

C. W. EVANS	1	TAPE SURVEY OF A FIELD
RAY LUNKWITZ	4	PLOT YOUR BIORHYTHM
G. F. HUMISTON	5	TRS-80 TIDBIT
H. E. FOILES	6	HANDY ADDRESSES IN LEVEL II & DISK BASIC
STAN OCKERS	7	SKETCH - REVISED BY C. W. EVANS
R. STARKEY	7	CHANGES TO LIFE PROGRAM (SEP. 78)
G. E. PARKINS	8	DRIVING A SELECTRIC TYPEWRITER
IVAN M. MILES	9	ONE DRIVER - FORMAT - BACKUP - COPY
PETER KNIP	9	CORRECTION: G. PERKINS' PILLBOX 2
ROBERT DANIEL	9	FLUKES WITH MY TRS-80

#### TRS-80 INPUT/OUTPUT CONTROL

I talked my boss into purchasing a TRS-80 Level II for use as an accept/reject test fixture on our assembly line (PWB assemblies). As a result of my efforts we now have 4 of them working full time with an average increase in throughput of 300%.

In the last year I have gained a lot of knowledge about interfacing the TRS-80 to the outside world and would like to share that experience with your readers. Please have interested personnel send a self addressed stamped envelope to me for information.

I have developed an in-expensive I/O interface module for operating and controlling motors, relays, lights, etc. It will accept 4 inputs (arranged in BCD format for 16 combinations) and up to 16 independent outputs. The unit is complete with self contained power supply and interface cable. For Level II only (does not require expansion interface) The price including shipping is \$35.00 in kit form, or \$50.00 completely wired and tested. Write for details or send Check or Money Order. Quantities limited.

I also have a schematic for building an in-expensive (cheap) sound interface. Send SASE and specify Level I or II.

Send all inquiries to:

Frank Polimene  
10 Shoreham Ct.  
Baltimore, Md. 21236

#### PUBLICATION STATEMENT

THE TRS-80 NEWSLETTER IS PUBLISHED MONTHLY IN FAYETTEVILLE, NC BY THE TRS-80 USERS GROUP. SUBSCRIPTION RATES ARE \$15.00 IN THE US \$17.00 IN CANADA & 22.00 ELSEWHERE IN THE WORLD. BACK ISSUES ARE AVAILABLE FOR \$1.50 IN THE US, \$1.75 IN CANADA & \$2.00 ELSEWHERE THE FIRST ISSUE WAS PUBLISHED JANUARY 1978 (VOL. 1, NO. 1)

TRS-80 USERS GROUP, 7554 SOUTHGATE RD., FAYETTEVILLE, NC 28304  
EDITOR/PUBLISHER - R. GORDON LLOYD

Dear Mr. Lloyd:

I have just written, for 16K Level II TRS-80, a new program which I call Tape Survey of a field. I also prepared a 4K abbreviated version which omits remarks and instructions. I am inclosing a typed copy of the instructions which describes the program; also a sketch with a sample problem. The operation of the program is best understood by working the test problem. The program rounds results to the nearest tenth of a unit but can easily be changed to round to the nearest hundredth.

I inclose a tape with both the 16K and 4K versions. I have not tried a Level I version but would be glad to do so if there is any interest. It would, of course, require subroutines. I have Level I capabilities. The main problem would be typing and editing. I wish someone would write a Level II to Level I conversion program. This would greatly facilitate editing.

If you decide to publish the programs and do not provide your users with a tape, I would be glad to send a cassette version with either or both versions, to anyone who would send me a self addressed envelope and a tape. If they prefer they may send payment in stamps for postage and for Radio Shack's C-30, either 66¢ plus tax for the Concertape or \$1.29 for Realistic. If they will send me one of their favorite programs on the tape, I'll send them one of my own.

I plan to send a copy of this letter and inclosures to CLOAD for their use if they are interested. While they buy programs, I would not ask for any payment. I think you and CLOAD are doing great work and I'd like to help all I can.

```

10 'TAPE SURVEY OF A FIELD
20 '11/30/78
30 'NEXT LINE SHOWS CLEAR 50. 16K MEMORY
40 'UNKNOWN
50 'C. W. EVANS, 9806 AMBER TRAIL, SUN CITY, AZ 85351
60 '(602) 933-1616
70 DIM X(20), Y(20)
80 PI=3.141592654:R=180/PI
90 CLS:INPUT"DO YOU WANT INSTRUCTIONS (Y/N)";A$
100 IF A$="N" GOTO 330
110 IF A$="Y" GOTO 90
120 'ANGLES IN RADIANS
130 CLS:PRINTTAB(12), "TAPE SURVEY OF A FIELD":PRINT
140 PRINT" THIS PROGRAM COMPUTES THE RECTANGULAR COORDINATES
150 PRINT"OF POINTS ON A FIELD SURVEY FROM THE DISTANCES BETWEEN
160 PRINT"THE POINTS. IT USES A SERIES OF TRIANGLES IN A METHOD
170 PRINT"TERMED TRILATERATION. ELECTRONIC DISTANCE MEASURING
180 PRINT"INSTRUMENTS NOW MAKE THIS METHOD COMMON AND SOMETIMES
190 PRINT"REFERRED TO TRIANGULATION. IT ALSO CAN BE USED FOR
200 PRINT"SMALL PLOT SURVEYS BY TAPING WHEN A TRANSIT IS NOT
210 PRINT"AVAILABLE.
220 PRINT:INPUT" HIT ENTER WHEN READY FOR NEXT PAGE";A$

