

TI*MES

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CONTENTS

Page No.	IFC	Editorial
		Editorial by Alan V Bailey.
1		Module Library by E.H.Shaw.
2		Life Program by John Stocks.
3		Publications Library by Bryan C Cloud.
8		Reminiscencies of an Enthusiast by Ross Bennet.
11		Console Only Corner by Peter Walker.
14		Messing About With The Gear by Jim Ballinger.
16		Robot Control by TISHUGs Ross Mudie & Mike Goddard.
19		High Resolution Graphics by Chicago Times Anne Dhein.
26		Spad Flight Adventure by Chicago Times Dave Wakeley.
30		Disk Library by Stephen Shaw.
31		Rambles by Stephen Shaw.
37		Module Review by Stephen Shaw.
38		Database Review by Stephen Shaw.
44		Customize Multiplan-TITBITS Feb.86, TI Users, Perth Aust.
46		Tips From Tigercub extracted by Stephen Shaw.
51		Neatlist Review by Orange County Jim Swedlow extract Stephen Shaw
53		Spad Flight Adventure by Chicago Times Dave Wakeley.
OBC		Alternative Micro Show.

EDITORIAL!

Well we have a new Editor, me! Christina Mehew has had to give up, temporarily we all hope, on her going to Italy with her husband in the course of his work. She takes with her our grateful thanks for her past efforts, & best wishes for the future for her & her family.

You will have seen that there are some coincidental changes, which were triggered by the need to balance the books. This magazine is our main expense, & we must reduce its cost if we are to not only remain solvent, but also be able to offer our members the other services which we hope to continue & expand. At a meeting of a finance sub-committee in Stockport it was decided to use a soft cover, & to investigate alternative means of reproduction & mailing. This present issue is an initial step.

In order to improve the regularity of publication, in spite of possible changes in production methods, we propose to fix the dates for my receiving contributions as the 1st. of December, March, June, & September. This allows a month for what has proved to be a rather slow production process, & cost reductions usually lead to longer not shorter delays. However, missing a deadline does not mean you should give up the idea of writing. Please still do, it will be nice & early for the next issue!

So you can decide what subjects are covered in your magazine, either & preferably by contributing articles, informative or inquisitory or both, see this issue, or by asking for articles or just information on subjects that interest you. Remember you can phone your nearest Committee member for an immediate reaction. It may take a little time to find a contributor to treat a particular subject thoroughly, but we will do so as soon as possible. Meanwhile why not stimulate discussion by a short article yourself?

While on the subject of contributions, it is of course best if they are in good black print & they should be on A4 sheets with a header space for the TI*MES logo & room at the foot for a page number. I do not have disk or printer, & we cannot afford to pay the printer for re-formatting, so we are limited to a few cut & paste operations. Since letters, other group's magazines, "For Sale"s, & some shorter fill-ins, have to be specially treated, longer pieces already laid out in A4 sized sections will take pride of place! As a matter of interest the A4 sheets are reduced to A5 before printing in paginated 4's on the two faces of a sideways A4. Pagination shows some of the characteristics of unrelocatable code!

This brings me to the subject of line spacing, & the message is clear. We have a choice between easy to read, well-spaced typescript & more information with single spacing. My own preference is for the latter, but I am shortsighted anyway. If you disagree, or indeed have any comments to make please let us know!

Finally, the future of this group is in your hands. The TI remains a powerful Home Computer, even in today's environment of high-speed Personal Computers for use where time is money. Older software is offered at very, very, low prices, & there are still dedicated programmers exploring the Galactic Rim of what is quite a large system. In addition new powerful hardware is becoming available, & while it is intended for sale to a generally wealthier US public, its existence augurs well for the continued existence of "old faithful". We want to help you to continue to learn about & enjoy your TI. Write & tell us how we can do so.

FOR SALE

PEB w. DS disk drive, M-P, TIW, PRK, PKW, TE, EdAss, etc. £175.
80col. colour card £90 RGB monitor & cable £145 0923 672497 everings
Console, cassette etc £50, Daisywheel & I/face £185, colour mon. & I/F £155
XB & Man. £30 0273 25967 day & answerphone
Console etc., J'sts., ExB, Thermopr'r + 6rolls paper, & many modus. 01-806-1901
PEB w. SS disk drive, RS232, 32K, mans. £150 XB + man. M-P, MM, EdAss, PRK, TE, HBM,
VideoChess, etc, etc. Reading 883860.

FOR SALE: ALPHACOM 42 PRINTER: Requires thermal paper - no source known! Plugs into right hand port of computer - no extra interface required. Contact Stephen Shaw with offers of £9.00 or above!

MODULE LIBRARY

The following modules are now available for loan/sale:

- | | | |
|------------------------------|--------------------------|---------------------------|
| *Addition&Subtraction(£2.50) | *Adventure(+Pirate)(£5) | *Aligator Mix(£2.50) |
| *Alpiner(£2.50) | | |
| *Alien Addition(£2.50) | *Amaz-ing(£2.50) | *Beginning Grammer(£2.50) |
| Bigfoot(£2.50) | Blackjack&Poker(£2.50) | Blasto(£2.50) |
| Buck Rodgers(£2.50) | Burgertime(£2.50) | Car Wars(£2.50) |
| Chisholm Trail(£2.50) | *Connect Four(£2.50) | Demonstration Mod.(£2.50) |
| *Donkey Kong(£2.50) | Driving Demon(£2.50) | *Early Learning(£2.50) |
| *Early Reading(£2.50) | *EXTENDED BASIC(£20) | Hangman(£2.50) |
| Henhouse(£2.50) | Hopper(£2.50) | *Household Budget Man(£3) |
| *Hunt the Wumpus(£2.50) | *Hustle(£2.50) | *Indoor Soccer(£2.50) |
| Jungle Hunt(£2.50) | Meteor Belt(£2.50) | Moon Patrol(£2.50) |
| Moonsweeper(£2.50) | *Multiplication 1(£2.50) | |
| *Munchman(£1) | *Music Maker(£8) | Number Magic(£2.50) |
| Othello(£2.50) | *Parsec(£2.50) | Personal Report Gen.(£5) |
| *Personal Record Keeping(£5) | Pole Position(£5) | Protector(£2.50) |
| Q Bert(£2.50) | Sewermania(£2.50) | *Shamus(£4) |
| Space Bandits(£2.50) | | |
| Star Trek(£2.50) | Super Demon Att(£2.50) | Terminal Emulator II(£8) |
| The Attack(£2.50) | *TI Invaders(£1) | TI Logo I(£8) |
| TI Logo II(£6) | Tombstone City(£2.50) | Tunnels of Doom(£2.50) |
| Video Chess(£5) | Video Games(£2.50) | Yahtzee(£2.50) |
| Zero Zap(£2.50) | | |

BORROWING MODULES FROM THE LIBRARY

Simply send in the price indicated on the list. The module is due for return after four weeks. Your deposit will then be returned to you less postage/packing at the rate of 40 pence per module. If the module you require is not listed or if you wish to sell some modules - then please ASK!

PURCHASING MODULES FROM THE LIBRARY

If the module that you have on loan has an asterix before it on the list then you may keep the module for the cost of the deposit which you have paid. There is no need to notify the library of this as it will be assumed that this is the case once the four week period has elapsed.

Application to loan/purchase modules.

Name:..... List modules required:
Address:.....
.....
.....
.....

I enclose cheque/PO for £..... (as indicated on the list)
Please make cheques payable to TIUG(UK).
The address to write to is:
MR. E.H. SHAW
CROW HOLT FARM
BASFORD
LEEK
STAFFS ST13 7DU

THE "LIFE" PROGRAM

BY JOHN STOCKS

My first introduction to this program was an article in the "Guardian" last January, and I was so intrigued that I sat up until after midnight putting it into Basic. It is a graphics game, devised by John Conway of Cambridge University in 1968, and was apparently quite well known in the early days of home computers. It is based on a grid of "cells", each of which can be "alive" or "dead", and the player initiates the game by specifying a colony of live cells. The program then takes over and proceeds according to the following rules: (1) a live cell dies unless two or three of the eight surrounding cells are also live (2) a dead cell becomes alive if exactly three of the surrounding cells are live (3) all births and deaths for a given configuration take place simultaneously. In other words, a death takes place if there are too few or too many neighbours and a birth for exactly three.

The most astonishing feature of the game is the sheer unpredictability of colony development. Consider simple straight-line colonies for example. A row of three cells cycles continuously between a horizontal and a vertical row. A row of six develops at first and then disappears after twelve generations. A row of seven reaches a "stable" state after seventeen generations and no further changes occur. (A square of four is a "stable" state for example, since no conditions exist for a birth or a death.)

Straight lines of greater lengths produce some astonishingly beautiful patterns and they nearly all reach a stable state ultimately. For continuous development an asymmetric colony must be specified, but even here a stable state is reached in a surprising number of cases. An even greater surprise is the frequent production of "birds" - groups of five cells which have the property of diagonal MOVEMENT! To demonstrate this phenomenon, draw yourself a 3x3 grid and fill in numbers 3,4,6,8 and 9, numbering from left to right and top to bottom, thereby forming a crude letter "J". If you now treat this as a colony and allow it to procreate according to the game rules, you will find that after four generations you have an identical J shifted diagonally by one grid unit. When running in a program, the "bird" shape appears to fly or swim across the screen, and one distorted-U shape that I have come across produces three of these creatures, all flying away from each other!

As can be imagined, the amount of examination work that the poor computer has to do, even for a colony of modest size, is quite prodigious. Each live cell in a given configuration must be investigated to see whether it will live or die, then each of the dead

cells in contact with any live cell must be examined to see if conditions are right for a birth. Basic is far too slow for any but the simplest of shapes so an Assembly Code program is essential, but even this becomes sluggish when a hundred or so live cells are involved. The version that I have been working on proved unusually difficult to debug. Probably taking a cue from the name of the program, several "virus-type" infections appeared, so that small faults which would not normally cause more than a minor hiccup made whole chunks of the program either disappear or else move bodily to another place in memory. I have two versions available, one for Minimemory alone which will handle up to 256 live cells and another for Minimemory Plus Expansion Memory, with virtually unlimited capacity. If anyone is interested, send a cassette to me at 11 STONEHILL ROAD, ROXWELL, CHELMSFORD CM1 4PF, and please let me know of any interesting discoveries!



THE PUBLICATIONS LIBRARY

The Publications Library as currently envisaged will take two forms. The first is as a Library of books available from the Group Publications Librarian, and will consist of books that are the property of the Group. Some contributors have elected to retain ownership of their books and in this instance will run their own Libraries, though under the same rules as the Group Library, and applications for loan of books will be made to these "Librarians" direct. My only responsibility here will be to publish book listings and names and addresses of their holders.

So to the TIUG UK Group Library Rules:

1. The use of the Library is restricted to the Members of the TI-99/4A Users Group United Kingdom only. The Committee does not envisage a relaxation of this Rule under ANY circumstances as a) it might be used by Unscrupulous Persons to obtain hard-to-come-by books and b) it may help to increase our membership, (hee hee).
2. Members wishing to avail themselves of the Library facility must place a deposit of £10.00 (ten pounds sterling) with the Group. This is to indemnify the Group or owner of the book(s) against loss and will be refunded should the Member wish to forfeit the use of the Library facility. Each £10.00 placed on deposit will cover the loan of one book at any one time, i.e., Members wishing to borrow two books in the same time period must deposit £20.00, three books £30.00 and so on.

3. The charge for each loan will be £1.00 (one pound sterling) per book per calender month or part thereof with a maximum loan period of three calender months per book for each application.
4. The period of the loan will calculated from the date of posting (as shown by the postmark) to the same date of the following month (or months in the case of a loan of more than one month), again as shown by the postmark.
5. Books will be shipped by the cheapest possible rate unless a faster and more expensive rate is requested by the loan applicant. Packaging will be paid for by the Group but loan applicants will reimburse the cost of postage in both directions.
6. Any member not returning a book or books within the applicable loan period will, after due consideration by the Committee, risk suspension of membership.

Members using the Library facility are requested to open packets carefully to allow their re-use in returning the book(s). Full details on how the system is to be run will be included with every shipment. Basically, this will involve re-using the original packing, noting the postage date to facilitate return within the loan period and including new stamps to the value of those used to ship the package with the return of the book(s). A return mailing label will be included with the shipment.

Any amendments to these rules and/or methods of operating the scheme will be published in TI*MES. Such amendments will, of course, only come into force in respect of applications made subsequent to their publication.

So, what do we have for you to loan? At present the Library Listing is in three parts, books available from me, those available from Stephen and those available from Edward.

LIBRARY LISTING - PART 1

The following books/publications are available from the Publications Librarian. Applications, together with the £10.00 deposit and cost of the loan period you require, should be made to:

Publications Librarian TIUG UK
(Name & Address to be advised.)

TITLE	AUTHOR	PUBLISHER	LIB.NO.
Software Development	Vincent/Gill	Texas Instruments	PL001
Editor/Assembler Manual	TI Staff Members	Texas Instruments	PL002
TI-99/4A Users Refer. Guide	TI Staff Members	Texas Instruments	PL003
TI-99/4A Read This First	TI Staff Members	Texas Instruments	PL004
Using & Programming the TI	Frederick Holtz	TAB	PL005
TI Favorite Progs. Explained	Donald S.Kreutner	QUE	PL006
Your First TI99/4A Program	Rodnay Zaks	SYBEX	PL007

TITLE	AUTHOR	PUBLISHER	LIB.NO.
Beginner's Basic	TI Staff Members	Texas Instruments	PL008
TI-Writer Word Proc. Manual	TI Staff Members	Texas Instruments	PL009
TI-Writer Tips & Tricks	Joyce Corker	Boston Compute.Soc.	PL010
Introduction to Assembly Language for the TI Home Comp.	Ralph Molesworth	Steve Davis Pub.	PL011
TI-99/4A Tech.Info.Manual	(Not known)	(TI?)	PL012
Programming BASIC with the TI	Herbert D.Peckham	McGraw-Hill Book	PL013
Get More from the TI99/4A	Garry Marshall	Granada	PL014
Mastering the TI-99	Peter Brooks	Micro Press	PL015
Getting Started with the Texas TI-99/4A	Stephen Shaw	Phoenix	PL016
Learning to Use the TI99/4A	Kevin Townsend	Gower	PL017
Games for your TI99/4A	Andrew Nelson	Virgin Books	PL018
The Orphan Chronicles	Ronald D.Albright	Millers Graphics	PL019
Smart Programming Guide for Sprites	Craig G.Miller	Millers Graphics	PL020
Entertainment Games in TI Basic and Extended Basic (includes cassette)	Khoa & Quyen Ton	SAMS	PL021
The Texas Program Book	Vince Apps	Phoenix	PL022
TI Module Instruct. Booklets:	TI Staff Members	Texas Instruments	
Physical Fitness Training			PL023
Personal Report Generator			PL024
Personal Record Keeping			PL025
VideoChess			PL026
Tombstone City			PL027
Important Product Info. for TI Extended Basic			PL028
TI-99/4 Extended Basic Reference Card			PL029
TI-99/4A Basic Refer.Card			PL030
Fundamentals of TI99/4A Assembly Language	Morley	TAB	PL031
The Best of 99'er Volume 1	(Various)	Em.Valley Pub.Co.	PL032

LIBRARY LISTING - PART 2

The following books/publications are available from the Disk Librarian, Stephen Shaw. The books are Stephen's property and applications for their loan should be made to Stephen direct at:

Stephen Shaw
 Disk Librarian TIUG UK
 10 Alstone Road
 Stockport
 Cheshire
 SK4 5AH

TITLE	AUTHOR	PUBLISHER	LIB.NO.
The Best Book of Multiplan	Alan Simpson	SAMS	
C Programming Guide 1st.Edit.	Purdam	QUE	
Common C Functions	Brand	QUE	

TITLE	AUTHOR	PUBLISHER	LIB.NO.
Programming in C	Traister	Prentice Hall	
Discover Forth	Hogan	McGraw Hill	
Starting Forth	Brodie	Forth Inc.	
Forth Techniques	Olney & Benson	PAN	
Forth Programming	Scanlon	SAMS	
Exploring Forth	Bishop	Granada	
LOGO Programming	Ross	Addison Wesley	
LOGO	Sparrowhawk	PAN	
Tim Hartnells Giant Book of Computer Games	Hartnell	Fontana	
Dynamic Games for your TI	Vincent	Interface	
COMPUTE!'s Beginners Guide to Assembly Lang. on the TI-99	Lottrup	COMPUTE!	
Brainteasers for Basic Computers	Lee	Shiva	
TI99/4A Basic Reference Man.	Casciato/Horsfall	SAMS	
The Tool Kit Series-TI99/4A Edition	Dusthimmer/Bucholz	SAMS	
Computer Programming in Basic	Bishop	Nelson	
Using Basic	Didday & Page	West	
NOTE THAT THE ABOVE IS A VALUABLE BOOK REQUIRING REGISTERED POST.			
TI Home Computer Assembly Language Primer	Dow	Dow	
The Best of Creative Comput- ing. Vol.3	(Various)	Creative Computing	
Orphan Survival Handbook	(Not known)	DOS	
TI Extended Basic Manual	TI Staff Members	Texas Instruments	
Texas Instruments TI-99/4A Information Package	TI Staff Members	Texas Instruments	
The Power of Multiplan	Williams	MIS	
TI99/4A Trivia Data Base	Hunter & Guntle	SAMS	
TI99/4A Basic Programs	Knight & LaBatt	SAMS	
TI99/4A: 51 Fun and Educat- ional Programs	Schechter	SAMS	
NOTE: The previous two SAMS books include a cassette.			
Programs for the TI Home Computer	Davis	Davis	
TI Terminal Emulator Protocol Manual	(Not known)	(Not known)	
Introduction to TI Basic	Inman, Zamora and Albrecht	Hayden	
A Shortcut thru Adventureland (Vol.2 : Infocom)	Lynn/Ashley/Sloan	Datamost	
Creating Arcade Games on the TI99/4A	Seth McEvoy	COMPUTE!	

LIBRARY LISTING - PART 3

The following books/publications are available from the Module Librarian, Edward H. Shaw. The books are Edward's property and applications for their loan should be made to Edward direct at:

Edward H. Shaw
 Module Librarian TIUG UK
 Crow Holt Farm
 Leek
 Staffs
 ST13 7DU

TITLE	AUTHOR	PUBLISHER	LIB.NO.
Using and Programming the TI	Holtz	TAB	
The Orphan Chronicles	Albright	Millers Graphics	
The Student Forth	Emery	(Not known)	
Mastering the TI99	Brooks	Micro Press	
TI LOGO (Module Manual)	TI Staff Members	Texas Instruments	
The Best of 99er Vol.1	(Various)	(Not known)	
TI-99/4A Console and Peripheral Expansion System Technical Data	(Not known)	(Not known)	

TI*MES Back Issues.

As Publications Librarian, I am also responsible for the sales of TI*MES Back Issues. These are available to TIUG UK members and non-members at the following rates:

Price per Issue: Members £2.00 (two pounds sterling)
 Non-Members £3.00 (three pounds sterling)

Postage must be added to the above charges, with the applicant choosing which of the following rates he/she wishes to be used:

UK Inland	2nd. Class Post	24p
	1st. Class Post	32p
Overseas	Surface	70p
	Airmail	£1.75

Back Issues currently available are as follows:

Numbers 4, 8, 9, 10, 11, 12, 13, 14, 16, 18 & 19.

Applications for any of these Issues should be made to the Publications Librarian at the address given previously in this article.

PLEASE NOTE THE AMENDMENT TO RULE 2 OF THE PUBLICATIONS LIBRARY RULES AS PUBLISHED IN ISSUE 21 OF TI*MES.

Bryan C.Cloud

ARTICLE FOR TI*MES MAGAZINE. From Ross Bennett.

