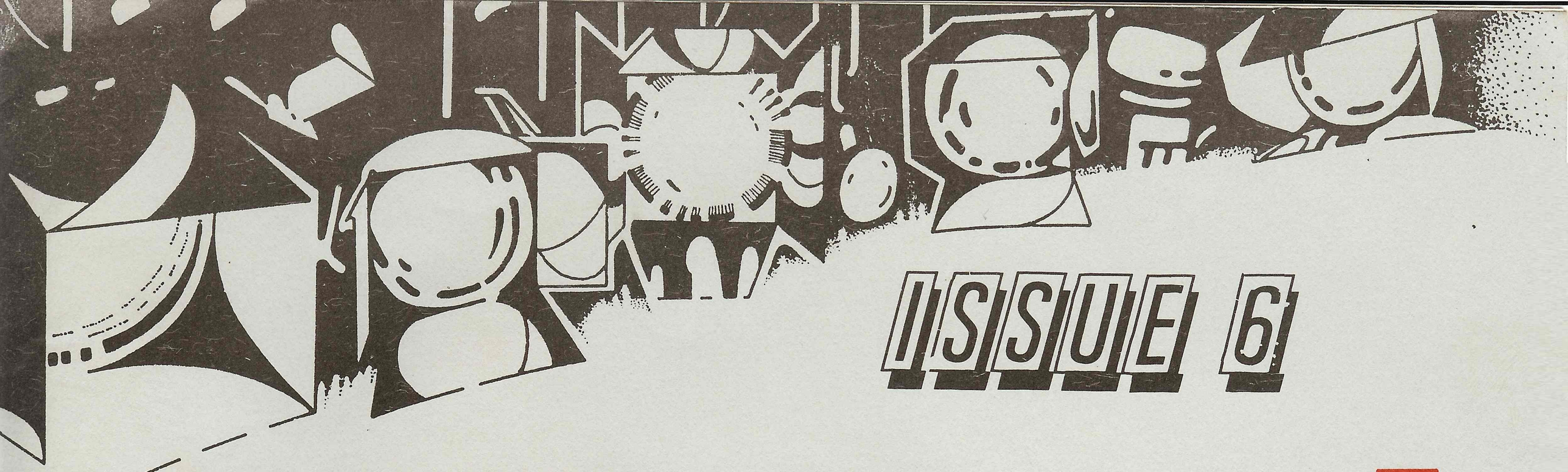

ISSUE 6

memopad

Memotech Computer User Club Magazine

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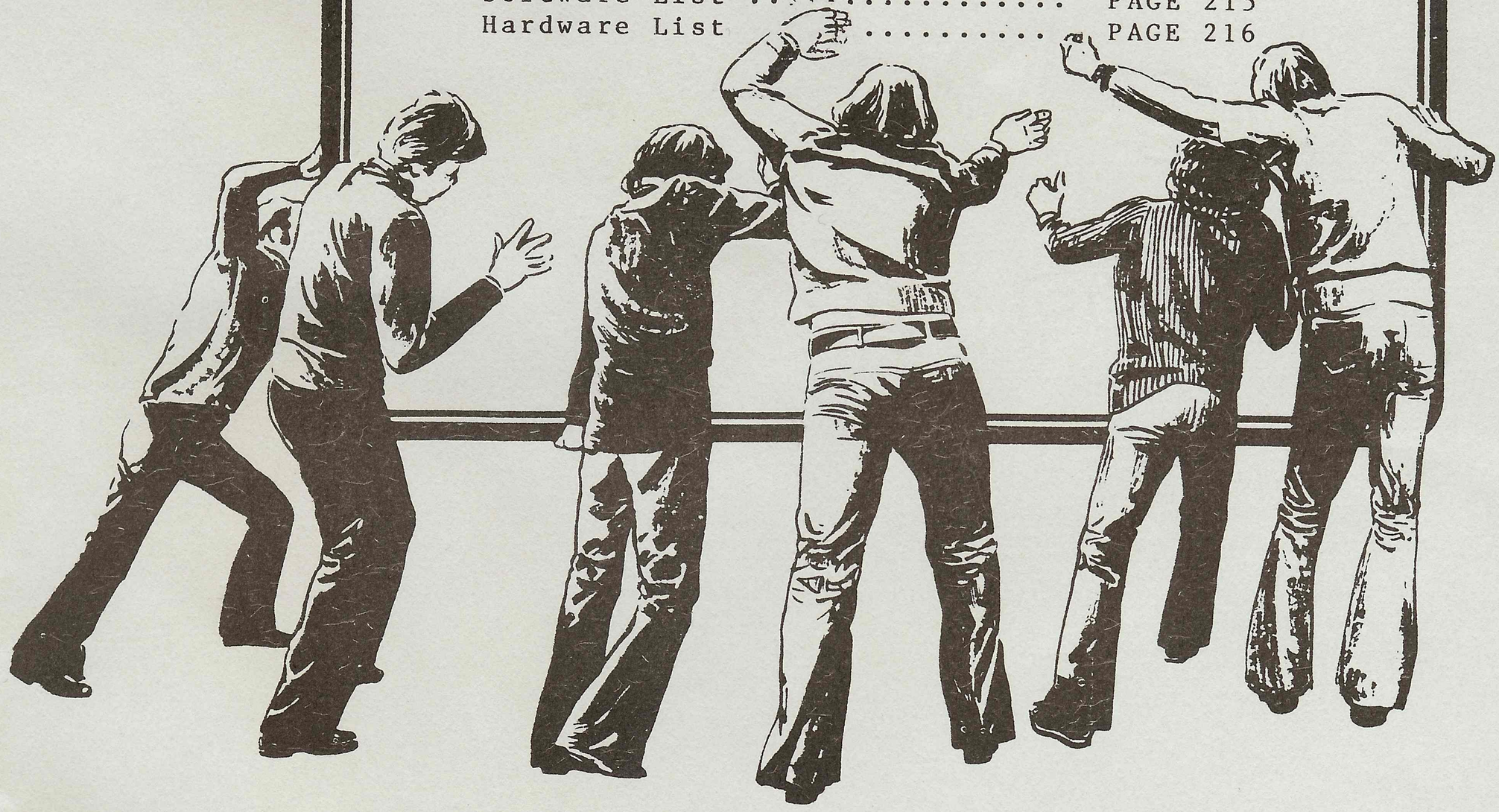

Volume 0010

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Memotech Computer User Club Magazine

Edited by Tim Marstian

Artwork Anthony "Joe90"

Exective Editor Keith Hook

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Editorial

I would first like to address all members who have ordered goods over the past few weeks and have not yet received them. The original plan was for Memotech (original crew) to carry on production until the end of March and for Geoff Boyd to carry on production after the transition. Unfortunately, as they have many times before, the existing management saw fit to change their minds and thus closed the factory completely ! This has left a six week gap in production and we have not been successful in trying to complete the orders. Although it is not a satisfactory method of doing business we have had no alternative but to wait until Geoff takes over before the orders can be processed. I have spoken to him this very evening and has assured me that all outstanding orders will be processed with the minimum of delay as soon as he takes over officially. We trust that you will be patient and understand that this is not a fault of the new management.

After talking to Geoff I have become very excited at the future prospect of the new company. In order to preserve the new company's secret weapon I can only hint at their future plans. There is a move to promote a new package that will go into combat with one that is currently enjoying a great deal of success in the small business market. The new company also have plans for a new release around the festive season. That is all I am allowed to say at present but as soon as we have permission we will give you all the details.

Some exciting software is due to break on the MTX scene. Keith has been chasing around the country talking to software houses - the guy never keeps still ! It is no secret that Syntaxsoft does an awful lot of conversions for other machines and is employed by many top names to convert programs. However, because of certain contractual work that came the company's way just after Christmas, Keith has been using the extra pulling power to strike bargains with other software house on behalf of MTX owners. In fact, I can safely say that he has refused certain contracts because the companies would not agree to his requests - alright, demands! Anyway, it means that the MTX will shortly have better software available - it is ironic that all loose ends are being tied in time for the re-birth!

VORTEX SOFTWARE'S number one game HIGHWAY ENCOUNTER will be released very shortly. Anyone who has doubts about this game can go and see a demonstration on the Spectrum, or the Amstrad. The truth of the matter is that the MTX version will be better than the Amstrad and every bit as good as the Spectrum's version.

ANIROG'S (Now The Magnificent Seven) CHAMPIONSHIP SNOOKER will be available within the next five weeks. MYRRDEN'S FLIGHT SIMULATIONS will be available within the very near future. Keith is presently talking to FIREBIRD for ELITE,CHIMERA,RASPUTIN,VECTRON & BOOTY. Because he his always short of work (sorry Keith) he is, at this moment, talking to MASTERTRONICS for permission to release their games - they have SEVEN in the top twenty at this moment!

Business users are not to be neglected. Syntaxsoft has sole distribution of SAGESOFT'S business packages on another machine, and it is highly possible that these packages will be shortly available on the MTX disc systems. The prices will be greatly reduced to pull them in line with the Amstrad packages. It is very likely that we shall soon be releasing a piece of software that allows full colour graphics when using PRESTEL etc .... and there will be no need for extra hardware. We can now offer the Tandata modem, and as soon as we have the correct discounts we will advise you.

Microsoft's MULTIPLAN is now available for use on CPM systems .... this is a marvellous spreadsheet and we will be publishing a full review of its capabilities within the pages of a future magazine.

A marvellous new word processor that has been tested for the past three months will be released for tape based systems as soon as contracts are signed. This piece of software has been written in Norway, and I can assure you that it has no peers.

It may be true that many of the programmers have forsaken the 'Black Beauty' - rats always leave the sinking ship first ! It may also be true that Keith Hook is very hard to catch these days, however it is also very true that he has not forgotten you or the MTX - he is out there fighting, on the streets, where it matters. I, personally, hope that both he and Geoff Boyd are successful in their quest, and we can eventually say "WE TOLD YOU SO !"

GENPAT HIT LIST....

arcade

1.	SEPULCRI SCELERATI	MEGASTAR
2.	USER BASIC	SYNTAXsoft
3.	SUPA CODER	SYNTAXsoft
4.	MANIC MINER	SOFTWARE PROJECTS
5.	ROLLA BEARING	MEGASTAR
6.	SMG	MEGASTAR
7.	JET SET WILLY	SOFTWARE PROJECTS
8.	ESCAPE FROM ZARKOS	MEGASTAR
9.	MEMOSKETCH	SYNTAXsoft
10.	DOWNSTREAM DANGER	MEGASTAR

adventure

1.	SNOWBALL	LEVEL 9
2.	LORDS OF TIME	LEVEL 9
3.	EMERALD ISLE	LEVEL 9
4.	MURDER AT THE MANOR	SENTIENT
5.	THE KEYS TO TIME	SENTIENT

educational

TOP SELLING EDUCATIONAL PROGRAMS

1.	HELLI-MATHS	SENTIENT
2.	MATHS 1	CONTINENTAL
3.	SPELLI-COPTER	SENTIENT
4.	WORDS & PICTURES	CONTINENTAL
5.	FIRST WORDS	CONTINENTAL

High Scores

Can you do better ?

GOLDMINE	16,300+	P. Howard
ASTRO-PAC	185,990	Richard Nash
BOUNCING BILL	128,142	Alan Dobson
SNAPPO	128,688	Richard Franks
KNUCKLES	999,999+	Sally Street
CHAMBEROIDS	Completed 6 mins	M. Allcorn
NEMO	17,610	Richard Nash
COBRA	8,924	Richard Nash
MISSION ALPHATRON	68,250	T. Eriksson
TAPEWORM	175,900	Richard Fnaks
TOADO	178,292	Gavin Gaunt and Nicholas Locke
POT HOLE PETE	106,630	Richard Franks
MAXIMA	1479,410	S. Olander
STAR COMMAND	140,430	Ian Nichols
PHAID	26,000	Sally Street
OBLOIDS	62,400+	M. Hurley
KILOPEDE	82,253	Richard Nash
3D TACHYON FIGHTER	10,700	Lesa Woodger
CONTINENTAL RAIDERS	106,240	Sean Haverty
BLOBBO	148,283	Elizabeth Mahon
QUANTUM	7	Andrew Miller
QOGO 2	205,000	R. Siddall
MINEFIELD	1,500	David Nash
FLUMMOX	239,550	Andrew Miller
TURBO	15,630	N. Crighton
FATHOMS DEEP	2,300	Leslie Banks
AGROVATOR	675,000+	P. Howard
FIREHOUSE FREDDIE	29,620	T.Eriksson
QOGO	43,960	T. Eriksson
ARCADIANS	25,900	Adrian Joynson
MISSILE COMMAND	27,580	Adrian Joynson
LITTLE DEVILS	34,320	Leslie Banks
FELIX IN THE FACTORY	14,740	Peter Crighton
MUNCHY	7,908	R.Harmer
SON OF PETE	8,051	Gavin Gaunt
HAWKWARS	16,600	T. Eriksson
ESCAPE FROM ZARCOS	46 Items	P+G Howard
SALTY SAM	40,642	Andrew Johnson
MISSION OMEGA	9,350	R.Harmer
ICEBURG	17,431	Alan Dobson
SNOWBALL	450	P. Crighton
EMERALD ISLE	300/1000	Richard Franks
SUPERBIKE	23.9Kms	B. Clark
REVERSI	beaten by 47	Richard Franks
DOODLEBUG	3,820	Andrew Miller
DR. FRANKIE	54,425	S. Olander
TARGET ZONE	14,560	P. Howard
MINER DICK	22,520	R. Siddall
JUMPING JACK	26,120	Andrew Miller
SURFACE SCANNER	35,830	P. Howard
CAVES OF ORB	421/500	P. Korsten
SEPULCRI SCELERATI	7,925	Andrew Miller GAME COMPLETED
S.M.G.	6,140	Andrew Miller
COMBAT	42,310	Andrew Miller
QUAZZIA	26,660	Andrew Miller

Mike Nash has completed Qogo 2 and has quoted the final message - "At last, you have found the Qogan diamonds"

Can you beat these high scores ? Do you have a high score for a game not mentioned above ?

