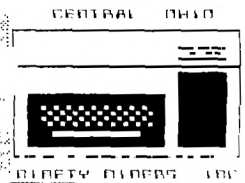


Spirit of 99

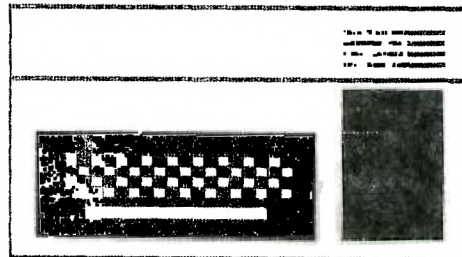


THE OFFICIAL NEWSLETTER OF THE CENTRAL OHIO NINETY-NINERS INC.

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NINETY-NINERS INC

Spirit of 99

THE OFFICIAL NEWSLETTER OF CENTRAL OHIO NINETY-NINERS

VOL 2 NO 3 MARCH 1984



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Central Ohio Ninety-Niners Inc. is a non-profit organization comprised of MEMBERS who own or use the TI994/A computer and it's related products and have paid a yearly membership fee of \$15.00 and whose main objective is the exchange of EDUCATIONAL and SCIENTIFIC information for the purpose of computer literacy.

C.O.N.N.I. meetings are held on the Second Saturday of each month at the Martin Janis Senior Center on East Eleventh Avenue at the Ohio State fairgrounds. Meeting time is at 9:AM, Meetings are open to the public. Membership dues (\$15.00) are payable yearly to C.O.N.N.I. and cover the immediate family of the member. (an application has been placed in this news letter for your convenience). Please address it to ADVERTISING ADDRESS ABOVE.

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PAT SATURN (ED)



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AS THE NEW ADMINISTRATION BEGINS, WE WANT THANK THE PREVIOUS ADMINISTRATION FOR A JOB WELL DONE!
PAT SATURN, 1ST PRESIDENT
ROGER WILLS, PAST PRESIDENT
PAUL POWERS, VP
DR. WILLIAM ZIPF, SECRETARY
ART MORGAN, TREASURER
ROD LEVERSEE, LIBRARIAN

THESE INDIVIDUALS, WITH THE HELP OF MANY OTHERS, ACCOMPLISHED MANY TASKS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

- .CREATED CONNI WITH A CURRENT MEMBERSHIP OF 294 MEMBERS
- .ADOPTED BY-LAWS AND INCORPORATED THE CLUB
- .DEVELOPED A SOFTWARE LIBRARY OF OVER 200 PROGRAMS
- .CREATED AND PUBLISHED "SPIRIT OF 99" MONTHLY
- .FOUNDED A REGULAR MEETING PLACE
- .INITIATED CLASSES FOR BASIC AND ASSEMBLY PROGRAMMING

WE THANK THE MARTIN JANIS SENIOR CITIZENS CENTER FOR AN EXCELLENT MEETING PLACE

RETAIL MERCHANTS HAVE PLAYED A SIGNIFICANT ROLE IN OUR DEVELOPMENT IN MANY WAYS AND WE ACKNOWLEDGE THEM:

- .SUN TV AND APPLIANCES
- .COMMANDER SYSTEMS
- .SOFTWARE CITY
- .TIGERCUB SOFTWARE
- .CELJIM ENTERPRISES

.MILLERS GRAPHICS
.AMLIST, INC.

A HEARTY THANKS TO TEXAS INSTRUMENTS FOR AN OUTSTANDING HOME COMPUTER AND SUPPORT TO OUR CLUB

HOW DO THEY DO IT TO ACCOMPLISH. AND THE NEW ADMINISTRATION HAS ALREADY STARTED TO FINETUNE A DYNAMIC CLUB.

YOUR OFFICERS FOR THIS NEW YEAR:
.SAM MORABITO, PRES.
.ROGER WILLS, V-PRES.
.KIM LaFOLETTE, SEC.
.ART MORGAN, TREAS.
.ROD LEVERSEE, LIBRARIAN

IT IS THE GOAL OF THIS PRESIDENT AND ADMINISTRATION TO ENCOURAGE PARTICIPATION AND EDUCATE IT'S MEMBERS.

ONE WAY WE'LL ACCOMPLISH THIS IS BY ORGANIZING ACTIVE COMMITTEES. AT OUR MARCH MEETING, WE SHALL ESTABLISH THE FOLLOWING COMMITTEES:
.LIBRARY
.PROGRAM
.MEMBERSHIP
.EDUCATION
.WAYS & MEANS

ADDITIONALLY WE WILL SEEK HELP FOR OUR NEWSLETTER AND METHODS TO CONTROL AND FORMAT OUR REGULAR MEETINGS.

IN SHORT, WE HAVE SOME HARD WORK AHEAD OF US, BUT WITH ALL THE TALENT I KNOW WE

SHOULD BE GREAT AND THE RESULT WILL BE MUCH FUN AND PLEASURE FOR ALL OF US.
LOOKING FORWARD TO SEEING YOU ON MARCH 10 !
SAM MORABITO, PRES.

AGENDA: MAR 10, 1984

- 8:30 BOOKS OPEN FOR CONNI MEMBERS SET-UP
- 9:00 OPEN TO PUBLIC CHECK-IN LIBRARY TAPES
- 10:00 BUSINESS MEET'G
- 10:15 PROGRAM-DICK WALKER, atty. COPYRIGHT
- 10:45 ADJOURN MEET'G
- 10:50 CLASSES AND OPEN EXHIBITS LIBRARY OPENS
- 11:30 COMMITTEE CHAIRPERSONS MEETING WITH PRESIDENT
- 12:00 CLEAN UP AND END OF MEETING

COMPUTER PROGRAMS

on CASSETTS FOR TI 99/4A, AT BARGAIN prices...Music composition, Design graphics, Spelling Quiz, Mathematics, Bookkeeping, Brain teasers, Geography, and more.

One for six dollars
Two for Ten dollars
Ten for twenty-five dollars. Dual Cassette Cable W/Remote \$17. W/O Remote \$16.00 Single Cassette \$11.00. ORDER NOW TO ASSURE DELIVERY at NEXT MEETING or ORDER BY MAIL or MY HOME DEMO CALL SUMAN 614-459-5385 After 6 or weekends.

IN MEMORY OF

On Monday, February 13, Earl Dodd passed away, and C.O.N.N.I. lost not only a charter member but also a friend.

Most members will probably remember Earl for standing up at several meetings and saying that if anyone needed help learning to use the computer he would be glad to help. He was very interested in programming music for the computer and had donated a program to the club library that he had written to aid in programming music.

Earl was friends with everyone and people couldn't help but like him. He was always in good humor and willing to lend a hand.

He never missed a meeting of C.O.N.N.I. and took a very active interest in in anything related to computers.

He was also an active member of the Singing Buckeyes and was very proud of that group.

C.O.N.N.I. will not be the same without Earl. The meetings will be a little emptier and the club will have lost a valuable resource.

Earl Dodd's funeral was Saturday, February 18. C.O.N.N.I. is establishing a memorial in Earl's name with the Heart Fund, anyone wishing to donate to this memorial may do so at the next meeting.

Earl is survived by a brother, a daughter and many friends.