The appeal for new contributors to this magazine is reiterated in every quarterly issue, and after reading every one perhaps the time has come to put finger to word processor and make a positive contribution.

That being so, what can I possibly have to say that has not already been said? After years of "messaging about" with the TI-99/4A I still cannot program in assembler, my use of TI-Writer and TI-Multiplan is primitive, Logo and C mean nothing, and I dislike playing games for more than five minutes at a time.

So what to say? Well, I can put a fair Basic program together, and by prudent acquisition and construction, an almost full system is in use, with dual discs, RS232, gram card, printer, minimem, and software in quantity, more than ever will be explored.

To start, a potted history seems in order. The first step was purchase in the factory clearout of a console, expansion box with 32k memory and Extended Basic. Another console and speech synthesizer were acquired for a friend, and why oh why did I not get myself a speech synthesizer? Maybe one day. A cassette recorder was eventually made to understand what was required of it, and the learning process commenced. A few cartridges were purchased or donated by a relative and Basic programming and games playing were the order of the day.

The first practical program was for stock control in my business, and the system was lost to the office. The staff were quick to point out that loading 19k of program and files of several thousand domestic appliance spares from tape was not the most efficient use of their time, and disc card and one disc drive had to be quickly acquired. The need for printouts gave me the spur to create, with considerable assistance, the RS232 card, with only one port, to which was connected a Brother EP44 portable typewriter. This also called for a power supply, batteries not being practical when used 8 hours a day, which was duly built including Ni-Cad backup to maintain the port default settings of the printer. This proved to be an excellent choice, the quality of print using carbon ribbons is exceptional, and drafts on thermal paper being durable and clear. Regretably though, this printer seems incapable of graphics printing, but for ninety nine pounds it has served well.

A program to calculate central heating losses for buildings was written to assist in another part of the business and proved to be a great cost and time saver. Any member who would like a copy please ask, but be warned, being an early effort it is rough but accurate.

The success of this setup meant that the equipment was given heavy use, and fears of the reliability especially the keyboard, led to the purchase via the local paper of a spare console. In the inevitable bits and pieces included was an issue of TI*MES! This was the first indication that there were others out there. The reliability problem never arose, everything still works as when it was new with just an occasional cleaning of cartridge ports and one simple repair to a BASF disc drive.

This drive had been used day after day with data files on some 20 odd discs when it failed to find track zero. (The outer-most, where the disc directory starts) Some horrible noises resulted as the head was driven off the disc edge, but fortunately no damage was caused, and with the aid

of the manufacturers manual and an R.S. optical switch a repair was quickly made. I am still puzzled why my second drive will not format discs.

Eventually business expansion and updating of office procedures meant that word processing and customer record keeping made the purchase of new computers viable and Amstrad PCW 8512s were installed for all office functions. The Texas system returned to home and interest in computing as a hobby was rekindled. The task of writing new programs in CPM and Mallard Basic for the PCWs involved learning other languages and the shortcomings of the Texas languages seemed less difficult than before.

Whilst writing programs a few useful routines became established. Here are a couple, they may have been seen before but here goes.

When developing a new program, put a line at the beginning somewhere like:-

```
10 SAVE DSKn."program name"
```

This prevents me from debugging and forgetting to resave the updated program as every time you run the program to test it out, it is resaved. Apologies to cassette users, as the time taken will drive you to distraction, or to get a disc system - much better.

To see what all the GOTO and GOSUB lines are for without wading through the listing, I start my programs with:-

```
10 GOTO 100
20 GOSUB 1000 :: REM start of instructions.
30 GOSUB 2000 :: REM start of graphics routine.
40 GOTO 3000 :: REM data statements for sounds.
50 GOSUB 4000 :: REM input from keyboard routine.
60 etc.
100 ***start of program***
```

Now, when you renumber with RES, all the GOSUB lines and REM statements are renumbered correctly, and you can still find the start of the subroutines.

What has been learnt over the last years? Having used other manufacturers products, the most outstanding observation is that your Texas computer, no matter whether just a console or full system, is almost certainly the best constructed item of consumer electronics in your home. The care shown in the electrical and mechanical design makes it very difficult to damage especially when trying "home brewed" modifications and additions.

Because the basic components have been widely used for some time in all sorts of equipment, and are not state of the art, any odd component failures can be fixed simply.

One of the products currently given market emphasis is the surge limiting plug or extension lead. We TI99 users already have one in the power socket on the rear of the PEB. Just take a cable from the output side of the PEB mains switch to feed your console and tape recorder and disc drive if externally powered. Be careful with mains wiring and don't overload by feeding a colour TV as well!

Tired of that noisy fan? Don't disconnect it especially if your PEB is well populated, either fit a new fan such as sold by R.S. or S.T.C. etc. or put a 1k Ω 15w resistor in series with the motor to quieten the

existing fan and still give sufficient air flow. Remember that this resistor will get hot. Mount it in the airstream, there are two spare holes in the motor bobbin under the winding through which to thread the leads and support the resistor. I have used a fully loaded expansion like this all day and had no problems in 3 years of use.

Spare development PCBs to fit the expansion mother board can be neatly cut from Vero D.I.P. 3 plane 233mm x 160mm board No. 10-1372 J (Bicc-Vero 41689x) using a double sided edge plug such as R.S. 468-709 to plug into the expansion mother-board socket. This is a very economical way to expand, this board being well screened and easy to hard wire. My gram card is built this way with 39 chips, 2 switches, and 4 regulators on one board with room to spare.

Future additions will include a modem and I look forward to going on line with other users. I hope to be able to find a modem and software which will allow the Mercury 'phone system to be used as this will reduce the cost of connections and errors due to the better line quality. If any member has any information on this please let me know.

At present, time allows little opportunity to experiment, but recently all service information and history for our company vehicles has been committed to file and is proving to be of great use.

Reading the articles and correspondence in TI*MES over the years, there seems to be three types of user, the hardware supporters, the software collectors, and the games players. We need more programmers in all languages including TI-Multiplan, and more new hardware innovations at sensible prices, especially DIY, to encourage users to stay with the TI-99/4A and to explore its hidden depths.

Many questions about how to connect our computer to the outside world still puzzle me, such as how to access the data bus directly to enable real time clocks and analogue or digital input/output etc. As a group we must be able to push forward and adapt our equipment, and in this way extend the interest of the members.

Hopefully time will allow me to write again, but what about everybody else out there? Come on, contribute to this magazine, maybe someone can answer my questions and pose a few more.

Anyone wishing to contact me, please do so. Letters to:-
20 OAK AVENUE, ROMILEY, STOCKPORT, SK6 4DN.
Telephone weekends 061 430 7298

Ross Bennett, TI99/4A enthusiast.

CONSOLE ONLY CORNER

by Peter Walker

For those with unexpanded systems

Many of you have written to say that you would like more articles for unexpanded owners. In an attempt to meet this need, I am writing this short piece and perhaps it will become a regular feature in TI*MES in future. Equally I hope that other authors will contribute too.

%%%%%%%%%

Many of you that own the Personal Record Keeping module or other early Texas programs on modules or cassette will recognise that TI had a distinct "House Style" for their software in terms of menu screen formats. Since programs that look good are much more pleasant to use, you could benefit from using a screen format similar to TI. I therefore give here two listings, one Basic and one Extended Basic, which provide a menu screen format similar to the "Texas Style". Typically, a blue surround is used, with characters in black on cyan, though a different surround could be used for different menus, and Red for an error message. In order to maintain maximum flexibility, I have put the variable text in DATA statements, but you may prefer to embed these in your own version for greater speed of screen building.

Here are the listings:

BASIC

```

100 CALL CLEAR
110 P$=CHR$(12)&CHR$(15)&"12
3456"
120 CALL CHAR(126,"00FFFF")
130 CALL SCREEN(5)
140 FOR I=1 TO 14
150 CALL COLOR(I,2,8)
160 NEXT I
170 CALL COLOR(15,5,5)
180 CALL VCHAR(1,31,159,96)
190 READ T$
200 T=(29-LEN(T$))/2
210 PRINT TAB(T);T$ :
220 PRINT "~~~~~
~~~~~"; :
230 PRINT " PRESS FOR": :
240 FOR I=1 TO 6
250 READ OPT$
260 PRINT TAB(4);CHR$(48+I);
" ";OPT$: :
270 NEXT I
280 PRINT " PROC'D TO NEXT S
CREEN": : " BACK TO PREVIOUS
S SCREEN": :

```

EXTENDED BASIC

```

100 CALL CLEAR :: P$=CHR$(12
)&CHR$(15)&"123456" :: CALL
CHAR(135,"00FFFF"):: CALL SC
REEN(5)
110 FOR I=0 TO 13 :: CALL CO
LOR(I,2,8):: NEXT I
120 CALL COLOR(14,5,5)
130 READ T$ :: T=(28-LEN(T$)
)/2
140 DISPLAY AT(2,T)ERASE ALL
:T$ :: CALL HCHAR(4,1,135,32
)
150 DISPLAY AT(7,1):"PRESS
FOR"
160 FOR I=1 TO 6
170 READ OPT$ :: DISPLAY AT(
2*I+7,3):CHR$(48+I);" ";O
PT$
180 NEXT I
190 DISPLAY AT(21,1)BEEP:"PR
OC'D TO NEXT SCREEN": : "BACK
TO PREVIOUS SCREEN"
200 CALL VCHAR(1,32,143,48)

```

```

290 CALL SOUND(150,1390,2)
300 CALL KEY(3,K,V)
310 IF V-1 THEN 300
320 ON POS(P$,CHR$(K),1)+1 G
OTO 330,360,380,400,400,400,
400,400,400
330 CALL SOUND(100,218,1)
340 GOTO 300
350 REM PROC'D ROUTINE
360 GOTO 290
370 REM BACK ROUTINE
380 GOTO 290
390 REM OPTION ROUTINES
400 GOTO 290
410 DATA YOUR MENU TITLE
420 DATA YOUR OPTION 1
430 DATA YOUR OPTION 2
440 DATA YOUR OPTION 3
450 DATA YOUR OPTION 4
460 DATA YOUR OPTION 5
470 DATA YOUR OPTION 6

210 CALL KEY(3,K,V):: IF V-1
THEN 210
220 ON POS(P$,CHR$(K),1)+1 G
OTO 230,240,250,260,260,260,
260,260,260,260
230 CALL SOUND(100,218,1)::
GOTO 210
240 DISPLAY AT(21,28):"P" ::
GOTO 190
250 DISPLAY AT(23,28):"B" ::
GOTO 190
260 DISPLAY AT(2*(K-48)+7,28
):"S" :: GOTO 190
270 DATA YOUR MENU TITLE
280 DATA YOUR OPTION 1
290 DATA YOUR OPTION 2
300 DATA YOUR OPTION 3
310 DATA YOUR OPTION 4
320 DATA YOUR OPTION 5
330 DATA YOUR OPTION 6

```

And this is what the screen looks like:

```

                YOUR MENU TITLE
                _____

PRESS   FOR

    1     YOUR OPTION 1
    2     YOUR OPTION 2
    3     YOUR OPTION 3
    4     YOUR OPTION 4
    5     YOUR OPTION 5
    6     YOUR OPTION 6

PROC'D TO NEXT SCREEN

BACK TO PREVIOUS SCREEN

```

Notes on the listings (line nos refer to Basic listing unless otherwise stated).

110 P\$ is later used in the POS statement, line 320. CHR\$(12) is "PROCEED" and CHR\$(15) is "BACK".

120 Redefine tilde (~) as line for screen.

130 Set screen Blue.

140-160 Set characters Black on Cyan.

180 Puts down blue edges to cover untidy edges during printing.

210-280 Print menu screen. The use of the function keys PROCEED and BACK are optional of course; another 2 numbered options could be used.

290 Accept tone

300-310 Loop until new key press. Note that line 310 uses a logical statement.

320 Branch on key press. The common method used for this is ON (K-48) GOTO ... but this requires the extra limit test statement eg IF (K<49)+(K>54).... The POS method of branching according to the contents of P\$ allows us to branch on PROCEED and BACK in the same statement. You can also use this POS method for branching on "Arrow Keys" E,S,D,X using a POS statement with the string "ESDX". Note that in a practical program the 6 branches to line 400 would be replaced by 6 different lines leading to the 6 routines of the menu.

330 Honk tone when wrong key pressed, ie one not in P\$.

200 (ExBas) The blue edges in ExBas are optional, I prefer not to use them but its a matter of taste.

240-260 (ExBas) These lines are not part of the routine, but merely assist the demonstration.

If you have the Triton/MG "Super Extended Basic" a number of refinements can be made:

110 The CALL COLORS function can be used.

210-220 The CALL KEYS with ON .. GOTO or CALL GOTO can be used instead.

230 Use CALL HONK.

You can also insert Line 115 CALL SCROFF and Line 205 CALL SCRON.

XXXXXXXXXX

Well I hope all you unexpanded users find the above useful. Please write to let me know what subjects you'd like to see in future "Console Only Corners".

Peter Walker

MESSING ABOUT WITH THE GEAR.

By Jim Ballinger

As a newcomer to computing, too long in the tooth to absorb the finer points involved I did not attempt to do any involved programming, content to 'customise and improve' the work done by better men.

I suspect that many are a bit shaken by the amount of information one is required to absorb in mastering the TI99/4a completely, and to them I can thoroughly recommend the delights and satisfaction to be found in 'messing about'.

When issue 12 was published I was interested in PAINT-A-MAZE by CRAIG MILLER, a seven line gem of a programme, and I added a score system to it. Then I purchased a Speech Synthesiser, and added speech.

I will never forget the effect on the family, as we sat in the living room talking to two of the family, one of the grandchildren who was playing with the gear in another room burst in wide eyed and tearfull shouting "the computer called me useless".

The result of messing about with this programme, a real gem I think, which never fails to interest visitors, is printed here as it was then and still is in my library.

Joystick and Exbas, and of course Speech Synthesiser if you want speech, are necessary. The painter can move diagonally if there is space, when you are trapped in press "FIRE". You will see that it is only a small job to type it in, but it is available via the library if required.

If you would be interested in further messed about programmes, I have Life Expectancy, Sir Prancelot and one or two others, including Chuck a luck from the 99er manual.

2022 note: Where you see a £ sign below, instead use the # key

```

5 CALL CLEAR
10 DISPLAY AT(6,2):"      HA
LL OF COLUMNS      _
_____
"
20 DISPLAY AT(9,2):" PAINT T
HE HALL COMPLETELY BUT YOU
MAY NOT GO ONTO A STRETCH
ALREADY PAINTED."
30 DISPLAY AT(14,2):" USE JO
YSTICKS TO MOVE THE PAINTE
R, & FIRE BUTTON TO CLEAR
THE SCREEN."
40 DISPLAY AT(23,2):" ANY KE
Y TO PLAY THE GAME."
80 CALL KEY(0,K,S):: IF S=0
THEN 80
100 CALL SCREEN(2):: CALL CL
EAR :: CALL CHAR(35,"FFFFFF
FFFFFFFF",42,"1C5C487F193C2
662"):: CALL COLOR(1,7,12,2,
6,6)
110 A$=" ££ £££ ££ £££
££ ££ £ £ ££
££ £ " ::
CALL HCHAR(24,1,35,64):: CAL
L VCHAR(1,31,35,96):: SC=469
120 CALL SPRITE(£1,42,2,177,
17):: DISPLAY AT(2,1): :A$&A
$:A$&A$:A$&A$:A$ :: Y=23 ::
X=3
130 CALL JOYST(1,C,R):: R=-S
GN(R):: C=SGN(C):: IF R OR C
THEN 150 ELSE CALL KEY(1,C,
R):: IF C=18 THEN GOSUB 170
140 R=(C>3 AND C<7)-(C=0 OR
C=15 OR C=14):: C=(C=2 OR C=
4 OR C=15)-(C=3 OR C=6 OR C=
14)

```

```

150 CALL GCHAR(Y+R,X+C,CH)::
IF CH>34 THEN 130
160 Y=Y+R :: X=X+C :: CALL S
OUND(-90,-2,4):: CALL LOCATE
(£1,Y*8-7,X*8-7):: CALL HCHA
R(Y,X,40):: SC=SC-1 :: GOTO
130
170 CALL SCREEN(12):: CALL C
HARSET :: CALL CLEAR :: DISP
LAY AT(12,2):"YOU MADE IT DO
WN TO ":SC
178 IF SC>300 THEN CALL SAY(
"UHOH £TRY AGAIN£+USE+LESS")
:: GOTO 100
180 IF SC>100 THEN CALL SAY(
"UHOH THAT+IS+NOT+GOOD"):: G
OTO 210
200 IF SC=0 THEN CALL SAY("W
ELL DONE YOU+DID+IT"):: GOTO
210
205 IF SC<100 THEN CALL SAY(
"£NICE TRY£+PARTNER")
210 CALL CLEAR :: CALL SAY("
WANT+TO+GO+AGAIN"):: CALL SA
Y("ENTER Y OR N")
220 ACCEPT AT(12,16)VALIDATE
("YyNn"):Z$
230 IF (Z$="Y")+(Z$="y")THEN
GOTO 100 ELSE RUN "DSK1.MEN
U"

```

PLEASE NOTE: SUBSTITUTE

FOR £



TISHUG NEWS DIGEST

LINKING EXT'D BASIC-ASSEMBLY

13 LINKING INIT. 13

WITH ROSS MUDIE.



CONTROLLING SIMPLE DEVICES WITH THE TI99/4A JOYSTICK.
By Ross Mudie of TISHUG, 25th September 1987.

A member of the BBS has asked if it is possible to control a simple robotic arm with the Joystick of the TI99/4A via the Cassette Motor control lines. The program which I developed runs in the Interrupt Service Routine in assembly under extended basic. This means that you can use the routine whilst another extended basic program is running or in the immediate mode.

The program uses both cassette motor controls, which are provided on the black consoles. On the beige consoles the printed circuit tracks exist, but the critical seven components were omitted by TI as a cost cutting measure in the later stages of production. These components are possibly easiest obtained from a junk TI99/4A mother board: Refer to the technical manual for the PCB overlay and sheet 3 of the schematic console diagram for details of physical component placement.

Remove components from the old mother board and place them in the appropriate positions in the mother board of the computer which is being upgraded to provide two motor controls.

Old mother board	Upgraded Mother board	Type	Component
Q401	Q403	TIS92	Transistor
Q402	Q404	TIS92	Transistor
R415	R416	220 ohm	Resistor
U401	U402	TIL119	Optocoupler
C403	C405	.001uF	Capacitor
C404	C406	.001uF	Capacitor
L400	L401	Ferrite	Choke

Many of the consoles were provided with cassette cords with two cables which provide access to both motor control circuits. If a suitable cable is not available then a 9 pin female D connector may be used with connections to pins 1 - 2 for CS1 control and 6 - 7 for CS2 control.

The extended basic program loads the assembly program in object form from disk and then links to place the start address of the joystick scan routine in the User Defined Interrupt Service Routine (ISR). Every 20 milliseconds the processor branches to the program in the ISR, scans the joystick & outputs to the Cassette motor control lines then goes back to the main program. In addition a display is given of UP, LEFT or RIGHT on the bottom right corner of the screen. It is possible to delete the screen display lines from the source file if display is not required or to display differently on another part of the screen.

The CS motor controls are: LEFT - CS1, RIGHT - CS2, UP - CS1 and CS2. For any other Joystick position CS1 and CS2 controls are off & the screen display is — .

From here on users are on their own as far as the hardware interface is concerned. If you are unable to figure out how to provide a suitable interface then ask around your regional group for someone with the necessary expertise. To test the outputs from the computer I suggest two circuits as shown on page 19 of the October 1986 TND which shows how to connect a Light Emitting Diode, resistor and battery.

The source file is included for those with Editor/Assembler whilst a version completely in extended basic CALL LOADs is provided for those who don't have the E/A but want to play around with the program. I suggest

that after loading and running that you then load an extended basic music program and be amazed as both run together without affecting each other. Remember that the assembly program requires a 32K memory expansion to be connected to the computer.

For further reading on the methods used for keyboard scan and control of the Cassette Motors refer to LINK-IT #7 on pages 19-21 of the October 1986 TND.

Just a word of caution, if you have the interrupt program running, don't use CALL INIT else the computer will lock up. If you want to execute CALL INIT then you must use CALL LINK("STOP") first. The joystick scan routine doesn't have to operate under an ISR, I just used the ISR because it made the program very versatile. To use the program as a directly linked routine just include the entry point name INTRTN in the DEF list.

Extended basic program.

