

# Issue Number 29

# TANGERINE USERS GROUP

# **NEWSLETTER**

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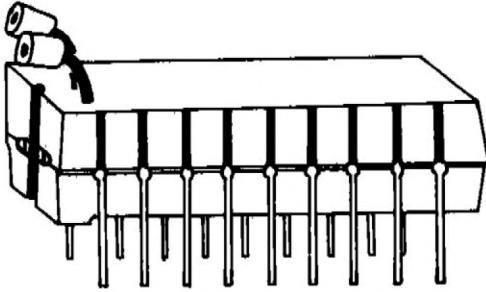
JUG  
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OPPLE  
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MICROTAN 65 SHOP  
ore....

and more....

# EDITORIAL



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- Extended Basic (BBC etc) available soon
- Full range of business and leisure software coming shortly.

If you haven't seen this photograph before now, it proves that you're not buying many magazines these days. Already nicknamed the 'Bubble Gum' machine it's looking to get itself stuck into the market in a big way, if you'll excuse the pun. Designed by our favourite people at Cambridge, or is that Ely?, the Oric looks to be everything a Microtan 65 should have been or could have been if it hadn't been for that Scandinavian styled case. Come to think of it, I'm sure I know this machine by some other name, or maybe I'm getting my chewing gums mixed up. Anyway it's going to be very interesting in the near future to see how this machine is going to effect the Microtan range. At first glance there appears to be every possibility that at least software compatibility will not be a problem as you've probably got most of what it takes right now on Tanex. Our reviewer is working like mad now to bring you an enthusiasts view of this latest edition to this computer world of unsuspecting first time users. If you're still awaiting the delivery of your Oric, don't despair, I can only sympathise with experience.

Getting back to more important aspects of computing. This months newsletter is an experimental machine, sorry format, which we shall be fooling around with for a while. No!, we're not open to offers, much, we thought that you'd like a change for a while, new year, new H.Q., new staff and all that, besides photographically reduced program listing can make you go blind.

P.H.

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\* TUGBUG V1.0 \*

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RAYTEL

DECISIONS DECISIONS DECISIONS - THAT was the only problem. What did we do, we had to maintain compatibility, yet we wanted to change. We had the capability and the desire to do the job, but just how far could we go, in the end we pushed things to the limit, a Bit here a Bit more there, Bit by Bit we just kept rewriting the whole thing until we got it the way we wanted it. The only major problem facing us was, would it all go in. A squeeze here another there until it was finished. Minor problem though, very minor. Byte \$C in the new Tugbug took over the functions of three bytes in the old Tanbug, but from what we could see there was no rule for using this byte \$C anyway. Tug had a program that stored #\$FF in \$C on startup, Basic stores #\$F and Columbia stores #\$1. No particular pattern or reason could we find, so we decided to set a standard. Well, what would you do. Life would be so much easier for all of us if you members out there would be a real nice bunch of computer enthusiasts and change your two 2K eproms on Tanex over to 6116 Rams (Bliss!). The benefits are enormous. With that done it's a simple matter to change the \$E2ED instruction to LDA #\$1 instead of LDA #\$F, blow it into an eprom and then hold both the new and the old versions on an Eprom Storage Card or Disc calling either one in as you may need them. Also this will allow the Video Module Toolkit to be fully exploited as it too requires a ram based Basic at \$E000 to modify the Basic line editor routine for the Video 80/82 module. With ram in this position modifying \$E2EE from #\$F to #\$1 is an easy matter before typing BAS to set things in motion. If you have discs then it is even simpler. The DBASIC program is loaded into \$B960 an the very first instruction is - yes you've guessed it, LDA #\$F and store it in \$C. The answer I think you know - change it to LDA #\$1.

All this light hearted stuff is ok but it is a big problem cos we don't know exactly how many programmers having been storing goodness knows what in \$C for whatever reason. As a basic (sorry) rule of thumb we would say:-

1. If in doubt store a #\$1 in \$C, this has the effect of not allowing the <ESC> key to break a running program.
2. If you must use the <ESC> key, store a #\$0 in \$C.
3. All other cases we would suggest that you completely NOP out the STA \$C instruction but leave the LDA value intact as it just might have some other use.

The only other place we know of at the present time is location \$F661 in Xbug, this can be changed from STY \$C to NOP NOP. It also serves as a good example as to why you should leave the load 'Y' as it is, the instruction at \$F663 uses the value #\$1 in 'Y' to see if that character on the screen is the cursor.

No doubt some of you have collected a variety of software over the last couple of years or have written plenty. If you can't remember some of your early (Bad!) habits and now don't remember what you've been doing with location \$C I've provided a little progam for you which will help search out all those loc \$C uses, provided the access is direct and not indexed in any way.

10 \* = \$A400  
 20  
 30 ROUTINE TO LOOK FOR ALL  
 40 INSTRUCTIONS THAT MAY USE  
 50 LOCATION \$C.  
 60  
 70 IT DOES NOT DISTINGUISH  
 80 BETWEEN CODE AND DATA THIS  
 90 IS UP TO THE USER TO  
 100 INTERPRET. A LIST OF  
 110 ADDRESSES IS OUTPUT,  
 120 IT WILL STOP AFTER EACH  
 130 ADDRESS AND THEN ANY  
 140 INPUT WILL CAUSE THE  
 150 PROGRAM TO CONTINUE.  
 160  
 170 IT SEARCHES ALL 64K OF  
 180 MEMORY AND RETURNS TO THE  
 190 MONITOR AT THE END  
 200  
 210 THIS ROUTINE CAN BE  
 220 LOCATED ANYWHERE IN MEMORY  
 230  
 240 OUTALL = \$F80E  
 250 OUTRET = \$F80C  
 260 JHXPIN = \$F81A  
 270 JPLKB = \$F81D  
 280 STEXT = \$BFF3  
 290 TUGBUG = \$FFFFC  
 300  
 310 PTR = \$1C USE MODADL  
 320  
 330 THE FOLLOWING INSTRUCTIONS  
 340 ARE SEARCHED FOR.  
 350  
 360 STY = \$84  
 370 STA = \$85  
 380 STX = \$86  
 390 INC = \$E6  
 400 DEC = \$C6  
 410  
 A400 A900 420 START: LDA #0 SET UP  
 A402 851C 430 STA PTR ADDRESS  
 A404 851D 440 STA PTR+1  
 450  
 A406 A000 460 AGN: LDY #0 GET BYTE  
 A408 B11C 470 LDA (PTR), Y  
 A40A C9E6 480 CMP #INC IS IT INC INSTR  
 A40C F010 490 BEQ FIND JUMP IF YES  
 A40E C9C6 500 CMP #DEC IS IT DEC INSTR  
 A410 F00C 510 BEQ FIND JUMP IF YES  
 A412 C984 520 CMP #STY IS IT STY INSTR  
 A414 F008 530 BEQ FIND JUMP IF YES  
 A416 C985 540 CMP #STA IS IT STA INSTR  
 A418 F004 550 BEQ FIND JUMP IF YES  
 A41A C986 560 CMP #STX IS IT STX INSTR  
 A41C D01A 570 BNE NOFIND JUMP IF NOT  
 580  
 A41E C8 590 FIND: INY NEXT BYTE  
 A41F B11C 600 LDA (PTR), Y GET IT  
 A421 C90C 610 CMP #\$C IS IT A \$C ?  
 A423 D013 620 BNE NOFIND JUMP IF NOT  
 630  
 A425 8DF3BF 640 STA STEXT NO GRAPHICS

TN2901

|      |        |     |         |     |          |                 |
|------|--------|-----|---------|-----|----------|-----------------|
| A428 | 200CF8 | 650 |         | JSR | OUTRET   | O/P A <CR>      |
| A42B | A51D   | 660 |         | LDA | PTR+1    | GET MSB ADDRESS |
| A42D | 201AF8 | 670 |         | JSR | JHXPN    | PRINT IT        |
| A430 | A51C   | 680 |         | LDA | PTR      | GET LSB ADDRESS |
| A432 | 201AF8 | 690 |         | JSR | JHXPN    | PRINT IT        |
| A435 | 201DF8 | 700 |         | JSR | JPLKB    | WAIT FOR INPUT  |
|      |        | 710 |         |     |          |                 |
| A438 | E61C   | 720 | NOFIND: | INC | PTR      | SEARCH          |
| A43A | D0CA   | 730 |         | BNE | AGN      | ADDRESS + 1     |
| A43C | E61D   | 740 |         | INC | PTR+1    |                 |
| A43E | D0C6   | 750 |         | BNE | AGN      | DO TILL END     |
| A440 | 200CF8 | 760 |         | JSR | OUTRET   | O/P A <CR>      |
| A443 | 6CF0FF | 770 |         | JMP | (TUGBUG) | GO TO TUGBUG    |

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\* GRAPH PLOTTER \*

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TN2902

Andrew Richardson

This program uses the P.G.M. & Toolkit and allows any function to be typed in as the program is being run. It will then scale the output and calculates the position of the axis. The true position of the axis is calculated XA,YA. The original idea came from an article that appeared in Practical Computing by J.S.Roach in which a function can be changed by Poking the appropriate memory. It will work for any function although I am not certain of the use of y=PEEK(X)!, it is in fact more versatile than a BBC program called 'Superplot' which you may have seen. Also I have included two other programs which are self explanatory.

