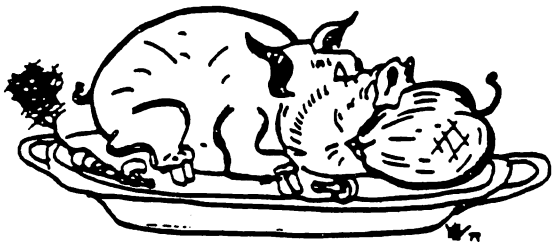

H.A.A.U.G.

HOUSTON AREA APPLE USERS GROUP

THE APPLE BARREL

VOLUME 5 NO. 3 APRIL/MAY 1982

PRESIDENT, MIKE KRAMER VICE PRESIDENT, BRIAN WHALEY

EDITOR, MIKE KRAMER

*** CONTENTS ***

Houston Area Apple Users Group
APPLE BARREL
2218 Running Springs
Kingwood, TX 77339

CLUB NOTES

The HOUSTON AREA APPLE USERS GROUP is an Apple user club, not affiliated with Apple, Inc., or any retail computer store. HAAUG is a member of the International Apple Core and supports its publications and purposes. General membership meetings are held on the second Thursday of each month in the rear chapel of Memorial Lutheran Church, 5800 Westheimer, between Chimney Rock and Jungman Library, beginning at 6:30 P.M. An additional general meeting is held at 2:00 P.M. the last Saturday of each month at the University of Texas School of Public Health in the Medical Center at 6905 Bertner at Holcomb. This meeting features tutorials, problem-solving sessions, and access to the HAAUG software library. The meeting is held in the main floor meeting room to the left of the entrance. Bring your Apples!!

---==*==---

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The APPLE HOTLINE has been established to provide an easy means to learn of meeting topics, news, etc. It can also be used to obtain answers to puzzling Apple - related questions. If you get a recording, leave your name, date, and time of day. You should get a return call within 24 hours.

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MEMBERSHIP INFORMATION

Dues are $18 per 12-month period for regular memberships, $6 for students through high school where no adult member of the family is an Apple user. Please make checks payable to Houston Area Apple Users Group and mail to Robin Cox, 5401 Chimney Rock #607, Houston, TX, 77081.

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SPECIAL INTEREST GROUPS

Members who share terests are encouraged to join or form Special Interest Groups to more fully explore their fields. These groups meet separately from the regular meetings at times convenient for the members. If you would like to become involved in a special interest group, either call the HOTLINE or contact one of the club officers. Lists of members with specific interests can be generated on request from the HAAUG MEMBERSHIP SURVEY data base.

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---===*===---

PRINTER DRIVER

BY: D. Van Hoozer

This program is a general purpose printer driver. I use it with my Grappler interface to provide semi-decent looking program listings on my NEC PC-8023 printer.

The software on the Grappler interface does every thing I want except the printing of page headings. So I wrote this program to make up for that small defect.

The printer driver resides at location HEX $9470 which is 38000 decimal. I chose this address because it was easy to remember. So whenever I'm in BASIC and want to list the program I just invoke the printer driver.

One way to start the printer driver going is set up an 'EXEC' file that contains the following commands:

```
BLOAD PRINTER.OBJ
CALL 38000
POKE 33,33
LIST
PR#0
TEXT
```

One way to create this TEXT file is to run the following program:

```
10 D$=CHR$(4):F$="LIST"
20 PRINT D$;"OPEN";F$
30 PRINT D$;"WRITE";F$
35 PRINT "BLOAD PRINTER.OBJ"
40 PRINT "CALL 38000"
45 PRINT "POKE 33,33"
50 PRINT "LIST"
55 PRINT "PR#0"
60 PRINT "TEXT"
65 PRINT D$;"CLOSE";F$
70 END
```

The printer driver can also be used from within a BASIC program to provide control over report formats. To use the driver inside a BASIC program you must first protect the driver from being overwritten by setting HIMEM:38000. This prevents Applesoft from storing data on top of the driver.

Cont'd.

Here is a list of parameters which you may change within the program:

ADDRESS HEX	ADDRESS DEC	Default	Description	
9473	38003	6	Top Margin	# of returns from the bottom of the last heading line to the first text line
9474	38004	10	Left Margin	# of spaces from the left edge of the paper to the first text character
9475	38005	60	Lines/Page	# of lines on each page
9476	38006	75	Characters/Line	# of characters on each line
9477	38007	7	Indent Amount	# of characters to indent each line if the number of characters exceeds the length of the line
9478	38008	^A	Attention Flag	this character is the one which signals the start of a new heading string
9479	38009	^Z	Heading Ending	this character is the one which signals the end of a heading string
947A	38010	1	Initialization	this parameter provides for the generation of a new page on initialization: (0:no 1:yes)

Other usefull parameters are:

947B	38011	0	Current Page Number	
947C	38012	0	Number of Characters on Current Line	
947D	38013	0	Number of Lines on Current Page	
947E	38014	0	Program State	tells what the driver is currently doing (0:normal 1:loading hdr)

Hope this little utility program works as well for you as it has for me. One last item: the assembler I use is the S-C ASSEMBLER Ver 4.0. It's one of the easiest to use assemblers on the market today.

Cont'd.

If you do not own an assembler then you can still use the printer driver by poking into memory the information contained in the memory dump. The only thing you need to do is get into the monitor using CALL -151. Once in the monitor just type the address a colon then the list of hex bytes following the - in the memory dump.

example:

```
]call-151

*9470:4C 82 94 06 0A 3C 55 07
*
```

Cont'd.

WANT/DON'T WANT ADS

FOR SALE: "The Soul of a New Machine", call for price.
Apple FORTRAN, $95. Call Pat Mc Gee at 663-6806.

FOR SALE: INTEGER BASIC ROM card, $100. Apple clock card, $70
Call Paul Maddock at 783-1521.

```
                1000 ¥
                1010 ¥--------------------------------
                1020 ¥
                1030 ¥      PRINTER DRIVER
                1040 ¥      FOR NEC PC-8023(A)
                1050 ¥      WITH GRAPPLER INTERFACE
                1060 ¥      OR ANY OTHER PRINTER
                1070 ¥
                1080 ¥      BY: D. VAN HOOZER
                1090 ¥
                1100 ¥--------------------------------
                1110 ¥
                1120        .OR $9470    /¥ DECIMAL = 38000 ¥/
                1130        .TF PRINTER.OBJ
                1140 ¥
03EA-           1150 DOS.IOHOOK .EQ $03EA
                1160 ¥
FDF0-           1170 MON.COUT1  .EQ $FDF0
FDDA-           1180 MON.PRBYTE .EQ $FDDA
                1190 ¥
ED24-           1200 FP.LINPRT  .EQ $ED24
EB93-           1210 FP.FLOAT   .EQ $EB93
ED2E-           1220 FP.PRNTFAC .EQ $ED2E
                1230 ¥
008D-           1240 CHR.CR     .EQ $8D  RETURN
008A-           1250 CHR.LF     .EQ $8A  LINE FEED
008C-           1260 CHR.FF     .EQ $8C  FORM FEED
00A0-           1270 CHR.SP     .EQ $A0  SPACE
                1280 ¥
C102-           1290 PRINTER    .EQ $C102 /¥ ENTRY POINT FOR GRAPPLER
 INTERFACE ¥/
                1300 ¥
0000-           1310 HEADING.PTR .EQ 0   POINTER TO HEADING
                1320 ¥
                1330 ¥--------------------------------
                1340 ¥
9470- 4C 82 94  1350 START  JMP SETUP
                1360 ¥
9473- 06        1370 PARM.TM .DA #6      TOM MARGIN
9474- 0A        1380 PARM.LM .DA #10     LEFT MARGIN
9475- 3C        1390 PARM.LP .DA #60     LINES/PAGE
9476- 4B        1400 PARM.CL .DA #75     CHARACTERS/LINE
9477- 07        1410 PARM.IN .DA #7      INDENT AMOUNT
9478- 81        1420 PARM.AT .DA #1+$80  ATTENTION FLAG (^A)
9479- 9A        1430 PARM.EH .DA #26+$80 END OF HEADER (^Z)
947A- 01        1440 PARM.NP .DA #1      NEW PAGE ON INITIALIZATION?
(0=NO,1=YES)
                1450 ¥
947B- 00        1460 PAGE    .DA #0      CURRENT PAGE NUMBER
947C- 00        1470 CUR.CHARS .DA #0    CHARS IN CURRENT LINE
947D- 00        1480 CUR.LINES .DA #0    LINES ON CURRENT PAGE
947E- 00        1490 PGM.STATE .DA #0    PROGRAM STATE INDICATER
947F- 00        1500 SAVE.X  .DA #0      SAVE X-REG
9480- 00        1510 SAVE.Y  .DA #0      SAVE Y-REG
9481- 00        1520 SAVE.CUR.CHARS .DA #0 TEMP AREA
                1530 ¥
9482- A9 A4     1540 SETUP  LDA #PRNT    HOOK INTO
9484- 85 36     1550        STA $36      OUTPUT VECTOR
9486- A9 94     1560        LDA /PRNT
9488- 85 37     1570        STA $37      AND THEN LET
948A- 20 EA 03  1580        JSR DOS.IOHOOK   DOS KNOW
948D- A9 AB     1590        LDA #HEADING
948F- 85 00     1600        STA HEADING.PTR
9491- A9 95     1610        LDA /HEADING
9493- 85 01     1620        STA HEADING.PTR+1
9495- AD 79 94  1630        LDA PARM.EH
9498- 8D E1 95  1640        STA END
949B- AD 7A 94  1650        LDA PARM.NP
949E- F0 03     1660        BEQ .05
94A0- 20 63 95  1670        JSR NEW.PAGE
94A3- 60        1680 .05    RTS
                1690 ¥
                1700 ¥--------------------------------
                1710 ¥
94A4- 8C 80 94  1720 PRNT   STY SAVE.Y
94A7- 8E 7F 94  1730        STX SAVE.X
94AA- 48        1740        PHA
94AB- AE 7E 94  1750        LDX PGM.STATE
94AE- E0 00     1760        CPX #0
94B0- F0 03     1770        BEQ .01
94B2- 4C 38 95  1780        JMP .40
94B5- CD 78 94  1790 .01    CMP PARM.AT
94B8- F0 73     1800        BEQ .35
94BA- C9 8D     1810        CMP #CHR.CR  IS IT <CR>?
94BC- F0 2B     1820        BEQ .10
94BE- C9 8A     1830        CMP #CHR.LF
94C0- F0 3D     1840        BEQ .20
94C2- C9 8C     1850        CMP #CHR.FF
94C4- F0 61     1860        BEQ .30
94C6- 20 52 95  1870 .05    JSR POUT
94C9- AD 7C 94  1880        LDA CUR.CHARS
94CC- CD 76 94  1890        CMP PARM.CL
94CF- 90 79     1900        BCC .99
                1910 ¥
94D1- A9 8D     1920        LDA #CHR.CR
94D3- 20 52 95  1930        JSR POUT
                1940 ¥
94D6- 20 96 95  1950        JSR LEFT.MARGIN
94D9- AE 77 94  1960        LDX PARM.IN  EXCEEDS CHARS/LINE
94DC- A9 A0     1970 .08    LDA #CHR.SP
94DE- 20 52 95  1980        JSR POUT
94E1- CA        1990        DEX
94E2- E0 00     2000        CPX #0
94E4- D0 F6     2010        BNE .08
94E6- 4C 4A 95  2020        JMP .99
```

Cont'd.