```

100 ! SAVE DSK1.LOAD
110 CALL CLEAR
120 CALL INIT
130 CALL LOAD("DSK1.G")
140 CALL LINK("JSCS")
150 DISPLAY AT(6,1):"TRY JOYSTICK 1:  UP, LEFT & RIGHT
    THEN FCYN CLEAR AND TRY IN IMMEDIATE MODE"
160 DISPLAY AT(14,1):"If in immediate mode type": "CAL
    L LINK("&CHRS(34)&"STOP"&CHRS(34)&") before": "rerunni
    ng lines 120 to 140"
170 ! here insert RUN "DSK1.NEXTPROG" to go to another
    program with joystick control routine still running
180 GOTO 180
    
```

ASSEMBLY SOURCE FILE.

```

IDT 'JSCSMTR'      File names: Source=S
                   Object=O
DEF JSCS,STOP     Entry names
VMBW EQU >2024    Video Multiple Byte Write
UP DATA >80B5,>80B0,>8000  UP      Text messages
LEFT DATA >ACA5,>A6B4,>8C00  LEFT   with >60 added
RIGHT DATA >B2A9,>A7A8,>B400  RIGHT  for assembly to
BLANK DATA >8DBD,>8DBD,>8000  ———  display under x/b
WS BSS 32         Register Work Space
* CALL LINK("JSCS")      Turn ON Joystick control
JSCS LI R1,INTRTN      Address of interrupt program
    MOV R1,@>83C4      Put entry point in User ISR
    RT
* CALL LINK("STOP")     Turn OFF Joystick control
STOP CLR @>83C4        Turn off Interrupt program
    RT
INTRTN LWPI WS         Load register work space
    CLR R12            Set base value for CRU
    SBZ 18             Set up CRU for Joystick 1
    SBO 19
    SBO 20
    TB 7               Test for UP
    JEQ NEXT1         Jump if not UP
    SBO 22             Turn CS1 ON
    SBO 23             Turn CS2 ON
    LI R1,UP          Text to display
    JMP NEXT3         Go and do it
    
```

```

EXTENDED BASIC PROGRAM with Assembly in CALL LOADS.

NEXT1 TB 4          Test for LEFT
JEQ NEXT2          Jump if not LEFT
SBO 22             Turn CS1 ON
SBZ 23             Turn CS2 OFF
LI R1,LEFT        Text to display
JMP NEXT3         Go and do it

NEXT2 TB 5          Test for RIGHT
JEQ NEXT4          Jump if not RIGHT
SBO 22             Turn CS1 OFF
SBZ 23             Turn CS2 ON
LI R1,RIGHT       Text to display
JMP NEXT3         Go and do it

NEXT4 SBZ 22        Turn CS1 OFF
SBZ 23             Turn CS2 OFF
LI R1,BLANK        Text to display(---)

NEXT3 LI R0,760     Where to put text on screen
LI R2,5           Number of bytes in text
BLWP @VMBW        Write text to screen

LWPI >83E0        Reload GPL Work Space
RT               Return to extended basic

END

100 ! SAVE DSK1.LOAD1
110 CALL CLEAR
120 CALL INIT
130 CALL LOAD(16368,83,84,79,80,32,32,37,54)
140 CALL LOAD(16376,74,83,67,83,32,32,37,44)
150 CALL LOAD(8194,37,140,63,240)
160 CALL LOAD(9460,128,181,176,128,128,0,172,165,166,1
80,128,0,178,169,167,168,180,0,141,141,141,141)
170 CALL LOAD(9482,128,0)
180 CALL LOAD(9516,2,1,37,60,200,1,131,196,4,91)
190 CALL LOAD(9526,4,224,131,196,4,91,2,224,37,12,4,20
4,30,18,29,19,29,20,31,7,19,5)
200 CALL LOAD(9548,29,22,29,23,2,1,36,244,16,18,31,4,1
9,5,29,22,30,23,2,1,36,250)
210 CALL LOAD(9570,16,11,31,5,19,5,30,22,29,23,2,1,37,
0,16,4,30,22,30,23,2,1)
220 CALL LOAD(9592,37,6,2,0,2,248,2,2,0,5,4,32,32,36,2
,224,131,224,4,91,78,213)
230 CALL LINK("JSCS")
240 DISPLAY AT(6,1):"TRY JOYSTICK 1:
UP, LEFT & RIGHT; THEN FCN CLEAR AND TRY IN IMM
EDIATE MODE"
250 DISPLAY AT(14,1):"If in immediate mode type": "CA
LL LINK("&CHRS(34)&"STOP"&CHRS(34)&") before": "rerun
ning line 120"
260 ! here insert RUN "DSK1.NEXTPROG" to go to another
program with Joy Stick control routine still running
270 GOTO 270
    
```

ROBOT CONTROL

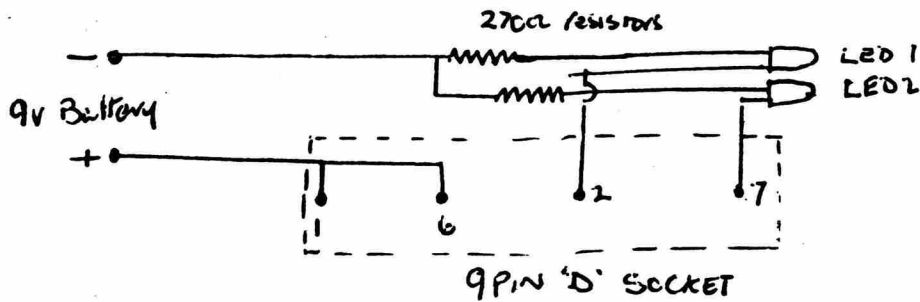
Mike Goddard 17:9:88

This program by Ross Mudie works extremely well although I've only tried the extended basic version there have been no problems at all .I Tested the circuit using two LED's in the circuit below .I've also written a short routine to utilise the "FIRE" button circuit for bump detection on a robot in this case it will apologise after it attacks your ankle !!, all that is necessary is to connect the fire button circuit of the joystick to a micro switch or similar arranged so that the circuit is made when the switch etc touches something and BINGO a polite robot. The robot I have in use consists of a "BIG TRACK" motor unit arranged so that the motors are switched on and off by the cassette motor ports.I hope to have the all singing all dancing version wrking at the Alternative Micro Show on 12th november .

This program lends itself to all kinds of other applications and I will offer a prize to whoever comes up with the most original and practical. Entries to me please and please include details of your system ie expanded or not . Hope to see all old and new friends at the show till then keep tapping!!!.

Mike

TIMES



```

10 !TALKER FOR USE WITH ROBOT PROGRAM : mike goddard 17:9:88
100 CALL CLEAR
110 R=1
120 CALL KEY(1,K,S)
130 IF S=0 THEN 120
140 R=R+1 :: IF R>3 THEN R=1
150 IF K=1 THEN 160
160 ON R GOTO 170,180,190
170 CALL SAY("I AM SORRY"):: GOTO 120
180 CALL SAY("UHOH"):: GOTO 120
190 CALL SAY("HELLO"):: GOTO 120

```

