with the larger groups.

Doug Thomas.

TI-99/4 Users Group Melbourne

Co-Ordinator: Doug Thomas.
Address: 59 Landstrom Quadrant, Kilsyth. 3137.
Telephone: (03) 7258178.
Membership Cost: $15.00 per 12 month period.
Tape Membership: $33.00 for 6 C-60 Tapes with 15 to 20 programs on each. Variety of programs on each, collected from local, interstate and overseas sources. Non members can join tape membership only for $38.00. Programs posted to all subscribers at 2 monthly intervals.
Meetings: Held bi-monthly Saturday afternoons at Victoria College, Burwood Rd., Burwood at 2.00 pm., with meeting held alternate months on Thursday nights at 8.00pm.. Next Two Meetings dates: 11.02.84 & 08.03.84.
Judging of Club Software competition will be held on 11.02.84, all visitors welcome.
Newsletter: Posted bi-monthly, offering news, tips, programs and details of next meetings.
Fees sent to: TI-99/4 Users Group Melbourne, 123 Ashburn Grove, Ashburton. 3147.

TICHUG (Canberra)

Co-Ordinator: Helen Rawlinson
Address: 69 Canopus Cres., Giralang. A.C.T. 2617.
Telephone: (062) 415874
Membership Costs: $18.00 per year.
Meetings: Held bi-monthly.
Tape Software: Provided free currently, with 8 to 10 programs on each.
Newsletter: CHUG.A.LUG, produced bi-monthly.
Fees sent to: TICHUG, 69 Canopus Cres., Giralang. A.C.T. 2617.

TIUP (Perth)

Co-Ordinator: Kim Schlunke.
Address: P.O. Box 246, Mt. Lawley. 6050.
Telephone: (09) 2718642
Membership Costs: $25.00 pa. or $10.00 pa. Newsletter only.
Meetings: Held the third Saturday afternoon each month. Free copies of software is availiable at meetings, on supplying own C-90 tape.
Newsletter: Published bi-monthly giving program listings, tutorials, and in depth reviews.
Fees sent to: TIUP, P.O. Box 246, Mt. Lawley. 6050. W.A.
Very experienced group of programmers who are leading the way with Assembler and other languages.

ATICC (Adelaide)

Co-Ordinator: Fred Cugley.
Address: 26 Suffolk Ave., Brahma Lodge. 5109.
Telephone: (08) 2583409.
Membership Cost: $12.00 pa.
Meetings: Held monthly at various members homes.
Newsletter: Published bi-monthly and posted.
Program Tapes: Availiable at $3.50 ea.. The Group is currently going through a transition stage, with the Co-Ordinator and Secretary looking to stand down from their positions. Due to growth the Group is also out growing homes as a regular meeting place.
Fees sent to: ATICC, 26 Suffolk Ave., Brahma Lodge. 5109. S.A.

TI Sydney Users' Group (TISHUG)

Co-Ordinator: Peter Varga.
Secretary: John Robinson, P.O. Box 149, Pennant Hills. 2120.
Telephone: (02) 8480956
Membership Cost: $10.00 initial joining fee, $20.00 per 12 month period - now approaching 600.
Meetings: Held first Saturday each month (2nd. Sat. if 1st. a holiday weekend) at 2.00 pm. at St. Johns Church Hall, Victoria Street, Darlinghurst. Regional metings held between main meetings on various nights.
Newsletter: Posted monthly, giving news, tips, programs, and future meeting details.
Next Meeting: 04.02.84 - All Day Tutorial.
Program Tapes: Sold $3.00 ea. at meetings, $4.00 ea. Posted. Each contain about 10 programs, and are set themes, eg. Extended Basic, Ext. Basic Music, Games, Ord. Basic, Ord. Music, Speech. No subscription service, ordered separately. Programs also available on Disk for $6.00 ea.
Fees sent to: TISHUG, P.O. Box 149, Pennant Hills. 2120.
Features: Program Crisis Line.
Examining Electronic Bulletin Board for Modem access.

