



mini'app'les

apple computer user group newsletter

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NEXT MEETING

Program Exchange Night

Wednesday, Sept 17th
 7:30 PM at the Minnesota Federal Savings
 9th Avenue South
 Hopkins, Mn

The Picknik will not take place - Nobody has volunteered to organize same.

The purpose of a Program Exchange Night is, would you believe, to exchange programs! We plan to have alot of Apples (the type that plug into the wall), and several copies of the user bank. Also please bring anything in the way of software:

1. in which you think somebody else might just have some interest, 2. with which you are willing to part for no fee other than satisfaction of seeing it used by others!

IN THIS ISSUE

Advertisements
 Club Projects by D.Buchler
 Horror Stories by D.Archibald
 Modem Software by N.Capes
 Turning the Pages with D.Laden
 Visit to Europe by D.Buchler
 What Flavor Diskette Do You Want?
 by D.Laden
 A Detailed Look at DOS 3.2 by
 D.Laden

ANNUAL COST FOR GASOLINE

Graphics Package by J.White

A DETAILED LOOK AT DOS 3.3

By: David E. Laden

DOS 3.3 is the most current version of Apple's Disk Operating System. The biggest difference between this version and previous versions is that previous versions used 13 sectors per track and 3.3 uses 16 sectors per track. (This will make the Apple II more compatible with Apple's Language System and the new Apple III which both use 16 sectored diskettes.) In addition to this change, Apple has added some useful utilities to the SYSTEM MASTER DISKETTE.

In order for your disk drive to read 16 sectored diskettes, the two PROMS on the disk controller card (labeled P5 and P6) need to be replaced with two new PROMS (labeled P5A and P6A). Those of you with the Language System are already familiar with these new PROMS. As soon as this hardware update has been made, you can begin taking advantage of your "new" Disk Operating System.

The update from 13 to 16 sectors per track will provide approximately 23% more storage per diskette. This update will give you 93 additional sectors for your programs and files. You will find no problem in using this new operating system. As a matter of fact, all outward appearances (except for the additional storage) are the same. All of the DOS commands and procedures have remained the same. The new DOS manual is almost identical to the DOS 3.2 manual except for the references to DOS 3.2, 13 sectored diskettes, etc., and the addition of appendices documenting the new utilities on the SYSTEM MASTER DISKETTE.

With the previous version of DOS (3.2.1) there are two varieties of the SYSTEM MASTER DISKETTE: STANDARD and PLUS. One diskette is for the Standard Apple containing Integer BASIC in ROM, and the other diskette is for the Apple Plus containing Applesoft BASIC in ROM. However, because Apple played a little "trick," there is only one DOS 3.3 SYSTEM MASTER DISKETTE. The DOS 3.3 SYSTEM MASTER DISKETTE is able to boot either a Standard Apple or an Apple Plus, so you only need to keep track of one SYSTEM MASTER DISKETTE instead of two. For those with the Language System, the missing BASIC language is automatically loaded into the language card for you when you boot the SYSTEM MASTER DISKETTE.

The DOS 3.3 SYSTEM MASTER DISKETTE contains the following utilities: a disk-to-disk copy program, a File Developer utility (FID), a utility to convert a 13 sectored diskette to a 16 sectored diskette (MUFFIN), and MASTER CREATE. All of these utilities are available from either Integer or Applesoft BASIC. In addition, Applesoft Renumber and Append routines and Applesoft Chain are provided for Applesoft users.

The new copy program allows disk-to-disk copying on a single disk drive or on multiple disk drives with a single or multiple disk controller cards. Copying with a single drive is accomplished by exchanging the original and duplicate diskettes until the entire diskette has been copied. This feature should be appreciated by all of the single drive users. The copy program is available from either form of BASIC. There are two versions of the driver program. One is written in Integer BASIC and the other is written in Applesoft BASIC. Both of these programs utilize the same machine language copy program, however.

The File Developer (FID) program is one of the new utilities added to the SYSTEM MASTER DISKETTE. This utility assists the user with the task of managing DOS files. The following options are available with FID: CATALOG, LOCK, UNLOCK, DELETE, VERIFY, COPY, and SPACE. The CATALOG option simply gives you a catalog of the diskette. The LOCK, UNLOCK, DELETE, and VERIFY options may be performed on one, some, or all of the files on the diskette. The COPY option will let you transfer individual programs and files from one diskette to another (using a single or multiple disk drives). SPACE is used to determine how much of the diskette is already used and how much space is still available.

MUFFIN is a utility which allows you to move programs and files from a 13 sectored diskette to a 16 sectored diskette. Again, this utility can be used with a single disk drive or with multiple disk drives. Wildcards are allowed in the filename thus making it easy to convert an entire diskette from 13 to 16 sectored. MUFFIN is a machine language program so it is usable from either Integer or Applesoft BASIC.

MASTER CREATE is a utility which will take a SLAVE diskette and turn it into a MASTER diskette. (For more information about the differences between MASTER and SLAVE, see the accompanying article titled "WHAT FLAVOR DISKETTE DO YOU WANT?") As with the other utilities, MASTER CREATE is written in machine language so it is usable from either BASIC.