```

100 !SAVE DSK1.ROBOT1
110 CALL CLEAR
120 CALL INIT
130 CALL LOAD(16368,83,84,79,80,32,37,54)
140 CALL LOAD(16376,74,83,67,83,32,32,37,44)
150 CALL LOAD(8194,37,140,63,240)
160 CALL LOAD(9460,128,181,176,128,128,0,172,165,166,180,128,0,178,169,167,168,1
80,0,141,141,141,141)
170 CALL LOAD(9482,128,0)
180 CALL LOAD(9516,2,1,37,60,200,1,131,196,4,91)
190 CALL LOAD(9526,4,224,131,196,4,91,2,224,37,12,4,204,30,18,29,19,29,20,31,7,1
9,5)
200 CALL LOAD(9548,29,22,29,23,2,1,36,244,16,18,31,4,19,5,29,22,30,23,2,1,36,250
)
210 CALL LOAD(9570,16,11,31,5,19,5,30,22,29,23,2,1,37,0,16,4,30,22,30,23,2,1)
220 CALL LOAD(9592,37,6,2,0,2,248,2,2,0,5,4,32,32,36,2,224,131,224,4,91,78,213)
230 CALL LINK("JSCS")
240 DISPLAY AT(6,1):"TRY JOYSTICK 1:                UP,LEFT & RIGHT;THEN FCTN/CLE
AR AND TRY IN IMMEDIATE  MODE"
250 DISPLAY AT(14,1):"IF IN IMMEDIATE MODE TYPE": : "CALL LINK("&CHR$(34)&"STOP"&
CHR$(34)&")BEFORE ": : "RERUNNING LINE 120"
260 !HERE INSERT RUN"DSK1.PROG" TO GO TO ANOTHER PROGRAM WITH CONTROL STILL RUNN
ING
270 GOTO 270

```

PART 1  **HIGH RES GRAPHICS AND THE 99/4A** by Anne Dhein

1  Our Heritage 

Introduction

There was a time when TI-99/4A owners felt abandoned. In place of the promising machine that had been purchased with such high hopes they had been left with an orphan. These users lived with the knowledge that they had a superb graphics system at their finger-tips, but unless they were good programmers, no way to conveniently access the graphics. Commercial graphics software was just not available. Now, a few short years later things have changed drastically. We are left on the other side of the fence wondering in amazement how we are ever going to figure out which of all that great-sounding graphics software is really worth investing in. What, actually, can be expected of a drawing program? Is there one perfect program out there, waiting for me to discover it? Or will I need several programs to meet all my needs? These are the topics that will be explored in this series. Part one takes a look at what graphics programs do, and what's on the market. Then a definition of a good, basic drawing program can be given.

Part two will compare the main programs. Parts three and beyond will examine support and companion packages, including the newer programs which allow text and graphics to be intermingled. Finally, the various drawing packages and companions will be analyzed to see how they can be used together. With this knowledge you should be able to select the packages that best suit your needs, whether you have a particular application in mind or are just looking for a good general drawing program for the personal enrichment of yourself and your family.

Your Own Electronic Billboard

For graphics purposes, the 99/4A screen is simply a grid of blocks. Imagine a piece of graph paper and mentally mark off 32 little squares across the top row. Right underneath mark a second row of 32 blocks; then a third, and a fourth, until you have 24 rows, each with 32 squares marked off. Now you have a nice facimile of your TV or monitor screen as it is partitioned off in the standard graphics mode that we are most used to seeing. If you were to count all those marked-off squares, you would find you had 768 individual blocks (32X24=768). Each block is just the right size to hold one character that can be typed in from the keyboard. These are the normal, everyday letters, numbers and punctuation that you use all the time, but in computer terminology they are given a special name: "ASCII" characters. A programmer can effectively "erase" these ASCII characters and define a new pattern of his own choosing. This is done in Basic and Extended Basic with the Call Character subroutines. The programmer assigns each character block two colors (a foreground and a background) from the 16 colors that the TI computer has available.

In Extended Basic built-in sprites may be used as well. Sprites are character-sized graphics that have the capability of moving around the

screen independently of the background. They can be defined to any shape, then colored and magnified. Such things as location, speed and distance can be easily manipulated. (They can also be present in high resolution graphics, but in this case can no longer move.)

An assembly language programmer also has access to the multicolor mode. Here, the display is divided into 48 rows, each containing 64 "boxes", or blocks. The blocks are not able to be defined in the manner of the larger, pattern mode blocks, but each of the 3072 blocks can be a separate color, chosen from any of the 16 colors available. Sprites can also be used in multicolor mode, but not text. The multicolor mode cannot be used in Basic except with assembly language software that uses a special module such as the Editor/Assembler, Mini Memory or Extended Basic.

Text mode is familiar to us through the use of such cartridges as TI Writer and Multiplan. Each of these programs employs a display that is 24 lines long, but the character blocks have been increased to 40 across which gives us 960 screen positions instead of 768. Although sprites cannot be used and only two colors (foreground and background) are allowed at one time, the text mode can be used for graphics. Still, text mode is most suited for just that - text.

In all three of these modes - pattern, text and multicolor - each block is composed of a number of dots. In the multicolor mode each block is 16 dots; 4 dots high and 4 dots wide. In text mode the character blocks are 8 dots high by 6 dots wide - 48 dots in each character. Pattern mode, with only 32 blocks across the screen, consists of 64 dots for each block - 8 across and 8 high. This means that there can be 64 times 768 dots on the screen at one time in pattern mode - 49,152 in all. Text mode has 46,080 of these dots (48 X 960=46,080), and either way you look at it, that's a lot of dots! In computer jargon these dots are called "pixels" (for PICTURE ELEMENT) and are the smallest individual units on the screen. It is the 49,152 pixels from pattern mode that we are going to focus on, because in the high resolution (or "bit map") mode, each of these 49,152 pixels is able to be turned on and off individually. The whole idea of a drawing program is to let you do this quickly and easily.

With the high resolution in the bit map mode, the screen is considered to be a grid 192 pixels high and 256 pixels wide. That's still only 32 character blocks across and 24 blocks high, but now each pixel can be turned on or off (that is, drawn or erased) independently of any other pixel. For color the computer divides each pixel-row into 32 groups of 8 pixels. The computer can assign a background color and a foreground color to each 8-pixel group. This is what our electronic drawing board consists of in all the popular art packages we have today, and it is on these drawing programs that our interest will now focus.

In the Beginning...

When Texas Instruments first unveiled the TI-99/4 computer in June, 1979, there were only a handful of applications of any kind available - and all were in module format. One of these was Video Graphs which was billed as "an easy-to-use Graphics System which lets you draw in 14 colors on the screen with a whole new electronic paintbrush concept". This drawing can be done in high resolution with a single pixel line width; or in the multicolor mode by placing 16-pixel colored dots anywhere on the screen. The user could also command the computer to

create graphic images by using the Building Blocks section. Here, many graphic characters of various geometric shapes are located along the bottom of the screen. Select one, pick all or part of it up with the keyboard or joystick and place it where you want it in your picture.

Video Graph's demonstrations were impressive when the module was new, and although the bright, mosaic-like patterns may seem archaic by today's standards, the module actually contains the rudiments of the more sophisticated graphics systems we now have. High resolution drawing was there, as was the computer's less familiar multicolor mode. Even the concept of icons which is so popular in today's graphics software made its appearance here, in the Building Block section. This module was intended purely for personal enrichment, not as a tool. There is no way to use the graphics you create in your own programs, and no way to print them out. In fact, the only way drawings can be saved at all is on tape.

If you have Video Graphs you have probably seen for yourself the fascination it holds for children, even small ones. Children love to draw and this module provides a medium for creative expression unhampered by long lists of functions that must be remembered. Indeed, anyone with an unexpanded system will find that it can still provide hours of enjoyment and satisfaction.

No other drawing programs were ever released by Texas Instruments, but users themselves soon began circulating a number of very good programs made available through local user's groups and through the International Users' Group in Bethany, Oklahoma; or Amnion Helpline in Bakersfield, California. These first user-written programs were in Basic; mainly graphics screens but also a couple of entertaining drawing programs such as Color Crayon which let you draw with colorful character-size blocks using the keyboard or a joystick. There were also utilities for designing graphics characters to be used in Basic (and later Extended Basic) programs. There was even a program or two for printing out banners if you were lucky enough to have a printer. When the Editor/Assembler package was finally released, program quality rose. Like 3rd party software, these user written programs have tended to become more and more sophisticated with time, and today some very good graphics programs are available for only a fraction of their worth.

The first high resolution graphics program to be put out by a 3rd party that I know of was introduced by Norton Software of Ontario, Canada. It was called, appropriately enough, Graphics Package. It was originally written in Basic, but that was soon dropped in favor of the faster, more easily used new Extended Basic version. With it, anything could be drawn anywhere on the screen in 3 levels of resolution, corresponding to the standard (or pattern) mode of 768 character blocks, multicolor mode, and high resolution, which has 49,152 accessible pixels. Circles, parabolas, boxes and lines could be drawn automatically. All the information making up the graphics could be saved on tape or disk to be incorporated into your own program. However, it wasn't easy. This program was not intended as entertainment but as a serious tool for Extended Basic programmers. For a long time, the Graphics Package was about the only way for the average programmer to access high resolution graphics. The package was disappointing to some, who would have liked to use it for drawing pleasure. The program was also excruciatingly slow, even in Extended Basic. But, it did everything it promised and is still the best graphics tool available for anyone with an unexpanded

system.

In 1982, with the advent of the Editor/Assembler package, a new kind of program hit the market. Draw-A-Bit by Data Force of Illinois was an assembly language program which booted through Extended Basic. It allowed the user 100% keyboard access to the bit-map graphics mode. Using either the keyboard arrow keys or a joystick the user could draw on the screen in any of the colors with a line that was only one pixel wide. Colorful circles, lines and rays could be drawn automatically. Shapes could be filled with color with the press of a function key. Pictures could be added to by means of "palettes" created by the user and stored on disk. Using the Draw-A-Bit environment, advanced users could create and display complex plots in Extended Basic. Drawings too tedious to be drawn by hand could be coded in Draw-A-Bit format and displayed on the screen. Pictures could be saved on disk and reentered into the program, and they could also be transferred to Extended Basic programs. It is not only an extremely powerful tool for the more advanced programmer, but can provide hours and hours of entertainment to anyone who likes to draw and is willing to learn how to use the program's more than 80 functions. One entertaining and unique characteristic of this program is the ability to redraw a picture right before your eyes. The demo on the disk is positively addictive, as you watch each picture being rapidly built, line by line, color by color. I know of no other program that does this.

The original Draw-A-Bit was strictly for screen graphics but a companion disk, Print-A-Bit, was introduced to provide printer support. Data Force also released a Draw-A-Bit II but I never saw the second version. Print-A-Bit works with both versions.

Draw-A-Bit filled a real need for a graphics application which users could enjoy and yet get some use out of too. It is now recognized as the granddaddy of a new generation of graphics programs. Unfortunately, this excellent program never got the popularity it deserved. Perhaps it was ahead of its time - when it came out the vast majority of users still didn't have disk systems. At first glance the manual looks technical and hard to read; actually, the program is easy enough to begin using for pleasure almost immediately. Just don't try to learn all 80 functions at once!

One of the first commercial screen dump programs was introduced in 1983 by Extended Software. It was available on either tape or disk. The screen dump routine could be added to your Extended Basic program at the point where you wanted the screen to be saved. You would get a modest-sized 4 1/4 inches wide X 2 5/8 inches high duplicate of the screen, except that it wouldn't print sprites. This is still an excellent choice of software for those with unexpanded systems.

Late in 1983 TI made their now-famous announcement that the 99/4A was being discontinued. Nevertheless, 1984 was a good year for 3rd party suppliers, and the graphics void began to fill. Some good, and some not-so-good programs were introduced that year; many of them improvements of older programs like Video Graphs, Draw-A-Bit and Screen Dump. Some were unique. Personal Peripherals came out with Super Sketch which can be likened to a vastly improved Video Graphs. Along with the cartridge came a tablet-like controller pad, complete with stylus. As the stylus is moved across the pad, an image is created on your computer video screen. Four push buttons at the top of the

controller pad control the color selection and graphic functions of the stylus. Graphics may be drawn free-hand or traced from drawings clipped to the pad. Drawing with Super Sketch can be so simple that with a little instruction a six year old can use it. On the other hand, using the advanced features provided, an adult can also have hours of creative fun. Graphics are saved on tape, as Super Sketch is made to be used on an unexpanded system.

A companion disk, called Sketchmate, was introduced by Amerisoft International soon after Super Sketch came out. This software allowed the user to save Graphics to disk as well as tape, and to print them out on an Epson or compatible printer. A unique feature of the printout is that each color is represented by a different shading, which gives the printout a very nice look. Navarone's Cartridge Expander (better known as the Widget) is a requirement of this program. The Super Sketch Cartridge is put into the cartridge expander with Extended Basic right beside it. When Sketchmate is loaded (via Extended Basic or Editor Assembler) you are then asked to switch to the Super Sketch cartridge. When you do, you are instantly ready to go, with never a sign of Sketchmate until you want to save or print a picture! Unfortunately, if you don't already have this fine software your chances of getting it are slim. Neither it nor Super Sketch are readily available any more.

Besides Sketchmate, Amerisoft International introduced several other graphics packages during 1984, most of which are now hard to find. Graphics Grabber is much like the earlier Screen Dump Utility from Extended Software except that this newer program is in assembly language and much faster. It can dump a screen either horizontally or vertically onto the paper, and the printout is larger. Master Painter 99 is a very useable drawing and painting program, but like Draw A Bit requires the remembering of quite a number of function key strokes in order to use. Like Draw A Bit, it also has a hard-to-read manual. A screen dump is on the disk.

3D World had a new twist. It allowed one to make complex, colorful, 3 dimensional designs that could be rotated, inverted or made partially invisible. Designs could be saved to disk or printed out. Programming experience is not necessary in order to use the program. Access to the image file for use in a Basic program is explained in the manual. Be prepared for a learning experience when you use this program. It's complicated, but very interesting if you have the time to spend.

Expanded Graphics Basic lets you add 30 new commands to either Basic or Extended Basic. After XGB is loaded into the computer the new commands can be accessed by a series of CALL LINKS right along with the regular programming language. Although not a drawing program per se, it does allow the programmer fairly easy access to the bit map mode and to screen drawing. The commands include graphing and plotting routines, and a screen dump. Like 3D World it is a fascinating educational experience to use this program if you have time to spend. It is an ambitious program, with nearly all available memory used up. If you aren't careful you may run into errors due to memory full, and lose your data.

Quality Software's Draw 'N Plot also lets you add a number of new graphics commands to your Extended Basic programs by means of CALL LINKS. But besides the eleven callable subroutines, Draw 'N Plot includes a drawing editor which allows drawing and erasing a pixel width

line. Circles, squares, and lines between two points may be drawn automatically. Shapes may be filled in solid on command. Use of color is limited to two at a time - foreground and background. Pictures may be saved to disk or printed. Although this package does not support some of the nicer frills such as magnification, rotation, etc., it is the best program yet for adding graphics to XB programs. However, like Expanded Basic Graphics, be warned that memory is a problem. You can crash the system if your program is too large!

A companion disk, Chart Maker, originally worked with Draw 'N Plot to create all kinds of charts and graphs. The newer version of Chart Maker only requires Extended Basic. Quality 99 Software has done an excellent job of keeping their programs revised and updated since they began putting them out in 1983. Their graphics programs also include a Banner Maker and a very fast Screen Dump which will even print module screens if an interrupt switch is installed on the computer.

With so much graphics software coming out so fast for awhile, it was hardly suprising that some of it would be obsolete almost before it hit the market. Navarone's Paint 'N Print cartridge was originally meant for the unexpanded system. Apparently not enough users were interested in a software package which only did about half of what competing programs could do. In an effort to save Paint 'N Print from complete obscurity, Navarone released a companion disk which greatly expanded Paint 'N Print's capabilities. But by that time there were many graphics packages on the market competing for the customer dollar. One of them was Graphx. Another was II Artist, which, along with Graphx, would radically affect the 994/A graphics software market.

Graphx - The Giant of the Industry

Graphx got its start in Australia, and was such a good paint program that before anybody realized what was happening, the era of the II 99/4A Paint Program was in full swing. With Graphx, freehand drawing and erasing in the bitmap mode are controlled by the joystick. It offers speed control and full color capability. Circles, boxes and lines can be drawn automatically. Shapes can be filled with built-in patterns as well as color. Portions of the picture can be copied and/or moved to another location in the picture, or even to an entirely different picture by means of the "clipboard" feature. Text may be incorporated into the drawing. A "zoom" mode lets the user view and edit a small portion of the picture that has been magnified to four times its original size. The resident screen dump prints to an Epson or compatible printer in four different formats. A unique feature of Graphx is the aforementioned clipboard which lets you store and retrieve parts of pictures while you are working on them. Picture parts or special alphabets (fonts) can also be saved to disk to be incorporated into drawings whenever you want them. With the clipboard, you can also try your hand at computer animation. This program's not only easy to use but has an excellent tutorial/reference manual that comes with it. The manual even explains how to display a Graphx picture file in an assembly language program.

II Artist, like Graphx, was a sleeper at first. But it quietly ran down competition until, today, it is the frontrunner of all graphics programs. Like Graphx, II Artist can be used almost without ever referring to the manual. Drawing and erasing are done freehand in full color with various brush widths and with most of the frills that Graphx supplies plus some of its own. The screen dump is the best of any

program around, and will work with practically any printer. Another thing that makes this program a winner is the ability to take files from other popular paint programs and convert them to be used with II Artist. But the one feature that makes this program really outstanding is the ability to save any part of a screen as an "instance". This instance is saved in a display/variable 80 file format that can be looked at by II Writer. When converted, the numbers in this file can be used for Call Character routines in Basic, or even for transliterate codes that will dump graphics into II Writer files! These features make II Artist the most versatile program on the graphics market, and have spawned a new type of software: Artist support packages.

As support packages pour out for Graphx and II Artist, these two have become more and more established as the best paint programs for the 99/4A, and fewer paint programs are being introduced. Bitmac, which made its appearance in 1985 was another good program doomed to obscurity. Authored by David Vaughan, Bitmac was simultaneously introduced by Data Biotics and Vaughan Software, both of whom claimed copyrights. Despite its cloudy beginnings it is a nice program with many of the features of Graphx and II Artist as well as a couple new ones. This program is operated by icons which are pointed at with the Joystick. To select, the fire button is pressed. Besides the standard features you would expect a good drawing program to have, this one can reduce or enlarge your drawing for you - something neither Graphx or II Artist can do at this point. A screen dump to Epson compatible printers and a Slide Show feature are also contained right within the program. Where Graphx has its Clipboard feature and II Artist has its Instance file, Bitmac has its Boolean input. This option allows the user to overlay current screen graphics with graphics that are stored on a disk. For an advanced or specialized user the program also has an interesting coprocess feature which allows the use of a second computer, not necessarily a II, to calculate plots for Bitmac. All you need for the second computer is an RS232 and the proper cable to interface it to the 99/4A's RS232/2 port. With this setup, very elaborate and beautiful graphics can be created on the 99/4A while the second computer manipulates data for business graphs, maps, satellites or a host of other things.

Because of their unique differences, Graphx and II Artist have been able to flourish side by side, complimenting rather than competing with each other. As yet no other program has come close to replacing either of them, but there may be a contender in the newest paint program. Joy Paint, from Great Lakes Software has some impressive new features of its own. Like II Artist and Graphx, it is a full-fledged paint program, with one exception: it has no color capability other than a choice of screen background color and black or white for the pencil. The lack of color is not necessarily a disadvantage - you may never use color anyway if your main objective is to dump the graphics to a printer. Painting here refers to filling in with patterns, and Joypaint has a large selection of patterns with which to paint. With the companion disk, Joypaint's Pal, you can even create and save your own patterns.

Joypaint is fully Joystick controlled. The drawing board features are accessed by pointing your drawing tool at the function you wish to use and pressing the fire button. Parts of drawings can be moved, copied and even enlarged, but only with 10,000 pixels at a time. Since there are somewhat under 50,000 pixels, that's just over 1/5 of the screen area. Joypaint employs a windowing technique that allows 92% more

drawing space than just the normal screen. Joypaint's Pal allows files from other programs such as Graphx and II Artist to be converted to the Joypaint format, and back again, so compatibility is carried on. This easy-to-use program is truly impressive! Whether or not it will catch up to Graphx and II Artist in popularity may depend more on what kinds of companion disks become available for it than anything else.

Now a better definition of a drawing package can be given. As seen here, it is a program, or group of programs, that will allow users of the 99/4A to create high resolution graphics on the monitor or TV screen. The graphics should be able to be saved and later reloaded, edited, and, in most cases, printed to a dot-matrix printer. High resolution means that each pixel can be placed anywhere on the screen individually and removed (erased) as desired. We have seen that the programs discussed here can do this and much more besides.

The next thing to consider is, how the program is to be used. The program you buy for your own use should be a program which will best do the things you want and need a paint program to do. There are three distinct ways in which a drawing package can be of value: as a utility for adding graphics to your own programs, as a tool for designing slide presentations and printed material for business and home purposes, and last but not least, as personal enrichment. Using a drawing program in this manner can be rewarding and satisfying as well as simply entertaining. Each of the packages focuses just a little differently on these three aspects, and this is something that will be explored further in the next issue. Part 2 will set up a comparison chart that will let you see at a glance just what each of the 10 main drawing packages for the 99/4A can or cannot do, and how each can best be used. Following the chart, each function will be described in detail. As you go down the list you will see that each program has some features that no other program has, and which may make it the most important program for YOU.



by Dave Wakely

SPAD XIII: #1, The Shakedown Flight: Dave Wakely

It's a perfect day for flying. The sun is blazing, the sky is blue, and come to think of it, the ground is blue, too, but no matter. Start up, or rather, boot up, by placing your Spad XIII disk in Drive 1 and selecting Extended BASIC. If you are flying the Mark 2 version, choose "N" to the Red Baron option, since it's not a good idea to fight before you know how to fly.

It's always a good idea to check out your plane before flying, just to make sure the ground crew hasn't left any critical parts in the hangar. Look at the instrument panel in front of you. The best way to interpret this is to open the Spad manual and set it up so you know what you are doing. You will discover that if you open the manual to the middle page and turn it sideways that you can put the keyboard template flat on top of the 4A console, and then the instrument panel page will sit upright up against the P.E. Box or the bottom of the monitor. Make the necessary adjustments so the page stays open and be sure you don't block any of the viewing area of the screen.

The top dial, the compass, should read straight north, the bottom dial, the fuel gauge, should point to about 10 o'clock, which indicates a full tank. Both the altitude indicator on the left, and the air speed indicator on the right should be pointing straight up to "0". If you look over your right wing by pressing the "3" key, you should see the hangar. Return to a forward view by pressing the "1" key. Now check out the ailerons. Press the "S" key, and the stick should move to the left. If you let up and the stick doesn't return to center, press the "D" key to recenter it. Now do the same for right aileron. The other stick positions will move the elevators or a combination of aileron and elevator. Check them out, too. Then turn around and look at your tail (the plane's, not your own-it is later on that we will be flying "by the seat of our pants"). Do this by first pressing the "4" key. Now press the "<" and ">" keys and check out the rudder movement. No rudder movement? That is correct. The keyboard indicates those keys, but you never see the rudder actually move. This completes the functions of the plane we can view from here. In the future, when I refer to the "pre-flight check-out", the above is what I mean.

One of the complaints I have heard about Spad is how difficult it is to find the various graphics objects on the ground. Today we are going to take a fairly lengthy flight to show you how to find things. I have taken this trip three different times, and it will take about 40-45 minutes in all, so allot your time accordingly. I will also be demonstrating how easy the Spad is to fly. Did everything check out ok? Then here we go:

Hold down the "B" key, which is the "throttle up" control. Watch as the on-screen throttle, which is below and to the left of the instrument panel, steps up in 100 RPM increments, and listen as you hear the engine rev up to it's top end of 1200 RPM. When the air speed indicator reaches 100 MPH, pull back on the stick (the "X" key) once. In Mark 2, you will hear a beep when speed reaches 100 and the stick will automatically center itself when you let up on the X key. If your version doesn't do this, take appropriate action. Press key 4 and watch the runway receding in the distance behind you. When the tail plane (that is, the tail wing and NOT the upright rudder) appears to clear the end of the runway, cut power by two "clicks" by pressing the 7 key twice. Now look forward by pressing "1". You are in a slow, 300 foot per minute (FPM) climb and your current altitude should be around 400 feet. When it reaches 1,000 feet, apply two more down clicks and you will be at 800 RPM (trust me). The gun sight crosshairs will oscillate some above and below the horizon line, but will eventually settle down on or very near it. Don't worry if it is off a little. Your air speed should be about 110 MPH, and you are now in reasonably stable, level flight. Congratulations on a fine take-off.

When everything above has occurred, we are going to execute three "pulls" on the left aileron. Press the "S" key once and watch the stick move left and then back to center. Now repeat this two more times without stopping. If, in version 1 the stick doesn't self-center, keep your eye on the compass. When it swings to the Northwest mark, begin to apply right aileron to bring the stick back, gradually levelling off until you are facing West. If you have Mark 2 this maneuver is easier. The three successive pulls will result, when the plane automatically levels off, in a 90 degree left turn and you should be heading straight West. If you delay between pulls, it may take four to achieve this result. I have tried this at various speeds and altitudes, and it works most of the time. During this, don't touch the throttle! You may lose a little altitude during the turn, but it should be insignificant.

Now it's time to settle back a little and relax. Look out over the instrument panel (press "U" and the panel will disappear). Notice those "lines" on the ground ahead of you. What exactly are those? Perspective lines to give the illusion of distance? I prefer to see them as French country roads by which the local farmers can carry produce to the markets. If you have trouble with this try looking at them as fences separating farms. Now look over your left wing by pressing "2". Since we turned West, left is South, where we took off from. What happened to the home airfield? Out of sight. In fact, pan around with the "P" key in Mark 2, or manually with version 1. You will see nothing but endless fields with few distinguishing characteristics, and a sky with small white clouds (those dots or short lines) drifting lazily. It is in places like this that navigation with the Spad can be difficult. In the Microsoft FS there is a "radar" function which lets you see the plane from far above, with roads and other features visible. It is hard not to know approximately where you are. In the Microsoft simulator you fly a Cessna 182, as I recall, but somehow I doubt that the real counterpart to that plane has such a "radar" function. In that sense the Spad is probably more accurate in that planes in 1917 probably did not have advanced avionics. There is no radio to call anyone on, no VOR stations to locate. You are on your own, so you had better know where you are going.

This is also where your imagination can help out. Look out the front again. What are those, crops down there? We're only at around 1,000 feet and should be able to make out something. Let's see, those can't possibly be vineyards, can they? The Champagne district isn't terribly far away, but it's somewhere south of Paris, isn't it? Perhaps those are barley fields out there, or am I staring too closely at the screen pixels?

About 8 or 9 minutes after the turn, a short line should suddenly pop up in front of you. What is this, some uncharted airfield? Watch it for a few minutes and you will see it grow. It will become longer and it is clearly blue. That is because you now have the Seine river in view. For a full 5 minutes you will come up on it. As you approach, it will "snake" down the screen slowly. When any part of this line touches the bottom of the screen, we are going to execute another left turn. Follow the same procedure as above to execute a 90 degree left bank turn. Try the three or four left "pulls" technique until the compass indicates that you are flying straight South. You are flying down the West bank of the river. During this, don't touch that throttle, you will settle back into level flight. If all has gone well, what you should see is the river snaking out in front of you, and away from you if you use the "4" key. Not terribly far in front you should see a left-facing "loop" in the river. Watch the area just beyond this loop for a minute or so. Suddenly a small dot will "pop" into view and slowly grow. You are approaching Paris, the City of Lights, and can already see the Eiffel Tower. This all makes sense if you refer to the map on the inside back cover of the manual. We headed North from the airfield, then West to the river, then South to Paris.

The tower may well appear to drift left on the screen. When it is more than half-way between the center of the screen and the left edge, do a single, brief left bank so that the tower "moves" back towards center. Keep it slightly to the left of center by making further adjustments as necessary to keep it on the screen. Your heading may change to SSE or SE. Now watch the tower grow in definition as it gets closer. As I recall, it was originally built for a world exposition sometime in the late 19th Century, and at our altitude we are at about the same height as the structure. There isn't anything else of Paris here which you can see, but if you want to imagine you can spot the Champs Elysee or the outdoors cafes on the left bank of the Seine where Hemingway and Gertrude Stein will hang out in another 10 or 15 years, that's all right with me. Art lovers will appreciate that you will also pass directly over the Louvre.

Press the "2" key to see the tower pass off your left wing, then the "4" key to see it recede in the distance. Since you are in level flight you can watch out the back for awhile. When the tower gets covered up by the upright tail fin of the plane, it is time to execute another turn. We will be going from roughly SE to NE, or another 90 degree turn. Use your gentle turn technique one more time. Look out over your left wing until the tower disappears, then out the back. In a few minutes first the tower, then the river will "shrink" and eventually disappear.

Now once again there is little to see here. At your leisure, you can consult the map and see why we headed Northeast. Also, if you flew at the same time of day as I did, the sun should now be over your right wing. This section of open countryside will be shorter than the earlier one, and in 3 or 4 minutes, if luck has been with you, a small line should pop up right in front of you. This is home. It's been a long flight, and it's time to set it down. You won't be able to see the field at all, though, unless you press the "U" key to get an unobstructed view forward. Near the end of those 3 or 4 minutes, keep checking over your left and right wings, as the field may pop up there. If it does, make a small course correction until it is in the center of your screen.

It's been said that take-offs are hardest on the plane, and landings hardest on the pilot. I hope you soon don't find out why they say this. This is the tough part, so pay close attention. I use a landing technique slightly different from that in the manual. When the field suddenly goes "3-D" (you can clearly see it as a landing strip), quickly power down four (4) clicks and put your full instrument view on (key "1"). If you came up on the field dead center, you will not be lined up with the runway, but perpendicular to it. Don't worry about it on this flight. The land is quite flat and you can land this plane almost anywhere. Pick out a spot such that if you WERE lined up with the runway, it would terminate at the hangar. Now push the stick forward (key "E") until that spot (or the NEAR end of the runway, if you happened to be lined up with it) is in the center of your gun sight crosshairs. You will have to fight the tendency of the plane to rise, so keep powering down gradually, taking off a click and recentering on the crosshairs, etc. When your altitude reaches 100 feet (the last indication on the altitude meter), pull back on the stick by pressing the "X" key until the hangar (or the FAR end of the runway, if you happened to be lined up) is in the crosshairs. Power should be at or near the lowest setting. Keep the hangar or far end of the runway in the crosshairs by pulling the stick back as often as necessary. Suddenly the scenery will "jerk" and in Mark 2 you will hear the tires squeal as they hit the ground. Cut all power with the "O" key. This landing technique uses a steep descent with a pull-up or "flare" at the end. If all went well the hangar will be right in front of you or perhaps you even parked in it. You won't see this view very long, since the program will reposition you facing North on the runway almost as soon as you stop.

Congratulations on completing your first Spad adventure. If you crashed or something went wrong, try it again. That's one of the nice things about a simulator, you can walk away from your mistakes! This flight has been based on one of the "scenarios" listed on page 18 of the Spad manual. It was greatly expanded to give you some tips on flying the Spad XIII. In upcoming flights, I will try to share more tips and tricks you can use to enhance your enjoyment of what is presently the best flight simulator available for the II-99/4A. Until next time, it's been great flying with you.

DISK LIBRARY

DISK LIBRARY REPORT

Some exciting new items in the group library include:

Infocom adventures never released (by Infocom) for the TI, including the 1987 adventure Plundered Hearts. Unfortunately, to hold the huge amount of text these modern adventures hold, TI users need to have a double sided disk drive. For a couple of the adventures, where there are a number of variables which need storing somewhere! you also need memory from >6000 to 7FFF, such as the SUPER SPACE cartridge. Details on latest library disks!

From member Jan Alexandersson, the most exciting addition to our knowledge of the TI comes in the form of a disk containing the full PRK module program in the shape of a BASIC listing, and details of all the low order extra CALLs such as CALL [>05]. One SSSD disk. And another for the same thing for the STATISTICS module- with different extra calls, and the actual stats done in BASIC for you to copy!

For purchasers of the superb new database, TI BASE, a gentle reminder that your library has the paid-for right to copy a superb utility you will need for multi-key sorts. SORT1 is the name, and it comes complete with SPELL1, a spelling checker, as well!

Archiver is now in up to Version 3.02, and has started disk Utility 21. Files do need to be uncompressed/unpacked before you actually use them. This version can pack/compress in one single step, and print a directory of the contents in a compressed or packed file- and allow you to extract just one program from a compressed file.

Remember that the disk library listing is available on TWO SSSD disks, in DV80 file format. To get a copy just send disks along, with return postage and packing. Not too hard is it!

IMPORTANT: By the time you read this the library is likely to have gone on to THREE disks. Disk THREE will only have on it disks relating to: LOGO, FORTH, MUSIC, EDUCATION, RLEs. So if you don't want these, carry on sending two disks!

If you have a disk drive and have not seen our list for more than 6 months, you really should get a copy and take an hour or so to look through it. I cannot detail every single program that comes in during a quarter!

We have over 90 members with disk drives. In the period 15th April to 30th September, a total of 26 members have used the disk library. Perhaps you other disk owners might benefit from taking a peek at some of the very high quality programs now available at low low cost!

All proceeds to the disk library help to maintain the supply of new items, with any surplusses sustaining other group services.

FREEWARE is to be supported. Freeware users are encouraged to show their appreciation to FREEWARE authors in a tangible way, and may if they wish forward donations in sterling to the disk library for subsequent forwarding to the relative authors. No minimum amount- if you use a program it is worth something to you! Fees paid to the library only cover library costs - make a specific donation to your favorite authors today!

Disk library users will know that I have a problem in listing every new item over a 3 month period and getting it into 60 lines or so! On average - with no post strikes! - the last year has seen some 200 lines of new items per quarter! As ever I shall try to advise you of the BEST new items per quarter in this section, but there may well be just the program YOU are looking for come into the library and not mentioned here- so why not get an updated set of library disks!

Disk Librarian:

Stephen Shaw

10 Alstone Road, STOCKPORT, Cheshire, SK4 5AH

RAMBLES.
 October 1988
 by Stephen Shaw

RAMBLES

Hello and greetings once more. As ever, if you have a question you would like to ask, do drop me a line, and if you would like a reply by letter, please send an SAE. The address is:

10 Alstone Road STOCKPORT Cheshire SK4 5AH

and I would especially like to have any questions relating to unexpanded systems- TI Basic/ Extended Basic and the like.

This is also the address of the Group Disk Library, and disk owners can obtain a copy of the library catalogue by sending disks and return postage. The files are in the usual text DV80 format to be read with TI Writer, Editor Assembler, Funlweb or even a Basic program! Disk library costs are very low and we have some excellent programs available for everyone's taste.

IMPORTANT: By the time you read this the disk library will have overflowed to THREE disks! Disk 3 will only have disks relating to EDUCATION, MUSIC, LOGO, FORTH and RLEs, so if you are not interested in these, carry on sending two disks! Otherwise, three!!!

Whether or not you have a disk system, remember we also have other librarians serving our members- for cassette software, publications, and modules. Do drop them a line if you are interested in anything. The cassette library in particular has now been well sorted out by Tim and there are some lovely items in there. Library usage (all services) continues to be at a very low level. Could it be our members are happy just with TI*MES? Do let us know if there are other services you need.

A special note to disk owners- as far as it is possible to tell, half our disk owners are not using the disk library. This is puzzling, as the costs are very low, and the programs now available are astonishingly good, far far better than anything TI ever marketed. If you are using some other source for your disks, that's OK, but at least have a look at our catalogue!

Here in Manchester, we have suffered from postal disputes both before AND after the national one day strike, so I am suffering a slight lack of post here - and had a mountain of mail to follow the resumption of work. Apologies to all for the delays - out of my hands I regret! This also means I have a lack of source material to inspire Rambles this month, permitting perhaps some longer looks at some new items I now have.

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ISSUE 20 ERRORS:

PAGE 16. Well now I know you aren't reading the PRK series... only Jan Alexandersson in Sweden admitted to finding this error, in line 240 of the program! Perhaps you worked it out? The line should read:

240 CALL HCHAR(6,1,32,320)

+++++

ISSUE 21 ERRORS:

Page 23: CALL COLOR(3,16,0) is an obvious error I hope.
 Try CALL COLOR(3,16,1) instead! Sorry 'bout that...

Page 27: Printed direct from disk supplied from the author, as printed in several newsletters. Aaaaaagh. What a shambles. Sorry sorry sorry, total absence of proof reading apparent here... corrected lines:

-- Subroutines use the same variables as the main program. In subPROGRAMS variables are entirely different [local variables] unless otherwise selected in the CALL statement.

-- Sub routines can be anywhere in the program while subPROGRAMS must be at the end [although you can do interesting things with !@P-].

There was some variation in print density in my copy of TI*MES, suffice to say that pages 10 and 16 were printed with the same brand new ribbon on the same paper, and looked of identical good density on submitted copy. On my issue they differed greatly. I haven't been able to find any photocopier that makes my print look so dim... hopefully this issue will be a little different!

Due to postal disputes I held over the draw for Genial Traveller until I was sure all letters posted by the end of August had actually reached me- by October 10th! At the date of writing, a mere five entries, which is ridiculous if you consider we have over 90 disk drive owners in the Group. Come on guys, what are you doing out there!!! The winner was Mike Curtis, a regular library user.

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Issue 21 Page 37: I received a full refund from Tenex for the faulty cable- this still left me fielding the cost of return postage, and any exchange losses in between purchase/sale of dollars.

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Issue 21 Page 58. Chris Bobbitt fails to mention that he is the sole proprietor of Asgard, and as such has more than a passing interest in the product under review. Note the phrase at the end regarding policy: "ours is". A more distinct note of interest might have been obliging!

+++++

Mentioning Asgard, you will see on page 34 of last issue a mention of Picasso Utilities, whose catalogue entry did not make it clear what it did... well I sent for a copy didn't I! Remember, I purchased my copy of Picasso from Australia! It would appear that Asgard have taken that disk, and split it into two disks! So I paid for something I already had purchased at a lower price.... aaaaaagh. Asgard have added an American written utility to print a Picasso picture in super dense format - by printing it three times, moving the head very slightly down and to the right each time, which gives dense black but also causes a significant loss of fine detail. And uses up lots of ribbon.

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LISP 99 Vn 2.0 is an interesting addition to the disk library, wish I could tell you more, but I can't even find a text book on LISP that I can understand. This looks like quite a difficult language (probably not, just nobody has yet explained it properly). If you know LISP and want something similar on your TI then take a look at this one.

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Do you have any TI material, books, modules, cassettes, hardware (including broken consoles etc), that you are no longer using? Perhaps you would consider donating to the Group for other members to use? In the first instance, contact the appropriate group librarian, failing that, write to me, Stephen Shaw, as I am happy to stockpile goods here and I can also repay postage costs.

This group does not have the capital to make huge offers on redundant equipment but perhaps we can extend the use of it a little, with your cooperation?

+++++

WRITING TO A VACUUM IS DIFFICULT. Why not drop a line to say what you'd like to see in TI*MES! Ask questions, give suggestions- real intricate and detailed instructions are better than one word puzzles! Write to Mike Goddard for hardware details or articles, and Geoffrey Coan for language information. In the absence of feedback, you may find that TI*MES will drift away from YOUR interests. And you will be to blame!

+++++

Yet another TI programmer is no longer with us. Bill Knecht, from whom the disk library has three disks of music, passed away on July 9th, at the tender age of 41.

=====

I have here a:

COR COMP LOAD INTERRUPT SWITCH

which plugs into the right hand socket, and then has a further socket to plug your expansion into. It enables you to use machine code programs which are capable of being triggered by a load interrupt signal, such as Danny Michaels DUMP program, available from the disk library, which enables you to dump a GRAPHICS (not bit map!) screen just by hitting the button.

I was thinking of offering it as a competition prize, but as the last two competitions I have tried have resulted in a grand total of less entries than I have fingers, THAT is out!

So... if anyone wants one of these items, what will you bid? There is a reserve of ten pounds, and remember all proceeds go to Group funds. Auction day will be December 11th. Bids are welcome by mail but must arrive before that date. Telephone bids may be made between 9pm and 10pm ONLY to 061 432 6097. Bids outside those times will not be considered, so phone early or use the post!

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I have been spending some time "playing" with another database, only five dollars more than IDIAL FILER, but ooh so much more powerful!!! And just as the time approaches for me to really get stuck into writing for this issue, the postal persons decide to start work again. As we have had very few deliveries here between August 18th and September 13th, that means I have a lot of - fairly old - mail coming in demanding an answer, some of it quite urgent! So this issue of Rambles may be a little thinnish!

No response yet to the first articles on Enhanced Basic, using the PRK or Stats modules... anyone reading it? I asked this in the last issue, but still await confirmation. I was halfway into a follow on article on setting up a header with CALL H when an astonishing disk arrives from distant lands...

Group member Jan Alexandersson over in Sweden has sent me a disk which contains the full PRK module program IN BASIC!

His disk contains:

The basic program- to be specific, as it is over 20k, it is in ExBas on the disk, and cannot be loaded to run with the module! but you CAN LIST it and see how this module works, and see how I used all the extra calls.

Jan has also taken out sections of the program and supplied a whole bunch of code in the form of DV163 Merge files, which you could use to put together your own 10k program, which could run in Basic using the module.