TI Tas. Users Group (Hobart)

Co-Ordinator: Rex Sheperd
Address: 1 Benboyd Crt., Rokeby. 7019.
Telephone: (002) 294009.(Leon Lonergan)
Membership Cost: $10.00 per year.
Meetings: Meet informally at Co-Ordinators home.
Tape Software: $5.00 a C-60 tape of user written programs.
Newsletter: Produced periodically.
Fees sent to: T.I. Tas Users Group, 1 Benboyd Crt., Rokeby. 7019. Tas.

TIBUG (Brisbane)

Co-Ordinator: Mr. Humphrey Lindley
Address: P.O. Box 57, Aspley. 4034.
Telephone: (07) 2636161
Membership Cost: $22.00 pa. reducing on a sliding scale from September.
Meetings: Last Friday night each month except December (Location to be advised), at 8.00 pm..
Newsletter: Bug-Bytes, published monthly and posted.
Features: Programmers Hot Line.
Operate a sub-group at Toowoomba. Meetings cover last committee meeting details, and then involve a guest speaker or theme night. 99'er Magazines are sold at meetings along with odds and ends. Running an Assembly language workshop.
Fees sent to: TIBUG, P.O. Box 57, Aspley. 4034. QLD..

National TI-99/4 Users Group of Australia

Co-Ordinator: Doug Thomas, 59 Landstrom Quadrant, Kilsyth. 3137. Vic.
Functions as a co-ordinating role between the various groups throughout Australia. Does not actively organise functions or meetings except between Co-ordinators and other interested parties. Acts as a distribution point for Software and other Data received internationally.

```
8015 DATA 21,5,PRESS Y OR N.
8020 DATA 3,3,MASTERCODE
8030 DATA 3,14,INSTRUCTIONS
8040 DATA 4,3,--------------
---------
8050 DATA 6,3,THE COMPUTER H
AS GENERATED
8060 DATA 8,3,A FIVE FIGURE
NUMBER. YOU
8070 DATA 10,3,HAVE TO GUESS
IT WITHIN 15
8080 DATA 12,3,TRIES. REMEMB
ER IT MIGHT
8090 DATA 14,3,START WITH ZE
RO!GOOD LUCK!
8095 DATA 16,3,PRESS G TO GI
VE UP!
8100 DATA 21,3,PRESS ANY KEY
 TO BEGIN.
8110 DATA 2,4,TRY,2,8,GUESS,
2,14,RIGHT,2,21,RIGHT
8120 DATA 3,14,NUMBER,3,21,N
UMBER,4,16,IN,4,23,IN,5,14,R
IGHT,5,21,WRONG
8130 DATA 6,14,PLACE,6,21,PL
ACE,7,8,BEGIN
8140 DATA 23,3,PLAY AGAIN?PR
ESS Y OR N
8150 DATA 22,3,YOU WIN!CONGR
ATULATIONS!
8160 DATA 22,3,BAD LUCK!ANSW
ER=
8170 DATA 13,12,BYEBYE.
```

TI-99/4A USERS GROUP MELBOURNE TAPES.

Melbourne Group, like the others through-out Australia have been collecting "User" written programs from local sources to all corners of the world. During the first 8 months some 9 tapes were distributed, each containing at least one side full of programs.

During the 1982/1983 year a further six tapes were produced making a total of some 270 programs. In this years membership to date 3 tapes have been released to date, Tapes 16,17, & 18.

Listed below are the program titles for Tapes 1 to 18, plus 1 extra devoted purely to music. Alongside each name is the detail of the language required to run the program.

"Ord." = Standard Basic only.

"Both" = Either Standard or Extended Basic may be used.

"Ext." = Extended Basic only.

"Joy" = Joysticks required.

"TE2" = Terminal Emulator II module, for speech use.

