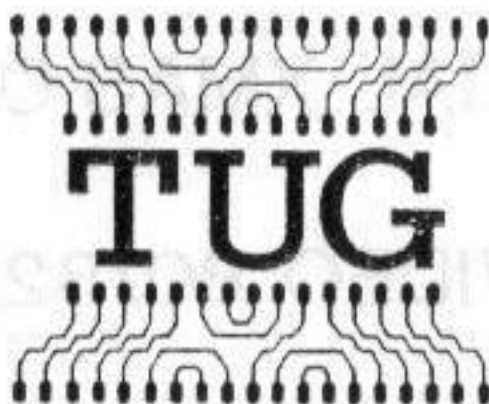


TANGERINE USERS GROUP



ISSUE 26

NEWSLETTER

* NEW - VIDEO 80/82 TOOLKIT *

What better link to your system can you have?, a comprehensive Toolkit offering a wide selection of Basic linked commands to ease programming blues. For fast positive action and control this Toolkit provides for CLS - SET Point - RESET Point - INVERT Point - DRAW - UNDRAW - INVERT Line - TEST - CURSOR Control - MOVE - HOME - UP - DOWN - LEFT - RIGHT - WINDOW Control - UNDERLINING - ENLARGED Characters - SUPERScript & SUBscript control - REVERSE video etc etc. An ideal companion for the Video module is here at last. If you have a Video Module you must have this Toolkit. More on this super beast next month!

Resident \$E800 (2716 Eprom)

VIDEO TOOLKIT + Manual22.50 pounds + .75 p.& p. + VAT

AT LAST!! - IT'S HERE! - 38K!! BASIC

* DONJON *

OR, TUG's version of that famous adventure program DUNGEDONS & DRAGONS - with VIDEO MODULE GRAPHICS!!

What more could you ask for? Eh! A little name for a super prog - SEVENTY ONE Monsters! - INFINITE Subterranean levels (Although at sub level 30! it gets a bit tough to stay alive!) - COMBAT - SPELL - BRIBE - RETREAT are all there to make this a facinating adventure.

Have you seen any UNDEAD! creature around here lately?. What about the Wandering monster?. (This is just the place for my mother in law! Death by GAZE!). Well! What can we say, with 3D graphics on the Video module this program is a winner - YOUR WAITING IS OVER

SPECIAL INTRODUCTORY OFFER (Well it is XMAS (Nearly)).....10.00 + .50 p.& p. + VAT

Tangerine Users Group. 16 Iddesleigh Road, Charminster, Bournemouth. (0202) 294393

The Saga Continues -

Screen Encounters of the TUG kind.

C.P. Nowell

In the last episode I told of my encounter within those hallowed walls with the Broid and the wonders of the Video 80/82 .

Well fellow compunauts, I'm back in the wasted plains of beefpeoo land and the great Video 80/82 is now a permanent resident of ERIC Mk2000odd's semi-detached in flat 3.

The problems of the video level into the modulator are now cured.

The building of the card was as simple as docking an Acturan Megafrieghter to a Starbase in Betelgeuse IV. (Watch this space for SUPER TUG TREK !!!). The board is lovely quality (my boy!) and this helps the ease of assembly.

As my monitor is in fact an old telly that's been disembowelled, I played around with the value of the resistor in D1's position to correct the video level and in fact left a 500 ohm pot in place for continuous adjustment but in fact the value worked out to be around 390 ohms and this gave a perfect picture.

Not being very rich, I only had 8K of memory at first so I was only able to work in 40 col mode, but what a difference even that made over the old 32 x 16 format!. Probably the biggest difference was made by the extra 9 lines of text. So much more space to play with, but the best was yet to come when I would upgrade to a full 80 cols.

Immediately I leapt to the phone clutching my little plastic friend to order a full 16K ram, (pinched the 8K from my little Tanex daughter board didn't I ?!....WOT!! you haven't got one yet ?? shame on you !!). So having odered my ram I buried myself in the KBD for the next week and busily started the great conversion job totally oblivious as to what would befall me later that week.

Later that week.....(!)

It was here !! I rushed into my computer centre (YES! It's getting that big now !!) and as before Eric Mk2000odd was quickly divested of it's new flatmate. With great expectancy I carefully installed the new ram. After resetting the DIL switches to hardware select 80 col mode, I had my new prized possession back in its rightfull place in the household.

"This was it !", I thought, hardly able to contain my impatience, and switched on. The (by now) familiar graphic stripes appeared on the screen and I saw it scroll up a couple of times, but what had happened ?? NO signing on message ! My stomach lurched as swearing and cussing in my mind at the ram suppliers, I turned off for another try. "This can't be happening to me...", I swore to myself and turned on once again. The same thing. "Let's try a clear screen...", I thought ignoring the orderly mess on the screen, "It seems to be doing CR's ok so maybe I've got a bug in my VBUG...", I thought distrustingly.....So, using my usual I typed T400 CR. Nothing happened until I hit CR and then I saw the scroll up....Nervously I hit Control L and yes there she all goes, but,.. "WHAT IS THAT !!", I exclaimed as I stared at the biggest cursor you've ever seen in the top left hand corner of the screen. This cursor was about two Microtan lines deep but about the same width as a normal character. I hit a letter, H I think, and there it was, a lovely shaped H but too damn big !! Getting more and more disheartned now and not really knowing why my board was behaving this way, I tried typing a full line of text to see what would happen. As I hit the repeat key, lots of H's started to work their way across the screen and then suddenly CR and more H's started to overlay the first lot by about half a character until suddenly CR again ! This time at about 2/3 of the way across the screen. Now in the depths of despair, I switched off to go and make a cup of coffe and try and resolve the problem.

Back in the computer centre.....

As I sipped the hot coffee my fleshy computer got to work and it suddenly hit me !! The ram wasn't being scanned fast enough and maybe that was what the DIL selector was for, to double the scan rate of the clock. Maybe the switch on my board was faulty.... maybe I had a short.... maybe I would kill something if I didn't get this *!+XX** board working !! There was only one thing left, I yanked the phone onto my lap and called the great B-droid on the other side of the universe.

Having calmed me down and given me a few suggestions I bid him a fond farewell I went back to my toils. I double checked everything on the board and all seemed ok. The switch was OK so I now had to start thinking of a duff chip (Groan !!). I quickly stripped Eric Mk2000odd down to his underwear and ran a minimum system so that I could borrow other chips off the system. Slowly I worked through the Video board trying a chip here, trying another chip there until I'd used up all the duplicate chips that I had, still without success.

There was one chip that I hadn't tried yet and it was a dual monostable 74LS123 IC No.7. With horror I looked frantically, but (Yes, you guessed it..!) I couldn't find a spare anywhere. Then I pulled Tanram from its socket and there it was !! A74LS123 I. This was my last shot as I carefully swapped chips over. With resignation I installed the Video board back into it's socket and switched on. SUCCESS !!!!!

There was the little message at the bottom of the screen that had amazed me before. What beautiful little letters they were !! With a sigh of relief I realized that I had had a half knackered chip. Furiously I started hunting through my odds & ends box as I was sure I had an ordinary 74123 around somewhere. Then I found it and put it in the Tanram board in the hope that slow technology wouldn't need the LS version.(!!) Hastily but with care Eric Mk2000odd was returned to his normal pristine state. With great satisfaction at a job well done I switched on and started to explore the world of Ultra High resolution graphics with this new found power of this super board.

Into Basic now I started to play with the different character widths and underlining and of course REVERSE video and lots more. Then I reached for my master tape and loaded THE program that had been laying around for too long waiting for a board of this capability.

.....Science officer Spock reported that all was well as I drifted off to cross brave new frontiers in space and as I made the jump to hyper space I thought "I really must get this prog finished now for all my fellow compunauts back there on Earth, in Tugland!".....

TUG' IN AT IT!!

What's on for 1983 ?.

Well, we're just putting together two colour systems which you might be interest in, one a Lo-Res colour module and the other a sophisticated colour outfit.

