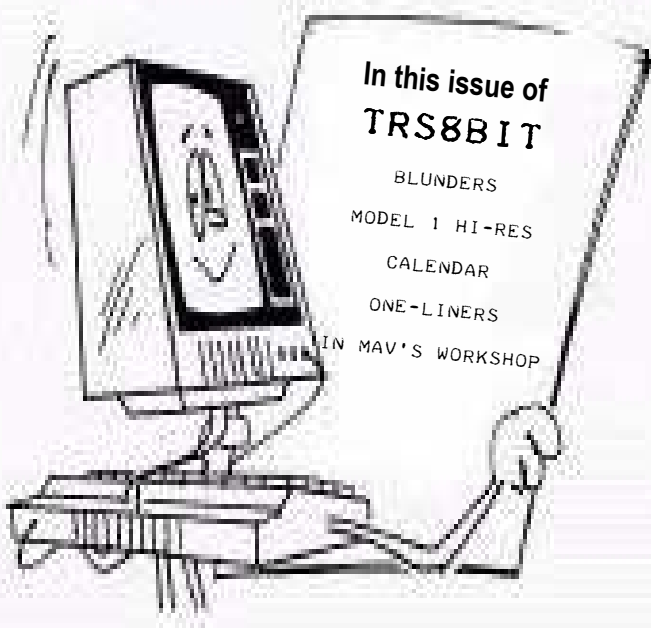# TRS8BIT

HI EVERYONE AND WELCOME TO THIS VERY 'SPECIAL' JUNE 2012 EDITION.

NO PRIZES FOR GUESSING THAT THIS ISSUE FEATURES ONE-LINERS. THE RED BANNER IS A DEAD GIVE AWAY EH! MANY THANKS TO ALL THOSE WHO CONTRIBUTED, MAKING THIS, ONE OF THE BIGGEST ISSUE TO DATE, WELL WORTH THE TITLE OF 'SPECIAL'. I HOPE YOU FIND ALL THE CONTRIBUTIONS AS ENJOYABLE AND AMAZING AS I DO.

I'VE STILL NO INFORMATION ABOUT ANYONE IN THE UK WHO CAN OFFER A REPAIR OR UPGRADE SERVICE FOR TANDY'S, BUT I'LL KEEP THE PAGE ON THE WEBSITE OPEN, JUST IN CASE I HEAR FROM ANYONE!

Special 'one-liner' programs collectors edition

THE UK'S EBAY HAS BEEN QUITE BUSY WITH BITS FOR SALE OVER THE LAST THREE MONTHS WITH M1'S, E.I.'S AND M4 APPEARING ON A REGULAR BASIS. NO SPECTACULAR PRICES TO REPORT. HOWEVER, MAV. EMAILED ME WITH DETAILS ON AN ITEM, SELLING ON EBAY.COM, AT JUST OVER $2000. THAT'S AN AWFUL 'LO-RA-MONEY' JUST FOR A COMPUTER GAME EH! I'M SURPRISED IT'S THAT RARE, BEING A GAME.

In this issue of
TRS8BIT

BLUNDERS

MODEL 1 HI-RES

CALENDAR

ONE-LINERS

IN MAV'S WORKSHOP

27)

BLUNDERS!
AND APOLOGIES

I'VE REPLACED, JUST FOR THIS ISSUE, AT THE READY PROMPT, WITH THESE FEW WORDS!

FIRST- THE ARTICLE IN THE LAST EDITION OF TRS8BIT REGARDING A HI-RES GRAPHICS MOD. A COUPLE OF YOU CORRECTLY POINTED OUT THAT IT DIDN'T CLEARLY STATE WHICH OR WHO'S MOD IT WAS.

THE ARTICLE, BY JOHN KILPATRIC, ORIGINALLY APPEARED IN NATGUG NEWS AND I ASSUMED THAT, AT THAT TIME, 1981 (ISH), THERE WAS PERHAPS JUST THAT MOD AVAILABLE SO FURTHER DETAILS REGARDING MANUFACTURE ETC. WERE FELT TO BE UNNECESSARY. I WAS HOPING THAT, AS THERE SEEMS TO BE QUITE A BIT OF INTEREST IN M1 HI-RES OUT THERE, SOMEONE MIGHT RECOGNISE, BY READING THE ARTICLE, WHICH BIT OF KIT IT WAS AND EVEN, PERHAPS, IDENTIFY THE MANUFACTURER.

SORRY-I'LL TRY AND MAKE SUCH THINGS CLEARER IN THE FUTURE.

I KNOW THAT JOHN BENSON, IN AUSTRALIA IS STILL LOOKING FOR DETAILED INSTRUCTION FOR THE TANDY HI-RES MOD, REF: 260-9800, (WHICH WAS ONLY AVAILABLE IN THE UK).

AS A CONSEQUENCE OF FURTHER SEARCHING, I CAME ACROSS ANOTHER ARTICLE IN NATGUG NEWS, THIS TIME BY E.C. KILPATRICK, FEATURING ANOTHER HI-RES KIT WHICH I'VE INCLUDED IN THIS ISSUE, HOPING THAT, AGAIN, IT MIGHT JUST HELP SOMEONE OUT THERE WITH A PROJECT. IF YOU DO IDENTIFY THE MOD KIT, PLEASE LET ME KNOW AND I'LL PUT DETAILS ON THE WEB SITE.

SECONDLY- I AM SORRY IF THE NEWSLETTER SEEMS TO BE SOMEWHAT BIASED TOWARDS THE MODEL 1. ALTHOUGH UNINTENTIONAL, THE REASON FOR THIS IS QUITE STRAIGHT FORWARD. OVER THE YEARS, I'VE ONLY OWNED A NON-DISK M1 SETUP. EVEN NOW, MY 'REAL' SYSTEM IS A 16K M1 WITH AN E.I., CASSETTE RECORDER AND A (NOT FULLY WORKING) ACULAB FLOPPY TAPE. THE ONLY ACCESS TO DISKS I HAVE, IS VIA MATTHEW REED'S FANTASTIC EMULATOR.
SO PLEASE, DON'T THINK THAT I'M ONLY LOOKING FOR ARTICLES ABOUT A M1. MODEL 2,3,4 AND 4P ARTICLES WILL BE MOST WELCOME IF YOU WANT TO SEND THEM IN!

MIND YOU, THE MODEL 1 IS STILL, BY FAR, MY FAVOURITE COMPUTER!

MODEL 1 HI-RES
EC KILPATRICK

THE MODIFICATION COMES IN TWO PARTS

1. A SEPARATE, FULLY TESTED & ASSEMBLED, GRAPHICS BOX THAT PLUGS INTO THE LEFT HAND SIDE OF THE INTERFACE OR THE KEYBOARD EDGE CONNECTOR.
2. AN INTERFACE PRINTED CIRCUIT BOARD, WITH ASSOCIATED COMPONENTS, THAT HAS TO BE MOUNTED INSIDE THE KEYBOARD. BEFORE ATTEMPTING THE MODIFICATION, PLEASE STUDY THE DIAGRAMS & INSTRUCTIONS CAREFULLY.

FITTING INSTRUCTIONS.

1. CAREFULLY OPEN THE KEYBOARD & POSITION IT IN A MANNER THAT WILL ALLOW EASY ACCESS FOR A SYSTEMATIC APPROACH TO THE MODIFICATIONS REQUIRED. IF YOUR KEYBOARD IS NOT THE NEW STYLE THEN Z29 WILL NOT BE IN AN IC HOLDER, IT WILL NEED REMOVING AND REPLACING WITH AN 18 PIN IC SOCKET. Z46 WILL ALSO NEED REMOVING AND REPLACING WITH A 16 PIN IC SOCKET.
A CAUTIONARY NOTE.
GREAT CARE MUST BE EXERCISED WHEN SOLDERING SOCKETS TO PREVENT SOLDER CAUSING SHORTS BETWEEN ADJACENT PINS.
2. TWO TRACK CUTS ARE NECESSARY AS INDICATED IN FIGS. 1 & 2. . THE FOLLOWING IC PINS NEED TO BE ISOLATED FROM THEIR CURRENT POSITIONS. THIS CAN BE ACHIEVED BY EITHER DE-SOLDERING THE LEG & BENDING IT AT RIGHT ANGLES TO THE BOARD, OR BY USING A SHARP PAIR OF POINTED NOSE CUTTERS, CUT THE IC LEG JUST ABOVE THE BOARD & BEND THE REMAINS OF THE LEG AT RIGHT ANGLES TO THE BOARD.

IC	PIN
Z10	14
Z11	9
Z41	7
Z72	14

4. INSERT PIGGY-BACK 21L02 RAM INTO Z46 SOCKET & ATTACH THE WIRES AS SHOWN IN FIG 3 WARNING.
IT IS ADVISABLE TO CHECK FOR SHORTS BETWEEN IC PINS BEFORE INSTALLING HOLDERS.
5. CONNECTIONS.
LINK PINS 12 & 13 OF IC Z26. USING AN INSULATED WIRE CONNECT IC Z72 PIN 14 (LEG ONLY) TO IC Z74 PIN 9.
COVER THE CONTACTS OF THE POWER SWITCH WITH INSULATING TAPE AS IN FIG 5.
PLACE THE NEW PRINTED CIRCUIT BOARD BEHIND THE POWER, VIDEO & CASSETTE SOCKETS AS IN FIG 5.
CONNECT THE COLOURED WIRES TO THE POSITIONS INDICATED IN FIG 4.
SLEEVES SHOULD BE USED OVER CONNECTIONS TO THE BENT OUT LEGS.
6. CONNECT 16 PIN JUMPER LEAD TO SOCKET IN Z29 AS SHOWN IN FIG 5, LEAVING PINS 9 & 10 OPEN CIRCUIT.
AT THIS POINT CHECK ALL CONNECTIONS (OLD ROM VERSIONS CHECK FOR PUNCTURED WIRES, CONNECTING THE SMALL ROM BOARD STUCK TO THE BACK OF THE MAIN PRINTED CIRCUIT BOARD TO THE MAIN BOARD).
7. CONNECT POWER & VIDEO & TEST THAT MACHINE FUNCTIONS CORRECTLY (ENSURING THERE ARE NOT ANY METAL OBJECTS UNDER THE EXPOSED BOARD).
THE 20 WAY CABLE MUST BE ROUTED OUT OF THE REAR OF THE TWO HALVES OF THE KEYBOARD CASE ASSEMBLY. (SEE FIG 4). CONNECTION TO THE EXTERNAL GRAPHICS BOX IS BY WAY OF THE 20 WAY PLUG WITH IT'S LOCATING PEG FACING UPWARDS. ENSURE THAT THE PLUG IS FIRMLY PUSHED IN & THAT THE SOCKET'S EJECTOR LUGS ARE CLOSED SO THE CONNECTION IS POSITIVE.
8. CAREFULLY FIT THE MACHINE BACK INTO IT'S CASE, POWER UP & RUN THE DEMONSTRATION PROGRAM.

CALENDAR
KEVIN SMITH

I CAME ACROSS THIS RATHER SUPER LITTLE PROGRAM,
ORIGINALLY WRITTEN FOR THE NASCOM 2 BY KEVIN SMITH.

IT CALCULATES AND PRINTS THE CALENDAR FOR ANY MONTH IN
ANY YEAR BETWEEN THE DATES (WAIT FOR IT) 25000 BC TO
20000 AD. IT EVEN TAKES INTO ACCOUNT THE CALENDAR REFORMS
OF 1752. TRY THE CALENDAR FOR SEPTEMBER 1752 WHEN THE
JULIEN CALENDAR WAS ABANDONED IN FAVOUR OF THE GREGORIAN
ONE.