BASICS is a diskette that will enable you to use your 13 sectored diskettes even after you have updated your hardware to 16 sectors. The procedure to use this diskette is easy. When you initially boot the system use the BASICS diskette. Then you are prompted to put in your 13 sectored diskette and press RETURN. Your system now behaves as it did before the hardware was updated.

For those purchasing a disk system with a controller card, DOS 3.3 is included. For those who already have a disk system with a previous version of DOS and wish to update

your system to DOS 3.3, you may purchase a DOS 3.3 kit (Model #A2D0023) from your local Apple dealer for \$60.00 (or whatever price you can talk the dealer into).

The DOS 3.3 Kit consists of: the two replacement PROMS (P5A and P6A), an IC (chip) puller, a DOS 3.3 SYSTEM MASTER DISKETTE, a BASICS diskette, a new DOS manual, and a sheet of 16 sector labels (so you don't forget which diskettes are 16 sectors), and some miscellaneous forms.

WHAT FLAVOR DISKETTE DO YOU WANT?

By: David E. Laden

This article is being revised to include information on Apple's new version of DOS (3.3). The original article appeared in the MAY 1980 issue of the Mini'App'les Newsletter. For more specific information on DOS 3.3 see the accompanying article titled "A DETAILED LOOK AT DOS 3.3."

This article is a clarification of terms more than anything else. If you are confused about these terms: SYSTEM MASTER, DOS 3.3, DOS 3.2.1, DOS 3.2, BASICS, MASTER, SLAVE, or "LOST" DOS, continue reading. Your questions will probably be answered.

The SYSTEM MASTER DISKETTE is the diskette supplied by Apple Computer, Inc. when you purchase a disk drive for your Apple or when you purchase a DOS update kit. This diskette contains the Disk Operating System (DOS), various disk utilities, and demonstration programs.

The most current version of DOS is 3.3. A major change has taken place between 3.2.1 and 3.3. DOS versin 3.2.1 (and previous) used diskettes that contained 13 sectors per track. DOS 3.3 uses diskettes that contain 16 sectors per track. This change allows you to store more informaton on each diskette. Other than this major change, not much else has been done except to add a couple of new utilities to the SYSTEM MASTER DISKETTE. If your diskettes contain DOS 3.2.1 (or previous) there is really no need to update them to DOS 3.3. You will still be able to use your 13 sectored diskettes by using BASICS. BASICS is a diskette which, when booted, allows you to boot a 13 sectored diskette. (The minor revision that took place between DOS 3.2 and 3.2.1 consisted of a change made to the timing when seeking a drive and changes to the COPY program to facilitate more reliable disk-to-disk copying.)

The term MASTER is not only used to mean SYSTEM MASTER or original. It is also used to describe a diskette which will boot any size system.

HORROR STORIES

by Dale Archibald

Or happy stories wanted. I would liketo hear from those of you who have purchased items through mail order. I'm a freelance writer working on a mail order article for Nibble. If you could telephone me for a short conversation, I would appreciate it. Dale Archibald, 374-3682.

CLUB PROJECTS

by your President

I had the pleasure the other night to address a meeting of the Honeywell SYM/KIM users group. Now granted, they are a group of people who have chosen a type of computer requiring much hardware and software labor to build into a usable device. However, they have succeeded in rapidly organizing projects to be undertaken by two or more club members, but which potentially could benefit other members of the club. Examples of these projects are

- Modem
- Computer Enclosure
- Memory Board

It seems to me that we should be able to do some similar things. Many of you have sufficient software background to realize that large complex programs require alot of effort. Such efforts are typically undertaken by a team. It is also recognized that many real complex systems were the brain-child of a single individual. However, I am not suggesting that we write an DOS IV, but find something which can be easily understood, but which is simply too large for anyone of us to consider undertaking by ourselves.

Examples might include conversion of programs written for other computers. For example, I have a listing of an excellent simulation of a US Navy aircraft attacking a Russian Guided Missile Destroyer.

This was written by the USNavy! It is therefore realistic and public-domain. The problem is that the current version runs in 17 overlays on a Tectronix 4010!

Another example might be the conversion of a paddle game to be played by two Apples communicating through modems.

Advertisements

Micro Peripherals 88Tprinter eight type sizes 2K bufferbuilt-in parallel or serial connection. An excellent nachine, used less than 4 months. Many other features. I need a graphics printer or I would not sell it. Asking \$650.00 without interface card. Also Centronics micro P-1 printer. Softcase for Apple II too. Make offer. Chuck Boody 317 17th Ave. No. Hopkins MN. 55343 933-5290.

Capabilities of the Apple World Package

The package reviewed here was a preliminary version with a number of program and documentation errors. Hopefully most of the errors are corrected in the final version. The main program and image files did operate correctly and are the basis of this review.

The Apple World program allows the user to create three dimensional color images, project them in true perspective on the Apple II screen, rotate them, move closer, farther away, etc. The images are of the wire frame type and are defined by line endpoints.

The program requires 48k bytes, but includes a powerful image file editor. Image view control is based on simple keystrokes. Text files may be executed to provide demonstrations, but program controlled animation is not readily supported.

The manual provided is small, but adequate. A large manual is not required because the program provides prompts and command lists. The commands available to the user are quite powerful, easy to use, and readily understood. Some commands were not completely documented in the draft version of the manual, but this did not detract from use of the program. Interesting example scenes and demonstration files are included. The main program provides a tutorial description of the image display space and viewing options. There is also a program that produces complex three dimensional objects based on a few data points provided by the user.