The following list is printed so any readers who have not been able to obtain these from local Groups or other sources may order them from TI-99/4 Users Group Melbourne, 123 Ashburn Grove, Ashburton. 3147. The cost is $7.50 ea. including postage.

Because of the nature of copying, programs can only be supplied in this format. Progams vary in content and quality, being sent out in the state received. Most of them can be improved and will give the programmer something to fiddle with.

TI-99/4A USERS GP. MELB. TAPE 1

Side A.

Word Processor Ord.
Life Expectancy Ord.
Black Box Ord.
Receipts Ord.
Calendar Ord.
Time Clock Ord.
Digital Clock Ord.
Star Trek Intro. Ord.
Pink Panther Ord.
Seahorse Ord.
Star Flight Ord.
Road Race Ord.
Star Trek Ord.
Life Ord.
Duet Ord.
Hangman Ord.
Fantasy Ord.
Bridge Hands Ord.
Color Demo. Ord.

Side B.

TI-Wars-Original Ord.
TI-Wars-Modified Ord.
TI-Wars-Information Ord.

TI-99/4A USERS GP. MELB. TAPE 2

Side A.

Draw Poker Ord.
Cars Carcasses Ord.
Yahtzee Ord.
O's X's (with speech) Ext/S.E.
O's X's (screen only) Both.
Snoopy's Christmas Ord.
Pink Panther(2) Ord.
Weird Music Both.
Godfather Both.
Color Visions Ord.
Calendar(2) Both.
Battle At Sea Ord.
Stockmarket(John Sands) Ord.
Harried Housewife Ord.

Side B.

Who Am I Both.
Canberra Television Presents O
Civil Engineering-Simple Beams O
TI Home Secretary Both.

TI-99/4A USERS GP. MELB. TAPE 3

Typing Tutor-Typing Symbols Ord.
Star Fortress II Ord.
Mutant Maze Both.
Hangman Ord.
Starship Alpha Both.
Waltzing Matilda Ord.
Calendar For Printer Ord.
Vocab Both.
Dual Attack Ord.
Cheque Book Balance Both.
Disk Catalogue Both.
Disk Error Print Both.
Gold Lotto Draw Both.
Raffle Drawer Ord.

TI-99/4A USERS GP. MELB. TAPE 4

6802 X Assembler Ord.
Typing For Accuracy Both.
Load Speaker Enclosure Des. B.
Lets Learn notes Ord.
A-Ski Ord.
Word Processor(80 col.,page) B.
Foxes Rabbits Both.
Maze Both.
Sorting Both.
Tanks Both.
Tic-Tac-Toe (Joystick) Ord.
Bio-Rhythm Ord.

TI-99/4A USERS GP. MELB. TAPE 5

Side A.

Cannonball Run Ord.
Vertical Graphs Ord.
Meteor Wars Ord.
Notice Board Ord.
Memory Game Ord.
Opal No.2 Ord.
Spider Ord.
Killer Wombat Ord.
Morse Code Ord.
Printer-Micro Marque Ord.

Spacewars Ord.
Deck The Halls Ord.
Music Text Editor Ord.
Music Play Ord.
Circle Ord.
One Check Ord.
Camel Ord.
Dog-Gone Boogie Ord.
Mouse Maze Ord.
Side B.

Score 4

TI-99/4A USERS GP. MELB. TAPE 6

Side A.

S-61 Helicopter Ord.
Kismet Ord.
Road Race Ord.
Black Box Ord.
Dodge'em Ext.
5th. Beethoven Ext.
Killing Me Softly Ext.
Hunt The Wumpus Ord.
Brahams Ord.
Computer Sub Attack Ord.
Anti-Aircraft Gun Ord.
Bombs Away Ord.
Enemy Attack Ord.
Invasion From Space Ord.
Side B.

Homework Helper-Fractions Ord.