LIST

```

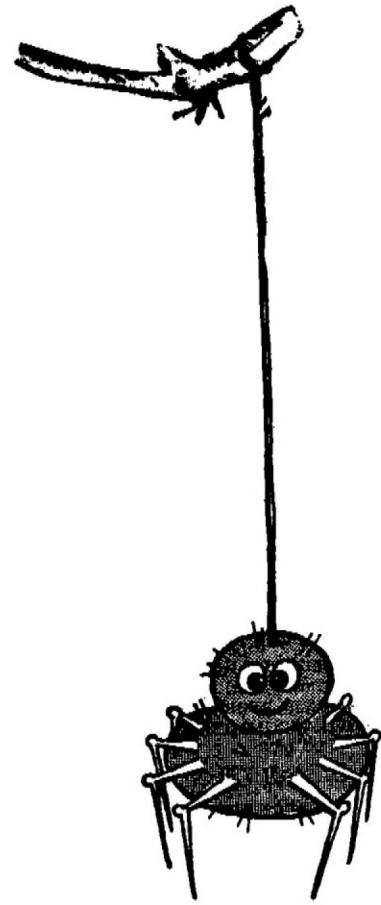
100 POKE34,0:POKE35,232:I=USR(I)
110 #MODE1:#CPGMO:#CLR
120 PRINT"GRAPH PLOTTER":PRINT"#####"
130 DEFFNA(X)=X+++++++
140 DATA+, -, *, /, ^, AND, OR, >, =, <, SGN, INT, ABS, USR, FRE
150 DATAPOS,SQR,RND,LOG,EXP,COS,SIN,TAN,ATN,PEEK
160 DIMY(256)
170 PRINT"Which function to plot ?":PRINT
180 PRINT"(Must be correct BASIC in terms of X)"
190 PRINT:INPUT"Y=";FU$
200 FV$=FU$
210 RESTORE:FOR FC=1 TO 25:READ FC$
220 FOR X=1 TO LEN(FU$)
230 IF MID$(FU$,X,LEN(FC$))<>FC$ THEN 260
240 T$="":IF X>1 THEN T$=LEFT$(FU$,X-1)
250 FU$=T$+CHR$(163+FC)+MID$(FU$,X+LEN(FC$),90)
260 NEXTX,FC
270 IF LEN(FU$)>50 THEN PRINT"TOO LONG":GOTO 170
280 FOR X=1 TO 50: POKE 1122+X,164:NEXT X
290 FOR X=1 TO LEN(FU$)
300 LET K=ASC(MID$(FU$,X,1))
310 IF K>188 THEN 370
320 IF K<164 THEN 340
330 GOTO 380
340 IF K=88 OR K=40 OR K=41 THEN 380
350 IF K<48 OR K>57 THEN 370

```

```

360 GOTO 380
370 F=1:PRINT"INVALID":GOTO 390
380 POKE1122+X,ASC(MID$(FU$,X,1))
390 NEXT X
400 IF F=1 THEN F=0:GOTO 170
410 INPUT"Minimum value of X=";XL
420 IF XL=0THEN XL=.00001
430 INPUT "Maximum value of X=";XU
440 IF XL>=XU THEN PRINT!"":GOTO 410
450 INPUT "Number of steps ";N
460 P=1
470 IF N<1 THEN 450
480 IF N>255 THEN N=255
490 PRINTCHR$(12)
500 R=ABS(XU-XL)
510 FOR X=XL TO XU STEP R/N
520 LET Y(P)=FNA(X)
530 IF Y(P)>YM THEN YM = Y(P)
540 IF Y(P)<YN THEN YN=Y(P)
550 P=P+1
560 NEXT
570 REM AXES
580 XA=ABS(200*XL)/(ABS(XU)+ABS(XL))
590 YA=ABS(200*YN/(ABS(YM)+ABS(YN)))
600 YA=INT(YA)
610 FOR I= 1 TO 16::PRINTTAB(XA*26/200);CHR$(124)::NEXT
620 #HOME:#DOWN
630 PRINTTAB((XA*28/200)+2);INT(YM*1000+0.002)/1000
640 #HOME
650 FOR I=1TO(13-(YA/200)*12)::DOWN::NEXT: FOR I=1TO 31:PRINTCHR$(95)::NEXT
660 LET YS=ABS(YN)+ABS(YM)
670 #MOVE(B,Y(1)*200/YS+YA+40,0)
680 FOR P=1 TO N
690 Y=40+Y(P)*200/YS+YA
700 IF Y>255 THEN Y(P)=255
710 IF Y<0 THEN Y(P)=0
720 #DRAW(B+P*200/N-200/N+.2,Y,1)
730 NEXT
740 #NRM
750 PRINTINT(XL*100)/100;TAB(26);INT(XU*100)/100
760 PRINTTAB(B);"Y=";FV$;
770 #HOME:GET K$ :PRINT .
780 PRINT"ANOTHER GRAPH ?":GETK$:PRINT
790 IF K$<>"Y" THEN 870
800 #CLR:#CPGMO
810 YM=0:YN=0:YS=0:YA=0:XA=0
820 PRINT"SAME FUNCTION ?"
830 GET K$:PRINT
840 IF K$<>"Y" THEN 860
850 GOTO 410
860 GOTO 170
870 END
OK

```



If you intend to visit your new TUG HQ please give us a ring first, we may have gone to a meeting or have other TUG members with us, in which case we may not be able to give you our undivided attention and we wouldn't want you to have wasted a journey! SO PLEASE RING FIRST - OR ELSE !!!

PH

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\* FLEXIBLE 6116 TANEX RAM \*

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Paul Hayes

After an initial trial period of this conversion for Tanex we are pleased to report that nearly all of our members have undertaken this very small modification with GREAT SUCCESS!!

For those who may have just joined us, this modification allows you to convert those three 2716 (2K) Eprom sockets on Tanex over to 6116 RAM! thus allowing much greater flexibility in system firmware expansion, in that, a variety of Toolkit or Basic extension packages may be used without the need for constantly exchanging eprom devices or indeed switching off the system to swap eproms. In particular, if you have an Eprom Storage Card in your system these two chips may be stored onboard along with others of their type and called into their new Ram area at a moments notice. This system works as well for disc or cassette based firmware however at much slower data transfer speeds. More important, this allows the transfer of data or Toolkits etc directly under main program control. Of even more interest is that Toolkits are able to link in or modify the now Ram based Basic to suit specific functions otherwise denied to them before. Still further is the ability the user then has of collecting a variety of Basic interpreter extensions which may be stored and called into ram when it's required, again maybe program control. Apart from these types of applications, ram in these positions allows the user to run, modify and prove firmware before being blown into eprom.

Xbug also allows a greater flexibility for the system user in that it can be replaced by ram which in turn permits any type of monitor extension through the error linking at \$F7F7 i.e. Transfer your Xbug to E.S.C. - call in you monitor extension for the program run and when necessary recall Xbug for dumping off to tape etc, it really could not be simpler, Ram is versatile!

For those members who may have missed the article, we recap briefly:-

The 6116 2K Ram device is almost pin compatible with the 2716 eprom device, the exception to this is the 6116 READ/WRITE line on pin 21, therefore, bend clear of the socket pin 21 of the 6116, attached a short piece of wire to this pin and take it to the nearest Read/Write line. I actually pick this up from its neighbour the 6522 VIA on pin 22 - very easy. The last stage is to modify the 74LS32 device L3 - remove the chip from its socket - bend up clear of the socket pin 2 and replace - attach a short piece of wire from that pin to either of the following 01 or 02 of the clock (edge connector pin b5 or a5) - my unit runs happily on b5 02 of the clock. With that all that's left is a thorough ram check, if doubtful try the other clock or even OV. If satisfied, repeat the same procedure for the other 2K eprom sockets, you'll wonder what you've been missing all this time.

If the Xbug socket G2 is converted in this manner be careful when powering up the system as the first commands entered into the monitor must be legal syntax commands, if they're not the monitor will exit via the error link to \$F7F7 (Xbug) and find nothing there but garbage data, as a result the monitor will never be seen again. It is through this same error linking that monitor extensions are generated. Reservations NONE! it works exceedingly well, in fact it's sound investment to make.

\* NEXT MONTH \* NEXT MONTH \* NEXT MONTH \*

COMING NEXT MONTH - A COMPLETE

PRACTICAL REVIEW OF THE

\*\*\* ORIC-1 \*\*\*

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\* FAULT FINDER \*

TN2903

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D.J. Churchward.

Fault finder is a program designed to help all you budding motor mechanics diagnose the faults on your nice new cars, ( that some of you have bought! ) You enter the symptoms and Dr Fault-finder will try and help you with the answer. Simple!