The program is quite fast. The time required to produce a new view depends on the number of lines in the image. A complex, 400-line image may take nearly four seconds to update in the worst case. Less complex images will update several times per second. Assembly language programs are used to achieve speed.

Commands are included to allow saving the image text file to disk for future use or modification. Screen images may also be saved for use by other programs. Special parts of images (circles or mathematical shapes) may be created using BASIC programs, then inserted into the developing image file. Individual files may be combined into a master image. A library of frequently used images (e.g. chairs) may be made, then inserted when needed during the creation of an image. About 1000 average line descriptions may be entered into the image text file.

The editor provided for image file manipulation greatly contributes to the ease of use of the program. It provides simple cursor manipulation, line and word deletion, upward and downward scrolling, text movement (up to 256 characters), and string search and replacement. A commenting facility is supported in the image text file. This makes editing and construction of complex images easier, and it can be used to display text during demonstrations.

"Apple Space" is a cube of mathematical space, 65536 units on a side. The viewer's point of reference can be positioned anywhere in this space. The direction of view can range from 0 to 359 degrees (256 even steps) in each of two axes (horizontal and vertical). The scale (apparent viewer distance) is easily controlled. Line endpoints are described in either absolute or relative coordinates with values from -32767 to +32767 in each direction (X,Y, and Z). A "repeat" command allows animation effects with a single keystroke.

J. A. White 7-15-80

Limitations of the Apple World Package

Interactive control of image viewing from BASIC or assembly language is not supported. It should be possible by poking changes to the image text file and calling the display routines, but this is not described in the manual.

Viewing rotation about the Z axis (banking) is not provided. Image control (aspect ratio, size and position) is not possible, so split screen effects cannot be achieved.

The package is viewer oriented. This allows the viewer to move easily through the image space, but it does not readily facilitate independent motion of individual objects.

"Exclusive or" line drawing for selective erasure or object motion is not possible.

Line clipping options are not included

J. A. White 7-15-80

For Sale

Apple II, 48k, Disk, Applesoft in ROM,
Autostart ROM, Sanyo 9" B&W Monitor,
Joystick, 25 Diskettes, Software.
6 months old. \$1900 Firm

Harold Ciccarelli 224-2368 (Bus)
777-6931 (Home)

DATA COMMUNICATIONS WITH THE ELECTRONIC SYSTEMS CARD

by Nelson R. Capes

The Electronic Systems Serial I/O Interface for the Apple II is an extremely useful and inexpensive way to interface an Apple II computer to a modem or other serial I/O gear. While other peripherals, such as the D.C. Hayes "Micromodem" offer features (such as autodial) that are not provided by the Electronic Systems card, they also cost significantly more money. But for only \$42.95(kit) or \$62.95(assembled and tested), the Electronic Systems card gives you just about everything you need to interface to a modem or acoustic coupler (Electronic Systems, P.O. Box 21638, San Jose, Ca. 95151). The only additional purchase needed would be an RS232 cable, and, of course, a modem. Electronic Systems provides a program for setting the baud rate and a small machine-language program for using the Apple as a terminal or to input and/or output to the modem.

Despite the small expense of this interface (or perhaps because of it), few time-sharing systems are set up for it. For example, the Source system requires either an Apple or D.C. Hayes card to use the special Interface Software for uploading, downloading, etc., although the Electronic Systems card works fine in the "terminal" mode. It would be nice to be able to upload and download programs using the Electronic Systems card. Here's how to do it.

The following machine-language program is a modification of the one supplied by Electronic Systems. It allows the following functions:

- use the Apple as a terminal (keyboard input goes to screen and modem; modem received data goes to screen)
- upload a program from the Apple to another computer
- download a program from another computer to the Apple
- take over control of the Apple from a remote terminal.

1)Terminal Mode: When the program is started (*300G), it is in Terminal Mode. This means that it is taking keystrokes and sending them out to the modem and TV screen; and getting data from the modem and displaying it on the screen. In this mode, all characters keyed are output to the modem except CTRL-A and CTRL-B. Pressing CTRL-A causes the program to terminate and return to its caller (the Monitor or a Basic or machine-language program).

2)Downloading: When CTRL-B is pressed while in Terminal mode, the program alters the Monitor input vectors at \$38 and \$39 to point to a routine that gets input data from the modem rather than the keyboard. After removing Line Feed characters, the received characters are passed to the program which originally called the routine at \$300. In this way, programs may be downloaded into the Apple.

3)Uploading: Calling the program at the entry point called UPLOAD causes it to alter the Monitor output vectors at \$36 and \$37 so that any output (keyboard or program) goes to the modem. A time delay is set after a Carriage Return to allow the receiving computer to process each line. In this way, programs may be uploaded from the Apple to another computer.

4)Remote Terminal: The Apple may be configured to be controlled from a remote terminal by calling the program at entry point REMOTE. Input from the modem then controls the Apple and any output is sent to the modem.