TI-99/4A USERS GP. MELB. TAPE 7

English Tennis Ord.
Vocab. Quiz Ord.
Match-Up Ord.
Rebound Ord.
Capture Vessel Ord.
Crazy Lines Ord.
Blackjack Ord.
Lotto Draw Ord.
Battle At Sea Ord.
Bartender Ord.
Hurkle Both.
Sprite Star Ext.
Sprite Walk Ext.
Star Walk Ext.
Calculate Ext.
Codebreaker Ext.
Sprite Chase Ext.
Dog Fight Ext.
Skull Sprite Ext.

TI-99/4A USERS GP. MELB. TAPE 8

Side A.

Baccarat Ord.
Counting Lesson(Spch+S.Ed) Ord.
Frere Jacques Ord.
Forest Fire Ord.
Guitars Ext.
Hark The Herald Angels Both.
New Blackjack Ext.
Shoot Plane Ext.
Maze Race Ord.
With Love In My Heart Ext.
Chase Both.
Coder Ext.
Cootie(Spch+S.Ed) Ord.
Nautical Nav. Both.
Not One(Sp.Synth.) Ext.
Othello-V4 Both.
Pin Tail Both.
Side B.

Space Gem Ext.
Sprite Chase Ext.
TI-Poker Ext.
Interplanetary Space Ext.

TI-99/4A USERS GP. MELB. TAPE 9

Shoota Ext.
Homework Helper Ord.
Mystery Words Ord.
Colour Display Ext.
Maths Challenge Ord.
Computer Music Ord.
Bowling Ord.
Chomp Ord.
Flip-Flop Ord.
Awari Ord.
Reverse Ord.
Australia Ord.
Going Home Ord.
Name That Bone Ord.
Stars (Mood) Ord.
Pocket Typing Training Ord.
Star Flight Ord.
Stars (Guessing Game) Ord.
Codebreaker 4 Ord.
Camel Ord.
Checkers Ord.
Tunnel Vision Ext.

TI-99/4A USERS GP. MELB. TAPE 10

TI-Words Ext.
Days Of The Week Ord.
Horse Race Ord.

Acey Ducey Ord.
Bagels Ord.
Nim(Big Version) Ord.
Hammurabi Ord.
Monster Ord.
Cassette Labels Ext.
Menu(Disk) Ext.
Actual Footage Ord.
Bingo Ord.
Two Faces Ord.
Cipher Ext.
New TI-Words Ext.
Car Battle Ext.
Fast Plotter Ext.
Tales Of The Vienna Woods Ord.
Bingo With Speech Ext.
Comp. Spell. Teacher TE2.

TI-99/4A USERS GP. MELB. TAPE 11

Compu-Golf Ext.
Haunted House Ord.
Jason Ord.
Computer Teacher TE2.
Critical Path Method Both.
Darts Ext.
Singing Computer TE2.

Algebra Ord.
Sub. Instructions Ord.
Submarine Ord.
Quest Ord.
Deliver The Cake Ord.
Air Sea Battle Ext.
Star Trek Music Ord.
Chicken Ext.
World Map Ext.
Checkers Ord.

TI-99/4A USERS GP. MELB. TAPE 12

Backgammon Ord.
Warfish Ext.
Shrink Ext.
Address Labels Ord.
Key Chart Ord.
Mail List Ord.
Robot Ord.
Simon Ord.
Load (Load-disk Pgm.) Ext.
Ear Trainer For Music Ord.
Energy Save Ord.
Pay Record Ord.
Mazzo Ext.
Worms Spiders Ext.
Black Hole Ord.

TI-99/4A USERS GP. MELB. TAPE 13

Aussie Fighter(Joy.) Ext.
Kangaroo Ord.
Mine Field #2 Ord.
Mini Color Visions Ext.
Rodeo Races ext.
Teachers Record Keeper Ext.
Tower Rescue Ext.
4A Word Processor Ext.
Character Enlarger Ext.
Trog Ext.
Marksman(Joy.) Ext.
Tank War(Joy.) Ext.
Rockets(Joy.) Ext.
Up Periscope Ext.
County Fair Derby Ord.