A new Eprom programmer is on line for the new year along with a new Eprom Storage Card. Ram boards seem to be in demand from us at the moment, so there's two of those coming on stream and quite soon.

Discs, well, we've been toying with the BATS NCI units with partial success although at this time we have our eyes in a slightly different direction, more news as it comes in.

The Video 80/82 module is now being used as an Eight Channel Logic Analyser display so Storage Scope capabilities are near at hand.

CHERRY DELETED

D. Hudson

In response to a newsletter request for a 'Cherry' keyboard 'Delete' key, the answer is to connect a new key to pins 39 & 18 if IC NKBD-739.

The tracks from these should trace round to the lower pin of Key 2 and the upper pin Key 14 (ESC). In my own case I removed the 'Power On' Key and fitted my 'Rub Out' in its place, therefore no cut-out operations necessary.

The electrical spec states that the strobe pulse will be significant for 10usec during which time output data is valid; repeat mode is 10HZ. Also note the reset key is interlocked with the CTRL key. The switch matrix is as per sketch:-

17							2	1	
18							DEL	ESC	
19	F	G	H	J	K	L	;	← →	
20	C	V	B	N	SPC	M	< >	?	
21							Q	A	
22							7	S	
23							D	X	
24							3	W	
25	-	:	0	9	8	7	6	5	4
26	RET	P	O	I	U	Y	T	R	E
	32	33	34	35	36	37	38	39	40

BASIC RESTORATION

This program allows you to restore to a line number while using Basic. The routine is called by the USR instruction, i.e. M-USR(1000) will restore to line 1000.

It is also possible to use variables, i.e. M-USR(A-B). The routine uses two subroutines in the Basic interpreter. The first at \$D5F5 converts the argument of the USR instruction which is stored as a floating point number in \$D0 - D5 to a 16 bit binary number stored in \$33 - \$34. The subroutine at \$C4F4 searches the Basic program for this line number, if it is found, the address of the start of the line will be stored in \$CE & \$CF, if not the carry is cleared and this is the reason for setting the carry before jumping to the routine.

Index register Y is set to \$2 on return from the routine. The line is then searched for the data statement (Token = \$83) if it is not found then a jump is made to the Basic error routine at \$CD92. On finding a data statement the address of the data item is calculated and stored at \$B0 & \$B1. This is where the interpreter keeps track of the current data item.

1F00	20F5D5	JSR	\$D5F5	; Floating to Binary
1F03	38	SEC		; Required condition
1F04	20F4C4	JSR	\$C4F4	; Find Line number
1F07	B003	BCS	\$1F0C	; Found if carry set
1F09	4C92CD	JMP	\$CD92	; Jump to Syntax Error
1F0C	C8	INY		; Adjust index Y
1F0D	C8	INY		;
1F0E	B1CE	LDA	(\$CE),Y	; Get Char from Line
1F10	F0F7	BEQ	\$1F09	; End of line then Error
1F12	C983	CMP	#\$83	; Is it Data statement?
1F14	D0F7	BNE	\$1F0D	; No! try next byte
1F16	8CID1F	STY	\$1F1D	; Adjust ADC value
1F19	A5CE	LDA	\$CE	; Calculate and place
1F1B	18	CLC		; Addr. of Data in
1F1C	6904	ADC	#\$0	; \$B0 and \$B1
1F1E	85B0	STA	\$B0	;
1F20	A5CF	LDA	\$CF	;
1F22	6900	ADC	#\$0	;
1F24	85B1	STA	\$B1	;
1F26	60	RTS		; Return from sub-routine.

The following Basic program illustrates this sub-routine at work.

Enter Basic in the normal manner after loading this routine and protect this area:
Memory Size 7936

The Data statements need not be the first instruction on a line.

```

10 POKE34,0:POKE35,31
20 DATA ONE,TWO,THREE
30 DATA FOUR,FIVE,SIX
40 DATA SEVEN,EIGHT,NINE
50 INPUT"RESTORE TO LINE";A
60 M-USR(A)
70 READ A$,B$,C$
80 PRINT A$,B$,C$
90 GOTO 50
    
```

TANGERINE CENTRONICS

Port C1 Pin No. 2 3

3 5

4 7

5 9

6 11

7 27

8 27

9 13

10 15

11 17

12 1

13 19

Port D1 Pin No. 3 21

4 35

7 31

8 31

PROGRAMS WANTED - DEAD or ALIVE!!

1. RTTY routines for the newsletter.

2. Due to the large numbers of E.S.C.'s now in users hands we are looking for a combination program which will give us the operational software to drive FOUR cards in the system with all the options still available, i.e. Card 1 - 4, RTS, with or without displayed text etc.

The same would be nice for the Combo Module of course.

Dear Bob,

Having just finished rebuilding Microtan / Tanex into a new case (the West Hyde VDU101 -very smart but b. pricey) with room for my monitor (and disks if I ever get the cash!), I've just been through the "what shall I do about the power supply" sub-routine. As a result I've got some comments on the design published in the mag. (iss19), and (yet another) design.

The first point I want to make is about the current rating. In converting from ac out of the transformer to dc out of the rectifier, the one thing you can count on is that they're always different. If you want a high-current supply, you rarely use a bridge - here's why:

For a full-wave bridge, capacitively smoothed, feeding a resistive load,

$$V_{dc}=V_{ac} \times 1.4 \text{ and } I_{dc}=I_{ac} \times 0.62$$

-and this is where the problem lies. Although the transformer's output is 6.5V at 10A, the dc bridge output is 9.2V at 6.2A. Since the LM338 is spec'd at 7A peak output current, most of the 5V regulator circuit is unnecessary unless you instead find a 6.5V 16A transformer. Similarly, the 15A design requires a 6.5V 24A transformer!

Whilst on the subject,

- protection diodes D5, D6 and D8 are only needed if output capacitance is large or $C12 > 10\mu F$ which they're not.
- on the negative supply R11 is unnecessary.
- D8 is wrongly connected! it should go across R5.

Another Power Supply!

A better rectifier for high - current applications is the full - wave capacitive filter. The equations for this are!

$$V_{dc}=V_{ac} \times 0.71 \text{ and } I_{dc}=I_{ac} \times 1$$

This gives, for the 5V supply, 6-0-6V at 10Aac, or 8.5V at 10A after rectification. As a good rule of thumb, 2000 μF /amp for the smoothing capacitor gives 20000 μF - I used 48000 μF to be sure. Decouple with a 0.1 μF disc ceramic as electrolytic caps aren't caps at high frequencies.

To keep the circuit as simple as possible, I've avoided using a variable regulator- OK if you've access to a voltmeter guaranteed accurate to +/-0.2V, but so much easier to use a fixed voltage one.

So far I've found 5A adequate, so I've used a Lambda LAS1905 regulator (5V at 5A), but a LAS3905K could also be used if 8A is required. It is pin for pin compatible, so you can always uprate at a later date.

The +/-12V and -5V regulators are a standard circuit. Any transformer that has two 12V windings at a few amps will do. I've chosen 5A to allow spare capacity for a monitor, disks, etc. Remember 78 and 79 series regulators are 1A, so if you really need 1A from the -5V line, it's better to take the regulator input from the -17V line, through a 6.8 ohm 10W resistor to reduce the regulator dissipation. If you do this, remember to add the usual 4.7k resistor across the -12V regulator output to stop any possibility of the thing oscillating.

Whilst on the subject, I deliberately haven't included zener overvoltage protection, as I have known them cause voltage regulators to oscillate on switch-on.

When it comes to testing, instead of using your system as a very expensive voltmeter, try knocking together the little extra circuit shown on the circuit diag. If you use a 470ohm resistor for checking the +/-5V supplies and a 1200ohm for the +/-12V supplies, the led should glow at about the same brightness on each. The 1N914 of course stops you blowing the led if you connect it to the circuit backwards, and means you can check ac with it. If it works alright it's only cost you a cheap diode and a 1200ohm resistor, as the led is used as an "on" indicator on the +5V line anyway.