```
*****
* CALL >05 *
*****
```

Mention has been made of SOME extra calls available when the PRK and STATS modules are inserted - CALL A,D,S,L,P,H and G.

Peter Brooks referred quite some time ago to research carried out by Richard Blanden on extra calls- an extra eight calls if you like! However, nothing at all has appeared relating to these!

Now we have them.

Jan's disk fully documents the strange extra calls, and shows you how to use them.

If you can think of CALL A as CALL CHR\$(65) - it doesn't work like that I know, just imagine it! - then the extra calls are in the form CALL CHR\$(5) - VERY low values that cannot easily be keyed from the keyboard! There ARE ways of getting them in your programs, the easiest is to take one of the relevant MERGE files from Jan's disk and incorporate the code into your program that way.

The extra low value calls do such interesting things as array sort, math transformations, message displays and so on.

Now you can fully emulate the module- if only you could get a 20k basic program into the 10k or so available for it! And of course some VDP ram must be kept empty to hold your actual data!

This disk is a very valuable contribution to the documentation of the TI99/4A, and it is available from the disk library.

With so much extra documentation- and no feedback on the previous articles- it now becomes essential I have your guidance!!! Do YOU want the Enhanced Basic articles to continue? Shall I proceed with CALL H as planned or would you prefer to have a look at these new CALLS? PLEASE write to me if you want more articles on this subject. And I need more than one letter, so don't leave it to someone else. He won't write either!

 Jan has also sent a disk with the same sort of info on the STATISTICS module, with DIFFERENT low value CALLS. The actual stats bit is in BASIC, so you can list the XB program provided (actually programs, as even in XB you can't manage 25k in one go!) and pinch what you want for your own stats program! Both of Jan's disks are 360 sectors EACH, and are FREEWARE. Thanks Jan.

 Just to perk your interest up a bit I shall insert a part of the listing from Jan's IESI program, which shows some of the extra CALLS in use- the characters used will be familiar to TI WRITER users! Can you guess how I produced this listing?