The following is a reprint of Earls music program. One of his many contributions to C.O.N.N.I.

```

50 CALL CLEAR          180 DQ=DW/4
60 CALL SCREEN(16)     190 DE=DW/8
70 FOR Z=0 TO 1        200 DS=DW/16
80 CALL CLEAR          210 DT=DW/32
90 PRINT               220 DU=DW/64
100 W=1800             230 EF1=116.54
110 H=W/2              240 E1=123.47
120 Q=W/4              250 C1=130.81
130 -                  260 CS1=138.59
140 E=W/8              260 CS1=138.59
150 S=W/16             270 DF1=138.59
160 DW=W+H             280 D1=146.83
170 DH=DW/2            290 DS1=155.56

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300 EF1=155.56
310 E1=164.81
320 F1=174.61
330 FS1=184.99
340 GF1=184.99
350 G1=195.99
360 GS1=207.65
370 AF1=207.65
380 A2=220
390 AS2=233.08
400 BF2=233.08
410 B2=246.94
420 C2=261.62
430 CS2=277.18
440 DF2=277.18
450 D2=293.66
460 DS2=311.12
470 EF2=311.12
480 E2=329.62
490 F2=349.22
500 FS2=369.99
510 GF2=369.99
520 G2=391.99
530 GS2=415.30
540 AF2=415.30
550 A3=444
560 AS3=466.16
570 BF3=466.16
580 B3=493.68
590 C3=523
600 CS3=554.36
610 DF3=554.36
620 D3=587.33
630 DS3=622.25
640 EF3=622.25
650 E3=659.25
660 F3=698.45
670 FS3=739.98
680 GF3=739.98
690 G3=783.99
690 G3=783.99
700 GS3=830.60
710 AF3=880
720 A4=880
730 AS4=932.32
740 BF4=932.76
750 B4=987.76
760 C4=1046.50
770 CS4=1108.73
780 DF4=1108.73
790 D4=1177.56
800 DS4=1244.50
810 EF4=1244.50
820 E4=1318.51
830 F4=1396.91
840 FS4=1479.97
850 GF4=1479.97
860 G4=1567.98
870 GS4=1661.21
880 AF4=1661.21

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CONTINUED

```

890 A5=1760
900 PRINT "      TO-NIGHT I'M"
: :
910 PRINT "      DOWN-HEART-ED
," : :
920 CALL SOUND(Q,G2,0,E3,8,C
1,4)
930 CALL SOUND(Q,A3,0,DS3,8,
F1,4)
940 CALL SOUND(Q,B3,0,D3,8,F
S1,4)
950 CALL SOUND(Q,A3,0,D3,8,F
1,4)
960 CALL SOUND(Q,G2,0,E3,8,C
1,4)
970 CALL SOUND(DQ,E2,0,G3,8,
C2,4)
980 PRINT "      FOR THOUGH":
:
990 CALL SOUND(E,G2,2,E3,8,C
1,4)
1000 CALL SOUND(Q,A3,0,DS3,8
,F1,4)
1010 PRINT "      WE HAVE": :
1020 CALL SOUND(Q,B3,0,D3,8,
FS1,4)
1030 CALL SOUND(Q,A3,0,D3,8,
F1,4)
1040 CALL SOUND(Q,G2,0,E3,8,
C1,4)
1050 PRINT "      PARTED": :
1060 CALL SOUND(DQ,E2,0,G3,8
,C2,4)
1070 PRINT "      I LOVE YOU":
:
1080 CALL SOUND(E,E2,0,CS3,8
,BF2,4)
1090 CALL SOUND(Q,F2,0,D3,8,
B2,4)
1100 CALL SOUND(Q,G2,0,E3,8,
B2,4)
1110 PRINT "      AND I": :

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```

1120 CALL SOUND(Q,F2,0,D3,8,
B2,4)
1130 CALL SOUND(Q,E2,0,G3,8,
B2,4)
1140 CALL SOUND(Q,D2,0,F3,8,
B2,4)
1150 PRINT "      ALWAYS WILL.
": :
1160 CALL SOUND(Q,E2,0,G3,8,
B2,4)
1170 CALL SOUND(H,G2,0,E3,8,
C1,4)
1180 CALL SOUND(E,C2,0,G3,8,
C2,4)
1190 CALL SOUND(E,B2,0,E3,8)
1200 CALL SOUND(H+S,G2,0,E3,
8,BF2,4)
1210 PRINT "      AND WHILE":
:
1220 CALL SOUND(Q,GS2,0,B4,8
,E1,4)
1220 CALL SOUND(Q,GS2,0,B4,8
,E1,4)
1230 CALL SOUND(Q,A3,0,E3,8,
C2,4)
1240 CALL SOUND(Q,B3,0,D3,8,
GS1,4)
1250 PRINT "      I'M SO LONE-
LY," : :
1260 CALL SOUND(Q,C3,0,E3,8,
A2,4)
1270 CALL SOUND(Q,B3,0,D3,8,
GS2,4)
1280 CALL SOUND(H,A3,0,C3,8,
E1,4)
1290 PRINT "      I'M WRITING"
: :
1300 CALL SOUND(E,A3,2,EF3,8
,B2,4)
1310 CALL SOUND(Q,B3,0,D3,8,
G2,4)
1320 CALL SOUND(Q,C3,0,FS3,8

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,A2,4)
1330 PRINT "      YOU ONLY": :
:
1340 CALL SOUND(Q,D3,0,G3,8,
B2,4)
1350 CALL SOUND(Q,C3,0,A4,8,
D2,4)
1360 CALL SOUND(H+S,B3,0,GS3
,8,D2,4)
1370 PRINT "      TO SEE": :
1380 CALL SOUND(E,B3,2,GS3,8
,D2,4)
1390 CALL SOUND(Q,C3,0,A4,8,
E2,4)
1400 PRINT "      IF YOU": :
1410 CALL SOUND(Q,D3,0,GS3,8
,B2,4)
1420 CALL SOUND(Q,C3,0,G3,8,
A2,4)
1430 PRINT "      CARE FOR": :
:
1440 CALL SOUND(Q,B3,0,FS3,8
,D2,4)
1450 CALL SOUND(Q,B3,2,G3,8,
D2,4)
1460 CALL SOUND(Q,B3,0,FS3,8
,D2,4)
1470 PRINT "      ME STILL.":
:
1480 CALL SOUND(H,G2,0,F3,8,
B2,4)
1490 CALL SOUND(Q,E3,2,BF2,2
,CS1,2)
1500 CALL SOUND(DH,G2,1,F3,3
,B2,5)
1510 CALL CLEAR
1520 PRINT "      ARE YOU": :
1530 CALL SOUND(E,E2,0)
1540 CALL SOUND(E,G2,0)
1550 CALL SOUND(Q,C3,0,E3,8,
G1,4)
1560 PRINT "      LONE-SOME":

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:
1570 CALL SOUND(D0,B3,0,E3,8
,G1,4)
1580 PRINT "    TO-NIGHT?":
:
1590 CALL SOUND(E,C3,0,E3,8,
G1,4)
1600 CALL SOUND(H,B3,0,DS3,8
,FS1,4)
1610 PRINT "    DO YOU":
1620 CALL SOUND(E,E2,0,C3,8)