OPERATING INSTRUCTIONS:

1)Terminal Mode: When you enter the program at \$300, your Apple acts as a dumb terminal. Anything you type gets sent to the modem. Anything the remote operator types appears on your TV screen. Note that there are two special characters which are used for uploading and downloading (CTRL-A and CTRL-B). When these keys are pressed, the corresponding characters are not sent out to the modem. This program operates in "full-duplex" mode and expects the remote system to echo back each character that you type. If you don't see anything when you type, flip the "Duplex" switch on the modem from FULL to HALF.

2)Uploading: In order to upload a program from your Apple to another Apple (or other computer), just set up an EXEC file as listed below:

```
32000 CALL 768
32100 CALL 896
32200 LIST 0,31999
32300 CALL 768
```

Then load in the Applesoft program you wish to upload and EXEC the file. Finally, do a RUN 63000. This EXEC file introduces some Basic lines that call the program and put you in terminal mode. You then type back and forth with the operator at the other end of the line. The remote operator sets up his Apple so that it is controlled by his modem (see Downloading below). When he is ready, just press CTRL-A on your Apple and the Applesoft program is LISTed over the phone. As it is received, it gets stored in memory just as if it came from the keyboard at the remote system. When the program is done listing, you will be back in Terminal Mode and can talk with your friend at the other end again. The only restriction is that the Applesoft program you want to download must have line numbers less than 63000. You can easily write a similar EXEC file to handle Integer Basic programs.

3)Downloading: To download a program from a remote computer to your Apple, just start out in the system you want to download into (Monitor, Integer Basic, or Applesoft). Then enter the machine-language program by a "*300G" from Monitor or "CALL 768" from BASIC. You are now in terminal mode and can type back and forth with the remote operator or program. To start the download, signal him that you are ready and press CTRL-B.

Your Apple is now under the control of the modem and any incoming program will be processed by the system (Monitor or Basic) that you started out in.

4)Remote Terminal: To set up your apple so that it acts as a time-sharing computer, just do the following:

--from Monitor:"340G"
 --from Basic:"CALL 832" Your Apple is now controlled by the modem and sends all its output to the modem.To get your system back,hit RESET.

VISIT TO EUROPE

by your President

I have just returned from a brief trip to Europe. I have two stories to tell!

1. User groups in England
2. Prestel in England

Item 1:

As soon as I got to England I started in trying to contact an Apple User group - any Apple user group. I called dealers, distributors, etc. The story was always- "We are not as well organized as you are in the States. We don't know of any user groups."

Well I didn't give up. As a last resort I called the main Apple distributor. I talked to a young lady who was much better informed than any of my previous contacts. "Yes", she said, there are some user groups, but she would have to call me back with names and numbers. Well, unfortunately, she didn't call back until one hour before my scheduled departure time to the USA. I do have the names, but it was too late to call!
 The moral to the story- You tell me!

Item 2

'Prestel' is the name of a recently introduced text and graphic information system. It works like this
 You buy or rent a black box that intercepts a coded signal mixed into the standard TV broadcast signal. With the blackbox comes a keyboard that looks like one of the more expensive calculators. Your TV set displays a screen of text with some graphics capability in colour.(that's the British spelling)

The text screen starts off with a menu at the top of a tree of a tree selection scheme. Example follows

```
Prestel 5a 0-5p
BUSINESS PRESTEL
.....
1 BUSINESS NEWS
2 STOCKS & SHARES UK & Foreign
3 MONEY RATES & COMMODITY PRICES
4 COMPANIES Reports & Comments
5 INDUSTRIES & BUSINESS SERVICES All
   industries & Services on Prestel
6 FINANCIAL & ECONOMIC STATISTICS
7 GOVERNMENT INFORMATION
8 INVESTMENT & SAVING
```

The above screen is approximate. Also included are special symbols showing number of pages in each report and the colors. The user keys in a number, for example 2 Prestel then sends the next menu in the tree. In this case it might be a list of stock classifications. The numbering system is what I call algebraic.

i.e, in the tree below 2 is 21 thru 29 below 21 is 210 thro 219 etc. The reverse transmission is through a modem connected to the keypad via the British Post Office telephone system. The equipment that displays the text is called 'Viewdata'. All of the British (and Japanese) TV set manufacturers seem to be in on the act. Currently it is rather expensive. Viewdata equipment sells for prices in the same ballpark as the TV set itself. i.e \$500-\$1000 for TV set plus \$500 to \$1000 for viewdata, or you can rent it. You then also pay for a connection charge, a page charge for retrieval, etc. Viewdata has been operational in the London area for nearly a year and will be coming up in two regional centers before yearend. This means that if you live in London or the particular region, you are not stuck with long distance phone charges to request screens.

The travel agencies have started using it in a big way to transmit information. The BBC maintains a large computer with the standard data (which is like a large SOURCE system), but includes much more information. A private user can buy storage and place information in the bank which is then accessible to all. Information is placed in the bank with a Viewdata system incorporating a full alphanumeric keyboard.