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```
                2030 ;
94E9- A9 8D     2040 .10    LDA #CHR.CR  FOUND END OF LINE
94EB- 20 52 95  2050        JSR POUT
                2060 ;
94EE- AD 7D 94  2070 .12    LDA CUR.LINES
94F1- CD 75 94  2080        CMP PARM.LP  AT END OF PAGE?
94F4- D0 03     2090        BNE .15
94F6- 20 63 95  2100        JSR NEW.PAGE
94F9- 20 96 95  2110 .15    JSR LEFT.MARGIN
94FC- 18        2120        CLC
94FD- 90 4B     2130        BCC .99
                2140 ;
94FF- 20 52 95  2150 .20    JSR POUT     HANDEL LINE FEED
9502- AD 7C 94  2160        LDA CUR.CHARS
9505- 8D 81 94  2170        STA SAVE.CUR.CHARS
9508- AD 7D 94  2180        LDA CUR.LINES
950B- CD 75 94  2190        CMP PARM.LP
950E- D0 3A     2200        BNE .99
9510- 20 63 95  2210        JSR NEW.PAGE
9513- AE 81 94  2220        LDX SAVE.CUR.CHARS
9516- A9 A0     2230 .22    LDA #CHR.SP
9518- 20 52 95  2240        JSR POUT
951B- CA        2250        DEX
951C- D0 F8     2260        BNE .22
951E- AD 81 94  2270        LDA SAVE.CUR.CHARS
9521- 8D 7C 94  2280        STA CUR.CHARS
9524- 18        2290        CLC
9525- 90 23     2300        BCC .99
                2310 ;
9527- 20 63 95  2320 .30    JSR NEW.PAGE FOUND A FORM FEED
952A- 18        2330        CLC
952B- 90 1D     2340        BCC .99
                2350 ;
952D- A2 01     2360 .35    LDX #1
952F- 8E 7E 94  2370        STX PGM.STATE
9532- CA        2380        DEX
9533- 8E 7C 94  2390        STX CUR.CHARS
9536- F0 12     2400        BEQ .99
9538- AC 7C 94  2410 .40    LDY CUR.CHARS
953B- EE 7C 94  2420        INC CUR.CHARS
953E- 91 00     2430        STA (HEADING.PTR),Y
9540- CD 79 94  2440        CMP PARM.EH
9543- D0 05     2450        BNE .99
9545- A9 00     2460        LDA #0
9547- 8D 7E 94  2470        STA PGM.STATE
                2480 ;
954A- 68        2490 .99    PLA          RESTORE ALL OF
954B- AE 7F 94  2500        LDX SAVE.X   THE REGISTERS
954E- AC 80 94  2510        LDY SAVE.Y
9551- 60        2520        RTS
                2530 ;
                2540 ;--------------------------------
                2550 ;
9552- EE 7C 94  2560 POUT   INC CUR.CHARS
9555- C9 8D     2570        CMP #CHR.CR
9557- F0 04     2580        BEQ .05
9559- C9 8A     2590        CMP #CHR.LF
955B- D0 03     2600        BNE .10
955D- EE 7D 94  2610 .05    INC CUR.LINES
9560- 4C 02 C1  2620 .10    JMP PRINTER
                2630 ;
                2640 ;--------------------------------
                2650 ;
                2660 NEW.PAGE
9563- A9 00     2670        LDA #0
9565- 8D 7D 94  2680        STA CUR.LINES
9568- EE 7B 94  2690        INC PAGE
956B- A9 8C     2700        LDA #CHR.FF
956D- 20 52 95  2710        JSR POUT
9570- A0 00     2720        LDY #0
9572- B1 00     2730 .2     LDA (HEADING.PTR),Y
9574- F0 09     2740        BEQ .3
9576- 20 52 95  2750        JSR POUT
9579- C8        2760        INY
957A- CD 79 94  2770        CMP PARM.EH
957D- D0 F3     2780        BNE .2
957F- AE 73 94  2790 .3     LDX PARM.TM
9582- A9 8D     2800 .4     LDA #CHR.CR
9584- 20 52 95  2810        JSR POUT
9587- CA        2820        DEX
9588- D0 F8     2830        BNE .4
                2840 ;
958A- AD 73 94  2850        LDA PARM.TM
958D- 8D 7D 94  2860        STA CUR.LINES
9590- A9 00     2870        LDA #0
9592- 8D 7C 94  2880        STA CUR.CHARS
9595- 60        2890        RTS
                2900 ;
                2910 LEFT.MARGIN
9596- A9 00     2920        LDA #0
9598- 8D 7C 94  2930        STA CUR.CHARS
959B- AE 74 94  2940        LDX PARM.LM
959E- E0 00     2950        CPX #0
95A0- F0 08     2960        BEQ .5
95A2- A9 A0     2970 .2     LDA #CHR.SP
95A4- 20 52 95  2980        JSR POUT
95A7- CA        2990        DEX
95A8- D0 F8     3000        BNE .2
95AA- 60        3010 .5     RTS
```

Cont'd.

```
                3030 *
                3040 HEADING
95AB- 0E        3050        .DA #14 <= START EXPANDED PRINT
95AC- C4 AE A0
95AF- D6 C1 CE
95B2- A0 C8 CF
95B5- CF DA C5
95B8- D2 A0     3060        .AS -'D. VAN HOOZER '
95BA- 0F        3070        .DA #15 <= STOP EXPANDED PRINT
95BB- A0 A0 A0
95BE- A0 A0 A0
95C1- A0 A0 A0
95C4- D0 C1 C7
95C7- C5 A0     3080        .AS -'        PAGE '
95C9- DF DF     3090        .DA $DFDF <= THESE THINGS
95CB- DF DF     3100        .DA $DFDF     ARE UNDERLINES
95CD- DF DF     3110        .DA $DFDF
95CF- DF DF     3120        .DA $DFDF
95D1- DF DF     3130        .DA $DFDF
95D3- A0 CF C6
95D6- A0        3140        .AS -' OF '
95D7- DF DF     3150        .DA $DFDF
95D9- DF DF     3160        .DA $DFDF
95DB- DF DF     3170        .DA $DFDF
95DD- DF DF     3180        .DA $DFDF
95DF- DF DF     3190        .DA $DFDF
95E1- 00        3200 END    .DA #0 <= THIS STOPS THE HEADER
                3220        .EN
```

```
9470- 4C 82 94 06 0A 3C 55 07
9478- 81 9A 01 15 1C 09 00 78
9480- 00 00 A9 A4 85 36 A9 94
9488- 85 37 20 EA 03 A9 AB 85
9490- 00 A9 95 85 01 AD 79 94
9498- 8D E1 95 AD 7A 94 F0 03
94A0- 20 63 95 60 8C 80 94 8E
94A8- 7F 94 48 AE 7E 94 E0 00
94B0- F0 03 4C 38 95 CD 78 94
94B8- F0 73 C9 8D F0 2B C9 8A
94C0- F0 3D C9 8C F0 61 20 52
94C8- 95 AD 7C 94 CD 76 94 90
94D0- 79 A9 8D 20 52 95 20 96
94D8- 95 AE 77 94 A9 A0 20 52
94E0- 95 CA E0 00 D0 F6 4C 4A
94E8- 95 A9 8D 20 52 95 AD 7D
94F0- 94 CD 75 94 D0 03 20 63
94F8- 95 20 96 95 18 90 4B 20
9500- 52 95 AD 7C 94 8D 81 94
9508- AD 7D 94 CD 75 94 D0 3A
9510- 20 63 95 AE 81 94 A9 A0
9518- 20 52 95 CA D0 F8 AD 81
9520- 94 8D 7C 94 18 90 23 20
```