LIST

```
100 POK34,0:POKE35,232:X=USR(I)
105 #MODE1:#CLS:#HOME:FORI=1TO4:#DOWN:NEXTI
110 PRINTTAB(8)"FAULT FINDER":FORI=1TO4:#DOWN:NEXT
120 PRINT" (C) 1983 D J Churchward":GOSUB2050:#CLR:#HOME:#DOWN
130 PRINT"PRINCIPLE PROBLEM AREAS":PRINT"=====:#DOWN
140 PRINT"1....Engine"
150 PRINT"2....Fuel System":PRINT"3....Transmission"
160 PRINT"4....Braking System":PRINT"5....Suspension"
170 #DOWN:PRINT"Please indicate in which principle area the problem"
180 PRINT"lies.":;GETZ
190 IFZ<10RZ>5THEN130
200 GOSUB2080
210 IFZ=1THEN1550
220 IFZ=2THEN1450
230 IFZ=3THEN980
240 IFZ=4THEN550
250 PRINT"SUSPENSION"
260 PRINT"1...Low at front.":PRINT"2...Low at rear."
270 PRINT"3...Low at one wheel.":PRINT"4...Tilts to one side."
280 PRINT"5...Rough Ride.":PRINT"6...Sways."
290 #DOWN:PRINT"please select.":;GETY:GOSUB2080
300 IFY<10RY>6THEN250
310 GOSUB2090
320 IFY=1THEN540
330 IFY=2THEN510
340 IFY=3THEN480
350 IFY=4THEN450
360 IFY=5THEN410
370 IFY=6THEN380
380 PRINT"Defective dampers.":PRINT"Defective spring."
390 PRINT"Defective anti-roll bar.":PRINT"Overloaded roof rack."
400 #DOWN:GOSUB2060:GOTO130
410 PRINT"Incorrect tyre pressure.":PRINT"Overloaded."
420 PRINT"Eccentrically shaped tyre.":PRINT"Defective damper."
430 PRINT"Defective spring.":PRINT"Defective suspension."
440 GOTO400
450 PRINT"If hydrolastic suspension - then incorrect pressure."
460 PRINT"Damaged chassis.":PRINT"Defective spring."
470 GOTO400
480 PRINT"Check tyre pressure.":PRINT"Uneven loading of car."
490 PRINT"Defective spring.":PRINT"Defective suspension."
500 GOTO400
510 PRINT"Check tyre pressure.":PRINT"Car overloaded at rear."
520 PRINT"Defective spring(s).":PRINT"Defective dampers."
530 GOTO400
540 PRINT"Check tyre pressure.":GOT0520
550 PRINT"BRAKING SYSTEM"
560 PRINT"0...Judder.":PRINT"1...Veers to one side."
570 PRINT"2...Excessive pedal play.":PRINT"3...Pedal spongy."
580 PRINT"4...Pedal needs pumping."
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590 PRINT"5...Pedal requires excessive pressure to be applied."
600 PRINT"6...Brakes drag.":PRINT"7...Brakes grab."
610 PRINT"8...Overheats.":PRINT"9...Sudden failure."
620 #DOWN:PRINT"please select option.":;:GETX
630 IFX<0ORX>9THEN550
640 GOSUB2090
650 IFX=0THEN960
660 IFX=1THEN920
670 IFX=2THEN900
680 IFX=3THEN880
690 IFX=4THEN860
700 IFX=5THEN830
710 IFX=6THEN780
720 IFX=7THEN760
730 IFX=8THEN750
740 PRINT"Defective brake pipe.":GOT0420
750 PRINT"Pads or shoes binding.":GOT0400
760 PRINT"Shoes picking up.":PRINT"Defective drums or discs."
770 GOT0400
780 PRINT"Shoes binding.":PRINT"Reservoir cap air hole blocked."
790 PRINT"Slave cylinder piston seized.":PRINT"Handbrake cable seized."
800 PRINT"Defective shoe return springs.":PRINT"Pedal push rod too tight."
810 PRINT"Defective cylinder cups."
820 GOT0400
830 PRINT"Worn out brake linings.":PRINT"Seized wheel cylinders."
840 PRINT"Servo defective.":PRINT"Incorrect linings."
850 GOT0400
860 PRINT"Air in system.":PRINT"Defective master cylinder."
870 PRINT"Leak.":GOT0400
880 PRINT"Air in system.":PRINT"Brake shoes not run in."
890 GOT0400
900 PRINT"Check pads or shoes.":PRINT"Check pedal push rod clearance."
910 GOT0400
920 PRINT"Check tyre pressure.":PRINT"Check brake adjustment."
930 PRINT"Inspect pads or linings."
940 PRINT"Examine wheel cylinder on opposite wheel."
950 GOT0400
960 PRINT"Examine drums or discs.":PRINT"Check pads or linings."
970 GOT0400
980 PRINT"TRANSMISSION"
990 PRINT"0...Car vibrates when moving.":PRINT"1...Difficult to engage gear."
1000 PRINT"2...Clutch slips.":PRINT"3...Clutch judders."
1010 PRINT"4...Clutch noisy.":PRINT"5...Clutch pedal play."
1020 PRINT"6...Gear lever noise.":PRINT"7...Gear grinding."
1030 PRINT"8...Slips out of gear.":PRINT"9...Noisy."
1040 #DOWN:PRINT"please select option.":;:GETZZ
1050 IFZZ<0ORZZ>9THEN980
1060 GOSUB2090
1070 IFZZ=0THEN1420
1080 IFZZ=1THEN1400
1090 IFZZ=2THEN1380
1100 IFZZ=3THEN1360
1110 IFZZ=4THEN1310
1120 IFZZ=5THEN1300
1130 IFZZ=6THEN1270
1140 IFZZ=7THEN1230
1150 IFZZ=8THEN1220
1160 PRINT"If only in reverse gear then examine reverse idler gear"
1170 PRINT"or shaft."
1180 #DOWN:PRINT"If in forward gears then:"
1190 PRINT"check lubricant level.":PRINT"check transmission alignment."
1200 PRINT'examine internal components.'

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1210 #DOWN:GOSUB2060:GOTO130
1220 PRINT"Worn gearbox or mountings.":#DOWN:GOSUB2060:GOTO130
1230 PRINT"If during engagement":PRINT"idle speed too high."
1240 #DOWN:PRINT"If whilst changing gear":PRINT"examine synchromesh."
1250 PRINT"check gearbox bearings.":PRINT"check operation of clutch."
1260 #DOWN:GOSUB2060:GOTO130
1270 PRINT"Loose gear lever.":PRINT"Loose gear lever damper."
1280 PRINT"Excessive lubrication in gear lever socket."
1290 PRINT"Worn remote control linkage.":#DOWN:GOSUB2060:GOTO130
1300 PRINT"Faulty clutch pedal linkage.":#DOWN:GOSUB2060:GOTO130
1310 PRINT"If when pedal fully out":PRINT"adjust clutch linkage."
1320 #DOWN:PRINT"If when pedal depressed:"
1330 PRINT"examine clutch release bearing.":PRINT"check flywheel spigot."
1340 #DOWN:PRINT"If when clutch released the noise is a thud:"
1350 PRINT"check rear axle.":#DOWN:GOSUB2060:GOTO130
1360 PRINT"Check pressure plate adjustment."
1370 PRINT"Check engine mountings.":#DOWN:GOSUB2060:GOTO130
1380 PRINT"Check adjustment.":PRINT"Examine linings."
1390 PRINT"Clutch needs replacing?":GOTO400
1400 PRINT"Tick over speed too high.":PRINT"Clutch does not disengage."
1410 PRINT"Check pressure plate.":GOTO400
1420 PRINT"Check wheels and tyres."
1430 PRINT"Check universal joints, prop shaft and drive shaft."
1440 PRINT"Fan blade.":PRINT"Front wheel bearing.":GOTO400
1450 PRINT"FUEL SYSTEM":PRINT"1...Uses too much fuel."
1460 PRINT"2...Backfires.":#DOWN:PRINT"please select option.":GETXX
1470 IFXX<10RXX>2THEN1450
1480 GOSUB2090
1490 IFXX=1THEN1520
1500 PRINT"Fuel starvation.":PRINT"Faulty timing."
1510 PRINT"Air leak in inlet manifold.":#DOWN:GOSUB2060:GOTO130
1520 PRINT"Adjust carburettor.":PRINT"Check air intake and choke."
1530 #DOWN:GOSUB2060:GOTO130
1540 GOTO130
1550 PRINT"ENGINE":PRINT "STARTING":PRINT"0...Engine will not turn."
1560 PRINT"1...Engine turns slowly.":PRINT"2...Will not fire."
1570 PRINT"3...Backfires.":PRINT"4...Fails to keep running."
1580 PRINT"PERFORMANCE":PRINT"5...Stalls."
1590 PRINT"6...Poor acceleration.":PRINT"7...Misses or surges."
1600 PRINT"8...Pinking.":PRINT"9...Missing at high speed."
1610 #DOWN:PRINT"please select option!":GETYY
1620 IFYY<0ORYY>9THEN1550
1630 GOSUB2090
1640 IFYY=0THEN2000
1650 IFYY=1THEN1980
1660 IFYY=2THEN1960
1670 IFYY=3THEN1950
1680 IFYY=4THEN1940
1690 IFYY=5THEN1890
1700 IFYY=6THEN1850
1710 IFYY=7THEN1810
1720 IFYY=8THEN1770
1730 PRINT"Poor electrical contact in ignition system.":PRINT"Check points"
1740 PRINT"Check spark plugs.":PRINT"Dirty carburettor."
1750 PRINT"Adjust valve clearances.":PRINT"Check air filter."
1760 #DOWN:GOSUB2060:GOTO130
1770 PRINT"Incorrect fuel.":PRINT"Timing too advanced."
1780 PRINT"Defective automatic advance."
1790 PRINT"Overheating of engine or spark plugs."

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1800 PRINT"Check combustion chamber.":#DOWN:GOSUB2060:GOT0130
1810 PRINT"Check spark plugs and ignition circuit."
1820 PRINT"Intake vacuum leak.":PRINT"Insufficient or contaminated fuel."
1830 PRINT"Flooded carburettor.":PRINT"Constricted exhaust system."
1840 #DOWN:GOSUB2060:GOT0130
1850 PRINT"Incorrect timing.":PRINT"Intake vacuum leak."
1860 PRINT"Insufficient fuel.":PRINT"Accelerator linkage."
1870 PRINT"Adjust valve clearances.":PRINT"Engine compression."
1880 PRINT"Check distributor automatic advance.":#DOWN:GOSUB2060:GOT0130
1890 PRINT"If when idling - check throttle stop and choke."
1900 PRINT"If also hot - adjust idle fuel mixture."
1910 PRINT"Check air jet.":PRINT"points.":PRINT"choke."
1920 PRINT"Flooded carburettor.":PRINT"Intake vacuum leak."
1930 #DOWN:GOSUB2060:GOT0130
1940 PRINT"Ignition or fuel fault.":#DOWN:GOSUB2060:GOT0130
1950 PRINT"Faulty timing.":PRINT"Damp leads.":#DOWN:GOSUB2060:GOT0130
1960 PRINT"Check spark on plug.":PRINT"Check carburettor for fuel."
1970 #DOWN:GOSUB2060:GOT0130
1980 PRINT"Check battery and cables.":PRINT"Defective starter."
1990 #DOWN:GOSUB2060:GOT0130
2000 PRINT"Check battery and cables.":PRINT"Jammed starter."
2010 PRINT"Defective solenoid or starter engagement."
2020 PRINT"Check starter and switch.":#DOWN:GOSUB2060:GOT0130
2040 END
2050 FORI=1TO4000:NEXT:RETURN
2060 PRINT"Press bar!":POKE1,0
2070 IFPEEK(1)=0THEN2070
2080 #CLR:#HOME:#DOWN:RETURN
2090 #CLR:#HOME:#DOWN:PRINT"POSSIBLE FAULTS":RETURN
OK

