

THE COMPUTER HOME SERVICE

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TI99/4A
USER GROUP
NEWSLETTER

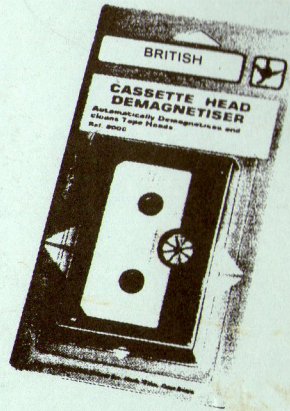
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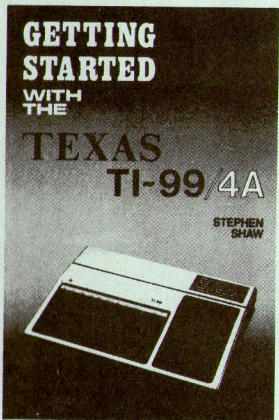


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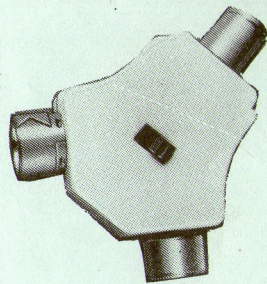
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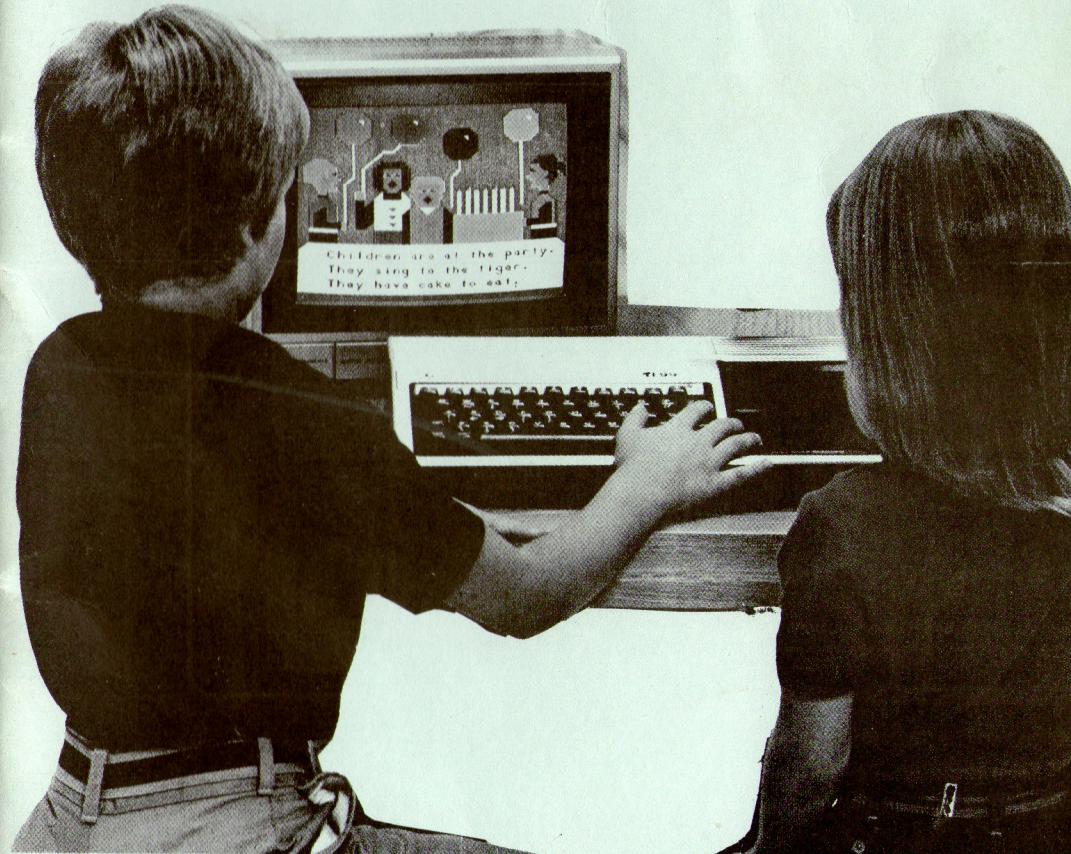
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Allows dual coupling of television and computer leads, thereby removing 'changeover' inconvenience.

BRITISH

TI*MES



We obtain in bulk and pass on the savings to you as a member of TI99/4a Exchange. Maximum postage and packing charged on more than one item ordered is 55p

WE WELCOME THE MANY NEW MEMBERS TO TI99/4a EXCHANGE

TI*MES TI*MES TI*MES TI*MES TI*MES TI*MES TI*MES
SPRING VOL 1 NUMBER FOUR

40, Barrhill, Patcham, BRIGHTON, East Sussex, BN1 8UF.

Tel: 0273 503968 (evenings)



Since our last edition of TI*MES many new members have joined us and we extend a warm welcome to our happy group of TI users .

Spring is in the air and I suspect that some of you will not be using the TI so much just now, no doubt be busy making the most of the improved weather , anyway-in this issue we have recieved some excellent contributions, so whatever you are doing or wherever you are ,we hope you will enjoy the articles and features that cater for everyone both young and old.

As each issue is going to press we have to try and achieve the right balance being well aware that many of you do not have an expanded computer, looking back just eighteen months ago when we bought our first TI99/4a oh how much it has contributed to many fun days just getting to know the secrets of computing and logic ,it is with this in mind that our issue will continue to feature items for every need

You will note that new talent has joined us again maintaining the high standards that one expects from a nationwide users group making your TI*MES Britains NUMBER ONE

TI USERS LIBRARY

We have had very poor response to the free offer of YHATIZEE, in the past six months only two people responded, it looks that you are all very happy for the group not to have your very own TI USERS LIBRARY. We shall however keep the offer open and by the next issue hope to have something more than the two programs which at the moment is 1) PRICE GENERATOR utilities ,and 2) a game called PHOTON ATTACK, these were submitted by a clever TIM FREEMAN, well done it is a start anyway, until the next issue.

YOUR LETTERS

V.Comley, YMCA, Welwyn Garden City, writes:-
I found the article of Pete Brooks

interesting on single pixel drawing it may answer a worry of mine in that I am unable to plot respectable graphs on the 99/4a , even with Extended Basic. A short time ago I purchased a graphics package program from Stainless Software (Norton Graphics)..the program did not give one the ability to use it in conjunction with any other program. Also, it was protected so I could not find out how it worked, or modify it.

ED:-We can help you if you really want to see the power of the TI99/4a, an excellent book is available from TIMELESS Software called "The Smart Programming guide for sprites" it is by Miller Graphics, there is an excellent feature on Bar graphs and covers in simple terms hints and tips in using EXT'BASIC module . (price 6.95). As regards Stainless Software if you have any problems always write direct to Stephen (enclosing an S.A.E.), He will help you.

D.A.Jones, 19, Merlins Hill, Haverfordwest, Dyfed, tel 0437 67061 writes:-
Owning a TERMINAL EMULATOR II , initially for use with speech sythesiser, which , since it uses allophones not words, can even speak WELSH back at me-the main use of TE2 is for communication; I would therefore be greatly interested in seeing how many TI-USERS share the same interest towards expansion in that direction, or have some experience to share in their quest for data communication .

ED:-If anyone is interested or can anyone reccommend a modem that will not blow up British Telecom/TI99/4a please contact Mr Jones direct, let us know how you get on, we look forward to the day when our group can link in directly to AUSTRALIA and the U.S.A.

MR S.Merrett, Richmond ,surrey, writes:-
the Barbican Computer show last year, a Texas representative handed the following list of cassette recorders suitable for the TI99/4a

ALBA R150: BOOTS CR325 : BUSH 3150: CROWN CR102: FERGUSON 3T27: HITACHI TRQ299:
JONES CT5105 : LLOYD V182: MARANTZ C190: SHARP CE152 : ##TENSAN 104 AND 106 : WH
SMITH CCR800 : PYE AUDIO TR 3653 : TEXAS INSTRUMENTS CR :

ED:-This should be helpfull to those who wish to purchase a cassette , we use the cheap Tensai CRE 106 without any trouble over 20 months .

F.W.Seaman, Chaddesden, Derby, writes:-
I have obtained a book from my local Library which other members might like to read. The cover of the book shows a family using the famous TI99/4a. the book is written in plain language for parents on micro computers, there are several good references to the TI....fascinating, easy to read and understand compilation of micros, a pleasant change to find so many relevant details of the TI99-4 in a general guide book.

"COMPUTERS AND YOUR CHILD" by RAY HAMMOND, published by CENTURY PUBLISHING CO. LTD, ISBN: 07126 0092 2 , it sells 5.95.

ED:-We shall pop down to the Library and have a look , thanks for the tip.

~~~~~ TI99/4a Exchange TI\*MES newsletter is supported only by its subscribers, this TI users Group is completely non profit making.

We bring you all the NEWS and more for your TI99/4  
 WALT DISNEY,SIERRA ON-LINE AND IMAGIC SOFTWARE AGREEMENT WITH TEXAS INSTRUMENTS  
 We have received reports that Walt Disney will become the first third party  
 software publisher to manufacture and market software for your TI99/4a Home  
 computer.  
 Five educational software programs developed by disney will be distributed to  
 the school market,these will feature Disney characters such as Winnie the Pooh,  
 Professor Von Drake, Peter Pan and Pinnochio.

Imagic will also market five software packages, these are Wing war, Demon  
 Attack, Fathom, Moonsweeper,and Microsurgeon, the agreement was reported to us  
 by DALE OSBORN,Manager i/c of TI's Home Computer phaseout operations in Dallas.

TEXAS INSTRUMENTS INTRODUCES THEIR FIRST 32-bit COMMERCIAL COMPUTER SYSTEM

Developed at the Massachusetts Institute of Technology, TI introduces a high  
 speed 32-bit system called NU MACHINE .This computer may be configured with a  
 68010-based processor with cache memory and or user designed processors,Bell  
 Laboratories UNIX-based operating system,high-performance mass storage  
 peripherals,high resolution graphics display and a MULTIBUS (by Intel Corp')  
 subsystem.  
 Nu Machine will be offered in two configurations;a unit suitable for the small  
 office with 68010 CPU,512 kilobyte memory,84 megabyte disk,1/4 inch cartridge  
 tape,display and keyboard .  
 The model designed for computer room operations will have a rackmount system  
 with a massive 474 megabyte disk and 1/2-inch streamer tape

IS YOUR TI99/4A COMPUTER A 1983 MODEL?

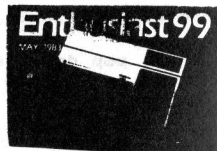
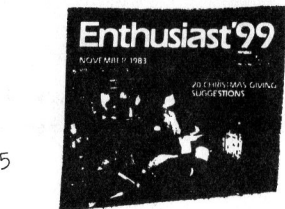
Turn on your TI99/4a and look at the Colour bar , if it reads 1983 Texas  
 Instruments V2.2, do not buy cartridges made by companies not licensed with TI.  
 This includes ATARI,PARKER BROS,FUNWARE,ROMOX and others, the reason is simple  
 they will not run as TI made changes to the console last year.

INTERNATIONAL 99/4 USERS-GROUP IS COMMITTED TO PROVIDE CONTINUED SERVICE  
 EXCLUSIVELY FOR OWNERS OF THE 99/4A HOME COMPUTER IN THE MONTHS AND YEARS TO  
 COME.

Why not receive the INTERNATIONAL TI99/4A MAGAZINE ENTHUSIAST'99 which is  
 published every TWO months in the U.S.A.? We can order a subscription for you as  
 a member of TI99/4a Exchange and because of direct links with I.U.G. you can  
 save the trouble of buying International money orders when you join through us .  
 Cost is £12.00 surface or £16.50 airmail

In the January Issue of Enthusiast'99 the contents included a Speacial Report  
 re: TI ,News Views, a Womans Page, Software reviews , articles , features and  
 Editorial which covers Advanced Users of the TT99/4a. We think it is good value  
 and is 100% TI99/4a

IF YOU WOULD LIKE US TO PLACE A ORDER FOR YOU .... send a cheque to us Made  
 payable to TI Users-Group(U.K.) crossed A/C payee, we will then make the  
 arrangements on your behalf . PLEASE ALLOW 48 days for any response 60 days  
 surface



# CHARLIE'S PAGE

P.O. Box 67  
 Bethany, OK 73008



By Charles La Fara  
 President, International 99/4

"These are the times that try men's souls"

Never before in the history of the International 99/4 Users-Group has this statement been more prevalent than during the past two months. Texas Instruments' October 28th decision to exit the Home Computer market has created a total state of chaos within our organization. Employees question how much longer they will be employed, consumers scramble for hardware and software products which do not exist, distributors are confused over inventory levels and are undecided as to whether to purchase more or dump the entire TI line, contracts with software publishers are in a state of limbo.

Controversy and confusion is nothing new to the IUG's relationship with Texas Instruments. We were able to weather the GREAT EXTENDED BASIC shortage of 1980, the rebate wars of 1981-82, and the third-party software producers' lockout of 1983. This year, however, Texas Instruments has added a new twist which has everyone confused. Total unpredictability!

Always before, when TI announced a product for their Home Computer, one could assume that it eventually would be produced in significant quantities to satisfy consumer demand. Now, however, no one knows what hardware and software products are available and what hardware and software products will continue to be available to over two million owners of the 99/4A Home Computer. It's as if "the lights are on, but no one's at home."

TI's current approach to phasing out of the Home Computer business requires them to find new sources to produce hardware and software products for their machine. In approaching this crucial matter, TI could exercise several options. The first would be to continue to produce products as long as their current piece-part inventories last. The second option would be to sell their piece-part inventories and source codes either outright or on a royalty basis to an interested third-party manufacturer. The third and least likely option would be to scrap current inventories as these were already written off during the third quarter of 1983.

Which of these options will TI choose? No one seems to know at this time or at least no one is willing to make any definitive statements regarding this matter. The pattern we are beginning to see is that TI is likely to use all three of the options, depending upon which specific piece of hardware or software title is concerned. Let's face facts. No one in their right mind would want to take on the task of building, merchandising and marketing every Solid State module in the TI Home Computer line. Start-up costs and tooling alone would bankrupt even a large company. After all, the industrial giant, TI, was unable to turn healthy profit

margins after a four-year effort. Additionally, TI has an all-consuming fear that if they were to give someone exclusive rights to hardware and software production, it would somehow continue to be a negative reflection on TI's corporate image.

What, then, can be done? What does the future hold? The pattern we are beginning to see, that of TI cancelling contracts with major software vendors such as DLM, Scott, Foresman and Co., Broderbund Software, Spinnaker and Control Data Corporation would indicate that these producers will have to make a decision as to whether or not they will attempt to market their product to the consuming public on a direct basis. Several difficulties exist here in that normal distribution channels for TI products are currently disrupted and many retailers are reluctant to sell only after-market products. Additionally, to add to this confusion, retailers such as the J.C. Penney Corporation dumping hundreds of thousands of dollars of TI product at prices well below their cost, is it any wonder that the public is so confused as to what an Extended BASIC cartridge or Mini-Memory is worth at this time?

Product shortages for the TI Home Computer have already become a fact of life in many parts of the country. Items such as the Editor/Assembler, Statistics, VideoGraphs, Securities Analysis, Tax Investment and Record Keeping, Personal Real Estate, Indoor Soccer and others have seemed to disappear. A check of 34 retail outlets by the IUG staff failed to locate more than five individual pieces of the previously-mentioned products. Yet a call to the TI-CARES Helpline indicated that many of these items can be purchased directly from Texas Instruments at suggested retail prices.

Could it be that TI is trying to recoup some of its losses by price-gouging consumers with products only they have control over? If so, this is an extremely dangerous precedent, considering thousands of consumers have placed orders in good faith with mail-order companies, such as the IUG, and expect delivery on these items all of which we have had on order from our distributors for several months now. Although we have been told by TI representatives that many of these products will be developed within the next several weeks, we have no assurances how TI will distribute them to their remaining distributor and dealer base.

Over the past several weeks the IUG has refunded thousands of dollars in prepaid orders to its members simply because we were unable to get adequate assurances from Texas Instruments that certain products will be available. Currently we are holding over 1/4 of a million dollars in escrow accounts for products that have been purchased by our members that we are unable to secure, due to lack of answers from TI manufacturing facilities. The only information we have been given by Texas Instruments at this time is that the following items will not be available, due to TI's exit from the Home Computer business prior to initial production runs. These items are: Advanced Assembly Debugger, TI-Pilot, TI-FORTH, Entrapment and TI Mini-Writer. Hardware which will no longer be produced is the Pascal Development System, Video Controller, HEX-BUS Interface, MBX Expansion System and MBS Joysticks and additional 99/4A Home Computers other than for supply to warranty and repair stations.

We would like to thank our many members who have been patient with us in waiting for either products or refunds and assure all of our membership that we are doing everything in our power to provide as much product as we possibly can. Those members who are still waiting for TI products or refunds, we ask that you please be patient and try to understand that we are faced with a situation which we have little or no control over.

As President of the International 99/4 Users-Group, I would like to give my personal assurance that each member of the IUG is considered a valuable asset to our organization and we would not compromise any member for our own personal gain. The IUG is committed to provide continued service exclusively for owners of the 99/4A Home Computer in the months and years to come.

Charles La Fara  
 President

Hello again. Isn't three months a long time... A special welcome to new members of TI\*MES, hope you like the newsletter, if not, let us know!!

No letters of enquiry from members this quarter, so RAMBLES will be based on a few telephone enquiries, a few book and program reviews, and the usual assorted trivia.

If you have a problem and would like to share it, drop me a line. An SAE is essential for a personal reply, which could in any case take up to 2 weeks to put together!

Mv address: 10 Alstone Road STOCKPORT Cheshire SK4 5AH

(The post code is ESSENTIAL. Miss it off and your letter could take two weeks to reach me, or never arrive!).

#### First query:

*How do I make back up copies*

A back up copy of a program is a fail safe; a tape recorded program is essentially a fragile thing, and can be damaged. If you have paid for a program, it is upsetting to find you have left your tape in front of the fire, or on top of the TV set..... at such times a second copy is nice to have.

To make a back up copy, you load the program into your computer using OLD CS1, and then save it to a NEW cassette using SAVE CS1. Easy eh! Some programs cannot be copied in this easy manner, for instance:

- Programs which use data files such as HORDES
- Program format data files, such as the Adventure tapes
- Extended Basic programs which have been saved with the PROTECT option.

In many cases, suppliers of protected extended basic programs will supply you with a replacement for a nominal fee if you return the original cassette. In other cases, it is less trouble and cheaper to make your own copies.

Always use tapes of less than C60, preferably the C10 to C20 computer cassettes.

NB: It is OK to make one copy for your own use. It is illegal to sell that copy or even to give it to a friend.

Clive has had an enquiry: If Rambles is written with TI WRITER (it is, it is!) why are the right margins not justified??? Answer: Because right justification is an OPTION. If you do not want it, you do not need it. Over the next few pages I will change the format a little... see if you can spot the different options. Personally, I don't like right justification!!! Even left justification is an option, as are indent, outdent(!) and so on.

I have heard that a test production line has been seen in Hong Kong, making a few computers with TI CPUs, 64k ram... no nameplate as yet, but a rep. from TI was seen on the premises. I think the financial arrangements have not been concluded, so something may happen or not. No idea of the name to be stuck on it.

With reference to my first  $\frac{1}{4}$  page ad in Home Computing Weekly, I CAN spell SIMULATION. The magazine cannot!

ERRATA: Some readers may experience problems with the listing in the last TI\*MES on page 31. Due to a console bug, some owners will need to change line 370: Instead of (K=0) they should use (K+1=1) ... yes, I know they are the same, but some consoles do not! If you have problems moving UP using split keyboard, use this 'fix'.

Stephen!

This page has only a small change in format!!

QUERY: I have a menu to be selected from the screen and wish to load some variables from data statements, using different data depending on which choice is made. How?

The TI99/4A is remarkably good at this sort of thing. The type of program we are considering is in the form:

```
ON A GOTO 100,200,300,400 etc
```

```
100 DATA Q,W,E,R,T,Y
   FOR I= 1 TO 6
   READ B(I)
   NEXT I
   GOTO 1000
200 DATA A,S,D,F,G,H
   FOR I=1 TO 6
   READ B(I)
   NEXT I
   GOTO 1000 and so on.
```

Left to its own devices, the computer will first read the first data items (line 100) even if you have GONE TO 200! Which is not what we want.

If you first go to 200, then 100, the data will have been read in the wrong order completely!

READ always reads DATA items in order, starting from the first item. As each READ is carried out, so it will then read the next DATA item.

RESTORE is used as a command, on a line on its own (in TI BASIC) to reset the data pointer back to the first DATA item in the program.

RESTORE can also be used to point the computer to a particular set of DATA, by following the command with the line number the required DATA is on.

From our example above, we could have:

```
ON A GOTO 100,200,300 etc
```

```
100 RESTORE 110
110 DATA Q,W,E,R,T,Y
   FOR I= 1 TO 6
   READ B(I)
   NEXT I
   GOTO 1000
200 RESTORE 210
210 DATA A,S,D,F,G,H and so on.
```

This is a powerful command. Some computers allow you to RESTORE, but to get to a particular DATA item, you have to READ every single item! Not so on the trusty TI99/4A!!!

#### DO YOU HAVE THE PERSONAL RECORD KEEPING OR STATISTICS MODULES?

If so, did you know you have extra CALLS available in TI BASIC when these modules are inserted?

Try: CALL D(6,2,26,"SURPRISE")

These modules add CALLS which simulate Display At and Accept At, and uniquely, allow you to partition the VDP ram, store data there, and save it in PROGRAM format: verifiable, and FAST. Interested? For members of TI\*MES only, I have a few copies of a TI booklet on the subject, available at cost, one pound each (26 pages, Xeroxed) inc p&p.

K. Spot the difference on this page!!

#### REVIEW TIME: ATARI SOFT MODULES FOR THE TI99/4A

Now that TI modules have ceased production, it is interesting to see Atari producing some modules for us. How good are they? The prices (20.00 and 25.00) are reasonable for modules, but not cheap if you do not have a lot of money....

First, a warning: ATARI are not paying TI to use TI's unique GROM technology. These ATARI SOFT modules will not be recognised by the newer version 2.2 consoles... easily recognised, they say V2.2 on the 'test card' screen.

Second: The 99/4A exists in several versions, with different operating systems. I have had problems with some ATARI SOFT modules, and you may have also. It appears they work on the most widely owned consoles however. Asked to comment, ATARI say their modules work fine on their ONE TI console!!!

Picnic Paranoia is a game in which you avoid a bee, and swat insects making off with your picnic! The graphics are simple. I was unable to play this module due to non-compatibility with my console.

PROTECTOR 2: A very simple game, with simplish graphics. There is a tiny non-important program bug, but the module suffers from poor game design. You may select level of difficulty at the beginning, but you score no extra for higher difficulty levels, and once you have accomplished your task, that is that. The task is to move people from one city to another while an alien craft is picking them up and dropping them into a volcano. Stage two involves moving them from the 2nd city, which is now being engulfed in lava, to a further place of safety. There are a few aliens trying to stop you too! I found the game trivial, but perhaps vounder owners will appreciate the scenario better!!

PAC MAN: The game which followed Invaders, all those years ago (Remember the record, Pac Man Fever? I dont either!). This is a faithful reproduction of the arcade game, with graphics which come very close to matching the arcade version. However, the speed is low. Screen set up is painfully slow (is the module written in basic?) and the critters do not move too fast. After only a few plays I think the better games players will be scoring into the millions! An interesting module, but is PAC MAN meant to be relaxing?

COPTER CAPTIVE is in EXTENDED BASIC by BYTEWARE of NEWCASTLE. I haven't seen them advertising recently, but if you are in the area or see an ad, this is one game I enjoy. In two parts, but I can only describe the first as I haven't made it to the second... you must move around a simple maze, collect a key, and open a door... easy! Ha! No it isn't. The program description cannot adequately cover what is a very well put together game, which will hold your attention for more than the usual 7 days!

I know it may be thought unusual for me to recommend games from my competitors, but if I find a super program, I think you should know!! I leave it to you dear reader to submit reviews of the games I sell!!!

Problem:  
The computer is to check the numbers 1 to 1000 and make an audible sound whenever it finds a number with "7" in it.

This is a school problem, which although it looks easy, involves some interesting commands:

Looping, String Handling, Sound Generation.

To generate the numbers, we use a simple loop:

```
FOR LOOP=1 TO 1000  
NEXT LOOP
```

Inside this loop we do all the work. For each cycle through the loop, the variable LOOP takes an increasing value, from 1 to 1000.

Thus by inspecting this variable we can check for the number 7.

Because we must spot the digit 7, in numbers such as 7, 17, 76 etc, we have to check EACH DIGIT in the number.

On the TI, to split a number in this way, we have to convert it into a STRING, using STR\$....

LOOP\$=STR\$(LOOP) where LOOP\$ is a STRING VARIABLE.

To check the digits, we use SEG\$ and LEN.  
LEN(LOOP\$) is the length of the string LOOP\$ and will vary from 1 to 4 (1 to 1000 remember!).

```
So, inside the loop,  
LOOP$=STR$(LOOP)  
FOR A=1 TO LEN(LOOP$)  
IF SEG$(LOOP$,A,1)="7" THEN GOSUB 2000  
NEXT A  
PRINT LOOP  
and then  
NEXT LOOP
```

We have changed the number, say 47, to a string "47".  
SEG\$ is then used to look at the first digit... is it a "7"? Then the second digit...is it a "7"? If so, GOSUB ....