1630 CALL SOUND(E,G2,0,E3,8)

1640 CALL SOUND(Q,B3,0,E3,8,
G1,4)
1650 PRINT "    MISS ME?":
:
1660 CALL SOUND(D0,A3,0,E3,8
,C1,4)
1670 PRINT "    TO-NIGHT":
:
1680 CALL SOUND(E,B3,0,E3,8,
G1,4)
1690 CALL SOUND(H,A3,0,E3,8,
C1,4)
1700 PRINT "    ARE YOU":
1710 CALL SOUND(E,E2,0,C3,8,
G1,4)
1720 CALL SOUND(E,G2,0,E3,8,
C1,4)
1730 CALL SOUND(Q,A3,0,E3,8,
C1,4)
1740 PRINT "    SOR-RY WE":
:
1750 CALL SOUND(Q,G2,0,E3,8,
C1,4)
1760 CALL SOUND(Q,A3,0,E3,8,
G2,4)
1770 CALL SOUND(Q,G2,0,CS3,8
,A1,4)
1780 PRINT "    DRIFT-ED":

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1790 CALL SOUND(D0,F2,0,D3,8
,BF1,4)
1800 PRINT "    A-PART":
1810 CALL SOUND(E,E2,0,C3,8,
G2,4)
1820 CALL SOUND(Q,A3,0,D3,8,
F1,4)
1830 CALL SOUND(Q,F3,0,D2,4)

1840 CALL SOUND(Q,CS2,0,G3,8
,E1,4)
1850 PRINT "    DOES YOUR":
:
1860 CALL SOUND(H,A3,0,F3,8,
D1,4)
1870 PRINT "    MEM-O-RY":
:
1880 CALL SOUND(E,F2,0,D3,8,
A2,4)
1890 CALL SOUND(E,A3,0,D3,8,
F1,4)
1900 CALL SOUND(H,C3,0,F3,8,
A2,4)
1910 PRINT "    STRAY":
1920 CALL SOUND(E,B3,0,F3,8,
D1,4)
1930 CALL SOUND(E,C3,0,F3,8,
A2,4)
1940 CALL SOUND(H,B3,0,F3,8,
D1,4)
1950 PRINT "    TO A BRIGHT"
:
1960 CALL SOUND(E,F2,0,D3,8,
B2,4)
1970 CALL SOUND(E,G2,0,E3,8,
B2,4)
1980 CALL SOUND(H,B3,0,F3,8,
D1,4)
1990 PRINT "    SUM-MER DAY"
:
2000 CALL SOUND(E,A3,0,D3,8,
F1,4)

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2010 CALL SOUND(E,B3,0,E3,8,
G1,4)
2020 CALL SOUND(H,A3,0,F3,8,
D1,4)
2030 PRINT "    WHEN I":
2040 CALL SOUND(E,D2,0,F3,8,
B2,4)
2050 CALL SOUND(E,E2,0,G3,8,
B2,4)
2060 CALL SOUND(Q,F2,0,G3,8,
D1,4)
2070 PRINT "    KISSED YOU":
:
2080 CALL SOUND(Q,G2,0,F3,8,
D1,4)
2090 CALL SOUND(Q,A3,0,F3,8,
D1,4)
2100 PRINT "    AND CALLED "
:
2110 CALL SOUND(Q,C3,0,D3,8,
F1,4)
2120 CALL SOUND(D0,B3,0,E3,8,
G1,4)
2130 PRINT "    YOU SWEET-HE
ART?":
2140 CALL SOUND(E,G2,0,F3,8,
D1,4)
2150 CALL SOUND(Q,E2,0,G3,8,
C1,4)
2160 CALL SOUND(Q,G2,4,E3,4,
C2,4)
2170 PRINT "    DO THE":
2180 CALL SOUND(Q,C1,0,BF2,0
,E3,8)
2190 CALL SOUND(D0,G2,0,F3,8
,B2,4)
2200 PRINT "    CHAIRS IN":
:
2210 CALL SOUND(E,G2,2,F3,8,
D1,4)
2220 CALL SOUND(E,A3,0,F3,8,
D1,4)

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2230 CALL SOUND(Q,BF3,0,E3,8
,G1,4)
2240 PRINT "    YOUR PARLOR"
: :
2250 CALL SOUND(Q,A3,0,E3,8,
C1,4)
2260 CALL SOUND(Q,G2,0,E3,8,
BF2,4)
2270 CALL SOUND(Q,C3,0,E3,8,
BF2,4)
2280 CALL SOUND(DQ,A3,0,E3,8
,C1,4)
2290 PRINT "    SEEM EMPTY":
:
2300 CALL SOUND(E,C3,0,E3,8,
B2,4)
2310 CALL SOUND(Q,G2,0,C3,8,
A2,4)
2320 PRINT "    AND BARE?":
:
2330 CALL SOUND(Q,F2,0,C3,8,
A2,4)
2340 CALL SOUND(Q,E2,0,CS3,8
,G1,4)
2350 CALL SOUND(DH,F2,0,D3,8
,A2,4)
2360 PRINT "    DO YOU GAZE"
: :
2370 CALL SOUND(E,A3,0,G3,8,
CS2,4)
2380 CALL SOUND(E,B3,0,G3,8,
E1,4)
2390 CALL SOUND(Q,C3,0,FS3,8
,A2,4)
2400 PRINT "    AT YOUR": :
2410 CALL SOUND(Q,B3,0,F3,8,
D1,4)
2420 PRINT "    DOOR STEP":
:
2430 CALL SOUND(Q,A3,0,F3,8,
D1,4)
2440 CALL SOUND(Q,D3,0,FS3,8

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,A2,4)
2450 CALL SOUND(DQ,B3,0,FS3,
8,D1,4)
2460 PRINT "    AND PIC-TURE"
": :
2470 CALL SOUND(E,D3,0,FS3,8
,A1,4)
2480 CALL SOUND(Q,A3,0,F3,8,
D1,4)
2490 PRINT "    ME THERE?":
:
2500 CALL SOUND(Q,G2,0,F3,8,
D1,4)
2510 CALL SOUND(Q,FS2,0,E3,8
,A52,4)
2520 PRINT "    IS YOUR": :
2530 CALL SOUND(H,G2,0,F3,8,
B2,4)
2540 PRINT "    HEART FILLED"
": :
2550 CALL SOUND(E,E2,0)
2560 CALL SOUND(E,G2,0)
2570 CALL SOUND(Q,C3,0,E3,8,
G1,4)
2580 PRINT "    WITH PAIN,":
:
2590 CALL SOUND(DQ,B3,0,E3,8
,G2,4)
2600 PRINT "    SHALL I": :
2610 CALL SOUND(E,C3,0,E3,8,
G1,4)
2620 CALL SOUND(H,B3,0,D3,8,
FS1,4)
2630 PRINT "    COME BACK":
:
2640 CALL SOUND(E,C3,0,E3,8,
A2,4)
2650 CALL SOUND(E,CS3,0,G3,8
,E1,4)
2660 CALL SOUND(Q,E3,0,FS3,8
,A2,4)
2670 PRINT "    A-GAIN?": :