```

400 CALL 4(Z)
410 CALL D(12,J,M,STR$(Z)&" MAX PAGES")
420 GOSUB 2000
430 RETURN
500 CALL D(12,J,M,"PICTURE 1-107")
510 CALL A(12,15,L,T,P,J,107)
520 CALL HCHAR(J,J,64,768)
530 CALL 4(P)
540 GOSUB 2000
550 CALL CLEAR
560 CALL SCREEN(8)
565 FOR W=J TO 8
570 CALL COLOR(W,K,8)
575 NEXT W
580 RETURN
600 GOSUB 5000
610 CALL D(12,J,M,"DELETE ITEM")
620 CALL A(12,13,L,T,P,J,Z)
630 CALL 4(P)
640 RETURN
700 CALL D(12,J,M,"CALL >07(W, X, Y)",14,17,M,Z)
710 CALL A(14,10,L,T,W,J,Z)
720 CALL A(14,14,L,T,X,J,Z)
730 CALL A(14,18,L,T,Y,J,Z+J)
740 CALL 4(W,X,Y)
750 RETURN
800 CALL D(12,J,M,"PRINTER")
810 CALL A(12,9,M,T,P#)
820 CALL 4(P#,T)
830 IF T=0 THEN 810
840 CALL D(14,J,M,"PRINTER OK")
850 GOSUB 2000
860 RETURN
900 CALL D(12,J,M,"CALL >09 DON'T WORK IN BASIC")
910 GOSUB 2000
920 RETURN
1000 CALL D(12,J,M,"TEXT NR 0-21")
1010 CALL A(12,14,M,T,N,0,21)
1020 CALL 4(N,T#)
1030 CALL D(14,J,M,T#)
1040 GOSUB 2000
1050 RETURN
  
```

=====
MICROPENDIUM...

Why do I keep mentioning this magazine? Because it is GOOD that is why! The JULY issue was 20% written by my friend Ray Kazmer, who contributed a powerful article on how to use COMIC SHOW (available from your disk library!) to animate the picture of Garfield and Odie already published in an earlier issue of TI*MES.

The bad news if you have not yet subscribed is that sea mail subs have gone up. Effective October 1st the subscription rates for UK owners is:

Air Mail...US\$37 -12 issues

Sea Mail...US\$25 -12 issues VERY SLOWLY!

Mail address:

MICROpendium, P O Box 1343, Round Rock, TX, USA, 78680.

Payment must be in US\$, international money order or bank draft recommended.

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TURBO PASCAL NEWS:

The July issue of Micro-P indicates that TURBO PASCAL is available commercially for US\$59.95 from:

LL CONNER ENTERPRISE, 1521 Ferry Street, Lafayette, IN, USA, 47904.

I wrote to them on 22nd August asking for prices including air mail and insurance to the UK, by airmail, and reply paid. Over two months later I still await a response, although this MIGHT have been delayed by the postal mayhem over here. I am writing one last time- letter posted air mail October 3rd 1988. If you have an interest in TP99, keep your eyes open for next issue- or if you can't wait, drop me an SAE and I'll tell all just as soon as I hear from LLC!

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GRAMKRACKER:

Want a gramcracker and can't find one? You could do worse than write to:

CaDD Electronics, 52, Audubon Road, Haverhill, MA, USA, 01830

They can sell you-- for US\$208.50, including insured air parcel post to the UK, a GRAMULATOR.

This device, which simulates 64k of GRAM and 16k of RAM (in two banks of 8k at >6000 to 7FFF) plugs into the module port, and can load any files produced with GRAMKRACKER. You can also save all your TI, Atari and Parker modules to disk. For MBX modules you require more bank switched ram, which costs an extra US\$50.

The Gramulator can work as a Super Space module and is lithium battery backed up. 32k plus disk drive required!

=====

ANYONE HAVE A DISK COPY OF THE STATS MODULE PLEASE????

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WILL THE GENEVE 9640 be covered in TI*MES? Not in Rambles- I cannot afford one! At the present time I am only aware of one member with a Geneve, and he can hardly write an article for himself.... if we get more members with these machines, it will be up to them to submit articles! They may prefer to form a subgroup- and if there are not many, it would probably be fairer to most members if they did. However we are a long way from needing to address that problem. If YOU own a Geneve, let our membership secretary know!

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CHRISTMAS IS COMING...

For those of you reading Rambles in time to bung an order in for Christmas, may I draw your attention to a little gift from an old friend in America, currently something of a celebrity in TI99/4A circles as a result of his considerable support for the machine... Ray Kazmer, Sage of Sylmar, many years ago wrote a demo program for Atarisoft, around the time Atarisoft for some reason lost all interest in matters TI... in the years since, that demo has become an astonishing graphics demo, now sold by TexComp.

Members of our group can see this special CHRISTMAS oriented graphics demo by

sending a blank disk and return postage to the disk librarian (or include it on a normal library order!). Members without disk systems cannot alas see the full demo, due to its incredible size, but I shall be sending a version to our cassette librarian suitable for tape- to order, please send Tim 1.50 to cover all costs.

This is no ordinary graphic demo, no sir. This program is the talk of the States, and even drew a freeware donation from a blind user. Thats how good it is!

For those of you reading this after Christmas, why not send for it anyway! And for those of you not reading this:

=====

MUSIC TAPE- C60 "rough edit" tape of TI99/4A music, including AxelF, Bach, In the Mood and lots of other things- light popular and light classical- and of course the vocal "Daisy, Daisy Give me your answer do". Recording time is around 55 minutes. 2.50 including post and packing, with any surplus going to group funds. Contact Stephen Shaw

=====

MODULE

MOONMINE module:

How do you pick up objects- eg water?

A: When the object appears at the bottom of the screen, hit SPACE. See that new little man? Walk him over to the object and press FIRE and he picks it up! To return to the ship you must first destroy that monster lurking on the screen!

=====

SUPERSPACE I and II. These are modules which contain the Editor Assembler GROM chip, plus 8 or 32k of ram, battery backed. If you take the 32k version, you have to incorporate bank switching into your software to take advantage of the extra 24k. The standard 8k is at >6000 onwards, and can be used to store machine code programs, including Funlweb, which is supplied with a utility to place it into the module.

Superspace also allows us to make use of machine code programs that just won't fit into the standard 32k ram. Thanks to Super Space I am now able to run the Infocom adventure LEATHER GODDESSES OF PHOBOS (which arrived in an anonymous brown paper bag from Canada...) and also the other adventures that Infocom released for the IBM PC but not for the TI99/4A.

My Superspace arrived with a menu item on board already which allows me to use it as a substitute module for Myarc s XB module - always nice to have a stand by.

I am also able to load all the Scott Foresman READING modules from disk, and my favorite game, MANCALA - without first having to load Myarc XB. For cassette owners with 32k, they can also load MANCALA from cassette using this module.

Super Bug 2 by Edgar Dohmann is supplied with the module, and has a version to load into the module (filling 8k) to appear on the initial menu after the title screen.

**MODULE
REVIEW**

REVIEW: TI PLANNER / MODULE
 By: Databiotics. Price: About US\$27.
 Required: Console. Category: Spreadsheet.

TI Planner is JUST what I have been looking for. It is to spreadsheets what Personal Record Keeping is to Databases: simple and easy, but lacking in the power of its more sophisticated relatives. Unlike PRK however, TI Planner is able to sense and to use the 32k ram.

Many years ago I bought a copy of TI's spreadsheet- Multiplan (which requires 32k and a disk system) and I have never used it. While Multiplan is powerful, it is perhaps too powerful for occasional usage, and as implemented by TI, rather slow to set up and use.

By comparison with Multiplan, TI PLANNER is a little restricted:
 All columns are 12 characters wide, fixed.
 Formulae are limited to 12 characters and cannot use literals, only cell references.
 There are no copy or move commands.

However, for most SIMPLE work, especially one offs, TI PLANNER is great. It's ease of use scores very highly with me.

The spreadsheet can have one of three sizes. If you have 32k ram, you can choose from 50x50 or 40x63 or 35x72 - the first figure is the number of rows, the second figure is the number of columns. If you do not have a 32k ram, your choice is between 28x27, 34x22, and 42x18.

This may seem a lot less that TI Multiplan can offer, but be assured, with TI Multiplan, it is NOT possible to put something into everyone of a 255x255 sheet! You run out of memory much sooner... The size limits of TI PLANNER are quite well suited to "normal" spreadsheet work.

You can save spreadsheets to disk OR CASSETTE. Files are IF128 in format, and files are in a compressed format for better cassette usage. The only data saved is that relating to cells with something in them, be it numbers, text or formulae. It would take quite a mean machine code program to permit data to be exchanged between a TI Planner file and a Basic program! The easiest manner would be to PRINT to disk, then edit with TI Writer into data statements, then use TEXTLOAD to make it into a program.

Bugs do exist- "involution" - the "power" calculation, usually signified by "^" does not function. Also, if you make a mistake when entering the formula to calculate the sum of a row or column, the module crashes.

You can easily get around the limited formula usage by using cells at the bottom of the sheet to hold literals or intermediate formulae.

For instance suppose we wanted to add 6 cells:
 A01+A04+B03+C05+C08+D10

we could use two cells at the bottom of the sheet, with:
 A01+A04+B03 and C05+C08+D10

If these cells were say x01 and x02, then our target cell could hold the formula: x01+x02 and bobs your uncle.

Similarly, to multiply all cells by a factor, say 1.15 (=+VAT) then we just place this value in a bottom cell- say x03 - then refer to x03 in formulae.

If you print to disk, into a standard DV80 file, you can strip away the bottom cells before using TI Writer to print out.

Special commands are provided for summing a row or column -or part of a row or column- of cells. eg +A04/A12 will add up the cells in Row A, Columns 4 to 12.

PRINTING may be to printer or disk (DV80), or according to the manual, to tape- I'm not too sure what good that would do you, unless the same company's word processor module was then able to read the tape files. I do not have that module.

If you do not have a printer interface, a version of the module is available with a parallel printer cable attached, waiting to be plugged into a printer, for US\$50. I have not tested that version.

SPEED??? To add 50 pairs of numbers, and to sum three columns of 49 numbers each, took just 2.91 seconds. Quite acceptable.

Using the square root function slowed things down however- changing just seven of those adds into square roots altered the time to 3.78 seconds.

Numbers can be expressed in anything from 0 to 9 places of decimals. Numbers which do not fit into the cell are expressed as asterisks, but still seem to calculate OK. ALL numbers are expressed to the same number of places!

PRINT OUTS are 72 characters wide (six columns of sheet). If only the first six columns of cells contain something, only one page is printed, otherwise a further page is printed for each six columns to the right in use. By printing to disk you can remove the "utility" cells containing literals and intermediate formulae, otherwise there is no provision for printing a part of a spread.

COMMANDS are LOAD,SAVE,NUMBER,TEXT,FORMULA,PRINT,QUIT,DIGIT and ERASE.

FUNCTIONS are +, -, *, /, Arctan, Cos, Sin, Tan, Sqr, Square Root and Log - however there is NO anti log (EXP).

There are good editing commands, including GOTO and COLOR CHANGE.

I have found this to be a useful utility.

.... and I have discovered that it has been reviewed in MICROpendium under the name of CONSOLE CALC (MAY 87). However, the reviewer in MICROpendium wanted to keep his home accounts (surely not a best use for a spreadsheet) and found it lacking in size for this. For this purpose I would use a database. The MICROpendium review mentioned the limitations I have covered above, but at the end, awarded grade C's only- a very poor grade for MICROpendium reviews. This killed the product stone dead, hence the change of name.

How s this from the review:"the limit of 12 characters per formula is an insurmountable limitation to any serious spreadsheet users". I disagree, this comment shows a lack of imagination, and in particular, a lack of appreciation for the tricks used to enable cassette only users to use the module. I have indicated above how you can effectively use longer formulae should you really require them.

The price is most reasonable for what this program does, and it does what it does do well. It carries my reccomendation anyway.

Stephen Shaw Sept 88.

TI PLANNER

MEMBER SERVICE: To purchase from Tenex, the cost is US\$26.95 plus postage- they suggest you add \$12.75!

If you would like a copy of the module, and prefer to pay in sterling- with a little extra delay in receipt- I am prepared to consolidate orders and submit a bulk order to Tenex. The cost, including UK postage to you, is £22.00. This does not include any VAT/Duty which MAY be levied on delivery (possibly 22%) and you must agree to pay this if necessary. If you want a copy please ensure your order with cheque reaches me within one month of receipt of your copy of TI*MES! Offer is subject to at least four members requesting the module, otherwise cheques will be returned at the end of the month period. Only the version without the printer cable is on offer! Stephen.

TI BITS * Number 5
By Jim Swedlow

[This article originally appeared in the User Group of Orange County, California ROM]
(Excerpted by Stephen Shaw)

**DISPLAY VARIABLE 80 FILES *
MULTIPLAN AND TI WRITER**

The DV80 file is TI'S workhorse. TI Writer uses this format. If you open a file without specifying a type <OPEN #1:"DSK1.MYFILE">, it will be DV80. Assembly language source code files are DV80. This month we will cover some interesting aspects of these files as they are used by TI Writer and Multiplan.

First, you can save a Multiplan spreadsheet as a DV80 file on disk. Then, later, you can use that DV80 file for printing or for merging into a TI Writer file. You choose Print and then File. You must be careful to use a different file name than the one you used to save your spreadsheet as, unlike Transfer Save, Multiplan does not warn you if you are about to overwrite an existing file.

Just as when printing on a printer, you can control the margins and page format with Print Margin. One of the items that Print Margin lets you set is Print Width. If you set this to a number greater than 80, Multiplan will write a DV80 file wherein each record is longer than 80 characters.

Should you attempt to read such a file with a BASIC program, your system will produce a strange error code and lock up. Apparently the folks at TI thought that a DV80 file couldn't have a record longer than 80 characters so their error handling language does not consider that possibility.

TI Writer, however, will read this illegal file. It will only input the first 80 characters in each record but it is just about the only way to access the file (another is a disk sector editor).

Incidentally, TI Writer is very forgiving when reading files. More than once I have used TI Writer on a file with a glitch that prevented me from reading it. First I loaded the file into the Text Editor and then I saved the file back to disk. This process can remove a glitch.

QUOTES OF THE MONTH

For those who like this kind of a book, this is the kind of a book they will like.

---A book review by A. Lincoln

Knowledge comes but wisdom lingers.

---Tennyson

TI WRITER TIP

The Formatter makes sure that you have two spaces after each period. This can cause such strange things as:

Mr. Smith
1023 N. Fargo Street

These extra spaces jump off the page to the reader as simply wrong. The easiest way I have found to solve this is to use the \ sign to control the spacing. Mr.\Smith will print with just one space as will 1023 N.\Fargo Street.(don't forget to transliterate \ into a space as well!!! ss)

TI BASE : REVIEW

Program: Sophisticated DATABASE.

One disk, 34 page manual, function strip.

PUBLISHER: INSCEBOT. SUPPLIER: TENEX PRICE:US\$25

REVIEW

MICROpendium has already published a lengthy and detailed review of this program, which I am sure everyone with a disk system has read - hmmm? So this will be a short overview and a handful of hints.

TI BASE is unique in the TI world in its "3D" capability: it is possible to use five databases simultaneously, and move data between them or create a report taking data from different databases. It can operate by means of a "command language" including the capability of an initial auto-loaded command file.

The manual gives considerable technical detail on data base structure, and if you wish to do anything that the command language cannot handle, the information is there to help you out, so you can use a Basic or Machine Code utility of your own. A Command is available to make small patches in the machine code, to cover any minor revision.

The manual describes the database as capable of:

up to 255 characters per FIELD.

up to 17 fields per RECORD.

up to 16129 records per DATABASE.

... subject to storage capacity on your storage medium!!!

A database will be comprised of two storage files on disk: a structure file which describes the database, and a data file, which is in IF format, with pure data- no field separators, making it easy to interface to, provided you remember the difference between internal and display formats! A 255 byte disk sector will be used in accordance with the disk DSR for records up to 255 bytes- that is, you can have 12 records of 20 bytes in a single sector. For longer records the program carries out its own blocking.

Here are the commands you can use in a command file: APPEND BLANK, BOTTOM, DOCASE-BREAK-ENDCASE, CATALOG, CHANGE, CLEAR, CLOSE, COLOR, COPY, CREATE, DELETE, DISPLAY, DO, EDIT, IF-ELSE-ENDIF, WHILE-ENDWHILE, FIND, FORMAT, LOCAL, MODIFY, MOVE, PACK, PRINT, QUIT, READ, RECALL, RECOVER, REPLACE, RETURN, SCROLL, SELECT, SET, SORT, TOP, USE, WAIT, WRITE. The system variable eof is available for testing. Strings can be concatenated and trailing blanks trimmed. Maths is available- +-*/^,sqr,log,alog,sin,cos,tan,atan,<,>,<>,,~,NOT,AND,OR.

If like me you have not met the symbol \sim , you may like to know that:

$$4 \sim 4 = 0$$

$$5 \sim 9 = -1$$

$$9 \sim 5 = 1$$

You are probably aware of boolean math, which in this database runs:

$$(9 = 9) = 1$$

$$(9 = 0) = 0$$

Also available are three "date" operators, DAY, MONTH, and YEAR. These are not explained at all in the manual! It is necessary to tell you that the database uses three types of data: Numbers, Characters and Dates. With the version I have, there is no apparent difference between Characters and Dates- both may be any length and contain anything!

You can place a number or date into a character variable/field.

You can place a character string into a date field.

You can place a date or character string into a numeric field ONLY if they only contain numbers.

The length of fields/variables has to be declared.

If you try to place more characters into a character string/date field or variable, your input will be truncated to the declared length - useful form of SEG\$ possible here!

If you try to place a number into a field which is too small, all is lost. The field will display as an asterisk, and will have no function. Bear in mind that when declaring the size of a number, it is much better to overdeclare than to lose data. Although you are stuck with right justification, you can still move your number to/from character string variables and concatenate or trim on the string. There is a lot of power to play with in this program.

If your date variable/field is in the form MM/DD/YY that is, 02/28/88, or if the first eight characters of a character string are in this format, you may extract the individual elements- day, month and year, as follows:

NUMBER=DAY(DATE) will set NUMBER to 28 in this example.

STRING=YEAR(DATE) will set string to 88 in this example.

This is quite a different database to use, and I did have a little trouble getting on top of it at first- notable hang ups for me were:

Failing to notice that string handling must be carried out through an intermediate local variable.

Failing to SET HEADING OFF when printing selected records!

Undocumented features:

SET is shown as used with =, which appears to be optional- see example below.

DELETE is indicated as marking a file as not in use until it is EITHER RECALLED or permanently lost by PACKing. In fact, if you SORT before PACKing, the delete marker is also removed, and the file is not permanently lost.

DATE on program startup can be any 8 characters.

NUMBER fields are RIGHT justified, and leading blanks cannot be stripped, so it will often be more convenient to use CHAR fields for numbers- unless you wish to use math.

CATALOG DSKn. will produce a different report with less information if there are any active local variables. The catalog disk command shows disk name, sectors used and free, and file names, in the order they were created, plus "file type" as a single digit, then number of sectors in file, and record length. The final two items are dropped if there is a local variable defined.

Make sure you make heavy use of the file copy command to back up files on your disk- it is remarkably easy to corrupt data/structure files!!! There IS a RECOVER command, which goes a long way to recovering data, but life is easier if you use pure copy files instead. Recovered files are probably better copied directly into a new pristine data base with an identical structure, using a command file, rather rely on the repair job to hold!

Page Up and Page Down can also be carried on by using Function E and X.

FIND is a single key search, from the top down to the bottom. It will find only the first occurrence- anything else you can do with the command language, possibly using a temporary intermediate database (five can be in use at once!).

Assume data in sorted field is:

- 1 IN
- 2 INSTRUMENT
- 3 INSTRUCT
- 4 INSTRUMENTS

then... FIND "IN" would locate record 1
 FIND "INSTRU" would locate record 2
 FIND "INSTRUM" would find record 2
 FIND "INSTRUMENTS" would find record 4... and so on.

SORT is also on a single key, and works by creating an index- your records will retain record numbers in the order you actually keyed them in, and SORT OFF will restore the database to original record number order.

If you require to actually reallocate record numbers to sorted records, or to carry out a multiple key sort, then you can easily use the "SORT1 AND SPELL1" disk from the group library- this group has paid a licence fee to allow us to copy this disk for our members.

IBM users will be familiar with ECHO ON, and not be shy in using SET TALK ON. The command files are rather like BATCH files, and can even be used to format a disk, catalog a disk, or copy or delete disk files!

HINT: The function keys are described ONLY on the function strip. You may think it a good idea to note them also in the manual!

INPUT screens are standard, but it is possible to create you own by using command files, and you can structure a database so that the user is hardly aware he is using TI BASE! You can READ an input from a screen location (similar to ACCEPT AT) and use this to choose some other command file to run or to select an event in a CASE structure.

DISLIKES:

It is not possible to print out database structure information. If you want a record of this information you must write it down.

It is not possible to PRINT to disk. The PRINT command must go to a printer.

There is no way of picking up an error (to avoid built in error messages, and to suspend a possibly destructive sequence once things go awry), nor to test for the presence of a specific file on a disk. The disk catalog is to screen only.

Some examples of command files.

First, the basic data files I am using, looking like this when SORT is OFF and heading and record number are set ON:

REC	AUTHOR_SN	INIT_FN	TITLE
0000	HEINLEIN	ROBERT	PUPPET MASTERS,THE
0001	HEINLEIN	ROBERT	MOON IS A HARSH MISTRESS
0002	HEINLEIN	ROBERT A	MENACE FROM EARTH, THE
0003	HEINLEIN	ROBERT	DOOR INTO SUMMER, THE
0001	HEINLEIN	ROBERT	STRANGER IN A STRANGE LAND

Here is our first, simple, command file- parameters have been set, so that the command file can be run without making any assumptions, and the first comment line begins with an asterisk:

```
* COMMAND TEST FILE A/C
SET TALK OFF
SET HEADING=OFF
USE BOOKLIST
* datafile booklist on default data disk
CLEAR
SORT ON TITLE
LOCAL TEMP C 60
LOCAL IN C 2
TOP
WHILE .NOT. (EOF)
  REPLACE TEMP WITH TRIM(INIT_FN) ; " " ; TRIM(AUTHOR_SN) ; " " ; TITLE
  PRINT TEMP
  READ 2,20,IN
  MOVE
ENDWHILE
WRITE 2,2,"END OF FILE"
CLOSE ALL
RETURN
```

and the resultant printout is:

```
0003 ROBERT HEINLEIN DOOR INTO SUMMER, THE
0002 ROBERT A HEINLEIN MENACE FROM EARTH, THE
0001 ROBERT HEINLEIN MOON IS A HARSH MISTRESS
0000 ROBERT HEINLEIN PUPPET MASTERS,THE
0004 ROBERT HEINLEIN STRANGER IN A STRANGE LAND
```

To illustrate the use of two databases at once, the following two examples show how, like basic, you can do lots of weird things, and still get the same result. Both examples below will produce exactly the same output as the first command file!

We are using a second database, called TEMP, which has a single field in each record, called TEMP. Yes, you can use databases, variables, and fields, all with the same name, and this program can sort them all out!

For these command files to work, we have previously CREATED the second database, and APPENDED a BLANK record to it for us to use.

→ To save a little space, the line [****] below has been used instead of that long line REPLACE TEMP WITH... from the above command file, but the actual command file would have to have the full original line!

<pre>*COMMAND TEST FILE A/C SET TALK OFF SET HEADING=OFF USE BOOKLIST SORT ON TITLE SELECT 2 USE TEMP SELECT 1 CLEAR LOCAL TEMP C 55 TOP WHILE .NOT. (EOF) [****] REPLACE 2.TEMP WITH 0.TEMP PRINT 2.TEMP * print field temp in slot 2 MOVE ENDWHILE WRITE 2,2,"END OF FILE" CLOSE ALL RETURN</pre>	<pre>* COMMAND TEST FILE B/C SET TALK OFF SET HEADING=OFF USE BOOKLIST SORT ON TITLE SELECT 2 USE TEMP SELECT 1 CLEAR LOCAL PUB C 55 TOP WHILE .NOT. (EOF) [****] SELECT 2 REPLACE TEMP WITH PUB * first look for local TEMP, none, so * looks for field in current database PRINT TEMP SELECT 1 MOVE ENDWHILE CLOSE ALL RETURN</pre>
---	---

When told to use TEMP, the program first looks for a local variable with that name - we can use O.TEMP if we want it to look no farther!

If there is no local variable called TEMP, and we have not specified O.TEMP then it will look for a field called TEMP in the CURRENT database. We can also use a field in any data base that is in use by indicating which of the five slots it is in, without having to SELECT that slot, by modifying the name as follows: 2.TEMP etc.

We have to SELECT the database that we wish to MOVE on a record though. MOVE will only work on the current database - that is, the slot now in use.

This is but a brief discussion. If enough members purchase the program, and ASK ME, then more articles can follow, as this program is a beaut. Particular questions are also welcome.

Note the price- only US\$25, a mere \$5 more than the almost lamentable TOTAL FILER reviewed elsewhere. This program is a bargain. BUY a copy- don't pirate it. Let's keep goodies like this one coming in!

VERY HIGHLY RECOMMENDED for almost any database user.

Stephen Shaw. Sept 1988.

MEMBER SERVICE: The advertised price for overseas orders is US\$25 plus airmail postage US\$8, total US\$33. For members who prefer to order in sterling, and who dont mind waiting a little while for orders to build up, I am prepared to accept your orders, at a cost of £18.00 only, including UK postage to you.

Orders should be placed, with cheque payable to S Shaw, within one month of receiving this issue. If less than five orders are received, funds will be refunded. A disk drive and 32k are required! Note that no UK stock is held- the database will be ordered from the USA especially for you.

CUSTOMIZE MULTI PLAN

FROM TIT-BITS VOL 4 NO 3 FEB 1986
--TI Users PERTH (Australia)--

MICROSOFT built some default values into the program based on certain assumptions. They assumed:

- 1) That you would probably be using only one disk drive.
- 2) That any printer you have would be operating through the RS232 port.

While it is possible, of course, to change these defaults by use of one or more OPTIONS commands, they must be altered each time you start up the program. The purpose of this article is to show you how in just a few minutes, you can permanently alter these default values in the MULTIPLAN program itself and produce a MULTIPLAN system disk customized for your own hardware configuration.

To accomplish this you will need the MPINTR file from your MULTIPLAN system disk, a disk sector editor like Advanced Diagnostics, Disk Fixer or Disko (Qixsoft Disk Manager will also do this task. Editor), and a blank disk. (At this point it may be wise to use a BACKUP COPY for this and not your MASTER copy just in case it goes wrong. Editor) Disko and Advanced Diags. allow you to switch between the edit and either the Hexadecial or an ASCII display of the disk values. Disk Fixer works

only with Hexadecimal numbers. (This applies to the Qixsoft Manager also. Editor). So if you use Disk Fixer, you will have to convert ASCII values for characters into Hexadecimal numbers. All numbers in this article that are preceded by a > sign are Hexadecimal numbers. For instance >22 is the Hexadecimal equivalent of 34.

I have tried this modification myself and found that it works well. Listed below is the sector listing of the original sector and the modified sector. The sector data that has to be altered is contained between the dotted lines. My setup for the printer is RS232/2.BA=9600.DA=8. You will notice that this as well as the length sector has been altered in the second listing. If you have had no experience with Decimal to Hexadecimal conversion, a simple chart is located at the start of this article to aid you with this modification. To enable this to be achieved I used the QIXSOFT Disk Manager. The sector listings can be obtained from that program.

By David Rorer
New Horizons.

ORIGINAL SECTOR LISTING

ENHANCED
MODIFIED SECTOR LISTING

Sector Number = 34

00	02	04	06	ASCII	00	02	04	06	ASCII	Hex	Decimal						
00	392C	8320	3A4C	8320	9	:	L	00	3908	8320	3A28	8320	9	:	L	>02	2
08	3808	8320	38FE	8320	8	8		08	3804	8320	38DA	8320	8	8		>05	5
10	35F2	8320	3DC6	8320	5	=		10	35E0	8320	3DCC	8320	5	=		>08	8
18	3F46	0000	0000	0000	?F			18	3F4C	FF00	0410	0000	?L			>0A	11
20	0000	0000	0000	0000				20	0000	0000	0000	0000				>0B	14
30	0000	0000	0000	0000				30	0000	0000	0000	0000				>0E	17
38	0000	0000	2EAA	0000				38	0000	0000	0000	0000				>11	20
48	0000	0000	0000	0000				48	0000	0000	0000	0000				>14	23
50	0000	0000	0005	4453		DS		50	0000	2EAA	0000	0000				>01	1
58	4831	2E20	0010	4453	K1.	DS		58	0000	0000	0000	0000				>04	4
60	482E	5449	4D50	2E4F	K.TIMP.0			60	0000	0005	4453	4832	DSK2			>07	7
68	5645	524C	4159	000E	VERLAY			68	2E20	0010	4453	482E	DSK.			>0A	10
70	4453	482E	5449	4D50	DSK.TIMP			70	5449	4D50	2E4F	5645	TIMP.OVE			>0C	12
78	2E4D	5048	4C50	0000	.MPHLP			78	524C	4159	000E	4453	RLAY DS			>0F	15
88	0000	0000	0000	0000				88	482E	5449	4D50	2E4D	K.TIMP.M			>12	18
90	0000	0026	0000	0000		&		90	5048	4C50	0000	0000	PHLP			>15	21
98	0000	0000	0000	0000				98	0000	0000	0000	0000				>00	0
A0	0000	0000	0000	0000				98	0026	0000	0000	0000	&			>03	3
A8	0000	0000	0000	0000				A0	0000	0000	0000	0000				>06	6
B0	0000	0000	0012	05E0				A0	0000	0000	0000	0000				>09	9
B8	5000	0000	000C	5253	P	RS		B0	0000	0000	0000	0000				>0B	11
C0	3233	322E	4241	3D33	232.BA=3			B0	0000	0012	0628	5000	(P			>0D	13
C8	3030	2020	2020	2020	00			C0	0000	0014	5253	3233	RS23			>0E	14
D0	2020	2020	2020	2020				C8	322F	322E	4241	3D39	2/2.BA=9			>10	17
D8	2020	2020	2020	2020				D0	3630	382E	4441	3038	600.DA=8			>13	20
E0	2020	2020	2020	FFFF				D8	2020	2020	2020	2020				>16	23
E8	03E0	03FA	24C6	0000		\$		E0	2020	2020	FFFF	03E0				>01	1
F0	0000	0003	0000	FFFF				E8	0412	24CC	0000	0000				>04	4
F8	047A	0494	24E0	0000	z	\$		F0	0003	0000	FFFF	0492				>07	7

The MPINTR file can be from the original MICROSOFT/TI disk or from the enhanced MULTIPLAN system disk. (This is available from the disk library. Editor.)
 The second sector of the MPINTR file contains the default values for :
 1) The data disk drive
 2) The Overlay volume and filename.
 3) The MPHLP volume and filename.
 4) The printer assignment.

The first byte of each entry is the length of the default entry, not counting the length byte. The location of the fields are:

Location	Entry
>55 - >5D	Data Disk Drive
>5D - >6E	OVERLAY information
>6F - >8A	MPHLP information
>8D - >E5	Printer information

In the ENHANCED file:

>58 - >62	Data Disk Drive
>63 - >74	OVERLAY information
>75 - >90	MPHLP information
>C3 - >E6	Printer information

TIMES

For example, to change the printer assignment to PIO the entry byte >80 would be >83 >58 >49 >4F. NOTE! That the length >83 does not include itself. The other values are the Hexadecimal codes for the ASCII code P, I and O. The remainder of the printer field should be padded out with the space character, >20. The other three fields are padded with >00.

The easiest method of finding the correct sector of the file to edit is to initialize a new disk and copy only MPINTR onto it. If the initialization and copy work correctly MPINTR will start at sector >22, (34). The sector to edit is sector >23, (35). Edit the sector to your satisfaction and write it back to your copy of MPINTR. Then copy your new MPINTR onto your MULTIPLAN system disk.

If all has gone well, you now have a customized MULTIPLAN disk with YOUR printer set-up.

If you also wish to change your data disk file, so that you can have the TIMP disc in drive 1 and your data disc in drive 2 a second minor alteration must be made. This concerns the Byte >59 on the ORIGINAL MULTIPLAN or Byte >5F on the enhanced version of MULTIPLAN this must be altered to read >32.

This can be easily seen when comparing the ORIGINAL and ENHANCED sector listings given overleaf

GOOD LUCK!

Les Twiss.

TIPS FROM THE TIGERCUB

#46 & #47

(Excerpted by S Shaw)

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NUTS & BOLTS NO. 2, another full disk of 108 utility subprograms in merge format, all new and fully compatible with the last, and with 10 pages of documentation and examples. Also \$15 postpaid.