```

```

230 CLS:PRINT" THE SURVEY STARTS WITH A TRIANGLE DESCRIBED
240 PRINT"BY THE COORDINATES OF TWO POINTS AND THE DISTANCE OF
250 PRINT"A THIRD POINT FROM EACH. THE COORDINATES OF THE
260 PRINT"THIRD POINT ARE CALCULATED. THE PROCESS IS REPEATED
270 PRINT"UNTIL THE SURVEY IS COMPLETED. AS A CHECK, THE SURVEY
280 PRINT"SHOULD BE CLOSED BY RETURNING TO ONE OF THE ORIGINAL
290 PRINT"POINTS.
300 PRINT:PRINT" THE PROGRAM USES THE COSINE LAW TO DETERMINE
310 PRINT"AN ANGLE FROM THE THREE SIDES OF A TRIANGLE.
320 PRINT:INPUT" HIT ENTER WHEN READY";A$:CLS
330 CLS:PRINT"IF WRONG DATA IS ENTERED, START OVER OR-- PRESS BREAK. GOTO 770
340 INPUT"HOW MANY DECIMAL PLACES DO YOU WANT IN THE ANSWERS ";T
350 U=10/T
360 INPUT"WHAT ARE THE POINT NUMBERS OF STARTING BASELINE (1,2)";P,Q
370 IF P>19 GOTO 360
380 PRINT"WHAT ARE THE COORDINATES OF POINT NUMBER ";P;" (X,Y)";
390 INPUTX(P),Y(P)
400 PRINT"WHAT ARE THE COORDINATES OF POINT NUMBER ";Q;" (X,Y)";:INPUT X(Q),Y(Q)
410 INPUT"WHAT IS THE NUMBER OF THE NEW POINT";W:IFW<20 GOTO 410
420 IF W<V THEN V=W
430 PRINT"LOOKING FROM";P;" TOWARD";Q;" IS";W;" ON RIGHT (R) OR LEFT (L)";:INPUT A$
440 IF A$="L" THEN F=-1:GOTO 460
450 IF A$="R" THEN F=1 ELSE 430
460 PRINT"WHAT IS THE DISTANCE FROM ";P;" TO ";W:INPUT A
470 PRINT"WHAT IS THE DISTANCE FROM ";Q;" TO ";W:INPUT B
480 ' EQUATIONS
490 C=SQR((X(P)-X(Q))^2+(Y(P)-Y(Q))^2):' EQ 1
500 IF C=0 PRINT"BASELINE NOT ESTABLISHED":STOP
510 L=ATN ( (Y(Q)-Y(P)) / (X(Q)-X(P)) ): '0 EQ 2
520 ' L=BASELINE ANGLE--RADIANS
530 G=1: ' G=QUADRANT
540 IF X(Q) < X(P) AND Y(Q) > Y(P) THEN G=2
550 IF X(Q) < X(P) AND Y(Q) < Y(P) THEN G=3
560 IF X(Q) > X(P) AND Y(Q) < Y(P) THEN G=4
570 IF G=2 THEN L=L+PI
580 IF G=3 THEN L=L+PI
590 IF G=4 THEN L=L+2*PI
600 M=(C+C+B*B-A*A)/2/B/C
610 K=-ATN(M/SQR(-M*M+1))+PI/2: 'ARCOS EQ 3
620 ' F IS LEFT OR RIGHT INDICATOR
630 N=F*K+L-PI: ' EQ 4
640 ' COORDINATES OF NEW POINT
650 X(W)=X(Q)+B*COS(N):' EQ 5
660 Y(W)=Y(Q)+B*SIN(N):' EQ 6
670 Z=90-L*R:IFZ<0 THEN Z=Z+360
680 Z=INT(Z*U+.5)/U
690 C=INT(C*U+.5)/U:PRINT:PRINT"BASELINE: LENGTH";C;" AZIMUTH";Z;"DEGREES
700 X=INT(X(W)*U+.5)/U
710 Y=INT(Y(W)*U+.5)/U
720 PRINT:PRINT"COORDINATES OF POINT";W;" ARE (";X;" ";Y;" )
730 PRINT:INPUT" HIT ENTER WHEN READY";A$:CLS
740 INPUT"WHAT ARE POINT NUMBERS OF NEW BASELINE (#,#) ?
ENTER 0,0 FOR TABLE OF RESULTS. ";P,Q:
IF P>19 GOTO 740
750 IF P=0 AND Q=0 GOTO 770
760 GOTO 410
770 CLS:PRINT"POINT X Y
780 PRINT "-----"
790 FOR W=1 TO V
800 X=INT(X(W)*U+.5)/U
810 Y=INT(Y(W)*U+.5)/U
820 PRINT W,X,Y
830 NEXT

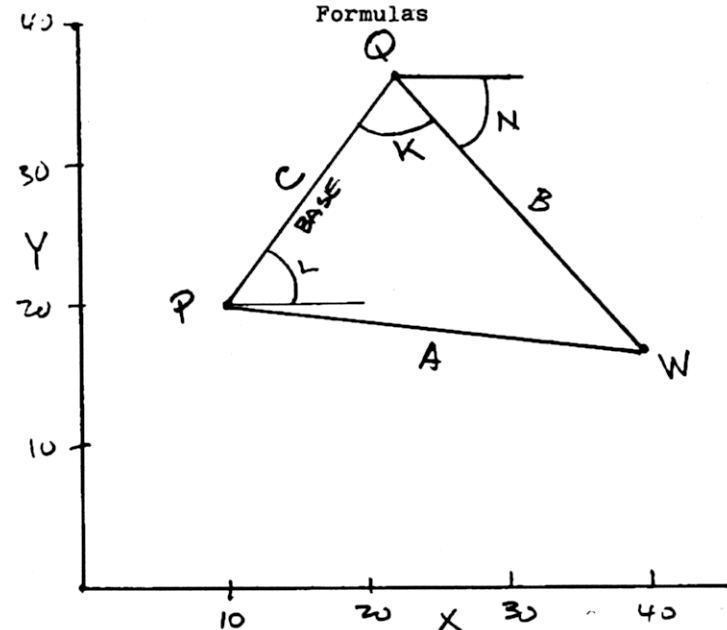
```

```

840 PRINT
850 INPUT" HIT ENTER IF YOU HAVE MORE POINTS. ";A$
860 CLS
870 GOTO 740

```

### Tape Survey of a Field



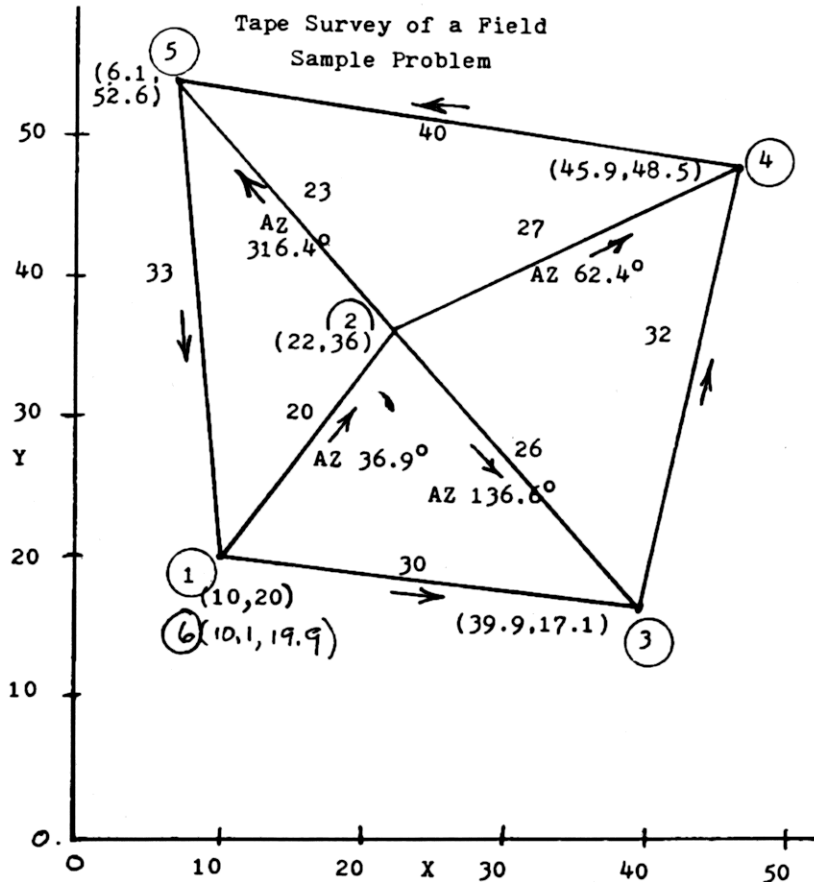
EQ	LINE
1	490 $C = \sqrt{(X_P - X_Q)^2 + (Y_P - Y_Q)^2}$
2	510 $L = \text{ANT} \frac{Y_P - Y_Q}{X_P - X_Q}$ ADJUSTED FOR QUADRANT (G)
3	610 $K = \text{ARCOS } M, M = \frac{C^2 + B^2 - A^2}{2BC}$
4	630 $N = FK + L - \pi, F = + \text{RIGHT}, - \text{LEFT}$
5	650 $X_W = X_Q + B \cos N$
6	660 $Y_W = Y_Q + B \sin N$

### Tape Survey of a Field

This program computes the rectangular coordinates of points on a field survey from the distances between the points. It uses a series of triangles in a method termed trilateration. Electronic Distance Measuring Equipment now make this method common and sometimes preferred to triangulation. It also can be used for small plot surveys by taping when a transit is not available.

The survey starts with a triangle described by the coordinates of two points and the distance of a third point from each. The coordinates of the third point are calculated. The process is repeated until the survey is completed. As a check, the survey should be closed by returning to one of the original points.

The program uses the cosine law to determine an angle from the three sides of a triangle.



I found Stan Ocker's program SKETCH in your #10 Newsletter quite interesting. When entering the program in Level II, I overlooked the fact that it was prepared for Level I.

I am inclosing a C-30 with my revision for Level II. I have also renumbered with range of 10 to 800 with spacing of 10. It fits easily in 4K. I have edited the opening remarks to change N+W to NW, N+E to NE, etc. and to add the line, "Press enter without new data to repeat command"; also other minor changes.

I urge you to prepare and distribute for a reasonable charge, a cassette, preferably C-60, with selected programs from your Newsletters to date. I think it should put special emphasis on Level II. You might even publish new listings. Perhaps the authors would like to update their programs. I would be glad to help with any conversions (and necessary revisions) of Level I programs and could renumber them if desired. I would, of course, like to receive any programs to be modified on tape.