Apparently one Apple user has designed an interface between Apple bus and the incoming TV signal. It works but is not approved by the BRITISH POST OFFICE. Shades of the FCC!

```

1  ***GENERAL PURPOSE ROUTINE FOR MODEM***
2  ***NEEDS ELECTRONIC SYSTEMS CARD IN SLOT #1*
3  ***NELSON R. CAPES***
4  *****CRITERION SYSTEMS*****
5  *****586 KENT LANE*****
6  *****SHOREVIEW, MN 55112*****
7  **
8  **
9  ***PERMISSION IS GRANTED TO REPRODUCE***
10 THIS PROGRAM FOR USE BY COMPUTER USER GROUPS
11 ***ALL COMMERCIAL RIGHTS RESERVED***
12 OBJ $800
13 ***ENTRY POINTS ARE:
14 * START- ENTER TERMINAL MODE
15 * STOP -I/O TO SCREEN
16 * * UPLOAD- OUTPUT TO MODEM
17 * * DLOAD- INPUT FROM MODEM
18 * * REMOTE- START REMOTE TERMINAL
19 START EQU $300
20 STOP EQU $360
21 UPLOAD EQU $380
22 DLOAD EQU $3D3
23 REMOTE EQU $340
24 DLOAD EQU $E0
25 ADLO EQU $90
26 ADHI EQU $03
27 VECTLO EQU $36
28 VECTHI EQU $37
29 INLO EQU $38
30 INHI EQU $39
31 ACSAVE EQU STOP-2
32 NRMOUT EQU $DF0
33 CR EQU $8D
34 CRLO EQU $0D
35 MODOUT EQU $C092
36 MODIN EQU $C090
37 MDSTAT EQU $C091
38 NRMLO EQU $F0
39 NRMHI EQU $FD
40 BUFRRE EQU $01
41 PRFRRE EQU $02
42 KEYBD EQU $C000
43 KEYCLR EQU $C010
44 PUSH1 EQU STOP-1
45 ;***FOLLOWING EQU MUST BE CHANGED FOR NON-48 K SYSTEMS***
46 ;***REQUIRES DOS 3.2 OR ABOVE***
47 DOSVEC EQU $A851

```

```

48 0300 PAG
49 ;*****MAIN LOOP*****
50 LDA MDSTAT
51 AND #$80
52 BFL NOIPT
53 LDA MODIN
54 ORA #$80
55 JSR NRMOUT
56 NOIPT BIT KEYBD
57 BPL START
58 LDA KEYBD
59 ;GET KEY
60 BIT KEYCLR
61 JMP ENDCHK
62 ;CONTROL COMES HERE IF NO CTRL-A
63 LDA MDSTAT
64 AND #BUFRRE
65 BFL BACK
66 LDA PUSH1
67 STAPMOLUT
68 JMP START
69 ;***CHECK FOR CTRL-A ****
70 ENDCHK EQU *
71 STA PUSH1
72 CMP #$81
73 BEQ CTRLA
74 CMP #$82
75 ;CTRL-B?
76 BNE JMPBAK
77 JMP DLOAD
78 JMPBAK JMP BACK
79 ;IF CTRL-A PRESSED, RETURN TO ORIGINAL CALLER
80 PAG ORG $340
81 OBJ $840
82 ;***ENTRY: REMOTE***
83 ;
84 JSR UPLDAD
85 JSR DNLAD
86 RTS

```

;48K DOS VECTOR

0347	PAG	\$360	87
0360	ORG	\$360	88
0360	OBJ	\$860	89
0360	***ENTRY: STOP***		90
0360	LDA #NRML0		91
0362	STA VECH0		92
0364	LDA #NRMH1		93
0366	STA VECH1		94
0368	JSR DOSVEC		95
036B	RTS		96
036C	PAG		97
0380	ORG	\$380	98
0380	OBJ	\$880	99
0380	***ENTRY: UPLOAD ***		100
0380	LDA #ADL0		101
0382	STA VECH0		102
0384	LDA #ADH1		103
0386	STA VECH1		104
0388	JSR DOSVEC		105
038B	RTS		106
038C	***UPLOADING ROUTINE***		107
0390	ORG	\$390	108
0390	OBJ	\$890	109
0390	STA ACSAVE		110
03 93	CMP	#CR	111
0395	BNE NOTCR		112
0397	IF CR, OUTPUT WITHOUT HIGH-ORDER BIT AND DELAY		113
0397	IF CR, OUTPUT WITHOUT HIGH-ORDER BIT AND DELAY		114
0397	IF CR, OUTPUT WITHOUT HIGH-ORDER BIT AND DELAY		115
0397	IF CR, OUTPUT WITHOUT HIGH-ORDER BIT AND DELAY		116
039A	A90D		117
039C	8D92C0		118
039F	20B903		119
03A2	E601		120
03A4	D0FC		121
03A6	E602		122
03A8	D0F8		123
03AA	E601		124
03AC	D0FC		125
03AE	60		126
03AF	20B903		127
03B2	AD5E03		128
03B5	8D92C0		129
03B8	60		130
03B9	AD91C0		131
03BC	2901		132
03BE	F0F9		133
03C0	60		134

SYMBOL TABLE LENGTH:0142

START	0300	STOP	0360
UPLOAD	0380	DNLOAD	03D3
ACSAVE	035E	NRML0T	03F0
KEYCLR	C010	PUSH1	035F
JMPBAK	033B	CTRLA	033E
DNLO	00E0	ADLO	0090
CRLO	000D	MODOUT	C092
BUFRF	0001	PRTRF	0002
NOIPT	030F	BACK	031D
WAIT1	03A2	WAIT2	03AA
NOTCR	03AF		