And that's about it apart from the parts list - any queries drop me a line via our Ed., or ring me on 0684-72896.

TUC ON

John Harner

PARTS LIST.

FL1: chassis plug with 2A mains filter RSC 238-514 (6.40)
T1: ILP 42010 2x6V10A 120VA toroid (6.90)
T2: ILP 42012 2x12V5A 120VA toroid (6.90)
D1: PNR27K-500 Lambda (1.83)
D2: 6A250V bridge RSC262-056 (2.61)
D3: red led RSC587-B22 or sim (0.46)
IC1: LAS1905, ins. kit, Lambda (8.79)
IC1a: LAS3905K, ::, Lambda (12.49)
IC2: 7812,: (0.96)
IC3: 7912,: (1.08)
IC4: 7905,: (1.08)
C1: 68000uF16V elect RSC104-102 (8.40)
C2,5,7: 0.1uF30V disk ceramic RSC124-178 (0.13)
C3,9,11,13: 1uF35V tant RSC101-771 (0.19)
C4,10,12,14: 10uF35V tant RSC102-702 (0.26)
C6,8: 15000uF40V elect RSC104-130 (5.04)
R1,2,3: 4.7k 0.25W 10%
R4: 470 0.25W 10%
heatsink: mount D1,2,IC1-4, vertical 1.1'C/W RSC401-807 (3.98)
connector block: 6 way, 20A RSC423-598 (1.23)
3 capacitor clips to suit C1,6,8
case

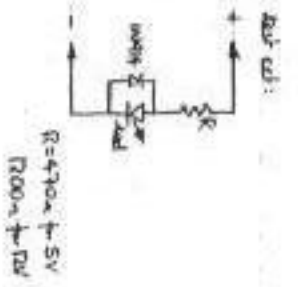
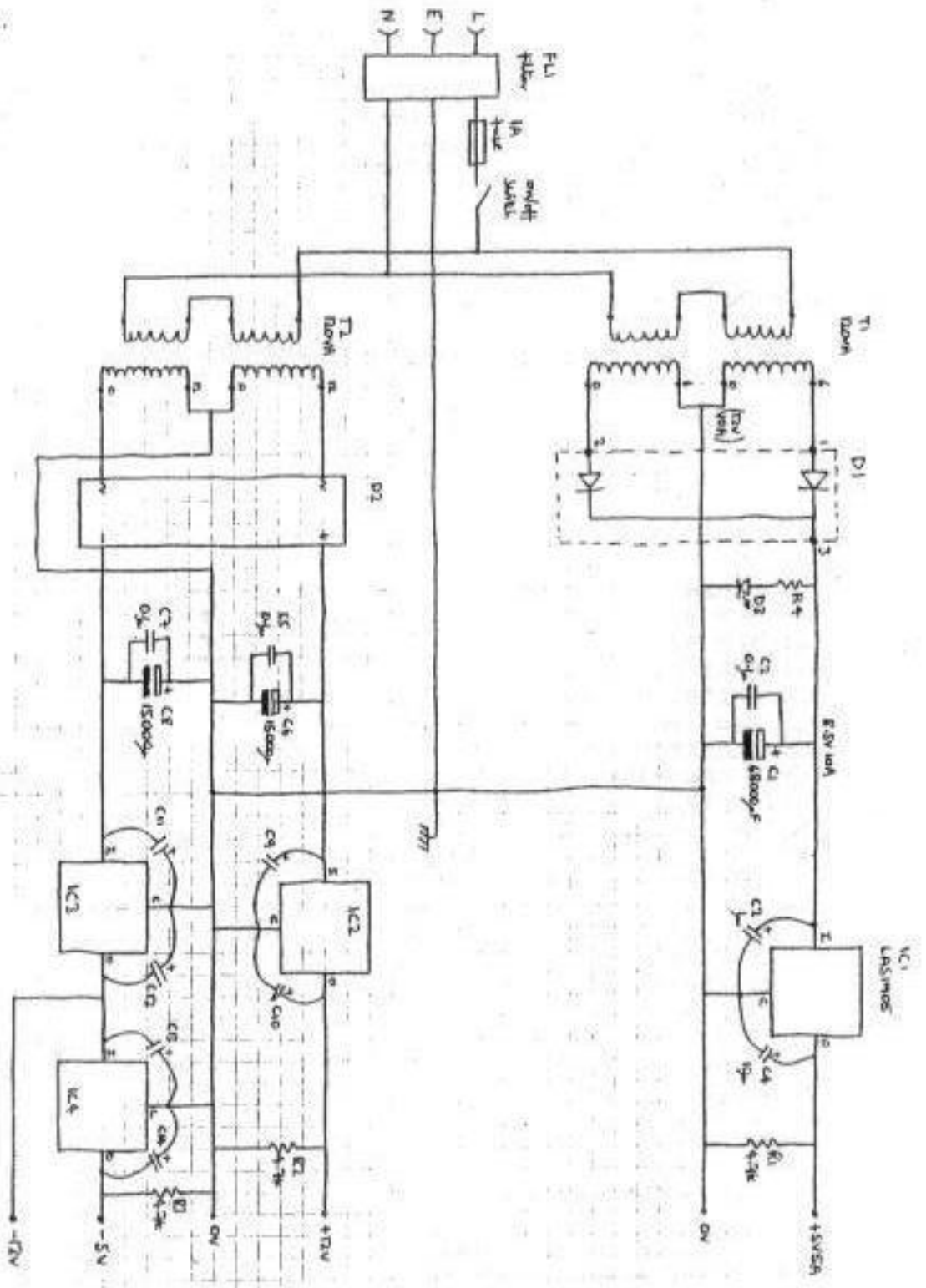
[All guide prices exclude VAT and postage]

use 20A wire for +5V supply
use 10A wire for remainder

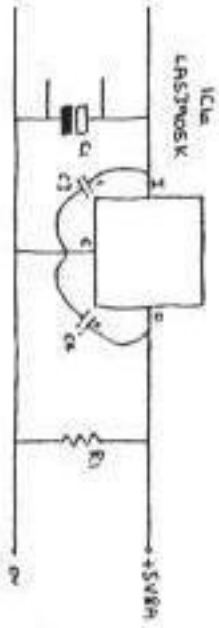
Lambda Electronics, Abbey Barn Road, High Wycombe, Bucks. 0494-36386

ILP Electronics, Freepost 5, Graham Bell House, Roper Close,
Canterbury CT2 7EP, Kent 0227-54778

RSC - RS Components Ltd.



option for 5VSB output:

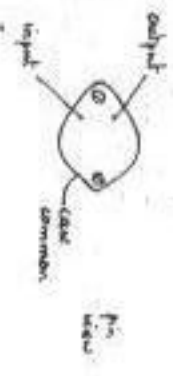


component list:

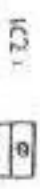
D1: PBR29K-Solo TO3 can



IC1: LM317QDS TO3 can



IC1a: LM317QDS - as IC1



IC2, 1



IC3, 4

ANOTHER POWER SUPPLY CIRCUIT!

IT'S A DEAD GIVEAWAY
OR
SPOILT AGAIN!

We have just taken delivery of a brand new production batch of Video 80/82 Module p.c.b's which are SUSPECT!! of having a 'Plated Thru Hole' problem. Out of this original batch our quality control has found about 3% to have this problem. Spending time and manpower checking further quantities for faulty plated thru holes by us is out of the question, as a result, we are prepared to release these p.c.b's at a reduced price.

Fully assembled Video 80/82 do not prove to be problem as these suspect holes would be filled with solder or alternatively plated through with pins. P.C.B.'s on the other hand we are prepared to reduce in price leaving the constructor to pin through if necessary. This is a very easy task as the holes themselves are plated thru but have suspect hole to pad joints, which can be overcome by soldering through the holes very easily prior to general assembly.