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Memotech Computer User Club Magazine
VOL 0010 NUMBER 7

SOFTWARE REVIEW

REVIEW MTX SALES LEDGER

MTX Sales Ledger is one of the accounts packages for the MTX 512 and complements Purchase Ledger which was reviewed recently (Memopad, Volume 0010, Number 4). Both programs have a similar format. Although the cassette sleeve mentions 6 accounts programs, only 3 are actually available, the third being "Payroll".

The program will hold up to 30 accounts each of which can contain 30 records. As such it is probably of use mainly to home users with a sideline business or club to run rather than small businesses that would need much more capacity. Sales Ledger is menu driven from the function keys and the user instructions clearly explain the main and secondary menus.

After loading, the entry code "LOGIN SALESL" gets you started after which this can be changed to your own password. The current date is entered as a record of when the program is used and saved and your "Company" details (name, address etc.) are entered, these details appearing later in printed invoices and other outputs.

The main menu then allows you to control the program from the following function keys:

F1 Enter customer account
F2 Enter/amend sales codes
F3 Amend/delete customer account
F4 Allocate accounts
F5 Customer's current balance
F6 Display customer's account
F7 Load and save data
F8 Input menu
F9 Printing menu

To use the program, the initial details of customer accounts and sales codes (up to 20 codes for products can be described) needs to be put in before invoices or credit notes are entered using F8. The program can crash if you attempt to use it without all the basic information present. Having input customer accounts (using F1) and sales codes (F2) you can then proceed to the Input menu (F8). Another menu is displayed and a sales invoice, sales credit note, cash received or journal entry can be made. As you need to know each customer's number and each product's sales code, these should be kept available to refer to.

It is advisable to save the data on tape prior to producing any printed outputs using F9 (use shift + F1). The printing options available are good. It is possible to produce invoices and credit notes ready for sending out as well as useful lists of customers reference numbers and names (useful when inputting data), addresses, balances and the sales ledgers.

The Sales Ledger program was published in 1984 and I strongly agree with the reviewer of Purchase Ledger that updating is needed. Ideally the program should be expanded so it can handle significantly more accounts and it should be available on disc if it is to have a wide enough appeal to genuine "small businesses" (e.g. Syntaxsoft)! As stated earlier, this version will mainly be bought by home users who have an interest that involves only a few accounts.

10/02/86 Terry Roberts ★

The MTX Eprom Programmer

John Hudson

When I took delivery of my MTX way back in 1984 I decided that one of my first projects would have to be an Eprom blower, and here we are in 1986 and that objective has now been met.

I am now the proud possessor of a unit capable of handling the Intel 27xx series of Eproms. As it stands it will Zap (nice old Americanism!!!) 2764's and 27128's - with new software and minor hardware mods it can handle 27256 and 27512 types.

It may be apparent to the more technically aware members of the Club that this means that it will not handle the Eproms used in the MTX itself, these being the 2564 (or 3564 ROMS) used by Memotech. (Note that the prom cards for NewWord etc. and the disc cards do use 2764's).

The reason for deciding to restrict the Programmer to the 27xx series was based on both the cost of the 25xx series and the desire to keep the design as simple as possible. (2564's cost approx. 3 times those of 27647's).

In order to be able to correct some of the faults to be found in the MTX Issued Eproms I had to modify my machine to take 2764's. This has been done and all is working well. The first Eproms the unit was used on were the chips required to do this modification. If any other member wishes to do the same modification I am prepared to supply details of the work required, please telephone in the first place: 0270 763058.

Prom Blowing Service.

It is possible that some members would like Eproms blowing but do not want to construct, or perhaps feel capable of building the unit themselves. In these cases I will offer a programming service.

I am prepared to provide and program, or just program 2764's & 27128's to user's specifications. It is only necessary for the member to supply the assembly code program (prepared on an MTX) and specify the ORG address. I will originate the program to the desired address using software I have written specifically for the purpose. If the code has been written on other than the inbuilt assembler e.g. EDASM then it must already be originated to the desired address, and the start and end addresses must be specified. I would expect the data to be sent on tape or disc (in 500k Single Disc Format). There is a small charge for this service: 1.50p for blowing/erasing, or approximately 5.00p for supplying and blowing a 2764, 27128's and would be subject to the prevailing cost of the devices at that time.

In all cases PLEASE PHONE first.

That's all the sales stuff, now for some technical details.....

The Software.

When I started to work out the desirable details of my design I had to decide if I should go for an all singing all dancing design or a compromise the design to give a reasonably fast zap but would be simple to construct. I opted for the latter.

The algorithm I use is based on counting the number of 0's in each byte and using this as a multiplier for the number of times that the programming pulse is applied to each location. As an example: $00 has 8 0's so the byte would have to have 8 pulses to program it into the Eprom. The hardware is designed to produce 6ms pulses, so the worst case would take 48ms per byte - this is very near to the manufacturer's stated value of 50ms.

Because there is no 'automatic' checking of each byte as it is programmed it is necessary to provide a routine to verify the newly programmed Eprom against the source code used. Also, a routine to check

that the Eproms are fully erased, prior to commencing the Zap session, is necessary. A routine is provided to read the contents of any Eprom, in the programming socket, into a user selected area of memory. Last, but not least, the routine to Zap the Eproms is also supplied.

It would be logical to first call the blanks check, then the Zap routine followed by the verify routine but the program as it stands is not that 'automated'. The user is presented with a menu and has to select the routines for himself, (sorry ladies ...herself). So the program is menu driven and should not present any problems. It will ask the user to verify that the correct Eprom has been selected and then Zap it. In the blanks check or verification phases any 'fails' will be reported to the printer or screen. This information will consist of the address of the failing bytes, failing data, and the expected data.

Timing.

The program will display the time since the start of the programming cyle. This gives users an idea as to how far through the cycle they are at any point of time, but this does slow down the time required to program. The time taken to program a 2764 with the data at address zero is 5.5 mins, this can be reduced to about 3.5 mins. if the timer is taken out as indicated in the program listing.

The Hardware

The heart of the unit is the 74LS121. This device provides the 6ms programming pulse and also provides a 'busy' signal back to the MTX. The pulse is examined to determine when to send the next program pulse. When it goes away i.e. not busy, the next pulse is initiated. This chip is controlled by the CB bits of the 8255 which is programmed to run in mode 0.

The 8255 also provides the address information and is used to handle the read and write data to and from the Eprom. Unfortunately the 8255 does a 'reset' whenever its mode of operation is changed. This means that when the mode is changed from output (for the addresses) to input (for monitoring the busy signal) the address lines get reset thus losing the address data. The 74LS374's are provided to overcome this problem - they retain the data until a new latch pulse is provided. The 74LS138 is used to provide the address of the unit. The address of the 4 locations required by the 8255 is 112-115, but due to the method used to decode the address it will respond to addresses in the ranges 116-119, 120-123 and 124-127 so care should be taken to ensure that no other devices on the system use this address range.

Power Supplies.

I have not provided details of the 5v supply required as this can be obtained from the MTX expansion socket (as long as a Single Disc System is not being used). The circuit of a very simple 21v supply is provided. It is vital that the output of this supply is 21v + or - 0.25v. Voltages outside of these may result in destruction of the Eprom or fail to program it. If a variable register is used it should be a high quality Cermet type. Should this device go open circuit, it will present approximately 30v to the Eprom with disastrous results! The voltage should be set using a digital voltmeter if at all possible. (I do not use a variable register but rather select a combination of fixed resistors to provide me with the desired 21v).

The double pole switch should be used to provide isolation for the Zif socket. Eproms should ONLY BE INSERTED OR REMOVED WHEN THE GREEN LED IS ON, AND THE RED LED IS OFF. IF BOTH RED AND GREEN LEDS ARE ON THERE IS A FAULT ON YOUR UNIT. DO NOT remove or insert proms if this condition occurs.

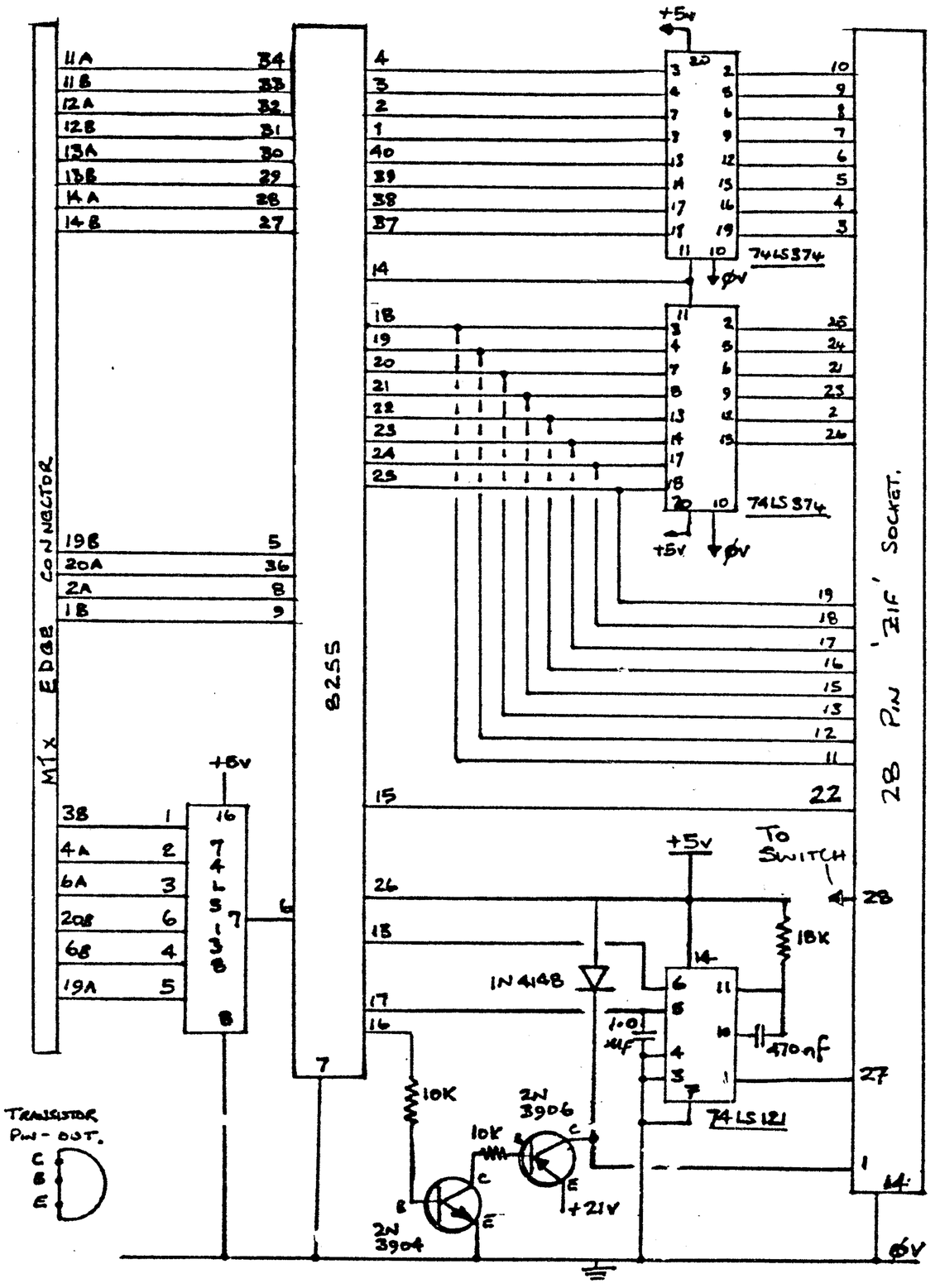
When reading, verifying or carrying out a blank check the Green led will be off and the red led will be on but this will only be glowing dimly. If the red led is bright then something is wrong. The red led should only be bright when a programming cycle is in progress.

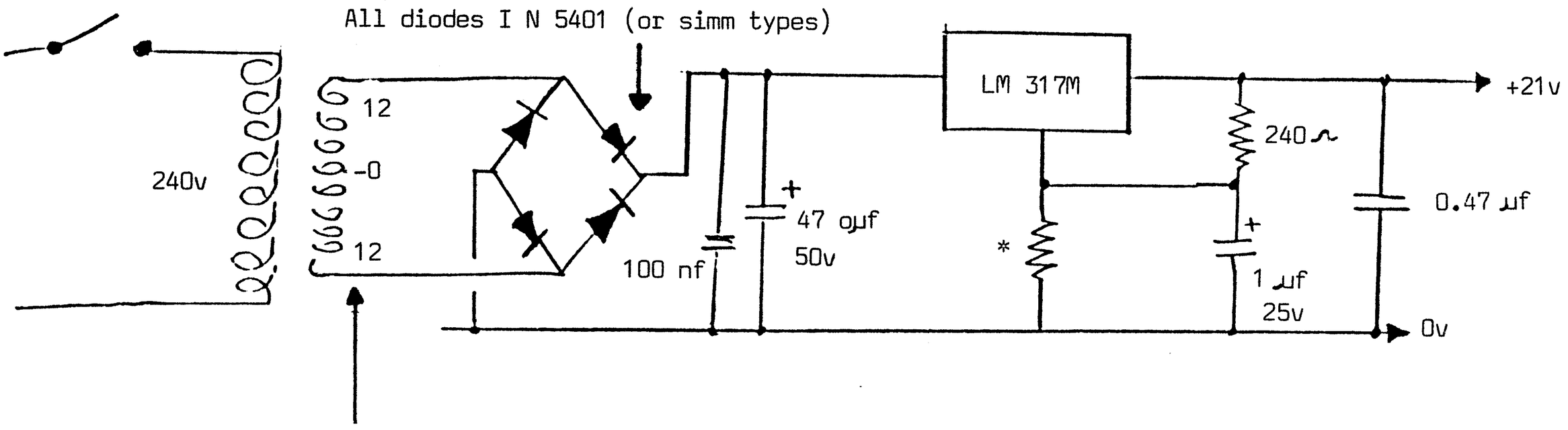
At the start of programming phase the red led will be turned on 'bright' and will be returned to the 'dim' state at the end of the cycle.