** ZERO PAGE VARIABLES:

VECTLO 0036 VECTHI 0037 INLO 0038 INHI 0039

** ABSOLUTE VARIABLES/LABELS:

03C1	PAG	134	
03C1	DOS RESTART VECTOR AT \$3D0	135	
03D3	ORG	\$3D3	136
03D3	OBJ	\$8D3	137
03D3	***ENTRY: DNLOAD ***		138
03D3	LDA #DNLO		139
03D5	STA INLO		140
03D7	LDA #ADH1		141
03D9	STA INHI		142
03DB	JSR DOSVEC		143
03DE	RTS		144
03E0	ORG	\$3E0	145
03E0	OBJ	\$8E0	146
03E0	***ENTRY: UPLOAD ***		147
03E0	LDA #ADL0		148
03E3	STA VECH0		149
03E5	LDA #ADH1		150
03E7	STA VECH1		151
03EA	JSR DOSVEC		152
03EC	RTS		153
03EE	CMP	\$8A	154
03F0	BEQ	DNCODE	155
03F0	RTS		156

END

; INPUT READY?

; GET CHARACTER

; LF?

; YES, EAT IT

; BACK TO CALLER

AUTOMOBILE GAS SAVINGS Donn P. Barber

This is a simple program written for the Apple II to calculate the annual cost of gasoline for your automobile at different miles per gallon. It's useful when deciding to change cars in an effort to gain greater gasoline efficiency.

To operate the program, you input the number of miles that you drive annually. Then you input two possible gas prices and then you enter any number up to 35 of different miles per gallon possibilities. The print out, besides listing the annual cost of the gasoline, lists the savings between each successive mile per gallon figure that you put in.

The program is set up so that you can re-run it easily under three different options:

1. With only new gas prices
2. With different annual miles driven
3. With completely new data

It's interesting to note that as mileage goes up, the dollar savings per year for each improvement gets progressively less. The conclusion could be that if you currently had a good car that just gets reasonable mileage, it probably doesn't pay to take a big loss on that car to buy a more efficient one, or at least the payout would take a long time.

THIS IS A PROGRAM THAT CALCULATES THE ANNUAL COST FOR GAS FOR AUTOS AT DIFFERENT GAS PRICES, MILES DRIVEN AND MILES PER GALLON EFFICIENCY.

WHAT TWO PRICES FOR GAS DO YOU WISH TO USE IN \$ PER GALLON (SUCH AS 1.129) INPUT BOTH PRICES SEPARATING BY A COMMA 1 .259,1.5
HOW MANY ANNUAL MILES OF DRIVING 12000 YOU CAN PUT IN AS MANY DIFFERENT MPG ESTIMATES AS YOU WISH

NOW INPUT THE VARIOUS MILES PER GALLON PUSHING RETURN AFTER EACH ONE

IF THERE ARE NO MORE TYPE IN A 999 FOR THE MILES PER GALLON TO EXIT

?5
?10
?15
?20
?25
?30
?35
?40
?45
?50
?999

DO YOU WANT A PRINTOUT - Y/N Y

WHICH OPTION?

- (1) SAME EXCEPT NEW GAS PRICES
- (2) SAME EXCEPT NEW ANNUAL MILES
- (3) ALL NEW

?2

WHAT NEW ANNUAL MILES DRIVEN 15000

ANNUAL COST FOR GASOLINE AT DIFFERENT MILES PER GALLON

ANNUAL MILES DRIVEN 15000

MILES/ GALLON	GAS PRICE 1.259		GAS PRICE 1.500	
	ANNUAL COST	SAVINGS FR LINE ABOVE	ANNUAL COST	SAVINGS FR LINE ABOVE
5.0	3777	0	4500	0
10.0	1889	1889	2250	2250
15.0	1259	630	1500	750
20.0	944	315	1125	375
25.0	755	189	900	225
30.0	630	126	750	150
35.0	540	90	643	107
40.0	472	67	563	80
45.0	420	52	500	63
50.0	378	42	450	50