Having checked through a good portion of the batch already for these p.c.b.'s we are isolating the batch entirely for this offer, we are quite confident that due to the low percentages you may well not receive a p.c.b. with this fault - who knows!!.

There are only a dozen or so p.c.b.'s subject to this offer so we urge you to take advantage while this small stock lasts.

The Video Module p.c.b. will be subject to a £10.00 reduction, this now reduces the Video module package including VBUG V1.1 + Manual to £48.50 + Vat + p.&p.

David Churchward.

Dear Bob

I enclose three programs for possible publication in the newsletter.

The first program entitled "INDEX" is a BASIC program that I use to keep track of all my other programs. The DATA statements contain the following information:-
PROGRAM NAME, TAPE NO., TAPE SIDE, LANGUAGE, START ADDRESS, SUBJECT TYPE.

On running the program you may select either details of all programs by subject, scroll a screen full at a time, or details of a program by name.
When initially putting details into DATA statements the number of programs should be shown in lines 280 and 510 against the variable N.

The second program is also written in BASIC and is used in conjunction with a small amplifier plugged into the cassette output socket. I made up the circuit shown in Issue 10 of the newsletter.
Entitled PIANO, the program is a simple routine that simulates the range of notes available on a piano keyboard.

The third program, written in assembly language also utilises the amplifier.
The start address is \$432. It configures the keys A - T of the keyboard to a range of musical notes. I do not know what the notes are since I tuned the values from a small stylophone and therefore I cannot vouch for its accuracy.

INDEX

LIST

```

100 DIMA$(250):DIMB$(50):DIMC$(50):DIMD$(50):DIME$(50):DIMF(50)
110 REM## (C) DJC 19JAN1982
120 REM## WHEN ADDING OR DELETING
130 REM#PROGRAMS AMEND N IN LINES 280 AND 510
140 RESTORE:PRINTCHR$(12)
145 PRINTTAB(13)"INDEX"
146 PRINTTAB(13)"====="
150 PRINT:PRINT:PRINT:PRINT"DO YOU WISH TO SELECT BY:--"
160 PRINT:PRINTTAB(6)"Program - TYPE A"
170 PRINTTAB(6)"Subject - TYPE B"
180 PRINT:PRINT:PRINT"To Terminate - TYPE C";
190 INPUTM$
200 IFM$="C"THEN680
210 IFM$="B"THEN350
220 IFM$<>"A"THEN140
230 PRINT"PLEASE TYPE NAME OF PROGRAM"
240 INPUTN$
250 IFLEN(N$)<=6THEN270
260 PRINT"TOO MANY CHARACTERS IN NAME":GOTO230
270 GOSUB690
280 N=4
290 FORI=1TON
300 READA$(I),B$(I),C$(I),D$(I),E$(I),F(I)
310 IFA$(I)<>N$THEN330
320 PRINTA$(I);TAB(8)B$(I);TAB(12)C$(I);TAB(17)D$(I);TAB(21)E$(I);TAB(26)F(I)
330 NEXTI
340 GOTO640
350 PRINTCHR$(12)
360 PRINTTAB(9)"SUBJECT INDEX"
370 R$(1)="EDUCATION":R$(2)="ELECTRONICS":R$(3)="FINANCE":R$(4)="GAMES"
380 R$(5)="MATHEMATICS":R$(6)="PHOTOGRAPHY":R$(7)="GENERAL"
390 PRINT:PRINT"1 :R$(1)
400 PRINT"2 :R$(2)
410 PRINT"3 :R$(3)
420 PRINT"4 :R$(4)
430 PRINT"5 :R$(5)
440 PRINT"6 :R$(6)
450 PRINT"7 :R$(7)
460 PRINT"B : "
470 PRINT:PRINT:PRINT"PLEASE TYPE SUBJECT NUMBER";
480 INPUTP
490 PRINTCHR$(12):PRINTR$(P):GOSUB700
500 RESTORE
510 N=4:J=1
520 FORI=1TON
530 READA$(I),B$(I),C$(I),D$(I),E$(I),F(I)
540 IFF<>F(I)THEN630
550 PRINTA$(I)TAB(8)B$(I)TAB(12)C$(I)TAB(17)D$(I)TAB(21)E$(I)TAB(27)F(I)
560 J=J+1
570 IFJ<9THEN630
580 PRINT"PRESS BAR TO CONTINUE"
590 POK1,0
600 IFPEEK(1)=0THEN600
610 GOSUB690
620 J=1
630 NEXTI
640 PRINT"PRESS BAR TO CONTINUE"
650 POK1,0
660 IFPEEK(1)=0THEN660
670 GOTO140

```

```

680 END
690 PRINTCHR$(12)
700 PRINT"PROGRAM";TAB(9)"TAPE";TAB(16)"LANG";TAB(21)"START";TAB(27)"TYPE"
710 PRINTTAB(8)"NO SIDE"
720 PRINT"-----"
730 RETURN
740 DATA
750 DATA
760 DATA
770 DATA

```

OK

MUSIC

1400			0430 AB	TAY
0400 98	TYA		0431 60	RTS
0401 48	PHA		0432 A900	LDA #0000
0402 BA	TXA		0434 B571	STA #0071
0403 48	PHA		0436 A500	LDA #0000
0404 A900	LDA #0000		0438 B570	STA #0070
0406 BDCBF	STA #BFCE		043A 20FAFD	JSR #FDFA
0409 A9C0	LDA #00C0		043D A501	LDA #0001
040B BDCBRF	STA #BFCB		043F C941	CMF #0041
040E A570	LDA #0070		0441 30F7	BMI #043A
0410 BDC6BF	STA #BFC6		0443 A501	LDA #0001
0413 A571	LDA #0071		0445 C955	CMF #0055
0415 BDC7BF	STA #BFC7		0447 10F1	BPL #043A
041B BDC5BF	STA #BFC5		0449 3B	SEC
041B A038	LDY #003B		044A A501	LDA #0001
041D A2FF	LDX #00FF		044C E940	SBC #0040
041F CA	DEX		044E 0A	ASL A
0420 D0FD	BNE #041F		044F AB	TAY
0422 BB	DEY		0450 B97E04	LDA #047E,Y
0423 D0FB	BNE #041D		0453 B570	STA #0070
0425 A900	LDA #0000		0455 CB	INY
0427 BDCBBF	STA #BFCB		0456 B97E04	LDA #047E,Y
042A BDC2BF	STA #BFC2		0459 B571	STA #0071
042D 6B	PLA		045B 200004	JSR #0400
042E AA	TAX		045E 4C3A04	JMP #043A
042F 6B	PLA		0461 00	BRK

XMAS - XMAS - XMAS - XMAS - XMAS - XMAS - XMAS

Already the madness of the pre-Xmas shopping is with us. The 1981 pre-Xmas period revealed that some members still left their ordering a little late for Xmas deliveries, so, to try and speed things up a little this year I will be taking preliminary orders in advance. The idea being, that if you would like to reserve a particular product then give me a ring well in advance and we'll keep it ready on the shelf for you....V.G.

PIANO

LIST

```

100 PRINTCHR$(12):PRINT:PRINT:PRINTTAB(10)"PIANO"
110 PRINT:PRINT:PRINT:PRINT:PRINTTAB(3)"(c) 1982 D J Churchward"
120 A=25.96:B=1.0594631
130 POKE49090,255:POKE49099,192
140 FORI=1TO88
150 A=INT(((A*B)+.005)*100)/100
160 P=INT(750000/A):H=INT(P/256)
170 L=P-H*256
180 POKE49092,L:POKE49093,H
190 REM LENGTH OF TEMPO
200 IFINT(I/10)=I/10ANDINT(I/10)<>0THENRESTORE
210 REM I IS DURATION OF NOTE
220 READI
230 FORD=210300:NEXTD
240 NEXTI
250 POKE49099,0
260 PRINTCHR$(12):PRINT
270 PRINT"The lowest note has a frequency"
280 PRINT"of 27.5 Hz. Middle C has a frequency of 261.63 Hz."
290 PRINT:PRINT:PRINT"There are 12 notes including"
300 PRINT"sharps and flats in each octave."
310 PRINT:PRINT"The n+1 th note is the nth note times 2^(1/12)."