```
9528- 63 95 18 90 1D A2 01 8E
9530- 7E 94 CA 8E 7C 94 F0 12
9538- AC 7C 94 EE 7C 94 91 00
9540- CD 79 94 D0 05 A9 00 8D
9548- 7E 94 68 AE 7F 94 AC 80
9550- 94 60 EE 7C 94 C9 8D F0
9558- 04 C9 8A D0 03 EE 7D 94
9560- 4C 02 C1 A9 00 8D 7D 94
9568- EE 7B 94 A9 8C 20 52 95
9570- A0 00 B1 00 F0 09 20 52
9578- 95 C8 CD 79 94 D0 F3 AE
9580- 73 94 A9 8D 20 52 95 CA
9588- D0 F8 AD 73 94 8D 7D 94
9590- A9 00 8D 7C 94 60 A9 00
9598- 8D 7C 94 AE 74 94 E0 00
95A0- F0 08 A9 A0 20 52 95 CA
95A8- D0 F8 60 8E D0 D2 C9 CE
95B0- D4 C5 D2 A0 C4 D2 C9 D6
95B8- C5 D2 8F A0 A0 A0 A0 A0
95C0- A0 A0 C2 D9 A0 C4 AE A0
95C8- D6 C1 CE A0 C8 CF CF DA
95D0- C5 D2 9A A0 CF C6 A0 DF
95D8- DF DF DF DF DF DF DF DF
95E0- DF 9A
```

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NOTES FROM THE NETHERLANDS

BY

CHRIS J. OORT

Mijdrecht, March 8, 1982

A word from your Dutch HAAUG member. At last...

When I was in Houston in September 1979 I visited your Microcomputer Fair in the Cullen College of Engineering.

There I met several HAAUG people, like James Patrick McGee and Dewayne van Hoozer. Although I did not yet have an Apple at that time, I was close to owning one and enrolled as a member of HAAUG. I remember being your first European member.

A few days later I attended the HAAUG meeting in a library in Houston. I met some more people there, like Dennis Cornwell and Ed Seeger.

Since then I have regularly been receiving the Apple Barrel. In addition to that I have received, through the highly appreciated help of Dennis Cornwell, copies of a number of the HAAUG diskettes. I have been pleasantly surprised by a visit of Ed Seeger and his wife in September 1980.

As far as computer activities in the Netherlands are concerned - The HCC (Hobby Computer Club) was founded in the fall of 1977. It started with about 30 members and a newsletter of 12 pages A5. This club has grown considerably and now has around ten thousand members and publishes a monthly newsletter of 68 pages in A4 format. The newsletter is also for sale in many Dutch book shops. I am one of the eleven editors of the newsletter.

To give you an impression of the size of Holland - it is about 200 miles long and 120 miles wide. If you project it on the map of Texas it would be a quadrangle ranging from Beamont to Galveston to Austin to Bryan.

The HCC comprises hobbyists of all brands of computers. There are, however, special subgroups for the different brands. I am a member of the board of the Apple User's Group. We have about 800 members, and are still growing. We have national Apple gatherings about twice a year. We have 38 diskettes and 10 cassettes with software in the software library and eight booklets (52 pages A5) with application notes. All of this we sell to members for the price of the stamps and the medium.

Cont'd.

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Besides supporting real Apples we also try to support owners of Apple-compatible products. The problem here is that some of these computers are slightly different from an Apple, enough to make some hardware and software not usable. The Apple-compatible computers we currently have here are :

The ITT 2020. Made in Belgium. The price is about equal to that of an Apple. It was made by ITT under licence of Apple inc. It is technically slightly better than the Apple, but the hardware differences make it unfit for a lot of Apple hardware and software. It has more points on the hi-res screen, so Apple hi-res programs give bad results. It gives (European) PAL colours instead of the (American) NTSC colors, which is a nice feature, because I have never seen an real Apple give colour output yet, in Europe. The support which the manufacturer has given to the owners is very poor. Production if the ITT 2020 was stopped last summer, but ITT has kept that a secret and the machines left over are still being sold to ignorant customers.

The PEARCOM. Made in England. Came on the market a few months ago. It is more expensive than the Apple. Previously it was called "Pear II", but after being taken to court by Apple the name was, in a settlement, changed to Pearcom. It has 14 slots for interface cards, storage can be expanded to 96K. The keyboard contains a numeric key pad. The colour output is in the PAL format.

The BASIS 108. Made in Western Germany. Marketed very recently. I did not yet see a Dutch price quoted, but judging from the German price it could be slightly cheaper than the Apple. In addition to the 6502 chip it contains a Z-80 chip. The storage can be expanded to 128K. The user can switch between 40 characters per line and 80 characters per line. There are a serial and a parallel output connector. There are 6 expansion slots and the keyboard has, besides a numeric key pad, separate cursor control keys. The colour output is in the PAL format.

I realize that I have not been a very active HAAUG member so far, but I will try to change that a bit.

I have requested that for the time being a copy of each monthly newsletter is sent to you. I realize that you will not be able to read Dutch, but you may still get a flavour. It will be sent to Box 42888 #293. I hope that that is still a proper address, as I noticed in the last Apple Barrel (februari 1982) that the address had changed.

As soon as we have a complete set of Catalogs available I will send you a copy for the Software Manager so that you can see if we have software which you don't. If that is the case, we can send it to you.

I will review the articles I and others have written, and if they look applicable will translate a few so you may publish them in the Apple Barrel if you so desire.

Cont'd.

Well, let's not overdo the amount of text in my first letter after a long interval. If you or any other HAAUG member happens to be passing through Holland, be it alone or with family, he or she should not hesitate to call me so that we can meet and at least have a glass of wine together while discussing Apples and other subjects. My telephone number is 02979-3707.

Regards to our fellow HAAUG members,

Chris J. Oort
S. van Rumelaerstraat 51
3641CK Mijdrecht
Netherlands

----====*========

GENASYS][Release 2.0

BY: D. Van Hoozer

GENASYS][is the second generation of a set of programs that I starting writing about three years ago. GENASYS stands for GENerate A SYStem. Which should give you some idea as to the purpose of the system. That's right, it creates programs, or at least parts of programs.

GENASYS][is an evolution of the original GENASYS system written way back when. I'm not about to get into any debate about the relative merits of creationism versus evolution. So let's look into some details about GENASYS.

This issue of the Apple Barrel contains only the MASTER MENU and the SCREEN EDITOR programs of the complete GENASYS system. These two programs demonstrate the power inherent in code generator software. Both of these programs and their associated utility subroutines are in the HAAUG library as well as being printed in this issue.

Machine configuration:

Apple][or][+ w/48K RAM
Applesoft Basic
and at least one disk drive

Program Names:

GENASYS 2.0/MASTER MENU
GENASYS 2.0/SCREEN EDITOR
GENASYS 2.0/SCREEN EDIT SUBS

Coauthors:

Bob Sander-Cederlof	Bob is the author of the S-C Assembler. He is the one who wrote the majority of the assembly language subroutines used by the screen editor program. He wrote some of the routines in the main Applesoft screen editor program.

Cont'd.

Lee Meador	Lee, like Bob, is an experienced computer programmer. Lee wrote the S-C code generator in the first version of GENASYS. I kept several of his routines in the current of GENASYS.

DESCRIPTION OF PROGRAM

GENASYS 2.0/MASTER MENU

The Master Menu is a straight forward program of selecting and executing a program from a list of programs. One area that may not be obvious is the use of the matrix variable SF.

SF stands for 'screen fields'. It is used to store information about the different input fields associated with each screen. SF has the following format:

SF(0,0,0)	contains the total number of screens used in the program. This information is also refered to by variable NS.
SF(SN,0,0)	contains the total number of fields in screen number SN. This information is also refered to as NF.
SF(SN,FL,0)	is the row for the field FL.
SF(SN,FL,1)	is the column for the field FL.
SF(SN,FL,2)	is the length of the field FL.

LINE NUMBERS	COMMENTS
1 - 70	This area sets the program's HIMEM to hex address $9600. It also initializes several program variables including the SF matrix.
100 - 130	Defines the main program loop.
100	Displays the system master menu.
110	Moves the cursor around the menu.
115	Determines if <ESCAPE> has been pressed.
120	Transfers control to the right routine

Cont'd.

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Cont'd.

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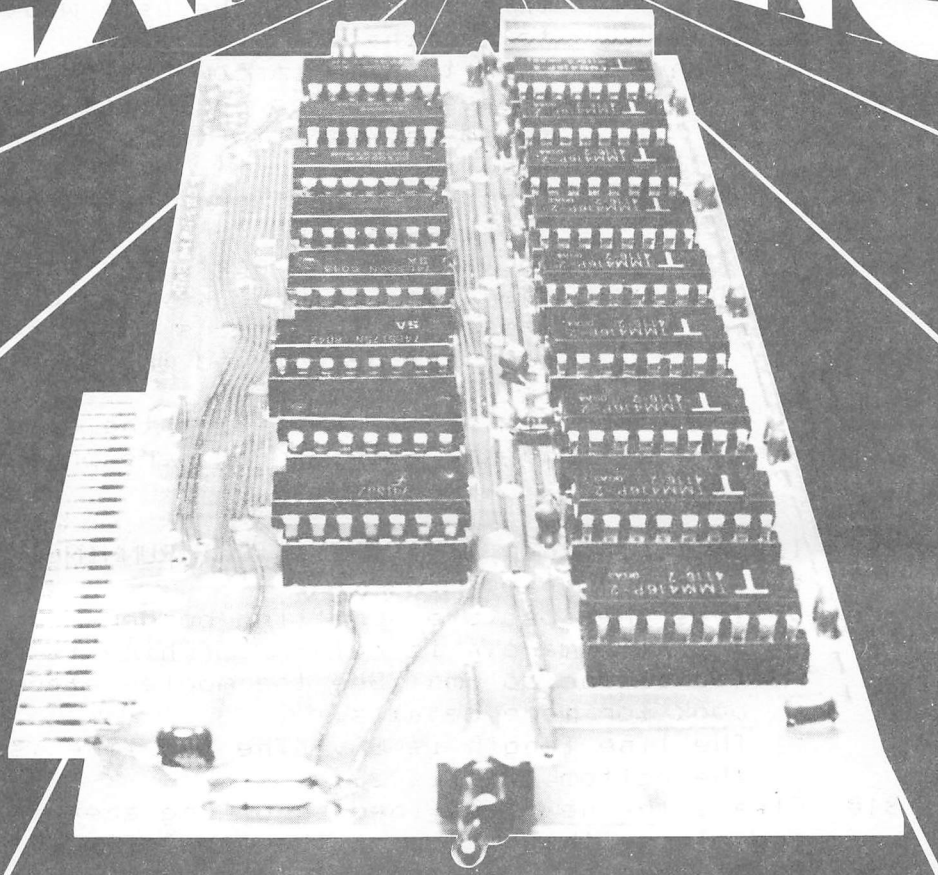

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LINE NUMBERS	COMMENTS
140	Is the termination routine.
200 - 260	Is the menu cursor movement subroutine When A=63 then a '?' has been pressed and control is passed to the help routine. When A=27 then <ESCAPE> has been pressed this means that the user wants to terminate the program. When A=8 then the left arrow has been pressed and the cursor is moved backward to the previous menu item. When A=20 then the right arrow has been pressed and the cursor is advanced forward to the next menu item. When A=13 then the <RETURN> key has been pressed. This means that the user has determined which option is to be processed. Any other key pressed will act the same as if the right arrow were pressed.
300 - 390	Is the area that does the actual RUNNING of the selected program.
300	Defines the absolute scrolling borders. The left margin is column 1 (which is really the second column. See the Apple reference book for more details.) The line length is 38. The top line is 8. The bottom line is 23.
310	Clears the newly defined scrolling area to blanks and places the cursor at the top left.
320	Prints a pretty message.
325	Sets up error trapping in case the program is not present on the first drive.
330	Executes the DOS command to run a new program from drive one.
340	Not needed, but maybe one of these days....
350	If the program was not found then the error trapping routine comes here. The first thing that must be done is turn off the error trapping with the POKE 216,0.
360 - 390	Prints a pretty message, allows time to read it, then returns to the main program selection loop.
1000 - 7000	Setup the program names for each menu selection otpion.
9000 - 9060	Does a CATALOG of either disk drive.

Cont'd.

LINE NUMBERS	COMMENTS
20000 -20280	This is the HELP routine that is activated by pressing '?' on the menu.
50000 -50240	Is the subroutine that displays the master menu on the screen.
20280 &50230	Notice that on the last line of the screen (row 24) that the only way to place a character in the 40th column is to poke it there. Try printing something in that column. There is no way to defeat the scrolling functions of Applesoft/Monitor.

It is real easy to use the same techniques used in GENASYS 2.0/MASTER MENU in your own menu programs. If you have any questions on this program you can reach me though the HAAUG HOTLINE at 668-8685.

Cont'd.

```
LOAD GENASYS 2.0/MASTER MENU
]LIST

1  HIMEM: 38400
3 DD = 1: REM  CURRENT DISK DRIVE

5  DIM SF(5,20,2)
6 D$ =  CHR$ (4)
9  DATA  1
11  DATA  10,12,6,1,13,6,1,14,6,1
     ,18,6,1,19,6,1,20,6,1,21,6,1
     ,23,6,1,13,28,1,14,28,1
20  READ NS
22 SF(0,0,0) = NS
25  FOR SN = 1 TO NS
27  READ NF
28 SF(SN,0,0) = NF
30  FOR FL = 1 TO NF
40  READ SF(SN,FL,0),SF(SN,FL,1),
     SF(SN,FL,2)
50  NEXT FL
60  NEXT SN
70 SN = 1
100  GOSUB 50000
110  GOSUB 200
115  IF FL =  - 1 THEN 140
120  ON FL GOTO 1000,2000,3000,40
     00,5000,6000,7000,140,9001,9
     002
130  GOTO 100
140  TEXT : HOME : VTAB 23: NORMAL
     : PRINT "FINISHED...": END
200 FL = 1:NF = SF(SN,0,0)
210  VTAB SF(SN,FL,0): HTAB SF(SN
     ,FL,1): GET A$
215 A =  ASC (A$)
217  IF A = 63 THEN 20000
218  IF A = 27 THEN FL =  - 1: RETURN

220  IF A = 8 THEN FL = FL - 1: IF
     FL < 1 THEN FL = NF
230  IF A = 20 THEN FL = FL + 1: IF
     FL > NF THEN FL = 1
240  IF A = 13 THEN  RETURN
250  IF A <  > 8 AND A <  > 20 THEN
     A = 20: GOTO 230
260  GOTO 210
300  POKE 32,1: POKE 33,38: POKE
     34,8: POKE 35,23
310  HOME
320  VTAB 11: HTAB 5: PRINT "NOW
     ";: FLASH : PRINT "LOADING:"
     ;: NORMAL : PRINT " ";PN$
325  ONERR  GOTO 350
330  PRINT D$;"RUNGENASYS 2.0/";P
     N$;",D1"
340  STOP
350  POKE 216,0
360  PRINT : PRINT : HTAB 5: PRINT
     "SORRY... ";PN$
370  HTAB 5: PRINT "IS NOT AVAILA
     BLE AT THIS TIME."
380  FOR X = 1 TO 1000: NEXT X
390  GOTO 100
1000 PN$ = "SCREEN EDITOR": GOTO
     300
2000 PN$ = "FILE EDITOR": GOTO 30
     0
3000 PN$ = "REPORT EDITOR": GOTO
     300
4000 PN$ = "APPLESOFT CODER": GOTO
     300
5000 PN$ = "INTEGER CODER": GOTO
     300
6000 PN$ = "S-C ASM CODER": GOTO
     300
7000 PN$ = "PASCAL CODER": GOTO 3
     00
9000  REM  DO A CATALOG
9001 DD = 1: GOTO 9005
9002 DD = 2
9005  VTAB 7: HTAB 24: INVERSE : PRINT
     "CATALOG OF D";DD: NORMAL
9010  POKE 32,1: POKE 33,38: POKE
     34,8: POKE 35,23
9020  HOME : PRINT
9030  PRINT D$;"CATALOG,D";DD
9040  INVERSE : PRINT "PRESS ANY
     KEY TO CONTINUE.";
9050  NORMAL : GET A$
9060  GOTO 100
20000  TEXT : HOME
20010  NORMAL : PRINT "==========
     ==========================
     ==";
20020  PRINT "=GENASYS ][
                VER: 2.0=";
20030  PRINT "=  BY: D. VAN HOOZE
     R                      =";
20040  PRINT "=      B. SANDER CE
     DERLOF      03/31/82=";
20050  PRINT "=      L. MEADOR
                          =";
20060  PRINT "==================
     ==================";
20070  PRINT "=";: INVERSE : PRINT
     "SYSTEM MASTER MENU";: NORMAL
     : PRINT "=       =";: INVERSE
     : PRINT "HELP SCREEN";: NORMAL
     : PRINT "=";
20080  PRINT "==================
     =       ============";
20090  PRINT "=
                          =";
20100  PRINT "=   THIS IS THE INI
     TIAL HELP SCREEN.   =";
20110  PRINT "= THERE IS NOT MUCH
      TO SAY. JUST PLACE =";
20120  PRINT "= THE CURSOR NEXT T
     O THE OPTION YOU    =";
```

Cont'd.

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```
20130  PRINT "= WANT TO EXECUTE A
    ND PRESS (";: INVERSE : PRINT
    "RETURN";: NORMAL : PRINT ")
    . =";
20140  PRINT "=
                        =";
20150  PRINT "=   THE HELP SCREEN
    S WILL BE UPDATED   =";
20160  PRINT "= AS MORE FEEDBACK
    REACHES THE AUTHOR. =";
20170  PRINT "= TO MAKE A COMMENT
     ON GENASYS ][ YOU  =";
20180  PRINT "= MAY LEAVE A VOCAL
     MESSAGE ON THE     =";
20190  PRINT "= ";: INVERSE : PRINT
    "HAAUG";: NORMAL : PRINT " "
    ;: INVERSE : PRINT "HOTLINE"
    ;: NORMAL : PRINT " (713) 66
    8-8685 OR THE  =";
20200  PRINT "= ";: INVERSE : PRINT
    "HAAUG";: NORMAL : PRINT " "
    ;: INVERSE : PRINT "ABBS";: NORMAL : PRINT " (713) 654-0759 (AFTER
       =";
20210  PRINT "= EIGHT PM PLEASE)
    OR AS EMAIL ON      =";
20220  PRINT "= ";: INVERSE : PRINT
    "COMP-U-SERVE";: NORMAL : PRINT
    " TO ACCOUNT 70070,100.   ="
    ;
20230  PRINT "=
                        =";
20240  PRINT "==================
    ==================";
20250  POKE 2039,189
20260  NORMAL
20270  GET A$
20275 FL = 0
20280  RETURN
50000  TEXT : HOME : PRINT "=====
    ========================
    =======";
50010  PRINT "=GENASYS ][
                VER: 2.0=";
50020  PRINT "=  BY: D. VAN HOOZE
    R                   =";
50030  PRINT "=      B. SANDER CE
    DERLOF      03/31/82=";
50040  PRINT "=      L. MEADOR
                        =";
50050  PRINT "==================
    ==================";
50060  PRINT "=";: INVERSE : PRINT
    "SYSTEM MASTER MENU";: NORMAL
    : PRINT "=
     =";
50070  PRINT "==================
    =                   =";
50080  PRINT "=
                        =";
50090  PRINT "= EDITORS:
                        =";
50100  PRINT "=
       CATALOG:         =";
50110  PRINT "=   ( ) SCREEN
                        =";
50120  PRINT "=   ( ) FILE
          ( ) DRIVE 1  =";
50130  PRINT "=   ( ) REPORT
          ( ) DRIVE 2  =";
50140  PRINT "=
                        =";
50150  PRINT "= CODE GENERATORS:
       ==============";
50160  PRINT "=
         =";: INVERSE : PRINT "P
    RESS:";: NORMAL : PRINT "
         =";
50170  PRINT "=   ( ) APPLESOFT B
    ASIC =              =";
50180  PRINT "=   ( ) INTEGER BAS
    IC   = <- BACKWARD  =";
50190  PRINT "=   ( ) S-C ASSEMBL
    ER   = -> FORWARD   =";
50200  PRINT "=   ( ) PASCAL
         = CR EXECUTE   =";
50210  PRINT "=
         = ? HELP       =";
50220  PRINT "=   ( ) EXIT GENASY
    S ][ =              =";
50230  PRINT "==================
    ==================";: POKE
    2039, ASC ("=") + 128
50240  RETURN
```