****NOTE**** Only connect the programmer to the MTX edge connector when the power is off on BOTH MTX and the PROGRAMMER.

All that remains for me to say is I will be willing to assist any member who builds the unit and experiences difficulties, or be available to give advice should this be necessary.

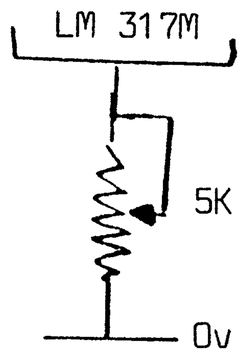
Please phone....I hate writing unless absolutely vital, that is one of the reasons this article has taken so long to prepare.

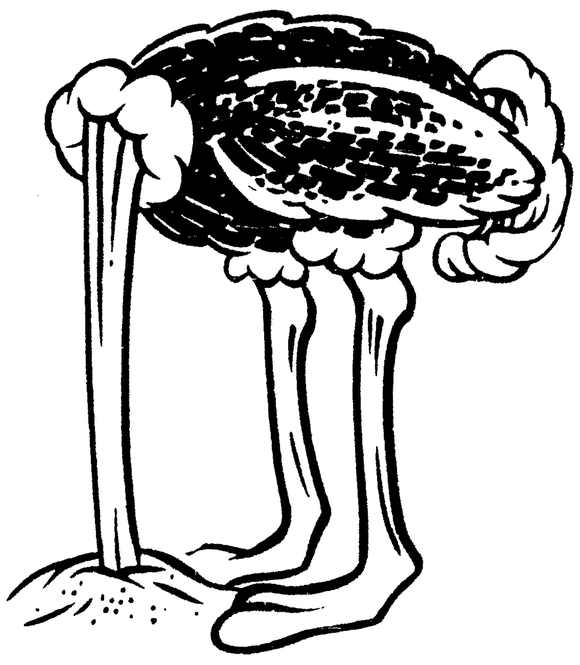




Transformer 12.0-12 (3VA type or greater)

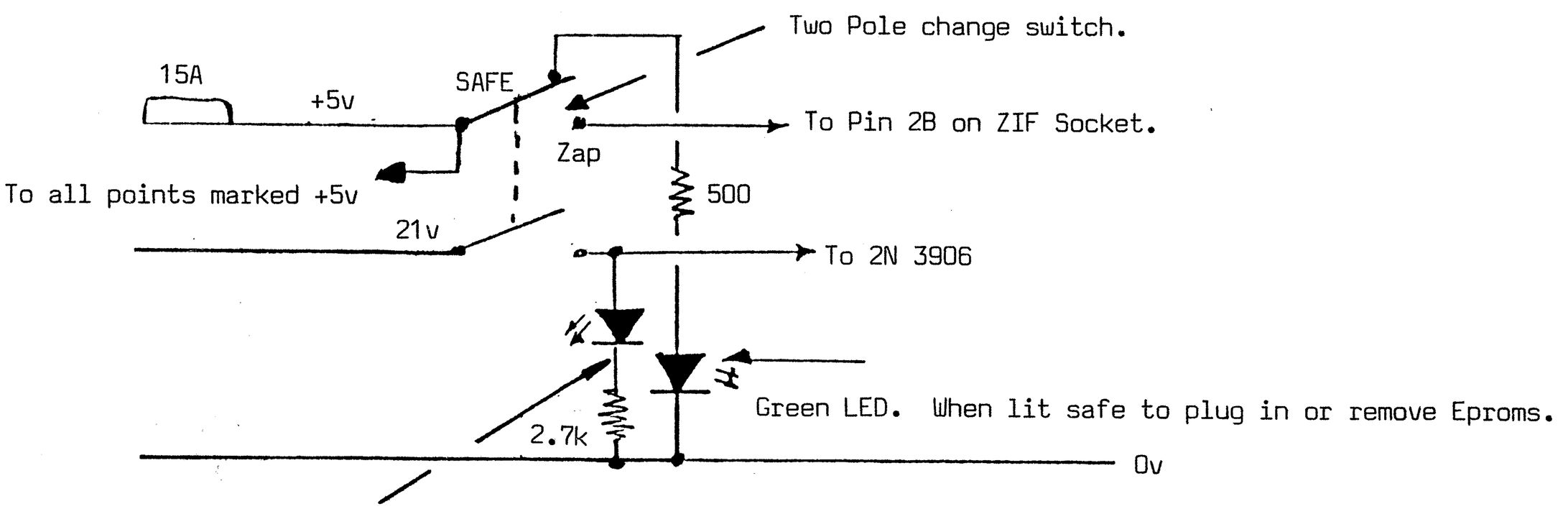
The resistor marked * should be selected as indicated in text. It is possible to replace with 5kΩ Pot connected as below. See comments in text.





The +5 volts can be taken from edge connector pin 15A.

Connection Details



Red Led. Will light bright for Zap Cycle.
Will light dimly for Read/Verify.

The Eprom listing will be included in next month's edition.★

Sale

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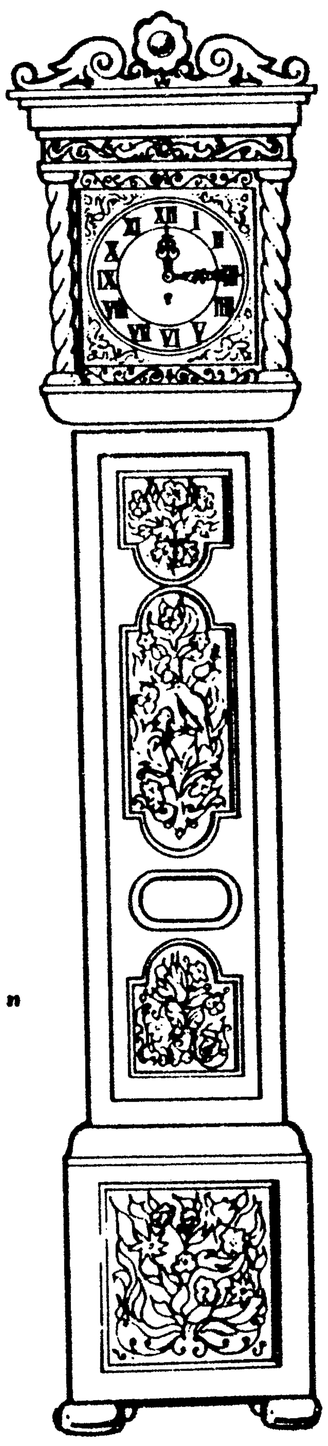
TEL : (06073)2824 Nottingham, & ask for Dan.

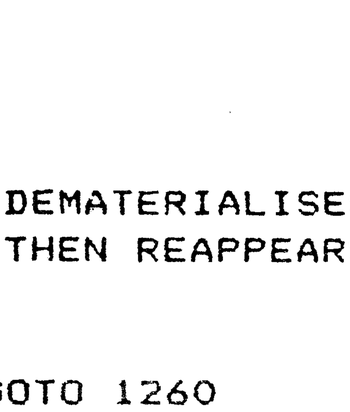
Twonky— Converted by Dave Farrow

This program has been converted from the TRS-80 to run on the MTX.

```
10 CLS : CSR 13,0
15 PRINT "Copyright 1979"
20 PRINT "   CREATIVE COMPUTING  MORRISTOWN, NJ"
25 CSR 14,9: PRINT "-- TWONKY --"
30 CSR 3,20: INPUT "DO YOU NEED INSTRUCTIONS ? ";I$
40 IF LEFT$(I$,1)="N" OR LEFT$(I$,1)="n" THEN  GOTO 55
50 PLOD "PROG1"
55 DIM A(15,15)
60 CLS : LET R9=0
70 GOSUB 1710
80 GOSUB 1330
100 INPUT "MOVE OR SHOOT ? (M/S) ";Q8$
120 IF LEFT$(Q8$,1)="M" THEN  GOTO 150
130 IF LEFT$(Q8$,1)="S" THEN  GOTO 830
140 GOTO 100
150 PRINT : INPUT "WHICH WAY ? (F/B/R/L) ";Q$
170 CLS
180 IF LEFT$(Q$,1)="F" THEN  GOTO 230
190 IF LEFT$(Q$,1)="B" THEN  GOTO 260
200 IF LEFT$(Q$,1)="L" THEN  GOTO 290
210 IF LEFT$(Q$,1)="R" THEN  GOTO 320
220 PRINT "DIRECTION INVALID.": PRINT : GOTO 100
230 LET X5=X
240 LET Y5=Y-1
250 GOTO 360
260 LET X5=X
270 LET Y5=Y+1
280 GOTO 360
290 LET X5=X-1
300 LET Y5=Y
310 GOTO 350
320 LET X5=X+1
330 LET Y5=Y
350 IF X5<1 OR X5>15 THEN  GOTO 400
360 IF Y5<1 OR Y5>15 THEN  GOTO 400
370 GOTO 430
400 CLS : PRINT "THAT MOVE TAKES YOU OUT OF THE MAZE !!"
410 PRINT : PRINT "              MOVE NOT ALLOWED."
420 GOTO 1310
430 ON A(X5,Y5) GOTO 440,510,520,550,650,690,800
440 REM *** EMPTY SPACE ***
450 LET A(X,Y)=0
460 LET A(X5,Y5)=1
470 LET X=X5
480 LET Y=Y5
490 CLS : PRINT "MOVE ALLOWED."
500 GOTO 1310
510 REM *** HERE ALREADY ***
520 REM *** BLOCKED SPACE ***
530 CLS : PRINT "THAT SPACE IS BLOCKED."
540 GOTO 1310
550 REM *** RELOCATION ***
560 CLS : CSR 12,1: PRINT "YOU  HAVE  BEEN"
565 CSR 11,3: PRINT "R E L O C A T E D": PRINT
```



```
570 GOSUB 2200
580 IF A(Z,W)>2 THEN  GOTO 430
590 IF A(Z,W)<>0 THEN  GOTO 570
600 LET A(Z,W)=1
610 LET A(X,Y)=0
620 LET X=Z
630 LET Y=W
640 GOTO 1310
650 REM *** SUPER TRAP,START AGAIN ***
660 PRINT "YOU FOUND THE SUPER-TRAP !"
670 GOSUB 1710
680 GOTO 1310
690 REM *** TWONKY BEATEN ***
700 CLS
710 PLOD "PROG2"
750 PRINT : PRINT : INPUT "LIKE TO TRY AGAIN ? ";Q$
770 IF LEFT$(Q$,1)="Y" THEN  CLS : GOTO 60
780 IF LEFT$(Q$,1)="N" THEN  GOTO 2240
790 GOTO 750
800 REM *** TROD ON TWONKY ***
810 PRINT "YOU STEPPED ON TWONKY !"
820 GOTO 1670
830 REM *** SHOOT ROUTINE ***
835 PRINT
840 INPUT "WHICH WAY TO SHOOT ? (F/B/R/L) ";Q$
860 CLS
870 IF LEFT$(Q$,1)="F" THEN  GOTO 920
880 IF LEFT$(Q$,1)="B" THEN  GOTO 950
890 IF LEFT$(Q$,1)="R" THEN  GOTO 1010
900 IF LEFT$(Q$,1)="L" THEN  GOTO 980
910 PRINT "DIRECTION INVALID.": PRINT : GOTO 100
920 LET S1=0
930 LET S2=-1
940 GOTO 1030
950 LET S1=0
960 LET S2=1
970 GOTO 1030
980 LET S1=-1
990 LET S2=0
1000 GOTO 1030
1010 LET S1=1
1020 LET S2=0
1030 LET R1=X
1040 LET R2=Y
1050 LET R1=R1+S1
1060 LET R2=R2+S2
1070 PRINT "ZZZAAPP --";
1080 IF R1<1 OR R1>15 THEN  GOTO 1130
1090 IF R2<1 OR R2>15 THEN  GOTO 1130
1120 GOTO 1170
1130 PRINT "FIZZLE ..."
1140 PRINT "SHOT LEFT MAZE."
1150 PRINT "SHOT MISSED."
1160 GOTO 1310
1170 IF A(R1,R2)<>2 THEN  GOTO 1220
1180 PRINT "BLAST!!!"
1190 PRINT "YOU HIT A WALL."
1200 PRINT "SHOT MISSED."
1210 GOTO 1310
1220 IF A(R1,R2)<>6 THEN  GOTO 1050
1230 PRINT "OUCH !!": PRINT
1240 PRINT "      TWONKY DEMATERIALISES ..."
1245 PRINT "      ...AND THEN REAPPEARS.": PRINT
1250 LET A(R1,R2)=R9
1260 GOSUB 2200
1270 IF A(Z,W)<>0 THEN  GOTO 1260
1280 LET A(Z,W)=6
1290 LET X1=Z
1300 LET Y1=W
1310 GOSUB 1330
1320 GOTO 1450
```



```
1330 REM *** PRINT DISTANCES ***
1340 PRINT
1350 PRINT "TWONKY IS";
1360 LET D=(SQR(ABS((X1-X)^2+(Y1-Y)^2)))
1370 PRINT D;
1380 PRINT " UNITS AWAY."
1390 PRINT : PRINT "THE OBJECTIVE IS";
1400 LET D1=(SQR(ABS((X2-X)^2+(Y2-Y)^2)))
1410 PRINT D1;
1420 PRINT " UNITS AWAY."
1430 PRINT : PRINT : PRINT
1440 RETURN
1450 REM *** TWONKY LOGIC ***
1460 IF D<2 THEN GOTO 1660
1470 LET Z2=Y1
1480 LET Z1=X1
1490 IF X<X1 THEN  GOTO 1560
1500 IF X>X1 THEN  GOTO 1580
1510 IF Y<Y1 THEN  GOTO 1540
1520 LET Z2=Y1+1
1530 GOTO 1590
1540 LET Z2=Y1-1
1550 GOTO 1590
1560 LET Z1=X1-1
1570 GOTO 1590
1580 LET Z1=X1+1
1590 LET A(X1,Y1)=R9
1600 LET R9=A(Z1,Z2)
1610 LET A(Z1,Z2)=6
1620 LET X1=Z1
1630 LET Y1=Z2
1640 PRINT "..... TWONKY MOVES .....": PRINT : PRINT
1650 GOSUB 1330
1660 IF D>2 THEN  GOTO 100 ELSE PRINT "OH DEAR !!": PAUSE 3000
1665 CLS : CSR 12,6
1670 PRINT ">>> SCHLOORP <<<"
1675 CSR 6,8
1680 PRINT "TWONKY HAS JUST ABSORBED YOU."
1685 CSR 9,10
1690 PRINT "I'M AFRAID YOU LOSE !": PRINT
1700 GOTO 750
1710 REM *** NEW MAZE ROUTINE ***
1720 REM *** 1=PLAYER          ***
1725 REM *** 2=BLOCKED SPACE   ***
1730 REM *** 3=RELOCATOR       ***
1735 REM *** 4=SUPER TRAP      ***
1740 REM *** 5=OBJECTIVE SQR   ***
1745 REM *** 6=TWONKY          ***
1750 REM *** 0=EMPTY SPACE     ***
1755 REM
1760 REM ***     CLEAR  MAZE    ***
1765 PRINT : PRINT "     MAZE CONSTRUCTION IN PROGRESS.": PRINT
1770 FOR B0=1 TO 15
1780 FOR B1=1 TO 15
1790 LET A(B0,B1)=0
1800 NEXT B1
1810 NEXT B0
1815 REM *** BLOCKED SPACES    ***
1820 FOR I=1 TO 30
1830 GOSUB 2200
1840 IF A(Z,W)<>0 THEN  GOTO 1830
1850 LET A(Z,W)=2
1860 NEXT I
1870 REM ***     RELOCATORS     ***
1880 FOR I=1 TO 22
1890 GOSUB 2200
1900 IF A(Z,W)<>0 THEN  GOTO 1890
1910 LET A(Z,W)=3
1920 NEXT I
1930 REM ***   SUPER  TRAP     ***
1940 GOSUB 2200
1950 IF A(Z,W)<>0 THEN  GOTO 1940
1960 LET A(Z,W)=4
1970 REM ***  POSITION PLAYER ***
1980 GOSUB 2200
1990 IF A(Z,W)<>0 THEN  GOTO 1980
2000 LET A(Z,W)=1
2010 LET X=Z
2020 LET Y=W
2030 REM *** PLACE OBJECTIVE  ***
2040 GOSUB 2200
2050 IF A(Z,W)<>0 THEN  GOTO 2040
2060 LET A(Z,W)=5
2070 LET X2=Z
2080 LET Y2=W
2090 REM *** POSITION TWONKY  ***
2100 GOSUB 2200
2110 IF A(Z,W)<>0 THEN  GOTO 2100
2120 LET A(Z,W)=6
2130 LET X1=Z
2140 LET Y1=W
2150 PRINT
2160 PRINT "          MAZE  COMPLETE."
2170 PRINT : PRINT
2190 RETURN
2200 REM ***  RANDOM NUMBERS  ***
2210 LET Z=INT(RND*15+1)
2220 LET W=INT(RND*15+1)
2230 RETURN
2240 STOP
```