```

OK

ON LINE WITH PRESTEL

As we start to make use of the Prestel network over the coming months we would like to begin collecting material for our Prestel pages. As yet we are awaiting the completion of the Uploader which will enable a direct dump to the network, this would then enable us to accept data formulated by the Raytel interface software in cassette format for ease of transfer. If you would like to see your contributions on the Prestel pages whether these be Telesoftware programs, articles or dedicated graphic displays, send them to us as soon as possible - on cassette. Good Luck!!

(NON) MEMBERS NOTICE - RENEWALS

Don't forget to get your Membership renewals back to us early. With the demand for current newsletters it's becoming very difficult to secure back copies, renewing membership after a delay could leave you missing some issues.... V.G.

COMING VERY SOON - PHONE FOR DETAILS

32K RAM MODULE - BATTERY BACKED 6116

PRESTEL DISCO!

RAYTEL

The following program is a utilities routine for use with the Tangerine Disc system, Prestel and the Tanel adaptor and primarily used with the RAYTEL interface software. The program can be used in a number of ways. The most common at first will be in the stand alone mode. The program should be loaded and started in the indicated way. At this point in time the T.V. display should start off by showing a clear screen with the 'TAPE' indicator initialised in the bottom right hand corner. This is to enable the clearing of the programs page buffer to spaces as well as show that communications are established. When the 'SAVED' indicator shows, the program is 'Chaining' all the available memory so as to provide an area to store up to 50 pages which are used at the users discretion. These 50 pages rather depends on how much info there is on each Prestel page, a packing routine condenses this data where possible making use of the DUPLICATE CHARACTER function. After this, a message indicating that initialisation is complete and a message is put to the screen. At this point the user can instruct the program to call up Prestel from the keyboard with CONTROL E followed by a number 1 - 6, the program will then set up the Tanel unit to dial the required number. As if by magic we should be, by the courtesy of BT have access to the Prestel computers mine of information. You can now follow the instructions on Prestel. Remember the Prestel # sign is CONTROL @ for those who do not have the underline character on their keyboards.

The second mode is by using the program as a subroutine from Basic. This is just as simple to set up.

First load the Interface program and then start Basic - remembering to enter the correct value to the Memory Size request. Having initialised Basic the routine is set up by the USER(X) call to the appropriate address, the program will then initialise as above and then return control to Basic. (This of course can be part of the overall Basic program).

All Basic functions are now supported with the exception of the screen editor. You can use the List command and also retype incorrect lines if this is required. Remember, the cassette port is only on Half Duplex in operation and its maximum speed is 1300 Baud.

All the interface commands can be embedded in PRINT statements to get the Tanel to act as a colour VDU with a screen size of 40 x 24.

Beware - Tanbug swallows some character sequences especially those that start with HEX 11.

Using the same method as above a call from a machine code program can make use of the interface as required - Write your own code to grab some commonly required Prestel pages - with a little work all the tools are there for you to use. The Downloader you will get with the Interface package will download Telesoftware from Prestel.

All the output is directed to the interface program by making use of the External Output function of Tanbug V2.3. To this end both the fast and slow interrupt links are utilised.

We are frantically working on an Uploader to get Tug software onto the network however being a complex program these things take time. In the meantime - here we go!!

TALK TO US!! On Prestel - 202294393 & 932224798 MAILBOX and leave a calling number !!!

COME ON !! Lets have some programs - graphics etc etc etc, for FUN !!!

Footnote:-

The Disc Save routine was developed using Tug's Editor Assembler (with printer routine) and the Tangerine disc system. We've included a full source code listing to enable the user to modify the program to suit specific applications if required. The actual printout was taken from an Epson MX80 FT directly from the E.A. using the AO(P) command from the additional printer routine.

Source code listings take up a considerable amount of space in the newsletter however we take this opportunity to show a Two Pass Assembler at work and how close these assemblers are to other language interpreters and with so many users undecided as to what language to follow, let me say that nearly all professionals will use a tool such as this to produce the best results, easy to follow, fast, efficient and space saving programming reducing the overall operational timing characteristics of the software. Machine code programming therefore becomes far more meaningful to the programmer showing a step by step programming structure throughout.

```
10      DISC SAVE ROUTINE
20
30
40      28-10-82
50
60      *          =      $B960
70
80      "S" IS AN ALTERNATIVE
90      TO "DSAVE". ALL PARAMETERS
100     ARE ENTERED ON ONE LINE -
110
120     S FILENAME START END
130     (TXXXX RXXXX PX)
140
150     IF THE FILENAME IS ALREADY
160     ON THE DISC THERE IS AN
170     OPTION TO DELETE THE OLD
180     COPY FROM THE DISC.
190     ANSWER "(Y)ES" OR "(N)O".
200
210     A SECOND OPTION ALLOWS THE
220     USER TO MAKE THE ORIGINAL
230     VERSION A BACKUP COPY BY
240     ADDING THE EXTENSION "BAK"
250     TO THE FILE. AN OLD "BAK"
260     WILL BE DELETED AUTOMATI-
270     CALLY IF IT EXISTS.
280     ANSWER "(B)ACKUP".
290
300     START & END ARE THE START
310     AND END ADDRESS OF THE
320     "DATA" TO BE SAVED.
330     THESE TWO ITEMS ARE
340     MANDATORY.
350
360     T,R,P ARE OPTIONAL AND MAY
370     BE ENTERED IN ANY ORDER.
380
390     TXXXX IS THE TRANSFER
400     ADDRESS. WHEN THE DATA IS
```


410 LOADED THE LOADER WILL
 420 JUMP TO THIS ADDRESS.
 430
 440 PX IS THE PAGE NUMBER THAT
 450 THE DATA WILL BE SAVED
 460 FROM AND SUSEQUENTLY
 470 RELOADED 100.
 480
 490 RXXXX ENABLES THE DATA TO
 500 BE RELOCATED WHEN NEXT
 510 LOADED FROM THE DISC.
 520 THIS CAN BE USED WITH THE
 530 TUG E/F/A FOR SAVING
 540 PROGRAMS THAT HAVE BEEN
 550 RELOCATED IN ORDER TO
 560 ASSEMBLE THEM.
 570
 580 WHEN USING "R" THE "T"
 590 ADDRESS MUST BE THE
 600 CORRECT ONE IT IS NOT
 610 ADJUSTED BY THE SAVE
 620 ROUTINE.
 630
 640 ERRORS:
 650 -----
 660
 670 THERE ARE 3 ERRORS THAT
 680 CAN OCCUR -
 690 1) A SYNTAX ERROR IN THE
 700 COMMAND
 710 2) THERE IS NOT ENOUGH
 720 SPACE ON THE DISC
 730 3) ONE OF THE FILES IS
 740 WRITE PROTECTED
 750
 760 THE ERRORS ARE REPORTED
 770 AS 1) "SYN" 2) "NSP" &
 780 3) "WRP"
 790

"S" (DISC SAVE ROUTINE).