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2680 CALL SOUND(DQ,D3,0,FS3,
8,A2,4)
2690 PRINT "    TELL ME": :
2700 CALL SOUND(E,E3,0,FS3,8
,D1,4)
2710 CALL SOUND(H,D3,0,FS3,8
,A2,4)
2720 PRINT "    DEAR,": :
2730 CALL SOUND(E,GS2,0,F3,8
,E2,4)
2740 CALL SOUND(E,A3,0,FS3,8
,D1,4)
2750 CALL SOUND(H,C3,0,F3,8,
D1,4)
2760 PRINT "    ARE YOU": :
2770 CALL SOUND(E,B3,0,F3,8,
G1,4)
2780 CALL SOUND(E,A3,0,FS3,8
,D1,4)
2790 CALL SOUND(Q,B3,0,F3,8,
D1,4)
2800 PRINT "    LONE-SOME":
:
2810 CALL SOUND(Q,C3,0,F3,8,
D1,4)
2820 PRINT "    TO-NIGHT I'M"
": :
2830 CALL SOUND(Q,D3,0,F3,8,
G1,4)
2840 PRINT "    DOWN-HEARTED"
": :
2850 CALL SOUND(Q,D3,2,E3,8,
BF2,4)
2860 CALL SOUND(Q,C3,0,E3,8,
A2,4)
2870 CALL SOUND(Q,BF3,0,E3,8
,G1,4)
2880 CALL SOUND(Q,D3,0,E3,8,
BF2,4)
2890 PRINT "    BE-CAUSE": :
2900 CALL SOUND(DQ,C3,0,E3,8
A2,4)

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(CONTINUED)

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2910 PRINT "      YOU ARE": :
2920 CALL SOUND(E,C3,2,E3,8,
BF2,4)
2930 CALL SOUND(Q,G2,0,C3,8,
A2,4)
2940 PRINT "      GONE THOUGH"
: :
2950 CALL SOUND(Q,F2,0,C3,8,
A2,4)
2960 PRINT "      THOUGH": :
2970 CALL SOUND(Q,E2,0,CS3,8
,G1,4)
2980 PRINT "      I TRY TO": :
2990 CALL SOUND(H,F2,0,D3,8,
A2,4)
3000 PRINT "      FOR-GET YOU"
: :
3010 CALL SOUND(E,A3,0,G3,8,
CS1,4)
3020 CALL SOUND(E,B3,0,G3,8,
E1,4)
3030 CALL SOUND(Q,C3,0,FS3,8
,A2,4)
3040 PRINT "      MY LOVE": :
3050 CALL SOUND(Q,B3,0,F3,8,
D1,4)
3060 CALL SOUND(Q,A3,0,F3,8,
C2,4)
3070 PRINT "      LIN- GERS ON,
": :
3080 CALL SOUND(Q,D3,0,FS3,8
,A2,4)
3090 CALL SOUND(DQ,B3,0,FS3,
8,D1,4)
3100 CALL SOUND(E,D3,0,FS3,8
,A2,4)
3110 CALL SOUND(Q,A3,0,F3,8,
D1,4)
3120 PRINT "      IS YOUR": :
3130 CALL SOUND(Q,G2,0,F3,8,
D1,4)

```

```

3140 CALL SOUND (Q, A3, 0, F3, 8,
D1, 4)
3150 CALL SOUND (H+E, AF2, 0, GF
3, 8, C2, 4)
3160 PRINT "      HEART-FILLED
": :
3170 CALL SOUND (E, F2, 0)
3180 CALL SOUND (E, AF3, 0)
3190 CALL SOUND (Q, DF3, 0, F3, 8
, AF2, 4)
3200 CALL SOUND (DQ, C3, 0, F3, 8
, AF2, 4)
3210 PRINT "      WITH PAIN, ":
:
3220 CALL SOUND (E, DF3, 0, F3, 8
, AF2, 4)
3230 CALL SOUND (H, C3, 0, EF3, 8
, A2, 4)
3240 PRINT "      SHALL I": :
3250 CALL SOUND (E, DF3, 0, F3, 8
, BF2, 4)
3260 CALL SOUND (E, D3, 0, AF4, 8
, BF2, 4)
3270 CALL SOUND (Q, F3, 0, G3, 8,
DF2, 4)
3280 PRINT "      COME BACK":
:
3290 CALL SOUND (DQ, EF3, 0, G3,
8, DF2, 4)
3300 PRINT "      A-GAIN?": :
3310 CALL SOUND (E, F3, 0, G3, 8,
DF2, 4)
3320 CALL SOUND (H, EF3, 0, G3, 8
, DF2, 4)
3330 PRINT "      TELL ME, ": :
3340 CALL SOUND (E, A3, 0, FS3, 8
, DF2, 4)
3350 CALL SOUND (E, BF3, 0, G3, 8
, DF2, 4)
3360 CALL SOUND (H, DF3, 0, GF3,
8, BF2, 4)

```

```

3370 PRINT "      DEAR, ARE":
:
3380 CALL SOUND(E,C3,0,G3,8,
EF2,4)
3390 CALL SOUND(E,BF3,0,G3,8
,DF1,4)
3400 CALL SOUND(Q,C3,0,GF3,8
,EF2,4)
3410 PRINT "      YOU":
3420 CALL SOUND(Q,DF3,0,GF3,
8,BF2,4)
3430 PRINT "      LONE-SOME":
:
3440 CALL SOUND(Q,EF3,0,GF3,
8,C2,4)
3450 CALL SOUND(Q,DF3,0,G3,8
,BF1,4)
3460 PRINT "      TO-NIGHT?":
:
3470 CALL SOUND(Q,EF3,4,BF2,
4,GF1,4)
3480 CALL SOUND(E,G3,2,BF2,2
,EF1,2)
3490 CALL SOUND(H,DF3,0,F3,5
,AF2,4)
3500 FOR V=0 TO 30 STEP .5
3510 CALL SOUND(-999,DF3,V,F
3,V,DF1,V)
3520 NEXT V
3530 NEXT Z
3540 END

```

DUE TO TAPE AND EQUIP-
 MENT PROBLEMS; AN ARTI-
 CLE ON BSS'S COULD
 NOT BE PRINTED IN THIS
 NEWSLETTER.
 THE AUTHOR, GAIL KING-
 LEY WILL TELL US ABOUT
 THEM AT THE MEETING.

BIGGIES BITS

To use the 28 COLUMN
LISTER follow this:

- 1) Find the program
you want listed in a
28 column format.
- 2) LIST "DSK1.NAME"
that program onto a
disk. Make sure that
the NAME is not the
same as the original
program's name!
- 3) RUN "DSK1.COLUMN"
- 4) Give the NAME
- 5) Give printer name
- 6) Wait until done!

This program is very
useful for editors of
the users groups news-
letters. It makes it
easier for a user to
type in a program from
a listing!