TI-99/4A USERS GP. MELB. TAPE 14

Cyber Dice Ext.
White Holes Ord.
Morning Has Broken Ext.
Load-Disk Ext.
Marty Martian Part 1 Ext.
Cricket(Joy.) Ext.
Mozart Symphany No:40 In G Ext.
Game Stack Ext.
Donkey Both.
Tap Dripping Both.
Hot Dog Ext.

Color Shades Definition Ord.
Color Splash Ord.
12 Bar Boogie Both.
Silly Question Both.
Economy Check Car Both.

TI-99/4A USERS GP. MELB. TAPE 15

Solitaire Both.
House Of The Rising Sun Both.
Alien Destroyer Ext.
Daniel-Speech Ext.
Invasion Both.
Space Command-Speech Ext.
Wagon Wheel Both.
Washington UFO's Ext.
Zanquest Ext.
Fireball-Speech Ext.
Alphabet Ext.
Speech Experiment For TE2.
Speech Demo Ext.
Algebra Ord.

TI-99/4A USERS GP. MELB. TAPE 15A
§§§§§§§§§§§§§MUSIC§§§§§§§§§§§§§

Boat Song Ext.
Mainscreen Ext.
Organ Player Ext.
Puppy Town Ext.
Venus Night Ext.
Western Boogie Ext.
Rockies Robot Boogie Ext.
Load-Disk Pgm.

TI-99/4A USERS GP. MELB. TAPE 16

Miner Ord.
The Entertainer Ext.
Study In D Both.
Flight Simulator Ext.
Mother Goose TE2.
Splat Both.
Flight Plan Both.
Freezer Both.
Keno Both.
Bumble-Boogie Both.
Title Generator Both.
Statistics Both.
General Inventory(Disk) Both.
Diet Management Pgm.(Disk) Both.
Jumping Jack Both.
Typing Teacher Both.

TI-99/4A USERS GP. MELB. TAPE 17

Old McDonald Had A Farm TE2.
Piano Ext.
Snakes And Laders Both.
Read-Fast Ext.
Basketball Stats. Data Ext.
Graph Plot and Message Pgm Both.
Pie Throwing Ext.
Space Game-Rescue(Joy.) Ext.
Trucker's Domain Ext.
Word World Ext.
Mortgage Ext.
Race Day ext.
Night Blockade Both.
Space Scout-Speech Ext.

TI-99/4A USERS GP. MELB. TAPE 18

Metric Teacher (Speech) Ext.
Safety Awareness Pgm. Ord.
State Capitals Quiz Both.
Biorythm Both.
Quadratic Equations Ext.
Maths Test For Play(Speech) Ext.
Test Tube Chemistry Both.
Speed Reading Drills Both.

Spanish To English Both.
Progression Analysis Ext.
Kitchen Aides Ext.
First Addition Both.
Projectile Problems-Physics Ord.
Trigonometry(Printer Opt.) Both.
Fractions Both.
Financial Statement Radio Anal. B.
Nutrition Both.

DISK PROGRAMS.

Two complete sides of a Disk have been collected of programs that are Disk based, these costing $12.00 for 1 Disk, or $20.00 for the two. Cheques sent for Disks is to be sent to:
TI-99/4 Users Group Melbourne,
123 Ashburn Grove,
Ashburton. 3147.

USER GROUP DISK No. 1.

Addresses
Color Crayon
Diet Manager
Disk Lister
Expense Journal
Fiddler on the Roof (Ord.-Music)
Load-requires 32 K memory
LOAD1-Ext. Basic Disk loader.
New Hangman
Peeker

USER GROUP DISK No. 2.

Stock Record Program
Record File
Records File
Share or Stock Program

As further programs become availiable details will be published in Softex Magazine.