TO ENTER A DATE BC, PREFIX THE YEAR WITH A MINUS SIGN.
THE ARITHMETIC IS QUITE CLEVER AND SEEMS TO MANAGE THE
LEAP YEAR IN 1900, 2000 AND 2012 CORRECTLY.

```
1000 REM CALENDARS BY KEVIN SMITH
1010 CLS:CLEAR1000:PRINT"CALENDARS":PRINT
1020 DIMM$(12):FORI=1TO12:READM$(I):NEXT
1030 DATA JAN,FEB,MAR,APR,MAY,JUN,JUL,AUG,SEP,OCT,NOV,DEC
1040 INPUT"ENTER MONTH AND YEAR";M,Y
1050 IF M<0 OR M>12 OR Y<-25000 OR Y>20000 THEN 1040
1060 I=Y:A$="AD":IFY<0THENA$="BC":I=-I:Y=Y+1
1070 CLS:PRINTTAB(11);"MONTH - ";M$(M);I;A$
1080 GOSUB1210:I=J:PRINT
1090 PRINTTAB(11);"S  M  T  W  T  F  S"
1100 M=M+1:IFM>12THENM=1:Y=Y+1
1110 GOSUB1210:N=J-I:J=I-INT(I/7)*7+1
1120 IFJ=7THENJ=0
1130 J=J*3+10:K=1
1140 IF Y<>1752 OR M<>10THEN1160
1150 PRINTTAB(J);"  1   2";:K=14:J=22:N=30
1160 FORI=KTON:PRINTTAB(J);
1170 IF I>9THENPRINTCHR$(8);
1180 PRINTI;
1190 J=J+3:IFJ>30 THEN PRINT:J=10
1200 NEXTI:PRINT:PRINT:GOTO1040
1210 K=Y+4712:J=INT(K/4)+365*K
1220 N=30.6*M-32.3
1230 IFM>2 THEN1250
1240 N=N+2.3:IFK-INT(K/4)*4=0THENJ=J-1
1250 J=J+INT(N+1)
1260 IF J<=2361221 THEN RETURN
1270 K=Y-300
1280 IF M<3 THEN K=K-1
1290 N=INT(K/100)
1300 J=J-INT(.75*N)-1:RETURN
1398 REM ORIGINALLY WRITTEN FOR THE NASCOM 2 CIRA 1983
1399 REM AMENDED FOR TRS8BIT 2012
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ONE-LINERS
FOR TRS-80 BASIC (PART 1)

BRIAN RAITER

THIS PROGRAM IS A COLLECTION OF ONE-LINERS WRITTEN BY VARIOUS AUTHORS. THAT IS, EACH SUB-PROGRAM IN THIS PROGRAM ORIGINALLY STARTED OUT AS A ONE-LINE PROGRAM. THEY HAVE BEEN COLLECTED TOGETHER INTO A SINGLE PROGRAM SO THAT YOU CAN EXPERIENCE THEM ALL FOR YOURSELF WITHOUT HAVING TO LOAD EACH ONE UP SEPARATELY.

THERE ARE A TOTAL OF 14 DIFFERENT ONE-LINERS. MOST ONE-LINERS RUN IN INFINITE (OR NEAR-INFINITE) LOOPS. A FEW OF THE PROGRAMS ORIGINALLY EXITED TO THE READY PROMPT; THOSE ARE HANDLED HERE BY LETTING THEM FALL INTO INFINITE LOOPS INSERTED BETWEEN ONE-LINERS. AT ANY TIME, YOU CAN HIT SHIFT-CLEAR TO LEAVE A ONE-LINER AND RETURN TO THE INITIAL MENU. TO EXIT THE PROGRAM, PRESS ENTER AT THE INITIAL MENU - I.E. WITHOUT PROVIDING ANY INPUT.

NOTE: IT IS RECOMMENDED THAT YOU DO NOT EXIT THE PROGRAM SIMPLY BY PRESSING BREAK. IF THIS DOES HAPPEN, YOU SHOULD PRESS SHIFT-CLEAR AND THEN ENTER TO EXIT CLEANLY BEFORE RETURNING TO THE DOS OR LOADING A NEW BASIC PROGRAM. OTHERWISE, SOONER OR LATER THE MACHINE WILL PROBABLY HANG.

ALL THE ONE-LINERS, EXCEPT FOR THE LAST TWO, WERE ORIGINALLY PUBLISHED IN SOFTSIDE MAGAZINE. THEY USUALLY APPEARED AS FILLER MATERIAL, OCCUPYING THE SPACE OF A SMALL ADVERTISEMENT. MY HIGH-SCHOOL COMPUTER PROGRAMMING TEACHER HAD A SMALL HOARD OF VARIOUS TRS-80 MAGAZINES, INCLUDING NUMEROUS SOFTSIDES, AND THIS IS HOW I FIRST BECAME ACQUAINTED WITH THE CHALLENGE OF WRITING ONE-LINERS. I IMMEDIATELY FELL IN LOVE WITH THE IDEA. (AFTER ALL, THE ONE-LINER MINDSET WAS LITTLE MORE THAN MY NORMAL PROGRAMMING MINDSET, BACK THEN, TAKEN TO ITS LOGICAL CONCLUSION.) I CAREFULLY PAGED THROUGH ALL OF MY TEACHER'S SOFTSIDES IN ORDER TO FIND ALL THE TRS-80 ONE-LINERS. INEVITABLY I EVENTUALLY DECIDED THAT I NEEDED TO COLLECT THEM ALL TOGETHER INTO A SINGLE PROGRAM.

IN ORDER TO PROVIDE A WAY TO ACCESS EACH ONE-LINER AS A SEPARATE PROGRAM, I NEEDED TO ADD TWO THINGS: A WAY FOR THE USER TO SELECT WHICH ONE-LINER TO RUN, AND A WAY TO CLEANLY EXIT A ONE-LINER WITHOUT USING BREAK, WHICH WOULD EXIT THE WHOLE PROGRAM.

THE FORMER PROBLEM WAS SOLVED WITH A SIMPLE ONE-LINER, LINE 1 OF THE PROGRAM. ALL IT DOES IS RESET SOME OF THE SHARED STATE OF THE BASIC INTERPRETER AND THEN DISPLAYS A PROMPT. IT IS NOTABLE ONLY FOR THE FACT THAT THE PROMPT IS TAILORED TO REMIND USERS OF THE OPENING PROMPT OF THE SCOTT ADAMS ADVENTURE COLLECTIONS.

THE LATTER PROBLEM WAS A BIT TRICKIER, AND I EVENTUALLY SOLVED IT BY WRITING A SHORT ASSEMBLY-LANGUAGE ROUTINE TO HOOK
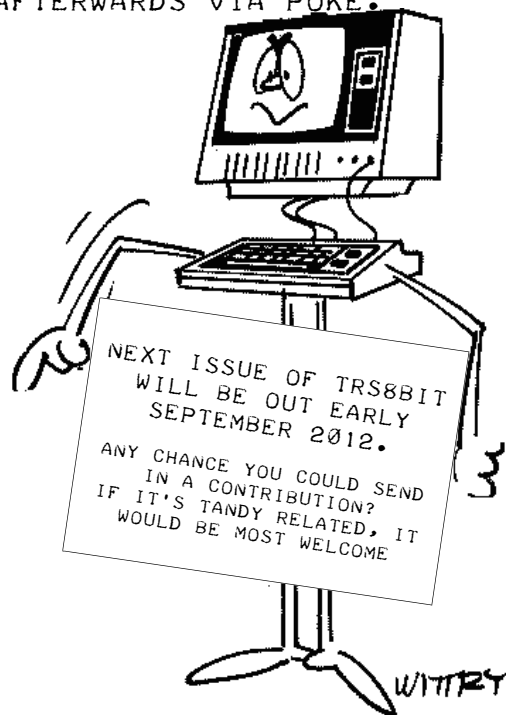
INTO THE KEYBOARD HANDLER. THE HOOK CODE SIMPLY LOOKS FOR THE SHIFT-CLEAR KEY COMBINATION, AND WHEN IT SEES IT IT FORCES THE BASIC INTERPRETER TO JUMP BACK TO LINE 1 OF THE PROGRAM. PROVIDING AND INSTALLING THE MACHINE-LANGUAGE CODE IS DONE IN LINE 0 OF THE PROGRAM. THE MACHINE-LANGUAGE BYTES ARE EMBEDDED IN A REM STATEMENT. I DIDN'T WANT TO USE THE STANDARD USR INTERFACE FOR INVOKING THE CODE, HOWEVER, OUT OF CONCERN THAT IT MIGHT SOMEHOW INTERFERE WITH A FUTURE ONE-LINER, SO INSTEAD I HIJACKED THE LITTLE-USED NAME COMMAND. IF YOU'RE CURIOUS TO UNDERSTAND HOW IT WORKS, I'VE INCLUDED A DETAILED EXPLANATION AT THE END OF THE PAGE.

HERE IS A LIST OF THE AVAILABLE ONE-LINERS:

1) A ONE-LINE ADVENTURE GAME [AUTHOR: PHILLIP CASE]
2) INSTALLING AND RUNNING AN ASSEMBLY PROGRAM
3) A PERSONALIZED CHRISTMAS GREETING
4) USING CONTROL CHARACTERS TO MAKE HIDDEN MESSAGES
5) A ONE-LINE DODGING GAME
6) LUNAR LANDER (ENTER YOUR X-VELOCITY AT START)
7) SYMMETRICAL LINE PATTERNS (PRESS R TO CLEAR SCREEN)
8) ANOTHER FORAY INTO TRS-80 ART IN ONE LINE
9) A ONE-LINE DRIVING GAME
A) RANDOM KALEIDOSCOPE PATTERNS
B) SIMPLE SHOOTING GALLERY (USE SPACE TO FIRE)
C) AN EXCURSION IN NON-ORTHOGONAL RANDOM LINES
D) GUESS MY NUMBER [AUTHORS: BRIAN RAITER, REX WHEELER]
E) A HEX-TO-DECIMAL CONVERTER [AUTHOR: BRIAN RAITER]

(MY PERSONAL FAVORITES ARE NUMBERS 1, 6, AND 7.)

THE FOLLOWING IS A LISTING, OR REALLY A REPRESENTATION OF THE LISTING, OF THE COMPLETE PROGRAM. IT IS PROVIDED FOR REFERENCE ONLY; IT'S MUCH LESS EFFORT TO USE THE PROVIDED LINK AT THE TOP OF THE PAGE TO OBTAIN A USABLE COPY OF THE PROGRAM. MANUALLY ENTERING ONE-LINERS IS OFTEN NOT A STRAIGHTFORWARD MATTER: THE INTERPRETER WOULD ONLY ACCEPT 255 BYTES IN A SINGLE LINE OF BASIC, SO ONE HAD TO OCCASIONALLY OMIT THE LAST FEW CHARACTERS WHEN ENTERING A LINE, AND THEN ADD THE REST USING THE EDIT COMMAND AFTER THE INTERPRETER HAD HAD A CHANCE TO PARSE THE INPUT. (EDIT WAS ALSO USED TO EMBED LINE BREAKS AND OTHER SPECIAL CHARACTERS IN STRING LITERALS.) AND OF COURSE, THE BYTES OF THE MACHINE-LANGUAGE ROUTINE IN LINE 0 HAD TO BE CREATED BY ENTERING FILLER CHARACTERS AND THEN MODIFYING THEM AFTERWARDS VIA POKE.

NEXT ISSUE OF TRS8BIT WILL BE OUT EARLY SEPTEMBER 2012.

ANY CHANCE YOU COULD SEND IN A CONTRIBUTION? IF IT'S TANDY RELATED, IT WOULD BE MOST WELCOME

```
0 B=PEEK(16548)+256*PEEK(16549)+124:FORX=0TO2:POKEB+79+X*2,PEEK(
16782+X):NEXT:POKE16782,195:POKE16783,BAND255:POKE16784,B/256:NA
ME:REM * One-liner key hook
SQR*GET@EDITSQR MKS$K@SQRqSQRpSQR"@ SQR SQR"IFAINKEY$+?■

1 CLEAR50:CLS:RANDOM:POKE16412,0:POKE16419,95:LINEINPUT"Press SH
IFT-CLEAR to return to the menu.
Which One-liner? (1-Z) ";L1$:IFL1$="",NAME:ENDELSEONASC(L1$)-48G
OTO2,4,5,6,8,9,11,12,13,1,1,1,1,1,1,1,15,16,17,18,19:GOTO1:REM *
 One-liner menu

2 CLS:PRINT"Adventure
Visible Items: Trees
Obvious Exits: EAST WEST
"STRING$(30,45):INPUT"Tell me";A$:IFA$<>"E",2ELSEPRINT@0,"I'm in
 a cave."@79,"Nothing";:PRINT@143,"None",;:PRINT@263,"";:INPUTA$
:IFASC(A$)=72ANDMID$(A$,4)="P",PRINT"You win!!"ELSE2

4 CLEAR22:A$=STRING$(22,32):J=VARPTR(A$):I=PEEK(J+1)+256*PEEK(J+
2):I=I+65536*(I)32767):FORK=ITOI+21:READZ:POKEK,Z:NEXT:DEFUSR=I:
FORX=1TO2:POKEI+10,RND(63)+128:L=USR(0):X=1:NEXT:DATA33,0,60,17,
1,60,1,255,3,54,0,237,176,6,5,33,0,0,43,124,181,201