```
100 ! *****
    * 28 COLUMN LISTER *
    * BY NIRAJ N. SHAH *
    *****
110 DIM A$(1000):: CALL CLEA
R :: INPUT "WHAT IS THE FILE
NAME? DSK1.":FN$ :: FN
$="DSK1."&FN$ :: PRINT :
120 INPUT "WHAT IS THE PRINT
ER'S NAME?":PN$ :: OPEN #1:
FN$,DISPLAY,VARIABLE 80,INP
UT :: OPEN #2:PN$ :: FOR L=1
TO 1000 :: LINPUT #1:A$(L)
```

```
130 IF LEN(A$(L-1))=80 OR LE
N(A$(L-1))=160 THEN A$(L-1)=
A$(L-1)&A$(L):: L=L-1
140 IF EOF(1)THEN L=L+1 :: G
OTO 160
150 NEXT L
160 FOR I=1 TO L-1 :: B$=SEG
$(A$(I),1,28):: C$=SEG$(A$(I
),29,28):: D$=SEG$(A$(I),57,
28):: E$=SEG$(A$(I),85,28)::
F$=SEG$(A$(I),113,28)
170 G$=SEG$(A$(I),141,28)::
H$=SEG$(A$(I),169,28):: I$=S
EG$(A$(I),197,28):: J$=SEG$(
A$(I),225,28):: PRINT #2:B$
180 IF C$<>"" THEN PRINT #2:
C$ :: IF D$<>"" THEN PRINT #
2:D$ :: IF E$<>"" THEN PRINT
#2:E$ :: IF F$<>"" THEN PRI
NT #2:F$
190 IF G$<>"" THEN PRINT #2:
G$ :: IF H$<>"" THEN PRINT #
2:H$ :: IF I$<>"" THEN PRINT
#2:I$ :: IF J$<>"" THEN PRI
NT #2:J$
200 NEXT I
210 CLOSE #2 :: CLOSE #1 ::
END
```

```
50 CALL CLEAR :: DISPLAY AT(
6,6):"Swing Yer Partner !"
60 CALL SCREEN(5):: CALL MAG
NIFY(2):: FOR I=1 TO 28 :: C
ALL SPRITE(#I,64+I,16,80,80,
3*I,8):: NEXT I :: FOR J=1 T
O 500 :: NEXT J
70 DISPLAY AT(6,6):"Swing Ye
r Neighbor !"
80 FOR I=1 TO 28 :: CALL SPR
ITE(#I,64+I,13,80,80,-3*I,8)
:: NEXT I :: FOR J=1 TO 500
:: NEXT J
90 DISPLAY AT(6,7)ERASE ALL:
"All Join Hands. Promenade
```