ANNUAL COST FOR GASOLINE AT DIFFERENT MILES PER GALLON

ANNUAL MILES DRIVEN 12000

MILES/ GALLON	GAS PRICE 1.259		GAS PRICE 1.500	
	ANNUAL COST	SAVINGS FR LINE ABOVE	ANNUAL COST	SAVINGS FR LINE ABOVE
5.0	3022	0	3600	0
10.0	1511	1511	1800	1800
15.0	1007	504	1200	600
20.0	755	252	900	300
25.0	604	151	720	180
30.0	504	101	600	120
35.0	432	72	514	86
40.0	378	54	450	64
45.0	336	42	400	50
50.0	302	34	360	40

```

560 PRINT TAB(25);X = C(K); GOSUB 800;X = E(K); GOSUB 800;PRINT
570 NEXT K
580 PRINT : PRINT : PRINT : PRINT
590 IF P$ = "Y" THEN PR# 0
600 INPUT "ANY MORE - Y/N "M$
610 IF M$ = "N" THEN PRINT "OK
- SO LONG!"; END
620 IF M$ < "Y" THEN CALL -
198;GOTO 600
630 PRINT " WHICH OPTION?"
640 PRINT " (1) SAME EXCEPT
NEW GAS PRICES"
650 PRINT " (2) SAME EXCEPT
NEW ANNUAL MILES"
660 PRINT " (3) ALL NEW"
670 INPUT D
680 IF D < 1 OR D > 3 THEN CALL
- 198;GOTO 600
690 IF D = 1 THEN INPUT "WHAT N
EM GAS PRICES PER GALLON "G
;G1;GOTO 290
700 IF D = 2 THEN INPUT "WHAT N
EM ANNUAL MILES DRIVEN "Y;GOTO
290
710 IF D = 3 THEN 110
720 END
730 IF X > .01 THEN X$ = ".0.0";GOTO
770
740 X = INT (X * 10 + .5) / 10
750 X$ = STR$(X + .01)
760 X$ = LEFT$(X$, LEN (X$)) - 1
)
770 X$ = RIGHT$( " " + X$,
5)
780 PRINT X$;
790 RETURN
800 IF X < .01 THEN X$ = ".0";GOTO
840
810 X = INT (X + .5)
820 X$ = STR$(X)
830 X$ = LEFT$(X$, LEN (X$))
840 X$ = RIGHT$( " " + X$,7)
850 PRINT X$;
860 RETURN
870 IF X < .01 THEN X$ = ".0.000"
;GOTO 910
880 X = INT (X * 1000 + .5) / 10
900 X$ = STR$(X + .0001)
910 X$ = LEFT$(X$, LEN (X$)) - 1
)
)
920 PRINT X$;
930 RETURN

```

```

170 PRINT
180 N = 0
190 PRINT
200 PRINT "NOW INPUT THE VARIOUS
MILES PER GALLON"
210 PRINT "PUSHING RETURN AFTER
EACH ONE"
220 PRINT
230 PRINT "IF THERE ARE NO MORE
TYPE IN A 999 FOR"
240 PRINT "THE MILES PER GALLON
TO EXIT"
250 FOR K = 1 TO 36
INPUT A(K); IF A(K) = 999 THEN
260
270 N = N + 1
280 NEXT K
290 FOR K = 1 TO N
300 B(K) = G * Y / A(K)
310 C(K) = G1 * Y / A(K)
320 F(K) = B(K - 1) - B(K)
330 E(K) = C(K - 1) - C(K)
340 IF K = 1 THEN F(K) = 0
350 IF K = 1 THEN E(K) = 0
360 NEXT K
370 IF P$ = "Y" THEN 410
INPUT "DO YOU WANT A PRINTOUT
T - Y/N "P$
390 IF P$ = "N" THEN 420
IF P$ < "Y" THEN CALL -
198;GOTO 380
410 PR# 1
420 PRINT : PRINT
430 PRINT "ANNUAL COST FOR GASOL
INE AT DIFFERENT"
440 PRINT TAB(11);"MILES PER G
ALLON"
450 PRINT
460 PRINT " ANNUAL MILES DRI
VEN "Y
470 PRINT
480 PRINT TAB(8);"GAS PRICE "
;X = G;GOSUB 870;PRINT TAB
(26);"GAS PRICE "X = G1;GOSUB
870;PRINT
490 PRINT "MILES/ ANNUAL SAVIN
GS ANNUAL SAVINGS"
500 PRINT "GALLON COST FR LI
NE COST FR LINE"
510 PRINT TAB(18);"ABOVE" ; TAB(
34);"ABOVE"
520 FOR K = 1 TO N
530 X = A(K);GOSUB 730
540 PRINT TAB(6);X = B(K);GOSUB
800
550 PRINT TAB(15);X = F(K);GOSUB
800