FILE: 002 DATED: 28-10-82

800	ICURS	=	%A	SCREEN BUF POINTR
810	HXPCL	=	%13	HEX I/P BUFFER
820	HXPKH	=	%14	
830	MOUTL	=	%40	O/P POINTER
840	MOUTH	=	%41	
850				
860	DELFILE	=	%A003	DELETE FILE
870	ESCAPE	=	%B702	RTN TANBUG
880	ZSAVE	=	%B705	SAVE %40,41
890	INIGDR	=	%B708	GET DIR ENT
900	GETLIN	=	%B7C4	GET INPUT
910	ERRRET	=	%B7C7	ERROR RTN

920	QUERY	=	#B7CA	O/P A
930	WRITSECT	=	#B7D0	WRITE SECT
940	BADDEV	=	#B7D5	BAD DEV CHK
950	OUTSTR	=	#B7D9	STRING O/P
960	UPDSYS	=	#B7E2	UPD SYS SECT
970	ENDIRB	=	#B7E5	DIR ENTRY
980	FREEB	=	#B7E8	FREE SECT
990	GETDIR	=	#B7EE	FIND FREE D
1000	GETSYS	=	#B7F4	GET SYS INFO
1010	GETFIL	=	#B7F7	GET FILE NAME
1020				
1030	UNIT	=	#B800	DRIVE NUMBER
1040	TRACK	=	#B801	TRACK NUMBER
1050	SECT	=	#B802	SECTOR NUMBER
1060				
1070	SB	=	#B825	SECTOR BUFFER
1080	INTRK	=	#B825	TRACK
1090	SDSECT	=	#B826	SECTOR
1100	FRROT	=	#B834	WR PROTECTION
1110				
1120	DRFS0	=	#B927	DIRECTORY
1130	DRPT0	=	#B928	POINTER
1140				
1150	UNIT#	=	#B920	FILE SPEC BUF
1160	FNAME	=	#B92E	FILE NAME
1170	EXT0	=	#B934	EXTENSION
1180	FLNG	=	#B937	FILE LENGTH
1190	FSTR0	=	#B939	STRT POINTER
1200	FEND0	=	#B93E	END POINTER

*** (DISC) SAVE ROUTINE) .
 PAGE: 0003 DATED: 28-10-82

1210	FATT0	=	#B93D	ATTRIBUTE
1220	PAGE	=	#B93E	TEMP PBE STORE
1230	FDIRS	=	#B93F	DIR SECTOR
1240	FDIRT	=	#B940	DIR TRACK
1250	FDIRU	=	#B941	DIR OFFSET
1260	COUNT1	=	#B943	REC LEN
1270	STREC	=	#B944	STRT OF REC
1280				
1290	TANRUG ROUTINES			
1300				
1310	OUTRET	=	#F80C	CR O/P
1320	JHXK	=	#F817	SET HEX VALUE
1330	JCURSN	=	#F826	CURSOR ON
1340	JCURSF	=	#F827	CURSOR OFF
1350	MNGST	=	#FFFF	MEM MANAGE
1360				

B960 00
 B961 00
 B962 00
 B963 00
 B964 00
 B965 00
 B966 00
 B967 00
 B968 00
 B969 FF

1370 ENARI: DEF0 @, @, @, @, @, @, @
 1380 DEF0 @, @
 1390 SRAIRE: DEF0 #FF ADDR REC

B99B	50	1720		DEFB	'HRP'	
B99E	00	1730		DEFB	@	
		1740				
B99F	7D					
B9A0	B9	1750	MTAB:	DEFW	M1	
B9A1	82					
B9A2	89	1760		DEFW	M2	
B9A3	95					
B9A4	B9	1770		DEFW	M3	
B9A5	9A					
B9A6	B9	1780		DEFW	M4	
		1790				
		1800	M1T	=	@	
		1810	M2T	=	2	
		1820	M3T	=	4	
		1830	M4T	=	6	
		1840				
B9A7	2005B7	1850		JSR	ZSAVE	SAVE 40,41
B9A8	2017B7	1860		JSR	GETFIL	GET FILE NAME
		1870				
B9AD	A200	1880		LDX	#10	
B9AF	BD2E09	1890	CKWILD:	LDA	FNAM0,X	
B9B2	7D60B9	1900		STA	FNAM1,X	SAVE FILE NAME
B9B5	C93F	1910		CMF	#1?	NO WILDCARDS
B9B7	F065	1920		BEQ	ER3	
B9B9	C924	1930		CMF	#*#	ALLOWED
B9BB	F061	1940		BEQ	ER3	
B9BD	CA	1950		DEX		
B9BE	10EF	1960		BPL	CKWILD	
		1970				
B9C9	20C9B0	1980		JSR	SKP1	SKIP SPACES
B9CB	3059	1990		BMI	ER3	CURSOR ?
B9CD	2017E8	2000		JSR	JHXPK	GET START ADDR
B9CB	5054	2010		BVC	ER3	NI HEX FOUND
		2020				
B9CA	A201	2030	SOK1:	LDX	#1	
B9CC	B513	2040	SOK1:	LDA	HXPFL,X	
B9CE	9D60B9	2050		STA	SBSADL,X	SAVE START
B9D1	9D76B9	2060		STA	BTADL,X	
B9D4	CA	2070		DEX		
B9D5	10F5	2080		BPL	SOK1	
		2090				
B9D7	20BCB8	2100		JSR	SKPP1	SKIP SPACES
B9DA	304?	2110		BMI	ER3	CURSOR ?
B9DC	2017FB	2120		JSR	JHXPK	GET END ADDR
B9DF	503D	2130		BVC	ER3	NI HEX FOUND
B9E1	38	2140		SEC		
B9E2	A2FF	2150		LDX	#FF	
B9E4	E8	2160	AD1:	INX		
B9E5	B513	2170		LDA	HXFEL,X	
B9E7	7D60B9	2180		STA	SBIADL,X	SAVE END
B9EA	9D78B9	2190		STA	ENADL,X	
B9ED	FD60B9	2200		BFC	SBSADL,X	GET LENGTH
B9FB	9D7AB9	2210		STA	FILELL,X	SAVE IT
B9FC	BA	2220		TXA		
B9FE	F0EE	2230		MEQ	AD1	X=0 = 100 DONE
B9FF	9A26	2240		DEC	ER3	START = 130
		2250				

B9FB	2B00BF	2260	TRYF:	JSR	SKIPF1	SI IF SET
B9FD	3045	2270		RHI	R0	CURSOR ?
B9FE	10	2280		INV		
B9FF	EE7300	2290		INC	YSAVE	CHK LEN OF HEX
BA01	40	2300		PIA		
BA07	2017E0	2310		JSR	JHXP1	GET HEX MEMORY
BA05	60	2320		PLA		
BA06	5016	2330		BVC	ER3	NO HEX FOUND
BA08	C950	2340		CMP	#T	WAS IT PAGE ?
BA0A	D016	2350		BNE	TRY1	
		2360				
BA0C	A517	2370		LDA	HXPFL	L ← 3 ?
BA0E	300E	2380		BMI	ER3	NEG-ERROR (212)
BA10	C900	2390		CMP	#0	
BA12	1000	2400		BFL	ER3	ERROR
BA14	8D6AD9	2410		SLA	SDPAD	SAVE IN RECT B
BA17	8D3EB9	2420		STA	PAD0	& TEMP STORE
BA1A	A514	2430		LDA	HXPFB	H ← 0 ?
BA1C	F00A	2440		BEQ	TRY0	Y ← JUMP
BA1E	A204	2450	ER3:	LIX	#HT	
BA20	D070	2460		BNE	NSP1	ERROR
		2470				
BA22	C954	2480	TRY1:	CMP	#T	KEEP ADDR
BA24	D00C	2490		BNE	TRYR	
BA26	A201	2500		LDY	#1	
BA28	B517	2510	TRY11:	LDA	HXPFL,Y	SAVE
BA2A	7D6FD9	2520		STA	SDPAD,Y	IN RECT BBT
BA2B	CA	2530		DEX		
BA2E	10E0	2540		BFL	TRY1	
BA30	3006	2550		BMI	TRY0	
		2560				
BA32	C952	2570	TRYR:	CMP	#R	RELUC LOAD
BA34	D0E0	2580		BNE	ER3	
BA36	A204	2590		LIX	#1	
BA38	B513	2600	TRYR1:	LDA	HXPFL,Y	SAVE
BA3A	7D71B9	2610		STA	RADL,Y	IN RECT BR
BA3D	CA	2620		DEX		
BA3E	10FB	2630		BFL	TRYR1	
BA40	3006	2640		BMI	TRY0	
		2650				
BA42	AD7109	2660	R0:	LDA	RADL	NO SCEN ?