5 INPUT"ENTER YOUR NAME";A$:A$=A$+" ":L=LEN(A$):P=30:CLS:PRINT@P
+1,"**":FORI=1TOL:PRINT@P-I+64*I,"* ";:PRINTMID$(A$,1,I);:PRINTM
ID$(A$,1,I)+" *":NEXT:PRINTTAB(P)"MERRY":PRINTTAB(P);"XMAS!":FOR
T=1TO5000:NEXT:PRINTTAB(P-11)"FROM SOFTSIDE PUBLICATIONS":RUN5

6 CLEAR999:CLS:PRINT"M A G I C   C O D E":PRINT"E N T E R   M S
G":INPUTA$:PRINTCHR$(28):PRINTCHR$(31):X=LEN(A$):FORY=1TOX:B$=B$
+MID$(A$,Y,1):C$=CHR$(RND(58)+31):B$=B$+C$:NEXT:PRINT"E N T E R"
:INPUTD$:PRINTB$:PRINT:PRINT"E N T E R":INPUTD$:PRINTCHR$(23)

8 P=28:C$="V":FORT=1TO9E9:Q=RND(12):IFT/4=INT(T/4)PRINT@916+Q,"O
":NEXTELSEA$="I             I":PRINT@P,C$@980,A$@1023,:IFPEEK(154
24+P)=79ORP>32ORP<21PRINT@P,"BOOM";:FORW=1TO9:NEXT:RUN8ELSEK=PEE
K(14400):IFK=32P=P-1:NEXTELSEIFK=64P=P+1:NEXTELSENEXT
```

```
9 INPUTH:CLS:G=42:FORT=0TO127:G=G+RND(3+(G=47))-2:FORD=GTO47:SET
(T,D):NEXTD,T:FORF=0TO99-H*5:P=PEEK(14400):H=H+(P=32)/2-(P=64)/2
:V=V+.25+(P=8)/2:RESET(X,Y):X=X+H:Y=Y+V:IFPOINT(X,Y)IFV>1ORHRESE
T(X,Y):RUN9ELSESET(X,Y-1):PRINT@349,"Landed"ELSESET(X,Y):NEXT

11 CLS:DEFINTA-Z:RANDOM:X=32:Y=12:FORK=1TO2STEP0:IFINKEY$="R"THE
N11ELSEL=RND(25):XD=RND(3)-2:YD=RND(3)-2:FORA=1TOL:SET(X,Y):SET(
127-X,Y):SET(127-X,47-Y):SET(X,47-Y):X=X+XD:Y=Y+YD:X=X-128*INT(X
/128):Y=Y-48*INT(Y/48):NEXTA,K:REM "R"=RESTART

12 CLS:PRINT@402,"C O M P U T E R   A R T  ! !":PRINT:DEFINTA-Z:R
ANDOM:FORT=1TO1000:NEXTT:CLS:FORT=1TO10:A=RND(62)-1:B=RND(62)+61
:C=RND(22)-1:D=RND(22)+21:FORX=ATOB:SET(X,D):SET(X,C):NEXTX:FORY
=CTOD:SET(B,Y):SET(A,Y):NEXTY,T:FORT=1TO3000:NEXTT:GOTO12

13 CLS:J=27:P=15391:FORM=1TO9E9:T=RND(99):FORL=RND(T)TOTSTEPRND(
9)/9:J=50-ABS(ABS(J+SIN(L))-50):A=PEEK(14400)/32:P=P-((AAND1)-(A
/2AND1))*(PEEK(14464)+1):PRINTTAB(J)"!!!   .   !!!":IFPEEK(P)=33
PRINT"SCORE:"SELSEPOKEP,191:S=S+1:NEXTL,M

15 CLS:PRINT"Hit space bar to see a new pattern":FORX=1TO700:NEX
TX:FORT=1TO5000:CLS:FORZ=1TO1160:X=RND(64)-1:Y=RND(24)-1:SET(X,Y
):SET(X,47-Y):SET(127-X,47-Y):SET(127-X,Y):IFINKEY$=""THENNEXTZ,
T:GOTO15ELSENEXTT:GOTO15

16 CLS:CLEAR99:C=RND(62)+33:PRINTSTRING$(63,C):FORX=0TO1E9:IFINK
EY$="",NEXTELSEFORH=0TO1E9:R=RND(63)-1:IFPEEK(15360+R)<>C,NEXTEL
SEFORL=960+RTORSTEP-64:PRINT@L,"!";:PRINT@L," ";:NEXT:FORL=0TO9:
PRINT@R,CHR$(RND(159)+32);:NEXT:PRINT@R," ";:NEXTXELSENEXTX

17 CLS:DEFINTA-Z:X=RND(127):Y=RND(47):FORA=0TO10+RND(60):I=RND(7
)-4:J=RND(5)-3:FORB=0TORND(30):SET(X,Y):I=I+2*I*((I+X)>127)OR(I+X
<0)):X=X+I:J=J+J*2*((J+Y)>47)OR(J+Y<0)):Y=Y+J:NEXT:NEXT:FORI=0TO9
99:NEXT:RUN17
```

```
18 CLS:RANDOM:A=1:B=1E3:Q=RND(1E3):FORX=1TO8E9:PRINTA"-"B:INPUT"
 Guess";C:IFC<AORC>B,X=X-1:NEXTELSEIFC<QPRINT"Too low":A=C+1:NEX
TELSEIFC>QPRINT"Too high":B=C-1:NEXTELSEPRINTC"is right!!
 It took you"X"tries.
":X=9E9:NEXT:FORX=0TO0:X=INKEY$="":NEXT:RUN18

19 PRINT"Hex: --"STRING$(2,24);:FORA=1TO0STEP-1:FORQ=0TO0:A$=INK
EY$:Q=A$="":NEXT:B(A)=ASC(A$):IFB(A)>47ANDB(A)<580RB(A)>64ANDB(A
)<71THENPRINTCHR$(B(A));:NEXT:FORA=0TO1:H=H+((-B(A)+55)*(B(A)>64
)+VAL(CHR$(B(A))))*16↑A:NEXT:PRINT"
Dec"H:RUN19ELSEA=A+1:NEXT
```

**ONCE AGAIN, TO BE CLEAR: I AM NOT THE AUTHOR OF THE
MAJORITY OF THESE PROGRAM.**
I AM MERELY THE ANTHOLOGIST.
THE ORIGINAL AUTHORS AND/OR COPYRIGHT HOLDERS CONTINUE TO
OWN AND RESERVE ALL RIGHTS TO THIS CODE. BEING THE CALLOW
YOUTH THAT I WAS AT THE TIME, I NEGLECTED TO WRITE DOWN THE
AUTHORS' NAMES (THOUGH I THINK SOFTSIDE ALSO OFTEN
NEGLECTED TO PROVIDE THEM).
IN ANY CASE, I WELCOME INFORMATION FROM ANYONE WHO CAN
INDICATE WHERE CREDIT IS DUE.

PLEASE CONTACT ME AT **BREADBOX@MUPPETLABS.COM.**

APPENDIX: HOW LINE 0 WORKS

THE BASIC PART OF LINE 0 IS STRAIGHTFORWARD. THE FIRST
STATEMENT:

B=PEEK(16548)+256*PEEK(16549)+124
INITIALIZES B WITH THE ADDRESS OF THE BASIC PROGRAM, PLUS
124 BYTES, WHICH IS THE OFFSET OF THE MACHINE-LANGUAGE
ROUTINE WITHIN THE REM. NEXT COMES A SHORT LOOP:
FORX=0TO2:POKEB+79+X*2,PEEK(16782+X):NEXT
WHICH COPIES THE EXISTING NAME VECTOR TO A SAFE PLACE
INSIDE THE MACHINE-LANGUAGE ROUTINES (IN THE BYTES
CONTAINING QUESTION MARKS BELOW). ONCE THESE BYTES HAVE
BEEN SAVED, THE PROGRAM CAN THEN REPLACE THEM:
POKE16782,195:POKE16783,BAND255:POKE16784,B/256
WITH A VECTOR THAT JUMPS TO THE MACHINE-LANGUAGE ROUTINE.
WITH THIS IN PLACE, THE BASIC PROGRAM CAN THEN USE THE
STATEMENT: 'NAME' TO JUMP TO THE MACHINE-LANGUAGE ROUTINE.

THE MACHINE-LANGUAGE CODE, BESIDES BEING NECESSARY TO HOOK
THE KEYBOARD, ALSO ALLOWS MUCH MORE FUNCTIONALITY TO BE
PACKED INTO A SMALL NUMBER OF BYTES. TURNING TO THE
ORIGINAL ASSEMBLY, THE MACHINE LANGUAGE ROUTINE AT OFFSET
124 (007CH) FROM THE START OF THE BASIC PROGRAM IS AS
FOLLOWS:

```
                          ; THE HOOK INSTALLER ROUTINE
007C   DD2AA440   SETUP:   LD    IX,(40A4H)      ; IX=LINE 0 POS
0080   119D01              LD    DE,0100H+HOOK   ; DE=OFFSET OF
0083   15                  DEC   D               ;   HOOK RTN
0084   DD19                ADD   X,DE            ; ADVANCE IX
0086   ED4B1640            LD    BC,(4016H)      ; BC=KEYBD RTN
008A   DD7101              LD    (IX+1),C        ; STORE IN CALL
008D   DD7002              LD    (IX+2),B        ; INSTRUCTION
0090   DD221640            LD    (4016H),IX      ; REPLACE W/IX
0094   1E19                LD    E,REMOVE-HOOK   ; CHANGE NAME
0096   DD19                ADD   IX,DE           ; VECTOR TO
0098   DD228F41            LD    (418FH),IX      ; REMOVE RTN
009C   C9                  RET                   ; SETUP IS DONE
```

4016H CONTAINS THE ADDRESS OF THE CURRENT KEYBOARD HANDLING
ROUTINE. THE SETUP ROUTINE RETRIEVES THAT ADDRESS AND
STORES IT INSIDE THE HOOK ROUTINE, WHICH IMMEDIATELY
FOLLOWS THIS ONE. IT THEN REPLACES THAT VALUE WITH THE
ADDRESS OF THE START OF THE HOOK ROUTINE, THUS INSTALLING
THE KEYBOARD HOOK. IT ALSO MODIFIES THE VALUE OF THE NAME
VECTOR, SO THAT INSTEAD OF POINTING TO THIS ROUTINE, IT
WILL POINT TO REMOVE (DESCRIBED BELOW). AFTER THIS, A
SUBSEQUENT NAME STATEMENT WILL CALL REMOVE INSTEAD OF
SETUP.

THE KEYBOARD HOOK ROUTINE IS AS FOLLOWS:

```
                          ; THE KEYBOARD HOOK
009D   CD3F3F     HOOK:    CALL  3F3FH           ; KEYBD HANDLER
00A0   FE1F                CP    31              ; CLEAR KEY?
00A2   C0                  RET   NZ              ; NO, LET PASS
00A3   3A8038              LD    A,(3880H)       ; A SHIFT KEY
00A6   B7                  OR    A               ;   PRESSED?
00A7   3E1F                LD    A,31            ; (RESTORE ACC)
00A9   C8                  RET   Z               ; NO, LET PASS
00AA   E1                  POP   HL              ; YES, GRAB IT
00AB   2AA440              LD    HL,(40A4H)      ; HL=LINE 0 POS
00AE   01D801              LD    BC,0100H+NEXT   ; ADVANCE HL TO
00B1   05                  DEC   B               ;   NEXT LINE
00B2   09                  ADD   HL,BC           ;   OF PROGRAM
00B3   C31E1D              JP    1D1EH           ; BACK TO BASIC
```

THE ADDRESS OF THE ORIGINAL KEYBOARD ROUTINE IS STORED AS
PART OF THE CALL INSTRUCTION AT TOP, REPLACING THE ORIGINAL
VALUE OF 3F3FH (OR "??" IN ASCII). THUS THE HOOK ROUTINE
FIRST INVOKES THE NORMAL KEYBOARD HANDLER. WHEN IT RETURNS,
THE ACCUMULATOR HOLDS THE DECODED CHARACTER. ASCII 31
REPRESENTS THE CLEAR KEY, SO IF THE ACCUMULATOR HOLDS SOME
OTHER VALUE, THE ROUTINE RETURNS DIRECTLY. OTHERWISE THE
BYTE AT 3880H IS EXAMINED, AND IF IT IS NONZERO THEN A
SHIFT KEY IS CURRENTLY DOWN. IF SO, THE HL REGISTER IS
ALTERED TO POINT TO THE SECOND LINE OF THE CURRENT BASIC
PROGRAM, AND THE HOOK ROUTINE JUMPS DIRECTLY BACK TO THE
BASIC INTERPRETER INSTEAD OF RETURNING.

FINALLY, THE REMOVE ROUTINE, INVOKED WHEN A SECOND NAME
STATEMENT IS ENCOUNTERED, IS AS FOLLOWS:

```
                    ; THE HOOK UNINSTALLER ROUTINE
00B6   DD2AA440   REMOVE:  LD   IX,(40A4H)       ; IX=LINE 0 POS
00BA   119D01              LD   DE,0100H+HOOK    ; DE=OFFSET OF
00BD   15                  DEC  D                ; HOOK RTN
00BE   DD19                ADD  IX,DE            ; ADVANCE IX
00C0   DD5E01              LD   E,(IX+1)         ; GET ORIGINAL
00C3   DD5602              LD   D,(IX+2)         ; KEYBD RTN
00C6   ED531640            LD   (4016H),DE       ; RESTORE IT
00CA   3E3F                LD   A,'?'            ; RESTORE THE
00CC   1E3F                LD   E,'?'            ; ORIGINAL
00CE   163F                LD   D,'?'            ; NAME VECTOR
00D0   328E41              LD   (418EH),A        ; PUT HERE BY
00D3   ED538F41            LD   (418FH),DE       ; BASIC PROG
00D7   C9                  RET                   ; WE'RE DONE
                    NEXT:
```

THIS ROUTINE SIMPLY RESTORES THE VALUES THAT 4016H AND
418EH ORIGINALLY HAD. THE ORIGINAL VALUE FOR 4016H IS
STORED AS PART OF THE CALL INSTRUCTION AT THE TOP OF THE
HOOK ROUTINE, WHILE THE ORIGINAL VECTOR VALUE FOR 418EH WAS
STORED INSIDE THIS ROUTINE DIRECTLY, REPLACING THE ASCII
QUESTION MARK BYTES, AS PART OF THE SETUP ROUTINE. THIS
ROUTINE IS INVOKED IN LINE 1 OF THE BASIC PROGRAM, IN THE
CASE WHEN THE USER INPUTS AN EMPTY STRING, JUST BEFORE THE
FINAL END STATEMENT.

BRIAN RAITER
MUPPETLABS

ONE-LINERS
FOR TRS-80 BASIC (PART 2)

BRIAN RAITER

DUSTY

OKAY, SO I WROTE A VERY SIMPLE ONE-LINER THIS WEEK. UNFORTUNATELY, MY TRS-80 EMULATOR DOESN'T DO TIMING ADJUSTMENT PROPERLY, SO EVERYTHING RUNS AT 21ST-CENTURY SPEEDS. AS A RESULT I'VE NO IDEA HOW IT LOOKS ON AN ACTUAL MACHINE. NONETHELESS, HERE IT IS:

```
0 TWIRL
1 DIMP(112):F=3:FORZ=0TO1STEP
0:F=F+.03:FORT=0TO6:M(T)=TAN(
T*.448799+F):NEXT:N=0:FORY=0
TO15:FORT=0TO6:X=3*(Y-8)/M(T)
+32:P(N)=Y*64+X:N=N-(X>=0ANDX
<63):NEXT:NEXT:CLS:FORK=0TON-
1:PRINT@P(K),".";:NEXT:NEXT
```

(I'VE ALSO PLACED IT WITH THE FEATURED NEW ONES - DUSTY)

IF IT MOVES TOO SLOWLY, YOU COULD PROBABLY IMPROVE ITS APPEARANCE BY BUMPING UP THE INCREMENT VALUE AT F=F+.03. IF IT'S TOO FLICKERY, HOWEVER, THAT PROBABLY CAN'T BE FIXED WITHOUT A MAJOR REWRITE. (I HAD AN ALTERNATE VERSION THAT DID THE REDRAW WITHOUT USING CLS, BUT MY BENCHMARK SUGGESTED THAT IT WAS A LOT SLOWER, AND IT WAS BUGGY TO BOOT.) ANYWAY, FEEL FREE TO USE IT OR NOT.

MORE INTERESTING, PERHAPS, IS THAT WHILE WORKING ON THIS, I HAD TO GO POKING THROUGH SOME OF MY OLD SOFTWARE, AND I CHANCED UPON A LISTING OF SEVERAL MORE ONE-LINERS. IT'S WEIRD, BECAUSE I DON'T REMEMBER SEEING THESE BEFORE. OF COURSE, IT'S BEEN OVER 25 YEARS SINCE I HAD A WORKING TRS-80, SO THE FACT THAT I DON'T REMEMBER THEM MAY NOT BE PARTICULARLY SIGNIFICANT. BUT I HAVE ABSOLUTELY NO IDEA WHERE THEY CAME FROM. THE LABELS AT THE BOTTOM ARE MINE, BUT THE PROGRAMS THEMSELVES...? THEY MIGHT BE MORE SOFTSIDE ONE-LINERS, BUT THEN WHY DIDN'T I ADD THEM TO MY PROGRAM? I MEAN, I SPENT HOURS LOOKING THROUGH THOSE MAGAZINES AS A KID, TRYING TO FIND MORE ONE-LINERS FOR MY COLLECTION. ON THE OTHER HAND, I DON'T REMEMBER EVER FINDING ANOTHER OTHER SOURCE OF ONE-LINERS. HECK, FOR ALL I KNOW I WROTE THEM ALL MYSELF. (I DOUBT THAT, THOUGH; I REMEMBER WHAT MY TRS-80 PROGRAMMING STYLE LOOKED LIKE, AND NONE OF THESE REALLY MATCH THAT.)

HERE'S THE LISTING, MORE OR LESS AS I FOUND IT ON MY HARD DRIVE:

```
1 A$=INKEY$:IFA$=""THEN1 ELSEZ=ASC(A$):Z=32*((Z>96)-(Z>64 ANDZ<9
1))+Z:PRINTCHR$(Z);:LPRINTCHR$(Z);:GOTO1

2 RANDOM:DEFINTA-Z:CLS:FORI=1TO10:R=RND(20)+2:FORA=-RTOR:X=R*R-A
*A:Y=INT(SQR(X)-.5):SET(2*A+60,23+Y):SET(2*A+60,23-Y):NEXT:NEXT:
FORI=1TO999:NEXT:RUN2

3 RANDOM:IFG=0CLS:G=1:GOTO3ELSEF=47:X=RND(64):Y=RND(F):K=127:FOR
I=TOY:IFINKEY$=" "THENRUN3ELSEX=-(X
         ** THIS ONE SEEMS TO BE INCOMPLETE **
```

```
4 CLEAR999:RANDOM:DEFSTRA:DEFINTB-Z:X=7:FORJ=0TO9999:A="":FORI=1
TO4:A=A+CHR$(RND(63)+128):NEXT:A=CHR$(174)+A+A+A+A+A+A+A+A+A+A
+A+CHR$(157):Y=X+(RND(3)-2):IFY<0ORY>13PRINT@960+X,A:NEXT:RUN4EL
SEX=Y:PRINT@960+X,A:NEXT:RUN4

5 CLEAR999:DEFSTRA-Z:A=STRING$(12,191):B=STRING$(12,24):C=CHR$(2
6):D=STRING$(3,191):E=" ":F=A+C+B+D+E+D+C+B+D+E+D+C+B+A:CLS:PRIN
T@(RND(52)-1)+(RND(12)-1)*64,F;:GOTO5

6 CLS:CLEAR99:DEFINTA-Z:DIMZ(32):RANDOM:W=15360:V=16320:X(1)=179
:X(2)=128:X(3)=191:X(4)=140:FORJ=1TO8:X=RND(4):FORI=0TO31:Z(I)=X
(RND(X)):NEXT:FORI=0TO31:POKEW+I,Z(I):POKEV+I,Z(I):POKEW+63-I,Z(
I):POKEV+63-I,Z(I):NEXT:W=W+64:V=V-64:NEXT:FORI=1TO2999:NEXT:RUN6

7 CLEAR184:CLS:S=RND(7):P=9:L=15:DEFSTRA-K:G=CHR$(191):D=CHR$(24
)+CHR$(26):E=G+D:F=E+E+E:FORZ=1TO7:A=STRING$(L*3,131):B=STRING$(
L*3,176):L=L-2:C="":FORX=1TOL:C=C+E:NEXT:C=C+G:PRINT@P,C;B;:PRIN
T@P,A;C;:PRINT@P,G;:P=P+63+S:NEXT:FORY=1TO999:NEXT:GOTO7

8 RANDOM:DEFINTA-Z:FORI=15360TO16383:POKEI,128:NEXT:FORI=1TO10:R
=RND(20)+2:FORA=-RTOR:X=R*R-A*A:Y=INT(SQR(X)-.5):SET(2*A+60,23+Y
):SET(2*A+60,23-Y):NEXT:NEXT:FORI=1TO999:NEXT:FORI=1TO2:FORJ=153
60TO16383:X=PEEK(J):POKEJ,(NOTX)+64AND255:NEXT:NEXT:RUN8
```

```
10 REM LIST OF PROGRAMS
11 REM 1: LINE PRINTER
12 REM 2: RANDOM CIRCLES
13 REM 3: INVERTING
         KALEIDOSCOPE
14 REM 4: WAVING TAPESTRY
15 REM 5: JUMPING SQUARE
16 REM 6: ANOTHER
         KALEIDOSCOPE
17 REM 7: HALLWAY EFFECT
18 REM 8: RANDOM FLASHING
         CIRCLES
```

I'M ONCE AGAIN FRUSTRATED
THAT I CAN'T GIVE YOU PROPER
PROVENANCE FOR THESE
PROGRAMS ... BUT AGAIN, FEEL
FREE TO MAKE USE OF THEM AS
YOU SEE FIT.

BRIAN

Twirl

```
1 DIMP(112):F=3:FORZ=0TO1STEP0:F=F+.03:FORT=0TO6:M(T)=TAN(T*.448
799+F):NEXT:N=0:FORY=0TO15:FORT=0TO6:X=3*(Y-8)/M(T)+32:P(N)=Y*64
+X:N=N-(X)=0ANDX<63):NEXT:NEXT:CLS:FORK=0TON-1:PRINT@P(K),".";:N
EXT:NEXT
```

HI DUSTY, I USE THIS ONE-LINE PROGRAM ALL THE TIME ON MODEL 1'S. IT SAVES YOU FROM OPENING UP THE COMPUTER TO DETERMINE IF IT HAS LOWERCASE OR NOT, AND WHICH TYPE OF LOWERCASE MOD IS FITTED.
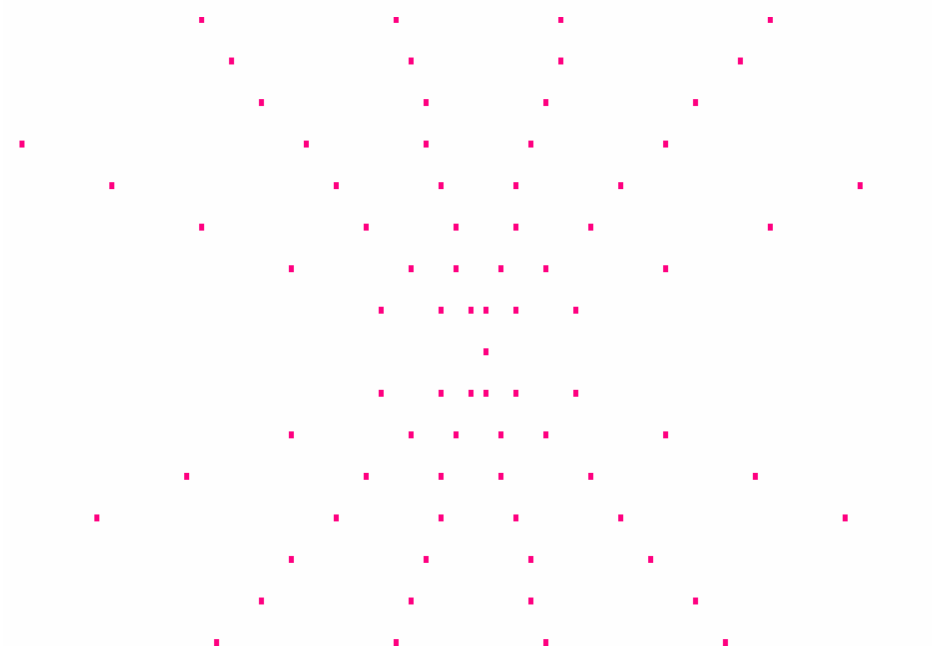
WHAT IT DOES IS PRINTS THE COMPLETE CHARACTER SET ON THE SCREEN WITHOUT NEEDING TO LOAD A LOWER CASE DRIVER FROM TAPE:

WHEN YOU RUN THE PROGRAM YOU CAN DETERMINE WHICH CHARACTER GENERATOR AND LOWERCASE MOD (IF FITTED) IS INSTALLED:

1. ALL CAPITALS = NO LOWERCASE MODIFICATION INSTALLED

2. UPPER/LOWER CASE WITH ONE-PIXEL DECENDERS: RADIO SHACK LOWER CASE WITH 6673 CHARACTER GENERATOR

3. UPPER/LOWER CASE WITH NO DESCENDERS AND FLYING 'A': DB KITSZ LOWERCASE MOD UTILISING THE ORIGINAL CHARACTER GENERATOR 3001

4. UPPER/LOWER CASE WITH NO DESCENDERS WITH NORMAL 'A': DB KITSZ LOWERCASE MOD UTILISING THE 6670 CHARACTER GENERATOR

5. UPPER/LOWER CASE WITH 3-PIXEL DESCENDERS: DON MCKENZIE LOWERCASE MOD UTILISING AN EPROM WITH NEW CHARACTER SET IN IT

MAV.

·-----