```

### Video 80/82 Module Driver Routine

The Video Toolkit uses the Video driver routine present in Tugbug the routine described in recent newsletter articles. This routine can easily be incorporated in existing Tanbugs (Eproms) and is recommended for future use.

If the current Tugbug monitor is in use, entry is assumed to be through the jump vector at location \$F82F, this method disregards the flag in byte \$C and passes a byte using the following code.

```

SENCHR: BIT VDUSTA ; CARD STATUS
..... BPL SENCHR ; BRANCH IF NOT READY
..... STA VDUCTL ; PASS BYTE TO VIDEO
..... RTS ..... ; RETURN TO CALLER

```

i.e.

```

FBEB 2C 00 BE BIT $BE00
FREE 10 FB .. BPL $FBEB
FBF0 8D 01 BE STA $BE01
FBF3 60 .... RTS

```

\*\*\*\*\*

\* A UNIVERSAL EVERYTHING \*

\*\*\*\*\*

C.P. Nowell

This is more or less a follow on from my last article about modifying X-Bug but as you will find out, this little saga (!) will be a little longer. I can here what you must all be saying out there especially after newsletter No.28."How much more firmware and system software before we all start getting bogged down with lots of non-standard bits and pieces ??!"

Worry no longer dear friends & fellow loyalists because salvation is at hand. The aim of all this verbiage is to outline what we should consider to be the "standard" type of system.

"But we're not all Rockerfella's and we don't HAVE all the group's addons....!!", I hear you cry."NO PROBLEM !!", I shout back," We're not trying to break your bank accounts either !!"

As you all saw in NL No.28, TUG has launched the BIG one. Yes, I am talking about TUGBUG and if he doesn't mind, I'm going to do a bit of name dropping because I think he deserves it and I also think that this is the best piece of soft/firmware to come out of the group since it's inception. Those of you that are fortunate enough to have discs will have no doubt tried the excellent "S" program by RAYTEL in No.26. This program alone perhaps showed the potential of this very capable software writer and gave us a very useful way of emulating a normal TANDOS type utility package onto a disc.

With TUGBUG we now at last have a golden opportunity to standardise and make everything run on any configuration of system.

For too long now, we have all been trying to squeeze just that little extra "something" into TANBUG. A VDU card driver here, an ESC card driver there. Well all that is now at an end because in TUGBUG it's already there ! If it wasn't enough to get the aforementioned drivers in, he's also managed to squeeze in little goodies like a COMBO driver as well and not to mention the fully labelled PSW also. There's only one thing more I will say about TUGBUG before I press on and that is, "Forget all the rest, this is the best !"

Having got this super Monitor, what do we do with it ?. The first thing is to sit back and take stock of the situation.

We have two excellent Toolkits which of course go hand in hand with those other two popular pieces of hardware, the PGM and VDU 80/82. The BASIC must also be taken into account as must the DISC systems, which are now amongst us. A lot of software has already been written for the PGM/PGMKIT combination and more is coming on stream every day for the VDU80/82/VDUKIT combination, so this must be borne in mind. Some of you have all RAM on TANEX now and some still have ROM. ESC and COMBO boards are all over the place but due to TUGBUG this is not so much of a problem. (stick a combination of 8 of them in your system if you wish !!).

Having now got some idea of the shape of the problem let's now look more specifically at certain areas.

T.C.S. were quick to point out that it would be awkward to run any Toolkits etc. with their Disc system (page 4.5 of the manual), when running in BASIC. Not so ! (if you know how !!). In fact it is relatively easy to get Toolkits running in tandem with the DOS, due simply to the fact that the DOS runs in the same way as any Toolkit does !! Once this fact is realised it is a simple matter of making sure that the correct commands get dealt with by the right firmware. It is not the purpose of this article to write out all the patches needed but don't worry because all the Toolkit's coming out of the group from now on will be universal. That is to say, they will run properly on any type of system, Disc or Non-Disc. The initialisation routines in the Toolkits look after all this for you and configure the system accordingly. All these changes by the way are "transparent". You won't even notice that they are there !

Before I leave the subject of Toolkits, there is one little routine that I did want to unleash on you for adding to the TOP ROM in BASIC (E0). It's a very simple addition, much like X-Bug mods and provides for an auto start up of any resident Toolkit at BASIC cold start time. It's been in my ROM now for a few months so I've forgotten what it's like to "POKE34,0:POKE35,232:2=USR(I) etc...!"

The first thing to do was to decide how to get the routine to recognize a Toolkit. Well, as it happens, they all have a fingerprint at location \$EB00 no matter which and that is a ##4C byte which of course precedes the jump vector to the initialisation routines. As this routine is always a subroutine (ending in a ##60 byte), it is an easy matter to first test for it and then if there, "JSR" to it. All we have to do now is find a convenient place to action this SUB and that happens to be very soon after \$E2ED (remember that ??!). After a lot of 0 page setting up and (most important) after setting up the main character fetch routine at \$E2, we find that it disappears into the lower ROMS to do some more variable setting at \$E0C9 (JSR \$C9BA). This we replace with :-

E0C9.20EAE7...JSR \$E7EA

At \$E7EA (just after the X-bug mods...) we add:-

```
E7EA.AD00E8...LDA $E800
E7ED.C94C....CMP ##4C
E7EF.D003....BNE $E7F4
E7F1.2000E8...JSR $E800
E7F4.4CBAC9...JMP $C9BA
```

What about an RTS you might say. Not required as there will be one at the end of the \$C9BA routine, won't there ?!

So, with this little routine added, all your future cold starts will auto start the Toolkit if there. With a latest edition version, you'll also get a start up message to tell you which toolkit you've got running. (not much good running the PGMKIT with the VDU card is it !!)

There is one last small (very) mod to carry out to the BAS E0 chip firmware to attain this standardisation. The reason for this mod is as a direct result of the clever way in which TUGBUG makes use of the old RUNIND byte at \$C in 0-page. He's made one byte do so much that if you leave BASIC to do it's normal (or DBASIC...more in a mo..), not only will it stop you "ESC"ing from BASIC but it will turn off the O/P to the VDU 80/82, stop TUGBUG from swallowing certain control characters and cause an O/P jump vector all at the same time !!! This little lot is clearly undesirable ! The remedy is simple and will NOT affect BASIC's ability to run under the old TANBUG at all (told you we were standardising !). The change is a massive one byte ! If you disassemble from \$E2ED, you will see that BASIC puts "F" into location \$C on start up to disable the ESC key whilst in BASIC mode. This is the only change required and should be changed to "1" at \$E2EE.