```
100 FOR I=1 TO 28 :: CALL SP
RITE(#I,64+I,12,80,80,3*I,-8
):: NEXT I :: FOR J=1 TO 500
:: NEXT J
110 DISPLAY AT(6,6)ERASE ALL
:"Circle To The Right!"
120 FOR I=1 TO 28 :: CALL SP
RITE(#I,64+I,14,I*6,I*2,0,I*
4):: NEXT I :: FOR J=1 TO 50
0 :: NEXT J
130 DISPLAY AT(6,6):"Circle
To The Left!"
140 FOR I=1 TO 28 :: CALL SP
RITE(#I,64+I,10,I*6,I*2,0,-I
*4):: NEXT I :: FOR J=1 TO 5
00 :: NEXT J
150 DISPLAY AT(6,10)ERASE AL
L:"Do See Do !"
160 A=1 :: FOR I=1 TO 28 ::
CALL SPRITE(#I,64+I,9,I*6,AB
S(I+249*(A<1)), -6,I*2*A):: A
=-A :: NEXT I :: FOR J=1 TO
500 :: NEXT J
170 DISPLAY AT(6,6):"Now Wal
k Her On Home !"
180 RANDOMIZE
190 FOR I=1 TO 28 :: CALL SP
RITE(#I,64+I,4,92,124,I*INT(
RND*4.5)-2.25+I/2*SGN(RND-.5
),I*INT(RND*4.5)-2.25+I/2*SG
N(RND-.5)):: NEXT I :: FOR J
=1 TO 500 :: NEXT J
200 FOR I=1 TO 28 :: CALL DE
LSPRITE(#I):: NEXT I
210 DISPLAY AT(6,4):"Want To
See That Again?":TAB(10)
;"(Y/N)" :: ACCEPT AT(8,16)S
IZE(-1)BEEP VALIDATE("YN"):Q
$
220 IF Q$="Y" THEN 50 ELSE E
ND
```

STILL MORE BIGGIE

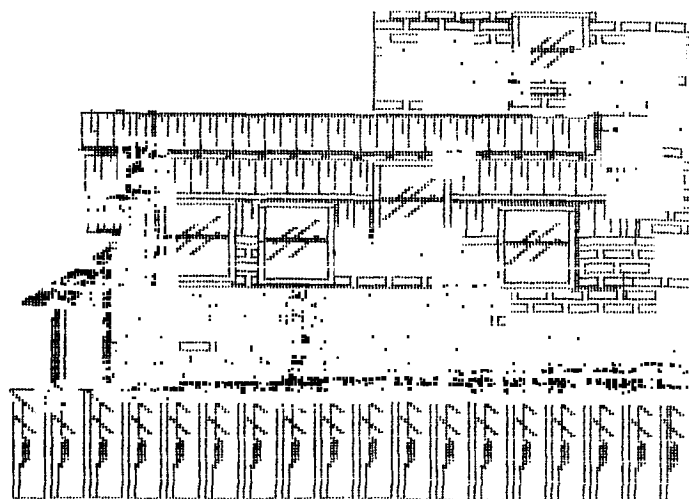
HOW TO INPUT MUSIC, USING A
PRE-TYPED AID FOR MUSIC!

#1. ENTER THE CALL SOUND
PRG. THEN TYPE RUN (NEXT)
ENTER. IT SHOULD STOP WITH
AN ERROR MESSAGE 'CAN'T DO
THAT IN 101'. #2. NEXT TYPE
IN NUM 101,1 ENTER. #3.
THEN, USING THE FCTN AND (R
ARROW) OR D KEY, MOVE THE
CURSOR OVER PASSING THE
CALL SOUND(-STATEMENT-.
#4. INPUT A DURATION VALUE
THEN A COMMA. NEXT INPUT A
NOTE THEN A COMMA. THEN
INPUT A VOLUME VALUE-THEN A
CLOSING PARENTHESES). #5.
PRESS ENTER. THEN WHEN THE
NEXT LINE 102 APPEARS,
REPEAT AS BEFORE!! ***NOW A
SAMPLE FOR YOU TO TRY.

101 CALL SOUND(E,C3,0)
102 CALL SOUND(E,C3,2)
103 CALL SOUND(Q,C3,0)
104 -----E,C3,2)
105 -----E,C3,0)
106 -----Q,C3,2)
107 -----E,C3,0)
108 -----E,EF3,0)
109 -----DE,AF2,0)
110 -----S,BF3,0)
111 -----H,C3,0)
112 -----E,DF3,0)
113 -----E,DF3,2)
114 -----DE,DF3,0)
115 -----S,DF3,2)
116 -----E,DF3,0)
117 -----E,C3,0)
118 -----E,C3,0)

119 -----S,C3,2)
120 -----S,C3,0)
121 -----E,C3,2)
122 -----E,BF3,0)
123 -----E,BF3,2)
124 -----E,C3,0)
125 -----Q,BF3,0)
126 -----Q,EF3,0)
127 -----E,C3,0)
128 -----E,C3,2)
129 -----Q,C3,0)
130 -----E,C3,2)
131 -----E,C3,0)
132 -----Q,C3,2)
133 -----E,C3,0)
134 -----E,EF3,0)
135 -----DE,AF2,0)
136 -----S,BF3,0)
137 -----Q,C3,0)
138 -----E,DF3,0)
139 -----E,DF3,2)
140 -----DE,DF3,0)
141 -----S,DF3,2)
142 -----E,DF3,0)
143 -----E,C3,0)
144 -----E,C3,2)
145 -----S,C3,0)
146 -----S,C3,2)
147 -----E,EF3,0)
148 -----E,EF3,2)
149 -----E,DF3,0)
150 -----E,BF3,0)
151 -----Q,AF2,0)
152 -----E,C3,0,GF3,
8,AF1,4)
153 -----Q,DF3,0,F3,
8,AF1,4)
154 -----Q,EF3,0,F3,
8,A1,4)
155 -----H,D3,0,F3,8
,AF1,4)
156 -----H,DF3,0,G3,

8,BF,4)
157 -----H,EF3,0,AF3
,8,C2,4) ***PRESS FCTN*4,
--THEN-- TYPE IN A LINE 158
END THEN PRESS ENTER. NOW
TYPE RUN (PRESS ENTER)
****SUGGESTED TEMPO -
1800**** **TO CHANGE THE
TEMPO**LIST LINE 20. THEN
CHANGE THE VALUE OF THE
>WHOLE< NOTE. --TO SPEED
UP TEMPO-- --INPUT A
SMALLER VALUE, FOR THE
WHOLE NOTE!-- --INPUT A
LARGER VALUE, TO SLOW THE
TEMPO! THIS IS INTENDED TO
BE DEMONSTRATION ONLY. YOU
CAN INPUT 3 NOTES,AND/OR A
NOISE. IF YOU CARE TO!



Games Section Forming.

Persons interested in forming a Games oriented Users Group Should Contact Stuart S.T. Williams at The March 10th Meeting or phone me at: 291-7893.

The Emphasis of the U.G. Will Be Game Design in Basic and Extended Basic.

Topics of concern will be cramming the most game into the available space, parsing, data storage, perhaps marking, and any other interesting topics pertaining to games.

Also the U.G. group will allow people interested in having there games play tested and critiqued to have a chance.

See you there!

Spook.

MODEMS

IT'S ME AGAIN!

FOR THOSE MEMBERS WHO WERE NOT ABLE TO ATTEND THE FEBRUARY MEETING, I HAVE THE FOLLOWING INFORMATION ABOUT BULLETIN BOARDS WHICH WAS DISCUSSED.

FROM ALAN CASDEN, CONNI MEMBER: "THERE ARE FREE BULLETIN BOARDS IN COLUMBUS THAT WE CAN USE. IF MOST OF US HOOK UP WITH THESE FREE BULLETIN BOARDS, WE WILL HAVE A VALUABLE MEDIUM TO EXCHANGE INFORMATION. OF THE THREE BULLETIN BOARDS LISTED BELOW, MODEM

MANIA SEEMS THE BEST, AND THE MOST USER FRIENDLY. AFTER YOU CONNECT WITH CBBS OR RBBS, HIT ENTER A COUPLE OF TIMES TO ESTABLISH CONTACT." MODERN MANIA 475 9791
CBBS 272 2227
RBBS 837 3269

I'M SURE MORE INFORMATION WILL BE AVAILABLE IN THE NEAR FUTURE AS THIS IS A FAST DEVELOPING AREA!

I THINK IT WOULD BE A GOOD IDEA FOR YOU MODERN PEOPLE TO ORGANIZE YOURSELVES AND EXPLORE SOME POSSIBILITIES FOR THE USE OF MODEMS WITHIN OUR CLUB! IS THERE A LEADER AMONG YOU?!!!

SAM MORABITO, PRES.

MAGAZINES IN REVIEW

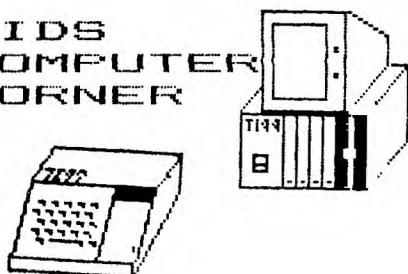
BY Jake Hinkle

This month "FAMILY COMPUTING" Family Computing is published by Scholastic Inc. Monthly. This magazine is for "The Most Popular Brands for Family use." (quote from letters). The cost is \$1.95. There are several articles on Logo in each issue along with programs written in several machines BASIC languages. In the February Issue were programs geared to winter. There is generally a puzzle program in many languages. Then there are reader-written programs which are

generally only in one language. The different program languages that can be seen side by side as they appear in the magazine, Adam (1st time was February issue), Apple, Atari, Commodore 64, VIC 20, IBM PC, TI99/4A, Timex-Sinclair (TRS 80 color computer, 1, 3, 4). The magazine is designed for the beginner. I would recommend this magazine for the following reasons,

1. Exposure to helpful information given to all computer owners.
 2. Programs to type in give you some programming knowledge.
 3. This magazine has a special feature, "HOME-SCHOOL CONNECTION" which would be of interest to parents of school aged children. For the pro, I would recommend the side by side same programs so one could use the translations of these programs or portions for future use of different translations from other single machine magazines. Most of the programs are not of the fast arcade type because they are in slow BASIC not "faster" extended BASIC. Just keep one thought in mind, we all have to start somewhere and this is a good place for beginners.
- NEXT MONTH:
"COMPUTE" TILL THEN
"HAPPY COMPUTING"

KIDS COMPUTER CORNER



This month we were asked to review the game "Je-di Math Challenge", a game written By Niraj Shah and Pat Saturn of our very own users group. The begining graphics are fun to watch, a plus to the game. The main screen asks you which math function, (ADDITION, SUBTRACTION, DIVISION, MULTIPLICATION or POWERS), you would like and then which level, (DROID, REBEL SOLDIER, or JE-DI KNIGHT). We found a few faults in this game. The first is when subtraction is chosen, sometimes the answer will be a negative (little kids do not understand negative numbers), Although author Shah says "Negative numbers are used in our school systems". An answer to this problem might be: IF B>A THEN (GO TO THE LINE THAT CHOOSES THE NUMBER). Also when addition is chosen, the curser moves from right to left not left to right. (When addition is performed, the columns are summed from right to left ED).... (The kids we tested, ranged in age from five to six and did not understand working from right to

left). In the overall review, we felt the program could use a little work. We gave it the grade of A-.

Help. We need your input. If you have any games, ideas questions or just need help.... CALL Ernie at 855-1467, or Will at 855-9271, until NEXT month Ernie and Will



Library Notes

by Rod Lerversee As

Some of you may have noticed, there has been no news from the Library the last couple of months. At least I'd like to think that you missed it. Well there is a good reason for this. The library committee has been very busy.

I think everyone knows that in December we recalled all the the tapes so backup copies could be made on disks. That has been completed and I thank you all for your help and co-operation in this matter.

We also had an exchange with the Nation Wide group. They gave us 11 disks, and we gave them 13. Some of the things we acquired

we already have, however, they did have some pretty good financial programs. We are presently trying to get a list of our programs together to swap with the Pittsburgh group.

At the last committee meeting the idea of a disk library was discussed and we are considering it. But we want to get all the bugs out of our tape library first. We are shooting for this fall right now.

Speaking of getting the tape library straightened out. There were some changes made at the last meeting some of you may not be aware of, so I will touch on them here.

We tried using two separate times for check in and check out. We found it to be very confusing to try to check tapes in and out at the same time. So what we are doing is, check in is from 8:30 until the business meeting starts at 10:00. Check out starts as soon as the meeting is over, around 11:00. Please give us time to get set up. Now I know many of you are concerned about getting the tape that you want, and believe me I know this is a problem. With a little help on your part I think we can solve some of the problem. Last month when you picked up your tape we asked you to make a copy of it. So when you turn in your copy plus the or-

CONTINUED

LIBRARY CONTINUED

iginal we will have two of everything. There was a lot of talk as to whether everyone would co-operate with this. I think the members of this club want a good library, and are willing to help. Don't let me down, make your extra copy! In the

long run it will be helping you.

We now have 83 tapes in the library, not counting the programs from Nation Wide. I hope to have them ready by next month.

In closing I just want to say that this is your library. It can be as good as you want it. But we don't know what you want

unless you tell us. Don't be shy, tell us if you have an idea. All comments are welcome at the meetings, or better still write me a letter and I will answer it in the news letter. My address is: Rod Leversee 1153 Little Plum Ln. Columbus, Ohio 43227 I want to hear from you!



DISKS AND DRIVES

Continued from
February

by T.D. Bell

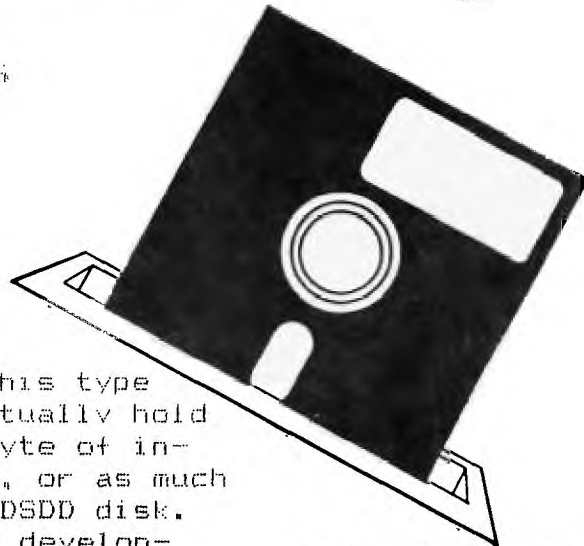
Now that I've told you about the every day floppy you use in your II, here are some more interesting facts about disks

Disk technology is constantly moving forward as you may have noticed by the article on Ultra-high density in February's newsletter.

New types of drive systems have been appearing over the years which could make our 5.25 inch floppys obsolete. (as well as the 8" versions). One of these new types is the 96-tpi (tracks per inch), format 5.25 diskette. It requires very high precision disks and disk drives to operate. Instead of the usual 40 tracks it has 80 on each side. (remember I told you disks are double sided unless they don't pass the stringent tests at the factory) A double-sided-double density 5.25"

disk of this type could virtually hold one megabyte of information, or as much as an 8" DSDD disk.