I used RACET Computes REMODEL program to renumber SKETCH. It can also rearrange the sequence of lines in a program. All reference lines are readjusted, as required. A companion program, PROLOAD, which is combined with REMODEL can merge programs. They are machine language and require 16K Level II, working only on Level II programs. I recommend both. RACET has an ad on page 46 of December Kilobaud. The combination price is \$34.95.

One side of the cassette has the latest version of my Level II SURVEY program I sent you recently. The new version permits the user to select the number of decimal places in the answers. This version requires 16K. It is renumbered.

9806 Amber Trail  
Sun City, AZ 85351  
(602) 933-1616

Yours very truly,

*C.W. Evans*

C. W. Evans

CONTINUED ON PAGE 7

### SAVE ON YOUR 1978 TAXES WITH MICROTAX 78

MICROTAX 78 for 16K TRS-80 Level II prepares your taxes in minutes. You receive 6 programs on a 60 minute cassette.

Completes Form 1040 and Schedules A, B, C, D, and SE quickly and accurately.

Eliminates missed deductions, math errors, and saves your time.

Helps to optimize your 1978 tax return.

User instructions included. \$9.99.

Micro Users Tax Booklet 78 shows how to slash taxes. Learn how to:

Claim your micro as a deduction.

Take a \$40 to \$400 tax credit.

Capitalize on IRS regulations.

Many illustrations, examples and much more. \$4.99.

SAVE \$2.00. ORDER BOTH FOR \$12.98.

Send check or money order to  
GEORGE CLISHAM SOFTWARE  
PO Box 1172  
Duxbury, Mass 02332

TRS-80 USERS GROUP - NEWSLETTER -  
JANUARY 1979, VOLUME 2, NUMBER 1 - PAGE 3

**gammon challenger™**

by ray daly and tom throop  
This backgammon playing program requires skill and the usual luck of the dice to beat. Sharpen your play with every game against the always willing opponent. 16k, Level I or II. \$ 14.95

**space warp**

by mike pertain  
Similar to the now classic 'Star wars' game, this independently developed program requires accurate shooting for top score. Annual positioning of cross hairs, game timer, and scoring adds a new dimension to this classic. 4k, Level II \$ 6.95

**32char/line**

from insiders  
Thought only Level II programs could run with 32 characters per line? Just load this machine language routine with the CLOAD command, before loading your programs written in Level I for 32 characters per line. 4 k, Level I \$ 3.95

**renum**

from software associates  
Remember any Level II or DOS program! Here's any Level II or DOS programs! All line references are adjusted. For quality Level II or DOS programming, this utility machine language program is a necessity. Level II \$ 9.95, DOS \$ 12.95 on cassette. (There is a difference that other programs may not correct for.)

**graphic lunar lander**

by ray daly  
Land the lunar module on the moon by firing your retro-rockets. Vertical descent only. 4k Level I or II \$ 6.95

**HARDSTUFF™**

**MEMORY --- only \$ 119**

No soldering! In just a few minutes anyone can convert their IRS-80 to 16k or add either 16k or 32k to the expansion interface. Complete kit includes instructions and dip shunts. If you are hesitant, we will gladly send you the instructions FREE to show you how easy it is.

**EXPANSION RIBBON**

Three-foot ribbon cable connects IRS-80 to your expansion interface. \$20.00

insiders™ the IRS-80 hardware journal with machine language software \$ 5.50 for six issues  
(also available on tape)

Title: Preschool IQ Builder

Description: Teaches vital cognitive skills that children must learn in order to do well in school. In Part One, Same and Different, the child discriminates between two forms. In Part Two, Letter Builder, the child matches a letter on the TV Monitor to one on the keyboard. Accompanying Parent's Guide gives instructions for implementing the program.

Age: 3-6 years.

Price: \$8.50

Title: IQ Builder: Number Series

Description: Helps develop a method of problem solving needed to do well on mathematical aptitude tests such as IQ tests or Civil Service Exams. Provides practice solving problems of increasing difficulty. A Guide gives problem-solving strategies.

Age: High school, college and adult.

Price: \$8.50

Title: IQ Builder: Vocabulary

Description: Provides practice in taking vocabulary tests such as the Scholastic Aptitude Test. Two types of vocabulary questions are used - synonyms and antonyms. A Guide gives strategies for answering this type of question. (2 tapes)

Age: High school, college and adult.

Price: \$12.50

Title: IQ Builder: Analogies

Description: Teaches a method of solving word analogy problems found on tests such as the Scholastic Aptitude Test, civil service tests and IQ tests. Provides practice doing problems of varying levels of difficulty. A Guide gives strategies for answering this type of question.

Age: High school, college and adult.

Price: \$8.50

Title: Step-by-Step

Description: Teaches how to program a microcomputer in BASIC. No computer background or advanced math is needed. Student works on the computer and in the accompanying Workbook. Each lesson is followed by a quiz and actual practice writing programs. (3 tapes)

Age: Junior high school to adult.

Price: \$28.50



COMPUTER CABLEVISION, INC. 2617 42nd St NW #2 Washington DC 20007

name \_\_\_\_\_ Title \_\_\_\_\_ Price \_\_\_\_\_

address \_\_\_\_\_

city & state \_\_\_\_\_

code \_\_\_\_\_

Check payable to Computer Cablevision  
 MASTERCHARGE no bank code:  
 VISA exp. date: /



Signature: \_\_\_\_\_

total \_\_\_\_\_  
 DC residents only 5% tax \_\_\_\_\_  
 postage and handling 1.00 \_\_\_\_\_  
 TOTAL \_\_\_\_\_

IN 006

HERE IS THE LETTER AND PROGRAM I SAID I WOULD SEND. I MODIFIED A LEVEL I PROGRAM IN ONE OF YOUR NEWSLETTERS TO LEVEL II AND ADDED A PRINT SECTION THAT PRINTS HORIZONTAL INSTEAD OF VERTICAL AND RIMS ONE MONTH AT A TIME. I LIKE IT, AND HOPE SOME OF YOUR READERS WILL TOO.

HELP! I HAVE A TRS 720 SELECTRIC AND I WOULD LIKE TO USE IT WITH MY TRS-80, I'M TOO CHEAP TO BUY A BI-DIRECTIONAL INTERFACE BECAUSE ALL I WANT IT TO DO IS PRINT, I'D LIKE TO BUILD A PARALLEL INTERFACE BUT I LACK THE PIN OUT ON THE INTERFACE PRINTER PORT AND I THINK HERE AND THE MARKET DESIGNATION ON THE 720 AS I DON'T HAVE ANY I/O CARDS FOR IT.

I WOULD GREATLY APPRECIATE ANY HELP I CAN GET.