So we come to the last part of the saga and this concerns those people lucky enough to have discs. I'm including a small package called TBASIC with this article, which is a direct replacement for T.C.S.'s DBASIC. The "T" stands for, yes, you guessed it, Toolkit. There is a little more to this package than meets the eye because again in an effort to standardise, it contains it's own ESC driver ! I know we now have TUGBUG but as you haven't all got it yet it makes sense to use a little bit of overkill. It operates in exactly the same way as DBASIC did as far as Disc file buffers and things like that but with the very useful addition that it automatically calls in BASIC from ESC 0 and then asks you which toolkit you'd like !! Having answered it "V" or "P" it then dutifully goes away and calls that in from ESC 0 too! From then on it is just like an auto start up as I described earlier with the BASE0 mods with the addition that it knows it is in a disc environment. The BASIC is addressed as \$C000-\$E7FF from ESC 0 (\$BD00) this being the most logical place to

store it on an all RAM system. The PGMKIT and the VDUKIT reside in \$E800-\$FFFF and \$F800-\$FFFF respectively on ESC 0 of the author's system. Obviously it would be a simple matter to reconfigure these locations to your own choosing. The necessary bytes in TBASIC are as follows:-

For the BASIC ROMS the code at \$BAA1-\$BAB5 sets up \$C000 to \$E7FF.

For the PGMKIT ROM the code at \$BAF1-\$BB02 sets up \$E800 to \$FFFF.

For the VDUKIT, the code for the PGMKIT is used and then the necessary bytes are modified by code at \$BBOC-\$BB15 to get it from \$F800-\$FFFF from the ESC.

An assembler listing would have made the length of this article too long so at the end there is a HEX dump which resides between \$1960-\$1B1A. Having got this into memory and double checked it, you may use the aforementioned "S" routine to save it to disc and relocate it at the same time like this :-

S TBASIC 1960 1B1A RB960 TB960

This routine is truly universal as far as disc users are concerned because it doesn't matter if you don't have an E.S.C. but you have TOOLKITS or vice-versa as no harm will result if they are not there. However if you are using TOOLKITS, they must be the new DOS compatible types for the DOS to run properly.

So, having got through all that, we'll now take stock again to see where we are. We now have two superb T/Kits and two lovely pieces of hardware to go with them. We have some very powerful storage modules of differing sizes and types and of course we now have discs. For the icing on the cake we now have such a powerful monitor, that it can hack all that AND outperform all that went before it. Not only that but if you follow all the tips in this article you will have a truly universal TUG system that can also make allowances for the LACK of certain things as well. "What about the keypad !?!", I hear you cry. "What about the ROM switch module !?!", I shout back. With that lovely little piece you can have your cake and eat it too !! TANBUG 2.3/3.1 AND TUGBUG there for the switching. If that's not universal enough for you then I give up!

If that little lot doesn't raise this system from 2nd in the national hobbyist ratings (Video Module system) then I'll eat my "beret" (!). I think it's time for you all out there (and us) to start blowing TUG's trumpet a little louder. Don't you ?!.....TUG ON.....

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\* TBASIC \*

TN2904

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C.P. Nowell

|                              |                              |
|------------------------------|------------------------------|
| 1960 20 C9 BA A9 01 85 0C A9 | 1A40 04 8D 01 BD SD 03 BD 8D |
| 1968 00 8D C2 BF 85 16 85 15 | 1A48 07 BD 8E 00 BD BE 02 BD |
| 1970 A2 FF 86 A9 9A A9 76 A0 | 1A50 8D 06 BD 8C 01 BD 8C 03 |
| 1978 E0 B5 18 84 19 85 1B 84 | 1A58 BD 8C 07 BD A0 00 A5 1C |
| 1980 1C A9 C1 A0 CF 85 1D 84 | 1A60 A6 1D 8D 00 BD BE 02 BD |
| 1988 1E A9 94 A0 D1 85 1F 84 | 1A68 AD 06 BD 91 13 E6 1C D0 |
| 1990 20 A9 4C 85 17 85 1A 85 | 1A70 04 E6 1D F0 14 E6 13 D0 |
| 1998 C3 85 21 A9 4A A0 D0 85 | 1A78 02 E6 14 A5 1F C5 1D 90 |
| 19A0 22 84 23 A9 50 85 31 A9 | 1A80 08 D0 DB A5 1E C5 1C B0 |
| 19A8 38 85 32 A2 1C BD 1E BA | 1A88 D5 60 0D 7C 50 7C 47 4D |
| 19B0 95 E1 CA D0 F8 20 06 A8 | 1A90 20 6F 72 20 7C 56 7C 44 |
| 19B8 A9 03 85 C2 8A 85 D7 85 | 1A98 55 20 54 6F 6F 6C 6B 69 |
| 19C0 87 85 2F 48 85 2E 20 BB | 1AA0 74 20 3F 00 A2 00 A9 C0 |
| 19CB BA A2 88 86 85 A9 BB A0 | 1AA8 86 1C 86 13 CA 86 1E 85 |
| 19D0 E1 20 10 CA 20 A8 CA 86 | 1AB0 1D 85 14 A9 E7 85 1F 20 |
| 19D8 E9 84 EA 20 E2 00 AB D0 | 1AB8 3B BA 60 AD 00 E8 C9 4C |
| 19E0 08 A9 00 8D FB BB AC 1D | 1AC0 D0 03 20 00 EB 20 BA C9 |
| 19E8 B8 C8 D0 10 20 E8 00 20 | 1AC8 60 20 A4 BA A0 00 B9 BA |
| 19F0 B1 C9 A8 F0 03 4C 92 CD | 1AD0 BA F0 07 20 0E F8 C8 4C |
| 19FB A5 33 A4 34 85 A6 98 38 | 1AD8 CE BA 20 1D FB A5 01 B5 |
| 1A00 E9 01 8D FC BB E9 01 8D | 1AE0 02 20 0E F8 A5 02 C9 50 |
| 1A08 FE BB E9 01 8D FD BB E9 | 1AE8 F0 1B C9 56 F0 1E 4C CC |
| 1A10 01 8D FF BB 85 A7 06 00 | 1AF0 BA A2 00 86 1C 86 13 CA |
| 1A18 38 66 00 4C 21 E1 00 E6 | 1AF8 86 1E A9 E8 B5 1D 85 14 |
| 1A20 E9 D0 02 E6 EA AD 60 EA | 1B00 A9 EF 85 1F 60 20 F1 BA |
| 1A28 C9 20 F0 F3 4C 00 AB 00 | 1B08 20 3B BA 60 20 F1 BA A9 |
| 1A30 00 00 00 00 00 00 00 80 | 1B10 F8 A2 FF 85 1D 86 1F 20 |
| 1A38 4F C7 52 A9 00 A2 FF A0 | 1B18 3B BA 60                |

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# The Cube Hater Strikes Back