```
*****
; NUTS & BOLTS #3 is now ;
; ready, another full disk ;
; of 140 new merge-format ;
; utility subprograms, all ;
; compatible with the pre- ;
; vious. With 11 pages of ;
; documentation, $15 ppd. ;
*****
```

TIPS FROM THE TIGERCUB, a full disk containing the complete contents of this newsletter Nos. 1 through 14, 50 original programs and files, reduced to \$10 ppd.

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TIGERCUB CARE DISKS #1, #2 & #3, three full disks of text files, mostly of lessons on programming in XBasic, \$5 per disk postpaid.

=====

```
100 !MOCKINGBIRD TINYGRAM by
    Jim Peterson. Tap your
    tune on the 1 to 0 keys
    (tuned A through C)
110 !Then press any other
    key to hear it repeated
120 DATA 220,247,262,294,330
    ,349,392,440,494,523
130 FOR J=1 TO 10 :: READ N(
    J):: NEXT J :: J=0 :: DIM T(
    50,2)
140 CALL KEY(5,K,S):: IF S=0
    THEN 140
150 ON ERROR 190
160 CALL KEY(5,K,S):: IF K=-
    1 THEN 160 :: K=K-(K=48)*10
    :: T(J,1)=N(K-48):: CALL SOU
    ND(-999,T(J,1),0)
170 IF K=K2 THEN T(J,2)=T(J,
    2)+1 :: GOTO 160
180 K2=K :: J=J+1 :: GOTO 16
    0
190 FOR X=0 TO J-1 :: CALL S
    DUND((T(X,2)+1)*400,T(X,1),0
    ,T(X,1)*1.01,0):: NEXT X ::
    J=0 :: GOTO 140
```

A little subprogram to add a bit of variety to your "PRESS ANY KEY" routine.

```
1 CALL CLEAR :: CALL PRESSKE
    Y(24)
30000 SUB PRESSKEY(R)
30001 C=C+1 :: IF C=16 THEN
30002 :: DISPLAY AT(R,1):"
    :: DISPLAY AT(R,C):"PRESS AN
    Y KEY" :: DISPLAY AT(R,C):"p
    res any key" :: CALL KEY(0,
    K,S):: IF S=0 THEN 30001 ELS
    E 30003
30002 C=C-1 :: IF C=0 THEN 3
    0001 :: DISPLAY AT(R,1):" " :
    : DISPLAY AT(R,C):"PRESS ANY
    KEY" :: DISPLAY AT(R,C):"pr
    ess any key" :: CALL KEY(0,K
    ,S):: IF S=0 THEN 30002
30003 DISPLAY AT(R,1):" " ::
    SUBEND
```

And a new way to wipe the screen -

```
1 CALL CORNERWIPE(30)
29000 SUB CORNERWIPE(CH):: F
    OR T=1 TO 24 :: CALL HCHAR(T
    ,3,CH,T+4):: CALL HCHAR(25-T
    ,32-T,CH,T):: NEXT T :: CALL
    CLEAR :: SUBEND
```

The trouble with me is that, before I finish one program I've thought of another that I want to try writing - and so I don't take time to test completed programs as well as I should. The Decompactor in Tips #35 was one that should have been tested more thoroughly. I think this version will work. It will break an XBasic program into single-statement lines to make it easier to modify. Then, John Dow's Compactor or a similar program will put it back together.

```

100 !DECOMPACTER V.1.1 by Ji
    m Peterson fixed 12/87
110 DISPLAY AT(3,1)ERASE ALL
    : "TIGERCUB DECOMPACTER V.1.1
    " : " Program must first be
    -" : "RESequenced to greater
    in-" : "crements than the num
    ber"
120 DISPLAY AT(9,1): "of stat
    ements in any one" : "line." :
    : "SAVED by" : " SAVE DSK(file
    name),MERGE"
130 DISPLAY AT(16,1): "INPUT
    FILENAME?" : "DSK" : ACCEPT A
    T(17,4): IF $
140 DISPLAY AT(16,1)ERASE AL
    L : "OUTPUT FILENAME?" : "DSK" :
    : ACCEPT AT(17,4): OF $
150 OPEN #1: "DSK"&IF$, INPUT
    , VARIABLE 163 : OPEN #2: "DS
    K"&OF$, OUTPUT, VARIABLE 163
160 LINPUT #1: M$ : LN=ASC(S
    EG$(M$,1,1)) *256+ASC(SEG$(M$
    ,2,1)): IF LN>LN2 THEN 180
170 DISPLAY AT(12,1)ERASE AL
    L BEEP: "ERROR! RESEQUENCE PR
    OGRAM TO" : "GREATER INCREMENT
    S AND TRY" : "AGAIN." : CLOSE
    #1 : CLOSE #2 : STOP

```

Here is an improved version of the CATWRITER program to create the Tigercub QUICKLOADER, which is intended for disks of programs which you have filled and do not plan to change. It will read the directory, display each filename, and ask you for the complete program name of each one. Then it prepares a program which displays one or more menu screens of complete program names, and auto-loads whichever one you select.

First, key in this part and save it to disk by SAVE DSK1.CAT1,MERGE.

If you want, you can change the screen and character colors in line 10. Don't change the line numbers!

```

10 CALL CLEAR : DIM M$(127)
    : CALL SCREEN(5) : FOR S=0
    TO 14 : CALL COLOR(S,16,1) :
    : NEXT S : CALL PEEK(8198,A
    ) : IF A<>170 THEN CALL INIT
11 REM (leave this in!)
12 ON WARNING NEXT : GOSUB
    21
13 X=X+1 : READ M$(X) : IF
    M$(X)<>"END" THEN 13
14 R=3 : FOR J=1 TO X-1 :
    READ X$ : DISPLAY AT(R,1): S
    TR$(J);TAB(4);X$ : R=R+1 :
    IF R<23 THEN 17
15 DISPLAY AT(24,1): "Choice?
    or 0 to continue 0" : ACCE
    PT AT(24,26)VALIDATE(DIGIT)S
    IZE(-3):N : IF N>X-1 THEN 1
    5
16 IF N<>0 THEN 10000 : R=3

```

```

180 LN2=LN
190 P=POS(M$,CHR$(130),3)::
    IF P=0 THEN PRINT #2:M$ : G
    OTO 260
200 A$=SEG$(M$,1,P-1):: R=PO
    S(A$,CHR$(132),3):: S=POS(A$
    ,CHR$(201),3)
210 IF R=0 THEN PRINT #2:A$&
    CHR$(0):: GOTO 250
220 IF S=0 AND R<>0 THEN PRI
    NT #2:M$ : GOTO 260
230 IF S<>0 THEN IF S-R<3 TH
    EN PRINT #2:A$&CHR$(0):: GOT
    O 250
240 PRINT #2:M$ : GOTO 260
250 LN=LN+1 : LN2=LN : GOS
    UB 270 : M$=LN$&SEG$(M$,P+1
    ,255):: GOTO 190
260 IF EOF(1)<>1 THEN 160 EL
    SE CLOSE #1 : CLOSE #2 : D
    ISPLAY AT(12,1)ERASE ALL: "En
    ter NEW" : "Then Enter" : " M
    ERGE DSK"&OF$ : END
270 LN$=CHR$(INT(LN/256))& CH
    R$(LN-256*INT(LN/256)): RET
    URN

```

```

17 NEXT J
18 DISPLAY AT(24,1): "Choice?
    " : ACCEPT AT(24,9)VALIDATE
    (DIGIT):N : IF N=0 OR N>X-1
    THEN 18
19 CALL CHARSET : CALL CLEA
    R : CALL SCREEN(8) : CALL P
    EEK(-31952,A,B) : CALL PEEK(
    A*6+B-65534,A,B) : C=A*6
    +B-65534 : A$="DSK1."&M$(N)
    : CALL LOAD(C,LEN(A$))
20 FOR J=1 TO LEN(A$) : CALL
    LOAD(C+J,ASC(SEG$(A$,J,1)))
    : NEXT J : CALL LOAD(C+J,0
    ) : GOTO 10000
21 CALL LOAD(8196,63,248)
22 CALL LOAD(16376,67,85,82,
    83,79,82,48,8)
23 CALL LOAD(12288,129,195,1
    26,165,129,153,102,60)

```

```
24 CALL LOAD(12296,2,0,3,240
,2,1,48,0,2,2,0,8,4,32,32,36
,4,91)
```

```
25 CALL LINK("CURSOR"):: RET
URN
10000 RUN "DSK1.1234567890"
```

Next, key in this little routine and run it to create a file called CAT2. If you added or deleted any lines in the CAT1 file, change the J-loop accordingly.

```
100 OPEN #1:"DSK1.CAT1",VARI
ABLE 163,INPUT
110 OPEN #2:"DSK1.CAT2",VARI
ABLE 163,OUTPUT
120 FOR J=10 TO 26 :: LINPUT
#1:M$ :: PRINT #2:CHR$(0)&C
HR$(J)&CHR$(156)&CHR$(253)&C
HR$(200)&CHR$(1)&"2"&CHR$(18
1)&CHR$(199)&CHR$(LEN(M$))&M
$&CHR$(0):: NEXT J
130 PRINT #2:CHR$(255)&CHR$(
255):: CLOSE #1 :: CLOSE #2
```

Finally, key in CATWRITER.

Leave the line numbers as they are, we need that space after line 5. Then MERGE in DSK1.CAT2 to combine the two, and SAVE.

```
1 CALL CLEAR :: CALL TITLE(1
6,"CATWRITER"):: CALL CHAR(1
24,"3C4299A1A199423C"):: DIS
PLAY AT(2,10):"Version 1.3":
;:TAB(8);"! Tigercub Softwar
e"
2 DISPLAY AT(15,1):"For free
":"distribution":"but no pri
ce or":"copying fee":"to be
charged." :: FOR D=1 TO 500
:: NEXT D :: CALL DELSPRITE(
ALL)
3 DISPLAY AT(2,3)ERASE ALL:"
TIGERCUB CATWRITER V.1.3":;:
" Will read a disk directory
,":"request an actual progra
m":"name for each program-ty
pe"
4 DISPLAY AT(7,1):"filename,
and create a merg-":"able Q
uickloader which dis-":"play
s full program names and":"r
uns a selected program."
5 OPEN #2:"DSK1.CATMERGE",VA
RIABLE 163,OUTPUT
100 OPEN #1:"DSK1.",INPUT ,R
ELATIVE,INTERNAL :: INPUT #1
:N$,A,J,K :: LN=1000 :: FN=1
100
110 DISPLAY AT(12,1):"Disk n
ame?":;:N$ :: ACCEPT AT(14,1
)SIZE(-28):N$ :: LX$=STR$(14
-LEN(N$)/2):: LXLEN=LEN(LX$)
120 PR$=CHR$(0)&CHR$(11)&CHR
$(162)&CHR$(240)&CHR$(183)&C
HR$(200)&CHR$(1)&"1"&CHR$(17
9)&CHR$(200)&CHR$(LXLEN)&LX$
130 PR$=PR$&CHR$(182)&CHR$(1
81)&CHR$(199)&CHR$(LEN(N$))&
N$&CHR$(0):: PRINT #2:PR$
```

```
140 X=X+1 :: INPUT #1:P$,A,J
,B :: IF LEN(P$)=0 THEN 180
:: IF ABS(A)=5 OR ABS(A)=4 A
ND B=254 THEN 150 ELSE X=X-1
:: GOTO 140
150 DISPLAY AT(12,1):P$;"
PROGRAM NAME?" :: ACCEPT AT
(14,1)SIZE(25):F$
160 PRINT #2:CHR$(INT(FN/256
))&CHR$(FN-256*INT(FN/256))&
CHR$(147)&CHR$(200)&CHR$(LEN
(F$))&F$&CHR$(0):: FN=FN+1
170 M$=M$&CHR$(200)&CHR$(LEN
(P$))&P$&CHR$(179):: IF X<11
THEN 140
180 IF M$="" THEN 200
190 PRINT #2:CHR$(INT(LN/256
))&CHR$(LN-256*INT(LN/256))&
CHR$(147)&SEG$(M$,1,LEN(M$)-
1)&CHR$(0):: LN=LN+1 :: M$="
" :: X=0 :: IF LEN(P$)<>0 TH
EN 140
200 PRINT #2:CHR$(INT(LN/256
))&CHR$(LN-256*INT(LN/256))&
CHR$(147)&CHR$(200)&CHR$(3)&
"END"&CHR$(0)
210 PRINT #2:CHR$(255)&CHR$(
255):: CLOSE #1 :: CLOSE #2
220 DISPLAY AT(8,1)ERASE ALL
:"Enter -":;:" NEW":;:" ME
RGE DSK1.CATMERGE":;:" DELE
TE "DSK1.CATMERGE""::;:" S
AVE DSK1.LOAD"
230 SUB TITLE(S,T$)
240 CALL SCREEN(S):: L=LEN(T
$):: CALL MAGNIFY(2)
250 FOR J=1 TO L :: CALL SPR
ITE(#J,ASC(SEG$(T$,J,1)),J+1
-(J+1=S)+(J+1=S+13)+(J>14)*1
3,J*(170/L),10+J*(200/L)):;
NEXT J
260 SUBEND
```

Mike Stanfill and Ed Machonis and others have been publishing some neat little "tinygram" programs which can be listed on a single screen, so here is my contribution. It's not only a one-screener, it's a one-liner!