"B" (DTSC SAVE ROUTINE) .
 PAGE: 001 DATED: 20-10-82

BA45	007209	2670		ORA	RADH	
BA48	1013	2680		#0	Z1	NO ← JUMP
		2690				
BA4A	10	2700	R1:	CLC		
BA4B	02FF	2710		LDA	#4FF	
BA4D	10	2720	R2:	INC		
BA4E	607107	2730		LDA	RADL	ADJUST LIMIT
BA51	7D6FD9	2740		STA	SDPAD,X	SUBPAGES
BA54	7E7409	2750		ADC	FLLLL,X	AND SAVE IN
BA57	7D6FD9	2760		STA	SDPAD,X	RECT BR
BA5A	00	2770		LCP		
BA5B	1000	2780		BEQ	R2	
		2790				

BA5D	2829FB	2800	ZI:	JSR	JCURSF	CURSOR OFF
BA68	28F4B7	2810		JSR	BETSYB	CNTRL INFO
BA63	AD2DB9	2820		LDA	UNIT0	SAVE DRIVE
BA66	8090B0	2830		STA	UNIT	
BA6F	2MD6B7	2840		JSR	RADDEV	CHK ITS VALID
		2850				
BA6C	28ECB0	2860	GD:	JSR	FREST	RESTOR FNAM
BA6F	280FBB	2870		JSR	DIRRD	DIR ENTRY
BA72	F05E	2880		BEO	NODIR	NO ENTRY
		2890				
BA74	4202	2900	EX1:	LDX	#H2T	FILE EXISTS
BA76	28AFB0	2910		JSR	MTABL	O/P IT
BA79	28E4B7	2920		JSR	GETLIN	GET REPLY
BA7C	2429FB	2930		JSR	JCURSF	CURSOR OFF
BA7F	A011	2940		LDY	#17	OFFSET TO REPLY
BA81	B19A	2950		LDA	(ICURS),Y	
BA83	C942	2960		CMP	#0	WAS REPLY "B" ?
BA85	F025	2970		BEQ	BACKUP	
BA87	C94E	2980		CMP	#1N	WAS REPLY NO ?
BA89	F09A	2990		BEQ	ESC	
BA8E	C957	3000		CMP	#1Y	WAS REPLY YES ?
BA8D	08E5	3010		BNE	EX1	
BA8F	2883A9	3020		JSR	DELFTL	DELETE FILE
BA92	4C6EBA	3030		JMP	GD	ENSURE DELETION
		3040				
BA95	4CA4DB	3050	ESC:	JMP	EX2	
		3060				
BA98	A200	3070	NSP:	LDX	#MLT	NO SPCE MSG

"15" (DISC SAVE ROUTINE)
 PAGE: 009 DATED: 28-10-82

BA9A	28AFBB	3080	NSP1:	JSR	MTABL	O/P MSG
BA9D	4CC7B7	3090		JMP	ERRRET	ERROR RETURN
		3100				
BA9E	A803	3110	BAK5:	LDY	#3	
BA92	B979B7	3120	BCK1:	LDA	BAK-1,Y	GET BAK
BA95	9933B5	3130		STA	EXT0-1,Y	PUT IN FNAM
BA9D	BB	3140		DEY		
BA99	D0F7	3150		BNE	BCK1	
BA9B	60	3160		RTS		
		3170				
BA9C	28A0BA	3180	BACKUP:	JSR	BAK5	LOAD BAK
BA9F	2800B0	3190		JSR	DIRRD	LOOK FOR ENTRY
BA82	F003	3200		BEO	BCK2	NO DIR ENT
BA84	2883A9	3210		JSR	DELFTL	DEL PREV BAK
BA87	28ECB0	3220	BCK2:	JSR	FREST	RESTOR FN
BA8A	2800B0	3230		JSR	DIRRD	LOOK FOR ENTRY
BA8D	28A0BA	3240		JSR	BAK5	PUT IN "BAK"
BA8E	B92EB7	3250	BCK1B:	LDA	FNAMX,Y	
BA83	7D25B8	3260		STA	SR,X	SAVE IN DIR ENT
BA86	EB	3270		INX		
BA87	EB	3280		INY		
BA8B	C0B7	3290		CPY	#49	
BA8A	D0F4	3300		BNE	BCK1B	
BA8C	28CDB7	3310		JSR	MPFSCI	WRITE SECTOR
BA8F	4C6CBA	3320		JMP	GD	LOOK FOR MORE ENT
		3330				

BAD2	AD2BB9	3340	NODIR:	LDA	DRPT0	
BAD5	BD01BB	3350		STA	TRACK	DIR TRACK
BADB	AD27B9	3360		LDA	DRPS0	
BAD8	BD02BB	3370		STA	SECT	DIR SECTOR
BADE	20EEB7	3380		JSR	BFDIR	FREE DIR ENTRY
BAE1	F0B5	3390		BEQ	NSP	0 = NO SPACE
BAE3	20EBB7	3400		JSR	BFFREE	FREE SEC
BAE6	F0B0	3410		BEQ	NSP	0 = NO SPACE
BAEB	A900	3420		LDA	#0	
BAEA	A201	3430		LDX	#1	
BAEC	BD3DB9	3440		STA	FAIT0	ATTRIBUTE
BAEF	BD3BB9	3450		STA	FLEN0+1	FILE LENGTH
BAF2	BE37B9	3460		STX	FLIN0	
BAF5	AD01BB	3470		LDA	TRACK	FREE TRACK ADDR
BAFB	9D39B9	3480	SAVE1:	STA	FSTRT0,X	

"S" (DISC SAVE ROUTINE)

PAGE: 010 DATED: 28-10-82

BAFB	9D3BB9	3490		STA	FEND0,X	
BAFE	BD76B9	3500		LDA	STADL,X	MOVE START
BB01	9540	3510		STA	MOUTL,X	ADDRESS
BB03	AD02BB	3520		LDA	SECT	FREE SECT ADDR
BB06	CA	3530		DEX		
BB07	10EF	3540		BFL	SAVE1	
		3550				
		3560	MOVE LOAD INFO TO SECTOR			
		3570	BUFFER			
		3580				
BB09	A200	3590		LDX	#0	
BB0B	BD69B9	3600	DISC:	LDA	SBADRE,X	
BB0E	9D27BB	3610		STA	SB+2,X	
BB11	CA	3620		DEX		
BB12	D0F7	3630		BNE	DISC	
		3640				
		3650	X=#A = END OF ADDR REC			
		3660				
BB14	A20A	3670		LDX	#*A	
		3680				
BB16	A900	3690	DISC1:	LDA	#0	A = 0
BB1B	A0	3700		TAY		Y = 0
BB19	BD43B9	3710		STA	COUNT1	REC LENGTH
BB1C	BE44B9	3720		STX	STREC	START OF RECORD
BB1F	EB	3730		JNX		BYTE FOR REC LENGTH
BB20	AD3EB9	3740		LDA	PAG0	SELECT PAGE
BB23	0A	3750		ASL	A	
BB24	0A	3760		ASL	A	
BB25	0A	3770		ASL	A	
BB26	0A	3780		ASL	A	
BB27	6D3EB9	3790		ADC	PAG0	
BB2A	BDFFFF	3800		STA	MNGST	
		3810				
		3820	XFER DATA TO BUFFER			
		3830				
BB2D	H140	3840	DISC2:	LDA	(MOUTL),Y	
BB2F	9D25BB	3850		STA	SB,X	
BB32	EE43B9	3860		INC	COUNT1	REC LENGTH
BB35	AD79B9	3870		LDA	ENADH	= END ADDR ?
BB38	C541	3880		CMF	MOUTH	
BB3A	D007	3890		BNE	NOTEND	NO