TN2905

Doppel-Ganger

LIST

```
1 POKE34,0:POKE35,232:X=USR(I)
2 #MODE1:#CPGM0:#CLR:#HOME:#DOWN
3 FORX=33792TO33978:READA:POKEX,A:NEXT
4 DATA0,0,0,0,0,0,0,0,0,0,31,63,63,63,0
5 DATA0,0,0,0,0,62,62,62,94,254,254,254,254,62,0
6 DATA0,0,0,0,7,10,21,63,63,32,42,32,42,32,63,0
7 DATA0,0,0,0,248,152,40,216,232,216,232,200,208,224,192,0
8 DATA0,0,0,0,0,0,1,1,3,3,13,13,27,27,0
9 DATA0,0,0,0,0,0,128,128,96,96,176,176,108,108,0
10 DATA0,0,0,0,24,60,12,12,12,12,12,15,7,0,0
11 DATA0,0,0,0,0,0,48,112,96,96,192,128,0,0
12 DATA0,127,73,73,127,73,73,127,73,73,127,73,73,127,0,0
13 DATA0,254,38,38,254,38,38,254,38,38,254,38,38,254,0,0
14 DATA247,231,231,1,128,231,229,226,238,248,243,231,239,235,227,255
15 DATA60,66,129,157,161,161,157,129,66,60,0
16 FORX=34800TO34815:READA:POKEX,A:NEXT
17 DATA255,255,219,219,255,255,219,219,195,231,255,0,0,0,0,0
18 PRINT" The Cube Hater Strikes Back! ";
19 FORX=1TO28:PRINTCHR$(138);:NEXT:PRINT
20 PRINT";CHR$(139); Doppel-Ganger Games 1983
21 PRINT"This program is dedicated to those of us who cannot solve"
22 PRINT"that [EXPLETIVE DELETED] Cube!!"
23 PRINT"The inspiration behind this program comes from Jasper"
24 PRINT"Carrott's book, 'Sweet and Sour Labrador'"
25 FORX=1TO15:PRINTCHR$(128);CHR$(129);:NEXT:PRINT
26 FORX=1TO15:PRINTCHR$(130);CHR$(131);:NEXT:PRINT
27 FORX=1TO30:PRINTCHR$(138);:NEXT:PRINT:POKE1,0
28 PRINTCHR$(138);TAB(7)"Instructions (Y/N)";TAB(29);CHR$(138)
29 FORX=1TO30:PRINTCHR$(138);:NEXT
30 IFPEEK(1)=ASC("N")THEN50
31 IFPEEK(1)<>ASC("Y")THEN30
32 PRINTCHR$(12):PRINT" The Cube Hater Strikes Back Instructions."
33 PRINT"In this game you control The Boot ";CHR$(128);CHR$(129)
34 PRINT"You have to Stamp on as many Rubic cubes ";CHR$(130);CHR$(131);
35 PRINT" as you can.
36 PRINT"When you have done this and moved away a small piece of"
37 PRINT"Debris "CHR$(132);CHR$(133);" will be left behind."
38 PRINT"DO NOT TOUCH THIS AT ALL COSTS! for it is Deadly !!!!!"
39 PRINT"Press Space for more details":POKE1,0
40 R=RND(1):IFPEEK(1)<>32THEN40
41 PRINTCHR$(12):PRINT" The Cube Hater Strikes Back Instructions Continued"
42 PRINT"Occasionally you will see this strange beast ";CHR$(134);
43 PRINTCHR$(135);;" appear."
44 PRINT"This is the Rubic Snake.Treadingon This leaves No debris and"
45 PRINT"Gives you a Special Bonus!!"
46 PRINT"Even More rarely you will see this ";CHR$(136);CHR$(137)."."
47 PRINT"This is the Rubic's Revenge and not only does it give a Super-"
48 PRINT"Duper bonus but Clears the screen of Debris!"
49 PRINT"Press Space to continue";:POKE1,0:WAIT1,32
50 PRINTCHR$(12):PRINT" The Cube Hater Strikes Back"
51 PRINT";:FORX=1TO29:PRINTCHR$(138);:NEXT:PRINT
52 PRINT:PRINT"Now select your Rating... "
53 PRINT" Hopeless = H":PRINT" Adequate = A":PRINT" Expert = E"
```

```

54 GETA$:POKE3,0:POKE48,0
55 IFA$="H"THENDL=75:LL=5:GOT059
56 IFA$="A"THENDL=25:LL=4:GOT059
57 IFA$="E"THENDL=0:LL=3:GOT059
58 PRINT"Incorrect!":GOT054
59 PRINT"Thank you."
60 PRINT"Movement Commands:-"
61 PRINTTAB(14);B:PRINTTAB(12);4;" ";6:PRINTTAB(14);2
62 PRINT"Press Space to Play"
63 POKE1,0:WAIT1,32
64 SC=0:RC=30:RS=15:RR=7
65 BOOT=INT((698-677)*RND(1)+677):B=INT(5*RND(1)):BOOT=BOOT+(B*32)
66 #CLR:#HOME
67 FORI=545T0574:POKEI,138:POKEI+448,138:NEXT
68 FORI=576T0960STEP32:POKEI,138:POKEI+31,138:NEXT
69 POKEBOOT,128:POKEBOOT+1,129
70 GOT0130
71 IFCU=1THENCR=CR+1:IFCR=RCTHEN112
72 IFSN=1THENSR=SR+1:IFSR=RSTHEN113
73 IFRE=1THENER=ER+1:IFER=RRTHEN114
74 FORDE=1TODL:NEXT
75 M=PEEK(1):LB=BOOT:F1=PEEK(BOOT):F2=PEEK(BOOT+1)
76 IFF1=1280RF1=129THENF1=32
77 IFF2=1280RF2=129THENF2=32
78 IFM=50THENBOOT=BOOT+32
79 IFM=52THENBOOT=BOOT-1
80 IFM=54THENBOOT=BOOT+1
81 IFM=56THENBOOT=BOOT-32
82 IF (M=500RM=56)ANDPEEK(B0)=138THENBOOT=LB:DA=1
83 IFM=52ANDPEEK(BOOT)=138THENBOOT=LB:DA=1
84 IFM=54ANDPEEK(BOOT+1)=138THENBOOT=LB:DA=1
85 IFPEEK(BOOT)=1320RPEEK(BOOT+1)=1320RPEEK(BOOT)=133THENDA=1
86 IFPEEK(BOOT+1)=133THENDA=1
87 IFM=50ANDPEEK(BOOT)=130THENCC=1
88 IFM=56ANDPEEK(BOOT)=130THENCC=1
89 IFM=52ANDPEEK(BOOT)=130THENCC=1
90 IFM=54ANDPEEK(BOOT+1)=131THENCC=1
91 IFM=50ANDPEEK(BOOT)=134THENSS=1
92 IFM=56ANDPEEK(BOOT)=134THENSS=1
93 IFM=52ANDPEEK(BOOT)=134THENSS=1
94 IFM=54ANDPEEK(BOOT+1)=135THENSS=1
95 IFM=50ANDPEEK(BOOT)=136THENC4=1
96 IFM=56ANDPEEK(BOOT)=136THENC4=1
97 IFM=52ANDPEEK(BOOT)=136THENC4=1
98 IFM=54ANDPEEK(BOOT+1)=137THENC4=1
99 POKELB,F1:POKELB+1,F2:POKEBOOT,128:POKEBOOT+1,129
100 IFDA=1THENDA=0:GOT0115
101 IFCU=10RSN=10RRE=1THEN105
102 Z=RND(1):IFZ<.6ANDCU=0THEN121
103 IF(Z>.65ANDZ<.85)ANDSN=0THEN124
104 IFZ>.85ANDRE=0THEN127
105 IFCC=1THENCC=0:TR=1:PC=CP:CP=128:CU=0:GOT0118
106 IFSS=1THENSS=0:SN=0:SP=128:GOT0119
107 IFC4=1THENC4=0:RE=0:RP=128:GOT0120
108 IFTR=0THEN71
109 IFBOOT<>PCANDBOOT+1<>PCTHEN111
110 GOT071
111 POKEPC,132:POKEPC+1,133:TR=0:GOT071
112 POKECP,32:POKECP+1,32:CU=0:CR=0:GOT071
113 POKESP,32:POKESP+1,32:SN=0:SR=0:GOT071
114 POKERP,32:POKERP+1,32:RE=0:ER=0:GOT071
115 POKELB,32:POKELB+1,32:LL=LL-1
116 IFBOOT=138THENLB=BOOT:
117 GOT0130

```

```

118 SC=SC+(RC-CR)*2:TR=1:CR=0:GOT0130
119 SC=SC+(RS-SR)+15:SR=0:GOT0130
120 RZ=1:SC=SC+((RR-ER)+20)*5:ER=0:GOT0130
121 CP=INT((605-577)*RND(1)+577):F=INT(RND(1)*13):CP=CP+(F*32)
122 IFPEEK(CP)<>320RPEEK(CP+1)<>32THEN121
123 CR=0:CU=1:POKECP,130:POKECP+1,131:GOT074
124 SP=INT((605-577)*RND(1)+577):F=INT(RND(1)*13):SP=SP+(F*32)
125 IFPEEK(SP)<>320RPEEK(SP+1)<>32THEN124
126 SR=0:SN=1:POKESP,134:POKESP+1,135:GOT074
127 RP=INT((605-577)*RND(1)+577):F=INT(RND(1)*13):RP=RP+(F*32)
128 IFPEEK(RP)<>320RPEEK(RP+1)<>32THEN127
129 ER=0:RE=1:POKERP,136:POKERP+1,137:GOT074
130 Z$="SCORE "+STR$(SC)":LIVES "+STR$(LL)
131 FORX=1TOLEN(Z$):POKEX+512,ASC(MID$(Z$,X,1)):NEXT
132 IFRZ=1THENRZ=0:GOT066
133 IFLL>0THEN71
134 Z$="You are dead....":IFDT=0THENDT=1:GOT0131
135 FORZ=1TO1000:NEXT:POKE49,72:PRINTCHR$(12)
136 PRINT:PRINT"You have scored "SC" points"
137 IFSC<HSTHEN140
138 PRINT"You are the highest scorer      beating the best previous score"
139 PRINT"of"HS:HS=SC:GOT0141
140 PRINT"The Highest Score this run is "HS
141 PRINT"Play again? (Y/N)";:GETA$:IFA$="N":THEN143
142 GOT050
143 PRINT:PRINT"Okay then.Bye!"
OK

```

---

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The TANSTAR INTERVIEW

Part Two

Q. Is there any other kind of help members can give with the newsletters?

"Yes there is. Circuit diagrams need to be drawn in black ink for example, as this helps to reduce the risk of errors creeping in when we have to redraw them because the original pen or pencil drawing cannot be reproduced clearly. A fine black felt tip pen is the best tool for that job. We're not looking for perfection, just a nice clear copy. A4 plain white paper is the secret here for these types of jobs. Circuits drawn on beer mats are definitely out, I've had enough of those."

Q. We see an increasing range of Tug add-ons, it has brought the system a long way but will it continue in the long term?

"Without any doubt at all. Providing we get the support from each individual member by buying the products the group produces, we'll keep this going indefinitely. The Microtan system was designed to be expandable and that's precisely what we're doing with it. Providing we can accumulate the R. & D. capital for the projects expansion in the hardware field is almost unlimited."

Q. That prompts me to ask where this capital comes from?.

"Since the Group began to stand on its own two feet financially, this capital comes directly from the profit on the sales of its products. We work hard at trying to keep expenses down to an absolute minimum which in turn allows us to maximise profit levels whereupon that next project can be started much sooner, which is what we all want I'm sure."

Q. It could be said that by running a Ltd company that this profit can eventually end up by being your profit. How do you respond to this query?

"That's the easiest question to answer. If I wanted to make money in this business I wouldn't be running Tug or any other user group to start with, come to think of it I wouldn't be in computing at all. As I've said already I was sidetracked into this position or rather I should say I was bushwhacked into it by Eric."