```
and in the subroutine, the audible warning required:  
2000 CALL SOUND(400,440,0)  
2001 RETURN
```

And that solves the problem. Try to follow what the computer is doing.

#### ANOTHER REVIEW:

After a break of some months, TX SOFTWARE are back on the scene. Only a small range of programs, but their BATTLEFRONT tape at 6.00 has THREE Extended Basic games on it...good value for money, especially as the programming is highly talented. There is a Bomber type game, and a road race type game, but for me the gem is the title program, which uses Extended Basic as you have never seen it used before. All you have to do is shoot tanks passing in front of you... but you can guide your missile as it travels.

The 3D graphics are the best I have seen. Excuse me if I enthuse, you must have this one!!! Their WARGAME tape at 6.00 is very nice, but a long player. They did have a nice 3d Maze, but that seems to be no longer offered.

TX SOFTWARE, 109 Abbotswell, HARLOW, CM18 6TQ

Enough of these strange layouts, back to what I like best... untidy right margins and all!!!

#### BOOK REVIEWS:

##### SMART PROGRAMMING GUIDE FOR SPRITES

by Millers Graphics, 7.95 from TIMELESS SOFTWARE, 3 Bridgend,  
FAULDHOUSE, Wts Lothian, EH47 9HF

Now, 74 pages of A5 stapled book may strike some of you as pretty poor value for money! However, you are not paying for the paper... it is the information you buy!

Importing books from the States is an expensive business, what with airmail charges to cover, capital tied up for longer than usual, and of course UK distribution has to be paid for, and nobody works for nothing.... This is why US magazines (such as COMPUTE) cost so much here, and why this book is not 'cheap'.

What is in it? Quite a lot actually, for its size. Lots of sample programs to show you how to use sprites... a powerful addition which Extended Basic gives you, and sometimes a little difficult to use to best effect. There are samples to show you how to use keyboard or joysticks to control sprites, and how to pick up objects or leave a trail. There is also a section with some CALL PEEKs which can be of use, such as a faster RND. Together with my copy I received two 3 page leaflets called 'The Smart Programmer', and one of these solved a problem that has been puzzling me for a while: How to stop QUIT from functioning. Requires Extended Basic and 32k RAM.

Following on from these two small leaflets, there is a monthly newsletter, called THE SMART PROGRAMMER. The first issue (February 1984) consisted of some 15 pages, almost A4 size. A subscription to this is also available from Timeless, for £17.50 per year. In the February issue, another long standing problem was solved:

Given a large TI BASIC program such as WINGING IT, how do you load AND RUN IT from Disk? The disk controller snatches too much memory to allow you... the answer requires Mini Memory AND 32k RAM, but it works!!!

Mr Miller also shows how to prevent your disks being backed up ("proprietary disk protection"). Promised for the future are machine code routines that you can use with Extended Basic and 32k ram for faster sprite coincidence detection.

These publications cost a wee bit, but if you are seriously interested in powerful programming, I think you will find them of use - I certainly have my value for money! Perhaps groups of owners could share them?

Interested in ASSEMBLY LANGUAGE and having trouble?

It is necessary to have the TI Editor Assembler manual, whatever form of Assembler you use, and this is available from Galaxy in Maidstone, but it is a MANUAL, and does not teach you how to use assembly language.

Two books for the novice (such as myself!) have now appeared in the States. First, a book for all true beginners, ASSEMBLY LANGUAGE PRIMER by John T Dow, of 6360 Caton, Pittsburgh, PA, USA, 15217.

This is a private publication, available from the author for US\$22, inc. UK pp. It assumes NO prior knowledge, and is the book I most strongly recommend if you can only afford one. It does not go into it too deeply, but does have a fairly comprehensive memory map. In despair with the Assembler supplied with the Mini Memory, Mr Dow has written his OWN assembler, requiring Mini Memory, US\$27. His book can be used with either his own assembler or the Editor/Assembler from TI.

Then a professional book, INTRODUCTION TO ASSEMBLY LANGUAGE FOR THE TI HOME COMPUTER by Ralph Molesworth. Published by Steve Davis Publishing, and distributed by TENEX (USA). May be made available by one of the other TI\*MES advertisers shortly.

I found this one to be somewhat harder going, and there are a few errors. One sample program runs to almost 400 lines! A suitable companion to the Dow book, and it will take you a little farther into the mysterious depths of your computer.

From the same publisher and distributor comes PROGRAMS FOR THE TI HOME COMPUTER by Steve Davis (no no, not that one). This large A4 book runs to 125 pages, and includes programs of a somewhat higher standard than is usually found in books of this nature. There are even programs requiring speech, 32k ram, or disk, but they have been written so that most owners will be able to find something in every program.

The programs fall into the usual collection categories, with many utilities such as 'personal banking' or 'metric converter', but how about 'talking calculator'? There is a huge adventure for those with disk and 32k ram. Bigger characters? Better lower case set? All there.

The above two books are available direct from the USA from:  
Tenex Computer Marketing Systems, P O Box 6578, South Bend, IN, USA, 46660

The airmail postage is about \$10 per book. The program book is \$15 and the assembly book \$17, plus post. They prefer foreign orders to be by credit card: quote either 'visa' or 'mastercard', card number, expiry date, and name as stated on card.

It does look as though the expensive 99er Magazine is ending its usefulness to us. No December issue, and rumours reach me of planned irregular publication and the addition of Atari and Commodore machines in future. The big TI advertisers are leaving it.

Enthusiast 99 from the International User Group looks even better value under the circumstances. The AIRMAIL sub is US\$22 (must be in US funds on a US bank). Address is International 99/4 User Group, P O Box 67, Bethany, OK, USA, 73008

Home Computing Weekly continues to support us... have YOU sent them a program for publication???

In the last issue I mentioned some of the reasons you may NOT have a reply from a mail order firm. Remembering that my adverts all ask for an SAE, I have received no less than 30 requests without SAE's (including SAE's without the stamp!) and yet another SAE with a completely useless franked impression (from a firm of Chartered Accountants....). Do take care when using Mail Order!!! And yes, letters without return addresses still arrive.

Around this time, I run out of ideas and put in small paragraphs... if you would like anything in the next Rambles, why not write and ask me!!! If a direct reply is required, it may take a couple of weeks...

BEST WISHES to all TI\*MES readers who are taking exams at (or near to!) this time. Hurry back to your computer.

NB: There will be an additional little Rambler around MAY, letters and orders around this time may be subject to short delay, apologies in advance.

Happy computing!

*Stephen Shaw*

Stephen Shaw

\*#EXTRA EXTRA: Please would the TI\*MES reader in NORWAY who wrote to me, write again and state his name and address in clear block capitals (if possible typewritten). I'd like to reply to you but have no who you are or where you are!

This bit is typed 'cos my console just died. Aaaaag (NB: This will NOT affect software sales!!!!!!)

## STAINLESS SOFTWARE ADVERT

Very many new programs this quarter. For a HUGE catalogue, with around 100 programs (I lost count!) please send a 9" x 6" envelope with your name and address on it, and sufficient postage for return: the catalogue only JUST fits into the first postage rate band.

Some interesting new programs:

Not Polyoptics is back, and at nice low prices, with WINGING IT, the TI BASIC flight simulation (perhaps the best selling TI BASIC program in the world!) down to only £7.00!!

Also from Not Polyoptics, an Extended Basic simulation of Air Traffic Control, also £7.00, in which you must guide as many as 10 planes around the screen!!

HANG GLIDER PILOT from Maple Leaf Micro Ware is in EITHER TI Basic or Extended Basic, and has a new low price of only £8.00 ... 5 star review!!

Also at £8.00 is an Extended Basic double pack, Quasimodo plus Q.Bono...the latter is a version of the cube hopping varmint, presented here with a black and white tv option.

Fighter Pilot in TI BASIC is a difficult flight simulation, a little faster than Winging It, but not quite so realistic. £6.00

Maple Leaf's HAPPY MATH, TI Basic for 4-6 yr olds at £6.00 is joined by MATH FLASH ASTRONAUT in TI BASIC for 6-10 yr olds, also £6.00

From Challenger Software comes Extended Basic WALLABY, in which you guide a Wallaby from a factory... four screens and nice animation. £7.00

Do you like Othello? It's really an old game called Reversi. Here is a more modern version; GALACTIC ENCOUNTER by M Adams, with a peg-jumping CHECKERS solitaire with it. Two for only £6.00 (TI BASIC)

And if you like games, BACKGAMMON is available in Extended Basic from Not Polyoptics for 1 or 2 players, for a mere £7.00

How do you like an ad full of text like this? Would you prefer fewer programs listed and some graphic work instead? Let me know!

SECRET AGENT in Extended Basic by M Adams is a real classic, with fine graphics and two screens to tackle with ever increasing difficulty levels. £7.00

If you only have TI BASIC, Mr Adams has written BREAKPOINT for you, in which you must repair a printed circuit board, against many hazzards. £5.00

In TI Basic, a scrolling game, RAGING RIVER, in which you must travel as far as you can down a heavily congested river, teamed with a good one armed bandit simulation program, two for £6.00

The next page will list programs reviewed and earning 5 stars!

ALL ABOVE PRICES INCLUDE VAT AND U.K. POSTAGE (2nd class).  
Despatch is normally within 6 days of receipt of your order.

STAINLESS SOFTWARE  
10 ALSTONE ROAD STOCKPORT CHESHIRE SK4 5AH

(Always use the POST CODE)

## STAINLESS SOFTWARE ADVERT

Very many new programs this quarter. For a HUGE catalogue, with around 100 programs (I lost count!) please send a 9" x 6" envelope with your name and address on it, and sufficient postage for return: the catalogue only JUST fits into the first postage rate band.

ALL OF THE FOLLOWING RECEIVED FIVE STAR REVIEWS IN HOME COMPUTING WEEKLY:

3D RACE in TI BASIC by Patrick Strassen

"(TI BASIC) used...extremely well...all in all good value for money" £6.00

SHUTTLE COMMAND in EXTENDED BASIC by FFF SOFTWARE

"...begins to rival machine code on other machines"....£12.00

GLOBAL RESCUE in EXTENDED BASIC by P Richards

"A well designed and fully documented game which makes a refreshing change from zapping aliens".....£7.00

OCTAL plus KEYS OF THE CASTLE in EXTENDED BASIC from PS SOFTWARE:

Scored 100% for value for money! Two programs for £11.00

QUICKER QWERTY in TI BASIC by Ian Pegg

Teach your fingers to hit the right keys! £9.00

GOLF in TI BASIC by A McMath

"Probably the best golf game that I have ever seen on a computer" A different 18 hole course every time you play. For 1 player. £8.00

GOBLINS REVENGE in TI BASIC by PEWTERWARE

"graphics colour and sound are all used very well"..a maze type of game.£7.00

BRAINTWISTERS 2 in TI BASIC by TITAN SOFTWARE(USA)

A solitaire card game and a simon type echo game. £8.00

WALLS AND BRIDGES plus ZOMBIE MAMBO

In TI BASIC by TImagination. REQUIRES JOYSTICKS.

100% for graphics, which are outstanding. Even at this price, scored 90% for value for money. A track laying game plus a pair of maze games. THREE programs £19.75

PLANET DESTROYER in TI BASIC by Patrick Strassen

Another scrolling game, into the depths of an alien planet, which is defended!  
"Well thought out, makes the most of TI BASIC and colour" £6.00

KONG in TI BASIC by SP SOFTWARE

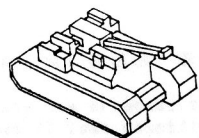
Only one screen, and usual TI BASIC limitations, but HCW gave it 100% for playability. "I found this game to be quite enjoyable and relaxing to play"  
Just £5.00

Quite a lot of 5 star games.... and more with 4 stars, but no room for those!

ALL PRICES INCLUDE VAT AND 2nd class POST & PACKING.

STAINLESS SOFTWARE  
10 Alstone Road STOCKPORT Cheshire SK4 5AH





# ARCADE

## Computer Gaming

### TWO SHORT PROGRAMS FROM KERRY MARTIN

The program that follows is a short example of a way to make a character move. It will help those who wish to make a game and will help any beginner understand Basic. For those of you who are already programmers please look to other programs for I am just a beginner, too.

```

100 CALL CLEAR
110 CALL CHAR(94,"7EFFFFCFOF0FCFF7E")
120 CALL CHAR(95,"7EFFFFFFFFFFFF7E")
130 CALL COLOR(8,11,1)
140 CALL CHAR(96,"0000001818")
150 ROW=1 :: COL=1
160 CALL HCHAR(1,1,96,700)
165 CALL HCHAR(ROW,COL,95,1)
170 REM MAKE PACMAN MOVE
180 CALL KEY(3,KEY,STATUS)
190 IF STATUS THEN 200 :: GOTO 180
200 IF KEY=69 THEN 1000
210 IF KEY=88 THEN 2000
220 IF KEY=68 THEN 3000
230 IF KEY=83 THEN 4000
240 GOTO 180
1000 REM MOVE PACMAN UP
1010 CALL HCHAR(ROW,COL,32,1)
1020 ROW=ROW-1
1030 CALL HCHAR(ROW,COL,94,1)
1040 GOTO 165
2000 REM MOVE PACMAN DOWN
2010 CALL HCHAR(ROW,COL,32,1)
2020 ROW=ROW+1
2030 CALL HCHAR(ROW,COL,94,1)
2040 GOTO 165
3000 REM MOVE PACMAN RIGHT
3010 CALL HCHAR(ROW,COL,32,1)
3020 COL=COL+1
3030 CALL HCHAR(ROW,COL,94,1)
3040 GOTO 165
4000 REM MOVE PACMAN LEFT
4010 CALL HCHAR(ROW,COL,32,1)
4020 COL=COL-1
4030 CALL HCHAR(ROW,COL,94,1)
4040 GOTO 165

```

This program is a short program that shows random accessing. It is called Russian Roulette. Please use for fun only!

```

85 CALL SCREEN(4)
90 CALL CLEAR
95 PRINT "THIS IS A GAME OF"
100 PRINT TAB(28);"RUSSIAN ROULETTE"
105 REM "TI-99'ER VERSION"
106 REM "BY M.J.WRIGHT"
110 PRINT
130 PRINT
135 PRINT "HERE IS A
    (REVOLVER)"
140 PRINT "TYPE '1' AND PRESS ENTER TO
    SPIN CHAMBER AND PULL TRIGGER."
150 PRINT "TYPE '2' TO GIVE UP"
160 PRINT "GO";
165 RANDOMIZE
170 LET N=0
180 INPUT I
185 DATA I
190 IF I<>2 THEN 220
200 PRINT "CHICKEN!!!!"
205 GOTO 340
210 GOTO 290
215 INPUT N
220 N=N+1
230 IF INT(RND*(1)*.833333) THEN 270
240 IF N>5 THEN 310
250 PRINT "-CLICK-"
260 PRINT
265 GOTO 180
270 PRINT "BANG!!!!!!YOU'RE DEAD!"
271 CALL SCREEN(7)
280 PRINT "CONDOLENCES WILL BE SENT
    TO YOUR RELATIVES"
281 FOR X=1 TO 500
282 NEXT X
290 CALL CLEAR
300 PRINT "***NEXT VICTIM***"
301 FOR X=1 TO 500
302 NEXT X
305 GOTO 85
310 PRINT "YOU WIN!!!!!"
320 PRINT "LET SOMEONE ELSE BLOW
    HIS BRAINS OUT"
330 GOTO 130
340 END

```

OUR THANKS TO :



# NEWS

T.I.S.H.U.G.

# SYDNEY

PROGRAM LISTINGS FROM AUSTRALIA

Newsletter of the Home Computer Texas Instruments Users Group

CLUB ADDRESSES: T.I.S.H.U.G. P.O. BOX 149, PENNANT HILLS, N.S.W. AUST; 2101 SYDNEY NEWSDIGEST EDITOR: P.O. BOX KX101, KINGS CROSS, 2011

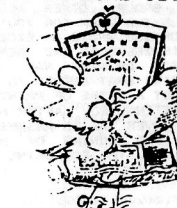
### Sub Octave sub routine

100 REM THIS PROGRAM WILL PLAY AND PRINT THE FREQUENCIES FOR TWO ADDITIONAL OCTAVES OF BASS NOTES ON THE TI 99/4A. USE THEM AS SHOWN IN LINE 160. JIM PER

```

SDN
110 DEF R(X)=INT(X+.5)
120 F=1652
130 FOR J=1 TO 25
140 READ N$
150 PRINT N$;"=";R(F)
160 CALL SOUND(500,22000,30,22000,30,F,30,-4,0)
170 F=F/1.059463094
180 IF J<>12 THEN 200
190 RESTORE
200 NEXT J
210 DATA A,B flat,B,C,C#,D,E flat,E,F,F#,G,A flat,A

```



100 REM THIS PROGRAM PLAYS TREMOLO NOTES. CHANGE VALUE IN LINE 150 TO 1.01 1.03 FOR MORE OR LESS TREMOLO. ST. JAMES INFIRMARY BLUES - JIM PETERSON

```

110 FOR J=1 TO 60 STEP 2
120 READ A,B
130 FOR L=1 TO A
140 CALL SOUND(-99,B,0)
150 CALL SOUND(-99,B*1.02,0)
160 NEXT L
170 NEXT J
180 DATA 2,330,2,294,4,330,4,294,4,330,4,294,4,262,8,220
190 DATA 2,330,2,294,6,330,2,294,4,330,4,262,12,247
200 DATA 2,294,2,262,4,294,4,262,4,294,2,330,2,294,4,262,8,220
210 DATA 4,262,4,262,4,220,4,262,4,247,16,220

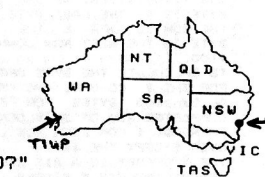
```

100 REM WORLD'S SHORTEST TIC-TAC-TOE PROGRAM, BY RUSS WALTER IN THE SECRET GARDENS TO COMPUTERS VOL. C2

```

110 PRINT "LET'S PLAY TICK-TACK-TOE:::
    'THE BOARD IS NUMBERED:::
120 PRINT "1 2 3:::'B 9 4:::'7 6 5:::'I
    MOVE TO 9:::'WHERE DO YOU MOVE TO?"
130 INPUT S
140 DEF FNM(X)=X-4+4*SGN(8.5-X)
150 C=FNM(S+1)
160 GOSUB 230
170 C=FNM(S+6)
180 IF S/2=INT(S/2) THEN 280
190 GOSUB 230
200 PRINT "I MOVE TO";FNM(S+4)
210 PRINT "THE GAME IS A DRAW"
220 STOP
230 PRINT "I MOVE TO";C
240 PRINT "WHERE DO YOU MOVE TO?"
250 INPUT H
260 IF H<>FNM(C+4) THEN 280
270 RETURN
280 PRINT "I MOVE TO";FNM(C+4);"AND WIN"
290 END

```



50 REM \*\*\*\*\* WALKING MAN BY ROGER WILLS

```

100 CALL CLEAR
110 CALL SCREEN(16)
120 CALL CHAR(104,"18187E1818242424")
130 CALL COLOR(10,15,16)
140 XOLD=15
150 YOLD=13
160 CALL JOYST(1,DX,DY)
170 XNEW=XOLD+DX/4
180 YNEW=YOLD+DY/4
185 IF (DX=0)*(DY=0) THEN 210
190 XNEW=INT(32*((XNEW-1)/32-INT((YNEW-1)/32)))+1
200 YNEW=INT(24*((YNEW-1)/24-INT((XNEW-1)/24)))+1
205 CALL HCHAR(YOLD,XOLD,32)
210 CALL HCHAR(YNEW,XNEW,104)
220 XOLD=XNEW
230 YOLD=YNEW
240 GOTO 160
250 REM 592 BYTES USED***13952
    BYTES LEFT***(ED)

```