NODDY page : PROG1.

```
*DISPLAY INST1.
*ENTER
*DISPLAY INST2.
*ENTER
*DISPLAY INST3.
*ENTER
*RETURN
```

NODDY page : PROG2.

```
*DISPLAY WIN1.
*ENTER
*RETURN
```

NODDY page : INST2.

Hazards include:

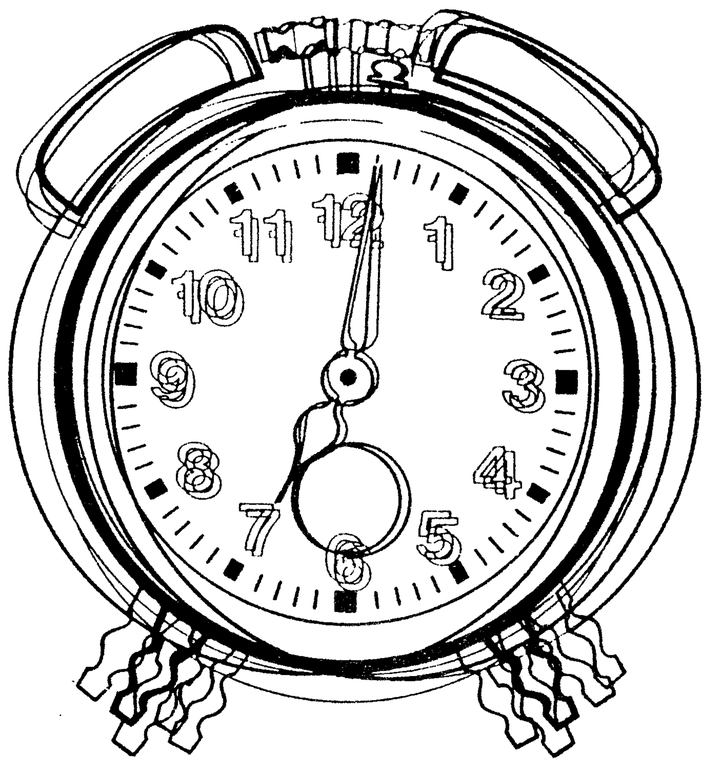
30 squares that you cannot enter.
22 squares that randomly relocate you.
1 square that sets up a new maze.

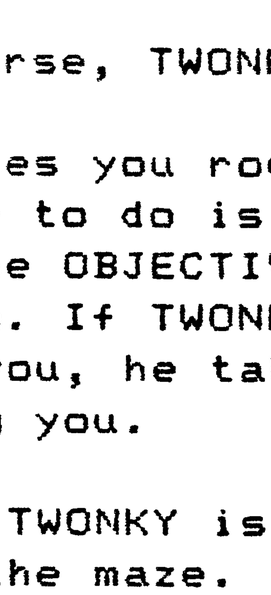
And, of course, TWONKY himself !!

TWONKY chases you round the maze and all you have to do is avoid him until you reach the OBJECTIVE square and gain your freedom. If TWONKY gets within 2 squares of you, he takes great delight in absorbing you.

By the way, TWONKY is immune to all the hazards in the maze.

HIT 'RETURN' TO CONTINUE





NODDY page : INST1.

This is the game of

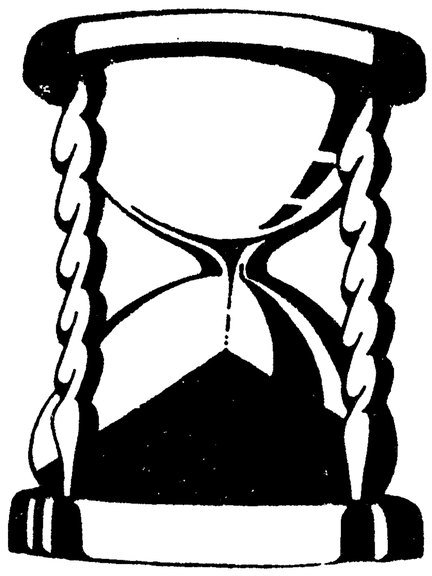
TWONKY

You have landed on the planet Twinky and been captured by its tyrannical Ruler, Kong.(King Kong to his friends). On his command, you have been placed in a maze containing numerous hazards and also shrouded in total darkness.

The maze is 15 x 15 units in size.

The only way to secure your freedom is to reach the OBJECTIVE square before you are devoured by the only inhabitant of the maze.

HIT 'RETURN' TO CONTINUE



NODDY page : INST3.

At your turn, you can:

Move 1 square at a time to find the OBJECTIVE square or escape TWONKY.

OR

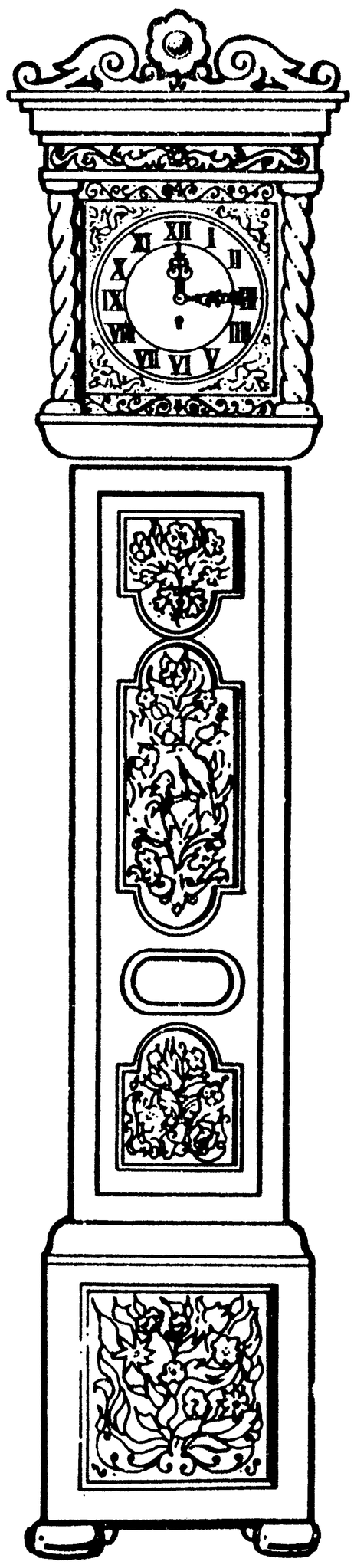
Shoot at TWONKY one direction at a time. If you score a hit, he will be randomly relocated in the maze.(Maybe right in your lap !!)

If TWONKY absorbs you... you lose.

If you reach the OBJECTIVE... you win.

GOOD LUCK !!

HIT 'RETURN' TO CONTINUE



NODDY page : WIN1.

*** YOU HAVE WON ***

The King has been amazed with the news that you have managed to find your way out of the maze and has reluctantly agreed to your release.
He must now capture someone else in order to feed his pet.

(I think the maze-designers are for it)

C O N G R A T U L A T I O N S

HIT 'RETURN' TO CONTINUE

View Letters TO THE EDITOR point

Letter received from Gary Wilkinson, 16 Seedfield Road, Bury, Lancs BL9 6PD

Dear Sir

In issue 6 of Memopad you published a letter from Mr L Clark who was having trouble with two dimensional arrays. I hope the following program will be of some use to him.

```
10 DIM A$(32,64)
20 LET A$ = "MEMOPAD"
30 FOR K = 1 to 64 : LET C$ = MID$(A$(1),K,1)
40 IF C$ = CHR$(0) THEN LET K = K-1 : GOTO 60
50 NEXT K
60 PRINT A$(1); "is"; k; "CHARACTERS LONG".
70 FOR A = 1 to K : LET C$ = C$ +" " : NEXT A
80 LET A$(1) = "MTX" + C$
90 PRINT A$ (1)
```

Alternatively you could type:

```
80 LET A$(1) = C$ : LET A$(1) = "MTX"
```

Yours faithfully

G WILKINSON

Letter received from Dr B L Houghton, 1, Saxon Drive, ROWLEY REGIS, West Midlands B65 9RD

Ref:0010/6/183 "A BASIC problem".

Dear Genpat

Your correspondent Len Clark has written a very clear account of an aspect of the MTX string handling which I suspect most of us have struggled with at times.

The MTX handles string arrays in a manner very reminiscent of array handling in languages such as Pascal OR C. When Mr Clark declared his array:

```
10 DIM TEAM$(32,64)
```

what he did is more clearly represented in PASCAL as:

```
TEAMS : ARRAY[1..32,1//64] OF CHAR;
```

- in other words, he set up a 32 x 64 BYTE array.

The procedure INPUT TEAM$(R,C) then reads the input stream character-by-character into the array until EOLN or a carriage return. There is no direct equivalent of the PASCAL function READLN (which clears the Terminal Input Buffer) and the statement:

```
LET TEAM$(I)=""
```

does not clear the array row because ""is not an empty string, but the single character ASCII NULL.

This is also why the LEN() function appears to give anomalus results: it returns the length of the Y-dimension of the array.

In defence of Memotech's system programmers (though not of the writers of the manual) I would draw attention to the vastly greater speed of string handling in MTX BASIC when compared with such Machines as the BBC,TRS-80 or IBM PC which do it in a more familiar way.

An answer which works, is fast, and still enables you to use the LEN() function is to provide your own input buffer:

```
10 DIM TEAM$(32,64),buffer$(64)
20 REM Emphasised elements must conform
30 GOSUB 100:GOSUB 200
40 GOSUB 100:GOSUB 200
50 STOP
100 REM LOAD ARRAY
110 for I=1 to 32
120 INPUT "name: ";BUFFER$
130 REM LEN (BUFFER$) NOW RETURNS LENGTH
140 LET TEAM$(I)=BUFFER$
150 NEXT:RETURN
200 REM Write array
210 FOR I=1 TO 32:PRINT TEAM$(I):NEXT
220 RETURN
```

Yours sincerely

BRIAN HOUGHTON

LETTER RECEIVED FROM IAN PHILLIPS MILLOM CUMBRIA

Dear Sirs

I was interested to read Len Clark's letter in the 0010/6 edition of Memopad as I have experienced the same problem myself. I can offer a partial, but not completely satisfactory solution.