Q. These special offers you've been running, can we see them continuing in the future?.

"Unfortunately some of these special offer packages will be coming to an end if we are to avoid price increases this year. We could just afford to offer them out to the members last year. In this financial climate the costs of labour will dictate that we be a little more thrifty in future. There is a basic rule of economics to consider before we can be that generous again."

Q. I take it then that these special offers are based almost on a cost only return?.

"That's right. We like to pass on to the members any savings we can gather. Most of the time these come from bulk production runs. By organising these we reduce the overall labour costs whereas material costs remain almost at the same level. Bearing in mind that labour costs represent a majority expense even in the computer industry."

Q. Can't you give us a little advanced warning on these special offers?.

"We're putting a system of advanced notification together now for that reason?.

Q. Is it proposed to include a more serious range of software in the library?

"We have a variety of software that we hope to get into the library as soon as possible, whether this can be called a more serious type of software I can't say, practical yes, only the individual can decide whether it's serious enough to meet his requirements. Now that we have the potential of the Video module working for us authors feel that their software can be graphically represented to a higher standard than before, take the Donjon package for example."

Q. Alright let's take that program as an example, it's not what I would call a serious program.

"Perhaps not, but try saying that it's not a serious piece of software to the adventure enthusiast, particularly as far as this Donjon is concerned. But I do see your point. My point as always is governed by economics as far as the library is concerned. Library software must be capable of reaching a wide range of interest and it must be economical to produce and covers the cost of production and distribution. The alternatives we are left with is that some of the more popular packages help cover the costs of the less popular ones, and that of course keeps the prices up which we're trying to avoid."

Q. Can you, as a matter of interest give us a cost analysis of a typical package?

"That's difficult, too much depends on the size of the program and the amount of documentation that goes with it. Forth is the most uneconomical package we have, it's labour intensive to begin with added to which is the amount of printed material that is included, it's a very costly package to produce. I'll go further to say that I feel it's in the library simply to give members the opportunity to put their hands on this language. That package does not lend it'self to mass production runs which is required to bring it into an economical margin. Much also depends on the amount of preparation that's required for the package. At the end of the day it's man hours that cost money.

Q. What kind of problems do you have in operating the library?

"The amount and variety of software available is the obvious one. We would like more packages of all kinds obviously, other than that, very few problems exist with the library service."

Q. What's your favourite software package?

"I've got several favourites, none of which I wrote of course. If ever I get the chance to get to Eric for anything else than work the toolkit version of Donjon gets a good workout, otherwise it's Othello, but I keep beating that one, the challenge is no longer there anymore, but Donjon is another matter. So, as far as games go that's the one I find of interest and relaxing. Practical or Serious or Useful software is restricted to that which I use every day of the week as a tool. The most important one here is the Columbia package, it's a very useful tool, small but versatile, enough for me to be able to use it for the newsletter without too much involvement or hassle, it works and it produces results, we'll you can see for yourself any month!"

Q. I use that package but find that the typing speed entry is slow. Do you find that?

"Yes sometimes. This was a difficult choice I had to make on whether or not the package had to be lengthened to improve the input speed factor. There's not a lot you can do with a 4K package in terms of building in a type-ahead-buffer without reducing other facilities. We wanted a simple 4k package that could sit in ram at the top of Tanex which would leave enough ram available within the 7k boundary to

knock out a decent size letter, which it does. Typing speeds aren't important, not to Mr. Average, he wants facilities not go faster stripes and there's enough there to keep him going for a while until we got the hardware to go with a superior word processor. Now we have the Video module we may see a more professional W.P. anytime, but for the system as it was and still is for many Columbia is more than adequate for the domestic enviroment."

Q. This gives me the chance to ask you what you are doing about converting software over to the Video module?.

"Some software is easily converted, in fact the user can do this for himself if he wishes. Some software will not be worth converting over maybe due to its extensive use of the Microtan screen for example, by the time you've finished the mods required you may as well write a completely new package to make full use of the V.M's potential both with text and graphics. So we'll see some old packages being converted and some new versions of existing Microtan material, in fact we're going to see a lot of duplicated packages from now on, each being for different systems in use."

Q. Are different system configurations going to be difficult to manage?.

"I don't think there will be any difficulties at all, however much will depend on the members keeping an eye open for the optional packages being made available."

Q. What made you get the group involved in research and development?.

"I thought it was general knowledge why we had to take this course of action. Had I felt at the time that the system was getting some system support from the commercial market like other machines had I probablly would never have got Tug involved to the degree it is now. I felt that as a user I had waited long enough for a full system with discs, after all two years is a long time to wait you know in comparison to other systems, and if I felt that way, others were bound to be thinking the same. But long before then I saw which way the wind was beginning to blow and decided to do something in the way of modest system support direct from Tug. It doesn't take much to look around and the point is proven without any doubt as far as I'm concerned. It wasn't planned in the beginning that we should become so involved, we simply wanted to knock out a few simple boards for the fun of it as enthusiasts, nothing more at the time. After a while someone had to do something to support the system it was becoming embarrassment on the hardware front. As far as I was concerned when I first got hold of a Microtan 65 I was under, what I call now, a misapprehension, that I was buying a system that was readily expandable to a full system including discs etc. It was, providing you had the time to wait for it to expand, I used to sit there and watch it for hours, I never saw Eric expand once."

Q. Why do you think the system is not more popular than it is?.

"That's a complex issue. Firstly I would say that the system is not appreciated enough, particularly from the mass market of first time buyers. Although the Microtan 65 single board offers what I would consider to be good value for money, even by todays standards. It doesn't seem, to the newcomer, that it offers much, but that is because its potential is not readily seen or even understood by the beginner. After a little maths he realises that he can go out and buy what he ends up considering to be better machines giving better value for money.

Regardless of personal opinions of these machines they are attractive to the beginner, particularly when it comes to system support in terms of software and hardware add-ons, its no wonder that he favours these machines. With this current trend going on the Microtan system is outmatched. The second most important factor with the systems lack of popularity relates directly to the almost non existent open commercial market support. I don't call the current number of system supporters enough by any means. Any newcomer to the system will see this situation and reconsider his objectives. What we are now seeing is the introduction to the system from the second computer buyer, the guy who's had some hands on time and now appreciates a more comprehensive machine. Yet again however the Microtan system doesn't appeal too much as there is again an apparent lack of support, the circle is almost now complete. Without user support there'll never be any commercial support, without commercial support there'll be too little user support. Catch 22!" That's one of the reasons why we, as a group, must be very aggressive with system support, we can't do it all, but we must do what we can to provide existing users with as much as possible."

Q. Surely Tug can provide more publicity for the system?.

"We've been publicising the group and its activities including advertising as much as we can. A lot of publicity must come from the users themselves directly as individuals, it shouldn't be left up to us".

Q. How can we go about this as I'm sure some of us are not too hot on writing articles for magazines and so on?.

"We'll help any member to send articles to the mags. We'll even type up the contents if we can for him before it's sent off or advise, whatever."

Q. Is this aggressive support one of the reasons why you've been attending nearly all the computer shows?.

"More important than just talking about support is putting it into practice. We must be seen to support our system. Besides shows like that give us the opportunity to meet our members. It's a very costly affair for us so we look for support from trading in return. I think it was at Breadboard '81 that it cost the group around nine hundred to a thousand pounds for the stand plus expenses to be there. So you can imagine the sought of returns you've got to pull back in from the members over those few days. Thankfully we did quite well and recovered our outlay, but it's dangerous ground to tread with our limited capital, besides it's bloody hard work. Above all else, we get to meet the members, that's what we're there for.

Q. What, in your opinion, are the shows that we should attend as enthusiasts?.

"London Computer Fair as organised by the Amateur Computer Club and the P.C.W. shows.

Q. How did you get on at the Manchester show?.

"Very well considering it was the first one of its kind in that area. We met a few more of our members, particularly those from the more northern parts of the country. All round it was a successful event."

Q. How do you respond to the fact that Tug is considered to be in competition with the manufacturers and other suppliers?.

"Resentment generated by inadequacies, insecurities or plain excuses to meet their own objectives of self interest. But I don't consider that we are in fact in any way

in competition with any other supplier. If what you say is true, then we must be effective in our support of our system and our members. If we are that effective in our agreeesive support then these same people who call us competitors should be thankfull that at least there are some people prepared to support the system, unless of course they have an ulterior motive. Besides which, what product or services do we provide that're competitive."

Q. But you do provide similar goods don't you?

"Similar yes but not indentical. We have simply filled in gaps left behind by others, or we were not prepared to sit back and wait indefinitely for products that we wanted for our systems. If they're not prepared to supply we must look after ourselves, I thought I made this point quite clear. Firstly, take our mother board for example. It was designed to be a starter s.m.b. to fill a hole in the lower less ambitious end of the market. It wasn't through design that it ended up with a twentyfive percent greater capacity of additional slots than the official version, but there again we haven't got any obsolete slots on it either or page memory management facilities. No, we simply filled a need for a low cost entry into system expansion. The user will upgrade to the other board if he feels it worthwhile or it meets his needs. At the moment we are giving him a choice and I think that's important. The same applies to our video modules. The P.G.M. was designed to be a low cost entry into high definition, as cheaply as we could make it, and the Video module was designed to get a little nearer the state of the art with versatility in mind. You name me one other micro system that now has so much to offer in the way of video capability at these prices.