```
10 CLS:FORT=32TO255:POKET+15360,T:NEXT:PRINT@500," "
```

!"#$%&'()*+,-./0123456789:;<=>?

@ABCDEFGHIJKLMNOPQRSTUVWXYZ↑↓←→_'abcdefghijklmnopqrstuvwxyz{|}~▓

One-liner CHESS ?

HERE'S A ONE-LINER TO ALLOW 2 PLAYERS
TO USES THEIR TANDY AS A CHESS BOARD.
(I CAME ACROSS THIS AS A MULTI-LINE
PROGRAM FOR, I THINK, THE SPECTRUM,
BY GRAHAM CHARLTON).
JUST ENTER YOUR MOVE, VIZ. E2E4 AND
PRESS ENTER. THE BOARD WILL BE
REDRAWN AND YOUR MOVE SHOWN.
I'VE HAD TO 'CHEAT' JUST A LITTLE BIT
AS LINE 1 IS NEEDED TO SETUP THE
BASIC BOARD. UPPER AND LOWER CASE,
DUE TO THE LACK OF SUITABLE GRAPHIC
CHARACTERS, DEFINE WHITE AND BLACK.
ALSO, THE KNIGHTS ARE SHOWN AS 'N'
BECAUSE THEY CLASH WITH THE 'K' OF
KING!
THERE'S NO PROVISION TO ALLOW YOU TO
'CASTLE' OR FOR 'QUEENING'

```
  ABCDEFGH
1 RNBKQBNR 1
2 PPP  PPP 2
3      P   3
4     P    4
5     p    5
6    n     6
7 ppp pppp 7
8 r bkqbnr 8
  ABCDEFGH
?
```

```
1 CLEAR500:A$="     ABCDEFGH":B$="RNBKQBNRPPPPPPPP"+STRING$(32,"
")+"pppppppprnbkqbnr"
2 FORY=0TO1STEP0:PRINTA$:FORZ=1TO8:PRINTZ;" ";MID$(B$,(Z*8-7),8)
;Z:NEXT:PRINTA$:INPUTM$:A=ASC(M$)-64:B=VAL(MID$(M$,2,1)):C=ASC(M
ID$(M$,3,1))-64:D=VAL(MID$(M$,4,1)):E=(B-1)*8+A:F=(D-1)*8+C:MID$
(B$,F,1)=MID$(B$,E,1):MID$(B$,E,1)=" ":NEXTY
```

Snail Run

WHO SAID ONE-LINERS AREN'T MUCH USE FOR ANYTHING?
HERE'S A ONE-LINER WHICH IS GREAT FOR 'WINNING' SMARTIES
FROM YOUR GRAND KIDS, IF NOTHING ELSE. JUST GET 'EM
BETTING ON WHICH 'SNAIL' WILL WIN!

JUST REMEMBER WHEN TYPING IT IN, THAT THE 'NEW LINES'
WITHIN THE PRINT STATEMENTS ARE DOWN ARROWS AND NOT THE
'ENTER' KEY. JUST TYPE RUN EACH TIME YOU WANT TO PLAY.

ON THE SCREEN PRINT BELOW, WOULD YOU PUT YOUR SHIRT ON
SNAIL NUMBER 2?

```
5 RANDOM:CLS:PRINT"
```
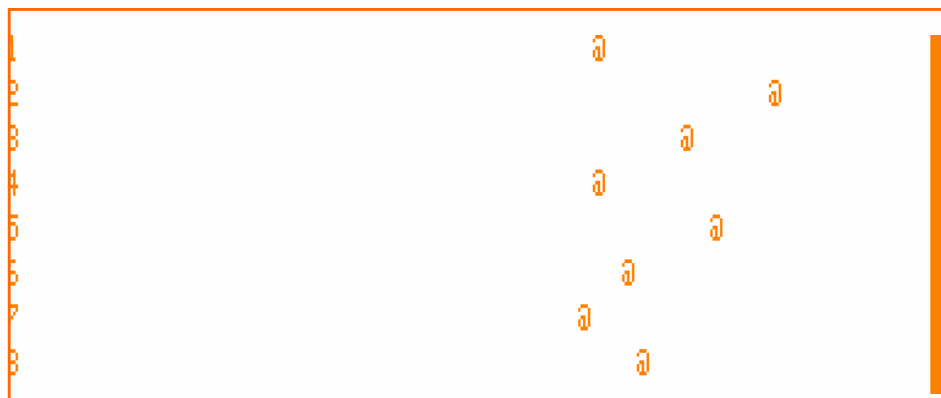


```
8 @";:FORX=1TO8:P(X)=X*64+15425:POKEX*64+15487,191:NEXT:FORZ=0TO
1STEP0:A=RND(8):P(A)=P(A)+1:POKEP(A)-1,32:POKEP(A),64:IFPEEK(P(A
)+1)=191THENPRINT"
WINNER IS NO.";AELSENEXT
```

Circles -

AGAIN, THIS IS STRAIGHT FORWARD. TYPE IT IN AND JUST ENTER 'RUN'. A SAMPLE SCREEN PRINT IS SHOWN BELOW.

```
10 CLS:Y=RND(23):X=RND(99):Z=RND(23):P=3.14159:FORA=0TO1STEP0:FO
RB=0TO2*PSTEPP/X:I=63+Y*(2.6667*SIN(B)):IFI<0THENRUNELSEN=23+Y*C
OS(B):IFN<0THENRUNELSESET(I,N):NEXT:Y=Y-1-Z:NEXT:NEXT
```

Mirror images -
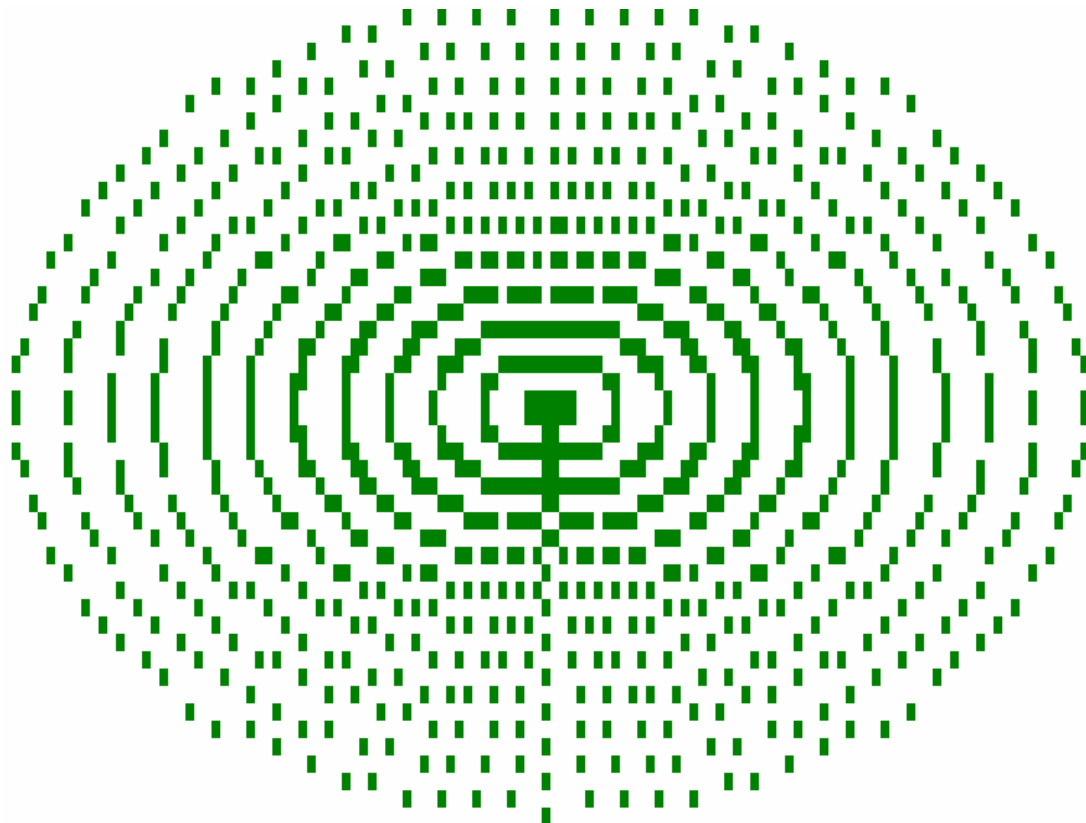
HERE'S ONE THAT'S JUST AS THE TITLE SUGGESTS. I'LL BET IT
COULD BE MOST IMPRESSIVE WITH HIRES GRAPHICS.
NOW THERE'S A THOUGHT ...