```

100 REM A GLIMPSE OF REALITY
110 REM FOR COMPUTER ADDICTS
120 REM
130 REM BY PHIL WEST. TIUP.
140 REM
150 CALL CLEAR
160 CALL CHAR(96,"1018183C3C
    7E3C18")
170 CALL CHAR(112,"FFFFFFFF
    FFFFFFFF")
180 CALL CHAR(120,"FFFFFFFF
    FFFFFFFF")
190 CALL CHAR(121,"55555555
    55555555")
200 CALL CHAR(122,"5D5D5D5D
    5D5D5D5D")
210 CALL CHAR(128,"000011925
    438FF5D")
220 H=22
230 CALL COLOR(9,16,1)
240 CALL COLOR(11,2,2)
250 CALL COLOR(12,13,1)
260 CALL COLOR(13,14,1)
270 CALL VCHAR(4,16,112,3)
280 CALL HCHAR(4,17,112,3)
290 CALL VCHAR(4,20,112,18)
300 CALL HCHAR(22,1,120,96)
310 CALL HCHAR(3,18,112)
320 CALL HCHAR(2,17,112,3)
330 G=0
340 H=H-1
350 FOR Z=7 TO H-1
360 CALL VCHAR(Z,16,96)
370 CALL VCHAR(Z,16,32)
380 NEXT Z
390 G=G+1
400 CALL SOUND(15,(H*50),2)
410 CALL HCHAR(H,6,121)
420 IF G=32 THEN 330
430 IF H=7 THEN 440 ELSE 350
440 FOR F=3 TO 30 STEP 3
450 CALL HCHAR(7,F,128)
460 CALL VCHAR(8,F,122,14)
470 CALL SOUND(30,(F*50),2)
480 NEXT F
490 PRINT "NOW DO SOMETHING
    ABOUT IT!!!"

```





\*\*\*\*\* FIVE STAR AWARD \*\*\*\*\* HOME COMPUTING WEEKLY

# FOR THE UNEX-TI99/4A A GRAPHICS CREATOR & Screen - Editor

CREATE up to 52 'on-board' graphics.  
DESIGN large screen layouts for your  
own programs. SAVE ALL of your work  
onto cassette tape. Commands include  
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HEX, ACCIDENT REPAIR, and many more.  
Extremely USER-FRIENDLY throughout.  
Whether you're a BEGINNER or EXPERT  
this program enables you to produce  
many sets of good graphics - QUICKLY!  
Price includes full instructions, and  
3 sets of Demo-graphics.. Only £5.95

“PiKaDee Software !!”

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TI-EXCHANGE MEMBERS £5.00!

NOW WANTED : ADVENTURES, PUZZLES, UTILITIES,  
SHOOT-EM-UPS and EDUCATIONAL PROGRAMS.  
GOOD ROYALTIES FOR GOOD PROGRAMS - SEND WHAT  
YOU HAVE NOW TO 'PiKaDee'.

## ADVENTURE GAMES ON YOUR TI

by Graham Baldwin

For me the most enjoyable software games produced by TI are the Scott Adams Adventures. If you like solving crosswords, working out knotty logic problems or enjoy trying to write fast-moving programs in TI Basic you will probably get a lot of fun out of the Adventure series.

Most people have probably played at least one text adventure at some time, but for those who are new to computing here is a brief run-down on how the TI Adventure system works.

The Adventure SSS module comes with one game, Pirate, on cassette, and when the module has been inserted in the computer and the tape loaded, the game begins. The object is to give two-word commands (a verb followed by a noun) to a mythical "puppet" in the program who will carry out your commands, move from location to location taking and using objects found until the adventure is completed. Some games require treasures to be found and stored while others give you a specific mission to be accomplished, such as finding a set of plans or killing a vampire. The "puppet" will ask for commands at each stage and reply, sometimes sardonically, if your instructions do not make sense! All the clues you need are contained in the program, along with misleading statements, unnecessary objects and assorted death-traps, the last of which are usually placed to "kill" you just when you think you are doing well.

Although each adventure becomes crystal-clear AFTER you've solved it, at the time you are playing you may start doubting your own sanity, particularly while wrestling with the problem of a tent-stake that disappears at sunset, a thin bear that won't let you pass or an apparently vital man-hole cover that defies removal. If you have played these adventures you will know what I'm talking about!

### PLAYING AN ADVENTURE

Before you start entering commands, and preferably before turning on the computer, find a pencil, a large sheet of paper and an even larger rubber, because to stand any chance of solving an adventure it is essential to draw an accurate map of your progress. Many adventures contain around 30 locations, most of which have several features or objects to be examined or taken and without a map to jog your memory you'll blunder about, missing a lot of subtle clues.

When the first location is shown on the screen note its name, any features mentioned, visible objects and exit points. As you move from place to place mark each location on your map in its proper relation to the others. It helps to follow the usual mapping conventions and have North at the top of the paper, West to the left and so on. As your map builds up you may find it disappearing off one edge if, say, a lot of easterly locations are found. Don't try to squeeze them in - re-draw your map on a fresh sheet of paper; the few minutes taken are well worthwhile.

Some locations may be "up" or "down" and you'll have to decide if they can be accommodated on your map or should have a separate one of their own. Each case will have to be decided on its own merits.

As the adventure progresses some new locations may be hinted at, you may spot an alternative route that could be used in time of peril or even find a reason for carrying a hitherto useless object.

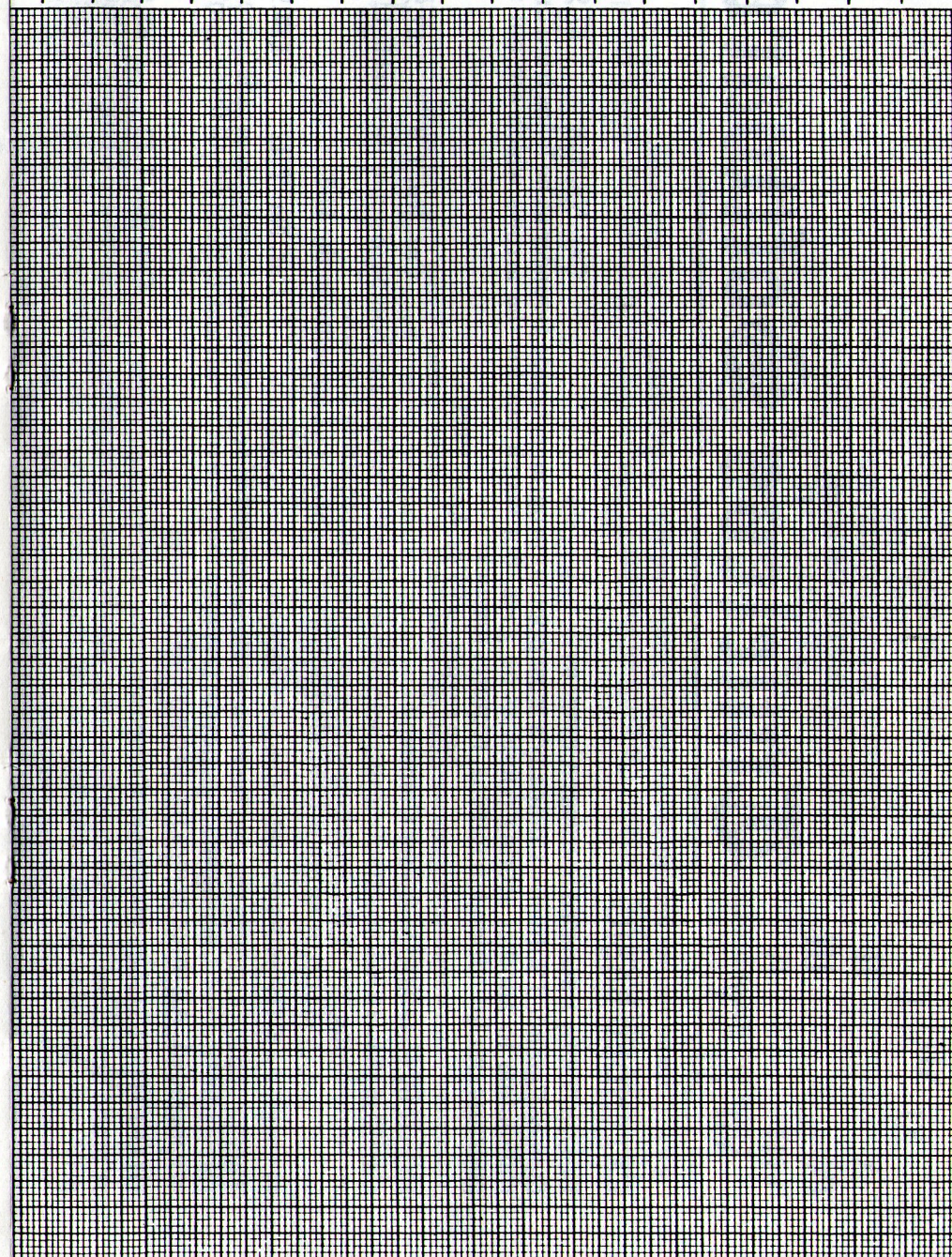
### COMMANDS

As stated earlier two-word commands are used to direct the "puppet" and some useful information can be gleaned from the programs' replies if it doesn't understand you.

For instance, take the command "PICK FLOWER"  
If the program does not contain the word PICK it will respond: "I don't know how to PICK something", telling you that the word cannot be used.

If the response is: "I don't know what a FLOWER is", you can safely say that a flower, even though it may be mentioned in the program, will play no part in your solution.

4 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32



CODES it is under the CHAR subprogram heading.

1  
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20  
21  
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24

14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32

The response "I don't understand your command" usually means that the program recognizes both words but cannot perform a meaningful action on that particular combination.

Occasionally you may get a tantalising "I can't do that yet", which often, but not always, means that your command will only be accepted if you are in the right location while in possession of the right object.

As commands can be abbreviated to three or four letters it is easy to fall into a trap of your own making. If you try a word which has the same first few letters as one used in the program you will get a confusing response. As an example I once spent quite a long time trying to use the word "SPLIT" on all manner of objects until my wife gently pointed out that we had already used "SPICED" successfully in the game.

**CHEATING AND OTHER ODDS AND ENDS**

One vitally useful feature of the Adventure series is the ability to save a game on cassette at any time. As some adventures just cannot be finished if you lose a vital object and others "kill" you unless you take suitable precautions saving the game means that you can enter a command at a particularly hazardous point, safe in the knowledge that if disaster strikes you can reload the game to that point and try again.

Some adventures will give you extra clues if you type "HELP" but others are not so forthcoming, and at least one makes rude replies if you ask for help too often.

Although the adventures cannot be listed it is sometimes possible to glean some new information by using a technique mentioned in the small print in the module handbook. If you load a different, partly-completed adventure into your present game some suprising things may happen. The adventure you are playing will be reset by the previously saved game, thus (if you are lucky) revealing the existance of suspected but so far unproven locations or objects. The results are totally unpredictable and often nonsensical. One attempt left me carrying a hole in the ground while wearing a saloon and a horse, and completely unable to move in any direction, but the technique is worth a try if you are genuinely stumped. Please note that quitting the adventure to start again will NOT always put everything back to normal - you may have to reload the database tape to do that.

Finally, although adventures are great fun they are also very addictive, causing an appalling waste of good programming time. Some people set a time limit on each session and strong-mindedly switch off at the appointed time, while others sit up to all hours hoping to crack at least one apparently insoluble problem before exhaustion sets in. Unfortunately, even when the computer is switched off, the mind keeps churning the adventure over, ideas for a solution popping up at the most unlikely times!

ED:- Graham Baldwin has contributed articles to HOME COMPUTING WEEKLY, this FEATURE should help those of you who typed in "CAVE MAZE"(see issue 3). We welcome Graham as a new member and contributor to TI\*MES .

CAVE MAZE Queries ....We have to admit that some of you may have received a copy of TI\*MES with a BUG in Cave Maze which was spotted by J.R.WEATHERLEY, Gosforth, Newcastle- correction for line 1220 is:-  
 1220 PRINT:"OK, YOU'VE JUST WRITTEN: " : "&MSG\$(R)&"" :  
 ; "AND ERASED ANY OLD MESSAGE"

We have received a number of letters regarding this program not running properly we assure you that it must be your typing! please check carefully ...  
 \$ ' " < > ( ) ; : 1 I , 0 Ø .  
 Finally when running the program make sure you use LOOK GET DROP commands, AND PLEASE READ THE INSTRUCTIONS CAREFULLY you'll be amazed if you do, otherwise it will only be a maze if you don't!!!

XI XII I  
X II  
IX III  
VIII IV  
VII V  
VI

# Timeless Software

## EXTENDED BASIC

**BOUNCER** by Extended Software Company

One of Extended Software Company's most popular programs. Guide Bouncer as he leaps from one trampoline to another scoring points as he goes, but watch out for the arrows which are out to puncture our little friend. 6 screens, requires joysticks.

See review in 99'er April 1983

Cat. No. T.8

£7.95

**KONG** by Extended Software Company

Can Kong save Roxanne? Only if you help him to jump the barrels and bombs to get to the next ladder en route to the top of the warehouse. 6 levels of action requiring joysticks.

This program is Extended Software Company's best seller in the U.S.

Cat. No. T.9

£7.95

**GAMES PAK III** by Extended Software Company

This gamepack contains the two best sellers 'Bouncer' and 'Kong' as well as the graphic arcade/adventure game 'Romeo', giving you 3 games for less than the price of 2. Full instructions for all three games are included. All three games require joysticks.

Cat. No. T.12

£14.95

**DIABLO** by Extended Software Company

A brand new game using a brand new idea, the latest game from Extended Software Company which gives new meaning to the word 'frustration'. Manoeuvre any of the 116 movable tiles to form tracks over which you must guide a moving ball. Sounds easy? It's not, each track disappears after the ball rolls over it, leaving less and less track.

Cat. No. T.11

£8.95

*"This game is not an action game. It's an intimidator!"* The SPRITE Sept. 1983

**THE CRAZY FUN HOUSE** by Millers Graphics

This crazy game has visible and invisible passageways where you can chase and be chased, dodge, shoot and rack up points for extra men. 9 screens and 32 levels of fast action, with colourful graphics and superb sound effects. Requires joysticks.

Cat. No. T.3

£7.95

**BLACKBEARDS TREASURE** by Millers Graphics

Your 5 man diving team has found the lost treasure of Blackbeard the pirate! Unfortunately it is at the bottom of a shark infested sea and is protected by 2 giant octopuses.

*"...one of those rare games you just don't get tired of playing...a program that will make owners of other home computers wish they had purchased a TI 99/4A instead"* 99'er May 1983

Cat. No. T.4

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BABBLING BROOKS II.

CONTROL AND FUNCTION KEYS

The Users Reference Guide (URG) gives a passing and incomplete coverage of the CONTROL (CTRL) key, and a more detailed yet still incomplete explanation of the uses of the FUNCTION (FCTN) key. This article can't do full justice to both keys, but it may begin to lift the mists which appear to surround the CTRL key especially.

To begin with, an understanding of the exact nature of ASCII is necessary. The American Standard Code for Information Interchange (the mnemonic is pronounced "askey") is a system of characters and symbols in common use on computers. Each character or symbol has a code, just as in Morse. Telegraphic Morse uses combinations of dots and dashes in varying numbers to represent letters of the alphabet, digits, and a few special combinations which represent standard words or phrases. Whereas one dot stands for E, three are used for S, so the groups of dots and dashes vary in size. To distinguish between groups, there is a slight pause after each group is transmitted.

ASCII uses groups of ones and zeroes, where the group size is fixed: 8 in all, a BYTE. The total number of possible combinations of ones and zeroes is 00000000 to 11111111, or 256. If you treat the combinations as BINARY NUMBERS, then they range from 0 to 255 in decimal:

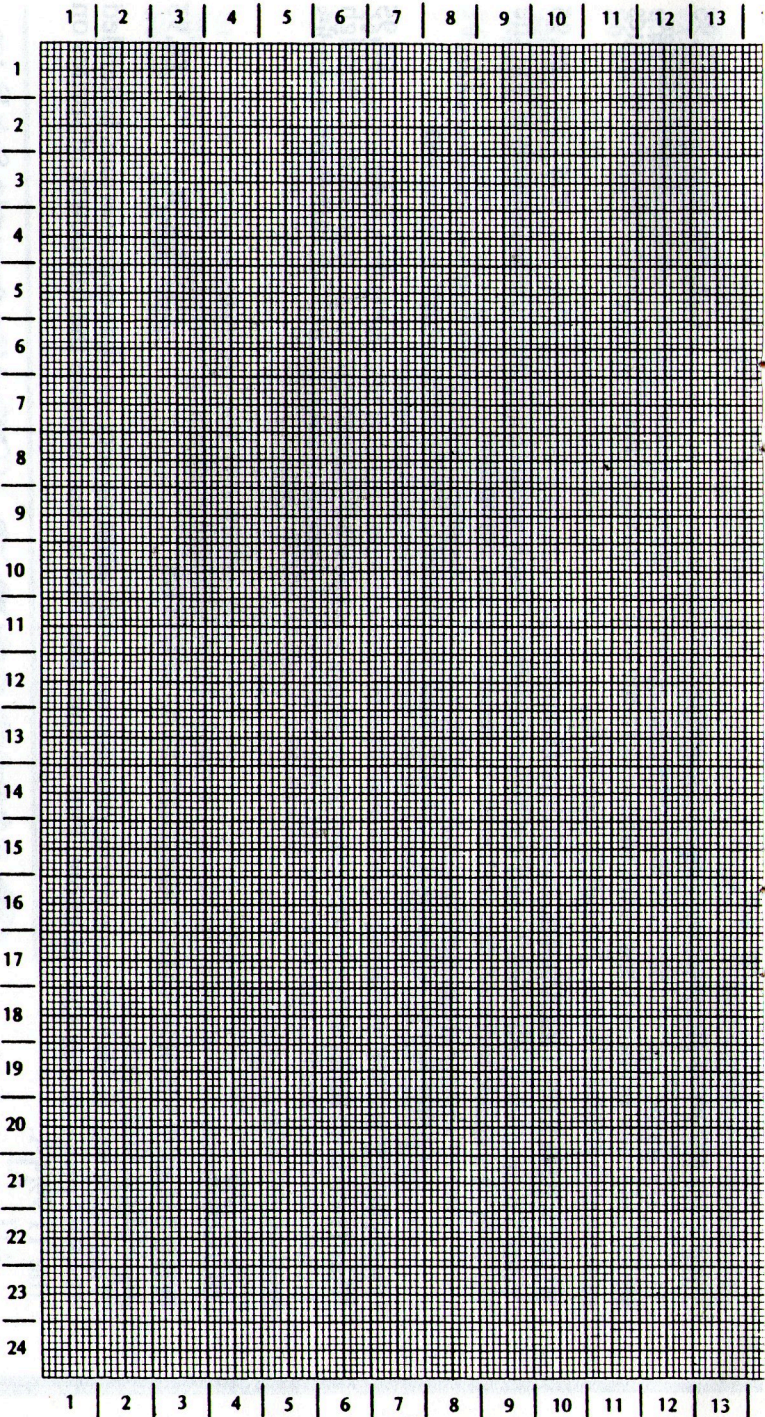
|     |    |    |    |   |   |   |   |               |
|-----|----|----|----|---|---|---|---|---------------|
| 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |               |
| 0   | 0  | 0  | 0  | 0 | 0 | 0 | 0 | = decimal 0   |
| 1   | 1  | 1  | 1  | 1 | 1 | 1 | 1 | = decimal 255 |

The full range of ASCII codes is only 0 to 127, not 0 to 255 as you might have concluded. Of the 8 bits (Binary digits) in a byte, only 7 are used to represent all the letters of the alphabet (both upper and lower case - i.e., capitals and small letters), punctuation marks, the digits 0 to 9, the Arithmetic and Relational Operators (+, -, /, =, etc.), and some special characters which are used to transmit instructions to certain items of equipment. The 8th bit is used as a check when transmitting character codes, called PARITY ERROR CHECKING. There are two methods of achieving a degree of validation of transmitted bytes: one is termed EVEN PARITY, the other ODD PARITY.

The 7 bits representing an ASCII character about to be transmitted are examined, and the number of ones (1) is counted. If the number of 1s is odd and the error checking method is EVEN PARITY, the 8th bit is set to '1', thus making the total number of 1s even. If the number is already even, then the 8th bit is left set to zero. The opposite procedure is followed for ODD PARITY.

For example, take the letter upper case 'A'. Its ASCII code is decimal 65, or binary 01000001. There are two 1s, and using Even Parity, the 8th or leftmost bit would still be 0. If however the method in use was ODD Parity, the 8th bit would be set to 1 to make the total number of 1s odd, thus changing the combination to 11000001, which is equivalent to decimal 193 (128 + 64 + 1). This is where the codes 128 to 255 come in, for they are codes 0 to 127 with the 8th bit set. This is equivalent to adding 128 to the ASCII code.

Thus when receiving a transmitted byte of data, simple checks can be made to see if bits have been lost or changed - corrupted. If the checking method is Even Parity but a received byte has an odd number of 1s, then something has happened during transmission and the receiving equipment can either warn the transmitter that corruption has occurred, or ask for that particular byte to be re-transmitted until it is received in an acceptable form. Note that if the corruption was such that the total number of 1s was still even, then the method would fail to pick up the interference. Because these parity checks are not fool-proof, other checks



|    |
|----|
| 00 |
| 01 |
| 02 |
| 03 |
| 04 |
| 05 |
| 06 |
| 07 |
| 08 |
| 09 |
| 0A |
| 0B |
| 0C |
| 0D |
| 0E |
| 0F |

Here is your chance to plot those CHARS, your T.V. Screen displays a 24x32 columns made up as 16x16 dots or pixels, there are 196x256 in total You can have fun creating CHARACTERS of your own making See Users REF P84

Thanks  
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are performed. One of these involves sending the data according to a PROTOCOL, where the receiving equipment is instructed to expect the data in a certain sequence. Any alteration in this sequence indicates corruption. For example, the start of a set of data might be indicated by one particular code or sequence of codes, followed by an indication of the number of bytes to follow - perhaps 64 every time - together with something called a HASH code. The ASCII codes of the 64 bytes to be sent are added together; each time the total exceeds 255, 256 is subtracted so that the final 'total' is always a number between 0 and 255. As each of the 64 data bytes is received by the equipment, it first scans the combinations of 1s and 0s to make sure that there are an even (or odd) number of them. If the byte passes this first test its code is added to a running total for that particular block - building up the hash code in exactly the same fashion as mentioned, subtracting 256 every time the total goes over 255 - and the process continues until the 64th byte has been sent and passed the parity check. The hash code (which may have been sent either before or after the block of 64 bytes to which it relates) is then compared with the hash code which has been calculated during transmission, and if they are both the same it lessens the chance that any corruption has occurred.

Thus the transmission of the English word 'DEAF' will involve sending the codes 68, 69, 65, and 70. The binary equivalent of 69 and 70 contain odd numbers of 1s, so if we use EVEN PARITY we will have to set the 8th bit for those two bytes. This alters the codes to be sent: 68, 197, 65, and 198. The hash code for those 4 is 16. If by chance during transmission the last code were to be corrupted - perhaps due to a sudden surge in the mains (a mains spike) - and two 0s became 1s, making the 'F' become a 'P', the parity check would still pass the last byte. However, the ASCII code for 'P' is 80, and the calculated hash code would now be 154 and not 16. The hash codes disagree, therefore an error has occurred, and the computer could react accordingly.

On some computers, the ASCII codes 128 to 255 are used to make available so-called GRAPHICS characters. For complex reasons, TI's system only allows 96 to 159 on the 99/4 and 128 to 159 on the 99/4A, but at least the shapes of the characters are not predefined and fixed as they are on many other machines.

These graphics characters have their shape descriptions (definitions) stored in a particular area of memory in the computer. Until CALL CHAR() is used to redefine those characters, that area of memory is used by the computer for its own purposes. One of these is the storage of an incoming program being loaded in TI BASIC using OLD CS1. This fact is used by a routine I wrote a few years ago to monitor the initial process of OLDing, thus giving an early indication of a failure to begin loading. The routine simply prints all the User-definable characters (i.e., the Graphics characters discussed earlier) on the screen, and as the cassette OLDing begins, provided you have the volume level set correctly, you will 'see' the program arriving onboard.

99/4