THANK YOU  
 RAY LIBBETZ  
 P.O. BOX 671  
 GRAND ISLAND, NEBR. 68801

```
100 CLEAR 1000 : DIM A(50),O(50),Q(50),T(50)
110 CLS
120 B$ = "MONTH"
130 DATA 0, 31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31
140 F7=10.9091
150 REM VALUES FOR X,Y,W ARE TO GIVE SINE WAVE IN THE CORRECT CYCLES.
160 REM THE NUMBER REPRESENT 360 DEGREES DIVIDED BY 23,28, AND 33 FOR THE CORRECT RATIOS.
170 F6=12.8571
180 LET F5=15.6522
190 PRINT "HI! MY NAME IS MAX I'M A TRS-80. IF YOU'D LIKE I'LL PLOT YOUR BIORHYTHM."
200 PRINT
210 PRINT "THIS PROGRAM IS VALID ONLY FOR 20TH CENTURY DATES."
220 INPUT "WHAT IS YOUR FULL NAME?";A$
230 INPUT "ENTER YOUR BIRTHDATE (M,D,Y)";C1,C2,C3
240 PRINT "THIS CHART WILL RUN FOR ONE MONTH BEGINNING ON THE FIRST DAY OF THE MONTH YOU SELECT"
250 INPUT "ENTER THE DATE THE CHART IS TO BEGIN (M,Y)";D1,D3:D2=1
260 IF D1=1 THEN B$="JANUARY":G=31
270 IF D1=2 THEN B$="FEBRUARY":G=28
280 IF D1=3 THEN B$="MARCH":G=31
290 IF D1=4 THEN B$="APRIL":G=30
300 IF D1=5 THEN B$="MAY":G=31
310 IF D1=6 THEN B$="JUNE":G=30
320 IF D1=7 THEN B$="JULY":G=31
330 IF D1=8 THEN B$="AUGUST":G=31
340 IF D1=9 THEN B$="SEPTEMBER":G=30
350 IF D1=10 THEN B$="OCTOBER":G=31
360 IF D1=11 THEN B$="NOVEMBER":G=30
370 IF D1=12 THEN B$="DECEMBER":G=31
380 IF D1=2 AND (F/4)-INT(F/4)=0 THEN G=29
390 IF D3 < C3 THEN PRINT "INVALID DATES -- PLEASE RE-ENTER":GOTO 240
400 CLS:PRINT "P - DENOTES PHYSICAL, S - SENSITIVITY, AND C - COGNITIVE"
410 PRINT A$;"S CHART BEGINS ON ";D2;B$;D3;"."
420 REM DETERMINE NUMBER OF DAYS FROM 0 TO BIRTHDATE
430 E1=C1
440 GOSUB 1210
450 E2=E2+C2
460 E3=E2+C3*365
470 REM DETERMINE NUMBER OF DAYS FROM 0 TO STARTDATE
480 E1=D1
490 GOSUB 1210
500 E2=E2+D2
510 E4=E2+D3*365
520 REM FIND NUMBER OF LEAP YEARS TO ADD IN CALCULATION OF DAYS
530 E5=INT((D3-1900)/4):E6=INT((C3-1900)/4):E7=E5-E6
540 E8=(E4-E3)+E7
550 REM FIND DAY OF CYCLE
560 F1=INT(((E8/23)-INT(E8/23))*23+.5)
570 F2=INT(((E8/28)-INT(E8/28))*28+.5)
580 F3=INT(((E8/33)-INT(E8/33))*33+.5)
```

590 REM FIND SINE OF EACH CYCLE FOR EACH DAY OF THE CHART

600 L\$="" : K\$="" : J\$=""

610 FOR I=1 TO G

620 R1=((SIN((F1+F5)\*.0174533)\*30)+30)

630 R2=((SIN((F2+F6)\*.0174533)\*30)+30)

640 R3=((SIN((F3+F7)\*.0174533)\*30)+30)

650 REM DETERMINE ORDER IN WHICH LETTERS ARE TO BE PRINTED

660 R1=R1/6 : R2=R2/6 : R3=R3/6

670 R1 = INT (R1)

680 R2 = INT (R2)

690 R3 = INT (R3)

700 H=1

710 IF I > 9 THEN H = (I-10)

720 IF I > 19 THEN H = (I-20)

730 IF I > 29 THEN H = (I-30)

740 K\$=K\$+STR\$(H)

750 IF I < 40 THEN J\$=" 3"

760 IF I < 30 THEN J\$=" 2"

770 IF I < 20 THEN J\$=" 1"

780 IF I < 10 THEN J\$=" "

790 L\$=L\$+J\$

800 REM INCREMENT CYCLES

810 F1=F1+1 : F2=F2+1 : F3=F3+1

820 Q(I) = R1

830 Q(I) = R2

840 T(I) = R3

850 NEXT

860 PRINT L\$ : PRINT K\$

870 FOR M = 0 TO 10

880 M\$=""

890 FOR I = 1 TO G

900 Z\$=" "

910 IF Q(I)=(M) THEN Z\$=" P"

920 IF Q(I)=(M) THEN Z\$=" S"

930 IF T(I)=(M) THEN Z\$=" C"

940 M\$=M\$+Z\$

950 NEXT I

960 PRINT M\$

970 NEXT M

980 PRINT #-1, R\$, CL, C2, C3, DL, D3

990 INPUT "DO YOU WISH TO PRINT YOUR BIORHYTHM (YES OR NO)"; R\$

1000 IF R\$="YES" THEN 1040

1010 INPUT "DO YOU WISH TO DO ANOTHER MONTH (YES OR NO)"; R\$

1020 IF R\$="YES" THEN 240

1030 GOTO 100

1040 LPRINT "P - DENOTES PHYSICAL, S - SENSITIVITY, AND C - COGNITIVE"

1050 LPRINT " : LPRINT M\$ ; "S BIORHYTHM CHART IS FOR " ; B\$ ; D3

1060 LPRINT " : LPRINT L\$ : LPRINT K\$ : LPRINT " "

1070 FOR M = 0 TO 10

1080 M\$=""

1090 FOR I = 1 TO G

1100 Z\$=" "

1110 IF M = Q(I) THEN Z\$=" P"

1120 IF M = Q(I) THEN Z\$=" S"

1130 IF M = T(I) THEN Z\$=" C"

1140 M\$=M\$+Z\$

1150 NEXT I

1160 LPRINT M\$

1170 NEXT M

1180 GOTO 1010

1190 END

1200 REM DAYS ELAPSED CALCULATION SUBROUTINE

1210 E2=0

1220 FOR E9 = 1 TO E1

1230 READ F9

1240 IF F9=28 THEN IF (D3/4)-INT(D3/4)=0 THEN F9 =29

1250 E2=E2+F9

1260 NEXT

1270 RESTORE

1280 RETURN

## TRS-80 QUALITY SOFTWARE

### LEVEL I. AND LEVEL II.

#1. IDM-I CASSETTE DATA BASE \$20  
#2. INV-I INVENTORY CONTROL \$20  
#3. STOCK-I SECURITY INFO \$10  
#4. BANK-I CHECK BALANCE \$10  
#5. FINANCE-I STOCK-I & BANK-I \$15

### LEVEL II

#11. WORD-I WORD PROCESSOR \$25  
#15. MAIL-I NAME AND ADDRESS \$25  
#16. SORT-I SORT UTILITY \$10  
#17. STAT-I STATISTICS \$10  
#18. KEY-I KEY-ACCESS \$10  
#19. SALE-I SALE ANALYSIS \$10  
#20. UTIL-I SORT-I & KEY-I \$16

### DISKETTE.

#12. MAIL-III MAILING LIST \$35  
#14. WORD-III WORD PROCESSOR \$35  
#21. INV-III INVENTORY CONTROL \$35  
#22. KEY-III KEY RANDOM ACCESS \$15

MICRO ARCHITECT  
96 DOTHAN ST.  
ARLINGTON, MA 02174

PRICE INCLUDES POSTAGE, CASSETTER & DOCU.

TRS-80 BUS CONNECTORS FOR HOME-BREW INTERFACES. TOP QUALITY VIKING AND 3-M. GOLD PLATED CONTACTS. SOLDERLESS TYPE TERMINATED IN 18" 40 CONDUCTOR RIBBON CABLE \$9.95 SOLDER TAIL TYPE \$6.95. PRICES POSTPAID. NY RESIDENTS ADD 6% TAX. APPLIED INVENTION, RD 2, RT. 21, HILLSDALE, NY 12529. INQUIRE ABOUT OUR PARALLEL PRINTER INTERFACE FOR LEVEL II.

FOR IMMEDIATE DELIVERY  
ONLY \$10

45 BASIC LANGUAGE PROGRAMS  
FOR BUSINESS, ECONOMICS, PAYROLL,  
BIORHYTHM, STATISTICS, INVENTORY,  
PRODUCTION MANAGEMENT AND  
ENGINEERING APPLICATIONS.  
SEND \$10 TO DIDACTIX

45 HENLEY, BUFFALO NY  
14216

## TRS-80 TIDBIT

If you ever wished you could read & write level 2 tapes with your level 1 TRS-80, in machine language, you can using level 2 T-BUG. here's how:

1. Using the editor assembler "system" tape, load level 2 T-BUG into your level one TRS-80.
2. Then use level 2 T-BUG to read & write level 2 tapes.

It is easy if you follow the directions: in the editor/assembler directions for loading the "system" tape, and in T-BUG's directions for using level 2 T-BUG.