If I refer to the program given by Len on page 185, line 50 can be rewritten as:

```
50 LET A$(1)="
```

where there are 64 spaces between the two pairs of inverted commas in the case of an array element which is 64 characters long. This completely clears out the array before inserting the new variable. The drawback comes when you try to print the variables which have been through this treatment. The printer will laboriously "print" the surplus spaces at the end of each array element since the computer recognises each space as a character which has been inserted in the array cell. I have incorporated the technique in a sort routine for a list of customer names which was a part of an accounts program.

If the unnecessary "printing" of spaces is a drawback, it can be overcome by the following type of routine for which my thanks are due to a retired computer professional friend:

Each item should be terminated with an asterisk or other character which is not likely to be used as a required part of the data item. The following routine will then seach for the asterisk in each data item and when found, print all the characters which precede it:

```
100 FOR J=1 TO N
110 FOR L=1 TO 64
120 LET M$= MID$(A$(J),L,1)    (Look for the asterisk - L will
130 IF M$<>"*" then next 1     (be its position, when found.
140 LPRINT LEFT$(A$(J),L-1)    (Print up to the asterisk.
150 NEXT J
```

Len's letter prompted me to try my recently acquired disc BASIC to see if it was any different from the ROM BASIC in this respect, but it appears to be the same.

I hope this is of some help, but would be interested to see if someone has a more satisfactory answer.

Yours sincerely

IAN PHILLIPS

Letter received from John Waller, Hall Lane, Drayton, Norwich

Dear Tim

Despite all that has been said and written about the neglect by computer magazines of the MTX, it would appear that nobody noticed - certainly nobody has commented on - the Re-number program published in November's PCW; nobody, that is, except me. But then, I would - I wrote it! I also noticed the substantial cheque that followed shortly after.

Now, if I can do it, I'm sure other Genpat members can. When I submitted the program, I was asked if I was prepared to act as an independent referee and vet any MTX programs submitted for publication. To-date I have seen nothing, absolute zilch. So come on, you programmers, have a go. You can help to put the MTX on the map, you can do yourselves a favour, and probably do me a bit of good too.

Yours sincerely

JOHN WALLER

Terry Roberts has a tip for other members

My real problem of getting some programs (HOME ACCOUNTS etc.) to load from tape recently are solved when the SDX control box is disconnected!! - even when the drive is not switched on. This could be mentioned in Memopad as it's cost me a lot of time.

AGROVATOR POKES

by PAUL WOOD

Load "AGROVATOR" and when running press BRK key.

PRESS THE FOLLOWING KEYS B Y ESC B 0

Then enter the following statements as you require

POKE 18875,0 - Infinite lives

POKE 16568,X - X = Speed of chasers, 0=v fast, 255=v slow, originally 24

POKE 16573,X - X = Speed of you, as above, originally 23

POKE 16619,X - X = No of lives if not infinite.

POKE 16640,X - X = No of Bullets

If you then RUN the program, it will RESAVE itself with the modifications intact, or just to run the program without the SAVE, enter GOTO 10.

Letter received from A Lynch 6 Souter Drive Holm Mains Inverness IV2 4XJ

Dear Genpat

I was disappointed to see that the usual snobbery on computers has affected some MTX users : the games players are morons syndrome!! While I accept the computers are "more than a toy, nobody restricts use of TV to only current affairs/educational programmes or only plays classical music on the stereo so why do these people want to restrict the use of computers? Isn't there the old axiom about all work? In addition many games are instructive and beneficial other than for relaxation - even space invaders teach hand and eye co-ordination and even strategy. Why else are computers so valuable to handicapped children? Surely no one believes these unfortunates only learn programming. I often wonder if there is a sour grapes hang up with those who sneer because they are unable to get anywhere with games. Finally many games do require thought - all the adventure games do no depend solely on the RND function!!

I like to think that like most MTX users, I enjoy playing games for relaxation. Though I've tried, I've so far not got very far with the more serious pursuits. However, since I bought a computer for the same reasons that I bought a TV, that's no problem. Those who frown on games-players may ask why did I buy the MTX then? Well, surely everyone who has used the machine knows the answer to that!!

Just to blow my own trumpet, I have finally managed to complete the game CRYSTAL with a score of 35,507!

Keep up the good work!!

Yours faithfully

A LYNCH

Letter received from Steven Macnaughton, 79 The Mews, Dannette Hey, Stourbridge Village, Liverpool L28 6YL TELEPHONE NO. (051) 480 1979

In the PASCAL tip in issue Number Vol. 2 No. 4 it is stated that if you have a faulty $F command you should send your PASCAL ROMS to HISOFT. I did this in February 1985 and they were passed to Memotech by HISOFT for replacement. Until recently I haven't had time to use the PASCAL language and have noticed that my $F command still doesn't seem to work. I was informed early in 1985 that the fault had been corrected. From my experience you should send the ROMS to Memotech by recorded delivery and not Hisoft. When I obtained the first PASCAL ROMS the computer crashed, when I used the $F command, now with the February 1985 ROMS it doesn't crash. Could someone explain in Memopad how to use the $F command as quite possibly I could be using it wrongly.

I would be grateful if you could mention in Memopad that I would like to set up a local Memotech Computer Club in Liverpool/Merseyside. I enclose my telephone number and address as above.

I enjoy reading the articles in Memopad especially the ASSEMBLY Language Parts. Keep up the good work.

Letter received from R W Sharples Upper Flat 16 Wise Lane London NW7 2RE

Dear Editor

In answer to Len Clark (Memopad 0010 Number 6, 183-5), yes, there is an easier way of clearing an arrayed string variable. Firstly, rather than clearing only the part of the string that needs to be cleared, as in his routine 200-250, it may be quicker to clear the full lenth of the array element every time and then write the new string into the part needed, especially if the part that needs to be cleared is a large part of the total length assigned in the array. Secondly, if the procedure needs to be carried out more than once, it will be quicker to keep a dummy string of CHR$(0) and set the array element that needs to be cleared to this. Thus:

```
10 DIM A$(32,64)
12 DIM DUM$(64): FOR N=1 TO 64: LET DUM$(N)=CHR$(0):N.
14 REM 12 gives the right result - a string of length 64 rather than of length 0
20 LET A$(1)="MEMOPAD"
50 GOSUB 200
60 LET A$(1)="MTX"
70 PRINT A$
200 LET A$(1)=DUM$:RETURN
```

This technique will not indicate how much of A$(1) is occupied by characters rather than CHR$(0)'s at any given time, but neither will Mr Clark's subroutine, and for alphabetical comparisons in a sort routine this will not matter - one can simply compare the whole string, CHR$(0)'s and all.

By substituting for 200: LET A$(1)=LEFT$(DUM$, LEN(A$(1)):RETURN
the same DUM$ can be used for different arrays with different string lengths, so long as it is as long as the longest one. The same method can also be used to fill array elements with spaces rather than CHR$(0)'s, which can be useful for screen display and printer formatting (in the manner of Sinclair ZX81 BASIC, which treated string arrays like this automatically). Here line 12 is even simpler: LET DUM$="<a large number of spaces>"; if LEFT$ is used in line 200 the number of spaces in DUM$ itself does not matter as long as it is large enough, and the line can be entered by typing: 12 LET DUM$=" followed by <HOME> and then <CURSOR LEFT> which brings the cursor to the end of the line for the insertion of the second <">. There is thus no need to type the spaces at all.

Note though that, if one is inserting a string into a predefined array element, the following:
LET A$(X,Y, LEN (B$))=B$
gives unpredictable results, inserting unprintable characters after the end of B$, when LEN (B$) is an exact multiple of 256.

Please can anyone answer the following? I have an FDX single drive and 128K of memory, but NewWord (SNW.RUN) as supplied on the 59K system disc does not use the extra 64K of memory. Is there any way of making it do so? Also, is there any way of changing discs without exiting from NewWord and indicating to the computer that one has done so (i.e. of doing a ROM 5 from within NewWord)? Otherwise, if one changes discs and attempts to save to the new disc, the result is a crash.

Yours sincerely

R W SHARPLES

Label Designer by *Rene ter Beek*

```
0 REM  Cassette labels
       by Rene ter Beek
1 REM  Titles 1-11 will be printed on the left side,12-22 on the right side.
2 LET A$=CHR$(27): LET A3$=A$+CHR$(51): LET AS$=A3$+CHR$(39)
5 DIM P$(22,26): LET M$=CHR$(27)+"X"+"]"+CHR$(30)
6 LET L$=CHR$(19)+"----------------------------------------------------------
---------"+CHR$(133)
10 VS 4: PAPER 14: INK 1: COLOUR 4,14: CLS : COLOUR 0,5: CSR 4,0: PRINT "TITLE:
 ";
25 COLOUR 0,7: COLOUR 1,1: CSR 4,1: PRINT "No.  :PROGRAM NAME          ";
26 INK 15: COLOUR 0,0: FOR Y=1 TO 22: CSR 4-LEN (STR$(Y)),Y+1: PRINT Y;: IF Y=1
 THEN  INK 2: NEXT  ELSE  NEXT
30 CRVS 1,1,12,0,18,1,32: CRVS 2,1,4,2,26,22,32
35 VS 1: PAPER 13: INK 1: COLOUR 4,14: CLS : VS 2: PAPER 6: INK 1: COLOUR 4,14:
CL
40 VS 1: CSR 0,0: PRINT M$;: DSI : VS 2: CSR 0,0: PRINT M$;: DSI
80 VS 4: COLOUR 0,1: COLOUR 1,15: CSR 4,1: PRINT "F1:print  ";: COLOUR 1,11: PR
NT " F2:edit ";: COLOUR 1,15: PRINT " F3:new";
90 LET G=ASC(INKEY$): IF G>127 AND G<131 THEN  ON G-128 GOTO 2500,3000,10
100 PRINT CHR$(31);: CSR 4,1: PRINT "                                    ";: PAUSE 20: GO
0 80
2000 COLOUR 1,7: CSR 4,1: PRINT " PRESS X TO STOP PRINTING ";
2001 LPRINT CHR$(27);"U";CHR$(1);CHR$(15);AS$;A$;"G";L$
2002 LPRINT A3$;CHR$(255): LPRINT : GOSUB 6000
2004 LPRINT L$;A3$;CHR$(91): GOSUB 6000
2030 LPRINT AS$;: FOR Y=1 TO 11: GOSUB 6000
2035 LPRINT CHR$(27);"U";CHR$(1);
2060 LPRINT "     ";P$(Y);"              ";P$(Y+11);"       ": NEXT Y
2080 LPRINT : LPRINT L$: LPRINT CHR$(18);A$;"W";CHR$(1);A$;"E";
2090 LPRINT A3$;CHR$(16);CHR$(10);: LPRINT T$: LPRINT A$;"@";: LPRINT CHR$(15);A
3$;CHR$(41)
2091 LPRINT A$;"G";: LPRINT L$: LPRINT A3$;CHR$(97);CHR$(10): GOSUB 6000
2130 LPRINT L$: LPRINT A$;"@";: GOTO 80
25   COLOUR 1,10: CSR 4,1: PRINT " PLEASE WAIT reading in.  ";
2501 FOR X=1 TO 26: CSR X+10,0: LET T$(X)=SPK$: NEXT
2800 FOR Y=1 TO 22: CSR 27,1: COLOUR 1,15: PRINT Y: FOR X=1 TO 26: CSR X+3,Y+1:
LET SP$(X)=SPK$: NEXT : LET P$(Y)=SP$: NEXT : GOTO 2000
3000 COLOUR 0,7: COLOUR 1,1: CSR 4,1: PRINT "NUM..:PROGRAM              ";: GOTO
40
5000 LPRINT A$;"A";CHR$(13);A$;"C";CHR$(A): RETURN
6000 IF INKEY$="X" OR INKEY$="x" THEN  GOTO 80 ELSE  RETURN
```

Character Design

```
0 REM  Design your own character for your printer.First connect your printer,
       then RUN.Your design will be printed,including the data for GENPAT.
1 REM  Written by Rene ter Beek for the AVT 80 Alpha printer.
10 DIM S(10): CRVS 3,1,10,5,10,8,32: GENPAT 0,90,127,127,127,127,127,127,0,0
20 VS 4: PAPER 1: CLS : INK 15: LINE 80,152,160,152: LINE 160,152,160,88: INK 3:
 CSR 8,0: PRINT "CONNECT PRINTER": INK 2: CSR 7,1: PRINT "use Z-key to fill"
30 VS 3: PAPER 15: INK 6: CLS
```

```
35 LPRINT CHR$(27);"K";CHR$(10);CHR$(128);
40 CSR 0,0: PRINT CHR$(30);: PRINT CHR$(27);"X";"]";
50 DSI : LET SX=0: FOR X=1 TO 10: FOR Y=0 TO 7: CSR X-1,Y: IF SPK$=CHR$(90) THEN
  LET SX=SX+2^(7-Y)
60 NEXT Y: LET S(X)=SX: LET SX=0: NEXT X
80 FOR Y=1 TO 10: LPRINT CHR$(S(Y));: NEXT
90 LPRINT "     DATA";: FOR X=1 TO 9: LPRINT S(X);",";CHR$(8);: NEXT : LPRINT S(
10): GOTO 30
```

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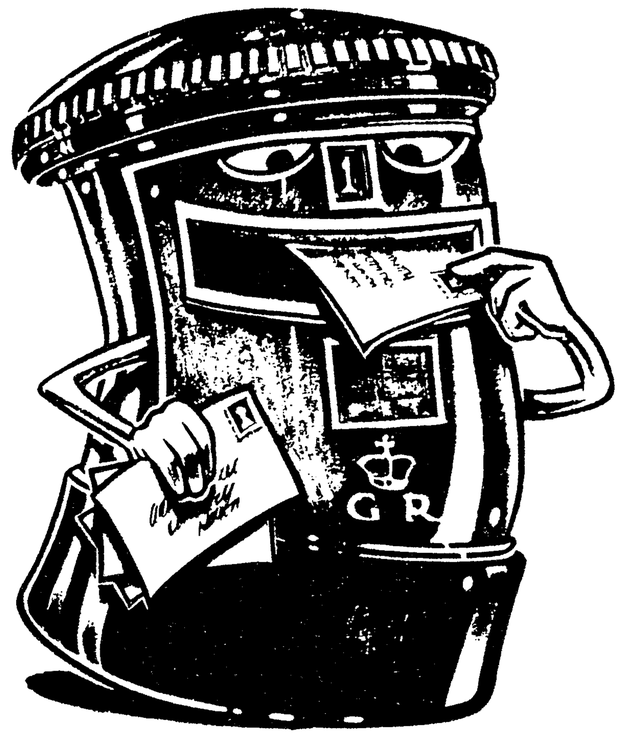
Basic Line