Cont'd.

```
]PR#0
```

DESCRIPTION OF PROGRAM

GENASYS 2.0/SCREEN EDITOR

The Screen Editor is the central part of GENASYS. It is the one program which is used no matter what code generator is later used. The Screen Editor is an Applesoft program which uses several machine language subroutines. These subroutines were written using the S-C ASSEMBLER VER 4.0. This assembler can't have too many good things said about it. If your looking for one, I suggest you check out the S-C ASSEMBLER.

LINE NUMBERS	COMMENTS
1	HIMEM is set to hex address $8000 to protect the machine language subroutines and screen buffer from being overwritten by Applesoft variables.
2 - 60	Initializes major program variables including the screen file matrix.
70 - 75	Sets up the address of the machine language subroutines.
80	Loads the machine language subroutines and sets DOS to a "quite" mode.
85	Defines a function which calculates the exact address of a specific spot on the screen. To use this function you must first VTAB to the row you want then you execute A=FNP(H). Where H is any variable or number between 1 and 40. A will contain the address of the desired location on the screen.
87	Sets the cursor to the top left and clears the screen. Next the screen is copyed to a save buffer. This initializes the buffer to all spaces.
90	These two calls turn DOS off. That means that DOS still exists in memory, but it isn't hooked into the input/output vectors. This way DOS doesn't slow down any processing.
100	Sets the logical screen postion to upper left.
120	Displays the Screen Editors master menu.
130 - 150	This is the dispatch area for the master menu. The subroutine at line 3000 is used to determine what option from the menu is to be executed. SN is the Screen Number. FL is the Field Number within the screen. When FL=0 then the question mark has been pressed. Otherwise FL is the field number in which the return key was pressed.

Cont'd.

LINE NUMBERS		COMMENTS
	135	Just ring the bell when escape is pressed.
	140	When FL=1 then GOTO 300. When FL=2 then GOTO 400. When FL=3 then GOTO 500. If FL<1 OR FL>10 then don't go anywhere, just drop though to the next line.
	150	Returns to display the menu again.
161 -	180	Does a catalog of either drive one or drive two.
	161	Enter here for drive one.
	162	Enter here for drive two.
	165	The call to 1002 restores DOS to activity.
	300	Leaves the screen menu and displays the current screen buffer with the cursor located at the upper left, then goes off to line 1000 which is the main character get routine when editing a screen.
400 -	430	Prints the screen buffer. This routine is entered from the menu screen. It is a simple way to print a screen from BASIC. There is a faster machine language routine available which does the same thing only faster. I will include the new machine language routine one of these days...
	400	Clears only the bottom part of the menu screen.
	401	Determines how big the screen should be printed. The codes used here are for an NEC PC-8023 printer with a GRAPPLER interface.
402 -	403	Sets up the printer in slot one.
	409	Moves the working screen buffer into the display area. LC stands for Last Character. LA stands for Last Address. FW stands for Fort Worth. These are used to do the sexy moving cursor on the screen. Notice the use of the funciton P which returns the address of the first character of each row.
	415	Invokes the routine which gets a character from the screen, determines what kind of character it is (ie. FLASH, INVERSE, or NORMAL), and returns its normal value in the variable C$.
	424	Prints the character without a carrage return.
	425	Gets the next address. When no more addresses (ie. at end of row), then print a carrage return.
	427	Gets the next row. When no more rows then print a carrage return.
	430	Returns to the screen editor menu.
500 -	530	Saves the screen buffer as a text file. This is a temporary routine which is primarily for use as an interface to other programs like word processors, etc.

Cont'd.

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LINE NUMBERS	COMMENTS
600 - 695	This is a builtin Applesoft code generator which will create a subroutine which can be used in other programs. This is accomplished by creating a TEXT file which contains the source statements of the subroutine. This TEXT file can later be EXEC'ed into the program which will use it.
600	Restores DOS and clears the bottom part of the menu screen.
601 - 602	Gets the name of the file into which to put the statements. If you just hit return without entering a file name the the previous file name is used.
603 - 604	Gets the starting line number and the increment.
605	DOS commands to OPEN, DELETE and then OPEN again the desired file. So, you may ask, why not just one OPEN? Well, if it's a new file then an OPEN by itself is OK. But, for files which already exist then the DELETE is necessary to free all sectors which are currently allocated.
606	Clears the screen and sets up the text file to be written to.
607	Moves the screen buffer into the display area.
610	Writes the first statement to the text file. LT, which stands for Last Type, is initialized to -1. LT is used to hold the type of the last character. TY contains the current character's type. When LT does not equal TY then either FLASH, INVERSE, or NORMAL must be generated depending on the value of TY.
615	sets up the FOR-NEXT loop which will look at every line on the screen.
620	Does a VTAB to the current line and then uses the function P to get the address of the first character on the line. If it's the first row then initialize the LA and LC variables. These are used the same way as they are used in the screen print routine at lines 400-430.
621	Gets the current character from the screen and determines what type it is.
622	Change the double quote (") character to the following string: ";CHR$(34);"
623	Increments the current line number of the output subroutine by adding the increment value entered earlier. A$ is initialized to the current output line number.
624	If there is no change in character type then just add ?" to the end of A$. By the way, did you know that a question mark ? was a short hand way of entering a PRINT command??
625	If there is a change in character type then append the correct mode command to the end of A$ then append :?"

Cont'd.

LINE NUMBERS	COMMENTS
630	Append the first character of the screen line to the end of A$.
635	Sets up the FOR-NEXT loop to look at the remaining characters on the current screen line.
640	Get the character from the screen and its type. Change double quotes to the longer string just like before.
645	As long as the length of A$ is less than two hundred then keep going as normal. We don't want to make the line too long or it will not be acceptable to Applesoft.
647 - 649	Tie up loose ends in keeping the length of the line under 200 characters.
650	If the character type has changed then append the correct mode command.
655	Append the current screen character to A$.
660	Get the next address on the screen to analyze.
665	If we're on the last line of the screen, remove the last character from the output string. Why? Well sorry it's a national security matter.
670	By printing A$ you write the contents of A$ to the disk text file that was setup earlier. Also write to the disk an ending quote and semi-colon.
675	Get the next row on the screen.
680	Increment the line number and write out a POKE statement to the output file. This is only done after all previous characters have been written to the output file. The reason a POKE statement is used is because it is impossible to print a character to position 40 of the last line on the screen, and have it stay there! Applesoft always wants to scroll everything up one line. 2039 is decimal address of the last postion. By poking values to this address we bypass the screen scrolling problem.
685	Writes the last commands to the output file.
690	Closed the output text file.
695	Returns to display the screen master menu.
900 - 930	This is the routine which gets a character "C" from the screen at address "A". "C" is then tested to determine which character set it belongs to. TY=0 for NORMAL. TY=1 for FLASH. TY=2 for INVERSE. C$ is returned with the character in NORMAL mode.
925	This is where the sexy cursor is moved across the screen.
950 - 975	This subroutine appends the mode command and :?" on the end of A$. This subroutine is only used by the code generator section at lines 600-695.
999	This statement returns to the GENASYS Master Menu program.

Cont'd.

LINE NUMBERS	COMMENTS
1000	Moves the cursor to the current position and gets a character from the keyboard with the machine language subroutine S1.
1005 - 1080	Main editor command dispatch area.
1005	Changes Cntl-K to [.
1010	When C>31 then it can't be a command so put it on the screen as a character. Use subroutine at line number 1490 to make certain its in the right mode.
1015	Cntl-P: Print the screen.
1020	Cntl-M: Return to next line first character.
1025	Cntl-L: Go into line edit mode.
1030	Cntl-D: Delete a character.
1035	Cntl-F: Change format mode.
1040	Cntl-H: Backspace (left arrow)
1050	Cntl-U: Forward space (right arrow)
1060	Cntl-I: Insert a space
1070	Cntl-C: Fast exit. Terminates the program.
1080	If not an escape then ignore it and get another.
1100 - 1395	Handles the escape I,J,K,M cursor movement sequences as well as the E,F,@ clears.
1120	Esc-I: Move cursor up.
1130	Esc-J: Move cursor left.
1140	Esc-K: Move cursor right.
1150	Esc-M: Move cursor down.
1200	Esc-E: Clear from cursor to end of line.
1210	Esc-F: Clear from cursor to end of screen.
1220	Esc-@: Clear the entire screen.
1390	Esc-Q: Quit screen editor and return to menu.
1395	Esc-U: Changes it to an underline "_".
1400 - 1440	Line edit routine.
1410	Delete the current line.
1420	Insert a line ahead of the current line.
1430	Copy the current line.
1440	If its not an I,D or C then ring the bell and leave the line edit mode.
1450 - 1475	Character format routines.
1460	'F' changes mode to FLASH.
1465	'I' changes mode to INVERSE.
1470	'N' changes mode to NORMAL.
1490 - 1499	Place a character on the screen. Make certain its in the right mode. Fall through to advance the cursor routine.
1500 - 1510	Advance cursor to right. If greater that 40 then set to 1 on next line.
1520 - 1530	Advance cursor down 1 line. If at the bottom then go to the top line.

Cont'd.

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	630	Append the first character of the screen line to the end of A$.
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1520 -	1530	Advance cursor down 1 line. If at the bottom then go to the top line.

Cont'd.

LINE NUMBERS	COMMENTS
1540 - 1550	Move cursor left. If column is less than 1 then move cursor to column 40 of previous line.
1560 - 1570	Move up 1 line. If at top then move to bottom line.
1600 - 1680	I left these routines in so you could see the difference in the speed between equal routines written in FP and machine language.
1600 - 1630	Character delete routine replaced by S6.
1650 - 1680	Character insert routine replaced by S7.
1700 - 1710	Move the current display to a screen buffer.
1800 - 1810	Move the screen buffer to the display area.
2000 - 2020	BSAVE the screen buffer to disk.
2100 - 2120	BLOAD from disk to the screen buffer.
3000 - 3060	This routine moves the cursor around the menu.
3000	Start with the first field.
3017	If key pressed is a ? then return with FL=0.
3018	If key pressed is escape then return with FL=-1.
3020	If key pressed is left arrow then backup to previous field.
3030	If key pressed is right arrow the go forward to the next field.
3040	If key pressed is return the return to caller.
3050	Any other key is treated just like a right arrow.
3060	Go get next key.
5000 - 5320	Displays the HELP menu.
5300	Sets screen number to 2 and gets selection from menu.
5305	If escape was pressed then return ot master menu.
5310	Dispatch to correct help screen.
5400 - 5525	Display general information screens.
5520	Wait for the return key to be pressed.
6000 - 6120	Display first editing commands help screen.
6120	Get F,B,M keypress.
6500 - 6740	Display second editing commands help screen.
6740	Get F,B,M keypress.
7000 - 7499	Display third editing commands help screen.
7499	Get F,B,M keypress.
7500 - 7999	Display fourth editing commands help screen.
7998	Get F,B,M keypress.
7999	If F was pressed the ring bell and get next key.