The big development seems to be the reduction of size as well as an increase in storage capacity. Some claiming to hold one Mb are under 3.5" in diameter. The not-so-wonderful part is the leaders in this technical research can't make up their minds on a standard size. There are presently three sizes to speak of, Sony's 3.5", Tabor's 3.25", and Hitachi's 3". These mini disks all do have one standard, they use a very-high-density cobalt ferric oxide magnetic coating rated at 135 tpi. Now the best part, with this very small size



and improvements in their circuitry, their drives can literally be powered by batteries which means you can well expect to see them in portables as well as desk top models.

The last disk I will talk about is the Winchester hard-disk system. (no not the gun). Winchester was a code name used by IBM for a hard disk. Unlike the minifloppies, this disk spins at 3600 rpm and the heads fly over the surface, they are in fact airborne.

Winchesters lay down an extremely dense pattern of data because of the

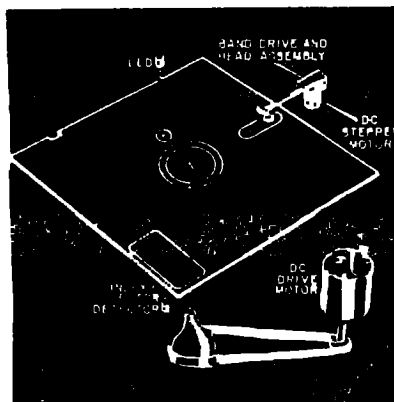
CONTINUED

DISKS & DRIVES

high speed. They sometimes incorporate multiple disks called Platters and heads in single units with capacities of 60 Mb or more. (now you know why they are expensive). They use the same coating as mini-floppies, except it is much thinner, this thin structure allows for very high data resolution.

The cost for a hard disk drive on a home computer at this time is prohibitive, however as hard disk technology advances the cost should come down. Prices in the \$1000 range for ten megabytes are not far off. So you see having disk is different from cassette it is no longer a fifteen minute anxiety ridden affair to save or record a program. Information stored on a disk can be retrieved in a few seconds.

Now for the machinery to use the floppies...the drive. There are five main parts in a drive that concern the end user.



Parts of a disk drive.

1. The main spindle which spins the disk at 300 rpm and is belt driven.
2. The drive motor.
3. The read-write head (or heads)
4. The Index/ sector-detector
5. DC Stepper motor to locate the head in the correct position.

Let's start with the main spindle.

The three hundred rpm that it spins at is maintained by two imported gerbils. Seriously, the speed is maintained by a tachometer and special servo system to keep it constant. When the drive address is selected, (the signal is true (low)), the drive motor accelerates to it's nominal speed of 300 rpm and stabilizes in less than 250 milliseconds. The motor also activates momentarily when the front latch is closed (also when the system is booted up) and remains active for approximately five seconds.

The motor is 12v DC standard. The read/ write head assembly is positioned by a split band positioner mounted to a stepper motor. The read/write head(s) is a glass-bonded ferrite/ceramic structure with a life expectancy of 20,000 operating hours. The head is held in contact with the disk by a pressure pad not unlike those found in

an audio cassette.

In DS/drives the second head acts as a pressure pad. When a file is selected the head(s) moves in or out from track to track making contact with the disk through the head access slot until it finds the requested track. After the correct track has been located, the appropriate sector is located by the index/ sector detector which is an assembly consisting of an LED and a PHOTOCELL. The index hole cut in the disk jacket allows light from the LED to strike the disk or to pass through the index hole when one goes by. When the light passes through it strikes the PHOTOCELL, this results in an electrical impulse telling the computer the position of the disk and the sector the head is over at that instant.

One of the last things to be pointed out is the write-protect switch. In some drives, (* depending on the cost or quality) is a PHOTOCELL and LED arrangement which detects the notch cut in the top of the jacket. If the notch is covered with a tape tab the write protect switch disables the write electronics. (this operation is reversed for 8" disk drives). This switch is operated

CONT.


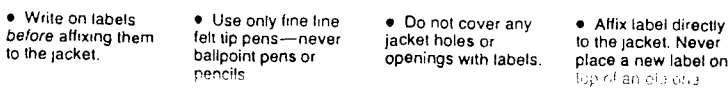
The following are drawings to help you visualize where the afore mentioned parts are in rela-

The author wishes to thank Iandon Corporation for their help in preparing this article and will

answer any questions written to this newsletter. The Editor and myself are presently working to bring you a program for one of your meetings about DISKS AND DRIVES



**NOTES: 1. DIMENSIONS ARE GIVEN IN INCHES. METRIC EQUIVALENTS ARE IN PARENTHESES.
2. TOLERANCE ON ALL DIMENSIONS + 0.020 INCH, UNLESS OTHERWISE SPECIFIED.
3. WEIGHT IS APPROXIMATELY 3 POUNDS (1.35 KILOGRAMS).**



Protect
Proteger
Protéger
Schützen

Never
Nunca
Jamais
Nie
絶对禁止

No
No
Non
Falsch
主 敬

Never
Nunca
Jamais
Nie
絶対禁！

Insert Carefully
Insertar
Insérer avec soin
Sorgfältig
Einsetzen

ONE MAN'S TREK

A.L. Allen

Last month I had the experience of having my computer break down. I did what every good programmer, with a budding software business would do, 'I PANICED.'

THE SYMPTOMS, in case you should experience them are, Apparent lock up of the RS-232, 32K memory and disk controller cards (the indicator light in the P-BOX will stay on). The computer will not come on to the opening color screen. However, the computer will function with the P-BOX turned off.

After several in-town calls, I found noone who had experienced this problem. I swapped boards for new ones to no avail. I finally got through on TI's technical assistance line 806-741-2663. The man was extremely helpful in determining the probable malfunction and explaining that I should contact the Dayton Exchange Center to take my computer in. I contacted them and was given very accurate directions to the 4124 Linden Avenue address. Their phone is 513-258-3877 and they are listed in the white pages business directory. I started the very next morning and arrived without a hitch due to directions. I carried the computer and the P-BOX in and returned to the car for the rest of my materials. When I got back in a young woman had solved the problem and said that the P-BOX cable was at fault. I exchanged it at no charge due to a receipt I carried with me. I asked her about the problem I had in the summer with the RS-232 card locking up and she explained when the P-BOX cable starts to fail apparent card lock-up start to appear. She suggested a smooth easy flow of the cable to the computer and careful handling. She also mentioned that damage could occur to the computer

back through the damaged P-BOX cable. I left after only 11 total minutes in the Exchange Center. I stopped and had lunch and I was back in Columbus by 12:30 and back to the software business by 1:30. I hope this will aid others if this problem should ever leap on them, and also to thank the very professional people at the TI Exchange Center for their rescue.

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EDITOR ASSEMBLER OR MINI-MEMORY

If you are interested in assembly language programming or simply "peeling and poking" in various parts of the computer you will need to buy one of these modules. The MINIMEM comes with a line by line assembler for writing source code. There is also a demonstration written in assembly language. This program shows the machines capabilities. The documentation gives you an indication of how to program in assembly, and the utilities built into the computer. If you are a beginner forget trying to learn assembly language. You will have a hard struggle. If you are really determined to learn assembly language you should buy "Introduction to assembly language" by Ralph Molesworth and get hold of

the Editor Assembler manual. Since this book comes with the Editor Assembler package (list price \$39.9, if you can get one) I believe that the Editor Assembler is much better value than the Minimem. There is a game with the Editor Assembler and its so much easier to use for assembly language programming. You will also need it if you are going learn to program in FORTH.

Roger Wills



MISTAKES

AS THE EDITOR OF THIS PUBLICATION WELL KNOWS GOOD WRITERS INTENTIONALLY PUT ERRORS IN THEIR ARTICLES SO THAT THE READERS; UPON DISCOVERING THEM; MAY FEEL SUPERIOR.



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SCREEN PHOTOGRAPHS

Club Members that are interested in taking pictures of computer screens should check out the February issue of Family Computing. The section called Computing Clinic has a short explanation of how their photographer takes the photos for the magazine. More importantly it mentions a FREE! publication that can be obtained from Eastman Kodak on how to photograph TV and computer screens. To obtain this publication send a legal-size SASE to:

Eastman Kodak
Dept. 841
Rochester, NY 14650

Ask for brochure #AC-10.

If you are not familiar with Family Computing it is printed by Scholastic Inc. and at \$1.95 an issue is an inexpensive magazine. It is a good magazine for the beginner and has at least two programs for the TI994/A in each issue. Its best feature is that one program is given in several different versions so that you are able to learn how to translate programs from other BASIC languages to TI BASIC and TI Extended Basic.

Joe Ahern

PROGRAMMING TIPS

There are seven important steps to writing programs. They are:

- 1) Determine what the program is to do.
- 2) What information does the computer need to accomplish the job.
- 3) What information will you need to input into the program.
- 4) Write the order in which the program must be executed.
- 5) Flowchart the program.
- 6) Write the program.
- 7) Make sure the program works.

Step one is the hardest part for me, but the most important step. A programmer cannot just sit and write the lines of a program without some idea of what the program is to do. If you have an

idea for a program and don't know how to do it with pencil and paper, you will not be able to write a program to do it.

Step two varies in complexity with the language of the program. In BASIC it is not necessary to teach the computer to do math, print things on the screen, use a disk, or hard print the results. With assembly language it's a different story. "That dumb machine can't even tie its shoes." It must be taught to handle input, output, screen, disk, math, and everything else.

Step three just needs the information that will be input while the program is running.

Step four is the first step needed to write a good flow chart. It should include all steps in order of execution. Remember the computer must be taught to handle any input early in the program.

Step five is the actual flowchart. The flowchart should be in detail enough that one block of chart equals one line of program. With experience the chart can be made shorter and less detail in some areas such as input and output, but for the beginner everything should be in the flowchart.

Step six will be no problem if the flowchart is detailed enough. If you cannot write the program in this step, go back and work on the flowchart.

Step seven means just run the program and make sure it does what was asked for in step one. It might be possible for the program to not work even after a perfect flow chart.

Here is the program "WRITELAS1" that was not printed last month.