```
0 CLS:FORL=0TO1STEP0:A=RND(3):X=RND(62)-1:X1=62+(62-X)-1:Y=RND(2
4)-1:Y1=24+(24-Y)-1:IFA=1THENSET(X,Y):SET(X1,Y1):SET(X,Y1):SET(X
1,Y):NEXTLELSERESET(X,Y):RESET(X1,Y1):RESET(X,Y1):RESET(X1,Y):NE
XTL
```

Sequencies -
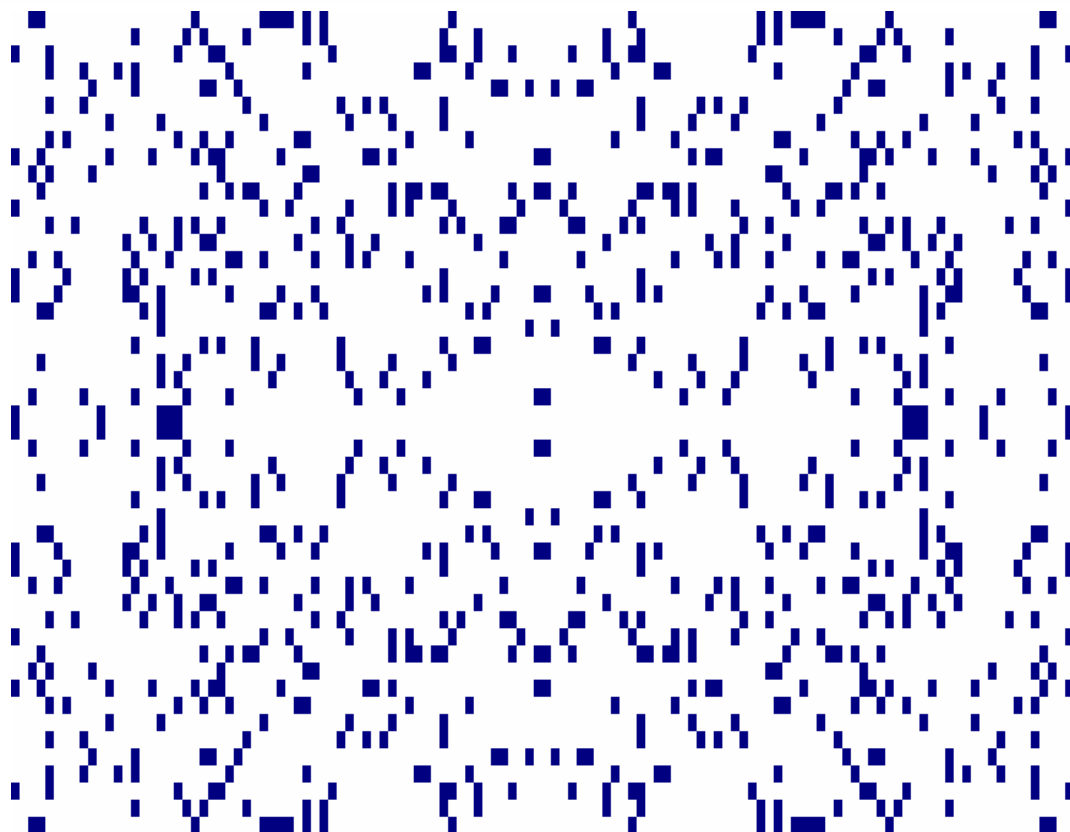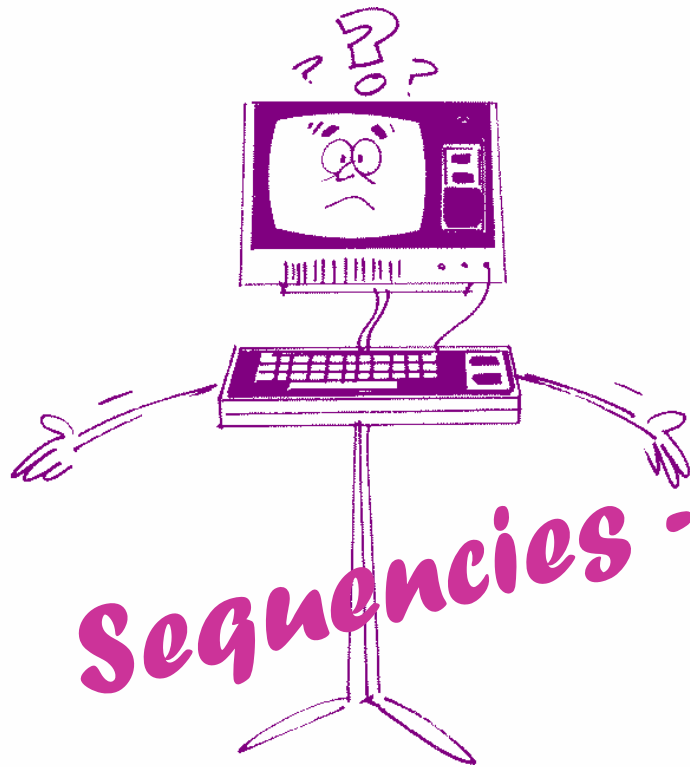
HI DUSTY, HERE'S A LITTLE ONE-LINER FOR THE NEXT EDITION
OF TRS8BIT. IT TRIES TO GUESS THE SEQUENCE OF A GROUP OF
NUMBERS WHICH YOU ENTER. THE FIBINACCHI SERIES CATCHES IT
OUT BUT FOR A ONE-LINER, I THINK IT MANAGES TO HIT THE
SPOT.
KEEP UP THE GOOD WORK WITH TRS8BIT!

KIND REGARDS
E.T. FONEHUME

```
1 CLS:PRINT:PRINT:PRINT"ENTER 5 NUMBERS IN SEQUENCE & I'LL TRY A
ND GUESS THE NEXT NUMBER":FORZ=1TO5:INPUTX(Z):NEXT:X(6)=(X(1)*-2
)+(X(2)*5)+(X(3)*-2)+(X(4)*-4)+(X(5)*4):PRINT"NEXT NUMBER IS ";X
(6)
```

ENTER 5 NUMBERS IN SEQUENCE & I'LL TRY AND GUESS THE NEXT NUMBER

? 4
? 9
? 16
? 25
? 36
NEXT NUMBER IS 49

A piece of pi ?

(I PREFER CUSTARD ON MINE!)

HERE'S A ONE-LINER THAT DIVIDES ONE NUMBER BY ANOTHER. FOR INSTANCE, TO TRY PI, JUST TYPE 22,7 AND PRESS ENTER. IT SOON REPEATS ON ITSELF, (LIKE ALL GOOD PIES!), SO TRY 21.9999,6.9999. AND OFF IT GOES, NO NEED TO WORRY ABOUT SCREEN BURN EH! 99991,99989 IS ANOTHER GOOD ONE TOO!