Cont'd.

LINE NUMBERS	COMMENTS
8000 - 8010	Get a keypress. If it's not F, B, or M then ring the bell and get another key.
8005	If 'M' the get out of the help subsystem and return to the screen master menu.
50000 - 50240	Display the screen master menu.

I am available to answer any question about this or any other GENASYS][program at the HAAUG HOTLINE 668-8685. If you make any usefull modifications to any of these programs please pass it on to me.

Cont'd.

WANT/DON'T WANT ADS

FOR SALE: TRENDCOM 100 Thermal Printer with Apple interface and cable. Approximately 2 years old. Nothing fancy - 40 columns - but is very handy for listings, catalogs, etc. Bought for $325, will sell for $250. Call Dennis Cornwell at 774-0671.

FOR SALE: ABT Barwand with manual and diskette, $125. Plugs into game socket. Call John Harris at 783-9826.

```
LIST

 1  HIMEM: 32768
 2 SN$ = "DEFAULT SCREEN NAME"
 3 DD = 1: REM  CURRENT DISK DRIVE

 5  DIM SF(5,20,2)
 9  DATA  2
10  DATA 10,13,6,1,14,6,1,16,6,1,
     17,6,1,18,6,1,12,23,1,13,23,
     1,15,23,1,16,23,1,18,23,1
11  DATA  2,11,8,1,14,8,1
20  READ NS
21 SF(0,0,0) = NS
25  FOR SN = 1 TO NS
27  READ NF
28 SF(SN,0,0) = NF
30  FOR FL = 1 TO NF
40  READ SF(SN,FL,0),SF(SN,FL,1),
     SF(SN,FL,2)
50  NEXT FL
60  NEXT SN
70 S1 = 32768:S2 = S1 + 3:S3 = S2
      + 3:S4 = S3 + 3:S5 = S4 + 3

75 S6 = S5 + 3:S7 = S6 + 3:S8 = S
    7 + 3
80 D$ =  CHR$ (4): PRINT D$;"BLOA
    DGENASYS 2.0/SCREEN EDIT SUB
    S,D1": PRINT D$;"NOMONIOC"
85  DEF  FN P(H) = H - 1 +  PEEK
    (40) +  PEEK (41) * 256
87 V = 1:H = 1: TEXT : HOME : GOSUB
    1700
90  CALL 65161: CALL 65171: REM
    UNHOOK WHATEVER
100 V = 1:H = 1
120  GOSUB 50000
130 SN = 1: GOSUB 3000: IF FL = 0
     THEN  GOSUB 5000: GOTO 100
135  IF FL =  - 1 THEN  PRINT  CHR$
    (7);: GOTO 100
140  ON FL GOTO 300,400,500,2000,
    600,161,162,150,2100,999
150  GOTO 100
161 DD = 1: GOTO 165
162 DD = 2
165  CALL 1002: TEXT : HOME : PRINT

170  PRINT D$;"CATALOG,D";DD
175  INVERSE : PRINT "PRESS ANY K
    EY TO CONTINUE.";: NORMAL : GET
    A$
180  GOTO 90
300  GOSUB 1800:V = 1:H = 1: GOTO
    1000
400  POKE 32,1: POKE 33,38: POKE
    34,19: POKE 35,23: VTAB 22: HTAB
    5: HOME
401 FP$ = "N": PRINT " DO YOU WAN
    T IT FULL PAGE? (N/Y)";: GET
    A$: IF A$ = "Y" THEN FP$ = "
    Y"
402  TEXT : HOME : PR# 1: PRINT  CHR$
    (9);"80N": IF FP$ = "N" THEN
     PRINT  CHR$ (27);"L020": PRINT
     CHR$ (15)
403  IF FP$ = "Y" THEN  PRINT  CHR$
    (27);"L000": PRINT  CHR$ (14
    )
409  PRINT : GOSUB 1800:LC =  PEEK
    (1024):LA = 1024: VTAB 1: HTAB
    1: FOR R = 1 TO 24: VTAB R:B
     =  FN P(1):X = B + 39
410  FOR A = B TO X
415  GOSUB 900
424  PRINT C$;
425  NEXT A: PRINT
427  NEXT R: PRINT
430  GOTO 90
500  CALL 1002: PRINT : PRINT : INPUT
    "FILE NAME: ";A$
505  IF  LEN (A$) > 0 THEN SN$ =
    A$
506  IF  LEN (A$) = 0 THEN A$ = S
    N$
510  PRINT D$"OPEN"A$: PRINT D$"D
    ELETE"A$: PRINT D$"OPEN"A$: PRINT
    D$"WRITE"A$
520  GOSUB 1900
530  PRINT D$"CLOSE": GOTO 90
600  CALL 1002: POKE 32,1: POKE 3
    3,38: POKE 34,19: POKE 35,23
    : VTAB 22: HTAB 5: HOME
601  INPUT "      FILE NAME: ";A$
    : IF  LEN (A$) > 0 THEN SN$ =
    A$
602  IF  LEN (A$) = 0 THEN A$ = S
    N$
603  INPUT "STARTING LINE #: ";LN

604  INPUT "      INCREMENT: ";NC

605  CALL 1002: PRINT D$;"OPEN";A
    $: PRINT D$;"DELETE";A$: PRINT
    D$;"OPEN";A$
606  TEXT : HOME : PRINT D$;"WRIT
    E";A$
607  GOSUB 1800
610  PRINT LN;"TEXT:HOME":LT =  -
    1
615  FOR V = 1 TO 24
620  VTAB V:B =  FN P(1):A = B: IF
    V = 1 THEN LA = A:LC =  PEEK
    (A)
621  GOSUB 900
622  IF C$ =  CHR$ (162) THEN C$ =
     CHR$ (34) + ";CHR$(34);" +
     CHR$ (34)
623 LN = LN + NC:A$ =  STR$ (LN)
624  IF LT = TY THEN A$ = A$ + "?
    " +  CHR$ (34)
625  IF LT <  > TY THEN  GOSUB 95
    0
630 A$ = A$ + C$
635  FOR A = B + 1 TO B + 39
640  GOSUB 900: IF C$ =  CHR$ (16
    2) THEN C$ =  CHR$ (34) + ";
    CHR$(34);" +  CHR$ (34)
645  IF  LEN (A$) < 200 THEN 650
647 A$ = A$ +  CHR$ (34) + ";": PRINT
    A$:LN = LN + NC:A$ =  STR$ (
    LN)
648  IF LT = TY THEN A$ = A$ + "?
    " +  CHR$ (34)
649  IF LT <  > TY THEN  GOSUB 95
    0
650  IF LT <  > TY THEN A$ = A$ +
     CHR$ (34) + ";:": GOSUB 950

655 A$ = A$ + C$
660  NEXT A
665  IF V = 24 THEN A$ =  LEFT$ (
    A$, LEN (A$) - 1)
670  PRINT A$; CHR$ (34);";"
675  NEXT V
680 LN = LN + NC: PRINT LN;"POKE2
    039,";C
685 LN = LN + NC: PRINT LN;"NORMA
    L:RETURN"
690  PRINT D$;"CLOSE"
695  GOTO 90
900 C =  PEEK (A)
905  IF C > 127 THEN TY = 0:C$ =
     CHR$ (C): GOTO 925
910  IF C > 95 THEN TY = 2:C$ =  CHR$
    (C + 64): GOTO 925
912  IF C > 63 THEN TY = 2:C$ =  CHR$
    (C + 128): GOTO 925
915  IF C > 31 THEN TY = 1:C$ =  CHR$
    (C + 128): GOTO 925
920 TY = 1:C$ =  CHR$ (C + 192)
925  POKE LA,LC:LA = A:LC = C: POKE
    A, ASC ("X")
930  RETURN
950 LT = TY
955  IF TY = 0 THEN A$ = A$ + "NO
    RMAL"
960  IF TY = 1 THEN A$ = A$ + "IN
    VERSE"
965  IF TY = 2 THEN A$ = A$ + "FL
    ASH"
970 A$ = A$ + ":?" +  CHR$ (34)
975  RETURN
999  CALL 1002: POKE 32,1: POKE 3
    3,38: POKE 34,7: POKE 35,10:
     HOME : VTAB 11: HTAB 5: PRINT
    "NOW ";: FLASH : PRINT "LOAD
    ING";: NORMAL : PRINT ": THE
     SYSTEM MASTER": PRINT D$;"R
```