```
1 RANDOMIZE :: PRINT : : : :
: : : A=INT(RND*7):: B=INT(R
ND*9+1):: FOR X=1 TO 5 :: Y=
A*X^2-B*X+B :: PRINT Y;:: NE
XT X :: Y=A*X^2-B*X+B :: PRI
NT : : : INPUT "GUESS NEXT
NUMBER":N :: IF N=Y THEN PRI
NT : "RIGHT" :: GOTO 1 ELSE P
RINT : "CORRECT IS":Y :: GOTO
1
```

[Stephen here- to enter that lot on one line, you will have to make extensive use of insert edit, tiring! It works fine on several lines too]

MEMORY FULL! - Jim Peterson

NOTE: Member offer: To assist Jim with his sale of low cost programs, I am happy to collate orders and accept payment in sterling at the following rates:

\$1=62p, \$5=3.25, \$10=6.50, \$15=9.50

Postage, which includes both Jims postage to me and my postage to you, an extra 20% on top, with the POSSIBILITY that I may ask you for an extra 20% if VAT and Duty are levied on delivery. Orders are subject to Jim's minimum order value of \$10.

I have his CATALOGUE on disk and can supply it upon request if you send a blank disk and return post. For cassette owners, I have a SMALL supply of printed catalogues too, so write soon, and please enclose 70p. Stephen Shaw

TOTAL FILER : REVIEW

Program by Warren Agee, Documentation by Chris Bobbitt.

Published by Asgard Software. Price about US\$20. One disk.

Written in c99.

Effective documentation 8 pages.

Total Filer is a simple fixed-format data base. The documentation gives no technical details, so what follows is from experiment. The only technical information in the documentation is that the first field can contain 40 characters. It can actually contain 78.

This data base has a total of six fields. You CAN amend the field titles, but that is all. The first field can hold 78 characters, then fields 2, 3 and 4 can each hold 39 characters.

Field five is a special field, which holds "keywords". You can enter up to 78 characters, but once saved you can only view the first 39. All characters are active even though you cannot see them! More on keywords later.

Field six is a full screen- a little under 800 characters.

When entering data into a field with the capacity for more than one line of data, you have to press ENTER for each line- a bit of a pain if you don't want to put much into field six! Otherwise, text wraps around automatically.

This "database" will not allow you to amend the input screens nor to amend the output format (to screen or printer). There is no sorting. Just the "keyword" search. Imagine three records with these keyword fields:

1: ONE THE CAT SAT ON

2: TWO THE MAT WHILE

3: THREE THE DOG HOWLED.

If you now search for the keyword THE, you will be given a list of all three records, but search on TWD and only record two is listed.

The keyword search also allows a "wildcard" character, the asterisk (the documentation refers to an astericks)(it looks like this:"*"). Thus we can search for *AT then both records 1 and 2 will be listed.

Each record is held in a separate disk file, thus there is a limit, imposed by the bit map method, of 127 records per disk, regardless of disk size. However, a single database may have records on more than one disk- you just have to search on every disk in sequence.

Thus TOTAL FILER is fairly unique in the TI world in permitting an endless database, and it also allows what appears to be the longest field (around 800 characters). I am not at all sure if this makes up for its fixed format, or its price. For only another five dollars, you can buy TI BASE.

The documentation dwells at some length on the intended use of TOTAL FILER, to keep track of articles in magazines or on disks, hence the preset field names, which are: Article Name, Author, Diskette, Miscellaneous, Keywords, and Abstract. This is a software product you either want or not. If it does not suit your purpose, you can't alter it very much! It is fairly easy to use.

Stephen Shaw

```

X  X  BBBB
  X X  B  B
    X  BBBB      By
  X X  B  B      Jim
X  X  BBBB      Swedlow
    
```

[This article originally appeared in the User Group of Orange County, California ROM] (excerpted by stephen shaw)

PRODUCT REVIEW - NEATLIST

NEATLIST will take any program in memory and list it to any legal device (printer, disk, etc.) with the same speed as the LIST command. It has, however, several advantages:

- Each line of the listed program can be up to 255 characters wide. You can, therefore, use your printers powers (condensed print, expanded print, etc.).
- You can send function codes to your printer enabling you to access its features.
- NEATLIST can print out a list of variables used in the program and, if you opt, a list of line numbers where each variable is used.
- It is an assembly language program that loads thru XB.

The list is nicely designed. Consider this program:

```

10 CALL CLEAR :: PRINT ::
DIM A(5)
20 FOR I=1 TO 5 :: A(I)=I
:: NEXT I
    
```

NEATLIST would produce this:

```

10 CALL CLEAR ::
PRINT ::
DIM A(5)
20 FOR I=1 TO 5 ::
A(I)=I ::
NEXT I
    
```

NEATLIST is available from our library!

It is distributed under the freeware concept, pay the author only if you like the product. I did and I did. Danny Michael, the programmer, asks for \$10. A reasonable market price would be \$20 to \$30!

If you have memory expansion, a printer and a disk drive, you will find NEATLIST quite useful for debugging and pre scan (see below).

If you like NEATLIST, pay the programmer the \$10 he asked for. He earned it!

=====

CALL PEEK

This is from the NEATLIST documentation. CALL PEEK(8198,A) will let you know if a CALL INIT has been performed. If A returns as 170 then it has, any other value indicates that it has not.

=====

PRE SCAN

You load your program, enter RUN and then . . . nothing. Finally your program starts to execute. On a short program this wait is not noticeable but on a long one it can seem endless. Why the delay?

TIMES

Your 99/4A is going thru your program, line by line, and allotting memory space. It is noting each variable used, each subprogram CALLED, the first DATA line, DEF statements, DIM statements, etc.

Futhermore, it is making an unduplicated list. Suppose you use the variable A 123 times in your program. The first time your 99/4A notes it and makes memory space. The other ONE HUNDRED AND TWENTY TWO TIMES it checks, notes that it already knows about this variable and moves on. Even at the speed of the 4A, this takes time.

XB has some tools to control pre scan. !@P- turns it off and !@P+ turns it on. The following items must be in the range of the pre scan:

- At least one use of each variable.
- At least one use of each CALL statement. For example, if you use CALL CLEAR five times, the first use must be within the pre scan.
- All DEF, SUB, SUBEND, DIM and OPTION BASE statements.
- The first DATA statement in the program.

!@P+ must be on a line by itself while !@P- can be at the end of a multi-statement line.

There is also a short cut -- pre scan does look at CALL statements but it doesn't check validity. Therefore you can do something like this:

```
10 DATA 2,3,4
20 OPTION BASE 1 :: DIM A(17)
   :: GOTO 30 :: CALL HCHAR ::
   :: CALL SPRITE :: CALL SAY
   :: R,S,T,U,V=W :: A#=B#
   :: !@P-
30 ! Program continues
```

Note that the code after GOTO 30 in line 20 will never be executed so it does not need to meet syntax requirements.

You should not activate pre scan until your program is fully debugged. If you forget something, you will get a SYNTAX ERROR.

With a bit of work, you will cut the pre scan time down significantly!

=====

Rambles Post Script:

An interesting enquiry asked if it was important to enter programs from listings in the same order as the listing, and in particular, whether it slowed things down if you enter the subroutines (using listing line numbers) after the CALL, to test them out.

If BASIC programs are written for maximum efficiency (pretty rare!) then in theory you should enter your program lines in line number order. GOSUBS should also always be forwards, never back. This will ensure maximum speed- but line transfers are so swift, in most programs you are not likely to notice any slight slowing down by departing from theory.

Editing program lines will also place them out of order... so if you do a lot of editing, your program lines could be well out of order in memory! If this concerns you, you can restore the program to strict line number order IF you have a disk system, by using:

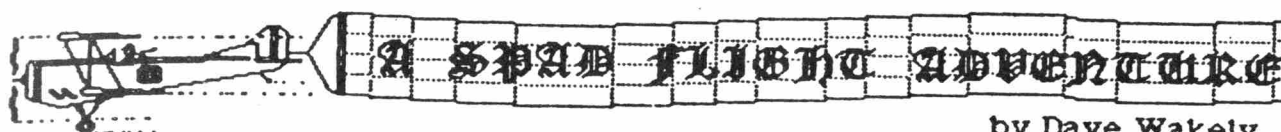
```
SAVE DSK1.TEMP,MERGE
NEW
MERGE DSK1.TEMP
```

and for a long program, this can take a long time to load in! BUT the computer will restore order.

You can use this hint to experiment a little... does it make things any faster? Notably so? Write and tell me!

Stephen Shaw

Chicago Times



by Dave Wakely

Spadventure #2: The Case of the Walking Willow

By now most Spad owners have probably taken off and fought the good fight in the skies. For many, as soon as the package was opened, you chased the "observation planes" and tried to shoot them down, or, if you have the Mark 2 version, taken on the Red Baron, with possibly disastrous results. It is after some of this, however, that you may find yourself tiring of the "game" aspects of Spad XIII.

There will probably come a time when some combat techniques will find their way into this series, but its real purpose is to explore the limits of the simulation, to find the undocumented and unknown, and in general to increase your enjoyment of this program. Last time, we took a long initial flight to see some of what there is to see from the air, and to demonstrate some very basic techniques. This time we are going to stick closer to home while learning other basic maneuvers. As you may have figured out, this series is not meant to be read away from the computer. The best way to use it is in conjunction with the program itself. By booting up Spad XIII and keeping this page next to the keyboard, you will be able to follow along as we take each flight.

Those of you with the Mark 2 version will have an easier time of this since there is a way to "pause" during a flight. If you press the "M" key all action will stop and a menu of locations will appear at the top of the screen. This is an added feature of Mark 2 which allows you to travel to different places instantly. You can also use it when the phone rings or to stop to catch up with the instructions here. When you pause with this key, however, don't play around with number keys 1-4 on the menu, since they no longer are "view" keys, but will now move you to a different place on the map, which you don't want to do, because you cannot return to the same place you were when you pressed the key unless you were at one of the designated spots. To resume the flight, press "S", the menu will disappear, and the action will pick up where you left off.

Thanks to some help from Not-Polyoptics, I now have a copy of Version 1 of Spad XIII. This has let me discover that some of the directions I gave last month were incorrect, as you probably already know. I assume that most readers of this column have Version 1, but to get the most from the series, and the program, you will want to upgrade to Mark 2. For example, I hope some of you aren't still up there circling around trying to find the "lines" on the ground I mentioned last time. There are no perspective lines in Version 1, but they definitely add an important dimension to Mark 2. Also, the plane itself is "smaller" in Mark 2. In both versions the instrument view shows the wings of the plane on the screen. In Version 1 the top wing is fairly large and near the top of the screen. By contrast, in Mark 2 the upper wing is smaller and lower on the screen, giving more viewing area. In general, Mark 2 is also significantly faster than Version 1, especially when it comes to updating the graphics. Version 1's scenery, and even the sound, tend to be "jerky", but in Mark 2 things move more "smoothly", adding to the overall effect. I also know more about the control differences I was only guessing at last time. In Version 1, when the appropriate key is pressed to move the stick, it recenters when you let up, but the plane remains "banked" until you level off by pressing the opposite key. In Mark 2 the key recenters when you let up, and the plane also recenters automatically. This makes more intuitive, if not aerodynamic, sense. If the stick has been returned to center, the ailerons are level, and the plane should begin straightening out. In the future, all Spadventures will be run on both versions, and important differences will be noted here. Meanwhile, on to this month's spadventure.

Start up this flight by going through the pre-flight check-out outlined in the last installment. Strangely enough, it's another beautiful day out there, and it's also a good time to explore and learn. On our last take-off I asked you to throttle up in increments by repeatedly pressing the "8" key until the top RPM setting was reached. But the keyboard template clearly reveals that by pressing "9" the throttle will be immediately put on full, so why not use that? First, it is probably not good for the engine, especially from a cold start. Those early Spring mornings in France can cause condensation to form inside the engine, and it will take some time for engine heat to dissipate it. Second, it was necessary to show you the relationship between engine RPM and speed. This morning, however, the crew has had your Spad out on the tarmac for some time, warming up, and if you want to go to full throttle, use the "9" key.

As usual, when speed \rightarrow 100 MPH, pull back on the stick until the nose rises (or the scenery "drops"). In Mark 2 you will hear a beep which sounds at take-off speed. Watch the altitude gauge. This is a steep climb, and the indicator may "jump" right to 100 feet. When it does, take off two clicks of RPM by pressing "7" twice. This is a slower climb, and the alt. gauge will show 150 feet, then 200. When it does, drop two more clicks. You are now at 800 RPM, which you will recall puts you in level flight. This is one of the significant numbers you want to remember.

As you look around, you will see the field receding in the distance behind you. Something else you may or may not see is one of the German observation planes. These planes tend to hang around in what the map calls the "Combat Area". For the most part, if you don't bother them, they won't bother you, but there are some important exceptions to this. Recall that the manual notes that these planes have guns which can fire in any direction. On their random circles, if an observation plane comes fairly close to you it will fire at you, and can destroy your aircraft, which will considerably shorten this flight. This is a random occurrence, but one you should be aware of. To minimize this possibility, we are going to stay on our present heading until the home airfield completely disappears from sight. Look back with the "4" key. Is the field gone yet?

Now look out the front with an unobstructed view ("U" key). What else can you see out there? Besides the horizon line, clouds (in Version 1 there is a solid white line of "distant clouds" above the horizon line, in Mark 2 there is a line of dots which more closely resemble clouds above the horizon), the sun, and your shadow, what else is there? Well, for one thing, those small dots on the ground in front of you are trees. In the Microsoft flight simulator, there are no trees, only green patches. From this height you can see them reasonably well, so watch them slide by under you, observing them off your left or right wing, and then behind you. They will appear to arrive in equal intervals. Very tidy, these French people, they even have all their trees lined up.

As one tree gets fairly close, another will pop into view. Pick out one of the distant ones and then let's head down for a closer look. Use left or right aileron to get one centered on the screen while it is still some distance away. Now put on full instrument view ("1" key) and use three or four down clicks of power to reduce altitude. Push the stick forward to get the tree lined up in your crosshairs, then, watching your speed and altitude (keep that nose up), land some good distance in front of a tree, then press the "0" key to kill power, and you will roll to a stop.

Okay, so it didn't end up dead center, the tree is slightly to the left or right of center. No matter. Let's get rolling again by putting on some power. Use the "8" key to step up five (5) clicks, to 500 RPM. Your airspeed will still read "0"! Not enough torque to move the mass of the plane, I guess. Add one more click (600 RPM) and you will begin rolling. Eventually, the air speed indicator should tell you that you are moving at a steady 30 MPH. Now to zero in on that tree. Use left or right aileron to move the tree back to the center of the screen. Go ahead, I'm waiting.

Yes, the horizon line "moves", indicating a bank, but the scenery doesn't move, and the tree will stay to the left or right of center. Time to kill the engine ("O") and think this one out. What could be wrong? Let's see, when you move the stick left, the right ailerons (yes, there are two, this a biplane, remember?) go up, and the left ailerons go down, producing a differential effect on the wings, and the plane turns, doesn't it? No, in this case it doesn't. It looks at this point like whatever direction we are pointing in when we land is the direction we are stuck with, and we are never going to nose up to that tree at this rate. Hmmmm. Perhaps it is a matter of degree. What if you press the "A" or "F" key for hard left or right bank? I wouldn't do that if I were you. At 30 MPH you can probably get away with it, although the plane still won't turn, but at higher speeds what happens is that your left or right wing will slam into the ground, producing the "crash" screen,

Still, you should be close enough to the tree to get a good look at it as it goes by. You should see it grow in definition as it gets closer, then off the left or right wing, and then behind you. What exactly is it, an elm, an oak? Hard to tell with no leaves on it. Maybe it's a telephone pole, and that's why they are all lined up like that. They did have telephone poles in 1917, didn't they?

All right, forget it. There are other trees. Take off again using the usual procedure, again leveling off at 200 feet. This time, get a tree in the dead center of the crosshairs all the way down to the ground. It may take several tries, but it can be done. When you have it, kill power again. Now when you power up you are going to roll right up to that thing. Get back to 600 RPM and you will be lazily rolling at 30 MPH. It is going to take a while to get to the tree at this rate, so give it one more click to 700 and the speed indicator will stop at 90 MPH. You don't want to move any faster than this while on the ground, because like it or not, you will take off! Even without pulling back on the stick to increase the "angle of attack", the speed of the air on the wings will cause sufficient lift to take the Spad airborne. Perhaps you could fight this tendency by pushing forward on the stick, but why bother? So 700 RPM = 90 MPH when on the ground. At this rate, the tree is going to whiz past before you know it, so back off a click to 600 and speed will decrease to about 85.

Now wait a minute here, doesn't 600 RPM = 30 MPH like earlier? In a word, no. Once you are rolling there is much less inertia to overcome. Similarly, at 500 RPM, speed = 80; at 400 RPM, speed = about 60; and at 300 speed will finally drop back to 0, but all of the above is true only if you are already rolling. Find a comfortable rolling speed as you approach your dead center tree and watch what happens. During this, put on and take off the instrument view as needed. Since you landed pointing straight at the tree, and you can't possibly turn, you should come right up to it, yes?

Uh, wait another minute here. The tree just moved! That thing hasn't got roots, it's got legs! It's sliding off to the left or right again, and we're going to miss it again. Maybe those are fake trees with German spies behind them who don't want to get run over. I seem to recall something like this in Hamlet* Very strange. Perhaps this is due to some inaccurate ground level perspective mapping. Or something. Anyway, there it goes, off to the side of the plane.

All right, on to the point of this flight. Take off one more time. Same procedure. Find a tree. Line it up. Land in front. You need the landing practice anyway. Now, as you start rolling and the tree starts sliding away, look for the < and > rudder keys. Try one. Aha, movement! The tree is coming back to center. It may try to get away, but we won't let it. With practice, you will be able to get the tree perfectly centered on the crosshairs, but if you are moving too fast you may overshoot it, so go slow. Now, get the tree dead center, a few feet in front of the plane, and stop ("O" key) to ponder. If you like, feel free to hop out of your Spad and stretch your legs a bit. Smoke 'em if you've got 'em. It's not good for your health, but in this war who knows how long you'll be around?

* MACBETH (ED.)

It's kind of ironic, when you think about it, that one of the first things we learn about trees is that they are "lovely" (as in, "I think that I shall never see, A poem lovely as a tree", etc.). That was written by Joyce Kilmer, who, contrary to expectations, was a soldier who died in the trenches of this same WWI. One thing's for sure, though, this must not have been the tree he was looking at. No spies, no telephone wires, just four or five bare branches on a skinny trunk, but it's definitely a tree. They didn't have defolients in 1917, did they? Maybe some of the deadly mustard gas they used in the war drifted here and did a number on the leaves.

Well, time to get on with it. Climb back into the cockpit and power back up to 600 RPM, which from a stop on the ground will yield 30 MPH, and on we go. But, oops, hold on there. The tree is dead ahead and we are pointing right at it and we are soon going to be either eating bark or leaving a pile of toothpicks behind us, and which is it going to be, because here comes that tree. Scotty, beam me up, quick! Drat, I forgot my communicator, too late...

Ah, well! Wasn't THAT strange! Reminds me of an old episode of the Twilight Zone. So, what exactly happened? Hey, fly it and find out, that's the point of all this!

Although the manual states (p.3) not to use the rudder without ailerons, this in fact is the way to taxi on the ground, which is what we have been trying to do. With this technique, you can point the Spad anywhere you want to go. Now that we are up to a good rolling speed, let's try to turn around to head back to the home airfield. Use the left or right rudder until the compass indicates straight South. See, a piece of cake. With this and the ground speed rules above, you should now be able to just about put the Spad on a dime anywhere in the simulator.

While still rolling, power back up to top throttle and take off, once more leveling off at 200 feet. You may be surprised at how far you now are from the home airfield, but keep looking for it, and it will eventually pop up. You should be just about lined up with the North end of the runway when you spot it. If you are slightly off, use aileron and/or rudder to come straight in. When the field goes 3-D, quickly take off four clicks for your approach.

Uh, remember that landing technique from last time? Since you are coming in at a much lower altitude, you will have to modify it a bit. (This is a heck of a time for me to tell you this, isn't it?) This time, keep your crosshairs on the FAR end of the runway all the way or you will land short, and keep powering down. This will produce a much "flatter" approach, and when the altitude indicator says "0", pull up on the stick so you don't nose in too hard. Now, if you still have your wits about you and while you are still rolling, see if you can taxi into the hanger. If you stop moving, the program will reposition you on the runway, facing North. That's still much better than other alternative "landings".

If you want further practice with this scenario, see if you can get close enough to a tree to see some branches with an overhead view. That's REAL close to a tree. Are all the trees in Spad the same? I don't know. Go look. And, if you want to be consistent when landing and still use the steep descent we practiced last time, wait a while after the field goes 3-D and then head down with the crosshairs on the NEAR end of the runway, beginning to pull up at 100 or 50 feet and then landing.

Next time, I'll have some interesting and intriguing comments from the people who produced the Spad XIII. We stayed pretty low on this flight, so before our next you will probably want to get up there and air it out a bit. I'll join you up there next time. Happy flying.

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