This routine generates a randomly ordered list from a previously defined array. Since 60 removes the used number by writing the next in the list over it. Hence an unused character, DECK(53) is necessary.

```
10 DIM DECK(53), CARDS(52)
20 FOR K = 1 TO 52 : LET DECK(K) = K : NEXT K
30 FOR J = 52 TO 1 STEP -1
40 LET L = INT(RND*J+1)
50 LET CARDS(J) = DECK(L)
60 FOR M = L TO 52 :  LET DECK(M) = DECK(M+1): NEXT M
70 NEXT J
```



Here is a disc dump from Neil Emsen

```
 1 REM            *** DISC DUMP ***
 2 REM              NEIL EMSEN
 3 REM              66 BURFORD ROAD
 4 REM              CARTERTON
 5 REM              OXFORDSHIRE
 6 REM              OX8 3AF
 7 REM              0993-845772
10 DIM A$(40*12)
20 LPRINT CHR$(27);"@";CHR$(27);"W";CHR
$(1);CHR$(27);"P";CHR$(1);
30 CLS
40 INPUT "KEY DISC NAME ";X$
50 INPUT "KEY DISC NUMBER ";XX$
60 FOR J=LEN (X$)+1 TO 18
70 LET X$=X$+" "
80 NEXT
90 LET X$=X$+XX$
100 INPUT "KEY DATE ";DD$
110 FOR K=1 TO 30: LET D$(K)=" ": NEXT
120 LET D$=D$+DD$
130 LPRINT X$
140 LPRINT CHR$(27);"W";CHR$(0);
150 LPRINT : LPRINT D$
160 LPRINT : LPRINT
170 CLS
200 CRVS 0,0,10,1,13,20,40
210 USER DIR
220 EDITOR A$
230 VS 5
232 CLS
240 FOR N=1 TO LEN (A$) STEP 13
250 FOR J=N TO N+11
260 LPRINT A$(J);
270 NEXT
290 LPRINT
300 NEXT
310 LPRINT CHR$(8)
312 GOTO 30
```

The program below is a far more elegant method of checking string inputs from John Davidson.

```
1000 REM _____ LIMITING  THE  NUMBER  OF  CHARACTERS  IN  A  STRING  INPUT
1005 REM
1010 DIM INSTRNG$(1,8)
1020 REM _____ COULD  BE  DIMENSIONED  AS  INSTRNG$(8)  OR  INSTRING$(x,x,8)  etc.
1025 REM
1030 CSR 21,11: PRINT "(Max.Lgth.8 Chrs.)"
1040 CSR 1,10: INPUT "Enter INSTRNG$ here: ";INTEMP$
1050 REM _____ BUT  CALL  IT  A  DIFFERENT  NAME
1060 REM _____ NOW  GO  AND  CHECK  IT  OUT
1070 GOSUB 2000
```

```
1075 REM
1080 REM _____ IF ALL OK THEN LET THE CHECKED STRING BECUME THE DIMENSIONED STRING
1090 LET INSTRNG$(1)=INTEMP$
1095 REM
1100 CSR 16,16: PRINT INTEMP$
1110 CSR 16,18: PRINT INSTRNG$(1)
1115 REM
1200 STOP
1205 REM
2000 REM _____ DO THE CHECKING HERE
2010 IF LEN (INTEMP$)<=8 THEN RETURN ELSE GOSUB 2040
2020 REM _____ FURTHER CHECKS COULD BE ENTERED HERE IF REQUIRED
2025 REM
2030 GOTO 1040
2040 REM _____ GO BACK AND DO IT AGAIN :
2045 REM
2050 CSR 3,15: PRINT "Too many characters - Pse re-enter",
2060 REM _____ TELL THEM WHY
2070 CSR 8,16: PRINT "Type <SPACE> to continue"
2080 REM _____ ONLY AN ACKNOWLEDGEMENT OF ERROR WILL PERMIT INPUT TO CONTINUE
2090 LET ACK$=INKEY$: IF ACK$="" THEN GOTO 2090
2100 IF ACK$=" " THEN GOTO 2110 ELSE GOTO 2090
2105 REM
2110 CSR 20,10: PRINT "                "
2120 REM _____ DELETE THE ORIGINAL INPUT
2125 REM
2130 CSR 1,15: PRINT "                                                "
2140 CSR 1,16: PRINT "                                                "
2150 REM _____ GET RID OF YOUR ERROR MESSAGES ALSO
2155 REM
2160 RETURN
```

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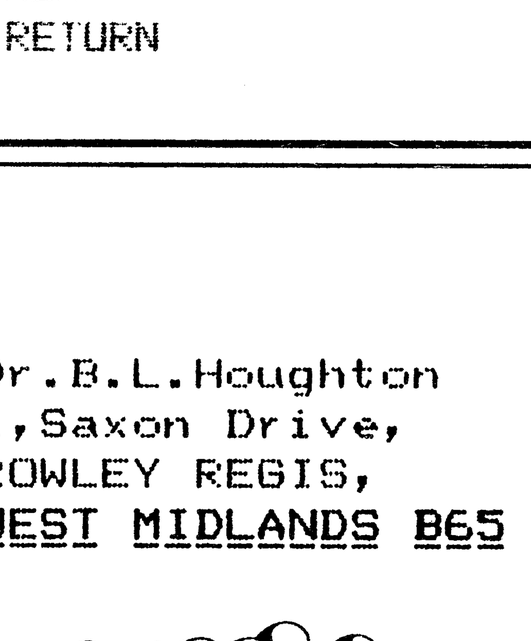
Special Offer



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HEAD-UP DATASERVICE

v/ Mette Høyen Nielsen

Dempeeng 7 2950 Vedbæk Tlf. 02 - 89 19 74 Giro 9 07 50 38

Kære Memotech brugere,

Hermed følger en ny liste over programmer til Memotech.
Jeg har i et stykke tid været i tænkeboks med hensyn til hvordan jeg bedst skulle sørge for up-to-date forsyning af programmer til Memotech, således at I får et godt udvalg og jeg ikke taber penge derpå. Resultatet er blevet denne liste, hvor der kun er nævnt hvad jeg ligger inde med. Jeg har mange gange fået at vide fra England, at i morgen kommer der noget meget interessant, der kan sådan og sådan, og så er det aldrig kommet. Jeg har derfor valgt at koncentrere mig om det mulige, det som jeg har hjemme, og som jeg ved kan skaffes hurtigt hjem.

I slutningen af marts skal jeg til England og planlægger et besøg hos Syntax. Jeg har forstået, at der i England er en tendens i retning af at nye programmer udsendes på diskette. Jeg ville gerne have en response om der er nogle ønsker i denne retning, så jeg kan tage nogle programmer med hjem. Ligeledes vil jeg gerne have nogle ideer til hvad I mener, der er interesse for.

Da porto er en meget stor udgift, beder jeg dem, der er interesseret i at blive holdt a'jour at fremsende en frankeret svarkuvert, så skal jeg tilsende jer hvad der kommer af nye prislister.

Af nye programmer kan nævnes

Supa coder, en basic compiler. En bruger skriver til mig:
"Godt program, bliver ikke slettet ved reset, compiler hurtigt og nemt og virker. Gør udførslen inde i maskinen meget hurtigere, men hjælper ikke meget ved udskrift på skærmen eller ved grafik."

EDASM er stadig mit mest solgte program. Programmet udvider assemblerfunktionen i maskinen og en omfattende brugsanvisning på engelsk medfølger. (Der sælges ikke nok memotech programmer til at der penge til en dansk oversættelse).

Spread-Sheet programmet er et regnearksprogram, med uanede muligheder for beregninger hurtigt og effektivt. Man springer på denne måde nogle programmeringstrin over.

Extended User Basic er et nyt program med en stærk udvidelse af Memotechs basic. Jeg venter spænt på kommentar fra en bruger.

Memosketch og memotalk er gode hjælpemidler til illustration af dine programmer og findes på lager.

Tilbud: i februar og marts 10% rabat på de programmer, der ikke er på udsalg.

Med venlig hilsen

Mette Høyen Nielsen

HEAD-UP DATASERVICE

v/ Mette Høyen Nielsen
Dempeeng 7 2950 Vedbæk Tlf. 02 - 89 19 74 Giro 9 07 50 38

MEMOTECH PRISLISTE PR. 16.02.1986

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NR.		STK.	KR.
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PR. 15.02.1986

MP	201	COMAL Z	695.00	SKAFFES HJEM,
MP	202	EDASM	165.00	PA LAGER
MP	203	EXTENDED USER BASIC	205.00	PA LAGER
MP	204	FIG. FORTH	425.00	SKAFFES HJEM FRA ENGLAND
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MP	207	MEMOTALK	450.00	PA LAGER
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NYE SPIL TIL MEMOTECH PR. 16.02.1986

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MD	401	DISKETTER 5 1/4", 10	195.00	

FORSENDELSE OG EKSPEDITION 25.00
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Forth Quicky

LOCK is self-explanatory: it is a compiled version of the command given by Keith Jones on page 8 of issue 11 to expand the boot-up parameters of the compiler, saving an otherwise considerable amount of typing.

UNLOCK reverses this, enabling material to be deleted from the compiler. The sequence 'UNLOCK Name COLD' deletes everything above and including Name, and enables the contracted dictionary to be saved and verified with the appropriate commands.

Forth users may like to note that the sequence 'COUNT WIDTH @ AND + @', given any NFA, returns the previous NFA.★

```
SCR # 3
  0 ( EXPAND BOOT-UP PARAMETERS )
  1 FORTH DEFINITIONS DECIMAL
  2 : (LOCK')
  3  12 +ORIGIN ! HERE 28 +ORIGIN !
  4  HERE 30 +ORIGIN ! ' EDITOR 6 + 32 +ORIGIN !
  5  HERE FENCE ! ;
  6
  7 : (LOCK) LATEST (LOCK') ; IMMEDIATE
  8 : LOCK [COMPILE] (LOCK) ;
  9 : UNLOCK' [COMPILE] ' NFA DUP COUNT WIDTH @ AND + @ ;
 10 : (UNLOCK) UNLOCK' 12 +ORIGIN ! DUP 28 +ORIGIN !
 11  DUP 30 +ORIGIN ! ' EDITOR 6 + 32 +ORIGIN !
 12  FENCE ! ; IMMEDIATE
 13
 14 : UNLOCK  [COMPILE] (UNLOCK) ;
 15 ;S
```

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Please telephone Leeds 666540 for availability.

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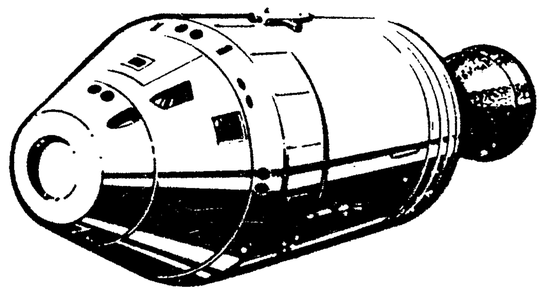
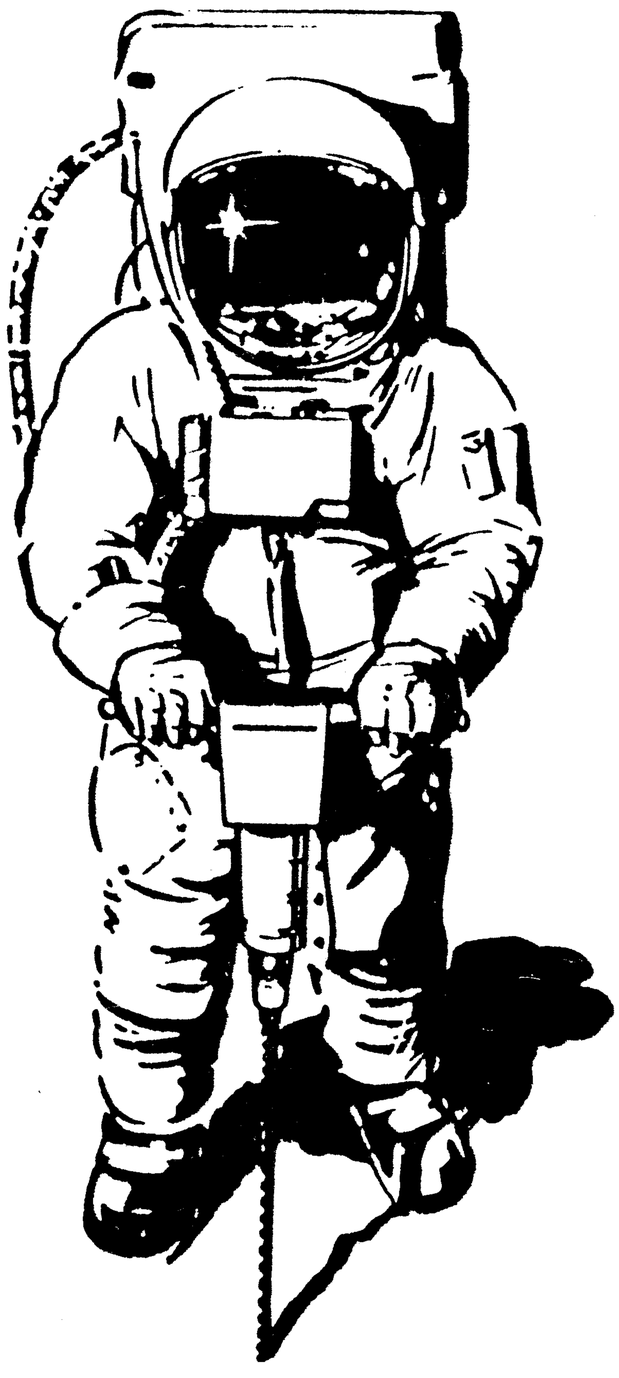
Planetarium