G. Frank Humiston  
946 S. Anza #15  
El Cajon, CA 92020

TRS-80 USERS GROUP - NEWSLETTER -  
JANUARY 1979, VOLUME 2, NUMBER 1 - PAGE 5

RECENTLY WHILE DEVELOPING A RENUMBERING PROGRAM, I LEARNED OF A FEW HANDY ADDRESSES TO KNOW ABOUT IN LEVEL 2 AND DISK BASIC.

COMMON TO BOTH BASICS ARE THE ADDRESSES THAT HOLD THE STARTING AND ENDING LOCATIONS OF BASIC PROGRAMS. START = 16548 (40A4 HEX), END = 16633 (40F9 HEX). THESE ADDRESSES ARE STORED IN SPLIT 16 BIT INTEGER FORMAT, (least significant byte, most significant byte). TWO NOTES ABOUT THESE ARE IN ORDER, THE ENDING ADDR. POINTS TO THE BYTE IMMEDIATELY AFTER THE 3 CONSECUTIVE BYTES HOLDING ZERO'S IN THEM AT THE END OF A PROGRAM. THE BYTE IMMEDIATELY BEFORE THE ONE POINTED TO BY THE START ADDR. MUST CONTAIN A ZERO, OTHERWISE SYNTAX ERRORS ARE A RESULT.

THE REALLY NICE THING ABOUT THESE ADDRESSES IS THAT BY CHANGING THEM YOU CAN RE-ALLOCATE WHERE BASIC PROGRAMS WILL BE STORED IN MEMORY. NOT ONLY CAN YOU RESERVE MEMORY AT THE END OF THAT AVAILABLE BUT BY TELLING BASIC (via the pointer addresses) TO START PROGRAMS AT A HIGHER MEMORY ADDRESS YOU CAN OPEN UP AREA JUST BEFORE A PROGRAM AS WELL. BUT DON'T FORGET THAT ONE ZERO BYTE BEFORE PROGRAMS. TO CHANGE THINGS, PICK THE NEW ADDRESS AND STORE IT (in the proper format) AT THE START-POINTER ADDRESS, LOAD THE END POINTER ADDR. WITH THE NEW ADDRESS+2. STORE A ZERO AT YOUR NEW ADDRESS-1. NOW FROM BASIC ENTER THE COMMAND MEM, THIS WILL SET-UP ALL OTHER POINTERS THAT BASIC REQUIRES. YOU NOW HAVE A NEW AREA IN MEMORY TO STORE MACHINE LANGUAGE PROGRAMS ETC. DON'T USE THE AREA IN RAM BEFORE THE OLD START ADDRESS OR OVERWRITE YOUR BASIC PROGRAM AREA !

NOW ACOUPLE OF ADDRESSES FOR DISK BASIC USERS. HAVE YOU EVER WANTED TO CHANGE THE NUMBER OF FILES AVAILABLE OR RESERVE MORE AREA FOR MACH. LANG. ROUTINES, AFTER YOU JUST BROUGHT BASIC UP ? NORMALLY YOU'D HAVE TO GO BACK TO THE D.O.S. AND THEN BRING BASIC BACK IN, AGAIN. BUT IF YOU DON'T WANT TO DO THAT, YOU CAN DO A JUMP TO LOCATION 5200 hex AND GET BACK TO THE "HOW MANY FILES ?" QUESTION. A JUMP TO 5C5F hex GETS YOU TO THE "MEMORY SIZE ?" QUESTION.

EXP. INTERFACE/DISK USERS, ARE YOU FLAGUED BY UNEXPLAINED SYSTEM CRASHES ? SEEMS THAT THE EXPANSION INTERFACE AND DISK DRIVES ARE SENSITIVE TO HASH AND GLITCHES THAT ARE ON THE 110 volt POWER LINES. I LIVE IN AN APARTMENT TYPE SITUATION AND THERE WAS SO MUCH GARBAGE ON THE POWER LINES (by refrigerators and such) THAT I WAS FORCED TO BUY A POWER LINE FILTER FOR MY WHOLE SYSTEM.

THERE ARE 4 WAYS (I KNOW OF) TO SWITCH FROM 32 TO 64 CHARACTERS PER LINE, 2 OF THEM ARE NOT DOCUMENTED IN ANY MANUALS I HAVE, FIRST "PRINT CHR\$(28);" NOT ONLY MOVES THE CURSOR BUT REVERTS TO 64 CHAR./LINE. ALSO "OUT 255,0" WILL REVERT TO 64 CHAR./LINE. ("OUT 255,8" WILL PUT THE DISPLAY IN 32 CHAR./LINE).

HERE'S A MACHINE LANGUAGE SUBROUTINE TO CALL FROM BASIC WHEN GRAPHICS ARE BEING DISPLAYED. IT WILL 'REVERSE' THE SCREEN. THE CODE IS RELOCATABLE AND CAN BE PUT ANYWHERE IN AVAILABLE MEMORY WITH NO CHANGES.

21003C	REVERSE	LD	HL,3COOH	77		LD	(HL),A
013F00		LD	BC,803FH	23	CK4END	INC	HL
11BF40		LD	DE,40BFH	7A		LD	A,D
CB7E	LOOP	BIT	?,(HL)	BC		CP	H
280B		JR	Z,NOTSET	20F2		JR	NZ,LOOP
7E		LD	A,(HL)	C9		RET	
2F		CPL		73	NOTSET	LD	(HL),E
A1		AND	C	18F7		JR	CK4END
80		ADD	A,B				

ANOTHER NEAT THING WHEN RUNNING LEVEL 2 PROGRAMS IS THAT AFTER USING THE "INKEY\$" FUNCTION, YOU CAN PEEK AT LOCATION 14463 (387F hex) TO SEE IF A KEY IS BEING HELD DOWN. A ZERO MEANS NO KEYS ARE DEPRESSED, A NON-ZERO RESULT SIGNALS THAT A KEY IS BEING HELD DOWN. WHILE 'RUNNING' A PROGRAM ITS EASY TO PROVIDE A "REPEAT" TYPE FUNCTION. OTHER POSSIBLE USES ARE IN GAME PROGRAMS.

HOWARD E. FOILES  
USAFSS BOX # 18363  
SAN ANTONIO, TEXAS 78243

DO YOU WANT A BETTER MEMORY?

MIND-MEMORY IMPROVEMENT COURSE Steps 1 and 2 for your TRS-80 computer can teach you to memorize easily and quickly. The MIND course is a copyrighted, quality program for the serious minded who want to improve their memory skills.

Order your MIND course Step 1, only \$24.95. Step 2 is \$29.95 or save \$5.00 and order both for \$49.90. (Please add \$1.50 each for postage and handling.)

We will ship your MIND course in its attractive blue and white binder which contains 2 computer cassettes, a teaching manual and also an audio cassette for MIND 2.

Please specify Level 1, 4k, or Level 11, 16K. Allow 4 weeks delivery.

Visa and Master Charge accepted. List name, expiration date, acct. no. and 4 digits above name for MC., and signature.

To order or for more information about these or other self-improvement computer courses in our Teach Yourself by Computer Series, (TYC™) send to:

T Y C SOFTWARE™ Dept. T 25 Cedar Cliff Drive Camp Hill, Pa. 17011



**MICRO  
MANAGEMENT  
SYSTEMS**

MICRO-COMPUTER SPECIALIST  
LARRY OWENS

**15% Discount on TRS-80's !!**

RADIO SHACK DEALER - MINI MALL  
DOWNTOWN SHOPPING CENTER  
CAIRO, GA. 31728

812-377-7120

LEVEL I

THE "AUDIBLE" MAGAZINE

IN THIS ISSUE . . . . . PART 1

AS WE SEE IT	1 GAMES AMMO DUMP	10 ALPHABETICALLY	18
PLAYBACK	2 SPORTS TRAVEL TIME	11 QUICK DRINK	18
NEW NEWS	3 DID OR DO YOU KNOW	12 GAMES JACKPOT	20
CHALKBOARD	4 SHERLOCK'S CASE	13 CROSSCROSS	18
TRUCK-TRUCK	5 BASICALLY BASIC	14 ALL THE SAME	21
SHUFFLE!	6 SHOWCASE	15 IN THE FIELD	22
WORD POWER	7 DOUBLE THINK	16 HEBBEN'S BIT	24
SPRINTERS	8 COMMERCIAL ADS	17 ANYTHING ELSE	25
HP ANALYSIS	9		