Cont'd.

```
UN GENASYS 2.0/MASTER MENU,D
1"
1000  VTAB V: HTAB H: CALL S1:C =
      PEEK (767)
1005  IF C = 11 THEN C = 91: REM
      ^K
1010  IF C > 31 THEN  GOSUB 1490:
      GOTO 1000
1015  IF C = 16 THEN  GOSUB 1700:
      GOSUB 50000: GOTO 400: REM
      ^P
1020  IF C = 13 THEN  GOSUB 1510:
      GOTO 1000: REM ^M
1025  IF C = 12 THEN 1400: REM ^L

1030  IF C = 4 THEN  CALL S6: GOTO
      1000: REM ^D
1035  IF C = 6 THEN  GOTO 1450: REM
      ^F
1040  IF C = 8 THEN  GOSUB 1540: GOTO
      1000: REM ^H
1050  IF C = 21 THEN  GOSUB 1500:
      GOTO 1000: REM ^U
1060  IF C = 9 THEN  CALL S7: GOTO
      1000: REM  ^I
1070  IF C = 3 THEN  CALL 1002: HOME
      : PRINT "OK!": PRINT "NOW WH
      AT?": END : REM ^C
1080  IF C <  > 27 THEN 1000: REM
      <ESC>
1100  REM ESCAPE STUFF
1110  VTAB V: HTAB H: CALL S1:C =
      PEEK (767)
1120  IF C = 73 THEN  GOSUB 1560:
      GOTO 1100: REM 'I'
1130  IF C = 74 THEN  GOSUB 1540:
      GOTO 1100: REM 'J'
1140  IF C = 75 THEN  GOSUB 1500:
      GOTO 1100: REM 'K'
1150  IF C = 77 THEN  GOSUB 1520:
      GOTO 1100: REM 'M'
1200  IF C = 69 THEN  CALL  - 868
      : GOTO 1000: REM 'E'
1210  IF C = 70 THEN  CALL  - 958
      : GOTO 1000: REM 'F'
1220  IF C = 64 THEN  HOME :V = 1
      :H = 1: GOTO 1000: REM '@'
1390  IF C = 81 THEN  GOSUB 1700:
      GOTO 100: REM 'Q'
1395  IF C = 85 THEN C = 95: GOSUB
      1490: GOTO 1100: REM 'U'
1399  GOTO 1005
1400  REM LINE EDIT STUFF
1405  VTAB V: HTAB H: CALL S1:C =
      PEEK (767)
1410  IF C = 68 THEN  POKE 34,V -
      1: VTAB 24: PRINT  CHR$ (10)
      ;: POKE 34,0: GOTO 1400: REM
      'D'
1420  IF C = 73 THEN  POKE 767,0:
      CALL S8: GOTO 1400: REM 'I'

1430  IF C = 67 THEN  POKE 767,1:
      CALL S8: GOTO 1400: REM 'C'

1440  PRINT  CHR$ (7);: GOTO 1000

1450  REM   CNTL-F (FORMAT)
1455  VTAB V: HTAB H: CALL S1:C =
      PEEK (767)
1460  IF C = 70 THEN TY = 2: REM
      FLASH
1465  IF C = 73 THEN TY = 1: REM
      INVERSE
1470  IF C = 78 THEN TY = 0
1475  GOTO 1000
1490 C = C + 128: IF TY = 0 THEN
      1499
1491  IF C > 191 THEN 1496
1492  IF TY = 2 THEN C = C - 64: GOTO
      1499
1493 C = C - 128: GOTO 1499
1496  IF TY = 2 THEN C = C - 128:
      GOTO 1499
1497 C = C - 192: GOTO 1499
1499  POKE  FN P(H),C
1500 H = H + 1: IF H < 41 THEN  RETURN

1510 H = 1
1520 V = V + 1:: IF V > 24 THEN V
      = 1
1530  RETURN
1540 H = H - 1: IF H THEN  RETURN

1550 H = 40
1560 V = V - 1: IF V < 1 THEN V =
      24
1570  RETURN
1600  REM DELETE CHARACTER FROM L
      INE
1610  IF H = 40 THEN 1630
1620  FOR I = H TO 39:P =  FN P(I
      ): POKE P, PEEK (P + 1): NEXT

1630  POKE  FN P(40),160: RETURN

1650  REM INSERT SPACE IN LINE
1660  IF H = 40 THEN 1680
1670  FOR I = 39 TO H STEP  - 1:P
      =  FN P(I): POKE P + 1, PEEK
      (P): NEXT
1680 C = 160: GOTO 1492: REM <SPA
      CE>
1700  REM SAVE SCREEN IN BUFFER
1710  FOR I = 1 TO 24: VTAB I: CALL
      S2: NEXT : RETURN
1800  REM COPY BUFFER INTO SCREEN

1810  FOR I = 1 TO 24: VTAB I: CALL
      S3: NEXT : RETURN

2000  REM  BSAVE AS OBJECT
2005  CALL 1002: POKE 32,1: POKE
      33,38: POKE 34,19: POKE 35,2
      3: VTAB 22: HTAB 5: HOME : PRINT

2006  INPUT "      FILE NAME: ";A
      $
2007  IF  LEN (A$) > 0 THEN SN$ =
      A$
2008  IF  LEN (A$) = 0 THEN A$ =
      SN$
2010  PRINT D$;"BSAVE";A$;",A";S1
      + 256;",L1024"
2020  GOTO 90
2100  REM  BLOAD AS OBJECT
2105  CALL 1002: POKE 32,1: POKE
      33,38: POKE 34,19: POKE 35,2
      3: VTAB 22: HTAB 5: HOME : PRINT

2106  INPUT "      FILE NAME: ";A
      $
2107  IF  LEN (A$) > 0 THEN SN$ =
      A$
2108  IF  LEN (A$) = 0 THEN A$ =
      SN$
2110  PRINT D$;"BLOAD";A$;",A";S1
      + 256
2120  GOTO 90
3000 FL = 1:NF = SF(SN,0,0)
3010  VTAB SF(SN,FL,0): HTAB SF(S
      N,FL,1): GET A$
3015 A =  ASC (A$)
3017  IF A = 63 THEN FL = 0: RETURN

3018  IF A = 27 THEN FL =  - 1: RETURN

3020  IF A = 8 THEN FL = FL - 1: IF
      FL < 1 THEN FL = NF
3030  IF A = 20 THEN FL = FL + 1:
      IF FL > NF THEN FL = 1
3040  IF A = 13 THEN  RETURN
3050  IF A <  > 8 AND A <  > 20 THEN
      A = 20: GOTO 3030
3060  GOTO 3010
5000  TEXT : HOME
5009  PRINT "==================
      ==================";
5010  PRINT "=GENASYS II
            VER: 2.0=";
5020  PRINT "=             SCREEN
      EDITOR           =";
5030  PRINT "==================
      ==================";
5040  PRINT "=HELP MENU=
                       =";
5050  PRINT "==========
                       =";
5060  PRINT "=
                       =";
5070  PRINT "= OPTIONS ARE:
```


Cont'd.

```
                    =";
5080  PRINT "=
                    =";
5090  PRINT "=
                    =";
5100  PRINT "=     ( ) GENERAL IN
    FORMATION       =";
5110  PRINT "=
                    =";
5120  PRINT "=
                    =";
5130  PRINT "=     ( ) EDITING CO
    MMANDS          =";
5140  PRINT "=
                    =";
5150  PRINT "=
                    =";
5160  PRINT "= PLACE CURSOR NEXT
    TO DESIRED OPTION  =";
5170  PRINT "=          AND PRESS
     RETURN.        =";
5180  PRINT "==================
    ==================";
5190  PRINT "=
                    =";
5200  PRINT "= PRESS (-- & --) TO
     MOVE TO NEXT PAGE =";
5210  PRINT "= PRESS 'ESCAPE'  TO
     RETURN TO MENU.   =";
5220  PRINT "=
                    =";
5230  PRINT "==================
    ================";: POKE
    2039, ASC ("=") + 128
5300 SN = 2: GOSUB 3000
5305  IF FL =  - 1 THEN  RETURN
5310  ON FL GOTO 5400,6000
5320  GOTO 5000
5400  TEXT : HOME : PRINT "=====
    ==========================
    ======";
5405  PRINT "=GENASYS ][
            VER: 2.0=";
5410  PRINT "=            SCREEN
     EDITOR         =";
5415  PRINT "==================
    ==================";
5420  PRINT "=";: INVERSE : PRINT
    "GENERAL INFORMATION";: NORMAL
    : PRINT "=
    =";
5425  PRINT "==================
    =                   =";
5430  PRINT "=
                    =";
5435  PRINT "=   THIS EDITOR IS U
    SED NO MATTER WHAT =";
5440  PRINT "= CODE GENERATOR IS
    LATER USED.  THERE =";
5445  PRINT "= IS A SIMPLE APPLES
    OFT CODE GENERATOR =";
5450  PRINT "= BUILTIN SO THAT SI
    MPLE TEXT SCREENS  =";
5455  PRINT "= CAN BE CREATED.  T
    O USE THIS OPTION  =";
5460  PRINT "= PLACE THE CURSOR N
    EXT TO THE OPTION  =";
5465  PRINT "= LABELED ";: INVERSE
    : PRINT "S'MENTS";: NORMAL :
     PRINT " AND PRESS RETURN.
      =";
5470  PRINT "=
                        =";
5475  PRINT "=   TO SAVE AND LATE
    R LOAD SCREENS     =";
5480  PRINT "= FROM THE DISK FOR
    EDITING USED THE   =";
5485  PRINT "= ";: INVERSE : PRINT
    "OBJECT";: NORMAL : PRINT "
    OPTIONS.
      =";
5490  PRINT "=
                        =";
5495  PRINT "=   THE ";: INVERSE
    : PRINT "TEXT";: NORMAL : PRINT
    " OPTIONS ARE PRIMARLY FOR
    =";
5500  PRINT "= USE AS AN INTERFAC
    E TO OTHER PGMS.   =";
5505  PRINT "=
                        =";
5510  PRINT "=     PRESS (";: INVERSE
    : PRINT "RETURN";: NORMAL : PRINT
    ") TO CONTINUE       =";
5515  PRINT "==================
    ==================";: POKE
    2039, ASC ("=") + 128
5520  GET A$: IF A$ (  )  CHR$ (1
    3) THEN 5520
5525  RETURN
6000  TEXT : HOME : PRINT "=====
    ==========================
    ======";
6005  PRINT "=GENASYS ][
            VER: 2.0=";
6010  PRINT "=            SCREEN
     EDITOR         =";
6015  PRINT "==================
    ==================";
6020  PRINT "=";: INVERSE : PRINT
    "EDITING COMMANDS";: NORMAL
    : PRINT "=        PAGE 1 OF
    4  =";
6025  PRINT "================
                        =";
6030  PRINT "=
                        =";
6035  PRINT "=
                        =";
6040  PRINT "=   THERE ARE THREE
    SPECIAL CHARACTERS =";
6045  PRINT "= WHICH CAN BE USED
    IN CREATING YOUR   =";
6050  PRINT "= SCREENS:
                        =";
6055  PRINT "=
                        =";
6060  PRINT "=     ] - SHIFT M  (
    RIGHT BRACKET)     =";
6065  PRINT "=     [ - CNTL-K   (
    LEFT BRACKET)      =";
6070  PRINT "=     _ - ESC,U    (
    UNDERLINE)         =";
6075  PRINT "=
                        =";
6080  PRINT "=   THE UNDERLINE CH
    ARACTER IS USED    =";
6085  PRINT "= TO DEFINE THE INPU
    T FIELDS FOR FULL  =";
6090  PRINT "= SCREEN I/O SUBROUT
    INES.              =";
6095  PRINT "=
                        =";
6100  PRINT "=
                        =";
6105  PRINT "=
                        =";
6110  PRINT "=";: INVERSE : PRINT
     "   PRESS:  F)ORWARD B)ACKWA
    RD M)ENU   ";: NORMAL : PRINT
    "=";
6115  PRINT "==================
    ==================";: POKE
    2039, ASC ("=") + 128
6120  GOSUB 8000: IF A$ = "B" THEN
    5400
6500  TEXT : HOME : PRINT "======
    ==========================
    ======";
6510  PRINT "=GENASYS ][
            VER: 2.0=";
6520  PRINT "=            SCREEN
     EDITOR         =";
6530  PRINT "==================
    ==================";
6540  PRINT "=";: INVERSE : PRINT
    "EDITING COMMANDS";: NORMAL
    : PRINT "=        PAGE 2 OF
    4  =";
6550  PRINT "================
                        =";
6560  PRINT "=
                        =";
6570  PRINT "=  COMMAND      DESC
    RIPTION            =";
6580  PRINT "= -------  --------
    ----------------  =";
6590  PRINT "=
                        =";
6600  PRINT "=  ESC,Q    QUIT: LE
```


Cont'd.

```
    AVE SCREEN EDITOR  =";
6610  PRINT "=           TO RETUR
    N TO THE EDITOR    =";
6620  PRINT "=           MENU
                       =";
6630  PRINT "=
                       =";
6640  PRINT "=  ESC,@    HOME: CL
    EAR SCREEN AND     =";
6650  PRINT "=           PLACE CU
    RSOR AT COLUMN 1   =";
6660  PRINT "=           ROW 1
                       =";
6670  PRINT "=
                       =";
6680  PRINT "=  CNTL-I   INSERT A
    SPACE              =";
6690  PRINT "=  CNTL-D   DELETE A
    CHARACTER          =";
6700  PRINT "=  CNTL-P   WILL PRI
    NT THE SCREEN      =";
6710  PRINT "=
                       =";
6720  PRINT "=";: INVERSE : PRINT
    "   PRESS:  F)ORWARD B)ACKWA
    RD M)ENU   ";: NORMAL : PRINT
    "=";
6730  PRINT "==================
    ==================";: POKE
    2039, ASC ("=") + 128
6740  GOSUB 8000: IF A$ = "B" THEN
    6000
7000  TEXT : HOME
7010  NORMAL : PRINT "==========
    ==========================
    =";
7020  PRINT "=GENASYS ][
              VER: 2.0=";
7030  PRINT "=             SCREEN
    EDITOR             =";
7040  PRINT "==================
    ==================";
7050  PRINT "=";: INVERSE : PRINT
    "EDITING COMMANDS";: NORMAL
    : PRINT "=        PAGE 3 OF
    4  =";
7060  PRINT "=================
                       =";
7070  PRINT "=
                       =";
7080  PRINT "=  COMMAND      DESC
    RIPTION            =";
7090  PRINT "=  -------  --------
    ----------------   =";
7100  PRINT "=
                       =";
7110  PRINT "=   <--     MOVE CUR
    SOR TO THE LEFT    =";
7120  PRINT "=   -->     MOVE CUR
    SOR TO THE RIGHT   =";
7130  PRINT "=
                       =";
7140  PRINT "=  RETURN   PLACE CU
    RSOR AT COLUMN 1   =";
7150  PRINT "=           OF THE N
    EXT ROW            =";
7160  PRINT "=
                       =";
7170  PRINT "=  ESC,(I,J,K,M)
                       =";
7180  PRINT "=           CURSOR U
    P,LEFT,RIGHT,DOWN  =";
7190  PRINT "=
                       =";
7200  PRINT "=  ESC,E    CLEAR TO
    END OF LINE        =";
7210  PRINT "=  ESC,F    CLEAR TO
    END OF SCREEN      =";
7220  PRINT "=
                       =";
7230  PRINT "=";: INVERSE : PRINT
    "   PRESS:  F)ORWARD B)ACKWA
    RD M)ENU   ";: NORMAL : PRINT
    "=";
7240  PRINT "==================
    ==================";
7250  POKE 2039,189
7260  NORMAL
7499  GOSUB 8000: IF A$ = "B" THEN
    6500
7500  TEXT : HOME
7510  NORMAL : PRINT "==========
    ==========================
    =";
7520  PRINT "=GENASYS ][
              VER: 2.0=";
7530  PRINT "=             SCREEN
    EDITOR             =";
7540  PRINT "==================
    ==================";
7550  PRINT "=";: INVERSE : PRINT
    "EDITING COMMANDS";: NORMAL
    : PRINT "=        PAGE 4 OF
    4  =";
7560  PRINT "=================
                       =";
7570  PRINT "=
                       =";
7580  PRINT "=  COMMAND      DESC
    RIPTION            =";
7590  PRINT "=  -------  --------
    ----------------   =";
7600  PRINT "=  CNTL-F   INITIALI
    ZE DISPLAY FORMAT  =";
7610  PRINT "=           NEXT CHA
    R IS:              =";
7620  PRINT "=              F - F
    OR FLASHING        =";
7630  PRINT "=              I - F
    OR INVERSE         =";
7640  PRINT "=              N - F
    OR NORMAL          =";
7650  PRINT "=           ALL OTHE
    RS ARE IGNORED     =";
7660  PRINT "=
                       =";
7670  PRINT "=  CNTL-L   INITIALI
    ZE LINE EDITING    =";
7680  PRINT "=           NEXT CHA
    R IS:              =";
7690  PRINT "=              I - T
    O INSERT A LINE    =";
7700  PRINT "=              D - T
    O DELETE A LINE    =";
7710  PRINT "=              C - T
    O COPY A LINE      =";
7720  PRINT "=
                       =";
7730  PRINT "=";: INVERSE : PRINT
    "   PRESS:     B)ACKWARD   M
    )ENU       ";: NORMAL : PRINT
    "=";
7740  PRINT "==================
    ==================";
7750  POKE 2039,189
7760  NORMAL
7998  GOSUB 8000: IF A$ = "B" THEN
    7000
7999  PRINT  CHR$ (7);: GOTO 7998

8000  GET A$: IF A$ <  > "F" AND
    A$ <  > "B" AND A$ <  > "M" THEN
     PRINT  CHR$ (7);: GOTO 8000

8005  IF A$ = "M" THEN  POP : GOTO
    100
8010  RETURN
50000  TEXT : HOME : PRINT "=====
    ==========================
    =======";
50010  PRINT "=GENASYS ][
              VER: 2.0=";
50020  PRINT "=             SCREE
    N EDITOR           =";
50030  PRINT "==================
    ==================";
50040  PRINT "=";: INVERSE : PRINT
    " MASTER  MENU ";: NORMAL : PRINT
    "=              =FOR HELP=";

50050  PRINT "==============
              =PRESS ? =";
50060  PRINT "=
              ==========";
50070  PRINT "= CURRENT SCREEN NA
    ME IS:             =";
50080  PRINT "= ";: INVERSE : PRINT
    SN$;: NORMAL : PRINT  SPC( 3
    7 -  LEN (SN$));"=";
50090  PRINT "==================
```