BB3C	AD70B9	3900	LDA	ENADL		
BB3F	C540	3910	CHP	MDUTL		
BB41	F049	3920	BEQ	EXIT	YES	
		3930				
BB43	E640	3940	NOTEND:	INC	MDUTL	DATA
BB45	D002	3950		BNE	X1	
BB47	E641	3960		INC	MOUTH	POINTER
BB49	E8	3970	X1:	INX		SECT BUF POINTER
BB4A	D0E1	3980		BNE	DISC2	IF SB NOT FULL
		3990				
BB4C	2002B0	4000	JSR	END2		
BB4F	20CDB7	4010	JSR	WRISCT		WRITE SECTOR
BB52	20EBB7	4020	JSR	BFREE		GET FREE SECT
BB55	D003	4030	BNE	SECFND		
BB57	4C90BA	4040	JMP	NSP		NO SPACE
		4050				
		4060				FREE SECTOR FOUND
		4070				SET UP FOR NEXT SECTOR
		4080				WRITE
		4090				
BB5A	AD01B0	4100	SECFND:	LDA	TRACK	
BB5D	BD3CB9	4110		STA	FEND0+1	
BB60	AD02B0	4120		LDA	SECT	
BB63	BD30B9	4130		STA	FEND0	
BB66	EE37B9	4140		INC	FLEN0	FILE LENGTH
BB69	D003	4150		BNE	FNXSEC	FILL NEXT SEC
BB6B	EE30B9	4160		INC	FLEN0+1	
		4170				
BB6E	A202	4180	FNXSEC:	LDX	#2	
BB70	D0A4	4190		BNE	DISC1	ALWAYS
		4200				
BB72	A900	4210	END:	LDA	#0	END OF DATA
BB74	E8	4220	END0:	INX		ZERO REST OF
BB75	F005	4230		BEQ	END1	SECTOR BUFFER
BB77	9D25B0	4240		STA	SB, X	
BB7A	D0F8	4250		BNE	END0	
		4260				
BB7C	8D25B0	4270	END1:	STA	SBTRK	SET LAST
BB7F	8D26B0	4280		STA	SBSECT	SECTOR
		4290				
BB82	AE44B9	4300	END2:	LDX	STREC	

"S" (DISC SAVE ROUTINE).
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BB85	AD43B9	4310	LDA	COUNT1		
BB88	9D25B0	4320	STA	SB, X	INSERT LENGTH	
BB8B	60	4330	RTS			
		4340				
BB8C	2072B0	4350	EXIT:	JSR	END	
BB8F	20CDB7	4360		JSR	WRISCT	WRITE SECTOR
BB92	AD40B9	4370		LDA	FDIRT	DIR TRACK
BB95	8D01B0	4380		STA	TRACK	
BB98	AD3FB9	4390		LDA	FDIRS	DIR SECT
BB9B	8D02B0	4400		STA	SECT	
BB9E	20E507	4410		JSR	ENDIRB	DIR ENTRY
BBA1	20E2B7	4420		JSR	UPDSYS	UPDATE SYS SEC
BBA4	200CF0	4430	EX2:	JSR	OUTRET	D/P A "CR
BBA7	4CB2B7	4440		JMP	ESCAPE	RTN TANBUG
		4450				

BBAA	A206	4460	ERSA:	LDX	#MAT	
BBAC	4C9ABA	4470	ERS:	JMP	NSP1	WRF MSG
		4480				
BBAF	BD9FB9	4490	MTABL:	LDA	MTAB,X	MSG
BBB2	B540	4500		STA	MOUTH	ADDRESS
BBB4	BDA0B9	4510		LDA	MTAB+1,X	
BBB7	B541	4520		STA	MOUTH	
BBB9	4CD9B7	4530		JMP	OUTSTR	0/P MESSAGE
		4540				
		4550	SKIP SPACES			
		4560				
BBBC	9B	4570	SKPSP1:	TYA		
BBBD	3B	4580		SEC		
BBBE	ED73B9	4590		SEC	YSAVE	SUB PREV Y
BBB1	C905	4600		CMF	#5	MORE THAN 4 HEX
BBB3	3004	4610		BMI	SKP1	CHARS ?
BBB5	A204	4620		LDX	#M3T	SYNTAX ERROR
BBB7	00E3	4630		BNE	ERS	
		4640				
BBB9	B10A	4650	SKP1:	LDA	(ICURS),Y	
BBBB	3007	4660		BMI	SKPEX	CURSOR ?
BBBD	C920	4670		CMF	#420	SPACE ?
BBBF	D003	4680		BNE	SKPEX	
BBD1	CB	4690		INV		NEXT CHARACTER
BBD2	10F5	4700		BPL	SKP1	IF YES DO NEXT
		4710				

"S" (DISC SAVE ROUTINE)

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BBD4	00	4720	SKPEX:	PHP		SAVE PSW
BBD5	8C73B9	4730		STY	YSAVE	SAVE CURRENT Y
BBDB	BB	4740		DEY		FOR JNXP
BBD9	2B	4750		PLF		RESTORE PSW
BBDA	60	4760		RTS		
		4770				
BBDB	20BBB7	4780	DIRRD:	JSR	INIGDR	1ST ENT
BBDE	E000	4790		CPX	#0	0 = NO ENTRY FOUND
BBE0	F009	4800		BEO	DIRROE	PSW = 0 SET
BBE2	AE4109	4810		LDX	FD1R0	LOAD OFFSET
BBE5	BD34B8	4820		LDA	FPROT,X	WRITE PROTECT
BBE9	30C0	4830		BMI	ERSA	YES IF NEGATIVE
BREA	BA	4840		TXA		PSW NOT = 0 SET
BBEB	60	4850	DTRRDE:	RTS		
		4860				
		4870	MOVE FILENAME TO FILE			
		4880	SPEC AREA			
		4890				
BBEC	A208	4900	FREST:	LDX	#0	
BBEE	BD60B9	4910	FRES1:	LDA	FNAM1,X	
BBF1	9D2EB9	4920		STA	FNAM0,X	
BBF4	CA	4930		DEX		
BBF5	10F7	4940		BPL	FRES1	
BBF7	60	4950		RTS		

MEMBERS SURVEY

TUG has been operating now for over two years with plenty of successful projects completed. Before we become involved in other projects in the coming months we would like to hear from each individual member his/her views and opinions on what course they think we should follow which would give them the maximum benefit from being a Tug member and how Tug could help them get the most out of their computer. So, we invite you to take this opportunity and complete this questionnaire and return it to us within the next few days.

Do you think we are supporting the system enough?

How do you think we could improve your User Group?

What other projects would you like us to get involved with?

What other peripheral devices would you like us to design for you?

What software/firmware would you like to have in the library?

How far would you like to expand your system?

What use do you put your computer to?

How could we improve the newsletters for you?

Do the newsletters contain enough variety of subjects?

Would you like to participate in Tug's activities?

If Yes, what would you like to do to help your group?

Ultimately, what would you like from your user group?

And what do you think our objectives should be?

What computer magazines do you read regularly?

We would like to hear from ALL our members concerning these issues. These are only a few questions we would like to ask our members, so take time out and put pen to paper and help us to help you, otherwise we simply won't know what you want or how we can make your computing hobby more interesting for you. We'll run through a breakdown of your replies in a following newsletter. - RSVP! ERIC Rooles (If that's o.k. with you!!)

* JANUARY '83 EDITION *

The TANSTAR INTERVIEW

BOB GREEN TALKS ON TUG

***** TUG SHOP *****

SOFTWARE - HARDWARE.....ACCESS - BARCLAYCARD

ASTERIODS.....7K M/CODE.....FULL GRAPHICS.....	10.00	pounds + VAT.
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 Assembled + VBUG V1.1 + Manual +8K RAM.....155.50 pounds + VAT
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DATA Cassettes C15's

....Packs of 10.....6.00 pounds + VAT.

TUG's SYSTEM MOTHER BOARD - 12 SLOT

P.C.B.....30.00 pounds + VAT
TUG MEMBERSHIP!!

Tug Membership.....12 Months.....15.00 pounds.
POSTAGE!! & PACKAGING!!

All Cassette items @ .50 pence.....P.C.B's @ .75 pence....Assembled Modules @ 1.50.