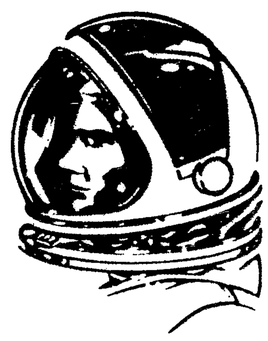


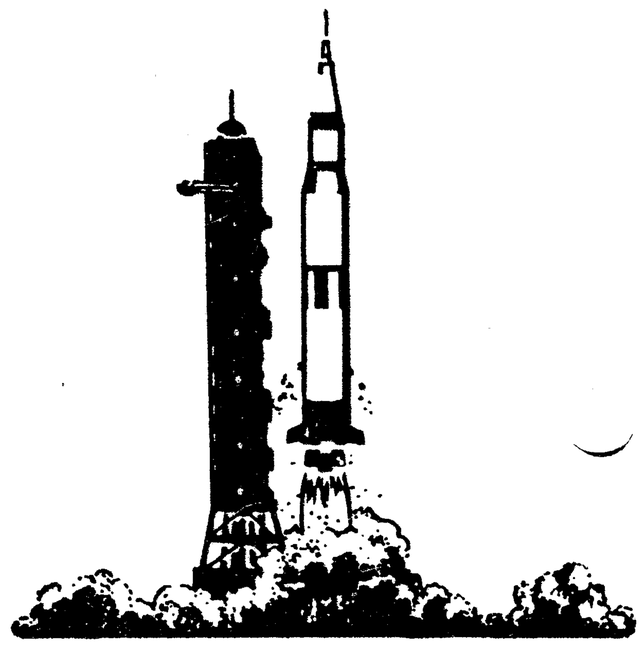
```
10 REM ****  MODEL PLANETARIUM ******
20 REM ** DATA IS TAKEN FROM THE
**********************
30 REM* ------------------------------------------
40 REM*                (MEGAms.)(GIGAms.)  PERIOD
50 REM* Mercury  4.88    57.9      88 days
60 REM* Venus    12.1     108      225 days
70 REM* EARTH    12.76    149.6    365 days
80 REM* Mars     6.79     227.9    687 days
90 REM* Jupiter                    142.8  778.3  11.8 yrs.
100 REM* Saturn 120       1427    29.5 yrs.
110 REM* Uranus  52.4     2870     84 yrs.
120 REM* Neptune 49.5     4497     165 yrs.
130 REM* Pluto    2.5     5893     248 yrs.
140 REM * DIAMETER OF SUN=1392 MEGAms.
150 REM **** PLANET SIZES AND DISTANCES      FROM SUN ARE SHOWN ON COMPRESSED      SCALES IN OR
DER TO FIT THE SCREEN      **************************************
160 REM **** PLANETS ARE SHOWN AS            SPRITES HAVING NUMBERS OF PIXELS      PROPORTIONAL
 TO THE DIAMETERS OF       THE ORIGINALS *********
170 REM * NUMBER OF PIXELS IN PLANET =       0.342*(DIAM. OF ORIGINAL)+3.145       **********
(approx.)**************    **************************************
180 REM ** HORIZONTAL DISTANCE OF            PLANET FROM CENTRE OF SUN IN          PIXELS =  (
approx.)                   15.27*(DISTANCE in GIGAms.)^0.237
190 REM

200 PRINT "            MODEL PLANETARIUM"
210 PRINT "            ___________________"
220 PRINT
230 PRINT " The 9 Planets [Mercury, Venus, EARTH, Mars, Jupiter, Saturn, Uranus, Neptune & Pluto
(furthest)] are shown rotating  round the sun.";
240 PRINT " Halley's comet first    appears after about 2 months."
250 PRINT : PRINT " Owing to the wide range of sizes and  distances that exist, means of
 compression of linear scales are used."
260 PRINT " Thus the relative areas of the planetsas shown (NOT shapes) are approximatelyproport
ional to the  diameters of the  originals.";
270 PRINT "(The sizes are thus compress-ed on a square root scale of areas).": PRINT
280 PRINT " Owing to the wide range of distances  from the nearest planet to the farthestthese a
re spaced on a power scale.                (See line 180)"
290 PRINT "    To continue, Press <RET>"
300 IF INKEY$<>CHR$(13) THEN GOTO 300
310 CLS : CSR 0,6: PRINT " Orbital tracks are normally plotted   after the planets.  If not requ
ired,   Type 'NO',  otherwise 'YES'"
320 LET K$=INKEY$: IF K$<>"Y" AND K$<>"y" AND K$<>"N" AND K$<>"n" THEN GOTO 320
330 CLS
340 LET M=0
350 CSR 8,0: PRINT "Representation of Time": CSR 8,1: PRINT "______________________"
360 PRINT : PRINT " The start of the programme is normallyat an arbitrary point in time when all
 the planets are in a straight line withthe sun."
370 PRINT " Alternatively, the actual start of theplanet positions may be advanced by anypre-sel
ected time period."
380 PRINT " The movement of the planets then takesplace in integral time jumps which haveany pre
-selected value from 1 day      upward."
390 PRINT "(Each jump actually occupies about 0.7 second)"
400 PRINT : PRINT " If programme is to start at Zero time,then Enter 'Z', otherwise Enter 'S' fo
_rSelected start."
```

```
410 IF INKEY$<>"S" AND INKEY$<>"s" AND INKEY$<>"Z" AND INKEY$<>"z" THEN GOTO 410
420 CLS
430 IF INKEY$="Z" OR INKEY$="z" THEN GOTO 460
440 PRINT "   Enter required starting delay (Enter '0' where not applicable): ": CSR 0,5: PRINT
"Days: ": PRINT "Weeks: ": PRINT "Months: ": PRINT "Years: "
450 CSR 7,5: INPUT D1: CSR 7,6: INPUT W1: CSR 7,7: INPUT M1: CSR 7,8: INPUT Y1: LET M=D1+7*W1+M1
*365/12+365*Y1
460 PRINT : PRINT "    Enter required integral time jumps (Enter '0' where not applicable ----
 suggest start with 1 day)."
470 CSR 0,14: PRINT "Days: ": PRINT "Weeks: ": PRINT "Months: ": PRINT "Years: "
480 CSR 3,19: PRINT "(To end programme, Press <BRK> )"
490 CSR 7,14: INPUT D2: CSR 7,15: INPUT W2: CSR 7,16: INPUT M2: CSR 7,17: INPUT Y2: LET N=D2+7*W
2+M2*365/12+365*Y2
500 VS 4: CLS
510 COLOUR 2,4: COLOUR 3,10: COLOUR 4,4: CLS
520 CTLSPR 2,10
530 CTLSPR 6,0
540 GENPAT 3,119,0,0,28,28,28,0,0,0
550 GENPAT 3,127,0,0,0,24,24,0,0,0
560 GENPAT 3,126,0,0,28,28,28,0,0,0
570 GENPAT 3,125,0,8,28,28,28,8,0,0
580 GENPAT 3,124,0,60,60,126,126,60,60,0
590 GENPAT 3,123,0,16,56,124,254,124,56,16
600 GENPAT 3,122,60,126,255,255,255,126,60,0
610 GENPAT 3,121,60,126,255,255,255,255,126,60
620 GENPAT 3,120,0,0,0,16,0,0,0,0
630 PRINT "      PLANET       ORBIT"
640 CSR 4,2: PRINT "Pluto ---- 248.0years"
650 SPRITE 9,127,220,171,0,0,15
660 CSR 4,4: PRINT "Neptune -- 165.0years"
670 SPRITE 8,123,220,155,0,0,13
680 CSR 4,6: PRINT "Uranus ---  84.0years"
690 SPRITE 7,124,220,139,0,0,12
700 CSR 4,8: PRINT "Saturn ---  29.5years"
710 SPRITE 6,122,220,123,0,0,9
720 CSR 4,10: PRINT "Jupiter --  11.8years"
730 SPRITE 5,121,220,107,0,0,10
740 CSR 4,12: PRINT "Mars -----   1.88years"
750 SPRITE 4,126,220,91,0,0,8
760 CSR 4,14: PRINT "EARTH ----   1.0YEAR"
770 SPRITE 3,125,220,75,0,0,3
780 CSR 4,16: PRINT "Venus ---- 225 Days"
790 SPRITE 2,125,220,59,0,0,7
800 CSR 4,18: PRINT "Mercury --  88 Days"
810 SPRITE 1,119,220,43,0,0,15
820 CSR 4,20: PRINT " Halley's Comet-- 76years"
830 SPRITE 10,120,245,27,0,0,15
840 CSR 2,22: PRINT "To continue, Press <RET>"
850 IF INKEY$<>CHR$(13) THEN GOTO 850
860 CLS
870 PRINT " Years"
880 REM ** PLOT THE 'SUN' **
890 LET F=1.35: REM** IF NECESSARY, ALTER 'F' TO OBTAIN A CIRCULAR SUN  *****
900 LET R=8.4: REM ** R=RADIUS OF SUN *
910 FOR Y=0 TO 190
920 IF Y<95-R OR Y>95+R THEN GOTO 950
930 LET X1=95-SQR(R^2-(95-Y)^2): LET X2=95+SQR(R^2-(95-Y)^2)
940 LINE X1/F+60,Y,X2/F+60,Y
950 NEXT
960 REM ** PLOT PLANET POSITIONS **
970 LET M=M*2*PI/365: LET N=N*2*PI/365
980 LET A=M-N: LET B=N: LET N=A
990 LET N=N+B
1000 CSR 0,1: PRINT "          ": CSR 0,1: PRINT INT(N*50/PI+0.5)/100
```



```
1010 LET X1=120*SIN(N/248)+129: LET Y1=92*COS(N/248)+95
1020 LET X2=112*SIN(N/165)+129: LET Y2=86*COS(N/165)+95
1030 LET X3=101*SIN(N/84)+129: LET Y3=78*COS(N/84)+95
1040 LET X4=85*SIN(N/29.5)+129: LET Y4=66*COS(N/29.5)+95
1050 LET X5=74*SIN(N/11.8)+129: LET Y5=57*COS(N/11.8)+95
1060 LET X6=55*SIN(N/1.88)+129: LET Y6=42*COS(N/1.88)+95
1070 LET X7=50*SIN(N)+129: LET Y7=38*COS(N)+95
1080 LET X8=46*SIN(N/0.616)+129: LET Y8=36*COS(N/0.616)+95
1090 LET X9=40*SIN(N/0.241)+129: LET Y9=31*COS(N/0.241)+95
1100 LET X10=60000*SIN(N/76+1.49)-59850: LET Y10=800*COS(N/76+1.49)+95
1110 IF X10>254 OR X10<0 THEN LET X10=0
1120 IF Y10>190 OR Y10<0 THEN LET Y10=0
1130 ADJSPR 2,10,X10: ADJSPR 3,10,Y10
1140 ADJSPR 2,1,X9: ADJSPR 3,1,Y9
1150 ADJSPR 2,2,X8: ADJSPR 3,2,Y8
1160 ADJSPR 2,3,X7: ADJSPR 3,3,Y7
1170 ADJSPR 2,4,X6: ADJSPR 3,4,Y6
1180 ADJSPR 2,5,X5: ADJSPR 3,5,Y5
1190 ADJSPR 2,6,X4: ADJSPR 3,6,Y4
1200 ADJSPR 2,7,X3: ADJSPR 3,7,Y3
1210 ADJSPR 2,8,X2: ADJSPR 3,8,Y2
1220 ADJSPR 2,9,X1: ADJSPR 3,9,Y1
1230 IF K$="N" OR K$="n" THEN GOTO 990
1240 PLOT X1,Y1: PLOT X2,Y2: PLOT X3,Y3: PLOT X4,Y4: PLOT X5,Y5
1250 PLOT X6,Y6: PLOT X7,Y7: PLOT X8,Y8: PLOT X9,Y9
1260 GOTO 990
```