```
1 CLS:INPUTX,Y:Z=INT(X/Y):PRINTZ;".";:FORW=0TO1STEP0:X=10*(X-Z*Y
):Z=INT(X/Y):PRINTZ;CHR$(24);:NEXT
```

```
? 21.9999,6.9999

3.1428875246308171443671033623 3
5739836253546934308459729911360
5489373259285683495053695900352
8100333967884051299146434156360
1392602390977442951544380495868
6903806795217185266952924448 74
4517499956469442813123345640753
4834514401832606807914847232 40
4489853918027972485408914693552
3730535615666041471257167815293
1222652486842171318601656637727
8399500421312092054865121952711
4765719342862251897054315525195
4003042536935297570266149782963
6589408573000781751657778760348
```

IN MAV'S WORKSHOP
BY IAN MAVRIC

BUILDING THE SUPER MICRO PART 3

IN THE LAST ISSUE I TALKED ABOUT HOW TO ADD FOUR INTERNAL DISK DRIVES INTO THE "SUPER MICRO", A MAXED OUT MODEL 4 WITH 128K, SPEED UP KIT, RS232, HI-RES GRAPHICS ETC. IT'S A MODERN-DAY VERSION OF THE C-U SERIES OF THE SAME NAME[1]. THIS MONTH I TALK ABOUT HOW TO UTILISE THE 80-TRACK DISK DRIVE IN POSITION #0 AND BOOT OUR FAVOURITE OPERATING SYSTEMS: LDOS, LS-DOS AND NEWDOS.

OVER A BEER WITH JOHN BENSON WE WERE DISCUSSING THE PROS AND CONS OF SETTING UP THE FOUR DISK DRIVES IN VARIOUS WAYS. MY PREFERRED SYSTEM WAS TO SET UP DRIVES #0, #1, #2 WITH 80-TRACKERS AND #3 WITH A 40-TRACKER. I REASONED THAT THIS WOULD LEAVE A 40-TRACK DRIVE FREE IF SOMEONE SENT ME A REGULAR TRS-80 MODEL I/III/4 DISK I COULD JUST READ IT FROM DRIVE #3. IN LDOS I COULD EVEN USE THE CONV/CMD PROGRAM TO READ DISKS OFF TRSDOS 1.3 DISKS. JOHN MADE A GOOD POINT THAT BY SETTING UP DRIVE #0 WITH A 40-TRACKER AND THE REST 80-TRACKERS, ANY OS COULD BE BOOTED IN DRIVE #0, EVEN TRSDOS 1.3 DISKS. MY METHOD EXCLUDES TRSDOS 1.3, BUT ALLOWS AN 80-TRACK BOOT DISK, IN WHICH I HAVE LS-DOS 6.3.1, PROFILE 4+, EDAS, PRONTO, LESCRIPT, DOUBLE DUTY, HYPERDRIVE AND PRO-WAM ALL ON THE ONE DISK. SO THERE ARE POSITIVES AND NEGATIVES TO EITHER SETUP. AS YOU KNOW FROM LAST MONTHS ARTICLE I WENT WITH MY PREFERRED SETUP AND SO THAT WOULD REQUIRE 80-TRACK BOOT DISKS. HERE'S HOW YOU DO IT:

3A. TEMPORARILY SET UP YOUR MODEL 4 WITH A 40T #0 AND 80T #1

IF YOU ONLY HAVE THE ONE MACHINE THEN YOU'LL NEED TO SET UP YOUR SYSTEM TEMPORARILY WITH DRIVE #0 AS A 40 TRACKER AND DRIVE #1 AS AN 80 TRACKER. SINCE I'D ALREADY SET UP THE SUPER MICRO AS ABOVE, RATHER THAN PULL IT ALL APART AGAIN, I PLUGGED AN EXTERNAL 80 TRACK DISK DRIVE INTO MY MODEL 4D AND MADE THE BOOT DISK USING THAT SYSTEM, THEN WALKED OVER TO THE SUPER MICRO AND TESTED IT.

3B. LDOS AND LS-DOS

BOOT THE SYSTEM AND FORMAT AND BLANK DISK IN THE 80 TRACK DRIVE:
FORMAT :1 (CYL=80,SIDES=2)
WHICH FORMATS A 80 TRACK DOUBLE-SIDED DISK TO A CAPACITY OF 720K, BEWARE THIS TAKE MUCH LONGER THAN THE OLD 184K OR 360K FORMATTING YOU'RE USED TO. USE DISKS RATED TO 96TPI DOUBLE-DENSITY IF YOU CAN FIND THEM, AND REMEMBER HIGH-DENSITY 1.2MB DISKS WON'T WORK. THEN:
BACKUP SYS0/SYS:0 :1 (S,I)
WHAT THIS DOES IS PUTS SYS0/SYS ON THE FIRST TRACK OF THE BOOT DISK WHICH IS WHERE IT NEEDS TO BE TO MAKE A BOOTABLE DISK. THEN:
BACKUP SYS/SYS:0 :1 (S,I,Q=N,NEW)
TRANSFERS EVERYTHING ELSE TO THE 80 TRACK DISK. IF ITS GONE TO PLAN, YOU SHOULD NOW BE ABLE TO REMOVE THIS DISK TRY IT IN A SYSTEM WITH AN 80 TRACK DRIVE #0. THE PROCESS IS THE SAME FOR LDOS

AND LS-DOS. IF IT DOESN'T
WORK, YOU NEED TO START
AGAIN FROM SCRATCH. THE
IMPORTANT THING HERE IS TO
PUT SYS0/SYS IN THE RIGHT
PLACE ON THE NEW DISK.
ONCE ITS ALL WORKING, MAKE
BACKUPS (QFB:0 :1 FOR LDOS
OR DISKCOPY:0 :1 FOR LS-
DOS).

3C. NEWDOS/80 V2.0 (ALSO WORKS ON WARRICK SANDS NEWDOS/90)

SINCE PDRIVE IS THE KEY TO
SETTING UP THE DRIVE
PARAMETERS, LETS SAY THAT
DRIVE #1 IS SET UP WITH
YOUR 80-TRACKER, THEN THE
FOLLOWING WILL CONFIGURE
THE DRIVE PARAMETERS
PROPERLY:
PDRIVE,0,1,TI=A,TD=G,TC=80,
SPT=36,TSR=0,GPL=8,DDSL=35,
DDGA=6,A
ONCE THAT IS DONE SIMPLY
PUT A BLANK DISK IN DRIVE
#1 AND ISSUE THE COMMAND:
COPY,0,1,,CBF,FMT
THIS FORMATS THE DISK AND
THEN COPIES THE FILES OVER
IN ONE MOTION. THE CBF
PART IS IMPORTANT BECAUSE
OTHERWISE NEWDOS WILL
ATTEMPT TO DO A SECTOR-BY-
SECTOR MIRROR IMAGE COPY
WHICH WILL NOT WORK. TRUST
ME, I'VE TRIED. SINCE I'M
NOT A BIG NEWDOS USER THIS
ONE HAD ME STUMPED UNTIL
SCOTT KEVILL SUPPLIED ME
WITH THE ANSWER, SO ALL
THIS PART OF THE ARTICLE
SUBMITTED WITH THANKS TO
SCOTT.[2]

NEXT TIME: PART 4:
FINISHING IT OFF... HI-RES
GRAPHICS, RS232, AND A
SPEED-UP MOD.

IN MAV'S MONITOR WORKSHOP

EVERYTHING YOU WANTED TO KNOW ABOUT TRS-80 MODEL I, III AND 4 CRTS

THE MONITORS ON TRS-80S
ARE PRETTY BASIC AND EASY
TO UNDERSTAND, SO I'LL
EXPLAIN THEM ALL GIVEN MY
30 YEARS EXPERIENCE WORKING
WITH THE SYSTEMS. THESE
SHOULD HELP YOU WITH
KNOWING WHAT YOU ARE
LOOKING AT AND WHAT TO
EXPECT WHEN BUYING
REPLACEMENT PARTS FOR YOUR
MONITORS AS THEY WEAR OUT.
FIRST, SOME DEFINITIONS:
TELEVISION GRADE CRT: A
TUBE WITH FAST DECAYING
PHOSPHOR[3] (P4 NORMALLY) USED
IN BLACK & WHITE
TELEVISIONS BECAUSE IT
WORKS WELL WITH FAST
CHANGING IMAGES, AS YOU
WOULD SEE ON A TELEVISION.
RAPID STROBING OF THE IMAGE
CAUSES EYE-ACHE IF USED AT
SHORT DISTANCE FOR LONG
HOURS (SUCH AS SITTING IN
FRONT OF A TRS-80).
COMPUTER GRADE CRT: A TUBE
WITH MEDIUM DECAYING
PHOSPHOR (P4 FOR B&W, P31
FOR GREEN, AND P55 FOR
AMBER) USED MAINLY IN
COMPUTERS. THE SLOWER
DECAY-RATE MAKES THE
STROBING OF THE TEXT LESS
TIRING ON THE EYES.

MODEL I MONITORS: THERE
ARE THREE TYPES AND ALL ARE
PARTIALLY GUTTED TELEVISION
SETS.
26-1201: THE "ORIGINAL"
TRS-80 MONITOR IS ACTUALLY
AN RCA B&W TELEVISION, AND
IS FITTED WITH AN RCA
12VBNP4 OR 12VBYP4 TV-GRADE
PICTURE TUBE (OBVIOUSLY).
SEE NOTE 1.

26-9201: IS A B&W TRS-80
MONITOR MADE BY SANYO OR

TOSHIBA (I'VE YET TO
CONFIRM WHICH ONE) AND SOLD
IN THE EUROPEAN AND
AUSTRALIAN MARKETS, AND IS
ALSO A GUTTED TELEVISION.
HOWEVER THE ELECTRONICS ARE
A GENERATION MORE REFINED
THAN THE RCA AND SO WE GET
A BETTER PICTURE FROM THE
TOSHIBA 310DMB4 TELEVISION-
GRADE PICTURE TUBE. SEE
NOTE 2.
26-9202: IS THE LAST AND
BEST MONITOR TANDY MADE FOR
THE MODEL I, IT FINALLY HAS
A COMPUTER-GRADE 310HDB31
GREEN CRT WHICH PRODUCES A
VERY SHARP IMAGE, ALMOST AS
GOOD AS A MODEL III.

MODEL III: TV GRADE B&W CRTS AND ANALOGUE ELECTRONICS