```
100 FOR I = 96 TO 159
110 PRINT CHR$(I);
120 NEXT I
```

99/4A

```
100 FOR I = 128 TO 159
110 PRINT CHR$(I);
120 NEXT I
```

Simply enter the relevant program and RUN it. When it is finished, type in the OLD CS1 instructions and follow the computer's prompts. When a program begins to load in successfully, you will see an 'army of insects' marching across the screen.

So far we have not even mentioned the CTRL or FCIN keys. The FCIN key's effect is largely the same as the Shift key on the 99/4 - giving editing functions - except that there are certain aspects not covered in the reference manual. For example, pressing and holding down the FCIN key and then pressing 'V' will cause the cursor on the screen to move one character to the right. It has in fact printed a character on screen: its ASCII code is 127 and it is the first of the graphics characters. It is the last character listed on page 102 of the URG and it is named DEL, which is short for DELETE. Despite the fact that it is obtained through the FCIN key, it is

one of the CONTROL characters. The rest of these characters are obtained through (surprise, surprise) the Control (CTRL) key. Control characters are used, as their name implies, to control something. On page 93 of the Reference manual you will see the table of control key codes. Missing from this list is CTRL , (comma), which has an ASCII code of 128 in BASIC mode, and 0 in Pascal mode. Its mnemonic is NUL.

To confuse matters, the ASCII codes for these control characters are 0 to 31 and 127, but if you use the control key with the stated characters you will obtain on the screen characters with codes ranging from 128 (not forgetting NUL) to 159, which are the User-definable graphics characters. If however you were transmitting these codes down the telephone line, they would mean something to the receiving equipment. Control B would inform the receiver that you were about to send a section of text, while control C would signal the end of the block of text. If the receiving equipment was a printer, the control characters would instruct the machine to perform a carriage return for example, or to scroll the paper up by one line (line feed:LF) or even to select a different type-face.

The control functions were devised at a time when the Teletype was the main method of communication with the computer (the VDU or TV screen under certain circumstances has been called a 'Glass Teletype'), hence functions like BEL which cause a small bell to sound once, usually signifying the arrival of a transmission. On different machines the mnemonics may be slightly different, or have slightly different meanings (e.g. EOT can mean End Of Transmission, or End Of Tape - a reference to paper tape passing through a paper tape reader) but the principle remains the same.

Finally to heap confusion upon the reader, there is an unintentional effect which can be produced using the FCIN and CTRL keys, which affords us a glimpse of the operation of the computer 'behind the scenes' as it were. Enter the following line but do not yet press ENTER:

1 REM

Now press CTRL A and then ENTER. Press and hold down the CTRL key, and then press A so that both keys are being pressed, but don't hold them down for too long, or the auto-repeat function will come into play. Now list that line. What is that following the REM ? According to the Reference manual, CTRL A gives ASCII 129, a graphics character, so where did ELSE come from ? Well, when you type out a 'normal' line of BASIC commands (with a line number), the computer does quite a lot of work 'behind the scenes'. It scans your BASIC instructions, checking each separate word against a list or dictionary which is already permanently stored in ROM (Read Only Memory). For each of the RESERVED WORDS (LET, PRINT, INPUT, CALL, IF, etc.) the computer replaces the word in your BASIC line with a TOKEN. This is a single character which, when the computer runs or lists your program, will be interpreted as being the Reserved word which it replaces. This means that although the computer will faithfully reproduce your listing when commanded to do so, internally it has used far less memory to store its version. This explains the phenomenon whereby you can enter a 4-line BASIC statement, call it up for editing, and go on to extend it up to 6 lines before you get the LINE TOO LONG error message. The token for ELSE is ASCII 129, for PRINT is 156, and so on. STEPHEN SHAW published a list of the tokens operative in Extended BASIC in an edition of Tidings (the newsletter of the late TIHOME), back-copies of which can still be obtained from PAUL DICKS, 157 Bishopsford Road, Morden, Surrey, tel: 01 640 7503. The issue in question is V2.3 (1982). The list of those operative in TI BASIC is too long to be fitted into the remaining pages of this Babble, and in fact the next article will deal in some detail with the tokens, the further use of CTRL, FCIN, and editing, to obtain characters on the screen (i.e. as part of a listing) which would otherwise only be obtainable through POKEing (requiring either MiniMemory, Editor/Assembler, or Extended BASIC plus 32K RAM Expansion), and their use to uncover additional CALLS present in the Personal Record Keeping and Statistics modules, IN ADDITION TO THOSE ALREADY KNOWN. I am indebted to RICHARD BLANDEN for initial information on their presence.

When you pressed CTRL A and then ENTER, you placed the token directly into the



program line, so that subsequent listing caused the Reserved word to be reproduced on screen. However, in order to do so, the computer has had to go through quite a lot of additional processing, as you will discover if you experiment further with this. If you pressed CTRL A, B, C ... etc. and then ENTER and then listed line 1, you would have had to wait some time for certain of the words to be listed, and for those tokens which exist but which have no representation in TI BASIC the wait can amount to several seconds or more. If you edit the line by calling it up but not changing it in ANY way, and pressing ENTER, it goes back into memory in exactly the same form. If however you press a key but do not change the line - that is, if the cursor is flashing over the R in REM and you press R, thus 'editing' without making any change, the computer will assume that you HAVE made a change, and will take the words as they appear on screen, rather than the tokens which produced them, and subsequent listing will be much faster. There is far more to this than meets the eye!

These are all examples of the multitude of ways in which the value represented in a byte can be interpreted, depending upon the circumstances in which it is used. The ASCII character whose code is 159 can be regarded as a graphics character, or character 31 with the most significant bit set (cf PARITY), or the token for the Reserved word OPEN, or a small number (represented one of two ways: 'unsigned', or positive, between 0 and 255 - i.e., 159, or 'signed', where the left-most bit acts as an indication of whether the number is positive or negative, and the range is much smaller: -128 to +127, where the value is equivalent to -97. I will try to fit a discussion of ONES and TWOS COMPLEMENT into the next issue.), or the shape definition for one line of eight dots horizontally in a graphics character (in binary: 10011111; in hexadecimal: 9F), or even part of a TMS9900 machine code instruction or datum.

A couple of final items: one relating to the Speech synthesizer and Extended BASIC, the other to the use of CALL KEY() with key-units 1 and 2, and the bug which may have caused some of you a headache or two.

A former member of TIHOME (who is not yet a member of this group but who may join) one DAVID BROWN of Abingdon, borrowed my SPEECH EDITOR module manual and discovered that the SPEECH SEPARATOR CHARACTERS detailed in that manual were also active in Extended BASIC, and ROBERT BATTIS of TI tells me that details of the use of the hash symbol either side of a 'phrase' were also omitted from the manual. If anyone wants details they can contact me on Oxford 717985, or by post to 29 Kestrel Crescent, Blackbird Leys, Oxford OX4 5DY. As an example, if you insert a '+' between each word that you want the synthesizer to speak, the rate at which it speaks the words is increased (the gaps between words are removed subject to certain restrictions). Try getting the machine to say A B C and compare it with A+B+C. Bear in mind that no spaces should flank the '+' or the computer will say 'positive' every time!! To get the computer to enunciate a 'phrase' - e.g. TEXAS INSTRUMENTS - you should place a hash symbol (shift 3) immediately before and immediately after the phrase.

The CALL KEY() bug rears its head when you use key-units 1 and 2, and press X or M respectively. Both keys are supposed to return a value of zero when pressed, and if you use CALL KEY(n, K, S) where n is 1 or 2 and press X or M accordingly, the variable K will contain what looks like zero when you PRINT K. However, if you PRINT K=0, the computer will respond with the value for FALSE (0), meaning that the value is NOT zero. Using PRINT EXP(LOG(K)) reveals that this time the computer thinks that it is 400! STEPHEN SHAW suggested that testing for (K+1)=1 would be acceptable, and recently SIMON PRYCE has contacted me with another, slightly faster solution, namely K < 1. Simon noted that the problem did not occur in Extended BASIC, so it appears to be specific to TI BASIC. If anyone has NOT experienced any difficulty over this with their machine, perhaps they would like to contact us so that we can find out something about the year of issue, or date of manufacture, or whatever, to try and identify the exact problem.

As usual I find myself running out of space, with lots still to be said and no room in which to say it. There have been some requests for a continuation of the BEGINNERS' BASIC series, and I will try to sort something out. Good programming!

is one by DAVE HEWITT of Hoddesdon and concerns the conversion to allow the 4A to be connected directly to the modulators on video recorders and on the newer TVs.

For some time we have been wondering about the possibility of connecting a TI-99/4A directly to our home video recorder, or for that matter directly to a TV monitor (i.e. RGB + composite video).

You may have noticed that many new domestic TV sets now come equipped with sockets at the back to accept direct sound and video inputs, and in other models such as the THORN TX10 chassis range (not the TX9 or 90 range however) a kit to adapt them is available from the manufacturer's Spares department.

We looked at the video modulator circuits for other home computers and at a MULLARD circuit for converting the type of signal produced by the 99/4A (i.e. R-y, B-y, + composite video. We understand that this somewhat odd arrangement for outputting video from a computer is a hang-over from the machine's beginnings as an NTSC model, or so an item in TIHOME's Tidings suggested).

While contemplating the problem of making a unit which would encode this signal, we wondered how Texas had overcome the difficulty. If you think about it (we would be embarrassed to tell you how long it was before the penny dropped!) something of the sort has to go on inside the UHF modulator (that little box which goes between computer console and TV).

In fact, several stages of conversion and mixing (matrixing) go on inside this unit. The colour information is added to the black and white (or, if you like, the composite video has the chrominance information encoded on it) plus the sync-pulses (to tell the TV where to start scanning and when to stop etc.). There is also one other vital signal which is added right at the end, and that is on a separate sub-carrier of 6 Mc's and this is the audio or sound signal.

When all this information has been processed and received some amplification it is finally passed on to the UHF modulator itself. An Ultra High Frequency modulator is the part of the circuit which takes the mentioned signal package and converts it into the sort of output that your UHF TV aerial input socket is looking for. (We could go on about modulation for a lot longer, but it is already getting out of hand!).

To cut a long story short, what you need to do is to disconnect the modulator from the console and the TV and remove the three screws which hold the top cover on.

The part of the circuitry which we want to get at is the input into the UHF modulator from the processing circuits which precede it. This signal is at just the right level and impedance to feed into the already-mentioned video input circuit on a TV set or into the camera or auxiliary socket which is provided on most video recorders. We have found that the audio circuit can be directly coupled to the audio input, but the video circuit needs coupling through a 47 uF condenser (in practise any condenser we tried between 10 uF and 1000 uF worked fine.). With the modulator unit turned so that the lead to the computer is coming out of the bottom, observe this lead as it enters the box, and you will find that its inner cables divide 6 ways (including the outer screen which has been made tidy by wrapping in a bit of thick yellow sleeving). The audio signal is carried by the thin yellow wire which goes to the bottom right hand side of the printed circuit board.

Cut this wire and fit a suitable piece of sleeving over it (to insulate the connection again when you have finished). Join a fresh length of suitable audio single screened wire to the junction of these wires, the inner cable being joined now to the yellow audio lead. Fold back the outer screened wire of the new cable, fit some sleeving over this and solder the end on to a convenient point on the metal case of the box (the silver-coloured screening can of the modulator is ideal for the purpose). Fit the correct type of plug on the other end of the new cable to fit the audio input of your TV or video. This lead may be used on its own for taking the output of the computer's sound circuits to your stereo system, to give a better response than the speaker on your TV might offer.

If you wanted to be really clever you could add a volume control at this point, but we will not go into that now.

Next locate the small 1 kilohm resistor which sits above and to the right of the modulator. Solder another inner cable from the left hand side of this resistor, again soldering the outer screening cable onto the modulator's screening can. Fix a suitable plug on the other end of this lead and fit into the video input socket of your video or TV.

Switch your video to the camera or aux. position and you can observe the output from your computer via the channel which you would normally use for playing video recordings.

This now allows you to make video recordings of your favourite video games, and to have 'action replays'.

Just think of that high score in your Alien-Mothers-in-Law program which nobody would believe - well, now you can prove it!

In general we have found that the quality from the more sophisticated modulator in your video is higher than that obtained from the unit supplied with the micro. We use this direct-input facility to record professional titles on our home video recordings, to do simple graphic headings, and even record some of the visually-pleasing patterns produced by the Designs program given in an edition of Tidings by Pete Brooks.

If you connect the inputs directly into the sockets on the back of a domestic TV the gain in picture definition and stability is quite marked, and frees you from that annoying tuner drift which often occurs as modulators and tuners warm up.

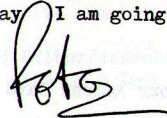
All that remains is to drill two holes in the modulator unit's casing, large enough to accept the two new cables with protecting grommets. If preferred, one could fit suitable chassis sockets on the lid or case of the TI modulator so that the unit can be unplugged from the new leads, or maybe a line socket could be used on a short lead, but both of course should use proper co-ax screened cable.

We have attached 12 feet of lead on both outputs and have not encountered any undue 'pick-up'. The UHF output from the TI modulator is not disturbed and may be used at the same time without affecting either cable.

oooooooooooooooooooooooooooooooooooo

I have set up the Oxford group - OXON TI USERS - and the first newsletter will hopefully be ready to go out by the end of March. We cannot hold meetings as we are too thinly spread, so I am producing a monthly newsletter (A4 stencilled) at my own expense initially I have provisionally entitled "TI-LINES", although I am asking members to contribute by providing second-class postage. I have worked out that I can send up to 10 A4 sheets for that price, and the production costs will be minimal: free use of the Gestetner stencilling machine, free stencils, and I already have 1000 sheets of paper which should keep us going for a few months until I can sort something more permanent out. One special feature of our group is that it will be catering for blind/partially-sighted TI users, in that I will be reading the newsletter onto cassette. All I ask such users is (a) for a few special 'free post' labels to cover the cost of mailing the cassette, and (b) the cassette. We have one such member, who uses the TELL and Speech Synthesiser to list his programs and to provide prompts during their running, and if there is sufficient demand I would consider providing that form of newsletter free to any blind/partially-sighted TI users in the UK. Those outside Oxfordshire who would like a copy of the newsletter will have to pay a little extra to subsidise me, but I doubt if there would be many anyway. I am going to put a circular out to all the computer mags and see what happens.

Regards to all.



© Peter Brooks  
Oxon TI Users

# howard greenberg

1