```
.NF
100 OPEN #1:"DSK1.SPRITEPAT",OUTPUT
    VARIABLE 163
110 OPEN #2:"DSK1.PATTERNS".INPUT
    DISPLAY,VARIABLE 80
111 INPUT "NUMBER OF PATTERNS TO
    READ ": COUNT
115 FOR X=1 TO COUNT STEP 2
120 C$=CHR$(179)&CHR$(199)
130 A$=CHR$(60)&CHR$(X)&CHR$(147)&
    CHR$(199)
CONTINUED
```

PROGRAMMING TIPS CONTINUED

```
140 INPUT #2:B$,D$
150 A$=A$&CHR$(LEN(B$))&B$&L$&
    CHR$(LEN(D$))&D$
160 PRINT #1:A$
165 NEXT X
170 CLOSE #1
175 CLOSE #2
180 STOP
```

DON'T FORGET THE JUNK!!! I forgot to mention that when the data is first loaded to remove the JUNK that you will get an error message. Don't pay any attention to it just DELETE THE JUNK and resave the data in a merge format If the data was good that the program read then the data statments will be good. If you wonder where I got the figures (179,147,199) look in one of the early HCM magazines like issue 1, 2, or 3.

If you have any questions on assembly language please pass them on to me. I need some ideas for articles on machine language. If you have a modem you can call me up and maybe trade some programs or send me your problem. I will try to show how to get

Spirit of 99

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the answer in the newsletter. NOTE I DIDN'T SAY I WOULD ANSWER THE QUESTIONS. I FEEL THAT IF THE ANSWER IS FOUND WITHOUT ANY THINKING IT WILL NOT BE REMEMBERED. After reading my reply you should know the answer if you think about it.

I am generally home Wed and Fri evenings from 6:30 PM to 11:30 PM and all day Sat and Sun. The rest of the time from 10:30 PM to 11:30 PM. phone number is 927-2119 address is 9228 Summit Rd. Reynoldsburg, Ohio 43068 name is MICHAEL BALLMANN.

If you want to stop by and talk computer please call and let me know you are coming. I'm a grouch when I get surprise company. PS. I like to get mail so if you know anyone that is mailing out information on products for the 99/4A computer give them my name.

THANKS MIKE

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