Cont'd.

```
    ====================";
50100  PRINT "=";: INVERSE : PRINT
     " OPTIONS ARE:   ";: NORMAL
     : PRINT "= CATALOG DISK:
       =";
50110  PRINT "==================
       ( ) ";: IF DD = 1 THEN  INVERSE

50112  PRINT "DRIVE 1";
50115  NORMAL : PRINT "       =";

50120  PRINT "=   ( ) EDIT     =
       ( ) ";: IF DD = 2 THEN  INVERSE

50122  PRINT "DRIVE 2";
50125  NORMAL : PRINT "       =";

50130  PRINT "=   ( ) PRINT    =
     LOAD SCREEN FROM:   =";
50140  PRINT "= SAVE AS:       =
       ( ) TEXT FILE    =";
50150  PRINT "=   ( ) TEXT     =
       ( ) OBJECT FILE   =";
50160  PRINT "=   ( ) OBJECT   =
                         =";
50170  PRINT "=   ( ) S'MENTS  =
       ( ) EXIT EDITOR   =";
50180  PRINT "==================
    ====================";
50190  PRINT "=
                         =";
50200  PRINT "= PRESS <-- & -->
     TO ADVANCE CURSOR.  =";
50210  PRINT "= PRESS 'RETURN' T
     O MAKE SELECTION.   =";
50220  PRINT "=
                         =";
50230  PRINT "==================
    ==================";: POKE
    2039, ASC ("=") + 128
50240  RETURN

]PR#0
```

Cont'd

GENASYS 2.0/SCREEN EDIT SUBS

This is the source code to the machine language subroutines used by the Applesoft screen editor program. The majority of this code was written by Bob Sander-Cederlof. Only the 'bad' parts were written by me.

VARIABLE NAME	COMMENTS
MON.....	The MON prefix means that this variable is part of the monitor routines found inside the Apple in the F8 ROM (read only memory).
MON.CH	This is the area where the monitor stores the column number of the cursor on the screen. The first column is zero. The last is thirty-nine.
MON.CV	This is the area where the monitor stores the row number of the cursor on the screen. The first row is zero. The last is twenty-three.
MON.RDKEY	This is the monitor routine thats reads one key press from the keyboard.
MON.COUT	This monitor routine will print whatevery is in the accumulator on the screen at the current cursor location. This routine also works with DOS or any printer.
MON.CLREOL	This monitor routine will clear the current line from the current cursor location to the end of the line.
MON.VTAB	This monitor routine will place the cursor at the desired row on the screen.
MON.BASCALC	This monitor routine will calculate the address of the first character on a specific line.
COMM.CELL	This address is used as a means of communications between the Applesoft main line program and the subroutines.
SCREEN	This is the address of the screen display area.
BUFFER	This is the address of the area that is used to save the screen being edited.
SAVE.CV	This area is used to save the current row that the cursor is at on the screen.
SCREEN.BASE	This area is used by the monitor and these subroutines to store the address of a row on the screen.
BUFFER.BASE	Is identical in function to SCREEN.BASE except that it points into the buffer save area.

LINE NUMBERS	COMMENTS
1270	.OR means set the starting address (origin) to the indicated address. In this case that address is hex $8000 which turns out do be 32768.
1280	.TF means Target File. It refers to a file on the disK where the object code will be stored.
1310 - 1390	Any line that begins with an * is a remark line. These comments detail the calling address of the different subroutines.
1420 - 1490	This is a list of jumps to the different routines. This technique is a very good one to use when creating subroutines for any other main line. This way you can always change the details inside any of the subroutines without effecting the interface to the main line.
1580 - 1620	This routine is very simple and straight forward. It reads the keyboard for one key using the monitor keyboard read routine. The routine then turns the high bit off.
1660 - 1730	Here the current display screen is being saved in the screen buffer area.
1770 - 1850	This routine does the opposite operation. It loads the screen display area with the screen that is saved in the buffer area.
1780	The first thing that this routine does is to calculate what the buffer address should be based upon the value of the screen address.
1790	This is an alternate entry point which is used by the insert/copy line routine at line 2630.
1890 - 1980	FIND-EOL finds the last non space character on the screen. This routine only looks for spaces which are in normal mode (ie. not inverse or flashing). It is not currently used in the Applesoft screen editor.
2020 - 2150	This routine will print a row from the screen using the monitor COUT routine.
2080 - 2100	This is the way do convert from inverse/flashing to normal.

Cont'd

LINE NUMBERS	COMMENTS
2200 - 2260	This routine (when you get tired of the phrase "this routine" just skip over it.) calculates the value of BUFFER.BASE based upon the value of SCREEN.BASE. I know you Hackers are saying "Value? Don't you mean contents?" Well yes but I don't want to explain the difference. And I don't want to talk about pointers either. To you Non-Hackers, if you're interested in learning about Assembly Language programming. I recommend subscribing to: Apple Assembly Line, P.O. Box 280300, Dallas texas 75228. Also, you might take a look at Roger Wagner's column in Softside or Soft-Talk or something like that. I can't remember the name. Call the HAAUG HOTLINE ask them.
2300 - 2420	Here the current cursor defines a character that is to be deleted. Normal spaces are loaded on the right side of the row as all the other characters are moved to the left.
2460 - 2580	When inserting spaces the characters are moved right. Any characters that are moved off the screen are lost and can not be recovered. At present this routine only inserts normal spaces. To make it insert inverse of flashing spaces it can be modified to look at COMM.CELL to determine what mode to make the space. (As the professor always says: "solution left to the student as an excerise.")
2630 - 2970	This routine saves the row that the current is cursorly on. It then moves every row down one by transfering the data from the buffer to the display screen area.
2630 - 2890	This area is used by both the insert and copy line edit routines.
2900 - 2970	The only difference between insert and copy is the execution of the monitor routine at line 2960.