Sprite Designer

```
MAIN LISTING OF 'SPRITE DESIGNER'
10 PLOD "INST"
20 VS 4: ATTR 3,0: ATTR 2,0: PAPER 11: INK 12: CLS : COLOUR 4,3
30 LET GX=1: LET GY=1: DIM GRID$(16,16),T(8),LP$(16)
40 FOR X=0 TO 64 STEP 4: LINE 20+X,20,20+X,84: LINE 20,20+X,84,20+X: NEXT
50 LET IN$=INKEY$: IF IN$="" THEN  GOTO 50 ELSE  IF IN$<CHR$(128) AND IN$>" " THEN  GOTO 50 ELSE  IF IN$>CHR$(135) THEN  GOTO 50
60 LET GX=GX-(IN$=CHR$(25) AND GX<16)+(IN$=CHR$(8) AND GX>1)
70 LET GY=GY-(IN$=CHR$(11) AND GY<16)+(IN$=CHR$(10) AND GY>1)
80 IF IN$=CHR$(26) THEN  GOSUB 170
90 IF IN$=CHR$(128) THEN  GOSUB 330
100 IF IN$=CHR$(132) THEN  GOSUB 250
110 IF IN$=CHR$(129) THEN  GOSUB 180
120 IF IN$=CHR$(133) THEN  GOSUB 270
130 IF IN$=CHR$(134) THEN  GOSUB 390
140 ATTR 3,1: FOR X=1 TO 3: LINE 16+4*GX+X,16+4*GY,16+4*GX+X,19+4*GY: NEXT ,
150 FOR X=1 TO 3: LINE 16+4*GX+X,16+4*GY,16+4*GX+X,19+4*GY: NEXT : ATTR 3,0
160 GOTO 50
170 LET GRID$(GX,GY)=CHR$(0-(GRID$(GX,GY)=CHR$(0))): ATTR 3,1: FOR X=1 TO 3: LINE 16+4*GX+X,17+4*GY,16+4*GX+X,19+4*GY: NEXT : ATTR
 3,0: RETURN
180 PAPER 10: FOR X=1 TO 2: FOR Y=2 TO 1 STEP -1: FOR Z1=0 TO 7: LET T(Z1+1)=0: FOR Z=0 TO 7
190 IF GRID$(X*8-Z,Y*8-Z1)=CHR$(1) THEN  LET T(Z1+1)=T(Z1+1)+2^Z
200 NEXT Z: NEXT Z1
210 GENPAT 1,126+2*Y+X,T(1),T(2),T(3),T(4),T(5),T(6),T(7),T(8)
220 CSR 3+X,5-Y: PRINT CHR$(126+2*Y+X)
230 NEXT Y: NEXT X
240 PAPER 11: RETURN
250 FOR X=1 TO 16: FOR Y=1 TO 16: LET GRID$(X,Y)=CHR$(0): NEXT : NEXT : CLS
260 FOR X=0 TO 64 STEP 4: LINE 20+X,20,20+X,84: LINE 20,20+X,84,20+X: NEXT : RETURN
270 FOR X=1 TO 2: FOR Y=2 TO 1 STEP -1: FOR Z1=0 TO 7: LET T(Z1+1)=0: FOR Z=0 TO 7
280 IF GRID$(X*8-Z,Y*8-Z1)=CHR$(1) THEN  LET T(Z1+1)=T(Z1+1)+2^Z
290 NEXT Z: NEXT Z1
300 LPRINT "GENPAT";5-Y+X-(X=2);",X,",T(1),T(2),T(3),T(4),T(5),T(6),T(7),T(8)
310 NEXT Y: NEXT X
320 CSR 0,0: INPUT "NAME?";A$: LPRINT A$: CSR 0,0: PRINT "                                ": RETURN
330 FOR Y=167 TO 158 STEP -8: LET LP$="": FOR X=32 TO 47
340 LET LP$=LP$+GR$(X,Y,8)
350 NEXT X
360 LPRINT CHR$(27);"K";CHR$(16);CHR$(0);LP$
370 NEXT Y
380 RETURN
390 FOR X=1 TO 2: FOR Y=2 TO 1 STEP -1: FOR Z1=0 TO 7: LET T(Z1+1)=0: FOR Z=0 TO 7
400 IF GRID$(X*8-Z,Y*8-Z1)=CHR$(1) THEN  LET T(Z1+1)=T(Z1+1)+2^Z
410 NEXT Z: NEXT Z1
420 FOR P=1 TO 8: CSR (X+(2-Y)-(X=2))*4+12,P+3: PRINT T(P);"  ": NEXT P
430 NEXT Y: NEXT X
440 RETURN
```

```
NODDY PAGE 'INST'
*D I. *E *R

NODDY PAGE 'I'
        SPRITE DESIGNER
        ---------------
                              By M.Allcorn


  This program will asist with the
  development of sprites. Use the
  joystick or the keypad to move the
  'CURSOR' around the grid. Fire/Home
  will set points or erase them.


FUNCTION KEYS
-------------
 f1 Print sprite to printer
 f2 Print sprite to screen
 f5 Clear and start again
 f6 Print data to printer
 f7 print data to screen

Press return when ready
```

SOFTWARE

00106	26X26 SPREAD SHEET	UTIL	SYNT	7.95	I	ANY
00057	3D TACHYON FIGHTER	ARC	CONT	6.95	I	ANY
00135	9 ELECTRIC. PROGS	EDUC	SSFT	13.95	U	ANY
00062	ADVENTURE QUEST	ADV	LVL9	8.75	I	ANY
00033	AGROVATOR	ARC	SYNT	5.95	I	512
00125	AIRCRAFT MAGNETISM	FLGT	AVTN	?	I	ANY
00120	AIRCRAFT PAYLOADS	FLGT	AVTN	?	I	ANY
00122	AIRLAW 2	FLGT	AVTN	?	I	ANY
00123	AIRSPEED INDICATOR	FLGT	AVTN	?	I	ANY
00071	ALICE IN WONDER.	ADV	CONT	6.02	I	ANY
00121	ALTIMETER	FLGT	AVTN	?	I	ANY
00008	ASTROMILON	ARC	CONT	6.02	I	ANY
00047	ASTROPAC	ARC	CONT	6.02	I	ANY
00058	BACKGAMMON	BRD	CONT	7.95	I	ANY
00041	BASIC BUSINESS	BS	CONT	5.95	I	ANY
00043	BLOBBO	ARC	CONT	6.02	I	ANY
00073	BOUNCING BILL	ARC	SYNT	4.95	I	ANY
00074	BRIDGE	CARD	CONT	6.95	I	512
00130	BUSINESS GAME	BRD	SSFT	15.95	U	ANY
00077	CANVAS	UTIL	CONT	7.95	I	ANY
00085	CAVES OF ORB	ADV	SYNT	5.95	I	512
00137	CESIL INTERPRETER	LANG	SSFT	5.95	U	ANY
00094	CHAMBEROIDS	ARC	MEGA	5.95	I	ANY
00059	CHESS	BRD	CONT	8.75	I	ANY
00053	COBRA	ARC	CONT	6.02	I	ANY
00025	COLOSSAL ADVENTURE	ADV	LVL9	8.75	I	ANY
00098	COMBAT	ARC	PANS	2.95	I	512
00028	COMPOSER	UTIL	XAV	13.00	I	ANY
00046	CONT RAIDERS	ARC	CONT	6.02	I	ANY
00099	CRIBBAGE	CARD	SCRP	2.95	E	ANY
00110	CRYSTAL	ARC	MEGA	5.95	I	ANY
00050	DEN.GOES BANANAS	ARC	SCRP	2.95	I	ANY
00011	DENNIS & CHICKEN	ARC	SCRP	2.95	I	ANY
00103	DENNIS AND CIRCUS	ARC	SCRP	2.95	I	ANY
00068	DOODLEBUG	ARC	SYNT	4.95	I	ANY
00108	DOWNSTREAM DANGER	ARC	MEGA	5.95	I	ANY
00096	DR. FRANKIE	ARC	SYNT	5.95	I	512
00056	DRAUGHTS	BRD	CONT	6.95	I	ANY
00111	DRIVE THE CEE 5	ARC	MEGA	5.95	I	ANY
00063	DUNGEON ADVENTURE	ADV	LVL9	8.75	I	ANY
00067	EDASM	UTIL	SYNT	7.95	I	512
00066	EMERALD ISLE	ADV	LVL9	5.95	I	ANY
00038	ESCAPE FROM ZARKOS	ARC	MEGA	5.95	I	ANY
00081	EXTENDED BASIC	6.95	SENT	6.95	I	ANY
00082	FATHOMS DEEP	ARC	MEGA	5.95	I	ANY
00090	FIG FORTH	LANG	SYNT	15.75	I	512
00055	FIREHOUSE FREDDIE	ARC	CONT	6.02	I	ANY
00021	FIRST LETTERS 1	EDUC	CONT	8.75	I	ANY
00092	FKEY DEFINER	UTIL	MEMB	6.95	I	ANY
00037	FLUMMOX	ARC	SYNT	5.95	I	512
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00102	GHOSTLY CASTLE	ADV	PANS	2.95	I	ANY
00031	GOLDMINE	ARC	CONT	6.02	I	ANY
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00083	ICEBERG	ARC	SYNT	4.95	I	ANY
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00015	JOHNNY REB	WAR	LOTH	6.02	I	ANY
00097	JUMPING JACK FLASH	ARC	SYNT	5.95	I	512
00115	KARATE KING	ARC	MEGA	5.95	I	ANY
00016	KEY TO TIME	ADV	LUMP	6.02	I	ANY
00042	KILOPEDE	ARC	CONT	6.02	I	ANY
00019	KNUCKLES	ARC	CONT	7.95	I	ANY
00078	LES FLICS	ARC	PSS	6.95	E	ANY
00032	LITTLE DEVILS	ARC	SYNT	4.95	I	ANY
00024	LORDS OF TIME	ADV	LVL9	8.75	I	ANY
00035	M COMMAND & ARCAD.	ARC	SYNT	4.95	I	ANY
00070	MAN FROM GRANNY	ADV	SYNT	4.95	I	512
00104	MANIC MINER	ARC	SPRJ	6.95	I	ANY
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00126	MAPS AND CHARTS 1	FLGT	AVTN	?	I	ANY
00022	MATHS 1	EDUC	CONT	8.75	I	ANY
00013	MAXIMA	ARC	CONT	6.02	E	ANY
00086	MEMOCHEQUE	UTIL	SYNT	6.95	I	ANY
00075	MEMOSKETCH	UTIL	SYNT	7.95	I	ANY
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00044	MISSION ALPHATRON	ARC	CONT	6.02	I	ANY
00030	MISSION OMEGA	ARC	SYNT	4.95	I	ANY
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00010	MUSIC PAD	UTIL	CONT	6.02	I	ANY
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00131	NETWORK LOADER	UTIL	SSFT	8.95	U	ANY
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00045	OBLOIDS	ARC	CONT	6.02	I	ANY
00129	PAINTBOX	UTIL	SYNT	5.95	I	ANY
00001	PAYROLL	UTIL	CONT	21.25	I	512
00005	PHAID	ARC	CONT	6.02	I	ANY
00061	PHYSICS 1	EDUC	CONT	8.75	I	ANY
00124	PILOT NAVIGATION	FLGT	AVTN	?	I	ANY
00012	PONT & BLACKJACK	CARD	CONT	6.02	I	ANY
00009	POT HOLE PETE	ARC	CONT	6.02	I	ANY
00040	PURCHASE LEDGER	BN	CONT	12.75	I	512
00048	QOGO	ARC	CONT	6.02	I	ANY
00076	QOGO 2	ARC	MEGA	5.95	I	ANY
00095	QUANTUM	ARC	SYNT	5.95	I	ANY
00109	QUAZZIA	ARC	MEGA	5.95	I	ANY
00107	RED MOON	ADV	LVL9	?	U	ANY
00127	RELATIVE VELOCITY	FLGT	AVTN	?	I	ANY
00064	RETURN TO EDEN	ADV	LVL9	8.75	I	ANY
00020	REVERSI	BRD	CONT	7.95	I	ANY
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00049	SNAPPO	ARC	CONT	6.02	I	ANY
00023	SNOWBALL	ADV	LVL9	8.75	I	ANY
00036	SON OF PETE	ARC	MEGA	5.95	I	ANY
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00080	SPOOLER	UTIL	MEM	4.95	I	ANY
00017	STAR COMMAND	ARC	CONT	6.95	I	ANY
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00004	SUPER MINEFIELD	ARC	CONT	6.02	I	ANY
00093	SURFACE SCANNER	ARC	MEGA	5.95	I	ANY
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00007	TAPEWORM	ARC	CONT	6.02	I	ANY
00088	TARGET ZONE	ARC	SYNT	6.95	I	ANY
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00051	THE ZOO GAME	ADV	CONT	6.02	I	512
00134	TITRATION,CHROMATO	EDUC	SSFT	5.95	U	ANY
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00018	TURBO	ARC	CONT	6.95	I	ANY
00117	USER BASIC	UTIL	SYNT	8.95	I	ANY
00079	USER EXTEND	UTIL	MEM	7.95	I	ANY
00027	UTILITIES 1	UTIL	CONT	4.95	I	ANY
00091	VERNON & VAMPIRES	ARC	SYNT	5.95	I	ANY
00138	WOOD SIMULATION	EDUC	SSFT	5.95	U	ANY
00060	WORD & PICTURE	EDUC	CONT	8.75	I	ANY

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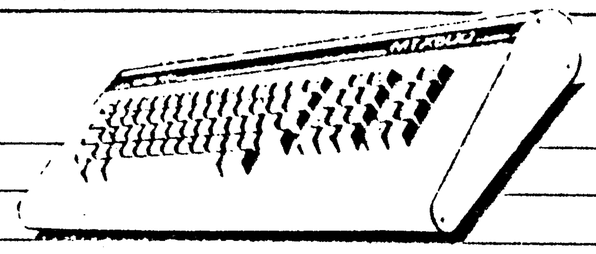
HARDWARE



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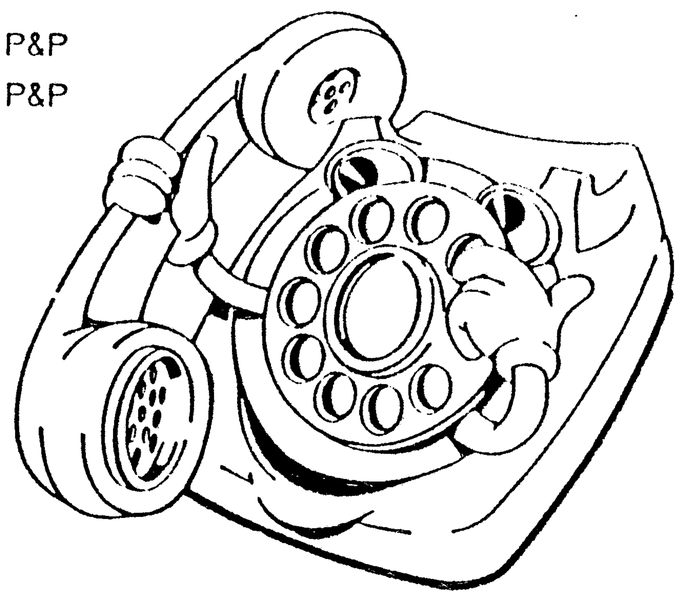

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