-ENTER ARTICLE NUMBER ? -

A UNIQUE MAGAZINE FORMAT  
PRODUCED ON A C-60 CASSETTE  
IN LEVEL I AND LEVEL II BASIC  
FOR THE 16K TRS-80™ COMPUTER

SUBSCRIPTIONS

\$40.00 Per Year/\$22.00 Semi-Yearly  
Special Introductory Issue Offer \$3.00  
FREE INTRODUCTORY ISSUE WITH  
- 1 YEAR SUBSCRIPTION -

LEVEL I magazine

P.O. BOX 8316 ANAHEIM, CA 92802

```

10 FROM USERS GROUP NEWSLETTER NO. 10, NOVEMBER 1978,
   BY STAN DOCKERS 9/78
20 REVISED FOR LEVEL II AND RENUMBERED BY C. W. EVANS
30 9806 AMBER TRAIL, SUN CITY, AZ 85351; (602) 933-1616
40 THIS VERSION DATE - 12/3/78
50 NEXT LINE IS 16K CLEAR MEM
60 13367
70 CLS
80 PRINT@13, "***** SKETCH *****"
90 PRINT"  ENTER THE COMPASS DIRECTIONS AS N, NE, E, SE, ETC.
100 PRINT
110 PRINT"  AFTER THE DIRECTION, ENTER LENGTH OF LINE.
120 PRINT
130 PRINT"OTHER COMMANDS CAN BE GIVEN INSTEAD OF A DIRECTION:
140 PRINT"  D=DRAW MODE. - LINE WILL BE DRAWN.
150 PRINT"  U=UNDRAW MODE - NO LINE, BUT MOVEMENT.
160 PRINT"  K=KILL - WIPES SCREEN CLEAR, DOES NOT DESTROY MEMORY
170 PRINT TAB(30)"OF WHAT WAS DRAWN.
180 PRINT"  R=REDRAW - WILL REDRAW ALL THAT YOU'VE ENTERED. "
   :PRINT
190 PRINT"NOTE: PRESS ENTER WITHOUT NEW DATA TO REPEAT COMMAND. "
   :PRINT
200 PRINT TAB(10)"PRESS ENTER TO CONTINUE";
210 INPUT A$
220 DIM A (1000)
230 I=0
240 X=64:Y=24:  STARTING POINT
250 CLS
260 SET(X,Y): SET(X+1,Y)
270 F=1
280 PRINT@0, "DIRECTION (N,S,E,W,NE, ETC.,D,U,K, OR R)";
290 INPUT Q$
300 IF Q$="N" THEN Q=1
310 IF Q$="S" THEN Q=2
320 IF Q$="E" THEN Q=3
330 IF Q$="NE" THEN Q=4
340 IF Q$="SE" THEN Q=5
350 IF Q$="W" THEN Q=6
360 IF Q$="NW" THEN Q=7
370 IF Q$="SW" THEN Q=8
380 IF Q$="R" THEN Q=12:GOTO 550
390 IF Q$="K" THEN Q=9:GOTO 240
400 IF Q$="D" THEN Q=10:GOTO 510
410 IF Q$="U" THEN Q=11:GOTO 530
420 PRINT@50, "LENGTH": INPUT L
430 A(I)=Q: I=I+1: A(I)=L: I=I+1
440 IF F=0 THEN 480
450 FOR J=1 TO L: GOSUB 790
460 IF (X=126) OR (X=0) OR (Y=47) OR (Y=0) THEN 280
470 NEXT J: GOTO 280
480 FOR J=1 TO L: GOSUB 780
490 IF (X=126) OR (X=0) OR (Y=47) OR (Y=0) THEN 280
500 NEXT J: GOTO 280
510 F=1: A(I)=1000
520 I=I+1: GOTO 280
530 F=0: A(I)=2000
540 I=I+1: GOTO 280
550 A(I)=0: I=0: CLS: X=64: Y=24
560 F=1
570 IF A(I)=0 THEN 280
580 IF A(I)=1000 THEN 680
590 IF A(I)=2000 THEN 690
600 Q=A(I): I=I+1: L=A(I): I=I+1

```

```

610 IF F=0 THEN 650
620 FOR J=1 TO L: GOSUB 790
630 IF (X=126) OR (X=0) OR (Y=47) OR (Y=0) THEN 570
640 NEXT J: GOTO 570
650 FOR J=1 TO L: GOSUB 780
660 IF (X=126) OR (X=0) OR (Y=47) OR (Y=0) THEN 570
670 NEXT J:GOTO 570
680 F=1: I=I+1: GOTO 570
690 F=0: I=I+1: GOTO 570
700 Y=Y-1
710 X=X+2: RETURN
720 Y=Y+1
730 X=X-2: RETURN
740 Y=Y+1: GOTO 710
750 Y=Y+1: RETURN
760 Y=Y-1: GOTO 730
770 Y=Y-1: RETURN
780 RESET(X,Y): RESET(X+1,Y)
790 ON Q GOSUB 770, 750, 710, 700, 740, 730, 760, 720
800 SET(X,Y): SET(X+1,Y): RETURN

```

GORDON,

I LIKE YOUR NEWS LETTER VERY MUCH.  
I MADE SOME MINOR CHANGES TO  
LIFE PROGRAM (SEPT. PAGE 2,3) (LEVEL II)

1. ADDED INTRODUCTION LISTING  
COMNAV'S RULES OF LIFE  
2. CHANGED PROGRAM TO USE  
↑ FOR UP    ↓ FOR DOWN  
← FOR LEFT    → FOR RIGHT

LINE CHNGED

```

100 PRINT ↑ =UP, CHR$(92) ↓ =DOWN, CHR$(94)
=RIGHT, ← CHR$(93) → =LEFT, S=SET, E=END
190 IF Z$=AND Y? THEN Y=Y-P ELSE 200
200 IF ASC(Z$)=10 AND YCH+6 THEN Y=Y+P ELSE 210
210 IF ASC(Z$)=9 AND X<M THEN X=X+P ELSE 220
220 IF ASC(Z$)=8 AND X>P THEN X=X-P ELSE 230

```

FOR ME THE ARROWS ARE EASIER TO USE.

CHR\$(138) LINE FEED

THANKS FOR HELPING ME FIND A TRS-80 SCHEMATIC. I'LL GIVE YOU BACK A COPY.

RUSSELL STARKEY  
855 EISENHOWER AVE.  
JASPER, IN 47546  
812/482-1016

P. S.

I CONVERTED MY COMPUTER FROM 4K TO 16K WITH - CHR\$(34) - CHIPS - CHR\$(34) -  
FROM TRS-80 USERS GROUP.

MY COMMENTS:

1. WATCH AS YOU REMOVE CHIPS FROM METAL TUBE YOU COULD SNARE A PIN!
2. DIP PLUGS(Z3) SHOULD BE PROVIDED WITH THE KIT, FOR A SOLDER LESS CONVERSION.
3. 16K IS FANTASTIC!!!!
4. WOULD ALSO LIKE TO SEE A STEP BY STEP INSTRUCTION.

Dear Gordon,

I am now driving a Selectric typewriter with my TRS-80 using an interface which I built. The interface is patterned after the one described in the June 1978 KILBAUD by Emerson Brooks. Brooks' article is well written and I advise anyone interested to read it. I will describe below only those items which differ from Brooks' method.

First, since the TRS-80 basic unit does not have a latched I/O port, I used an 8212 I/O port connected directly to the edge connector pins on the keyboard thru a double-ended strap. The 8212 was mounted on a 2-sided PC board so that one end of the strap connects to it in the same way the other end connects to the keyboard. Also mounted on the PC board are three 7408s and one 7400. These ICs are connected in the same way as shown in Brooks' article except I did not use the CA2 signal (to control the power supply or the T/W motor). The 8212 and the other four ICs are supplied +5v from the keyboard connector. (This led to a problem when I got Level II since the technicians cut the +5v to pin 39; when I connected up my interface nothing worked! My solution was to un-mod the mod.)