Cont'd

```
:ASM

                        1000 *-------------------------------
                        1010 *       SCREEN EDIT SUBROUTINES
                        1020 *       BY BOB SANDER-CEDERLOF
                        1030 *       MODS BY D. VAN HOOZER
                        1040 *-------------------------------
                        1050 *
0028-                   1060 SCREEN.BASE .EQ $28,29
009D-                   1070 BUFFER.BASE .EQ $9D,9E
                        1080 *
                        1090 *-------------------------------
                        1100 *
0024-                   1110 MON.CH     .EQ $24
0025-                   1120 MON.CV     .EQ $25
FD0C-                   1130 MON.RDKEY  .EQ $FD0C
FDED-                   1140 MON.COUT   .EQ $FDED
FC9C-                   1150 MON.CLREOL .EQ $FC9C
FC22-                   1160 MON.VTAB   .EQ $FC22
FBC1-                   1170 MON.BASCALC .EQ $FBC1
                        1180 *
                        1190 *-------------------------------
                        1200 *
02FF-                   1210 COMM.CELL  .EQ $2FF
0400-                   1220 SCREEN .EQ $400
8100-                   1230 BUFFER .EQ $8100
                        1240 *
                        1250 *-------------------------------
                        1260 *
                        1270        .OR $8000
                        1280        .TF GENASYS 2.0/SCREEN EDIT SUBS
                        1290 *
                        1300 *-------------------------------
                        1310 *       SET HIMEM:32768
                        1320 *       CALL 32768   READ NEXT INPUT CHARACTER
                        1330 *       CALL 32771   MOVE LINE FROM SCREEN TO BUFFER
                        1340 *       CALL 32774   MOVE LINE FROM BUFFER TO SCREEN
                        1350 *       CALL 32777   FIND END OF LINE
                        1360 *       CALL 32780   PRINT LINE
                        1370 *       CALL 32783   DELETE CHAR AT CURSOR
                        1380 *       CALL 32786   INSERT SPACE AT CURSOR
                        1390 *       CALL 32789   INSERT LINE AT CURSOR
                        1400 *-------------------------------
                        1410 *
8000- 4C 19 80          1420        JMP READ.NEXT.INPUT.CHAR
8003- 4C 22 80          1430        JMP MOVE.SCREEN.TO.BUFFER
8006- 4C 2F 80          1440        JMP MOVE.BUFFER.TO.SCREEN
8009- 4C 3C 80          1450        JMP FIND.EOL
800C- 4C 4E 80          1460        JMP PRINT.LINE.FROM.BUFFER
800F- 4C 76 80          1470        JMP DELETE.CHAR.AT.CURSOR
8012- 4C 8B 80          1480        JMP INSERT.SPACE.AT.CURSOR
8015- 4C 9F 80          1490        JMP INSERT.LINE.AT.CURSOR
                        1500 *
                        1510 *-------------------------------
                        1520 *
8018- 00                1530 SAVE.CV    .DA #0
                        1550 *
                        1560 *-------------------------------
                        1570 *
                        1580 READ.NEXT.INPUT.CHAR
8019- 20 0C FD          1590        JSR MON.RDKEY
801C- 29 7F             1600        AND #$7F
801E- 8D FF 02          1610        STA COMM.CELL
8021- 60                1620        RTS
                        1630 *
                        1640 *-------------------------------
                        1650 *
                        1660 MOVE.SCREEN.TO.BUFFER
8022- 20 6A 80          1670        JSR SETUP
8025- A0 27             1680        LDY #39
8027- B1 28             1690 .1     LDA (SCREEN.BASE),Y
8029- 91 9D             1700        STA (BUFFER.BASE),Y
802B- 88                1710        DEY
802C- 10 F9             1720        BPL .1
802E- 60                1730        RTS
                        1740 *
                        1750 *-------------------------------
                        1760 *
                        1770 MOVE.BUFFER.TO.SCREEN
802F- 20 6A 80          1780        JSR SETUP
                        1790 MBTS.ALT.ENTRY
8032- A0 27             1800        LDY #39
8034- B1 9D             1810 .1     LDA (BUFFER.BASE),Y
8036- 91 28             1820        STA (SCREEN.BASE),Y
8038- 88                1830        DEY
8039- 10 F9             1840        BPL .1
803B- 60                1850        RTS
                        1860 *
                        1870 *-------------------------------
                        1880 *
                        1890 FIND.EOL
803C- 20 6A 80          1900        JSR SETUP
803F- A0 27             1910        LDY #39
8041- B1 9D             1920 .1     LDA (BUFFER.BASE),Y
8043- C9 A0             1930        CMP #$A0     BLANK
8045- D0 03             1940        BNE .2
8047- 88                1950        DEY
8048- 10 F7             1960        BPL .1
804A- 8C FF 02          1970 .2     STY COMM.CELL
804D- 60                1980        RTS
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Cont'd

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                2000 *
                2010 *-------------------------------
                2020 *
                2030 PRINT.LINE.FROM.BUFFER
804E- 20 3C 80  2040         JSR FIND.EOL
8051- EE FF 02  2050         INC COMM.CELL
8054- F0 13     2060         BEQ .3
8056- A0 00     2070         LDY #0
8058- B1 9D     2080 .1      LDA (BUFFER.BASE),Y
805A- C9 00     2090         CMP #$0
805C- 30 02     2100         BMI .2
805E- 09 B0     2110         ORA #$B0
8060- 20 ED FD  2120 .2      JSR MON.COUT
8063- C8        2130         INY
8064- CC FF 02  2140         CPY COMM.CELL
8067- 90 EF     2150         BCC .1
8069- 60        2160 .3      RTS
                2170 *
                2180 *-------------------------------
                2190 *
806A- A5 28     2200 SETUP   LDA SCREEN.BASE
806C- 85 9D     2210         STA BUFFER.BASE
806E- 18        2220         CLC
806F- A5 29     2230         LDA SCREEN.BASE+1
8071- 69 7D     2240         ADC /BUFFER-SCREEN
8073- 85 9E     2250         STA BUFFER.BASE+1
8075- 60        2260         RTS
                2270 *
                2280 *-------------------------------
                2290 *
                2300 DELETE.CHAR.AT.CURSOR
8076- A4 24     2310         LDY MON.CH
8078- 4C 82 80  2320         JMP .2
807B- C8        2330 .1      INY
807C- B1 28     2340         LDA (SCREEN.BASE),Y
807E- 88        2350         DEY
807F- 91 28     2360         STA (SCREEN.BASE),Y
8081- C8        2370         INY
8082- C0 27     2380 .2      CPY #39
8084- 90 F5     2390         BCC .1
8086- A9 A0     2400         LDA #$A0
8088- 91 28     2410         STA (SCREEN.BASE),Y
808A- 60        2420         RTS
                2430 *
                2440 *-------------------------------
                2450 *
                2460 INSERT.SPACE.AT.CURSOR
808B- A0 27     2470         LDY #39
808D- D0 07     2480         BNE .2       ...ALWAYS
808F- 88        2490 .1      DEY
8090- B1 28     2500         LDA (SCREEN.BASE),Y
8092- C8        2510         INY
8093- 91 28     2520         STA (SCREEN.BASE),Y
8095- 88        2530         DEY
8096- C4 24     2540 .2      CPY MON.CH
8098- D0 F5     2550         BNE .1
809A- A9 A0     2560         LDA #$A0
809C- 91 28     2570         STA (SCREEN.BASE),Y
809E- 60        2580         RTS
                2600 *
                2610 *-------------------------------
                2620 *
                2630 INSERT.LINE.AT.CURSOR
809F- A5 25     2640         LDA MON.CV
80A1- 8D 18 80  2650         STA SAVE.CV
80A4- A2 17     2660         LDX #23
80A6- 8A        2670 .01     TXA
80A7- 20 C1 FB  2680         JSR MON.BASCALC
80AA- CA        2690         DEX
80AB- EC 18 80  2700         CPX SAVE.CV
80AE- 90 21     2710         BCC .90
80B0- A5 28     2720         LDA SCREEN.BASE
80B2- 48        2730         PHA
80B3- A5 29     2740         LDA SCREEN.BASE+1
80B5- 48        2750         PHA
80B6- 8A        2760         TXA
80B7- 20 C1 FB  2770         JSR MON.BASCALC
80BA- A5 28     2780         LDA SCREEN.BASE
80BC- 85 9D     2790         STA BUFFER.BASE
80BE- A5 29     2800         LDA SCREEN.BASE+1
80C0- 85 9E     2810         STA BUFFER.BASE+1
80C2- 68        2820         PLA
80C3- 85 29     2830         STA SCREEN.BASE+1
80C5- 68        2840         PLA
80C6- 85 28     2850         STA SCREEN.BASE
80C8- 20 32 80  2860         JSR MBTS.ALT.ENTRY
80CB- E0 00     2870         CPX #0
80CD- F0 02     2880         BEQ .90
80CF- D0 D5     2890         BNE .01
80D1- AD 18 80  2900 .90     LDA SAVE.CV
80D4- 20 22 FC  2910         JSR MON.VTAB
80D7- A9 00     2920         LDA #0
80D9- 85 24     2930         STA MON.CH
80DB- AD FF 02  2940         LDA COMM.CELL  IF ZERO THEN CLEAR THE LINE
80DE- D0 03     2950         BNE .95        OTHERWISE LEAVE IT AS IS
80E0- 4C 9C FC  2960         JMP MON.CLREOL
80E3- 60        2970 .95     RTS
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]BLOAD GENASYS 2.0/SCREEN EDIT SUBS
]CALL-151

*AA72.AA73 AA60.AA61

AA72- 00 80
AA60- E4 00
*8000.80E3

8000- 4C 19 80 4C 22 80 4C 2F
8008- 80 4C 3C 80 4C 4E 80 4C
8010- 76 80 4C 8B 80 4C 9F 80
8018- 00 20 0C FD 29 7F 8D FF
8020- 02 60 20 6A 80 A0 27 B1
8028- 28 91 9D 88 10 F9 60 20
8030- 6A 80 A0 27 B1 9D 91 28
8038- 88 10 F9 60 20 6A 80 A0
8040- 27 B1 9D C9 A0 D0 03 88
8048- 10 F7 8C FF 02 60 20 3C
8050- 80 EE FF 02 F0 13 A0 00
8058- B1 9D C9 00 30 02 09 80
8060- 20 ED FD C8 CC FF 02 90
8068- EF 60 A5 28 85 9D 18 A5
8070- 29 69 7D 85 9E 60 A4 24
8078- 4C 82 80 C8 B1 28 88 91
8080- 28 C8 C0 27 90 F5 A9 A0
8088- 91 28 60 A0 27 D0 07 88
8090- B1 28 C8 91 28 88 C4 24
8098- D0 F5 A9 A0 91 28 60 A5
80A0- 25 8D 18 80 A2 17 8A 20
80A8- C1 FB CA EC 18 80 90 21
80B0- A5 28 48 A5 29 48 8A 20
80B8- C1 FB A5 28 85 9D A5 29
80C0- 85 9E 68 85 29 68 85 28
80C8- 20 32 80 E0 00 F0 02 D0
80D0- D5 AD 18 80 20 22 FC A9
80D8- 00 85 24 AD FF 02 D0 03
80E0- 4C 9C FC 60
*3D0G
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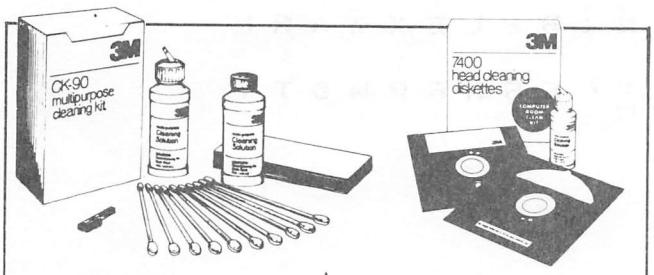

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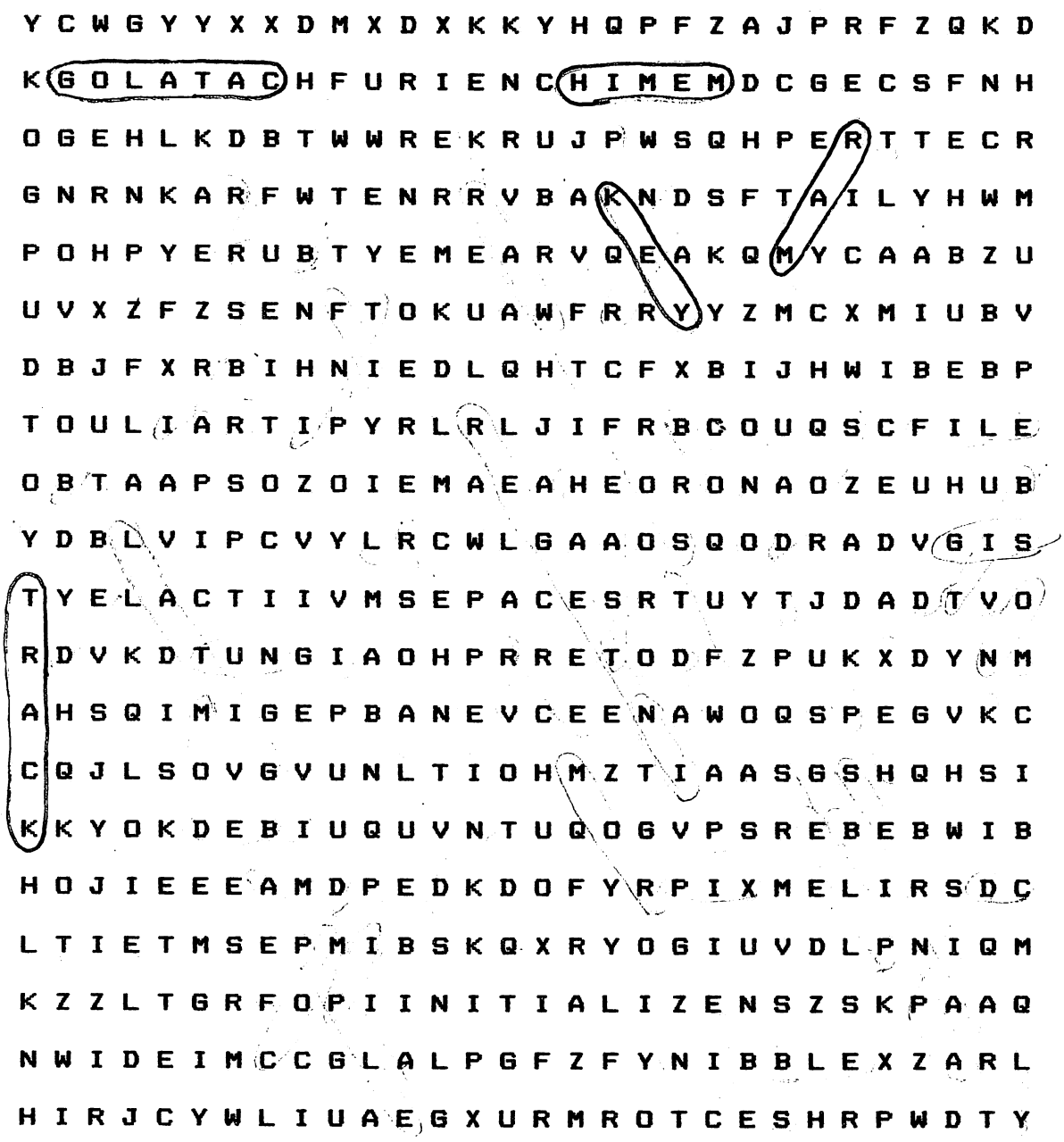

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Kingwood, TX 77339

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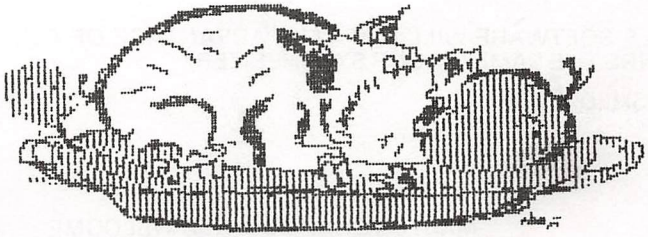

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