Q. What made you go for the Video module approach in the first place?

"Oh come on!. Just before we launched the P.G.M. I was so pissed off at seeing what was available for other machines and here we were stuck with the appalling graphics on the system. Knowing what the specs were going to be on the T.C.S. boards the objective was to fill-in in the meantime with a less sofistcated module. One that was less expensive, could be installed on a Micron system with little effort and one that could be less of a loss when it came to upgrading. Having got that out of the way. We started to experiment with the dedicated graphic processors in an attempt to reach what we considered nearer to the ultimate. Not being satisfied with their performance/cost/facilities ratio this idea was abandoned in favour of an even more ambitious project, one that we felt would put our system well out in front of others. It badly needed something to show that it wasn't a dead system. So between all of us we have now produced within a small circle of suppliers a very comprehensive range of video accessories. From humble beginnings the Microtan video potential is second to none, anywhere in the micro world. We now have one of the most advanced video systems available. Not only that, there were other reasons for the Video Module's appearance. We decided that to test our abilities we would undertake a very ambitious project from start to distribution. This was undertaken by a trio of enthusiasts and pushed to the limit of the final product. All limits were obliterated in our drive to achieve what we considered to be a great step forward for the system, intensive man hours of labour, the aggravations of R. & D. hardware & software work and the strain of the financial involvement. In fact I will go further and say that as far as Tug's finances were concerned, the whole ball game relied upon the dedication and ambition of those involved and the successful completion of the Video Module as a first class product. One in which I feel that Tug members should be proud to have their group achieve. We are only a users group after all with limited capital expenditure for the tasks required."

Q. Do you propose to keep the same standards in the future?.

"I can't answer that directly. Projects must be evaluated according to their place in the scheme of things. At the moment we have projects coming out of our ears, each one seemingly more important than the others, much depends on where you sit in system expansion at this time."

Q. What is the next project you are undertaking?.

"I will tell you what has already been put into operation and that which I think is safe to tell you of, others I must remain circumspect about. Of the most direct importance as far as the member is concerned is the near completion of the Tanbug replacement which we've referred to affectionately as the 'Tugbug' monitor. Others include the new 128K eprom storage module, a complete replacement for Tanex and our ram board. Our ambition is to get these modules on the streets as soon as possible. Certainly each of them is worth waiting for."

Q. Before we change the subject. Why have you never produced a colour board for the system?.

"We could have produced a colour board if it's second rate colour that your looking for. I'm not and I know others aren't. The market is flooded with cheap colour machines which produce watery teletext type colour formats. Certainly nothing to write home about. Many users that I've spoken to would rather stick to ultra hi-res black and white rather than cheap colour. Considerations have to be given to the technical requirements for hi-res colour, in that the cost of producing a card for the system based on anything like 512x256 pixels would also require high bandwidth colour monitors to operate at anything like their potential, as a result, these monitors are expensive to acquire. I've run the T.C.S. colour system through a monitor at a considerable cost, only to be very disappointed at the end results. When you sum up these costs for the end result, this type of colour format is a long way off of being at an acceptable level of returns for the outlay, besides it's a retrograde step as we know most of those now using cheap colour boards will soon find the limitations and eventually convert over to ultra hi-res. A good hi-res card connected to a reasonably cheap monitor is far superior at the moment."

Q. With the present Tangerine system what do you consider to have been its biggest disadvantage?.

"Not enough support from the commercial market as a whole and costs in comparison to present market day needs."

Q. Is it a simple as that?.

"No. But a good comparison can be made between the Microtan system and say that of the Acorn outfit which is about the same age, therein seems to be part of the answer."

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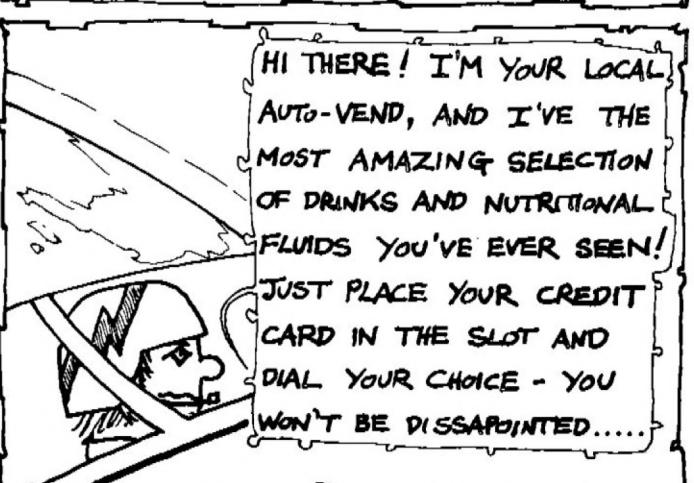
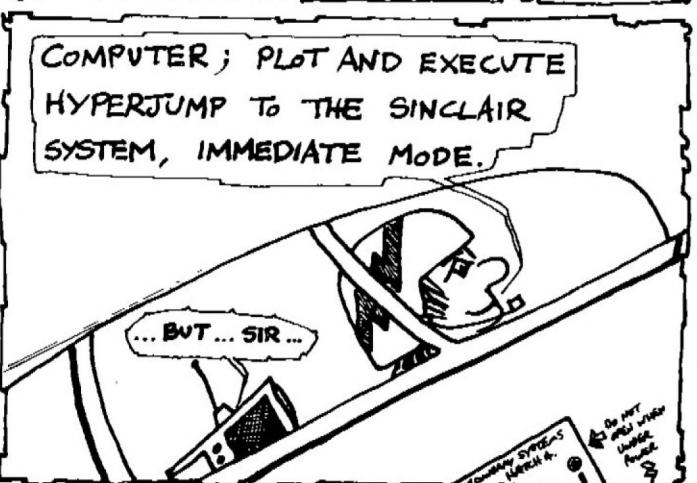
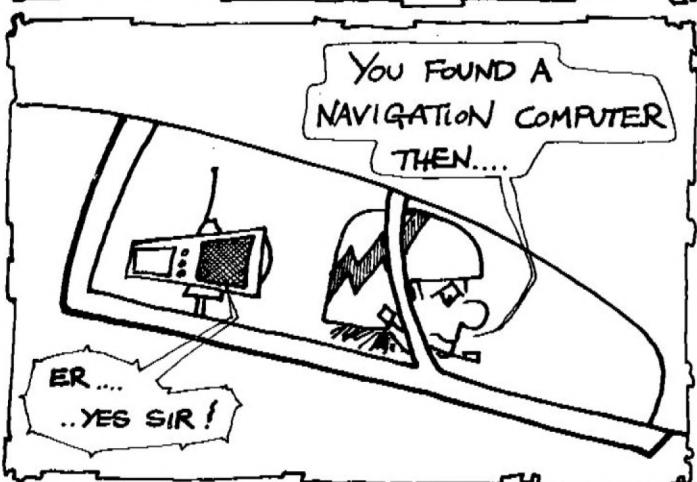
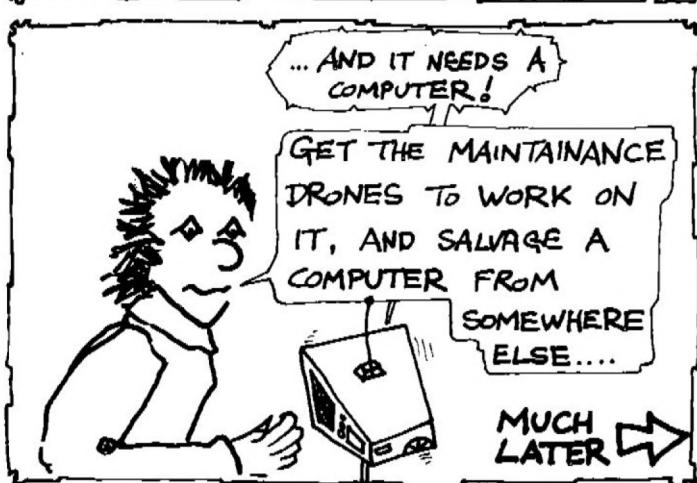
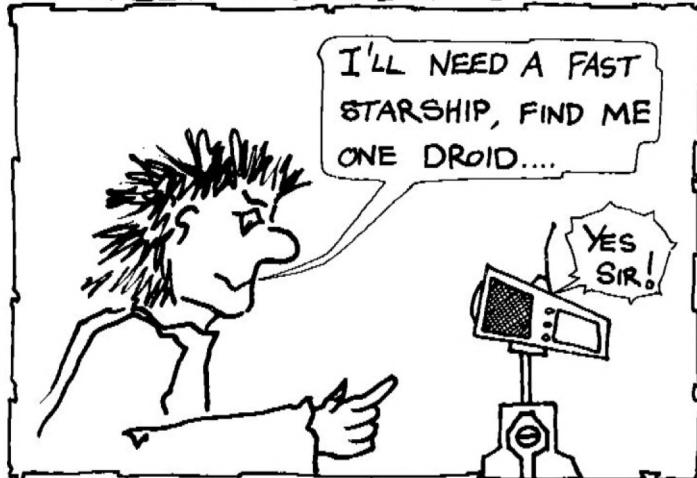
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