Second, my typewriter is a model 72 with a 15" platen and came with a Novar PC board to drive the solenoids. I discarded this board and a small shoebox full of associated micro-switches and sensing coils since I do not plan to use the T/W keyboard for input to the computer. I then built a 27 volt power supply and used 2N4400 transistors to drive the solenoids. Each solenoid uses up to 300 ma and as many as six of them are activated at the same time so a hefty power supply is needed. The output from the interface is connected thru a 14-line 30" strap with DIP connectors on each end to the driver board.

The table below gives the connections between the TRS-80 pins and 8212. Note that only A0 is used to select the 8212. Since A0 is also high when the cassette port is in use, this means I must turn the T/W off while reading or writing tapes. I plan to buy a Bootstrap Enterprises TBUSS motherboard and put my interface on a 44-pin board which will plug into the TBUSS. Full address decoding will be added at that time.

The exact combination of the data lines - to - solenoid signals is not critical since all character encoding is done in software. The particular combination shown was selected for ease of PC board design.

TRS-80 Pins	8212 Pins	Solenoid signal	8212 Pins
25 A0	17 DS2	Shift	17 D05
37 GND	12 GND	T2/TAB	10 D03
39 +5v	2 MD	T1/LF	8 D02
	11 STB	R1/CR	6 D01
	14 CLR	R2/BS	4 D00
12 OUT	1 DS1	R2A/SP	21 D07
30 D0	3 D10	R5	19 D06
22 D1	5 D11	CK	15 D04
32 D2	7 D12		
26 D3	9 D13		
18 D4	16 D14		
28 D5	18 D15		
24 D6	20 D16		
20 D7	22 D17		

Next month I'll explain how the Z80 software routine for interface works and, later, how the routine may be linked to Level II BASIC, RSM-1S, Radio Shack Editor/Assembler, or any other program.

*Gene E. Perkins*  
Gene E. Perkins, 5224 Winifred, Ft Worth, TX 76133

```

00100 ; PROGRAM BY JAMES B PENNY
00200 ; FILE NAME: MEMSCR
00300 ; ENTRY PT : 4410 HEX, 17424 DECIMAL
00400 ; PRINTS ASCII VALUE OF 1K CHUNK OF
00500 ; MEMORY WHICH CAN SCROLL UP OR DOWN
00600 ; USING KEYBOARD ARROWS PROGRAM
00700 ; BEGINS AT 0000H AND REPEATS WHEN
00800 ; FFFFH (64K) IS REACHED. EACH KEY-
00900 ; STROKE SCROLLS 4 LINES.
C410 01000 ORG 0C410H
C410 31FDCF 01100 LD SP,0CFFDH; INIT. STACK
01200 ; NOTE: 3840H IS TRS-80 FUNCT. KEY COL.
C413 DD214038 01300 KBD LD IX,3840H
C417 DD4600 01400 LD B,(IX)
C41A CD55C4 01500 CALL DLY
C41D DD7E00 01600 LD A,(IX)
C420 B8 01700 CP B; CHECK DEBOUNCE
C421 20F0 01800 JR NZ,KBD
C423 FE08 01900 CP 8H; UP ARROW
C425 2009 02000 JR NZ,DOWN
C427 FD214AC4 02100 LD IY,BYTE
C42B FD3400 02200 INC (IY)
C42E 1818 02300 JR SUB
C430 DD7E00 02400 DOWN LD A,(IX)
C433 FE10 02500 CP 10H; DOWN ARROW
C435 2009 02600 JR NZ,KDN
C437 FD214AC4 02700 LD IY,BYTE
C43B FD3500 02800 DEC (IY)
C43E 1808 02900 JR SUB
C440 AF 03000 KDN XOR A; ZERO A
C441 DDBE00 03100 HERE CP (IX); IS KEY ACTIVE?
C444 28CD 03200 JR Z,KBD; IF NO THEN LOOP
C446 20F9 03300 JR NZ,HERE; IF YES STAY HERE
C448 2100 03400 SUB DEFB 21H; FAKE OUT
C44A 00 03500 BYTE DEFB 0H; THIS BYTE CHANGES
03550 ; SCREEN MEMORY STARTS AT 3C00H AND STORES
03555 ; 400H BYTES OF DATA
C44B 11003C 03600 LD DE,3C00H; DESTINATION
C44E 010004 03700 LD BC,400H; COUNTER
C451 EDB0 03800 LDIR ; TRANSFER DATA BLOCK
C453 18EB 03900 JR KDN
C455 F5 04000 DLY PUSH AF
C456 210001 04100 LD HL,100H; DEBOUNCE DELAY
C459 2B 04200 DEC HL
C45A 7C 04300 LD A,H
C45B BC 04400 OR L
C45C 20FB 04500 JR NZ,DLY+4; DEC HL TO 0
C45E F1 04600 POP AF
C45F C9 04700 RET
C410 04800 END KBD-3
00000 TOTAL ERRORS KBD C413

```



DEAR GORDON,

I'VE REALLY APPRECIATED THE NEWSLETTER THESE LAST 8 MONTHS OR SO. WOULD YOU PLEASE ADD MY NAME TO THOSE THAT WOULD LIKE TO TRADE PROGRAMS. I HAVE A 16K LEVEL II MACHINE. HOWEVER, SINCE I HAVE PURCHASED A "LEVEL I IN LEVEL II RAM" PROGRAM, I CAN RUN EITHER LEVEL I OR LEVEL II. SO, IF ANY OF YOU READERS WOULD ALSO LIKE TO TRADE PROGRAMS 1-T01, JUST SEND ME A CASSETTE WITH YOUR PROGRAMS IN EITHER LEVEL I OR II (AS MANY PROGRAMS AS YOU LIKE) AND I WILL RETURN YOUR CASSETTE WITH THE SAME NUMBER OF PROGRAMS ON IT. I HAVE ABOUT 100 PROGRAMS OR SO.  
THANKS AGAIN AND KEEP UP THE GOOD WORK.

PAUL J. TOURIGNY  
22123 92ND W.  
EDMONDS, WA. 98020

THE 3-RING BINDER SEEMS TO BE AN EXCELLENT IDEA, BETTER THAN 5 1/2 X 8 1/2. JUST ONE WORD ABOUT NEW DISCS FOR THE DISC DRIVE. IF YOU HAVE ONLY ONE DRIVE, THE DOS/DISC BASIC DISC MUST BE IN PLACE AT ALL TIMES. TO FORMAT A NEW DISC, DO NOT FOLLOW THE MANUAL (THIS IS FOR MULTI-DRIVE PEOPLE) THE CORRECT PROCEDURE IS: INSERT OLD DOS DISC, BRING UP "DOS READY", KEY IN "BACKUP", WATCH SCREEN FOR COMMANDS. YOU WILL INSERT DRIVE "0" FOR SOURCE DISC, DRIVE "0" FOR NEW DISC, THEN, ON COMMAND, REMOVE OLD DISC. INSERT NEW DISC AND GO ON AS DIRECTED. THE COMPUTER WILL THEN COPY THE ENTIRE DISC, BASIC AND ALL UNTILL IT HAS ALL THE MATERIAL ON THE OLD DISC COPIED. SEVERAL SWITCHES BETWEEN OLD & NEW DISCS WILL BE REQUIRED. AT END, INSERT NEW DISC AND "KILL" ALL UNWANTED FILES. DRIVE WILL WRITE OVER THE UNWANTED FILES, EVEN THOUGH THERE IS NO ERASE HEAD. RADIO SHACK HAS A CUSTOMER SERVICE NUMBER: 817/390-3585, WHO WILL HELP WITH STICKY PROBLEMS. (NO MODIFICATIONS OF THEIR EQUIPMENT, HOWEVER)

IVAN M. MILES  
872 BEAVERBROOK DR., NW  
ATLANTA, GA 30318

CORRECTION: The author of the "Telephone Toll Accumulator" program listed in Volume 1 Number 10, Page U, is not John Marler as listed. The author is Fred Blechman, Canoga Park, CA, who owns statutory rights and copyright privilege on this program. Sorry for the error.