A lot to write, some new purchases, some new items from Arcade Hardware (which go under the paid for advertisements section), and of course my self opinionated views. They have to be self opinionated, I don't know how anything might affect you.

Some comments on the last edition of *TIXMES*. Issue 3 was the largest to date, it's getting larger and better. Some nice touches, some criticism, and something for everyone. Good too, to see Peter Brooks back in print. I wish him success with his book. By the time you read this I may have a copy. A message to Peter and anyone else who uses a mechanical typewriter without the number 1. Use the lower case letter L. The last edition brought some mail and phone calls. I hope I've been of some help to those people who took the trouble to get in touch. If you've written and not received a reply, write and tell me off!

## Mini-Memory

Of all Texas Instruments's modules, this is probably the hardest one to get to grips with. The main reason is due to Texas Instruments's comprehensive but incomprehensible manuals. In the last edition, I criticised Ms. Patricia Swift, and praised Mr. Peter Lottrup (also of 99'er but not on their staff) for the same reason. The method by which they chose to educate us about the Mini-Memory. Mr. Lottrup assumes the reader has taken the module out of its box and has waded into the manual to have his eyes glazed. Ms. Swift on the other hand, assumes the reader knows a little, and starts off at day four. The snag with assembly language is that if you don't start at day one then day four will never arrive!

I have to assume you read 99'er because I can't repeat verbatim what has been written there due to copyright problems. If you don't have the relevant issues, I suggest you get them. As far as these writings are concerned they are: April, October and November. (All 1983).

In the October edition, Mr. Lottrup stepped in to enlighten the world as to how use the line by line assembler supplied with the Mini-Memory. Until my reading that article, I'd been hit by a barrage of error tones every time I'd tried to use the thing. Since then, I've been able to enter a couple of listings in assembly language and make them work! I don't pretend to understand entirely what I'm doing, I've still a very long way to go, but it is a start.

The first program has to be the simplest one it's possible to do. Just 12 characters in the middle of the screen displaying those immortal words; 'PROGRAM TEST'. Definitely not earth shattering, but I was filled with pride at having successfully entered, and run an assembly language program. Getting a little bolder, I started changing the Text, increasing it, decreasing it and changing the position where it started. I finally came unstuck when I tried to enter a screen full of text. I don't know why, but I aim to find out.

A clever and necessary part of the Mini-Memory is it's battery back up. It's handy for short programs, but that isn't it's real purpose. Although the assembly language programs are entered from the line by line assembler, they don't have to be run from there. They can be run from Easy Bug or even Basic. (More on that in a bit). But the only way to go from the line by line assembler to Basic or Easy Bug is to QUIT first. If there was no battery back up, then everything in the Mini-Memory would disappear when the QUIT was performed. The problem with this is that whatever is in the Mini-Memory stays there anyway. If you have a bugged program, trying to get rid of it by switching off won't help. I really can't recommend this option, much better to use CALL INIT. That gets rid of everything. Bugs, programs and the line by line assembler. It doesn't get rid of Mothers in law, dirty washing or the Gas Bill! So now you've rid yourself of the Mini-Memory's contents, you then have to re-load the line by

Howard writes again!

2

line assembler. This is fine, once or twice, but after the sixth or seventh occasion, the novelty starts to wear thin. Doubtless, there is some sage muttering phrases about patience and virtue, but virtue starts to lose it's attraction when you're two hours debugging the same line over and over.

Onto the second program. This was published in the April edition of 99'er by the aforementioned Ms. Swift. It's to do with sprites. Now as we all know, Sprites are those wonderful things that you can buy for around the £50 mark together with something called Extended Basic. Sprites are defined as "smoothly moving graphics". I couldn't have put it better myself. Now most peoples reason for buying Extended Basic is to be able to use these wonderful things. But they are available in the version of Basic that comes with the Mini-Memory. Not as straightforward calls. Oh no!! To get at them, you have to delve deeper into the pleasures of bloodshot eyes and the wife asking if you plan to come to bed tonight or if she should take the kids back to your in laws. Sprites can be achieved in Mini-Memory Basic. The way to do this is as follows. (This next bit is very tongue in cheek). Write to PCN and get the back issues containing the writings of one Mr. Stephen Shaw on the subject. (Facetiousness is my strong point!). The alternative method of using sprites with the Mini-Memory is to take the hard option. Via assembly language. The program in 99'er was just a demonstration, and a fairly simple one, consisting of five sprites stationary at the left column of the screen. They then shot to the centre of the screen and went stationary for a second. Then they moved to the right column on the screen where they again became stationary, before repeating the whole process. Like PROGRAM TEST this wasn't the ultimate in machine code programming, but it's proved to me that I can enter assembly language, and that the aura of mystery surrounding it isn't impenetrable. I haven't tried to alter this program yet. I shall do though as trial and error is one of the routes to success in assembly language programming. Something else that would help would be knowing what I'm doing!!

Consider that I've been sitting around with that Sprite program for more than six months now, but didn't enter it because I didn't know how until Peter Lottrup explained the peculiarities of entering assembly language. It goes to prove a point I constantly make. There is no such thing as a bad student, only a bad teacher. To know your subject alone is simply not enough, it's the ability to pass on that information in a manner that people can understand, that makes a good teacher.

When a program is in assembly language, it's supposed to be able to be accessed through one of three means with the Mini-Memory. That is if the program has a name, and if that name has been entered in the REFIDF table. If it doesn't have a name, then it can only be got at via Easy Bug. With the program in memory, QUIT, select 2 for Easy Bug and then press any key to get out of EB's menu. Then type in Exxxx, xxxx is the starting address for the program. If a program has a name defined, then two further options are open to you. You can either select the Mini-Memory option, and then select the run option from that menu. Then type in the name of the program. Or you can use Basic. This gives a two further options, Immediate mode and program mode. In Immediate mode, type in CALL LINK("program name") or the CALL LINK can itself be part of a program. Instead of going to the Mini-Memory option as specified by the manual, go to Basic instead and then try typing in CALL LINK("LINES") after loading the lbla into the Mini-Memory instead of using the Mini-Memory option for running lines. The previously enthused over Display Enhancement Package from Stainless Software works this way. The Display Enhancement Package requires the 32k memory expansion to be present, but that is because it's range of facilities is so great. The theory is that a smaller set of routines could be fitted into the Mini-Memory's 4k of ram and then be accessed by the user, who wouldn't have to know how the assembly language routines worked, only what they do. In the States, programming tools of this nature are already becoming available although they are expensive.

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Introduction To Assembly Language for the TI Home Computer by Ralph Molesworth

This is the definitive book for all those who are struggling with the lack of published material to assist in the understanding of the powerful TMS9900 assembly language. This book explains the essential concepts of assembly language, taking the beginner through several levels of complexity, to the point where it is possible to write simple programs at the TI99/4A's most efficient level.

A must for all Mini-Memory and Editor/Assembler owners. (The Editor/Assembler manual is recommended for use with this book, but is not essential). Price £18.50    16-95

If anyone is truly stuck with entering anything via the line by line assembler, drop me a line with your problem. If I can help I will, but don't send me your bugged programs. I'll stand as little chance as anyone else sorting those out. (Don't forget the s.a.e.)

**User friendliness.** Now in this case I'm not going on about that much vaunted phrase that springs to everyone's lips when they want to convince their audience that they know what they're talking about. In this case it's the users who are friendly. I've talked to a lot of people recently, and although I haven't met all of them (the telephone is a wonderful invention) I'm always impressed with how pleasant everyone is. It seems to be one of the pleasures of owning the TI9914A. I've written to other streets, towns, cities, countries and continents, I've nearly always received replies and those received have always been charming. The same cannot be said for owners of other machines. Many Apple owners keep their cards very close to the chest and become voluble at the thought of parting with them. Even for money. So a message to all users. Let's keep it that way. I am still receiving letters addressed to Dear Sir, or Dear M. Greenberg. Now if the Gas Board want to call me Sir, that's okay. With what I pay them, if they want to call me God, I wouldn't consider that unreasonable. But when fellow users start calling me sir, that's a different kettle of fish. My name is Howard. It may not roll of the tongue that easily, but it's the only forename I've got ! The computer business is renowned for the world and his wife being on first name terms, I don't see why we should be any different.

**New purchases.** It has taken the best part of two and a half years, but my system is now complete. My set up now comprises of : Console and colour TV. Peripheral Expansion Box, 32k RAM card (of my own construction), RS232 interface card (which includes a parallel port), a disc controller card and the most recent addition, a disc drive. It's the disc system that I'm going to write about.

Most of us know what discs and disc drives are, so I'm not going to explain their physical construction in detail. What is important is the method with which they are used. The simplest way to describe all this is to recount my own experiences from the moment my own disc drive arrived.

When Texas Instruments announced the cessation of manufacturing for their 9914A, I knew that the one thing that would be nigh impossible to make for myself, would be the disc controller. This was bought in and I waited for my finances to accumulate. At the beginning of January, I ordered my drive from PARCO and waited whilst Securicor spent two weeks fulfilling their next day delivery. In the meantime I read and re-read the controller's manual. Eventually, the drive arrived together with a TI-WRITER, which I'd ordered at the same time. With a brief "sorry for the delay mate" the driver rushed off to deliver another long overdue parcel, and I dashed in to set the drive up.

**Setting up.** The manual for both the controller and the drive give very explicit instructions on how to do this. It's fairly simple, if the manual is followed to the letter, but it could be done without the manual, it's that straightforward. Incidentally, there is no need to purchase a TI drive. In fact there is no such thing, as all the drives supplied for the TI computer are made by someone else. A letter from TI informed me that suppliers include MPI (which is what mine is), Shugart and others. I have seen an internal drive for another machine which was identical in every respect to mine, but as I couldn't try it out, I can't comment on it. I do know for certain that the TEAC55a works and that the previous design of Cumana doesn't. Most tandy drives will work, but don't buy one, they are much too dear.

The next step of course was to switch on and make it blow up in my face.

Turn on, no smoke, no bangs. It worked, and it worked right first time. Hearing and reading so much about how discs and drives are such delicate pieces of equipment, I was rather nervous about doing this. I promptly proved that some of those warnings are true by accidentally putting my thumb on the first disc I pulled out of its envelope. I lost a fair amount of space on that disc by doing that ! I'm now much more careful. Before a disc can be used, it has to be formatted to comply with your system. This is done via the disc manager. This module formats or initialises the disc, as well as giving it a name. It can also give a list of what is on the disc, in case you can't remember what is on what disc. The screen instructions are simple enough for a moron to follow, (I know that because I have it on good authority that I come under that category) So you should have no trouble. The next step was to use a disc. I have a fair number of tapes lying around, and they were starting to make the place seem cluttered. It was sensible and practical to put all of them on disc. Loading the tapes in via cassette took their usual time, but then saving them via disc took seconds ! Also I could now name the programs. This was useful when loading them back from disc. For example, Christine Computing's CORE program was loaded in. Once in, it was then to be saved to disc. The command is similar to cassettes so no problems learning a new set of jargon. Just SAVE DSK1.CORE and enter. There is an odd aspect to this. It takes about 5 seconds to load a 16k program, but it still takes the computer 15 seconds to go through its pre-scan.

There is far more to using discs than just speed. For me at least, speed is not enough to justify the expense of installing the set up. It's real blessing comes with its random search facility. Big deal you might say, and you'd be right. It's the random search facility of the disc that makes it clever. To illustrate the point, I'm going to do a comparison with the Personal Record Keeping Module. Since many of you have the Personal Record Keeping Module (and those that don't ought to get it) I'll not waste words describing its functions in great detail. The Personal Record Keeping Module is a filing system. You can access a page, or compare every record on all (or selected) pages. But in order to do this, you have to load the entire file into the console. This in turn is why the Personal Record Keeping Module limits you to how much you can enter. It can store only so much information and then the file is full. But with the equivalent program on disc, using the random search facility, only the requested item is loaded and only that. In theory at least, you could have an unlimited number of records, because they are all kept on the disc, not taking up space in the computers memory.

There is more to the disc system than what's written above. Many of Texas Instruments's software packages require the disc system in order to work. Programs such as Editor Assembler, Multiplan and TI-WRITER could only be implemented on disc. Since my next review is about TI-WRITER, lets move on there and see why the disc is necessary, if not essential.

### TI-WRITER

It's difficult to know where to begin with this review. Stand up the boy who said "Please sir, why not start at the beginning." But lets start with documentation. Unlike the aforementioned Mini Memory and Editor Assembler manuals (Comprehensive but incomprehensible) the TI-WRITER manual is written in English. I could read them with no double takes and virtually all my problems with the package could have been sorted out easily and simply. The only reason I didn't use the manual for all my troubles is because I have a telephone. (You can make of that what you will !) Also supplied is a module which goes ... Well you know where modules go, and a disc. The disc is what contains the controlling software. The text editor which is what you write with, set up tabs with and generally do all the tricks you do with a typewriter. The text formatter is what does the clever part, such as the right margin justification. Text Editor. This is what I'm writing with now. With it I've set tabs,

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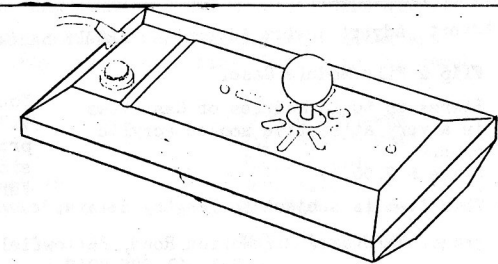
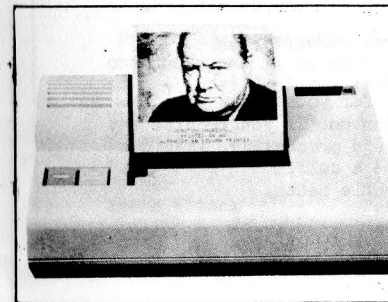
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indentation, and the usual boring things. But it has a great deal more to it than just allowing you to type as though you were using a typewriter, with the option to correct your spelling mistakes before you start printing. For example, whilst writing this, I have used a form of shorthand. Instead of typing in long and often used phrases such as assembly language I simply type in al. Then when the document is complete, I select the REPLACE STRING option. In Replace string, you're asked to enter the old string and the new string. So type in l(assembly language) and either every or any occurrence of assembly language to assembly language. I managed to come unstuck with that. It's very easy to imagine the machine is intelligent. It isn't. When I told it to replace al with assembly language, it did so all right, but it replaced every occurrence of al. Words such as normal and allow were transformed to normassembly language and assembly languagellow. My own fault, what I should have done was to replace l al l not lall. Practice makes perfect and the TI-WRITER makes for better and quicker typing.