ON THE MODEL III THEY
FITTED ONE PICTURE TUBE, A
TELEVISION-GRADE RCA
12VCLP4 WHICH IS THE SAME
BASIC DESIGN AS THE MODEL
I'S ORIGINAL MONITOR, BUT
WITH A MUCH MORE
SOPHISTICATED ANALOGUE
VIDEO BOARD (AS COMPARED TO
THE MODEL I MONITOR), A
QUITE GOOD PICTURE IS
PRODUCED. SEE NOTE 3.

MODEL 4: B&W AND GREEN COMPUTER-GRADE CRTS AND DIGITAL ELECTRONICS (MOSTLY)

ON DISK BASED MODEL 4S THEY
FITTED A NEWLY DESIGNED HI-
QUALITY DIGITAL VIDEO
BOARD, AND A COMPUTER-GRADE
12VCMP4 B&W CRT FOR US
MACHINES, AND A 12VCMP31
GREEN CRT FOR EXPORT
COMPUTERS. AFTER ABOUT A
YEAR OF THIS THE INSTALLED
THE 12VCMP31 ON ALL MODEL 4
DISK SYSTEMS US AND NON-US,
TO COINCIDE WITH THE NEW
MODEL 4 GATE ARRAY
MOTHERBOARD. SEE NOTE 4.
BY CONTRAST, CASSETTE-BASED
MODEL 4S GOT THE MODEL III
VIDEO SYSTEM OF AN ANALOGUE

VIDEO BOARD COUPLED WITH A
TELEVISION-GRADE 12VCLP4
CRT. SEE NOTE 3.
OCCASIONALLY YOU FIND AN
EARLY MODEL 4 (AND MODEL
12) WITH AN RCA M31-334GH
GREEN CRT FITTED, THIS IS
AN INTERCHANGEABLE
EQUIVALENT TO THE 12VCMP31.

MODEL 4P/4D: RE-DESIGNED DIGITAL ELECTRONICS BOARD

IT MAY SEEM STRANGE THAT I
CATEGORISE THE 4P AND 4D
TOGETHER, BUT IT'LL BE
CLEAR IN A MOMENT. TANDY
RE-DESIGNED THE MODEL 4
DIGITAL VIDEO BOARD TO FIT
IN THE SMALLER 4P CASE, THE
CABLE TO THE MOTHERBOARD
NOW CONNECTS TO THE "SIDE"
OF THE VIDEO BOARD AND NOT
THE "BOTTOM". THEY ALSO
TWEAKED THIS BOARD TO
PROVIDE A SUPERIOR PICTURE
ON THE SMALL 4P SCREEN.
WHEN TANDY DECIDED TO KILL
OFF THE 4P DUE TO POOR
SALES, TCA (TANDY COMPUTER
ASSEMBLY, IN TEXAS) FOUND
THEY HAD A SURPLUS OF THESE
SMALLER VIDEO BOARDS AND SO
THESE THEN BECAME THE VIDEO
BOARD USED IN THE MODEL 4D.
THIS IS WHY THE 4D HAS A
SUPERIOR PICTURE TO ALL
PREVIOUS TRS-80S, HOWEVER
TANDY COMPLICATED THINGS BY
CHANGING THE PINOUTS ON THE
WIRING LOOM FROM THE
MOTHERBOARD TO THE
BRIGHTNESS/CONTRAST
CONTROLS AND VIDEO BOARD ON
THE 4P/4D. THE RESULT OF
PUTTING THIS BOARD INTO AN
EARLY M4 OR AN M3 IS AN
OVERDRIVEN RASTER AND NO
VISIBLE TEXT ON THE SCREEN.
CRTS FOR THE 4P WAS THE
M24-302W/P B&W TUBE ON
EARLY US 4PS, THEN THE M24-
302GH/P GREEN SCREEN TUBE
ON ALL EXPORT 4P MODELS AND
ON US GATE ARRAY 4PS, AND
THE 4D GOT THE SAME
12VCMP31 GREEN TUBE AS THE
GATE ARRAY MODEL 4.
NOTES:

1. THESE MONITORS CAN BE UPGRADED WITH A COMPUTER-GRADE GREEN OR AMBER TUBE, BUT THE RESULT IS USUALLY LESS IMPRESSIVE THAN HOPED, DUE TO THE RATHER ARCHAIC ELECTRONICS IN THE MONITOR, THE DESIGN OF WHICH DATES BACK TO THE EARLY 1970S. I HAVE AN AMBER CRT IN MINE AND WHILE IT WORKS WELL, IT HAS NO WHERE NEAR THE SHARPNESS OF THE SAME TUBE FITTED TO A MODEL III OR 4.

2. THESE MONITORS CAN BE UPGRADED TO A COMPUTER GRADE AMBER OR GREEN CRT WITH GOOD RESULTS.

3. THIS CAN BE IMPROVED MARKEDLY BY FITTING A COMPUTER-GRADE CRT (SUCH AS THE 12VCMP31) AND INSTALLING NEW ELECTROLYTIC CAPACITORS ON THE VIDEO BOARD TO BRING THE SIGNALS BACK INTO SPEC. IN FACT CAPS DEGRADING OUT OF SPEC ON ALL VIDEO BOARDS IS THE PRIMARY REASON THE PICTURE LOSES FOCUS, FOLLOWED BY THE TUBES JUST PLAIN WEARING OUT.

4. THE 12VCMP4 CAN BE REPLACED BY A 12VCMP31 FOR THOSE WHO WANT TO CONVERT A US B&W MODEL 4 TO A GREEN SCREEN.

IANM@TRS-80.COM

REFERENCES

1. "BUILDING THE SUPER MICRO", COMPUTER USER, FEBRUARY 1984 PP. 14-16; MARCH 1984 PP. 14-18; APRIL 1984 PP. 36-38; MAY 1984 PP. 26-30.

2. HTTP://TECH.GROUPS.YAHOO.COM/GROUP/TRS-80/MESSAGE/5397

3. HTTP://EN.WIKIPEDIA.ORG/WIKI/PHOSPHOR
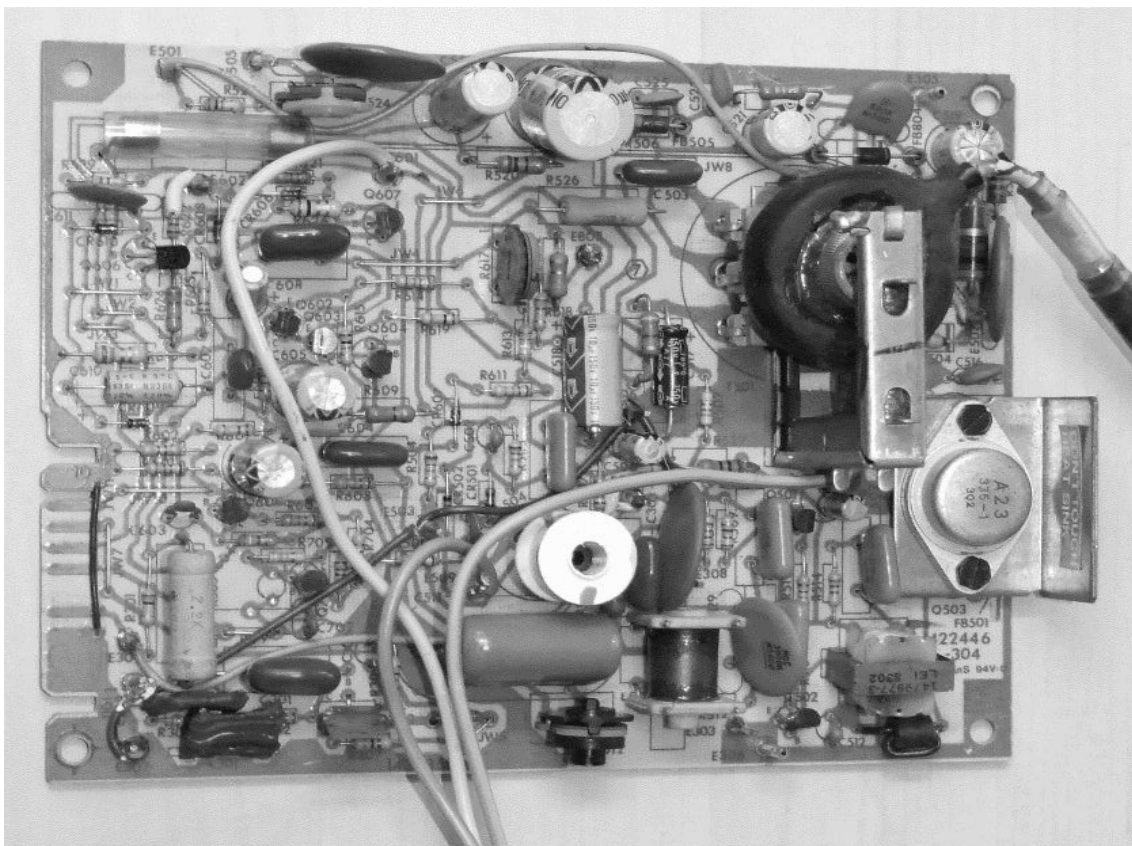
A MODEL 3, ANALOGUE VIDEO BOARD
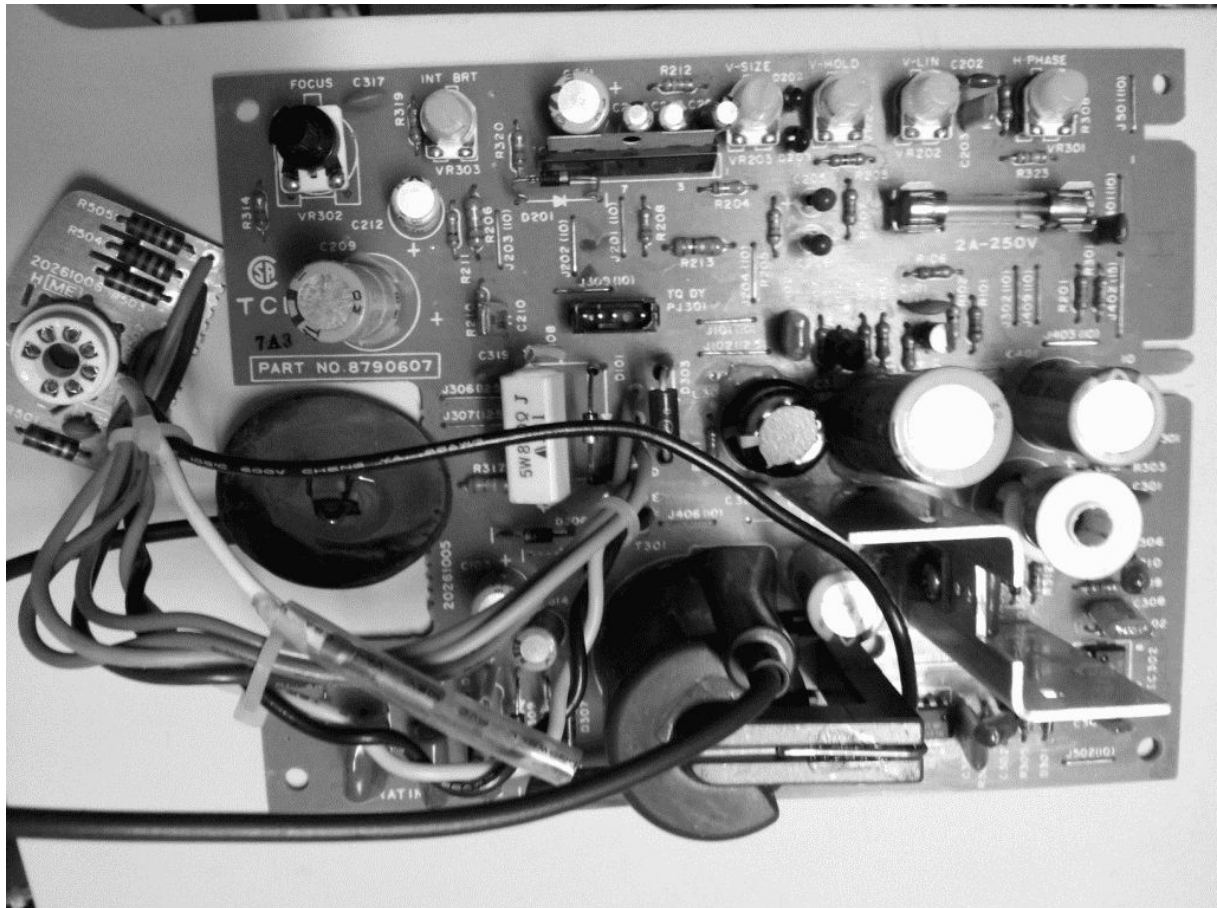
A MODEL 4 LARGE VIDEO BOARD
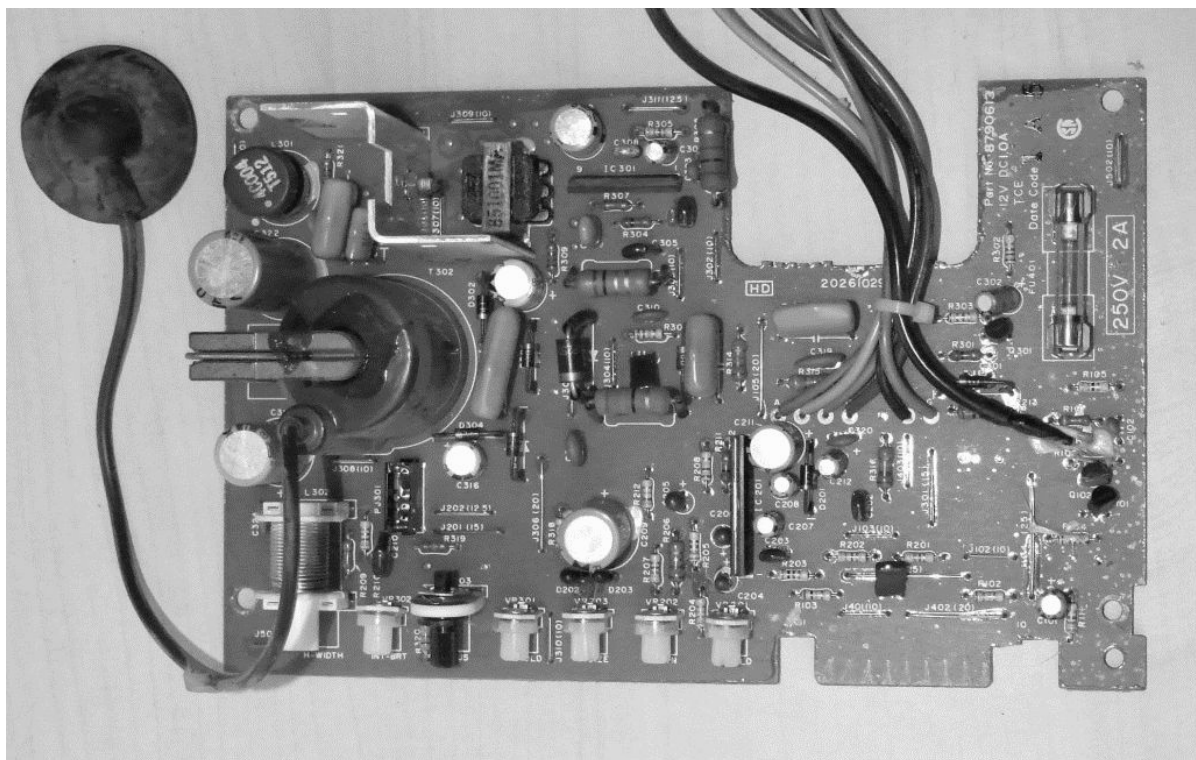
A MODEL 4P/4D SMALL DIGITAL VIDEO BOARD

I'VE REPLACED, JUST FOR
THIS ISSUE, AT THE READY
PROMPT WITH A FEW WORDS OF
APOLOGY. I'M ALWAYS
DELIGHTED TO RECEIVED ANY
TANDY RELATED ARTICLE FOR
ANY MODEL. SO PLEASE, DON'T
THINK THAT TRS8BIT IS FOR
M1'S ONLY. IT'S JUST THAT
MY EXPERIENCE, THOUGH VERY
LIMITED, IS M1 ORIENTATED.

I CAME ACROSS ANOTHER HI-
RES UPGRADE ARTICLE WHILE
SEARCHING THROUGH OLD
EDITIONS OF NATGUG NEWS. I
HOPE IT MIGHT HELP SOMEONE
OUT THERE, OR AT LEAST JOG
SOMEONE'S MEMORY WHO MIGHT
BE ABLE TO IDENTIFY THE
HARDWARE.

KEVIN SMITH WROTE A NICE
CALENDAR PROGRAM,
ORIGINALLY FOR THE NASCOM
2. I WAS SO IMPRESSED WITH
IT, I'VE CONVERTED IT TO
RUN ON MY MODEL 1.

NOW THE ONE-LINERS.
BRIAN RAITER HAS PROVIDED
US WITH 2 GRAND
COMPILATIONS OF VARIOUS
ONE-LINERS THAT HE'S FOUND
THROUGH THE YEARS. AS HE
SAYS, ALTHOUGH HE'S NOT THE
AUTHOR OF ALL OF THE
PROGRAMS, HE'S WRITTEN A
PROGRAM TO COMBINE A NUMBER
TOGETHER. THIS IS AVAILABLE
FROM THE MUPPETLABS
WEBSITE. THEY DO RUN
INDIVIDUALLY, SO I'VE
BROKEN THEM DOWN INTO
SINGLE ITEMS JUST AS THEY
APPEAR ON A M1 SCREEN.
BRIAN HAS ALSO WRITTEN A
'NEW' ONE-LINER, 'TWIRL',
JUST FOR THIS OCCASION!
ALTHOUGH, AS HE SAYS, ON A
STANDARD M1 IT DOES RUN
RATHER SLOWLY. HOWEVER,
SPEED HAS NEVER BEEN AN
ISSUE WITH ONE-LINERS AND

IT DOES PRODUCE A SUPER
SCREEN DISPLAY.

MAV. HAS COME UP WITH A
REALLY USEFUL ONE-LINER TO
ENABLE YOU TO FIND WHICH
LOWERCASE MOD YOUR MACHINE
HAS.
E.T.FONEHUME HAS PRODUCED A
SEQUENCING PROGRAM WHICH IS
RATHER CLEVER. NICE TO HEAR
FROM YOU AGAIN E.T.
THE OTHERS, I'VE EITHER
MANAGED TO REDUCE FROM A
MULTI-LINE PROGRAM OR HAD A
BRAINWAVE ALL OF MY OWN! (I
HOPE YOU'LL EXCUSE THE 2
LINES IN THE CHESS PROGRAM)

I'VE PLACED ALL EIGHT OF
THE NEW ONE-LINERS TOGETHER
AS A FEATURE SHOWING NOT
JUST THE PROGRAM BUT A
SCREEN DISPLAY AS WELL.

MAV CONTINUES HIS SERIES OF
ARTICLES WITH PART 3 OF
'BUILDING THE SUPER MICRO'.
HE'S ALSO PRODUCED A VERY
PROFESSIONAL AND
INFORMATIVE VIDEO SHOWING
HOW TO CHANGE A CRT SCREEN.
THERE'S BEEN A LINK ON OUR
WEBSITE FOR SOME TIME NOW
FOR YOU TO USE, IT'S
HTTP://WWW.YOUTUBE.COM/
WATCH\?V=9SMXSMSSCZU
HIS WEBSITE IS ALWAYS WORTH
A VISIT. HAVE YOU SENT A
PHOTO OF YOUR SYSTEM TO HIM
YET?

I HOPE YOU FIND THIS
EDITION ENJOYABLE. ONCE
AGAIN, THANKS TO ALL OF YOU
WHO HAVE SENT IN YOUR
CONTRIBUTIONS.
I'M LOOKING FORWARD TO THE
SEPTEMBER EDITION ALREADY,
SO ANY ARTICLES YOU CAN
SEND IN WILL BE
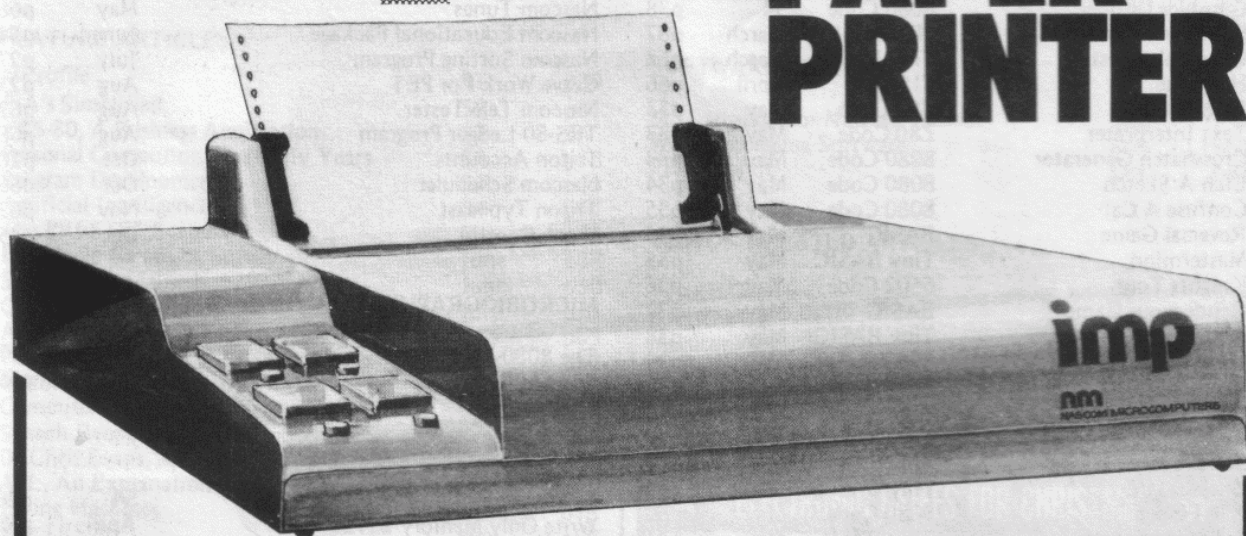MOST WELCOME.
IN THE MEAN TIME
TAKE CARE-

DUSTY