SAVE 10%, 15% OR MORE ON ALL COMPUTERS, PERIPHERALS, SOFTWARE, AND ALL OTHER FINE 'RADIO SHACK' ® PRODUCTS.

NO TACES ON OUT-OF-STATE SHIPMENTS.

WARRANTIES WILL BE HONORED BY YOUR LOCAL 'RADIO SHACK' ® STORE.

VERBATIM DISK \$3.50

HENRY'S ENGINEERING CO.  
P. O. BOX 629  
PRINCE FREDERICK, MD 20678  
(301) 855-6777 (301) 535-3142

71 Tunis Bay  
Winnipeg, Manitoba  
R3T 2X2 Canada  
October 29, 1978

Dear Bob:

Hurrah!!! Finally something on cheap printers. I have a couple of 28's (patiently ?) gathering dust waiting for something like the TTEL-101 you mentioned in the newsletter.

Please tell me more. What is the TTEL-101? Who makes it? Can it get around the missing characters on the 28? Are you planning something like a group purchase for the Users Group? What will it cost? Should I start on an ASCII to Baudot converter, or does the TTEL-101 handle that also?

I ran into a strange one with Gene Perkins' Pillbox 2 (Vol. 1, #3). I loaded it and it ran fine for some time. A couple of weeks later I got .. HOW? 86# RES.(A(I)?,A(I-1)). After some head scratching I changed the program to 851 X=A(I):Y=A(I+1) 36# RESET(X,Y) and ran it again. I wasn't too surprised when I got .. HOW? 86# RESET(X?,Y). I put a temporary stop at 852 and called up A,B,I,X and Y. They were .261803,14,0,-1.00392, and -1.00392 respectively. Now I had a clue, with I at 0 no wonder I got some strange results for X and Y coordinates. I took a look at the trajectory part of the program and from line 760 it appears that B starts at value 2. I changed line 850 to read F.I=2T0BS.2. Simple right! Question remains why did the program ever run for me at all? Any one have any ideas?

The number base conversion program by Wayne Levin in the #6 issue also won't run for me. It bombs out at line 500, probably because it doesn't have a line 700 to go to. I must admit that I have not tried very hard to debug it, but perhaps someone (Wayne?) could save me and other subscribers the trouble.

The TTL-101 Did not get off the drawing board. Peter Knip

DEAR TRS-80 USERS GROUP:

I HAVE DISCOVERED SOME FLUKES WITH MY TRS-80 AND WONDERED IF ANY OTHER MEMBERS HAVE NOTICED THE SAME PROBLEMS. ALTHOUGH THE MANUAL SAYS YOU CAN WRITE OUT 255 BYTES, MY SYSTEM WILL ONLY READ 249 BYTES BACK FROM TAPE. I SUSPECT THE LOST SIX BYTES ARE USED FOR CONTROL INFORMATION. ALSO ON MY SYSTEM IF YOU WRITE CHR\$(0) OR CHR\$(13) OR CHR\$(58) TO TAPE, YOU CANNOT READ THEM BACK FROM TAPE. IF ONE OF THESE CHARACTERS IS ENCOUNTERED DURING A TAPE READ, IT WILL TERMINATE THAT READ. ALL DATA BEHIND THAT CHARACTER IS LOST. I CANNOT UNDERSTAND THE USE OF CHR\$(0), BUT I WONDER WHY THE OTHER TWO ARE USED.

P. S. GORDON - KEEP UP THE GOOD WORK. WE SERVICEMEN OVER HERE IN ATHENS, GREECE ENJOY YOUR NEWSLETTER.

ROBERT DANIEL  
PSC BOX 2088  
APO N. Y. 09223

#### VISTA V80 MINI DISK SYSTEM

1. 23% MORE STORAGE CAPACITY
  2. FASTER DRIVER - 40MS FOR TRS-80
  3. DOUBLE DENSITY FOR DOUBLE STORAGE
- HERE'S WHAT YOU GET: MINIFLOPPY DISK DRIVE  
POWER SUPPLY  
REGULATOR BOARD  
COMPACT CASE

FOR MORE INFO & PRICE - WRITE TO THE USERS GROUP

TRS-80 LEVEL I 4K PROGRAMS FOR SALE

The following programs are available on cassette - any FOUR for \$7.95, postpaid USA. California residents add 6% sales tax.

- (1) Telephone Toll Totalizer: Save money on toll calls. Includes instructions and details of how toll calls are billed, including discount periods. Keeps track of total minutes on the call, total cost, seconds to next charge. Actually counts-down by the second to the next charge. No connection to the phone line needed.
- (2) Invest or Save?: Evaluates an investment over a period of time, and compares it with the same amount of money left in a savings account. Have you made any money on that silver or gold investment, or shares of stock, or bonds - or would you have been better off leaving it in the bank? Also tells you future value of an anticipated investment.
- (3) Mortgage Loan: Calculates monthly payment for any principal, interest and number of months, and displays tabulation of principal, interest, principal-paid-to-date, interest-paid-to-date, and balance remaining, for each month. Also shows last payment and total interest. Can also be used with any payment you specifies, and shows final balloon payment.
- (4) Interest Calculations: Daily, monthly, quarterly or annual interest calculations for any (reasonable) principal, period and interest rate. Will tabulate interest for each period, total interest and total value for each period.
- (5) Pay Now or Pay Later?: Many professionals, such as doctors, dentists and lawyers, do not charge interest if you pay them monthly. Find out how much you'll save by doing this - you'll be surprised! Just put the amount of the bill in a savings account and pay monthly, instead of paying the whole bill at once. See how much you save!
- (6) Changing Billboard: For counter or window display in a store or at a business show, you can use your TRS-80 as an advertising billboard, programmed with your own changing message.
- (7) Adding Machine: Use your TRS-80 as a printing adding machine. Prints and adds entries in a column. Subtotals, too.
- (8) Digital Clock: Displays hours, minutes and seconds in 12 or 24 hour format.
- (9) Simplified Bookkeeping: Totals up to 12 columns. You enter amount of, for example, an expense, and the column this expense would fall in. Column 1 is the amount, and you have 11 other columns for whatever categories you choose. Program adds all columns and displays totals.
- (10) Order Checking: Displays and adds four columns, shows totals of all columns and adds tax and handling. For verifying invoices. Easily modified for whatever tax or handling you desire.

FRED BLECHMAN K6UGT  
7217 BERNADINE AVE.  
CANOGA PARK, CA 91307  
Phone: (213) 346-7024

JEFF BRINER

ROUTE 1, BOX 260, HICKORY, N. C. 28601

Sept. 22, 1978

R. G. Lloyd  
TRS-80 Newsletter  
7554 Southgate Rd.  
Fayetteville, N.C. 28304

Dear Bob,

Issue #8 looks great. The printer really makes the program listings look good and easier to follow.

Have a couple of items that may be of interest to the members.

If anyone is looking for QUALITY and QUANTITY software, they should order the TRS-80 Library 100 from The Bottom Shelf, P.O. Box 49104, Atlanta, Ga. 30359. 100 programs for 49.50 (+2.00 ship.)

I don't have all of the programs, just the first 50 along with the enclosed letter, which speaks for itself. I am very impressed with the programs I have received. With the exception of a few typografikal (funny) errors, the programs seem to work fine.

Probably what impressed me most about these fellows is the fact that they chose to respond to their orders in the manner they did. Another company might have 1) let us sit out here for another couple of months waiting for something, or 2) rushed things up and released the programs with potential errors in them.

You can see by their pricing that they aren't out to rip anyone off when it comes to money. 100 programs for \$50.00 sounds too good to be true...but it is.

The other item is the enclosed flyer I received from our new computer outlet here in Hickory. He hopes to have a unit in by our next meeting, and I am eagerly awaiting its' arrival.

Oh yeah...If you haven't already ordered your copy (subscription) of TRS-80 Computing run (don't walk) to the postoffice and send in your order. At \$10.00 for 12 issues, it too is a quality and quantity item. I just saw the first issue, and can't wait for my copies to arrive. Address on this is Computer Information Exchange, Inc. PO Box 158 San Luis Rey, Ca. 92068.

Hope that you and the readers can make use of some of this information.

Adios,