Other tricks can be done such as :

Copy lines  
Copy lines

One line or a whole paragraph can be moved to a different location. But one of the handiest facilities is the .TL command. This stands for transliterate and it transliterates any ASCII code to another. For instance, there is no £ symbol on your keyboard. But I typed one. What I really did was to type a hash symbol (Shift and 3 on your keyboard.) My printer knows that the £ symbol is at ASCII code no. 129 and my computer knows that the hash symbol is at ASCII code 35. So by transliterating 35 to 129, I can now make my computer print symbols not on the keyboard. I only need to define these once too. I find that putting in all the commands at the beginning of a document and then printing it out through the text formatter is the simplest route to go. The .TL command does other tricks too. By setting little used characters to act as control codes for the printer I can print a variety of different fonts with the minimum of fuss.

It also does something else clever.

Last time I spoke to Clive, he asked me if, next time I write, I could put a heading to my drivel (my words not his) Now you'll notice that at the top of this I've written the somewhat pretentious Howard writes again, and there is a page number. All I did was to type 'Howard writes again' once. That was then set up as a Header command together with a % symbol which tells the computer to number the pages consecutively. It is also possible to put in a FFooter command to do the same trick at the bottom of the page. And the machine always knows where the top and bottom are, regardless of how the text changes. Expanded letters, (which take up more space), present no problem, the line spacing can be increased or decreased, but the computer always knows exactly whereabouts on the page it is.

There is more still. For instance I've set up a mailing list for all the Arcade Hardware customers. They will now receive information on a regular basis, of those products I buy in from the States. If you want to know what's available and what's new, drop me a line and from time to time you'll get a letter informing you of current products.) If you don't want to be on the mailing list again let me know and your name will be removed from the file. What happens with a mail list, is that a single letter is written, but a hundred (or even a thousand) names and addresses are set up. This is truly where the random search of disc is so helpful. The one letter is loaded and then the computer asks if you wish to use the mail list option. Usually of course you say no, but now I am sending out mail lists it comes in handy. If you say (Yes) to the mail list it asks for the name of the list (you might keep more than one list, one batch of customers might have only Texas Instruments machines where another list might contain only Commodore owners. Once there it will write the

letter, searching for the characteristics which make each letter individual. THIS IS A HOME COMPUTER !!!!!

Even now, I haven't listed all the TI-WRITER's features, but so as not to give it full marks it does have two and a half things against it.

1 I don't like the way the printer wastes a sheet of paper when it starts printing. Nor do I like the way it advances a couple of line feeds before it starts to print. I can live with it but I'd sooner live without it. It's not so bad on fanfold paper, but on single sheet, it's a real pain.

2 In certain circumstances the computer is too slow. I'm going to try to persuade my girlfriend Elaine to write her own views on this amazing product as she is competent touch typist, and uses professional word processing equipment in the course of her normal days work. What happens with the TI-Writer, is that you write in something called word wrap. When you reach the end of a line (on the screen), the computer then moves down to the next line automatically, taking the word you were typing when you reached the end of the line with it. For example, if I'd typed laundromat, but started typing lau when I was at the end of the line, the computer would take lau and put it on the next line so that the rest of the word would follow on the same line. Well you might say, that's wonderful, and it would be except that it's too slow. I don't regard myself a touch typist, or even a fast one, but as I keep typing as I reach the end of the line, the computer takes a fraction of time and misses a keystroke whilst it's wrapping. Of all the TI-Writer's faults, and there aren't many, this is the most serious, if only because nothing can be done about it. So now you know why despite this document being word processed, it isn't perfect.

The only other things I could condemn TI-Writer for are petty, and are brought about by the limitations of the TI99/4A rather than the quality of it's software. The control key, that's been redundant on my keyboard for as long as I've owned this machine has now sprung into life with a vengeance. Shades of Uncle Clive's horrible Spectrum come to mind, as I now have to cope with a virtually new set of keyboard functions. Not only are all the function keys given new functions, but the control key now gives them a second alternative function. With all these new functions and control keys it very easy when starting out with this package to hit the wrong key. Sometimes with potentially disastrous consequences. It's a not inconceivable problem to delete a whole page of text by accident, by pressing the wrong combinations of keys. Texas Instruments did something clever here with the inclusion of an Oops key. Whatever mistake has been made can be corrected by pressing the Oops key, provided no other key has been pressed first. It's simply a case of getting the hang of the thing, which I will do. It's good enough to deserve being used properly.

Would I recommend TI-WRITER. An unqualified yes. The niggles are petty and it's strong points far outweigh it's bad ones. Perhaps it's biggest disadvantage is cost. Not for the TI-WRITER. That costs £68.90 and is well worth it. No the problem is that you need a fully expanded system. !!!!

#### Stupid comments to fill the page !

1983 Brought about very few relevant changes in the home computer scene. So with not much that really matters, I'd like to look back from a cynics viewpoint. The most prominent feature was to us at least, the price reductions on the TI99/4A. This in turn led to many more owners. Further reductions led to more owners, with some of those who'd paid more, feeling somewhat annoyed. We were all then rewarded for our perseverance and brand loyalty, by Texas Instruments's withdrawal from the home computer scene. Texas Instruments were in deep trouble and abandoned the scene. Atari too were in financial hot water, but they brought out a new machine. There has been much bitterness surrounding the decision, but it's all pointless, because nothing can be done about it. Bureaucrats aren't going to reduce my rates bill because I don't like it anymore

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than Texas Instruments are going to start manufacturing TI99's again. You can't revive a corpse so don't bother trying. Letters in the press have been abundant. There has been more in the press in the four months since the machines demise, than there ever was in the four years whilst the machine was in production. In the Jan 24-30 edition of Home Computing Weekly was a letter from an owner, who had a far more eloquent turn of phrase than I. I'd like to repeat his letter in full, but it is the property of Home Computing Weekly, it's also too long. The relevant section is as follows. "I agree that perhaps Texas Instruments's marketing was inadequate and that the computing press in general has unfairly caned and ignored the machine. However maybe we owners are the lucky ones in that we know and appreciate the it's good points. I am certainly not apathetic and will continue to enthuse about my 9914A.

If the gentleman who wrote those words is reading this, perhaps you'd like to write in to TIXMES. Your comments and enthusiasm would be appreciated by us all

Another quote taken from the same edition of Home Computing Weekly and is perhaps one of the more honest statements from a member of the computing industry. At the risk of infringing copyright, I'm going to repeat this in full.

"We must search for meaningful applications of micro-processor technology in the home. We are in the entertainment business and we enhance peoples lives by offering opportunities for learning and self improvement. In fact, aside from word processing, there are few truly applications for home computers. Let's face it, you can balance your cheque book with a calculator and you can store your recipes in a box in the kitchen. We've got to make consumers say, "Gosh, I didn't know a computer could do that" and "I want one". What I am telling you is that it is not enough for manufacturers to merely offer more computer memory to consumers. Most consumers already have more power than they know what to do with already. And it is not enough for retailers to justify the sale of computers on price alone. In fact that is a disservice to consumers, because consumers should be made aware of what the computer can do for them. Who are we helping, if a consumer buys a computer and ends up using it as an electronic paperweight or doorstop? Maybe we can learn something from Detroit. In the old days, car buyers were also pre-occupied with horsepower or cubic inches. But nowadays, most people are interested in features and gas mileage. We've yet to get to that stage in our industry."

Those words were from Donald Kinsborough, Atari president of sales. Is that sour grapes from a man whose company don't enjoy the number 1 slot in the sales league? I don't think so. Mr. Kinsborough has cut to the core of the problem. Why did the Commodore 64 sell so well? Because it was a Commodore? No, because it has 64k and that's what Commodore promoted. The fact that the fabled 64k was never available to users was conveniently omitted. If marketing departments had the courage to follow Mr. Kinsborough's route, then far fewer computers would have been sold, but 99% of them would still be in use. On the other hand, that is the route Texas Instruments took, and look what happened to them.

My apologies to Ian Martin of Timeless Software. In my last round up I didn't include his wares in the list of software houses. I have now tried some of their software and I'm particularly impressed with Kippy nightmare. As reviewed in the last edition I can't add to that, but I can reinforce the 'must for all Mini Memory owners'. Since my opinion seems to be not only read, but digested too, some people may have felt that my exclusion of Timeless Software was a slight. Not the case.

We have three very competent programmers writing for TIXMES. Two of them

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at least have asked for suggestions in the 'What do you want me to write about next?' department. Well, if no-one else has any requests, I have. Will one of you please write the definitive article on cassette based file handling. To me at least, the manual is so much gibberish on this point. I know the difference between relative and sequential files and that 's about it. I don't even know how to use them! If I'm baffled, surely someone else is.

Congratulations to ROMOX. Who? Well, ROMOX are the second firm to make modules for the TI9914A. They've been doing it a while actually, and I'm selling some of their older modules. But I suspect that their module making has really been a wait while they develop the system they have in mind idea. What ROMOX have done is to give the benefit of cassette cheapness with the simplicity of cartridge loading. One day we may all buy our software this way. The idea of the ROMOX system is that, only one module is needed. This contains a blank ROM which is loaded at the point of sale. What is even better is that the cartridge can be re-used. If you tire of a game (as we all do), then just take it back to the retailers and they will be able to empty it and load another game or whatever program they have. There will be no need for a retailer to be out of stock. All they will need is one copy of each game. A brilliant idea, but of course we still need the games to ensure the system works. Viewers of Tomorrows world may have seen this idea on their programme in mid February. I can't imagine that there are two of these systems around so it was probably the Romox system we saw.

A couple of new publications. First is *Enthusiast 99*. This is a bi-monthly magazine written solely about our computer. It's run by the international users group, and the only way to get copies is to become a member of that group. It costs \$16 and for that your subscription is included. You also have access to a huge library of programs at very reasonable rates. What of the magazine. Well, the only copy I've had to date is a back issue (September) and it isn't fair to judge the magazine on that edition. I have seen a later edition and that was better still. It is good and I do recommend it. Two of the things I dislike about the now demised 99'er was the way in which they printed an article, so as to ensure you'd lost the thread of what you were reading by the time you'd flipped from page 7 (which was where your article started) to page 84 (which was it ended). In between, you'd read half a dozen articles on the Goto pages. *Enthusiast 99* prints everything in a logical order. If you start reading on page 7 then the article will either finish there or at the latest at page 10, with all the in between pages covering the subject you started to read. The other problem with 99'er was it's editor. Gary Kaplan seems with each edition to be more convinced of his own self importance. Glib phrases and meaningless paragraphs seemed to be the order of the day. At one point I was convinced he'd worked for NASA. They too, never use a word if a paragraph of not less than 12 sentences each containing words with no fewer than 4 syllables. Drivel such as "The popular press has been so vocal in discrediting the Home Computer Revolution that it has effectively created its own myth".????

Keep going, Mr. Kaplan. With such glib nonsense, and your new advertising rates, you should be able to run the revised Home Computer Magazine into the ground even faster than the year it took to destroy a perfectly good 99'er.

What's the other publication? *The Smart programmer* by Millers Graphics. It looks as though it was assembled by one man but don't let that put you off. He knows what he's talking about. 16 pages of grey A4 sheets stapled together may not sound like good value for money, but there is as much in my sample edition as in the last edition of 99'er. There aren't any pretty pictures, glossy paper or even decent print. (It looks as though it's been done on a electric typewriter). None of this detracts from the contents. It's not for absolute beginners. I'm a very poor programmer and I had trouble with parts of it, but I still found it readable although not that much use to the

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Howard writes again ! 9

non-programmer. I see this publication going mainly to people who want to use the knowledge contained in the magazine to enhance their own programs. I have ordered my own subscription, mainly because I live in hope that one day the contents of my cranium will stir. When that ultimately happens, the Smart programmer will come in very handy indeed. It's available from Timeless Software on a subscription basis only at £17.50 for 12 editions.

I'm going to go on about one of my favourite hobby horses here. I wrote a similar piece in the first edition of TIXNES, but many people don't have that, and I'm assured that since that first edition, there are a great many new readers. So I'll repeat my views as they're still relevant, maybe even more so with the influx of new members.

A popular question asked of me is "Why did you buy a home computer?". The stock answer is I don't know. Maybe to learn a little about computers, a little about programming, whatever. I'm still no good at programming. The day I write a 16k program will be the day the moon turns to green cheese. This deficiency doesn't prevent me using and enjoying my machine. I play games on it, I do word processing and calculations with Multiplan which are just too boring to be done by hand and brain. If you encounter the snobbish attitude that if you can't program then your computer is wasted on you, just ignore it. Your computer was bought to do things for you. To try to live with the machine is a mistake. The machine lives with you and fits into your lifestyle. Not the other way round. If all you want to do is to play games, then play them. Don't act secretive about it as though you were committing a sin. By all means, learn Basic, but if you find it hard going (as I do) then turn your attention elsewhere. The computer still has a great deal else to offer. I doubt if I'll ever master Basic (I get far more pleasure from struggling with Assembly language than Basic but that's probably the result of a warped brain) but my computer is still in daily use, and I enjoy 99% of the time I spend at it's keyboard.

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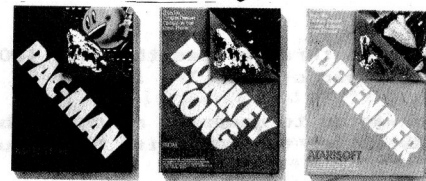
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## HINTS AND TIPS



## Helpful Hints:

by Ed York

Hint #1: DISPLAY AT, used in Extended BASIC, will use the colon, comma, and semi-colon just like a PRINT statement. This line will give you some idea of how it works:

```
100 DISPLAY AT(5,1):"THIS":"WILL","GIVE":"YOU","SOME":;:"IDEA OF
   :":"HOW":"IT"."WORKS."
```

See the reference manual under PRINT for details.

Hint #2: The Washington (D.C.) Users' Group pointed out that in Extended BASIC, you can use the statement RUN "CS1" instead of OLD CS1, and RUN to load and run a program (with a disk system RUN "DSK1.PROGRAM" is used and explained in the manual but RUN "CS1" is not mentioned).

Hint #3: As a way to save memory you can use a non-numeric character in place of numeric character. The difference is that a non-numeric character only uses 2 bytes where a numeric character uses 4 bytes. An example of non-numeric character would be an @ whereas an example of a numeric character would be a 1. The following example illustrates this point.

```
100 CALL CLEAR
110 @=1
120 FOR A=@ TO 100
130 PRINT A
140 NEXT @
```

If you have a long program where you need extra memory then you can obtain all that would be possible in this respect. Also if you need to save memory try shortening the variable names to a single letter with a maximum to two letters. Finally if you still need memory try removing all REM lines.

Hint #4: Have you ever wanted to round off numbers and did not know how to do it in a program? Well it is easy once you know the secret. Here's how! The following example will illustrate the process:

```
100 CALL CLEAR
110 A=123.4567891
120 PRINT A
130 A=INT(A*100+.5)/100
140 PRINT A
```

When this program is run you should get the following results.

```
123.4567891
123.46
```

If you want to round off to three places then use 1000 instead of 100 and for four places use 10000 instead of 100. Try it!

Hint #5: Have you ever wanted to generate random numbers say from -10 to 10? Well it is also an easy matter to accomplish once you know the secret. Here is an example:

```
100 CALL CLEAR
110 FOR A=1 TO 15
120 B=(-1)^(INT(11*RND))*INT(11*RND)
130 PRINT B;
140 NEXT A
```

When this is run here is a sample of what you might expect.

```
-4 6 0 5 3 -9 -1 4 9 -6 -5 -10 7 -2 0 10
```

All you have to do to specify the range of random numbers is to change the 11 to any number you desire. To change the number of numbers that are to be generated change the 15 to the amount you wish to be generated.

Hint #6: Are there times when you would like to print something on the screen without having it scroll on the screen? Well you can and it is easier than you think! Here is how that can be done without Extended Basic.

First you decide where you want to print the message. You will need the row and column coordinates. Second you will need the message or statement. Third you will need the subroutine to accomplish this task. Here is an example:

```
100 CALL CLEAR
110 R=12
120 C=2
130 A$="TEXAS INSTRUMENTS HOME COMPUTER"
140 GOSUB 160
150 GOTO 150
160 FOR A=1 TO LEN(A$)
170 B=ASC(SEG$(A$,A,1))
180 CALL HCHAR(R,C+A,B)
190 NEXT A
200 RETURN
```

This should clear the screen and print the message right in the middle of the screen. The subroutine can be used as many times as you wish. You may change the CALL HCHAR to a CALL VCHAR statement and change the value of R from 12 to and the value of C from 2 to 16. Try experimenting and you can make it print backwards and diagonally. Have fun!

## Alphabetic String Ed York

Here is a program which will take any string and print it in proper ASCII order. Remember that spaces are part of a string but commas can cause an input error! In order to avoid this you can read the strings from DATA statements.

```
100 CALL CLEAR
110 DIM A(96)
120 INPUT "ENTER YOUR MESSAGE BELOW: ";A$
130 A(0)=LEN(A$)
140 FOR B=1 TO A(0)
150 A(B)=ASC(SEG$(A$,B,1))
160 NEXT B
170 FOR C=1 TO A(0)-1
180 FOR D=C+1 TO A(0)
190 IF A(C)<=A(D) THEN 230
200 F=A(C)
210 A(C)=A(D)
220 A(D)=F
230 NEXT D
240 NEXT C
250 A$=""
260 FOR B=1 TO A(0)
270 A$=A$&CHR$(A(B))
280 NEXT B
290 PRINT
300 PRINT A$
310 FOR G=1 TO 1000
320 NEXT G
330 GOTO 100
```

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BEGIN TO PROGRAM

by Ian Godman

In this article I have outlined the development of a subroutine to simulate a DISPLAY AT function in TI BASIC.

Due to restriction of space I have included just some of the stages in development and trust that you will be able to fill in the omissions from the previous article.

**Task Definition**

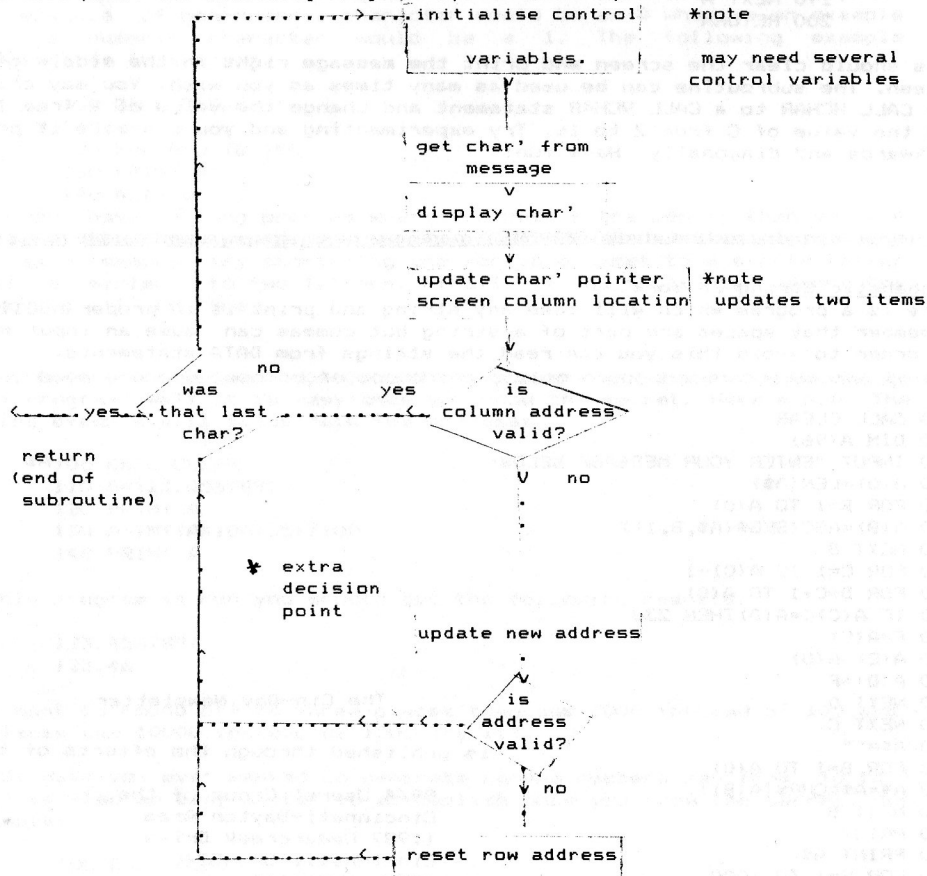
the object of the subroutine is to display the characters that go to make up a message upon the screen running from left to right starting at a given location.

**THINK.**

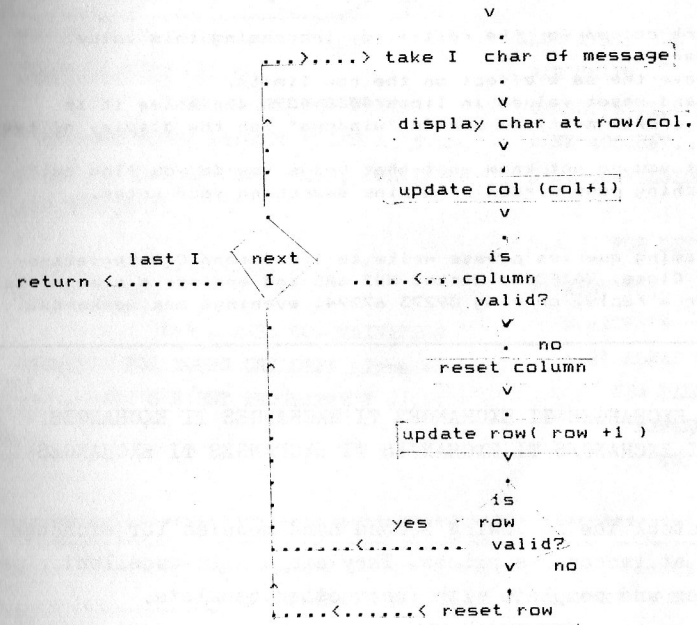
Consider the above definition, does it do all that we require? Should it not include the fact that the message is likely to be of a varying length? Further, consider what would happen if the message was more than one line long or did not start at the beginning of a line and was longer than the number of spaces left.

At this point the definition is rewritten with the above considerations and then the think processors is repeated. The processors of think, rewrite, think, rewrite ... is continued until at the think stage it is possible to say "I believe that I have covered all eventualities"

At this point the following Program Map was drawn up.



From the above Program map it can be seen that there is not a nice even and logical flow. The thought processors were invoked and the map was redrawn several times until the following more logical map was derived.



The above started out as a Program Map and has evolved as it has been rewritten into a Flow Chart. This is usually the case, a program evolves as it is written which is the main reason for not writing with the computer, as changes are simpler at the beginning and when an over view is available. From the above Flow Chart the following sub program was written.

```

Main Prog...set up.
300 ROW=row at which display to start
310 COL=column at which display to start
320 MSG$="your message"
|
| rest of your program
|
3990 STOP
4000 ROWA=ROW
4010 COLA=COL
4020 FOR I=1 TO LEN(MSG$)
4030 CALL HCHAR(ROWA,COLA,ASC(SEG$(MSG$,I,1)))
4040 COLA=COLA+1
4050 IF COLA<25 THEN 4100
4060 COLA=1
4070 ROWA=ROWA+1
4080 IF ROWA<25 THEN 4100
4090 ROWA=1
4100 NEXT I
4110 RETURN
    
```

NOTE.

Lines 4000,4010 are there to protect the value of ROW and COL so that if it is required to display another message at the same location it is not necessary to reassign their values.

Line 4050 tests for right hand edge, reducing this value will increase the right margin.

Line 4060 set the start column for the next line, increasing this value increases the right margin.

Lines 4080 and 4090 have the same effect on the row limits.

If you make the test and reset values in lines 4060-4090 variables it is possible with care to create multiple screen "windows" for the display of text.

Do not forget QGYH. If you do not know what that means how do you find out? Answer:- 3 hours searching your screen or 3 mins searching your notes.

If you have any programming queries please write to I.P.Godman C/O Christine Computing, 6 Florence Close, WATFORD, Herts. WD2 6AS and enclose a stamped self addressed envelope for a reply, or ring 09273 672941 evenings and weekends.

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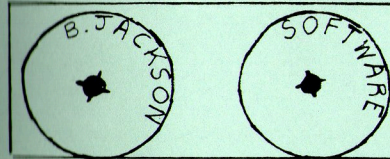
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