```

```

10 REM GAS COST PROGRAM
20 REM LATEST REVISION 9/26/80
30 REM DONE BY DONN BARBER
40 DIM A(35),B(35),F(35),C(35),E
(35)
50 PRINT : PRINT
60 PRINT "THIS IS A PROGRAM THAT
CALCULATES THE
70 PRINT "ANNUAL COST FOR GAS FO
R AUTOS AT
80 PRINT "DIFFERENT GAS PRICES"
MILES DRIVEN"
90 PRINT "AND MILES PER GALLON E
FFICIENCY."
100 PRINT
110 PRINT "WHAT TWO PRICES FOR G
AS DO YOU WISH TO"
120 PRINT "USE IN $ PER GALLON (
SUCH AS 1.129)"
130 INPUT "INPUT BOTH PRICES SEP
ARATING BY A COMMA "G,G1
140 INPUT "HOW MANY ANNUAL MILES
OF DRIVING "Y
150 PRINT "YOU CAN PUT IN AS MAN
Y DIFFERENT MPG"
160 PRINT "ESTIMATES AS YOU WISH

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LIST

TURNING THE PAGES with Dave Laden.

BYTE -- SEPTEMBER 1980

Editorial: Intellectual Ethics and Software An Inquiry Into the Nature of Ideas, Academia, and Commerce by Carl Helmers. Pages 6-10.

Build a Low-Cost, Remote Data-Entry Terminal by Steve Ciarcia. Pages 26-42.

Time Your Tape by John O'Flaherty. Pages 66-74. Article includes an Applesoft program.

Penny Pincher's Joystick Interface by Steven Wexler. Pages 86-90.

Pascal and the Great Race by David A. Mundie. Page 94.

Making 6502 Indirect Subroutine Calls Efficient. Phillip K. Hooper, Page 98. Michael Fallgatter, Page 100.

FCC Regulation of Personal- and Home-Computing Devices by Terry G. Mahn. Pages 180-190.

Relocating Assemblers and Linking Loaders by Ottmar E. Borchardt. Pages 194-202. The author uses the 6502 for examples.

Education Forum: New Cultures from New Technologies by Seymour Papert. Pages 230-240.

6502 Loop Control by Gordon Campbell. Page 322.

Notes on Absolute Location Interfaces to Apple Pascal by Daniel D. Sokol. Pages 324-325.

CREATIVE COMPUTING - AUGUST 1980

VisiCalc: Reason Enough For Owning A Computer by Doug Green. Pages 26-28.

Asteroids In Space by Chris Vogeli. Page 30. A program for the Apple is reviewed.

Computer Bismarck by Randy Heuer. Pages 31-34. A program for the Apple is reviewed.

How Not To Be Out Of Sorts Part 1: Insertion Sort by Albert Nijenhuis. Pages 35-37.

A New Look at the Creative Process Part I by Eugene Raudsepp. Pages 46-51.

What to Name the Baby? by Paul Rayner. Page 98. An Applesoft program is included.

Apple Pie by N.B. McBurney II. Pages 110-113. This is a program to generate pie charts on the Apple.

Translating Into Apple Integer Basic by Jordan Mechner. Pages 124-125.

Apple II: Reading Data From Tape by Bruno B. Wolff, Jr. Pages 126-127.

Apple-Cart by Chuck Carpenter. Pages 148-152. This months column is devoted mostly to the Apple III.

INTERFACE AGE -- SEPTEMBER 1980

Al Baker's Game Corner. Pages 18-22. Two Applesoft programs, one for plotting parabolas, and the other for plotting ellipses.

Learning with Micros by Louis E. Frenzel, Jr. Page 30.

Fast Simulation of Nerve Potentials by Dr. James E. Randall. Pages 70-74 and 125. An Applesoft program is included.

Beating the System by Mark J. Borgerson. Pages 76-78 and 126-128. This Apple Pascal program gives you a hex dump of Pascal files and allows you to modify them.

Do's & Dont's in Software Selection by Carl Heintz. Pages 104-108.

MICRO -- AUGUST 1980

Better Utilization of APPLE Computer Renumber and Merge Program by Frank D. Chipchase. Pages 17-18.

Variable Lister by Ray Cadmus. Page 19.

Solar System Simulation with or without an APPLE II by David A. Partyka. Pages 33-39.

Applesoft Floating Point Routines by R.M. Mottola. Pages 53-55.

Business Dollars and Sense in Applesoft by Barton M. Bauers, Jr. Pages 65-67.

The MICRO Software Catalog: XXIII. Pages 71-73.

6502 Bibliography: Part XXIII by Dr. William R. Dial. Pages 75-77.

ON COMPUTING -- FALL 1980

The Lawrence Hall of Science: Teaching Personal Computing in the Hills of Berkeley by Chris Morgan. Pages 12-19.

An Apple in the Oil Field: Computer Power Where You Need It by Phil Roybal. Pages 20-26.

Book Review: Introduction to Pascal review by Paul L. Rogers. Page 34.

Software in the 80's by Chris Morgan. Pages 36-39.

The Perils of Pioneering in the Software Industry by Alan M. Meyers. Pages 40-43.

Special-Interest Microcomputing Publications by William L. Colsher. Pages 60-67.

PERSONAL COMPUTING -- SEPTEMBER 1980

Psychology, Education and Computers by William R. Parks. Pages 16-17.

Will It Fit? Estimating Program Size by David Lubar. Pages 47-48.

Computer Networking: Promise and Peril by Ken Mazur. Pages 58-59 and 62-63.

Thats all for this month, keep turning those pages or you might miss something!!!

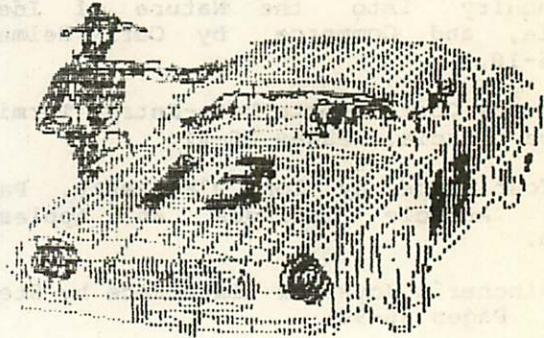
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Coming - NEXT MONTH

GRAPHIC ART - BY
TOM EDWARDS
EXAMPLE BELOW



RACER 13

... of ...
... by Terry G. Mann.
Pages 100-102.

... and linking loaders by
... Pages 104-107.
... for examples.

... from New
... by ...
Pages 110-112.

... by Gordon Campbell.
Page 113.

... to
... by Daniel D. Sokol.
Pages 114-115.

... - AUGUST 1980
... for Owning a Computer
... by Doug Green. Pages 116-117.

... in Space by Chris Vogel.
Page 118.
... for the Apple is reviewed.

... by Randy Bauer.
Pages 119-120.
... for the Apple is reviewed.

... part 1 by
... Pages 121-122.

... by Paul Rayner.
Page 123.
... program is included.

... by M.B. McBurney II.
Pages 124-125.
... program to generate the
... on the Apple.